

**French approach to Nuclear Fuel Supply assurances.  
WNA point of view: Security of Enrichment concept**

**The French approach**

**1. Background elements**

- There are no 100% assurances regarding nuclear fuel supply: A State may at any time invoke political or technical reasons to turn down a request for cooperation in the field of civilian nuclear energy.
- Only a set of different measures may combine to provide credible assurances to a State which fully relies on the international market for its nuclear fuel supply: one measure may fail but others would apply as an alternative.
- Last but not least, nuclear fuel supply primarily rests on the nuclear fuel market. Nuclear fuel supply assurances are a back up solution, to be implemented only in the very few cases where the market mechanisms are at fault.

**2. Basic conditions**

A recipient State could be eligible to nuclear fuel assurances, provided:

- Recipient States choose to obtain supplies on the nuclear fuel market and not to develop fuel cycle sensitive technologies (enrichment and reprocessing) concurrently with building a power reactor capacity.
- Recipient States have adopted and properly implemented the highest standard of non proliferation commitments, would not be the subject of special attention from the IAEA Board of Governors and would duly apply the relevant nuclear safety and security standards.

**3. Therefore credible assurances could be put in place based on the following elements :**

- Assurances should focus on sensitive parts of the nuclear fuel cycle: enrichment as a first step; reprocessing later on.
- Assurances would be applied when and only if market mechanisms have failed and provided the recipient State meets the basic conditions.
- When offering assurances, market rules and conditions should be respected to the fullest extent possible (i.e. competition, confidentiality of information ...).

**4. We propose a set of measures (multi-layer assurances) :**

**4.1 A permanent, multilateral mechanism**, to be established under the aegis of the IAEA, approved by the Board of Governors and/or the General Conference.

- Upon request by a recipient State or a supplier State, only for non commercial reasons:
  - i) The Agency would determine a State's eligibility to the mechanism (non proliferation, nuclear safety and security criteria),
  - ii) The Agency will act as a facilitator to find alternative suppliers
- Additional assurances would be provided through :
  - i) The supplier's State support of the IAEA action, and commitment in principle not to oppose to a solution found in this framework;
  - ii) The enrichment industry's commitment to jointly replace the failing supplier.

#### **4.2 A back-up, last resort solution**

- Building up an international buffer store of enriched uranium, Some States have announced their willingness to make available quantities of enriched uranium for that purpose.

### **Fuel supply assurances: Industry's point of view**

#### **Introduction**

As a commitment from existing enrichers to address concerns relating to security of supply, a reinforced guarantee of supply of enrichment is proposed through arrangements supported by IAEA and Governments.

The proposed supply assurance concept is a guarantee-in-depth approach (similar to defence-in-depth in reactor safety) consisting of three layers of guarantees:

Level I: Basic supply security provided by the existing world market,

Level II: Collective guarantees of the enrichers supported by the Governments/IAEA commitments, and

Level III: Governments stocks of enriched uranium products.

Based on the multi-year performance records of the international SWU market, it is assumed that the supply is initially guaranteed by the existing world enrichment market (Level I or the first layer)

Given a disruption of normal commercial supplies for bilateral political reasons between an enricher and customer states, the guarantees of the remaining enrichers would be invoked (Level II, second layer, guarantees offered by the enrichers)

In case of a highly unlikely event when the enrichers could not meet their back-up supply commitments, the Level III of the guarantee-in-depth approaches i.e. the Government stocks of enriched uranium products may have to be used as a last resort.

## **A multilateral approach by existing enrichers for a guarantee of Supply (Level II)**

The eligibility of any customer to benefit from this reinforced guarantee will depend on a number of prerequisites being met:

- The first prerequisite is that the customer state has made a commitment to forego the development of, or the building or operation of enrichment facilities;
- The second prerequisite for any arrangement is that the IAEA must approve the customer (and the host nation) on the grounds that they remain in full compliance with international safeguards and that there was not considered to be a risk that this position would change in the short to medium term;
- The third prerequisite is that the enrichers are compensated for the cost of providing the Level II guarantee (e.g., dedication of inventory, construction of facilities and actual supply necessary to fulfil this mission)
- The fourth prerequisite would be that the suspension of the base commercial contract must be solely for political reasons, other than any reason based on non-proliferation issues. Commercial issues or capacity planning problems would not trigger the Level II guarantee;
- The fifth prerequisite would be the market neutrality of the fuel supply assurance mechanism. This guarantee mechanism would not modify normal commercial market practices in enrichment; contracts would continue to be negotiated on an individual and confidential basis, but would include a commonly agreed standard clause where it was to apply.

As stated above, the mechanism would apply in the case of a contract suspension for political reasons. The IAEA would intervene, following notification by the concerned enricher or customer, approve the customer's legitimacy given its and its Country's compliance with the above mentioned conditions, certify that the events leading to the contract suspension met its predefined criteria for invoking the supply assurance, and notify the other (remaining) enrichers of the situation.

There would be a commitment from the enrichers to supply if and when the IAEA had triggered the implementation of this Level II backup supply. Each enricher would agree to terms with the IAEA following confirmation from its home government that the back-up arrangement is consistent with applicable laws and regulations.

A standard back-up supply clause would be included in the base commercial contracts between enrichers and customers eligible for such backup. To ensure that no single enricher is unfairly burdened with the responsibility of providing backup supply, the other (remaining) enrichers would then supply the contracted enrichment in equal shares under terms specified between the IAEA and the enrichers.

To ensure that there was support in place at Governmental level such that the other participating enrichers did not breach their own governments' requirements; an international framework would be required:

- There would be a joint commitment of all members of the IAEA not to initiate commercial or financial retaliation measures against the interests of the enrichment suppliers if and when the IAEA had triggered the implementation of this Level II guaranteed supply;
- There would be a commitment of the IAEA to accept the responsibility for determining the eligibility of customers and to trigger the implementation of such a guarantee;
- The strongest commitment by all enrichment supplier countries would be served by an advance consent right to allow the export of enriched uranium to countries in compliance with the above commitments, and acknowledging the role of the IAEA to trigger the implementation of this Level II guaranteed supply;
- The enrichers should be compensated for the costs associated with providing the supply assurance.

The above governmental and IAEA commitments could be covered through an IAEA Information Circular (INFCIRC) or through a Resolution of the IAEA Board of Governors.

P Delaune