

Board of Governors

GOV/2010/67

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Assurance of Supply

Establishment of an IAEA Low Enriched Uranium (LEU) Bank for the Supply of LEU to Member States

Proposed by Member States of the European Union (Belgium, Czech Republic, Denmark, France, Germany, Italy, the Netherlands, Portugal, the United Kingdom), the Republic of Korea, the Russian Federation, the United Arab Emirates and the United States of America¹

A. Introduction

1. On 13 June 2007, the Director General presented to the Board of Governors a report entitled “Possible New Framework for the Utilization of Nuclear Energy: Options for Assurance of Supply of Nuclear Fuel”.²
2. While emphasizing the continued importance of a well functioning international nuclear fuel market, the report noted that States utilizing or considering adding nuclear power to their energy mix need to have confidence in their ability to obtain nuclear fuel in an assured and predictable manner. The report suggested that States could benefit from having options available for assurance of supply of nuclear fuel for their nuclear facilities.

¹ The following Member States not currently on the Board of Governors support the proposal for the establishment of an IAEA LEU Bank: Member States of the European Union (Austria, Bulgaria, Cyprus, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovakia, Slovenia, Spain and Sweden), Kazakhstan, Kuwait and Norway.

² GOV/INF/2007/11.

3. Several proposals have been made regarding various aspects of assured nuclear fuel supply ranging from providing backup supplies through establishing low enriched uranium (LEU) stocks under Agency auspices, to assurances by the nuclear industry and respective governments, to setting up international uranium enrichment centers.³ Among these proposals, the proposal for the establishment of an IAEA Low Enriched Uranium bank (IAEA LEU bank) for the supply of LEU by the Agency to its Member States is at an advanced stage of development now.

4. In June 2009, the Board considered the Report of the Director General on the “Proposal for the Establishment of an IAEA Low Enriched Uranium (LEU) Bank” (GOV/2009/30).

5. In a letter dated 28 October 2010 to the Director General from the Resident Representatives of the Member States of the European Union, Kazakhstan, Norway, the Russian Federation, United Arab Emirates, and the United States of America, the concerned Member States have requested the Director General to include an item concerning the establishment of an IAEA LEU bank on the agenda for the meeting of the Board of Governors of the IAEA starting on 2 December 2010.

B. An IAEA LEU bank

6. It is proposed that the Director General be authorised by the Board to establish an IAEA LEU bank, as laid out in the following paragraphs.

B.1. Background

7. In September 2006, the Nuclear Threat Initiative⁴ (NTI) offered to provide US \$50 million as a contribution to the creation of an LEU bank owned and managed by the Agency on the condition that the Agency takes the necessary actions to approve its establishment and that others commit to contribute an additional \$100 million in funding or LEU of an equivalent value. Every other element of the bank — its structure, its location, the conditions for access — was left to the Agency to decide.⁵ Subsequently, pledges to make up the additional \$100 million were received from Norway (\$5 million), the United States of America (\$49,540,000), the United Arab Emirates (\$10 million), the European Union (up to €25 million, or over \$34 million at the current exchange rate), Kuwait (\$10 million), and Kazakhstan has offered to provide a location for an IAEA LEU bank and bear relevant storage costs.⁶ These pledges have been made without any conditions other than that the

³ At its meeting on 27 November 2009, the Board of Governors adopted a resolution (GOV/2009/81) to accept the request of the Russian Federation to Establish a Reserve of Low Enriched Uranium (LEU) for the Supply of LEU to the IAEA for its Member States (GOV/2009/76, GOV/OR.1258) The Board decided to remain seized of the matter with a view to considering, and eventually adopting at an early date, other complementary proposals to strengthen the assurances of supply of nuclear fuel available to Member States. Other proposals are being further developed by Member States, for example by the United Kingdom (GOV/INF/2009/7).

⁴ The Nuclear Threat Initiative (NTI) is a non-profit, non-governmental organization, based in the United States of America (USA), with a mission to strengthen global security by reducing the risk of use and preventing the spread of, inter alia, nuclear weapons. Since 2001, the Agency has accepted extrabudgetary funds from the NTI, including \$1.1 million to help establish the Agency’s Nuclear Security Fund, and the NTI has since made additional contributions in the area of nuclear security to the Agency and to Member States.

⁵ GOV/INF/2006/14 (19 September 2006).

⁶ INFCIRC/782 (15 January 2010).

pledged funds and services are to be used exclusively for the purpose of establishing and operating an IAEA LEU bank in accordance with the relevant decisions to be made by the Board of Governors.⁷

8. The purpose of an LEU bank under Agency auspices would be to serve as a mechanism of last resort to back up the commercial market without distorting the market, in the event that a Member State's supply of LEU is disrupted and cannot be restored by commercial means and that such State fulfils the eligibility criteria described in paragraph 19 below. The IAEA LEU bank shall be one of a number of mechanisms to establish an international framework for assurance of supply of nuclear fuel that is designed to provide the States with an additional level of assurance for the front end of the fuel cycle.

9. The rights of Member States, including establishing or expanding their own production capacity in the nuclear fuel cycle, shall remain intact and shall not in any way be compromised or diminished by the establishment of international assurance of supply mechanisms. Thus, having the right to receive LEU from the guaranteed supply mechanism shall not require giving up the right to establish or further develop a national fuel cycle or have any impact on it. The additional options for assurance of supply shall be in addition to the rights that exist at present.

B.2. Legal authority of the IAEA to establish an LEU bank

10. The IAEA Statute provides the Agency with the authority to carry out the activities that are necessary to establish and operate an IAEA LEU bank as envisaged in this proposal. Under Article III of the Statute, the Agency is authorized to acquire materials, services and equipment, and establish its own facilities and plants, in order to facilitate the practical application of nuclear energy for peaceful purposes. The legal authority for the receipt, custody and supply of nuclear material is to be found, in particular, in Articles IX and XI of the Statute. Article IX provides that Member States may make available to the Agency such quantities of special fissionable materials as they deem advisable and on such terms as shall be agreed with the Agency. In addition, Article X of the Statute refers to the possibility of Member States making available to the Agency services, equipment and facilities which may be of assistance in fulfilling its objectives and functions. Thus, the provisions of the Statute are sufficiently broad to allow the Agency to establish its own stock of nuclear material purchased from or donated by Member States, under supply arrangements approved by the Board, for supply to another Member State against payment of charges determined by the Agency.⁸

B.3. Description and financial requirements

11. An IAEA LEU bank shall be a physical stock of LEU of standard commercial specification, with U-235 at enrichment levels ranging up to 4.95%. This enrichment would provide the required flexibility for meeting the requirements for subsequent fuel fabrication for most nuclear power reactors.⁹

⁷ A part of contributions pledged to the Secretariat to date (approximately \$55 million from Norway and the USA), has been deposited in a suspense account of the Agency and will remain there during the Board of Governors deliberations on the proposed establishment of an IAEA LEU bank. When the Board approves the establishment of such a bank, the pledged funds would be subject to the approval process set out in the Rules Regarding the Acceptance of Voluntary Contributions of Money to the Agency (GC(45)/RES/9). In accepting the funds, the Secretariat should ensure that the operation of the IAEA LEU bank is in accordance with the Statute and this document (GOV/2010/67).

⁸ Annex 1 of GOV/INF/2007/11 describes the relevant provisions of the IAEA Statute.

⁹ The LEU supplied from the IAEA LEU bank would need to be further processed and fabricated into fuel assemblies before it could be used in a nuclear power reactor. In the future, it is envisaged that the international framework for assurance of supply could also include mechanism(s) to provide for assurance of supply of fuel fabrication.

12. The Agency shall purchase LEU using its standard procedures for open tender from vendors willing and able to provide LEU to the Agency in accordance with the Statute and this document (GOV/2010/67). In procuring LEU for this purpose, care shall be taken to avoid disrupting the price of uranium on the international market.

13. The LEU shall be made available to a Member State at the market prices prevailing at the time of supply and the proceeds shall be utilized to replenish the stock of LEU.

14. The funds pledged thus far, as noted in paragraph 7 above, shall be used to cover the estimated expenses for the operation of the bank in addition to purchase of LEU and its delivery to the LEU bank in a Host State or States. At current market prices, the procurement portion of the funds should cover approximately one complete core for a 1000 MW(e) pressurized water reactor or three reloads for such a reactor. The annual costs for the operation of the IAEA LEU bank to be incurred by the Agency would depend on a number of factors such as management and storage costs.¹⁰ The costs of all requirements associated with operation of the bank shall be covered exclusively either by the pledged contributions mentioned in paragraph 7 above or by additional voluntary contributions of funds and services accepted by the Director General in accordance with paragraph (b) of Recommended Actions of this document (GOV/2010/67, paragraph 22). These costs include, inter alia:

- Costs for purchase of LEU, equipment, facilities, and any other goods and services which are required for establishment, operation, and maintenance of the IAEA LEU bank;
- Costs for the delivery of the LEU to the location of the IAEA LEU bank in a Host State or States;
- Overhead costs for the operation and maintenance of the IAEA LEU bank to be incurred by the Agency, including costs of the staff, costs of meetings and costs of the distribution of information; and
- Costs of fees, dues and taxes which are levied on the Agency with respect of establishment, operation, and maintenance of the IAEA LEU bank and which are not exempted.

If deficiencies are expected in the budget of the IAEA LEU bank while developing the detailed financial plan pursuant to paragraph 17 below, the Director General will notify the Board of Governors of the current financial situation and estimation of future expenses, and recommend action to raise funds to cover such deficiencies.

B.4. Establishment and operation

15. The Agency shall be the owner of the LEU in the IAEA LEU bank and the LEU shall be under its control and in its formal legal possession. The Agency shall be responsible for storing and protecting materials in its possession by ensuring, through any Host State Agreement, that the LEU is safeguarded against natural and other hazards, unauthorized removal or diversion, damage or destruction, including sabotage, and forcible seizure.¹¹ In addition, the Agency through any Host State Agreement shall ensure the application of IAEA safeguards to the LEU in the IAEA LEU bank, as well as the application of the safety standards and measures, and the physical protection measures by

¹⁰ It is estimated that LEU storage would require a few hundred square metres of storage space.

¹¹ See IAEA Statute Article IX.H.

the Host State or States.¹² The IAEA LEU bank shall be located in one or more Member States that is prepared to act as a Host State. For effective operation of the LEU bank, it would be preferable for the Host State or States to have a developed nuclear infrastructure.

16. The Agency, with Board approval, shall conclude with any Host State a Host State Agreement, similar to the present IAEA Headquarters Agreement, that shall provide for the safety and security and appropriate liability coverage of the storage facility and shall afford those privileges and immunities to the Agency that are necessary for the independent operation of the IAEA LEU bank, including the right to transport LEU to and from the IAEA LEU bank as determined by the Agency in accordance with the Statute and the Host State(s) agreement. In addition, if necessary, guaranteed transit arrangements shall be concluded with States neighbouring the Host State.

17. The Director General will develop a detailed financial and administrative plan for the on-going operation of the LEU bank to ensure its effective management and sustainability. The Board will, in accordance with its authorities under the Statute, provide direction on governance and accountability of the LEU bank project.

C. Supply of LEU to a Member State

18. The LEU from the IAEA LEU bank shall be supplied in accordance with the Model Supply Agreement (Attachment 1) to a Member State fulfilling the eligibility criteria set out in paragraph 19, and in accordance with the process of supply of LEU set out in paragraph 20 below.

C.1. Eligibility Criteria

19. LEU from the IAEA LEU bank, as a mechanism of last resort, shall only be supplied to a Member State:

- (a) that is experiencing a supply disruption of LEU to a nuclear power plant due to exceptional circumstances impacting availability and/or transfer and is unable to secure LEU from the commercial market, State-to-State arrangements, or by any other such means;
- (b) with respect to which the Agency has drawn the conclusion in the most recent Safeguards Implementation Report (SIR) that there has been no diversion of declared nuclear material and no issues relating to safeguards implementation in that Member State are under consideration by the Board of Governors;
- (c) that has brought into force a comprehensive safeguards agreement¹³ requiring the application of safeguards to all its peaceful nuclear activities and pursuant to which safeguards are to be applied to the LEU that is supplied through the IAEA LEU bank; and
- (d) for which the Director General has concluded that the Member State fulfils the criteria listed in sub-paragraphs (a), (b) and (c) above.

¹² See IAEA Statute Articles III.A.6, and IX.I and INFCIRC/18/Rev.1.

¹³ With Subsidiary Arrangements.

C.2. Process for Supply of LEU from the IAEA LEU bank

20. The LEU from the IAEA LEU bank shall be supplied in accordance with the following process:

(a) A Member State shall submit a request to the Director General to provide from the IAEA LEU bank a specified amount of LEU at (a) certain level(s) of enrichment for the fabrication of fuel to operate a specified nuclear power plant located in the territory of that Member State, along with an explanation of the circumstances in support of its request, including the reasons why it is unable to secure LEU from the commercial market, State-to-State arrangements, or by any other such means;

(b) The Director General shall assess the nature of the disruption and shall then determine whether the Member State has fulfilled the eligibility criteria established by the Board in paragraph 19 above and could thus receive LEU from the IAEA bank;

(c) The Director General, using the Model Supply Agreement, shall conclude a Supply Agreement with the Member State requesting the LEU from the IAEA LEU bank that shall specify the obligations of the Agency and of the Member State, including all issues relating to the amount and specification of the LEU, liability, and the cost of the LEU (including delivery, transport and insurance costs) that shall be paid in advance to the Agency;

(d) Following the entry into force of the Supply Agreement, the Director General shall authorize the transfer of the requested LEU from the IAEA LEU bank to the Member State; and

(e) The Director General should keep the Board informed throughout the entire process.

21. The Model Supply Agreement is to be approved by the Board of Governors. The Board is also to authorize the Director General to supply LEU from the IAEA LEU bank to Member States that meet the eligibility criteria established by the Board, after conclusion of a Supply Agreement in accordance with the provisions of the said Model Supply Agreement, without the requirement for a case-by-case authorization by the Board.

D. Recommended Action

22. It is recommended that the Board:

(a) establishes an IAEA LEU bank as described in this document (GOV/2010/67);

(b) authorizes the Director General to accept voluntary contributions of funds, services and material offered to the Agency for the establishment and operation of an IAEA LEU bank by the Governments of Member States of the Agency, organizations with which the Agency is in relationship under Article XVI.A of its Statute, and non-governmental sources, in accordance with the approval process set out in the Rules Regarding the Acceptance of Voluntary Contributions of Money to the Agency (GC(45)/RES/9), and the Rules to Govern the Acceptance of Gifts of Services, Equipment and Facilities (INFCIRC/370/Rev.2);

(c) approves the Model Supply Agreement (Attachment 1) as the standard text for Supply Agreements that are to be concluded with Member States for the supply of LEU from the IAEA LEU bank;

- (d) requests the Director General to consider proposals from any Member State interested to act as a Host State for the IAEA LEU bank on the basis foreseen in this document and to negotiate with one or more Member States a draft Host State Agreement, in accordance with the criteria set out in paragraphs 15 and 16 above, for approval by the Board;
- (e) authorizes the Director General to operate the IAEA LEU bank in accordance with relevant provisions of this document (GOV/2010/67) and subject to the conclusion of the Host State Agreement referred to in paragraph (d) above;
- (f) authorizes the Director General to conclude and subsequently implement a Supply Agreement with a Member State for the supply of LEU from the IAEA LEU bank when the Director General concludes that the Member State meets the eligibility criteria set out in this document (GOV/2010/67), without the requirement for a case-by-case authorization by the Board, but with the requirement for the Director General to keep the Board informed of the progress of individual Agreements; and
- (g) requests the Director General to keep the Board informed on the detailed financial and administrative plan for the on-going operation of the LEU bank to ensure its effective management and sustainability.

Attachment 1

**MODEL AGREEMENT BETWEEN THE
INTERNATIONAL ATOMIC ENERGY AGENCY AND THE
GOVERNMENT OF [...] FOR THE SUPPLY OF LOW ENRICHED URANIUM FOR
THE OPERATION OF THE [...] NUCLEAR POWER PLANT IN [...]**

WHEREAS the Government of [...*State*...] Member of the International Atomic Energy Agency (hereinafter referred to as the “Government”) is experiencing a supply disruption of low enriched uranium to a nuclear power plant due to exceptional circumstances impacting availability and/or transfer and is unable to secure such uranium from the commercial market, State-to-State arrangements, or by any other such means, and therefore wishes to secure low enriched uranium for the operation of the [...] nuclear power plant in [...];

WHEREAS the Government has requested the assistance of the International Atomic Energy Agency (hereinafter referred to as the “IAEA”) for this purpose;

WHEREAS the IAEA Statute authorizes the Agency to, inter alia, act as an intermediary for the purpose of securing the performance of fuel cycle services or the supply of nuclear material and that Member States may make available to the Agency such quantities of special fissionable materials as they deem advisable and on such terms as shall be agreed with the Agency;

WHEREAS the Board of Governors of the IAEA has approved on [...] the establishment of an IAEA Low Enriched Uranium (LEU) Bank (hereinafter referred to as the “IAEA LEU bank”) for the supply of LEU to its Member States and also authorized the Director General to conclude a model text of an agreement for the supply of material from the IAEA LEU bank to recipient Member States;

WHEREAS the IAEA has concluded a Host Country Agreement with one or more Host States relating to the storage and operation of the IAEA LEU bank;

WHEREAS the Government has concluded and brought into force on [...] a comprehensive safeguards agreement with the IAEA as contained in document [...];

WHEREAS a conclusion has been drawn in respect of [...*State*...] on the non-diversion of declared nuclear material in the most recent Safeguards Implementation Report and there are currently no issues relating to safeguards implementation regarding [...*State*...] under consideration by the Board of Governors of the IAEA;

WHEREAS the Director General of the IAEA has concluded that [...*State*...] fulfils the eligibility criteria for the release of LEU from the IAEA LEU bank approved by the Board of Governors of the IAEA on [...];

NOW, THEREFORE, the IAEA and the Government hereby agree as follows:

ARTICLE I

1. In accordance with the request of the Government to the Director General, the IAEA shall make available to the Government [...] tonnes of low enriched uranium in the form of uranium hexafluoride (UF₆), from the IAEA LEU bank, with enrichment levels of [...] (hereinafter referred to as the “LEU”) for the operation of the [...] nuclear power plant in [...] (hereinafter referred to as the “power plant”).

2. The supply of the LEU, from the IAEA LEU bank, shall be subject to the provisions of this Agreement, and the transfer of the LEU to the operator of the power plant shall not relieve the Government from complying with its obligations under this Agreement. This Agreement shall apply, mutatis mutandis, to any additional assistance provided by the IAEA to the Government in connection with the supply of the LEU for the power plant.

ARTICLE II

1. The IAEA shall deliver the LEU, from the IAEA LEU bank, to the Government or to its designated representative at [...city,State] and Ownership of the LEU shall transfer to the Government at the same time.

2. The particular terms and conditions for the delivery of the LEU to the Government, including all costs for or connected therewith, a schedule of delivery, shipping instructions and all necessary arrangements for the delivery of the LEU to the Government shall be determined by this Agreement and specific contract(s) to be concluded between the IAEA and the Government or its designated representative, and in accordance with the applicable Host State agreement.

ARTICLE III

1. The supplied LEU shall be used exclusively for fuel fabrication for the generation of energy at the power plant and shall remain at the power plant unless the Government and the IAEA otherwise agree.

2. The supplied LEU and any special fissionable material produced through its use, including subsequent generations of produced special fissionable material, shall be stored or reprocessed or otherwise altered in form or content only on conditions and in facilities agreed to by the Government and the IAEA. The supplied LEU shall not be further enriched, retransferred, or re-exported unless the Government and the IAEA otherwise agree.

3. The supplied LEU and any special fissionable material produced through its use, including subsequent generations of produced special fissionable material, shall be subject to the conditions necessary for the IAEA to implement its obligations to the State(s) from which the LEU originated or in which the LEU was processed, as specified in Annex [X].

4. The supplied LEU may be transferred to [... State...] for the purpose of fuel fabrication and return to the Government.

ARTICLE IV

1. The price of the LEU shall be the cost of the LEU at spot prices published by relevant consulting companies averaged over a period preceding the LEU delivery and the cost shall be sufficient to cover replenishment of the supplied LEU for the IAEA LEU bank.

2. All costs that may arise in connection with the delivery of the LEU by the IAEA to the Government shall be borne by the Government in accordance with this Agreement and the specific contract(s) referred to in Article II (2).

3. The Government shall effect payment for the LEU and all costs that may arise in connection with the delivery of the LEU in full and in advance to the IAEA. The Government shall deposit the payment in a bank account designated by the IAEA.

4. The IAEA shall not assume any financial responsibility in connection with the delivery of the LEU to the Government.

5. The IAEA does not warrant the suitability or fitness of the supplied LEU for any particular use or application and shall not bear any responsibility towards the Government, or any person for any claims arising in connection therewith.

ARTICLE V

1. The Government shall make all necessary arrangements for the timely receipt of the LEU in [...city, ...State,] as referred to in Article II, and for its shipment.

2. The Government shall take all appropriate measures to ensure the safety and security of the LEU during its transport, handling, storage and use.

ARTICLE VI

1. The Government undertakes that the supplied LEU and any special fissionable material produced through its use, including subsequent generations of produced nuclear and special non-nuclear special fissionable material, shall not be used for the manufacture of any nuclear weapon or any nuclear explosive device, or for research on or the development of any nuclear weapon or any nuclear explosive device, or in such a way as to further any military purpose.

2. The safeguards rights and responsibilities of the IAEA provided for in Article XII.A of the Statute of the IAEA are applicable to the LEU under this Agreement and shall be implemented and maintained. The supplied LEU shall be subject to IAEA safeguards pursuant to the Agreement between the [...State...] and the IAEA for the Application of Safeguards in [...State...] of [...date...] (INFCIRC/...).

3. For the purpose of this Agreement, the IAEA safeguards referred to in Article VI (2) shall, be implemented pursuant to the Safeguards Agreement referred to in Article VI (2).

4. The relevant provisions of the Safeguards Agreement referred to in Article VI (2) shall apply to IAEA inspectors performing functions pursuant to this Agreement.

5. Article XII.C of the Statute of the IAEA shall apply with respect to any non-compliance by the Government with the provisions of this Agreement.

ARTICLE VII

The applicable safety standards and measures to be followed for the transport, handling, storage and use of the supplied LEU and for the operation of the power plant shall be those defined in IAEA document INFCIRC/18/Rev.1, as revised from time to time.

ARTICLE VIII

The Government undertakes that adequate physical protection measures shall be maintained with respect to the supplied LEU and any special fissionable material produced through its use, including subsequent generations of produced special fissionable material. These measures shall as a minimum provide protection comparable to that set forth in IAEA document "The Physical Protection of Nuclear Material and Nuclear Facilities" (INFCIRC/225/Rev.4), as revised from time to time.

ARTICLE IX¹⁴

The Government shall take responsibility for all liability for nuclear damage caused by a nuclear incident associated with the use, handling, storage or transport of the LEU supplied under this Agreement from the time the LEU leaves the IAEA LEU bank for shipment to the Government or its designated representative, and shall hold the IAEA harmless against any such liability, provided, however, that in any case covered by an international civil nuclear liability convention, liability for nuclear damage shall be addressed in accordance with the provisions of that convention.

ARTICLE X

All reports and other information required for the implementation of this Agreement shall be submitted to the IAEA in one of the working languages of the Board of Governors of the IAEA.

ARTICLE XI

Any decision of the Board of Governors of the IAEA relevant to the implementation of Articles VI, VII or VIII of this Agreement shall, if the decision so provides, be given effect immediately by the IAEA and the Government.

ARTICLE XII

Any dispute arising out of the interpretation or implementation of this Agreement shall be settled by consultation or negotiation.

Article XIII

1. This Agreement shall enter into force upon signature by the Director General of the IAEA and by the authorized representative of the Government.
2. This Agreement shall continue in effect so long as any material, equipment or facility which was ever subject to this Agreement remains in the territory of [...*State*...] or under its jurisdiction or control anywhere, or until such time as the parties agree that such material, equipment or facility is no longer usable for any nuclear activity relevant from the point of view of safeguards.

¹⁴ The Director General may adapt this Article depending on the liability regime(s) in place.

DONE in duplicate in the English language.

For the **INTERNATIONAL ATOMIC ENERGY AGENCY**:

(Signature)

(Name and Title)

(Place and Date)

For the **GOVERNMENT OF [...]**:

(Signature)

(Name and Title)

(Place and Date)