**IAEA ATLAS Initiative – Project Group 2**

**Legal and Regulatory Framework**

**WNTI Non-Paper: Facilitating the International Deployment of Civil Nuclear Technologies at Sea**

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**Date:** November 2026

## 1. Introduction

WNTI welcomes the establishment of the IAEA's ATLAS initiative and the opportunity to contribute to Project Group 2 (PG2).

WNTI's principal contribution is an international industry perspective on the practical movement of nuclear and radioactive materials, the implementation of regulatory requirements and the challenges arising when activities cross national and modal boundaries.

Floating nuclear power plants (FNPPs), civil nuclear-powered ships and other maritime applications of nuclear technologies present considerable opportunities, but their successful deployment will require more than technically sound designs and robust safety standards.

The central challenge is ensuring that international and national legal and regulatory frameworks operate together coherently, consistently and practically.

Experience from the international transport of radioactive materials demonstrates that even compliant shipments can encounter significant barriers arising from regulatory uncertainty, inconsistent implementation, unclear responsibilities and reluctance among transport operators.

These challenges could become substantially more complex for maritime nuclear technologies.

## 2. Principal Legal and Regulatory Challenges

WNTI identifies five interconnected areas requiring particular attention.

### I. Legal classification and applicability

FNPPs and nuclear-powered ships may fall within different legal frameworks depending on their design, location, operational status and intended purpose.

PG2 should clarify the circumstances in which an installation is treated as a ship, a nuclear installation, a transportable nuclear power plant or a combination of these.

Particular attention should be given to the interface between IAEA transport safety requirements, nuclear installation requirements and international maritime instruments.

## II. Jurisdiction and regulatory responsibility

International deployment may involve construction, fuelling, transport, operation, maintenance and decommissioning across several jurisdictions.

The respective responsibilities of flag States, coastal States, port States, host States and nuclear regulatory authorities must be clear throughout the lifecycle.

The application of the United Nations Convention on the Law of the Sea (UNCLOS) must also be examined where nuclear material passes through the jurisdiction of different States. This examination must clarify how rights to freedom of navigation align with State obligations to ensure the safety and security of nuclear material.

The international dimension should be examined relating to:

- Differing national licensing approaches.
- Regulatory recognition and mutual acceptance as a potential enabler.
- Transfer of regulatory responsibility when installations move between jurisdictions.

**WNTI recommends developing a practical matrix identifying applicable regulatory responsibilities and approval requirements at each stage.**

## III. Environmental protection and ecological standards

Environmental regulation and public acceptance introduce further complexity for floating or coastal nuclear installations operating in sensitive marine environments or moving between jurisdictions. Key questions include how affected communities should be consulted and which State is responsible for the necessary environmental assessments and approvals.

The application of existing frameworks also requires clarification. OSPAR seeks to prevent and progressively reduce radioactive discharges into the North-East Atlantic, while the London Convention and Protocol regulate the dumping of wastes at sea. PG2 should examine how these apply to floating and coastal nuclear power installations, including the distinction between prohibited dumping, authorised operational discharges and accidental releases.


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Transboundary effects must also be considered. The Espoo Convention provides for environmental assessment, notification and public participation where nuclear activities may affect neighbouring States. Within the EU, Article 37 of the Euratom Treaty addresses plans for radioactive waste disposal that could contaminate another Member State.

PG2 should clarify how consultation, assessment, discharge authorisation and transboundary notification requirements apply throughout deployment, operation, movement and decommissioning, maintaining environmental safeguards while reducing uncertainty, duplication and conflicting requirements.

### IV. Liability, insurance and financial security

Uncertainty over the interaction between nuclear liability conventions, maritime arrangements and national legislation could create regulatory gaps and become a significant obstacle to deployment.

PG2 should clarify liability and responsibility across borders, including the identification of the responsible operator, applicable liability regime, regulatory oversight, emergency response obligations, financial security requirements and arrangements for installations moving between jurisdictions.

### V. International movement and port access

The practical ability to move and deploy installations deserves explicit attention.

Questions concerning advance notification, port entry, emergency access, regulatory approvals and the recognition of existing assessments could become significant operational barriers.

WNTI recommends early engagement with maritime administrations, competent authorities, port operators and industry to ensure that regulatory requirements are transparent, proportionate and capable of implementation.

## 3. Parallel International Initiatives: The Need for Coordination

The potential for overlapping legal and regulatory frameworks is already reflected in the number of international initiatives examining related challenges.

Several organisations and programmes are addressing aspects of maritime nuclear deployment, regulatory harmonisation or international transport in parallel.

These include:

| Organisation or initiative | Relevant activity |
|---|---|
| **IAEA ATLAS** | Coordinating international work on legal, regulatory, safety, security and other aspects of nuclear technologies at sea |
| **IMO – Nuclear Code and SOLAS revision** | Updating the international safety framework for nuclear-powered merchant ships, with adoption targeted for 2030. |
| **IAEA SMR Platform** | Coordinating work on small modular reactors, including transportable and floating nuclear power plants. |
| **IAEA TRANSSC and its working group on transportable nuclear power plants** | Examining the application of transport safety requirements to new reactor technologies and fuelled modules. |
| **IAEA Nuclear Harmonization and Standardization Initiative (NHSI)** | Developing approaches to regulatory cooperation, standardisation and the use of existing regulatory assessments. |
| **SMR Regulators' Forum** | Developing common regulatory positions and supporting cooperation between national nuclear regulators. |
| **OECD Nuclear Energy Agency (NEA)** | Examining regulatory and safety challenges associated with SMRs, including transportable and floating installations. |
| **European Commission and European nuclear regulators** | Developing approaches to SMR regulatory cooperation and a policy framework for nuclear propulsion in commercial shipping. |
| **Industry-led maritime nuclear projects** | Examining practical licensing, port access and deployment arrangements, including work involving American Bureau of Shipping (ABS), Bureau Veritas (BV), Lloyd's Register, Core Power, shipping companies and port authorities. |

These initiatives do not necessarily duplicate one another: they have different mandates, participants and objectives. Nevertheless, their activities intersect in areas such as licensing, safety assessment, regulatory recognition, international movement and operational approval.

**WNTI proposes that ATLAS should seek to connect, coordinate and build upon existing work rather than create additional parallel structures or duplicate established programmes.**

PG2 could make an important contribution by identifying which organisations are already addressing particular questions, where their responsibilities intersect and which issues remain unresolved.

This approach would strengthen coordination between the IAEA, IMO, national regulators and industry while making more effective use of existing expertise and resources.

### 4. Proposed Priorities for PG2

WNTI recommends that PG2 focus on five practical outputs:

1. **A regulatory landscape and responsibilities map**, identifying relevant international instruments, existing initiatives, responsible organisations and areas of overlap or uncertainty.
2. **A lifecycle regulatory framework**, clarifying applicable requirements and responsibilities from construction and fuelling through transport, deployment, operation, relocation and decommissioning.
3. **Guidance on international movement and port access**, including approvals, notifications, environmental requirements, emergency arrangements and engagement with relevant authorities.
4. **An assessment of regulatory gaps and inconsistencies**, distinguishing between matters requiring clarification, improved coordination or potential development of new guidance.
5. **Practical case studies**, testing proposed approaches against realistic scenarios involving FNPP deployment, international voyages by nuclear-powered ships and relocation of nuclear installations.

These outputs should draw upon existing international work and be developed in close coordination with other ATLAS Project Groups and relevant organisations.


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**5. WNTI Contribution and Conclusion**

WNTI would welcome the opportunity to contribute its experience of international transport regulation, operational barriers, competent authority engagement and initiatives addressing denials and delays of shipment.

It could also support the development of practical case studies and facilitate engagement with relevant industry and transport stakeholders.

WNTI believes that the success of ATLAS should ultimately be judged not only by the quality of its analysis and recommendations, but by whether these contribute to a coherent and workable international regulatory environment.

**The objective should be to ensure that maritime nuclear technologies can be transported, deployed and operated safely, securely and with appropriate environmental protection, without unnecessary regulatory duplication, uncertainty or barriers to international movement.**

**-Ends-**

**Annex 1 - Principal Conventions and International Instruments**

- United Nations Convention on the Law of the Sea (UNCLOS)
- International Convention for the Safety of Life at Sea (SOLAS)
- International Convention for the Prevention of Pollution from Ships (MARPOL)
- Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) and the 1996 London Protocol
- Treaty establishing the European Atomic Energy Community, Article 37 (Euratom)
- Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment
- Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) and its Protocol on Strategic Environmental Assessment
- Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)
- Vienna Convention on Civil Liability for Nuclear Damage
- Paris Convention on Third Party Liability in the Field of Nuclear Energy
- Convention on Supplementary Compensation for Nuclear Damage (CSC)


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