

ABSTRACT

International Leasing of Sensitive Nuclear Fuel Cycle Sites To Provide Enduring Assurance of Peaceful Use

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This article describes establishment of a new freestanding voluntary "International Nuclear Fuel Cycle Association" (INFCA) alongside the IAEA to remedy known gaps in the prevailing nonproliferation regime, which include:

- low-confidence or untimely capability for detecting diversion from bulk-handling facilities;
- the "legal right" of withdrawal from NPT and IAEA safeguards and diversion to military purposes of nuclear technology and materials previously declared for peaceful use;
- small gas centrifuge and laser enrichment plants that can be hidden from inspectors and national technical means of surveillance for a considerable period;
- national fuel cycle programs that can provide cover for importation and domestic manufacture of sensitive nuclear technologies for military purposes; and
- NPT-compliant "virtual weapon states," a logical culmination of fully vindicating national Article IV "rights" to nuclear fuel cycle technology.

Current and future civil fuel cycle capabilities under autonomous national control are also a formidable barrier to the declared intentions of many states to eliminate global nuclear weapon stockpiles. INFCA would remedy these gaps by ensuring that all enrichment (and later reprocessing) activities are conducted within long-term "Internationally-Secured Leased Areas" (ISLAs) with secure perimeters and portals controlled by the INFCA.

ISLA nonproliferation assurance contracts would endure for entire life-cycle of a civil nuclear fuel cycle facility, through the end of decommissioning, even in the event a state withdraws from the NPT. INFCA would be ceded the necessary authorities to establish, at or inside the ISLA site boundary, the access controls and procedures required for INFCA and IAEA to carry out their respective nonproliferation assurance tasks. INFCA would also certify legitimate producers and track certified end-uses of critical components for enrichment and reprocessing.

Member states would continue to exercise national licensing authority over fuel cycle activities conducted within the ISLA. On-site physical security would continue to be a shared responsibility of the member-state and commercial operators, in states where this is the common practice, with INFCA ceded the authority to implement emergency site security responses in contingencies.

Customers would order enrichment services from commercial facility operators within the secure leased areas, just as they do today. INFCA would ensure that all financially-solvent, IAEA-compliant customers have an available source of enrichment and fuel-fabrication services. INFCA would manage LEU buffer stocks – so-called "fuel-banks" – and assign fulfillment of orders for nuclear fuel services to members should an improbable market breakdown threaten to strand an INFCA member-in-good standing. All INFCA members would be required to ratify the IAEA's Additional Protocol on inspection of undeclared sites, and to conduct nuclear fuel cycle transactions only with other INFCA member states.

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Proposed Governance Structure for an International Nuclear Fuel Cycle Association

