

Realizing Nuclear Fuel Assurances: Third Time's the Charm

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New Approaches to the Nuclear Fuel Cycle – Assurances of Supply)

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IAEA

International Atomic Energy Agency

MULTILATERAL APPROACHES TO THE NUCLEAR FUEL CYCLE

- *A multilateral approach to the nuclear fuel cycle has the potential to:*
 - *facilitate the continued and expected increased use of nuclear energy for peaceful purposes*
 - *provide the benefits of cost-effectiveness and economies of scale in the use of nuclear technologies*
 - *provide additional assurance to the international community that the sensitive parts of the civilian nuclear fuel cycle are less vulnerable to misuse for non-peaceful purposes*

- *Thus, non-proliferation and economic considerations can coincide and be mutually reinforcing, while providing security of supply of nuclear fuel to consumer States*

MULTILATERAL APPROACHES TO THE NUCLEAR FUEL CYCLE

- *Different States may well develop different policies and solutions to improve their fuel supply security based on geography, resources, technical abilities, historical links, regional economic integration, and other strategic factors*
- *Hence, flexibility would be desirable by taking into account a variety of views of consumer and supplier States*

IAEA SPECIAL EVENT AT GC 50

Chair's summary:

... recent proposals for assuring supplies of uranium-based nuclear fuel can be seen as one stage in a broader, longer-term development of a multilateral framework that could encompass assurance of supply mechanisms for both natural and low enriched uranium and nuclear fuel, as well as spent fuel management

... establishing a fully-developed, multilateral framework that is equitable and accessible to all users of nuclear energy, acting in accordance with agreed nuclear non-proliferation norms, will be a complex endeavour that would likely require a progressively phased approach

www.iaea.org/About/Policy/GC/GC50/SideEvent/report220906.pdf

IAEA SPECIAL EVENT AT GC 50

Chair's summary: Why is an assurance of supply mechanism needed?

- *to address*
 - *the possible consequences of interruptions of supply of nuclear fuel due to political considerations that might dissuade countries from initiating or expanding nuclear power programmes; and*
 - *the vulnerabilities that create incentives for building new national enrichment and reprocessing capabilities*
- *Thus, an assurance of supply mechanism would be envisaged solely as a back-up measure to the operation of the commercial market, for those States that want to make use of it, in order to assure supply in instances of interruption for political reasons*
- ☐ *it would neither be a substitute for the existing commercial market in nuclear fuels, nor would it deal with disruption of supply due to commercial, technical or other non-political reasons*
- ☐ *while an assurance of supply mechanism would be designed to give supply assurance to States that voluntarily choose to rely on international fuel supply, rather than build their own indigenous fuel cycle capabilities, a State availing itself of such a mechanism would not be required to forfeit, or in any way abridge, its rights under Article IV of the NPT, in connection with peaceful uses of nuclear energy*

Recent Proposals

- **Multilateral Approaches to the Nuclear Fuel Cycle – IAEA Expert Group Report (Feb. 2005) INFCIRC/640**
- **17.4 MT of excess HEU for down-blending as LEU fuel and used as part of a fuel bank under an assurance of supply scheme – USA (Sept. 2005) INFCIRC/659**
- **International Nuclear Fuel Cycle Centres - Russian Federation (Jan.2006) INFCIRC/667**
- **Global Nuclear Energy Partnership – USA (Feb.2006)**
- **World Nuclear Association – TENEX, AREVA, URENCO, USEC (May 2006)**
- **Six-Country Proposal for Assured Access to Nuclear Fuel (June 2006) [Japan & UK/(GER/NETH) additions – Sept. 2006]**
- **IAEA Standby Arrangements System for Assurance of Nuclear Fuel Supply (Sept. 2006) INFCIRC/683**
- **IAEA Administered Nuclear Fuel Reserve (NTI offer of US\$ 50m) (Sept.2006)**
- **United Kingdom “Enrichment Bonds” (Sept. 2006) INFCIRC/707**
- **International Uranium Enrichment Centre at Angarsk (Jan and May 2007) INFCIRC/708**
- **Austrian proposal for a International Nuclear Fuel Bank (May 2007) INFCIRC/706**
- **German Proposal for an International Nuclear Fuel Centre (May 2007) INFCIRC/704**
- **Nuclear Fuel Cycle (EU) (June 2007)**

POSSIBLE FRAMEWORK FOR ASSURANCE OF SUPPLY OF NUCLEAR FUEL (MATERIAL & FABRICATION)

- *Level 1: existing global market arrangements*
- *Level 2: back-up commitments provided by suppliers of enrichment and fuel fabrication services and their respective governments that could be utilized when pre-determined conditions and criteria are met following a political supply disruption -- it can be viewed as a combined virtual enrichment and fuel fabrication reserve mechanism*
- *Level 3: a real LEU material reserve, stored in one or several separate locations, and a set of agreements between suppliers of fuel fabrication services and owners of fuel intellectual property rights creating additional fabrication possibilities*

IAEA DIRECTOR GENERAL

Statement to the IAEA Board of Governors (11 June 2007)

We are looking at these proposals and their associated legal, technical, financial and institutional aspects. Trends clearly point to the need for developing a new multilateral framework for the nuclear fuel cycle. And it's clear that an incremental approach, with multiple assurances in place, is the way to move forward

Such a multilateral framework could best be achieved through establishing mechanisms that would:

- assure the supply of fuel for nuclear power plants,*
- over time, convert enrichment and reprocessing facilities from national to multilateral operations, and*
- limit future enrichment and reprocessing to multilateral operations*

Such a framework is voluntary and States are free to choose their fuel options - no rights of States would be compromised



IAEA DIRECTOR GENERAL'S REPORT

Possible New Framework for the Utilization of Nuclear Energy: Options for Assurance of Supply

GOV/INF/2007/11 (13 June 2007) RESTRICTED DISTRIBUTION

- *The report comes at a time when more countries are expressing interest in nuclear power for electricity generation, to help meet rising energy demands*
- *This would mean increased demand for fuel cycle services*
- *It possibly also means an increase in the potential proliferation risks created by the spread of sensitive nuclear technology, such as that used in uranium enrichment and nuclear fuel reprocessing*

IAEA DIRECTOR GENERAL'S REPORT

- *The 90-plus page report addresses proposals put forward over the past two years by various States and institutions*
- *Some proposals call for the creation of an actual or virtual reserve fuel bank of last resort, under IAEA auspices, for the assurance of supply of nuclear fuel -- this bank would operate on the basis of apolitical and non-discriminatory non-proliferation criteria*
- *Others call for conversion of a national facility into an international enrichment centre -- still others call for the construction of a new, multinational enrichment facility under IAEA control*

www.iaea.org/NewsCenter/News/2007/nuclenframework.html

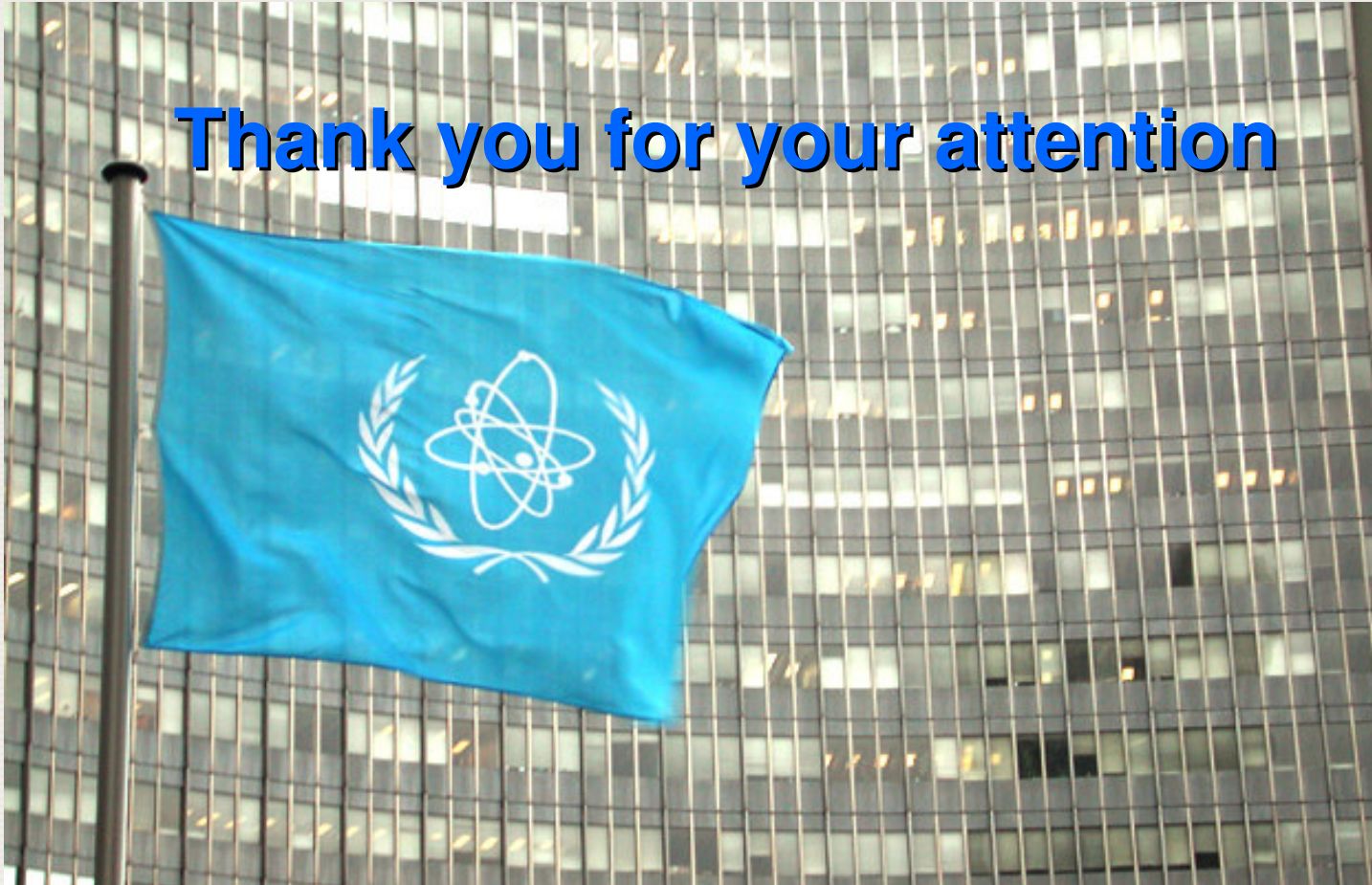
THE WAY FORWARD ...

- *The evolution of a fuel assurance framework, in the first phase, would likely entail a step-by-step approach, requiring the IAEA Secretariat, in consultation with Member States, industry and other expert parties, to present proposals to the IAEA Board of Governors, through the Director General, as they mature and as policy, technical and legal issues are worked out*

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Thank you for your attention



...atoms for peace.

