



SPECIAL EVENT AT THE 50<sup>th</sup> IAEA GENERAL CONFERENCE

*New Framework for the Utilization of Nuclear Energy in the 21st Century:*

*Assurances of Supply and Non-Proliferation*

Vienna: 19 – 21 September 2006

**REPORT OF THE CHAIRMAN OF THE SPECIAL EVENT, MR. CHARLES CURTIS**

**Overview**

At the outset of the 21st century, a discussion is taking place concerning the challenge of meeting increasing global energy demands through a possible expansion of the use of nuclear energy, while at the same time minimizing the proliferation risks created by the further spread of sensitive nuclear technology such as uranium enrichment and plutonium reprocessing. A number of useful suggestions have recently been put forward regarding new approaches to the nuclear fuel cycle, which aim to establish an assured supply of nuclear fuel, as a back-up measure to the commercial market, in certain situations. In general, these proposals are seen to be mutually compatible with, and supportive of, each other.

These 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. In general, it is the sense of the Event Chairman that the following could be a possible way forward:

1. a first – near term – phase focusing on establishing mechanisms for assurances of supply of nuclear fuel for nuclear power plants. Included for examination in the near term phase would be the proposal for an IAEA-owned low enriched uranium (LEU) fuel bank advanced by the Nuclear Threat Initiative (NTI), the proposal of the six major nuclear fuel supplier States (France, Germany, the Netherlands, the Russian Federation, the United Kingdom and the United States of America) and the proposal of the Russian Federation for international nuclear fuel cycle centres. This near term phase examination should also include the proposals of Japan and the United Kingdom, described as “complementary” to the six major fuel-supplier State initiative, and the proposal of the German Foreign Minister (still under development), as well as any other such proposals that might be elaborated in the near term.

2. a second – mid and long term – phase, focusing on the possibilities of evolving a truly comprehensive multilateral system, integrated with commercial market mechanisms and designed to assure supply adequacy and responsible management and disposition of waste. Included for examination in the mid and longer term phase would be proposals for assured access to power reactor components and technologies and the possibilities for developing future enrichment and reprocessing operations on a multilateral basis and ultimately converting existing enrichment and reprocessing facilities from exclusively national to multinational operations.

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.

### **IAEA Special Event**

To facilitate IAEA Member State discussion of recent proposals on assurance of supply mechanisms, with a view to formulating well-structured recommendations regarding the establishment of assurance of supply mechanisms for the consideration of the Board of Governors in 2007, and focusing in the first phase on assurances of supply of nuclear fuel for nuclear power plants, the Director General organized a Special Event entitled "New Framework for the Utilization of Nuclear Energy: Assurances of Supply and Non-Proliferation" during the 50th regular session of the IAEA General Conference, from 19 to 21 September 2006 in Vienna. More than 300 participants from 61 Member States and various industry and other organizations took part in the discussions.

The discussions at the Special Event indicated that, in order to move forward, a number of policy, legal and technical issues remain to be addressed in greater detail. It was not the purpose of the Special Event to judge or rank the feasibility of the current proposals put forward by the Director General, States and non-governmental organizations. Instead, the objective was to constructively identify the possible strengths, weaknesses and opportunities presented, taking advantage of the full range of perspectives represented by the Event attendees.

### **A Way Forward**

May I say from the outset that through the discussions that took place during the Event, great care was taken by all participants to make clear that assurance of supply mechanisms are not intended to alter the right of any State to take its own decision regarding fuel cycle choices. I should also note that a number of participants expressed concerns about implied or intended conditions as may be applied to fuel assurance mechanisms. Finally, I should also add here that the ideas that were generated by those discussions constitute the views of the Event participants. From the discussions during the event, I believe the following issues would benefit from further elaboration.

#### *Why is an assurance of supply mechanism needed?*

Proponents of the establishment of an international back-up mechanism for assured supply of nuclear power reactor fuel assert that it would have a dual-objective, i.e. to address: (a) 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 (b) 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.

The path forward would benefit from a clear consensus judgment of the proliferation risks associated with increased diversification of enrichment and other fuel cycle capacities. Correspondingly, Board of

Governors consideration would benefit from clarification, by each of the proposal sponsors, concerning any explicit or implicit conditionality applicable to eligible beneficiaries of the supply assurance mechanism.

*What is to be assured?*

From the discussions, it was clear that existing proposals dealt with assurances of supply in different but complementary ways. Some of the proposals focused on assuring supplies of natural uranium and low enriched uranium stocks, and still others focused on assurances of the supply of nuclear fuel itself, through the establishment of a series of interlocking arrangements among major suppliers. Furthermore, it was asserted that there was also a complementary need for greater transparency in uranium markets, and that assured access to a broader range of nuclear reactor technology would be important to operators and countries seeking to reduce the risk of interruptions on political grounds.

It was clear that a fully developed assurance of supply mechanism would comprise several of the ideas advanced which, taken as a whole, are considered mutually supportive and consistent. It is equally clear that this evaluation would need to be phased in over time.

*What are the modalities of assurance mechanisms?*

The discussions showed that the modalities of possible fuel assurance mechanisms would also need to be assessed. The possible modalities could include: 1) a virtual reserve<sup>1</sup> of natural and low enriched uranium, based on binding contractual agreements for the supply of such material, plus parallel binding commitments/assurances of fuel fabrication services. It was recognized that while an actual (physical) bank of natural or low enriched uranium could be established, it would be impractical for technical and economic reasons to have an actual bank of nuclear fuel assemblies, given the different types of reactor designs and the many variants of nuclear fuel required for them – in this case, the physical bank of nuclear material would need to be supplemented by parallel binding commitments/assurances of fuel fabrication services. It was recognized that the complexity and details of such modalities requires further consideration.

*What objective criteria would be required?*

The discussions also touched upon the issue of objective criteria, i.e. the conditions governing eligibility for benefiting from assurance mechanisms. Different eligibility criteria have been included in the proposals discussed. Further discussion is required regarding the nature of the non-proliferation undertaking to be considered as the qualifying criterion. It was recognized that in accordance with the IAEA Statute, an Agency-administered assurance mechanism would have to be available to all Member States in a non-discriminatory manner. For any mechanism, whether or not it involves a role for the Agency, certain release criteria would need to be defined and agreed upon, either by the IAEA Board of Governors or the supply consortium. Another aspect requiring further assessment is how best to assure that the application of the release mechanism is demonstrably non-political and based on objective criteria.

*Possible role(s) of the Agency?*

Existing proposals envisage different roles for the Agency, and yet others can be considered. The suggested roles ranged from Agency administration or ownership of natural or low enriched uranium stocks, to administration of virtual stocks and associated parallel fuel fabrication commitments. It was noted that the IAEA Statute was sufficiently broad to allow the Agency to establish its own stocks of nuclear fuel,

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<sup>1</sup> A virtual reserve does not involve a separate physical storage of natural or low enriched uranium, but relies on its availability from suppliers that have agreed to be a part of the fuel assurance mechanism.

purchased from, or donated by, Member States for supply to another Member State against charges determined by the Board; to facilitate the supply of nuclear fuel from one Member State to another; and also to facilitate, inter alia, the provision of enrichment and fuel fabrication services by one Member State to another or to the IAEA. It was noted further that a number of legal arrangements were needed, with variations, depending on whether title to the material concerned passes through the Agency or whether it passes directly from the Supplier State to the Recipient State. These were: (1) an arrangement between the Supplier State and the Agency; to include inter alia consent rights by the Supplier State to export the fuel, licensing and transport requirements as well as the corresponding privileges and immunities; (2) an arrangement between the Recipient State and the Agency to include inter alia the issues listed in Article XI.F of the Statute; (3) the underlying contractual arrangements with nuclear fuel providers, transporters, storage providers, etc.; and, (4) in case the IAEA were to establish an actual bank of nuclear fuel, agreements covering safeguards, security, safety and liability for nuclear damage with the State where the fuel is located as well as transit agreements with neighbouring States. While models of certain legal arrangements already exist, the details would need to be worked out.

#### *Possible role(s) of the nuclear industry?*

The discussions involved the participation of representatives of the nuclear industry and showed that different roles for the nuclear industry can be envisaged or have been proposed and that there are many technical and other issues pertaining to nuclear fuel that need further discussion and consideration. It was recognised that for a well-functioning assurance of supply mechanism, whether for nuclear fuel or for reactors, the nuclear industry would be an essential partner. In this regard, further consultations would be useful with the nuclear industry, particularly on a framework under which the nuclear industry would provide the required goods and services in support of an assurance of supply mechanism, without negative effects on the diversity and stability of the existing commercial market in nuclear fuels.

#### *Other key issues*

The discussions also showed that several other important issues concerning assurance mechanisms require further consideration. These include, for instance, issues related to sustainable financing. Other unresolved key issues are how to structure assurance mechanisms in a manner that does not result in a real or perceived division between nuclear fuel/reactor technology haves and have-nots, and does not undermine existing multilateral, treaty-based nuclear non-proliferation norms or State sovereignty/rights.

#### **Next Steps**

Based on the discussions at the Special Event, it is the sense of the Event Chairman that the issues noted above require further detailed expert examination with a view to formulating well-structured recommendations regarding the establishment of assurance of supply mechanisms.

It is also the sense of the Event Chairman that such recommendations could usefully be structured in terms of policy, legal and technical issues, and that proposals could be formulated by the IAEA Secretariat working in parallel with and drawing upon Member States, nuclear industry and other appropriate expertise. This work would naturally take into account current as well as future proposals and other relevant ideas and studies, and this work can and should be undertaken to allow consideration of these matters by the Board of Governors in 2007. It is likely that these undertakings will evolve into an agenda for near- and mid term actions. But it is important to begin.

I trust that these observations will be conveyed, along with any recommendations in this connection by the Director General, to the Agency's Board of Governors.

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