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# Legal Procedures and Implications of Introducing Nuclear-Powered Submarines: U.S. Domestic Law and International Law Perspectives

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## 1. Introduction: The Geopolitical Context

The introduction of nuclear-powered submarines (SSNs) to South Korea gained significant momentum following the October 2025 summit between South Korean President Lee Jae Myung and U.S. President Donald Trump. The resulting **Joint Fact Sheet**, released on November 14, 2025, explicitly stated that the United States approved South Korea′s construction of nuclear-powered attack submarines and committed to working closely on requirements, including fuel sourcing.

While this represents a historic breakthrough, the document leaves some questions unanswered. It lacks specifics on construction locations, legal frameworks, or guarantees of compliance with international law. This brief argues that the approval is merely the starting point of a complex process involving U.S. executive determinations, congressional support, and International Atomic Energy Agency (IAEA) negotiations.

## 2. U.S. Domestic Law: Section 123 vs. Section 91

A critical hurdle in Korea-U.S. nuclear cooperation is the strict legal distinction between “peaceful” and “military” uses of nuclear energy.

- **Section 123 (Peaceful Use):** Currently, the ROK-U.S. Nuclear Cooperation Agreement is governed by Section 123 of the U.S. Atomic Energy Act (AEA). This framework is strictly limited to research, medical, and power generation purposes. It explicitly prohibits nuclear materials from being used for any military purpose.

- **Section 91 (Military Use):** To introduce SSNs, South Korea must move beyond the Section 123 framework and utilize **Section 91(c)**. This provision allows the U.S. President to authorize the transfer of nuclear materials and utilization facilities for military purposes, provided it contributes to "common defense and security" and does not pose an "unreasonable risk."

National Security Advisor Wi Sung-lac has suggested that South Korea might follow the legal path blazed by the AUKUS (Australia, the United Kingdom, the United States.) partnership, which utilized Section 91 exceptions for military nuclear cooperation.

## 3. Comparative Precedents: AUKUS and France-Brazil

This brief analyzes two primary precedents to chart a course for South Korea:

### A. The AUKUS Model (The Roadmap for Korea)

Australia is the first non-nuclear weapon state (NNWS) to receive SSN technology and highly enriched uranium (HEU) from a nuclear weapon state (NWS).

- **U.S. Legislation**: The U.S. enacted the *AUKUS Submarine Transfer Authorization Act* (within the FY2024 NDAA) to specifically authorize the transfer of Virginia-class submarines under Section 91.
- **Naval Nuclear Propulsion Cooperation Agreement:** Australia signed a specific agreement for sharing naval nuclear technology, separate from civil nuclear pacts.
- **Safeguards:** To address non-proliferation concerns, Australia emphasized that it would import "complete, welded nuclear power units" from the United States or the United Kingdom, making it physically impossible to extract fuel for weapons.

### B. The France-Brazil Model

Unlike AUKUS, France provides Brazil with hull design and non-nuclear systems, while Brazil uses its own domestically developed reactors and fuel. Thus, there is no international transfer of nuclear material. However, Brazil still faces the same international legal requirement to negotiate safeguards with the IAEA for "non-proscribed military activities."

## 4. International Law: The IAEA and Article 14

Under the Non-Proliferation Treaty (NPT) and Comprehensive Safeguards Agreements (CSA), all nuclear material in a non-nuclear weapon state must be under IAEA safeguards. However, **Article 14** of the CSA allows for a temporary suspension of these safeguards if the nuclear material is used for "non-proscribed military activities," such as submarine propulsion.

To trigger this, South Korea must negotiate a specific **"Arrangement"** with the IAEA. The central challenge is verifying that the fuel—which is hidden inside a classified submarine—is not being diverted for weapons. While Korea has a strong record of transparency and has signed the **Additional Protocol**, its plan to build reactors domestically (rather than importing sealed units like Australia) may increase proliferation concerns.

## 5. Proposed Four-Step Implementation Strategy

Based on these legal realities, this brief proposes a four-step roadmap for South Korea:

1. **Summit Agreement (Completed):** The 2025 Joint Fact Sheet serves as the initial political agreement.
2. **U.S. Presidential Determination**: The U.S. President must officially determine that providing SSN technology to Korea promotes "common defense and security."
3. **New Bilateral Agreement:** Korea and the United States must sign a dedicated **"ROK-U.S. Naval Nuclear Propulsion Cooperation Agreement"** to provide the legal basis for technology transfer and security protocols.
4. **IAEA Article 14 Arrangement:** Korea must negotiate with the IAEA to exempt submarine fuel from standard safeguards while maintaining a high level of transparency.

## 6. Major Challenges and Strategic Recommendations

This brief concludes with several warnings and recommendations for the South Korean government:

- **U.S. Congressional Scrutiny**: The U.S. Congress is traditionally wary of nuclear proliferation. While Republicans currently hold a majority, the midterm elections may shift power to Democrats, who often take a harder line on non-proliferation. Korea must frame its SSNs not only as a tool for North Korean deterrence but also as a critical asset for the U.S. Indo-Pacific strategy to counter China.
- **Fuel Selection:** Most U.S. SSNs use weapons-grade HEU (over 90% enrichment). To alleviate international suspicion, Korea should consider using **low-enriched uranium (LEU)** or **high-assay low-enriched uranium (HALEU)** (under 20%), even if it reduces fuel efficiency.

- **Institutional Stability:** Relying solely on the Joint Fact Sheet is insufficient, as U.S. policy can change. Korea must institutionalize the agreement through a formal treaty to ensure that the project survives shifts in U.S. administrations.
- **Transparency Measures:** Korea should proactively accept enhanced IAEA measures, such as unannounced inspections of facilities, to demonstrate its firm commitment to non-proliferation.

## 7. Conclusion

The approval to build nuclear-powered submarines is a significant achievement, but the path to actual deployment is fraught with domestic and international legal hurdles. Success will require a sophisticated diplomatic strategy that aligns South Korea's maritime capabilities with U.S. strategic interests while maintaining an impeccable record of nuclear transparency.

## About the Author

**Dr. Shim Sangmin** is senior research fellow at the Asan Institute for Policy Studies. Prior to his current position he worked as professor (non-tenured) at the Graduate School of Green Growth and Sustainability at KAIST from 2023 to 2025, as research fellow at the Asan Institute for Policy Studies from 2022 to 2023, as visiting research fellow at the Sejong Institute from 2021 to 2022 and as assistant professor of international law at the Korea National Diplomatic Academy (KNDA) from 2016 to 2021. He also served as visiting scholar at the Environmental Law Institute (ELI), a private think-tank that conducts research on issues of international environmental law, from 2015 to 2016. Dr. Shim's legal educational background includes a J.S.D. degree at Stanford University, which was awarded in 2015 with his dissertation entitled, "Structuring Climate Policy in the Korean Electricity Sector: Politics, Institutions and Mitigative Capacity-Building." He also holds a J.S.M degree at the same university, and is a graduate of Seoul National University. (B.A. & M.A. in law) An expert on international environmental law and policy, Dr. Shim is especially interested in climate change law and policy. His academic interests extend to conventional international legal issues as well, such as peace and security in the United Nations system, law of the sea, nuclear non-proliferation, human rights in North Korea and state responsibility. He also covers a variety of non-traditional security issues – energy, environmental, economic and human security.

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