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RECH 383
ATO 72

NOTE

Subject: FRAMEWORK AGREEMENT FOR INTERNATIONAL COLLABORATION
ON RESEARCH AND DEVELOPMENT OF GENERATION IV NUCLEAR
ENERGY SYSTEMS

FRAMEWORK AGREEMENT FOR INTERNATIONAL COLLABORATION ON RESEARCH AND DEVELOPMENT OF GENERATION IV NUCLEAR ENERGY SYSTEMS

The Parties to this Framework Agreement,

CONSIDERING the expected increase in energy demand worldwide, and the contribution that the development and deployment of innovative technologies and fuels can make to meet future global energy demand in a sustainable manner;

CONSIDERING that collaboration on research and development by many countries on the development of advanced next generation nuclear energy systems will aid progress toward the realization of such systems;

DESIRING to continue, through this Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems (hereinafter referred to as “Framework Agreement”), the work of the Generation IV International Forum (hereinafter referred to as “GIF”), which has provided a basis for international collaboration on research and development for the next generation of nuclear energy systems, known as “Generation IV Systems”;

RECOGNISING the previous work of the GIF carried out under the Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems, done at Washington on 28 February 2005, as extended by the Agreement Extending the Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems that entered into force on 26 February 2015 (hereinafter referred to as “2005 GIF Framework Agreement”), which expires on 28 February 2025; as well as the Charter of the Generation IV International Forum, opened for signature in June 2001, which originally established the GIF, and the Charter of the Generation IV International Forum, opened for signature in January 2011, which extended the GIF cooperation (hereinafter referred to as “GIF Charter”);

RECOGNISING that the purpose of the GIF Charter is related to the development of concepts for one or more Generation IV Systems, with the intent that these systems be licensed, constructed, and operated in a manner to provide a competitively priced and reliable supply of energy to the country where such systems are deployed, while satisfactorily addressing nuclear safety, waste, proliferation, and public perception concerns;

NOTING the importance of the GIF Charter in the creation of the GIF and the 2005 GIF Framework Agreement in the resulting collaborations prior to this Framework Agreement;

NOTING that after the entry into force of the 2005 GIF Framework Agreement, governance of the GIF has always been managed, as a practical matter, through the 2005 GIF Framework Agreement;

DESIRING to ensure that, going forward, this Framework Agreement provide the sole governance structure for all GIF-related activities;

CONSIDERING that the GIF has completed “A Technology Roadmap for Generation IV Nuclear Energy Systems: Technical Roadmap Report” (December 2002), as further updated in 2014, which identifies the six (6) most promising Generation IV Systems as well as the research and development necessary to advance these Systems to technical maturity;

CONSIDERING that ministries, departments, agencies, or other entities of the parties to the 2005 GIF Framework Agreement have participated in System Arrangements, Project Arrangements, and Memoranda of Understanding (hereinafter referred to as “MOU”) consistent with the 2005 GIF Framework Agreement related to the six (6) most promising Generation IV Systems;

RECOGNISING the value of a GIF governance structure composed of a Policy Group, an Experts Group, and a Secretariat;

NOTING that the Generation IV Systems that were identified are: Gas-Cooled Fast Reactor System, Lead-Cooled Fast Reactor System, Molten Salt Reactor System, Sodium-Cooled Fast Reactor System, Supercritical-Water-Cooled Reactor System, and Very-High-Temperature Reactor System;

EMPHASISING the collaborative research and development of the Generation IV Systems, previously identified in and conducted through the GIF Charter and the 2005 GIF Framework Agreement, including the following cooperation activities:

- Identifying potential areas of multilateral collaborations on the Generation IV Systems,
- Fostering collaborative research and development projects,
- Establishing guidelines for the collaborations and reporting of their results,
- Regularly reviewing the progress and making recommendations on the direction of collaborative research and development projects,
- Establishing and regularly reviewing an inventory of the potential areas in which research is needed, and
- Conducting such other activities to advance achievement of the objectives of the GIF as may be jointly determined.

DESIRING to facilitate the continuing pursuit of that collaborative research and development with a goal to accelerating demonstration and deployment of the Generation IV Systems by the Parties and their ministries, departments, agencies, and other entities, together with the industrial, academic, governmental, and non-governmental sectors of the international research community, to advance the six (6) identified Generation IV Systems; and

NOTING the Paris Convention for the Protection of Industrial Property, done at Paris on 20 March 1883, as revised and amended;

HAVE AGREED as follows:

Article I

Objective

- 1) The objective of this Framework Agreement is to establish a new framework to continue international collaboration to foster and facilitate achievement of the purpose and vision of the GIF: the development of concepts for one or more Generation IV Systems that can be licensed, constructed, and operated in a manner that will provide a competitively-priced and reliable supply of energy to the country(ies) where such systems may be deployed, while satisfactorily addressing nuclear safety, waste, proliferation, and public perception concerns.
- 2) Collaboration under this Framework Agreement shall be conducted only for peaceful purposes and in accordance with non-proliferation objectives and the Parties' international obligations relating thereto, and on the basis of equality, mutual benefit, and reciprocity.

Article II

Forms of Collaboration

The forms of collaboration under this Framework Agreement may include, but are not limited to:

- a) joint research and technology development;
- b) exchange of technical information and data on scientific and technical activities, and methods and results of research and development;
- c) support for the organization of technological demonstrations, including with appropriate industry participants;
- d) conduct of joint trials/experiments;
- e) participation of staff (including scientists, engineers, and other specialists) in experiments, analysis, design, and other research and development activities conducted at research centres, academic institutions, laboratories, and other facilities;

- f) exchange or loan of samples, materials, and equipment for experiments, testing, and evaluation;
- g) organization of, and participation in, seminars, scientific conferences, and other meetings;
- h) monetary contributions to the deployment of necessary experimental facilities; and
- i) training and enhancing the skills of scientists and technical experts.

Article III

Implementation

- 1) The Parties shall encourage and facilitate, where appropriate, the development of direct contacts and collaboration between government agencies, academies of science, universities, science and research centres, institutes and institutions, private sector firms, and intergovernmental organizations.
- 2) Each Party shall, according to the procedures set forth in Article XII or Article XIV of this Framework Agreement, as applicable, designate itself or one or more of its ministries, departments, agencies, or other entities as its Implementing Agent(s) to accomplish the objective set forth in Article I of this Framework Agreement. The Implementing Agents are identified in Annex A to this Framework Agreement (hereinafter referred to as “Annex A”). For clarity, Annexes A, B, and C constitute an integral part of this Framework Agreement.
- 3) A Party may propose to amend Annex A to designate additional Implementing Agent(s) for that Party or to change its Implementing Agent(s) by written notification to the Depositary (identified in Article XI of this Framework Agreement). The Depositary shall circulate notification of the proposed amendment to the Parties and their Implementing Agent(s). The proposed amendment shall enter into force following a period of 90 days after the date on which the Depositary circulates notification of the proposed amendment, provided that no Party or duly authorized Implementing Agent has notified the Depositary within the 90-day period that it objects to the proposed amendment. In the event that the Depositary receives such an objection, the proposed amendment shall not enter into force. For clarity, such addition or change shall not in any way be construed as constituting an amendment that is subject to the procedures under paragraph 9 of Article XII of this Framework Agreement.

Article IV
GIF Governance

- 1) The Parties recognise that the GIF Charter does not provide a governance structure for the Implementing Agents' or GIF activities, including with respect to this Framework Agreement. The Parties understand that the GIF Charter does not represent a political commitment among them.
- 2) The Parties hereby establish a GIF governance structure composed of a Policy Group, an Experts Group, and a Secretariat. The Policy Group shall be composed of representatives of each Party and shall adopt policies to implement this Framework Agreement. As soon as practicable after entry into force of this Framework Agreement, the Policy Group shall endeavor to adopt initial policies based on those in place at the expiration of the 2005 GIF Framework Agreement to facilitate continuity of the collaboration initiated under the 2005 GIF Framework Agreement, in accordance with this Framework Agreement.
- 3) The Parties agree that, for a period of three (3) years after entry into force of this Framework Agreement, which period may be extended only once for a period of one (1) year by unanimous written decision of the Parties, a State or an international organization identified in Annex C to this Framework Agreement (hereinafter referred to as "Annex C") that is not yet a Party to this Framework Agreement shall:
 - a) be invited to have its designated representative(s) observe the Policy Group meetings and the Experts Group meetings; and
 - b) be invited to have its designated representative(s) observe other GIF meetings in accordance with policies to be adopted by the Policy Group.

Article V

Related Arrangements

- 1) The Parties recognise that cooperation under the 2005 GIF Framework Agreement was carried out under the System Arrangements, Project Arrangements, and MOUs listed in Annex B to this Framework Agreement (hereinafter referred to as “Annex B”). The Parties intend to continue the cooperation in like manner in accordance with the conditions set out in this Framework Agreement. As soon as practicable after entry into force of this Framework Agreement:
 - a) The Parties shall endeavor to have their Implementing Agent(s) sign new System Arrangements and Project Arrangements based on those listed in Annex B and shall, as appropriate, encourage public and private entities to join and participate in such new Project Arrangements;
 - b) The Parties shall cause their Implementing Agent(s) to withdraw, and shall encourage the organizations they designated to sign the MOUs to withdraw, from the MOUs listed in Annex B; and
 - c) The Parties shall endeavor to have their Implementing Agent(s) sign new MOUs based on those listed in Annex B and shall, as appropriate, encourage such designated organizations to participate in the new MOUs.
- 2) The Parties shall ensure that:
 - a) there shall be only one System Arrangement for each Generation IV System; and
 - b) if a Party has identified more than one Implementing Agent, only one of them may be a signatory to any given System Arrangement.
- 3) The Parties shall ensure that each System Arrangement is consistent with the provisions of this Framework Agreement and establishes a framework for collaboration to plan and conduct the research and development work necessary to establish the viability and performance of the Generation IV System concerned.

- 4) The Parties shall ensure that each System Arrangement addresses:
 - a) collaboration to be carried out;
 - b) management of the research and development activities carried out to realize the objectives of the GIF;
 - c) financial arrangements;
 - d) protection, use, and disclosure of background proprietary information; and
 - e) adequate and effective protection and allocation of intellectual property created or furnished in the course of the collaboration under this Framework Agreement and the resolution of disputes concerning intellectual property rights.
- 5) The Parties shall ensure that each System Arrangement provide that, in the event of any inconsistency between the System Arrangement and this Framework Agreement, the provisions of this Framework Agreement shall prevail.
- 6) The Parties shall ensure that each System Arrangement is implemented through one or more Project Arrangements for research and development projects designed to contribute to the establishment of the viability and performance of the Generation IV System to which the project relates.
- 7) The Parties shall ensure that:
 - a) Implementing Agents may be signatories to Project Arrangements; and
 - b) Other entities in the public and private sectors may become signatories to Project Arrangements upon consensus decision of the Policy Group and in accordance with the relevant policies of the Policy Group, taking into account the recommendation of the relevant System Steering Committee.

- 8) Each Project Arrangement should address matters such as, but not limited to, scope of work, estimated cost, proposed schedule, project management responsibilities, intellectual property rights, reporting requirements, withdrawal of signatories, and, as appropriate, conditions regarding continuity of collaboration with entities described in paragraph 2(c) of Article XV of this Framework Agreement of States or international organizations identified in Annex C where such States or international organizations are not yet a Party to this Framework Agreement.
- 9) The Parties shall ensure that each Project Arrangement is consistent with and governed by the provisions of the System Arrangement to which the subject project relates and is consistent with this Framework Agreement.
- 10) The Parties shall ensure that each System Arrangement provide that, in case of any inconsistency between the System Arrangement and a Project Arrangement, the provisions of the System Arrangement shall prevail. The Parties shall further ensure that each Project Arrangement provide that, in case of any inconsistency between the System Arrangement or Project Arrangement on the one hand, and this Framework Agreement on the other hand, this Framework Agreement shall prevail.
- 11) The Parties shall ensure that each MOU is consistent with the provisions of this Framework Agreement and indicate that in case of any inconsistency between the MOU and this Framework Agreement, this Framework Agreement shall prevail.

Article VI

Facilitation of Movement of Persons, Equipment, and Materials and Use of Data

With respect to collaboration under this Framework Agreement, each Party shall, to the extent permitted by its international obligations, national laws, and regulations:

- a) facilitate entry into and exit from its territory of appropriate personnel, equipment, and materials of the other Parties used in collaboration under this Framework Agreement; and
- b) facilitate the exchange and use of scientific and technical data resulting from research and development conducted under this Framework Agreement.

Article VII

Availability of Resources

The activities of each Party under this Framework Agreement are subject to the availability of appropriated funds, personnel, and other resources.

Article VIII

Collaboration in Accordance with Applicable Laws and Regulations

Each Party shall conduct collaboration under this Framework Agreement in accordance with the applicable laws and regulations to which it is subject.

Article IX

Disclosure of Information

Scientific and technological information resulting from collaboration under this Framework Agreement, other than information which is not made publicly available for national security, commercial, or industrial reasons:

- a) shall be made available to the world scientific community through customary channels and in accordance with the normal procedures of the Parties and their respective participating ministries, departments, agencies, and other entities; and
- b) may be made available to the public in accordance with the applicable laws of each Party.

Article X

Settlement of Disputes

- 1) Any dispute regarding the interpretation or application of this Framework Agreement shall be resolved through consultation between or among the Parties concerned.
- 2) Any dispute between two or more Project Arrangement signatories may be resolved in accordance with any method(s) identified in a Project Arrangement to which the Project Arrangement signatories concerned mutually agree in writing.

Article XI

Depositary

- 1) The original of this Framework Agreement shall be deposited with the Secretary-General of the Organisation for Economic Co-operation and Development, who is hereby designated as Depositary. The Depositary shall fulfil its duties in accordance with Article 77 of the Vienna Convention on the Law of Treaties, done at Vienna on 23 May 1969.
- 2) Following entry into force of this Framework Agreement in accordance with paragraph 1 of Article XII of this Framework Agreement, the Depositary shall transmit a certified true copy of this Framework Agreement to the Secretary-General of the United Nations for registration and publication in accordance with Article 102 of the Charter of the United Nations, done at San Francisco on 26 June 1945; and likewise, shall transmit certified copies of any amendments to this Framework Agreement which enter into force.

Article XII

Entry into Force, Amendment, Extension, and Termination

- 1) This Framework Agreement shall be open for signature by the States and international organizations identified in Annex C and shall enter into force on the date when three (3) of such States or international organizations have indicated their consent to be bound and at the earliest on 1 March 2025.
- 2) Consent to be bound shall be indicated either by signature not subject to ratification, acceptance, or approval, or by signature subject to ratification, acceptance, or approval followed by deposit of an instrument of ratification, acceptance, or approval with the Depositary.
- 3) With respect to any State or international organization identified in Annex C that expresses its consent to be bound after entry into force of this Framework Agreement, except as specified in paragraph 4(b) of this Article, this Framework Agreement shall enter into force on the date of its signature not subject to ratification, acceptance, or approval or on the date of deposit of its instrument of ratification, acceptance, or approval with the Depositary.

- 4) Upon indicating its consent to be bound, each State or international organization identified in Annex C shall designate itself or one or more of its ministries, departments, agencies, or other entities as its Implementing Agent(s) to accomplish the objective set forth in Article I of this Framework Agreement as follows:
- a) Subject to subparagraph (b) of this paragraph, such State or international organization shall designate itself or one or more of its ministries, departments, agencies, or other entities identified in Annex C as its Implementing Agent(s).
 - b) After entry into force of this Framework Agreement, such State or international organization may propose to designate Implementing Agent(s) not identified in Annex C. In such circumstances, the Depositary shall circulate notification of the proposed designation to the Parties and their Implementing Agent(s). This Framework Agreement shall enter into force for that State or international organization following a period of ninety (90) days after the date on which the Depositary circulates notification of the proposed designation, provided that no Party or duly authorized Implementing Agent has notified the Depositary within the 90-day period that it objects to the proposed designation. In the event that the Depositary receives such an objection, this Framework Agreement shall not enter into force for such State or international organization, and such State or international organization may propose to designate another entity or entities as its Implementing Agent(s), in which case such proposed designation shall be subject to the same 90-day procedure if the proposed Implementing Agent(s) are not identified in Annex C.
- 5) If a State or international organization authorizes one of its Implementing Agents to provide notification of objections on its behalf for the purposes of the procedures described in subparagraph 4(b) of this Article, paragraph 3 of Article III of this Framework Agreement, or both, it shall provide written notice to the Depositary identifying the Implementing Agent that has such authorization. Such notice may be provided at the time such State or international organization indicates its consent to be bound pursuant to this Article, deposits its instruments of accession pursuant to Article XIV of this Framework Agreement, or at any other time after it has become a Party.

- 6) Upon entry into force of this Framework Agreement for a Party or Parties pursuant to paragraphs 1, 3, or 4 of this Article, the Depositary shall circulate an updated Annex A that includes the Implementing Agent(s) of that Party or those Parties. For clarity, such update to Annex A shall not in any way be construed as constituting an amendment that is subject to the procedures under paragraph 9 of this Article.
- 7) This Framework Agreement shall enter into force for additional Parties in accordance with the provisions of Article XIV of this Framework Agreement.
- 8) Subject to paragraph 10 of this Article, this Framework Agreement shall remain in force for a period of ten (10) years and may be extended for additional periods by agreement in writing according to the following procedure: An extension shall enter into force, for those Parties that have indicated their consent to be bound consistent with procedures described in paragraph 2 of this Article, on the date when three (3) Parties have indicated their consent to be bound. For a Party consenting to be bound after the date of entry into force of such an extension, the extension shall enter into force with respect to that Party on the date when it indicates its consent to be bound.
- 9) This Framework Agreement may be amended at any time by unanimous agreement of the Parties in writing. An amendment shall enter into force for all Parties thirty (30) days following the date of receipt by the Depositary of the last written notification of acceptance of the amendment.
- 10) This Framework Agreement may be terminated at any time by unanimous agreement of the Parties in writing. Termination shall be effective thirty (30) days following the date of receipt by the Depositary of the last written notification of acceptance of the termination.

Article XIII

Withdrawal

- 1) A Party may withdraw from this Framework Agreement upon six (6) months' written notice to the Depositary. After such withdrawal becomes effective, the Depositary shall circulate an updated Annex A that deletes the name of the withdrawing Party and that of its Implementing Agent(s) as notified by that Party. For clarity, such update to Annex A shall not in any way be construed as constituting an amendment that is subject to the procedures under paragraph 9 of Article XII.
- 2) The Parties intend that upon withdrawal of a Party from this Framework Agreement, collaboration under this Framework Agreement with the Implementing Agent(s), signatories and designated organizations of that Party would also discontinue. Therefore, the Parties shall ensure that each System Arrangement and Project Arrangement provide, and that each MOU indicate, that withdrawal of a Party from this Framework Agreement shall constitute a withdrawal by its Implementing Agent(s) and other signatories and designated organizations, as applicable, from such instrument, no later than the effective date of withdrawal of that Party from this Framework Agreement. For clarity, the Parties intend that entities withdrawing or having withdrawn from Project Arrangements under the circumstances described in this paragraph may become signatories to such Project Arrangements according to the procedures set forth in paragraph 7(b) of Article V of this Framework Agreement.

Article XIV

Accession of Additional Parties

- 1) Beginning three (3) years following entry into force of this Framework Agreement, the Depositary, after consulting with and obtaining the unanimous written decision of the Parties, may invite any State or international organization that is not identified in Annex C, to accede to this Framework Agreement. Such consultations and unanimous written decision shall also relate to the proposed Implementing Agent(s) of the State or international organization that is proposed for accession.

- 2) With respect to any State or international organization acceding to this Framework Agreement under paragraph 1 of this Article, this Framework Agreement shall enter into force on the date on which the State or international organization has expressed its consent to be bound by depositing its instrument of accession with the Depositary and has provided the Depositary with written notification of its designated Implementing Agent(s) previously identified under paragraph 1 of this Article.
- 3) When an additional Party deposits its instrument of accession in accordance with paragraph 2 of this Article, the Depositary shall circulate an updated Annex A that includes the additional Party and its Implementing Agent(s). For clarity, such update to Annex A shall not in any way be construed as constituting an amendment that is subject to the procedures under paragraph 9 of Article XII.
- 4) Each Party that accedes to this Framework Agreement after entry into force of any amendment or extension shall become a Party to this Framework Agreement as amended or extended.

Article XV

Continuation of Collaboration

- 1) Upon written decision of the Parties, any collaboration initiated under this Framework Agreement but not completed at the expiration or termination of this Framework Agreement may continue to completion under the provisions of this Framework Agreement.
- 2) With respect to collaboration initiated but not yet completed under the 2005 GIF Framework Agreement, which expires on 28 February 2025:
 - a) The Parties do not intend to continue such collaboration under the auspices of the 2005 GIF Framework Agreement;
 - b) The Parties intend to continue, under the provisions of this Framework Agreement, such collaboration, as described in paragraph 1 of Article V of this Framework Agreement;
and

- c) Notwithstanding paragraph 7(b) of Article V of this Framework Agreement, the collaboration described in paragraph 2(b) of this Article is intended to include, with respect to each Project Arrangement and MOU listed in Annex B, such continued collaboration with the following entities of Annex C States or international organizations that are not yet a Party to this Framework Agreement:
- i. the signatories to that Project Arrangement or MOU listed in Annex B at the time of the expiration of the 2005 GIF Framework Agreement; and
 - ii. other expected Implementing Agent(s) of the States or international organizations identified in Annex C as may be approved upon consensus decision of the Policy Group.

Participation in such Project Arrangements and MOUs is intended to be in accordance with relevant policies of the Policy Group.

IN WITNESS WHEREOF, the undersigned, being duly authorized, have signed this Framework Agreement.

DONE in a single original, in the English and French languages, each text being equally authentic

Annex A

List of Parties and Their Designated Implementing Agent(s)

As of <date>:

Parties	Implementing Agent(s)

Annex B

System Arrangements, Project Arrangements, and Memoranda of Understanding under the 2005 GIF Framework Agreement

System Arrangements
Very High Temperature Reactor (VHTR) System Arrangement
Sodium-Cooled Fast Reactor (SFR) System Arrangement
Supercritical-Water-Cooled Reactor (SCWR) System Arrangement
Gas-Cooled Fast Reactor (GFR) System Arrangement

Project Arrangements
VHTR: Hydrogen Production (HP) Project Arrangement
VHTR: Fuel and Fuel Cycle (FFC) Project Arrangement
VHTR: Material (MAT) Project Arrangement
VHTR: Computational Methods Validation and Benchmarks (CMVB) Project Arrangement
SFR: Advanced Fuel (AF) Project Arrangement
SFR: Component Design and Balance-of-Plant (CD&BOP) Project Arrangement
SFR: Safety & Operation (SO) Project Arrangement
SFR: System Integration & Assessment (SIA) Project Arrangement
SFR: Global Actinide Cycle International Demonstration (GACID) Project Arrangement*
SCWR: Materials and Chemistry (M&C) Project Arrangement
SCWR: Thermal-Hydraulics and Safety (TH&S) Project Arrangement
GFR: Conceptual Design and Safety (CDS) Project Arrangement
GFR: Fuel and Core Material (FCM) Project Arrangement

*Expired

Memoranda of Understanding
Lead-Cooled Fast Reactor (LFR) MOU
Molten Salt Reactor (MSR) MOU

Annex C

State or international organization	Expected Implementing Agent(s)
Australia	Australian Nuclear Science and Technology Organisation (ANSTO)
Canada	Department of Natural Resources (NRCan)
European Atomic Energy Community (Euratom)	European Commission's Joint Research Centre (JRC)
The People's Republic of China	<ul style="list-style-type: none"> • China Atomic Energy Authority (CAEA) • Ministry of Science and Technology (MOST)
The French Republic	Commissariat à l'énergie atomique et aux énergies alternatives (CEA)
Japan	<ul style="list-style-type: none"> • Agency for Natural Resources and Energy (ANRE) • Japan Atomic Energy Agency (JAEA)
The Republic of Korea	<ul style="list-style-type: none"> • Ministry of Science and ICT (MSIT) • Korea Atomic Energy Research Institute (KAERI) • Korea Nuclear International Cooperation Foundation (KONICOF)
The Republic of South Africa	Department of Energy (DoE)
Swiss Confederation	Paul Scherrer Institute (PSI)
The United Kingdom of Great Britain and Northern Ireland	Department for Energy Security and Net Zero (DESNZ)
The United States of America	Department of Energy (DOE)
