Proliferation Resistant Uranium Enrichment

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IAEA safeguards are incapable of ensuring timely warning of a diversion of materials or technology from civil uranium enrichment plants.

Principal Concerns

- **the “breakout” scenario**
  a state can withdraw from the NPT and its IAEA safeguards agreement, and divert to military purposes enrichment technology and enriched materials previously declared for peaceful use

- **undeclared facilities**
  small gas centrifuge and laser enrichment plants can be hidden from inspectors and national technical means of surveillance for a considerable period

- **covert acquisition and production**
  national civil enrichment programs can provide cover for the importation and domestic manufacture of enrichment technology for military purposes

Criteria to Guide Improvements

- **Universal application**
  the regime should be universally applied to all enrichment activities in all states
- **Non-discriminatory**
  the regime should be non-discriminatory in its application of safeguards, applying equally to weapon states and non-weapon states
- **Improve IAEA safeguards**
  the proposed improvements should strengthen, rather than diminish, the IAEA's safeguards role and functions
- **No interference with the commercial uranium market**
  the proposed improvements should not interfere with the normal functioning of the international commercial marketplace for nuclear fuel services.

Basic Elements of Our Proposal

- establish a new freestanding "International Nuclear Fuel Agency" (INFA), under the aegis of the United Nations and alongside the IAEA
- conduct all enrichment activities within long-term "Secure Leased Areas" (SLA's) controlled by the INFA
- INFA certifies the legitimate producers and closely tracks the certified end uses of key enrichment technology components

Creation of INFA

- INFA – UN Charter
- IAEA – INFA Agreement
- IAEA – Additional Enrichment Protocol
- INFA – Host State Agreements
- INFA – Facility Agreements

INFA's Mandate

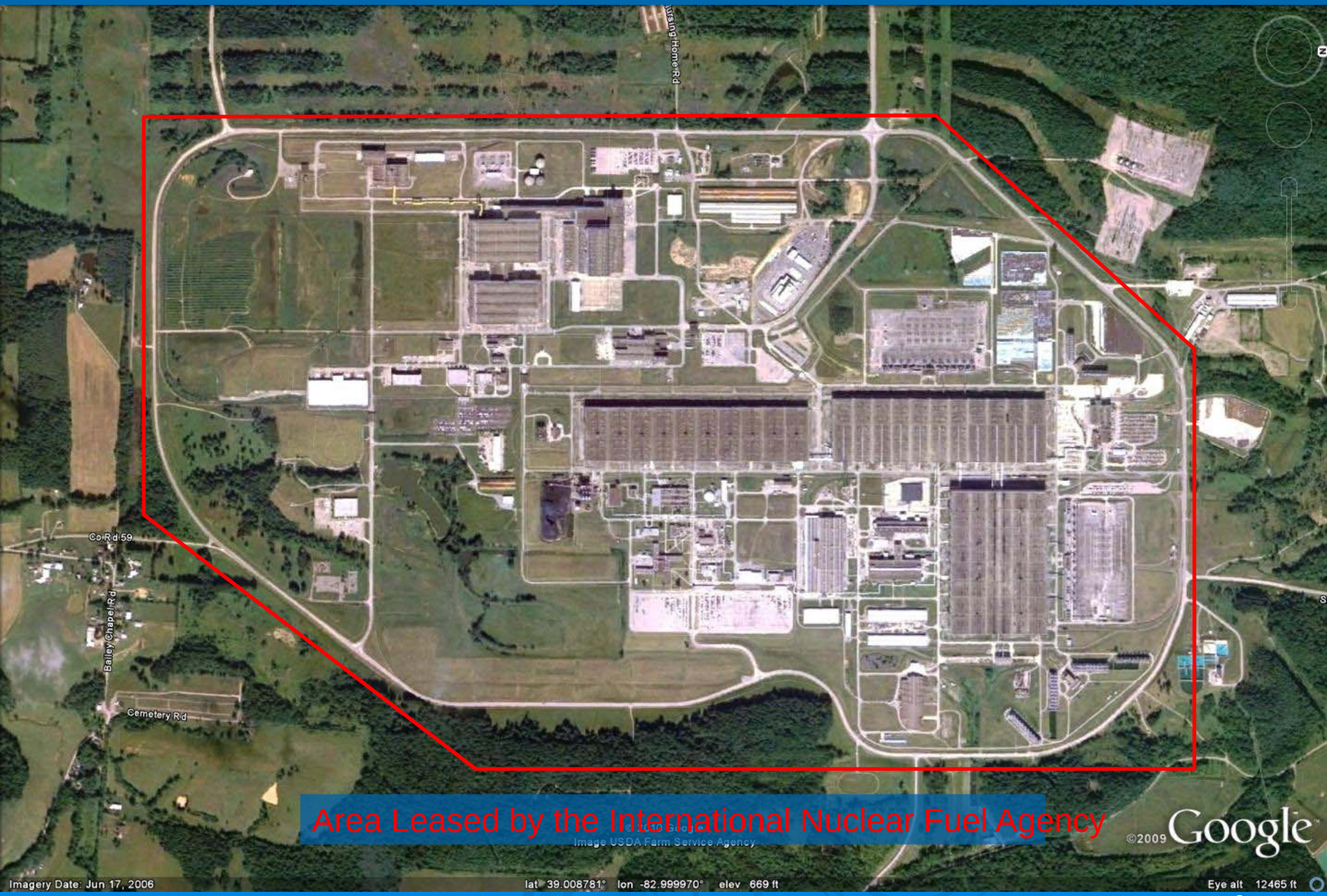
- INFA would certify existing and new uranium enrichment facilities and subsequently other nuclear fuel cycle facilities that may come under INFA's purview
- Certification by INFA would be limited to a determination of whether facilities have been designed and constructed and are being operated in compliance with INFA requirements set forth in its UN charter, INFA agreements with the IAEA, the Additional Enrichment Protocol, and INFA-State and INFA-Facility Agreements
- The INFA-State and INFA-Facility agreements would set forth basic threshold requirements related to ownership, operations, safeguards, physical security, and observance of existing international standards and conventions for protecting environment, safety and health

Establishing SLAs

- INFA, under INFA-State and INFA-Facility Agreements, would be granted the mandate and authority to lease—for one ruble per year—"Secure Leased Areas" (SLAs) from the host nation for the purpose of establishing extra-territorial rights, physical security and other arrangements over all sites where uranium enrichment plants are operational or under construction within the host state.

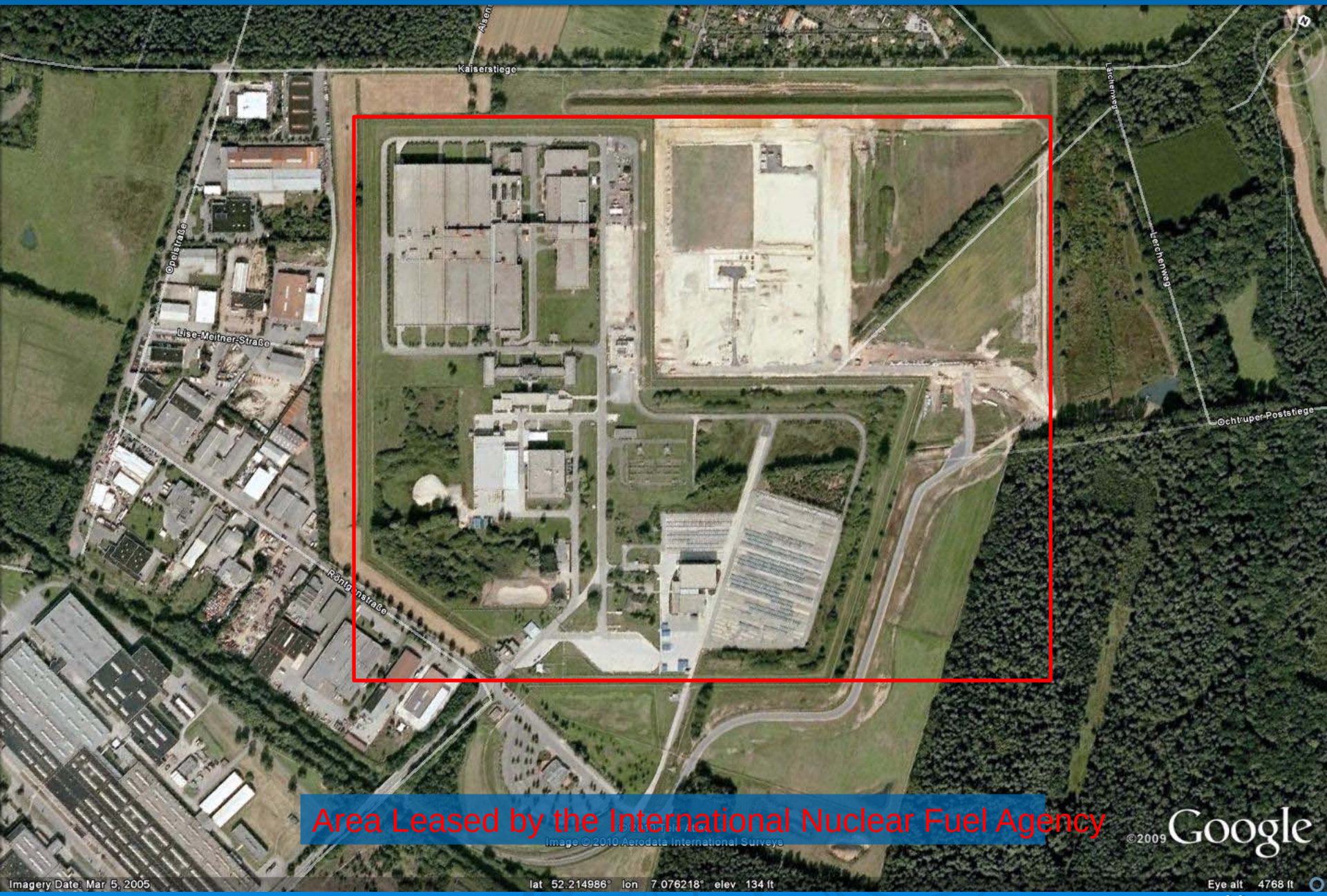
- The INFA-State Lease Agreements would not expire until the covered nuclear facilities have been decommissioned, even should the host-state withdraw from the NPT and its IAEA safeguard agreements.

Portsmouth Gaseous Diffusion (Shut Down) and Gas Centrifuge (Proposed) Plants (United States)



Seversk Gas Centrifuge Uranium Enrichment Plant (Russia)

URENCO Gas Centrifuge Uranium Enrichment Plant (Germany)



Natanz Gas Centrifuge Uranium Enrichment Plant (Iran)

INFA

- INFA would have extra-territorial rights within the SLAs—encompassing all sites where enrichment activities are conducted and where enrichment plants are under construction; but

- would not own the enrichment plants or inhibit the commercial operations of the enrichment facilities; and

IAEA

- would retain responsibility for establishing safeguards requirements, conducting safeguards inspections and enforcing the terms of safeguards agreements at the INFA sites; INFA would not assume or obstruct any IAEA functions

- INFA would have easier and assured access to all of its SLAs and therefore easier access to enrichment facilities

INFA's Responsibility to the IAEA

- to ensure access by IAEA staff to enrichment facilities certified by INFA, facilitate IAEA (or where appropriate EURATOM) monitoring activities, and

- take appropriate actions where facilities were not in compliance with safeguards or security requirements in accordance with requirements set forth in its UN charter, INFA agreements with the IAEA, the Additional Enrichment Protocol, and INFA-State and INFA-Facility Agreements

Additional Enrichment Protocol

States that have not agreed to the proposed Additional Enrichment Protocol (AEP), and the IAEA's existing Additional Protocol would not be eligible to receive fuel cycle services from states that have agreed to the AEP. Similarly, states that adhere to the AEP agree not to accept fuel cycle services from any state that has not agreed to it.

Host States

- Host states would continue to provide licensing authority over enrichment activities conducted within the state
- on-site physical security would continue to be a shared responsibility of the host nation and the commercial operators in states where this is the common practice
- INFA, under the INFA-State Agreement, would be ceded the authority to establish at or inside the SLA perimeter, whatever access controls and procedures are necessary for INFA and the IAEA to carry out their respective monitoring and security tasks

Enforcement of INFA Agreements

INFA-State and INFA-Facility agreements would include predetermined provisions and limitations on permitted activities of the facilities and the host nation in the event of noncompliance with IAEA safeguards or INFA certification requirements

Facility Ownership and Operations

- Capital assets at the INFA sites would be owned by commercial entities, including private, state-owned, quasi-governmental and international enterprises
- Companies operating the facilities, or constructing new facilities, would have to meet INFA certification requirements

Customer Supply

- Customers would order enrichment services from enrichment facility operators just as they do today
- INFA would have ultimate responsibility to ensure that all financially-solvent IAEA-compliant customers have an available source of enrichment services
- INFA would be responsible for managing buffer stocks – so-called “fuel-banks”

Physical Security

- Day-to-day physical security would continue to be the responsibility of the host nation, local law enforcement and facility operators as it is today

- INFA would be ceded authority to establish at or within the SLA perimeter an inner security barrier and portals controlled by INFA and IAEA personnel

Health, Safety and Waste Management

- Health, safety and waste manage requirements would be the responsibility of host nations, as it is today

- INFA would facilitate access to the site by host nation regulators

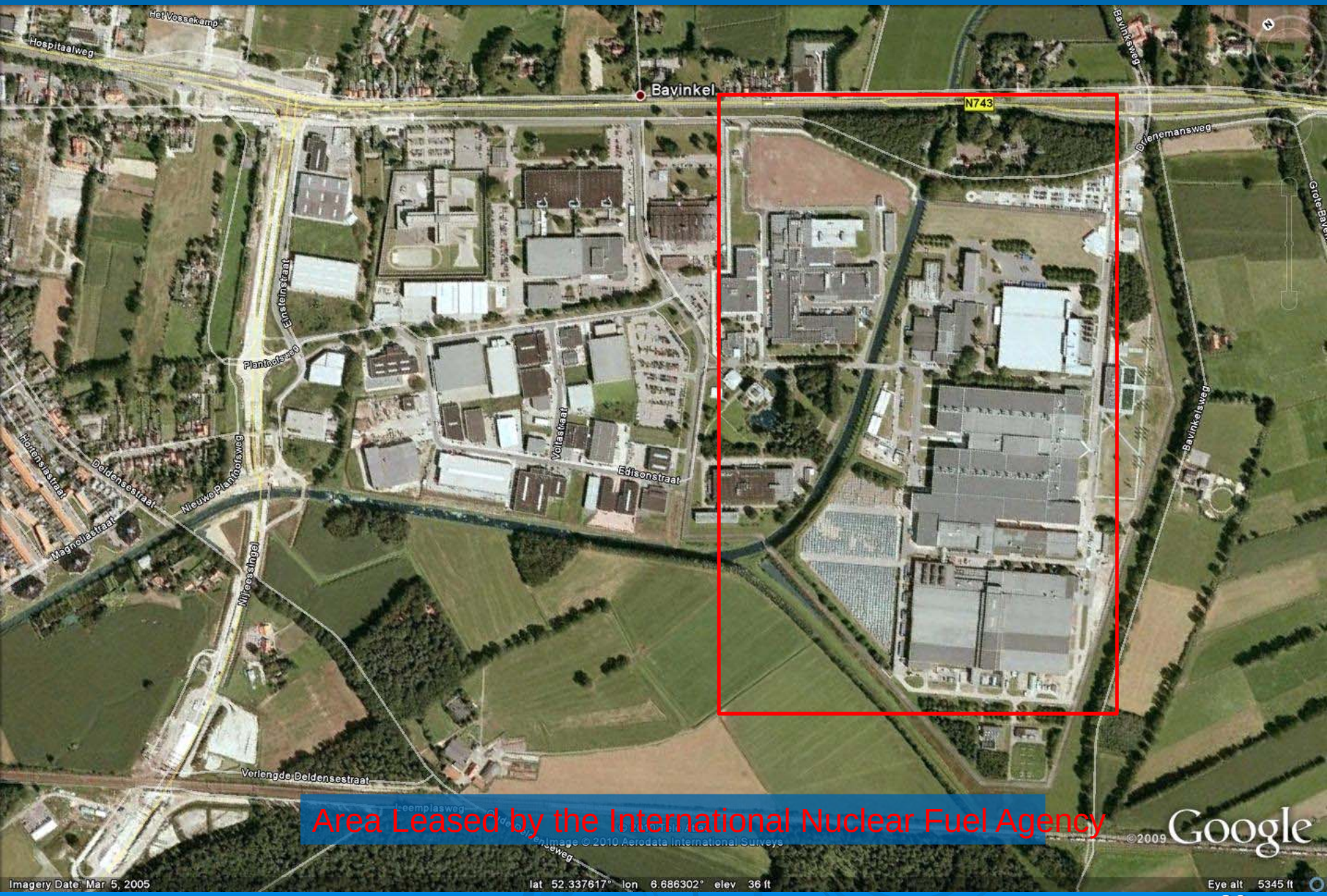
INFA Financing and Economic Issues

- INFA activities could be financed by a modest tariff on the market price of Separative Work Units (SWUs), or an annual facility fee

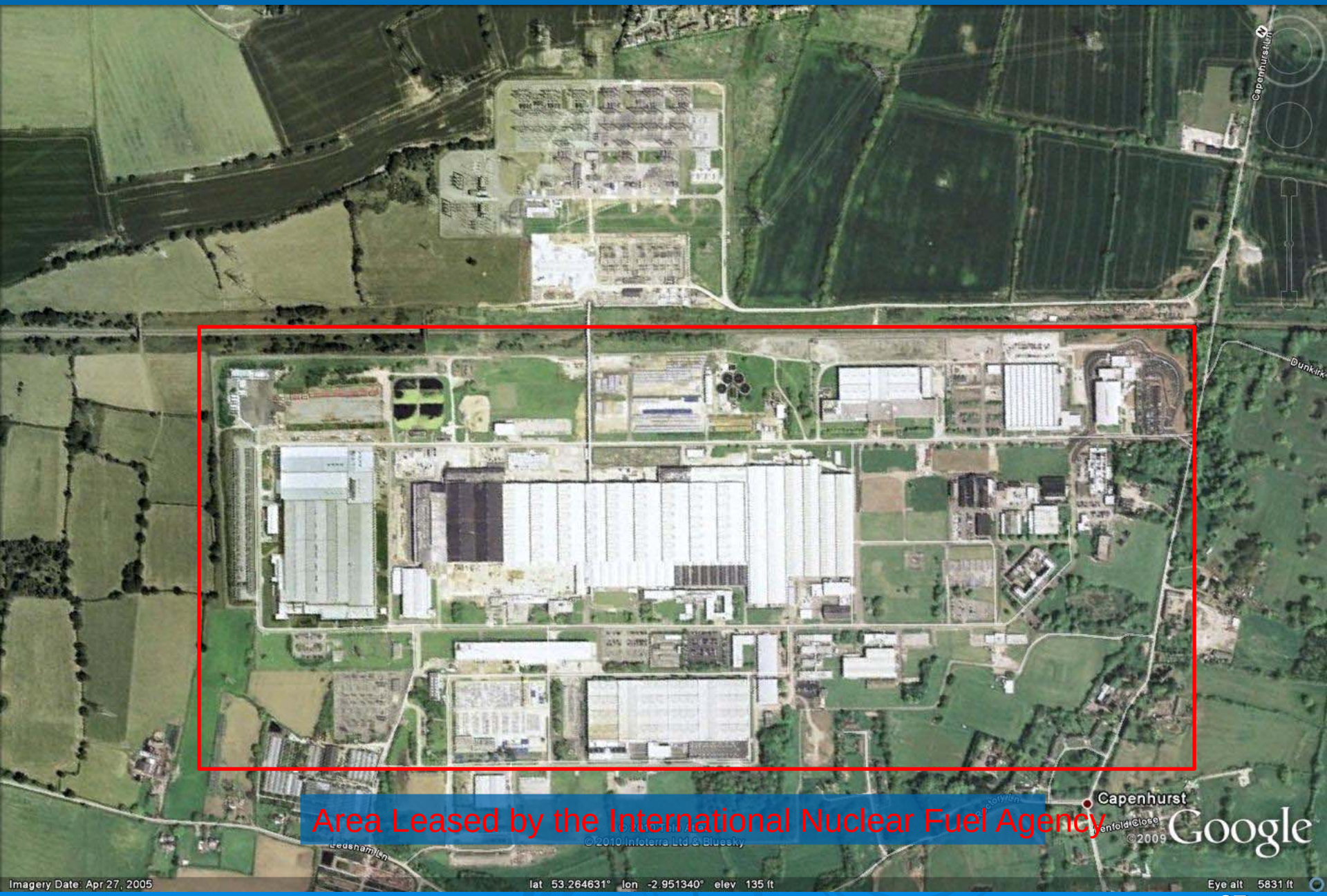
END

EXTRA SLIDES

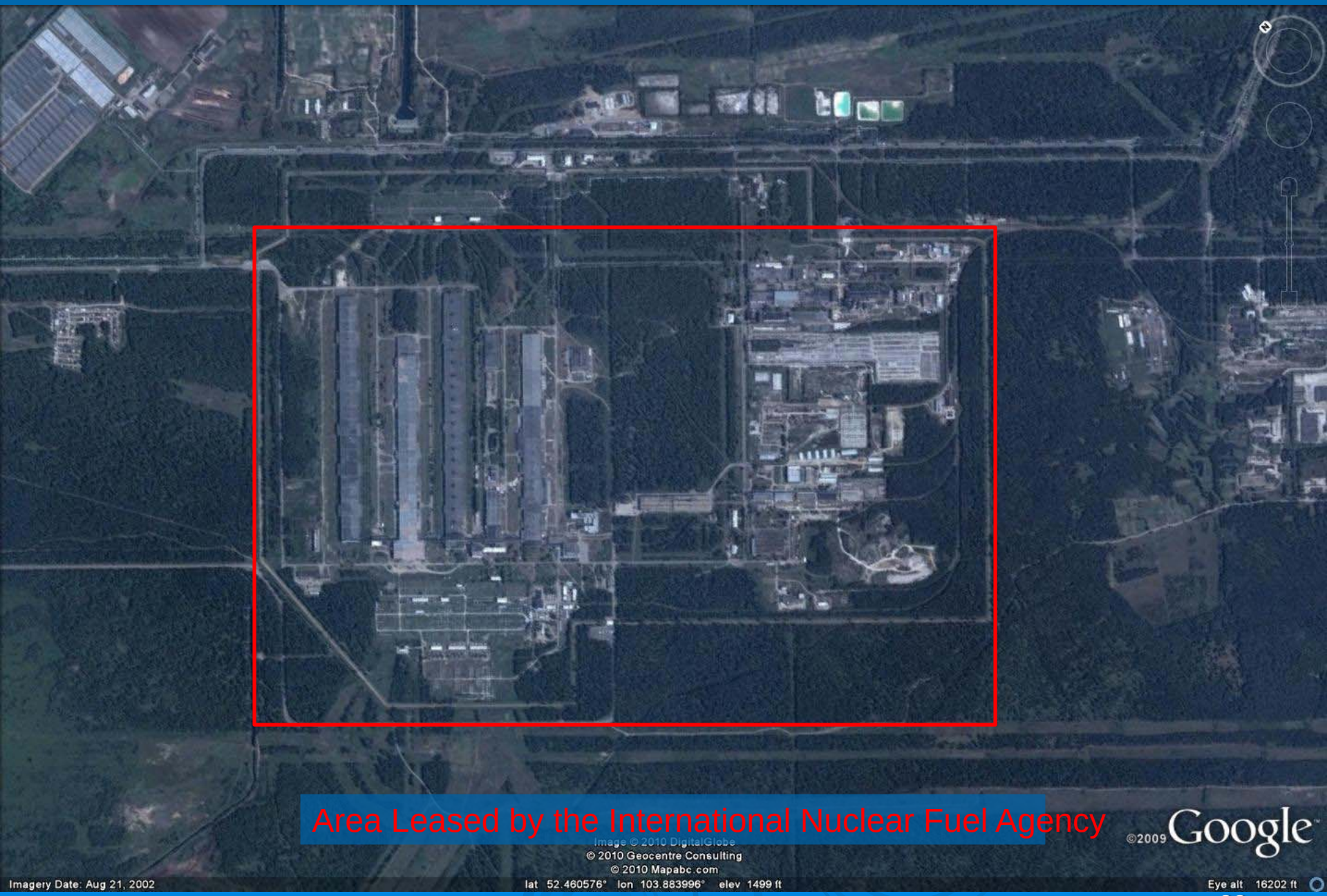
URENCO Enrichment Plant (Netherlands)



URENCO Enrichment Plant (United Kingdom)



Angarsk Gas Centrifuge Plant (Russia)



Zelenogorsk Gas entrifuge Cascade (Russia)

Lanzhou Gaseous Diffusion Uranium Enrichment Plant (China)