

IMPLEMENTING ARRANGEMENT

BETWEEN

THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA

AND

THE DEPARTMENT FOR BUSINESS, ENERGY AND INDUSTRIAL STRATEGY OF THE  
UNITED KINGDOM

FOR

RESEARCH AND DEVELOPMENT IN ENERGY AND PHYSICAL SCIENCE FIELDS

The Department of Energy of the United States of America (DOE) and the Department for Business, Energy and Industrial Strategy of the United Kingdom (BEIS), hereinafter referred to as the “Agencies”:

In accordance with the Agreement between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland on Scientific and Technological Cooperation signed at Washington on September 20, 2017 (hereinafter the “S&T Agreement”);

Noting the Agreement for Cooperation in the Peaceful Uses of Nuclear Energy between the United States of America and the European Atomic Energy Community, signed at Brussels on November 7, 1995, and on March 29, 1996, which entered into force on April 12, 1996 (the “1996 U.S.-Euratom Agreement”);

Noting the Agreement between the Government of the United States of America and the Government of the United Kingdom of Great Britain and Northern Ireland for Cooperation in Peaceful Uses of Nuclear Energy, signed at Washington on May 4, 2018, which upon entry into force will apply to U.S.-UK cooperation previously subject to the 1996 U.S.-Euratom Agreement;

Noting the Agreement for Cooperation between the Department of Energy of the United States of America and the European Atomic Energy Community Represented by the Commission of the European Communities in the Field of Fusion Energy Research and Development signed May 14, 2001, and desiring to continue such cooperation following the United Kingdom’s withdrawal from the European Atomic Energy Community;

Noting the Technical Exchange and Cooperation Agreement between the Department of Energy of the United States of America and the European Atomic Energy Community as Represented by the Commission of the European Communities in the Field of Nuclear-related Technology Research and Development, signed at Brussels on March 6, 2003, and desiring to continue such cooperation following the United Kingdom’s withdrawal from the European Atomic Energy Community;

Noting the Memorandum of Understanding between the Department of Energy of the United States of America and the Department of Energy and Climate Change of the United Kingdom of Great Britain and Northern Ireland on Collaboration in Energy-Related Fields signed at London on April 24, 2012;

Noting the Statement of Intent between the Department of Energy of the United States of America and the Department of Energy and Climate Change of the United Kingdom of Great Britain and Northern Ireland on Collaboration in Civil Nuclear Energy signed at London on May 14, 2014, and its subsequent modifications;

Noting the Nuclear Energy Research and Development Cooperative Action Plan between the Department of Energy of the United States of America and the Department for Business, Energy, and Industrial Strategy of the United Kingdom of Great Britain and Northern Ireland signed at Washington on September 13, 2018;

Seeking to make the best use of their respective research and technology development capacities, eliminate unnecessary duplication of work, and obtain the most efficient and cost-effective results through cooperative activities;

Recognizing the contribution such research and development (R&D) in energy and physical science fields can make to continued economic growth and sustainable development in all countries; and

Affirming a common interest in enhancing the longstanding collaborative efforts of the Agencies and their respective private sector and governmental organizations and academic institutions in generating scientific and technological solutions for a secure energy future,

HAVE DECIDED UPON THE FOLLOWING ARRANGEMENT:

## SECTION I

### **Definitions**

For purposes of this Implementing Arrangement, the Agencies have approved the following definitions:

Action Plan	A proposed strategy or course of action to guide technical cooperation in respective fields of cooperative activities.
-------------	--

Business Confidential Information	Has the meaning given in Section IV of Annex I to the S&T Agreement.
-----------------------------------	--

Contract	Any mutually binding legal relationship under the national laws of either Agency that commits a contractor to furnish supplies or services in relation to a Project or other Cooperative Activity, and commits one or both signatory Agencies to pay for them.
Contracting Agency	Any federal or central government entity that has authority to enter into, administer, and/or terminate Contracts.
Cooperative Activity	Any form of activity described in Section V (Forms of Cooperative Activity) of this Implementing Arrangement to achieve the objectives of this Implementing Arrangement. Such activity is normally expected to take the form of a Project.
Equipment and Material	Any material, equipment, end item, subsystem, or component generated, acquired or provided for use in any Cooperative Activity.
Intellectual Property	Has the meaning given in Article 2 of the Convention Establishing the World Intellectual Property Organization, done at Stockholm July 14, 1967. It may also include other subject matters as mutually decided by the Agencies.
Participant	Any non-federal or non-central government person or entity, including but not limited to a private sector organization, academic institution, contractor or laboratory (or subsidiary thereof) engaged in a Cooperative Activity in accordance with Section VI (Project Annexes) or Section VIII (Contracts) of this Implementing Arrangement.
Principal Coordinator	A designee by an Agency in accordance with Section VII (Management of Coordination) of this Implementing Arrangement to coordinate overarching activities under this Implementing Arrangement with reviews of ongoing activities, accomplishments and balance of exchanges.
Project	A specific form of Cooperative Activity described in Section VI (Project Annexes) of this Implementing Arrangement.



Project Annex	The instrument concluded in accordance with Section VI (Project Annexes) of this Implementing Arrangement setting out the scope of one or more Projects to be carried out in a technology area under this Implementing Arrangement.
Project Foreground Information	Information generated in the performance of a Project.
Proprietary Information	Information that is owned by a private individual, corporation, or a government which is known only to the owner and/or persons in privity with the owner, and therefore not available to the public.
Research and Development (R&D)	Programs and activities, including basic research, applied research, advanced technology development, proof of principle, modeling and simulation, verification, validation, and development of technical standards of the Agencies and/or Participants that seek to identify, develop, and implement technological and analytical solutions, tools and techniques to address energy technology challenges.
Technical Coordinator	A designee by an Agency in accordance with Section VII (Management of Coordination) of this Implementing Arrangement to coordinate specific details of cooperation and with responsibility for working contacts between the Agencies in respective areas of cooperation under this Implementing Arrangement.
Third Party	Any entity or person who is neither an Agency signatory to this Implementing Arrangement nor a Participant in any Cooperative Activity.

## SECTION II

### Objective

1. The objective of this Implementing Arrangement is to establish a framework for collaboration between the Agencies on specific areas of mutual interest in energy and science related fields.
2. The Agencies understand that cooperation under this Implementing Arrangement is exclusively for peaceful purposes.



3. This Implementing Arrangement is governed by and subject to the S&T Agreement. The Agencies understand that the provisions of the S&T Agreement apply to Cooperative Activities under this Implementing Arrangement.
4. Nothing in this Implementing Arrangement is intended to commit the United Kingdom to do anything which is inconsistent with its obligations under the Treaty Establishing the European Atomic Energy Community (for as long as it applies to the United Kingdom).
5. Nothing in this Implementing Arrangement is intended to prejudice any other arrangements for scientific research and technological cooperation between the Agencies which have been, or may be, put in place independently of this Implementing Arrangement.

### SECTION III

#### **Means of Achieving Objective**

The Agencies may seek to achieve the objective set out in Section II (Objective) by:

- a. facilitating a systematic exchange of technologies, personnel, and information derived from or applied to similar and complementary research, development, testing, and evaluation programs;
- b. involving, as appropriate, a wide range of public and private sector research and development organizations in Cooperative Activities conducted pursuant to this Implementing Arrangement;
- c. providing reciprocal opportunities to engage in Cooperative Activities, with shared responsibilities and contributions, which are commensurate with the Agencies' or the Participants' respective resources;
- d. providing comparable access to government-sponsored or government-supported programs and facilities for visiting researchers and experts, and comparable access to and exchange of information and Equipment and Material;
- e. facilitating prompt exchange of information and Equipment and Material, which may affect Cooperative Activities; and facilitating the dissemination of information and Equipment and Material, consistent with applicable national laws, regulations, policies, and directives; and
- f. conducting collaborative research and development in the areas described in Section IV (Areas of Cooperative Activity).

Other specific forms of cooperation may be added by mutual written decision of the Agencies.

## SECTION IV

### Areas of Cooperative Activity

The Agencies may cooperate in joint planning to utilize their R&D capabilities in a number of areas, which may include, but are not limited to fundamental science; nuclear energy; renewable energy and energy efficiency technologies; smart energy; environmental and waste management; unconventional resource development; carbon capture, utilization and storage; advanced manufacturing and materials; health related sciences; and any other area that may be added by mutual written decision of the Agencies. Specific topics of Cooperative Activity in each area may include:

a. Fundamental science

- Advanced scientific computing research
- Biological and environmental research
- Basic energy sciences
- Fusion energy sciences
- High energy physics
- Nuclear physics

b. Nuclear energy

- Fuel cycle technologies and scenario analyses
- Advanced nuclear fuels and materials technologies
- Nuclear reactor technologies
- Radioisotopes for use in space technologies
- Advanced modeling and simulation
- Universities and user facilities engagement
- Preservation of technical information and research sources

c. Renewable energy and energy efficiency

- Bioenergy and land use
- Wind energy
- Hydropower
- Heat pumps (air source, geothermal and thermally driven)
- Solar energy
- Hydrogen and fuel cells
- Energy transmission and savings

d. Smart energy

- Electricity management
- Energy management and storage
- Grid integration

- Cybersecurity
  - Network operability
  - Energy systems analysis
- e. Environment and waste management
- Waste characterization, treatment, and immobilization
  - Groundwater and soil remediation
  - Deactivation, decontamination, and decommissioning
- f. Unconventional resource development
- Geological characterization
  - Environmental impacts
- g. Carbon capture, utilization, and storage
- Capture of carbon dioxide from fossil fuel-based power and industrial facilities
  - Utilization of carbon dioxide
  - Geological storage of carbon dioxide
- h. Advanced manufacturing and materials
- Advanced materials, including composite materials
  - Advanced manufacturing
- i. Health-related sciences
- Isotope production
  - Medical and industrial applications of isotopes and related research
  - Radiation effects research

## SECTION V

### **Forms of Cooperative Activity**

1. Cooperation under this Implementing Arrangement may include, but is not limited to, the following:
  - a. coordinated research projects and joint research projects;
  - b. joint studies, projects, and scientific or technical demonstrations;
  - c. joint organization of scientific seminars, conferences, symposia, and workshops;
  - d. training of scientists and technical experts, including graduate and post-graduate fellowships;



- e. visits and exchanges of scientists, engineers, or other appropriate personnel;
  - f. exchanges or sharing of scientific and technological information and Equipment and Material;
  - g. exchange of information on practices, laws, regulations, standards, methods, and programs relevant to cooperation under this Implementing Arrangement; and
  - h. use of laboratory facilities and Equipment and Material for conducting scientific and technological activities, including research, development, testing, and evaluation.
2. Nothing in Paragraph 1 above is intended to preclude the Agencies from conducting other forms of Cooperative Activity that they may mutually decide upon.

## SECTION VI

### **Project Annexes**

1. When the Agencies mutually decide to support a form of Cooperative Activity as set out in Section V (Forms of Cooperative Activity) that may involve the sharing of costs or which may give rise to the creation or furnishing of intellectual property, they expect to conclude a Project Annex subject to this Implementing Arrangement. Each Project Annex or subsidiary arrangement thereunder is expected to include detailed provisions for carrying out the Project and should cover such matters as technical scope, management, total costs, costs sharing and timetable. The Technical Coordinators are expected to confirm that all Project Annexes are consistent with the provisions of this Implementing Arrangement. In the event of any inconsistency, the provisions of this Implementing Arrangement are intended to prevail.
2. Activities under Project Annexes may involve, as appropriate, associated firms or laboratories of the Agencies or their contractors or subsidiaries.

## SECTION VII

### **Management of Coordination**

1. The Agencies intend to establish a Steering Committee chaired by the United States Secretary of Energy and the United Kingdom Secretary of State for Business, Energy and Industrial Strategy or their designees, and composed of a Principal Coordinator for each Agency and, as necessary, Technical Coordinators and experts. The Steering Committee is expected to give strategic guidance and approve new proposals for cooperation. The Steering Committee is expected to meet as needed, alternately in the United States and in the United Kingdom, or at such other times and places or via videoconference as jointly decided.

- 2 Expert groups comprised of representatives of both Agencies may be formed to provide advice and assistance to the Steering Committee.
- 3 The Principal Coordinators coordinate overarching activities under this Implementing Arrangement and are expected to meet at such times as decided in person or via videoconference. At their meetings, the Principal Coordinators are expected to evaluate the status of cooperation under this Implementing Arrangement. This evaluation is expected to include a review of ongoing activities, accomplishments and balance of exchanges under this Implementing Arrangement.
- 4 Day-to-day management of the cooperation under this Implementing Arrangement is expected to be carried out by Technical Coordinators designated by the respective technology programs of the Agencies. The Technical Coordinators are expected to decide on specific details of cooperation in the technical areas listed in Section IV. The Technical Coordinators are expected to be responsible for working contacts between the Agencies in their respective areas of cooperation, recommendations to the Principal Coordinators for the direction of future cooperative activities, and the development of Action Plans, Project Annexes and Contracts when required.

## SECTION VIII

### **Contracts**

1. If an Agency's Technical Coordinator decides that a Contract is necessary or desirable to fulfill its responsibilities in support of a Cooperative Activity, that Technical Coordinator is expected to negotiate and conclude an appropriate Contract in accordance with the national laws, regulations, and procedures to which it is subject, and applicable international agreements to which its government is party.
2. Where a Technical Coordinator contracts to carry out work in support of Cooperative Activities under this Implementing Arrangement, it is expected to be solely responsible for its own Contracts, and the other Agency and its Technical Coordinator(s) are not expected to be subject to any liability arising from such Contracts without its/their written consent.
3. With respect to Contracts in support of Cooperative Activities under this Implementing Arrangement, each Agency's Technical Coordinator(s) or its Contracting Agency is expected to negotiate to obtain the benefits for both Agencies to use and disclose Project Foreground Information, as specified in Section XI (Intellectual Property Management and Use of Information) and to obtain the benefits contained in Section XII (Publication of Research Results) unless the other Agency's Technical Coordinator approves in writing that obtaining such benefits is unnecessary in a particular case. Each Agency's Technical Coordinator or its Contracting Agency is expected to insert into its Contracts, and require its subcontractors to insert in subcontracts, suitable provisions to satisfy the requirements of Section X (Exchanges of Information and Material and Equipment), Section XI (Intellectual Property Management and Use of Information), Section XII (Publication of

Research Results), and Section XIV (Third Party Sales and Transfers) of this Implementing Arrangement.

## SECTION IX

### Finance

1. Subject to the availability of funds, personnel, and other resources for Cooperative Activities and to the provisions of this Section, each Agency intends to bear its own costs of discharging its responsibilities under this Implementing Arrangement.
2. Except as provided in paragraph 1 of this Section, this Implementing Arrangement creates no standing financial commitments.
3. The Agencies and/or Participants participating in a Cooperative Activity (the "participating entities") may agree to share the costs therefor. A detailed description of the financial provisions for Projects, including the total cost of the activity and each participating entity's cost share, are expected to be included in Project Annexes or subsidiary arrangements thereunder in accordance with paragraph 4 of this Section.
4. At the commencement of each Project, the participating entities are expected to establish the equitable share of the total costs, including overhead costs and administrative costs. They are also expected to establish a cost target, a cost ceiling, and the costs of claims to be borne by each participating entity. In determining each participating entity's equitable share of total costs, the following factors may be taken into account:
  - a. funds provided by one participating entity to the other(s) for work under this Implementing Arrangement ("financial contributions"); and
  - b. material, manpower, use of Equipment and Material and facilities provided for the performance of work under this Implementing Arrangement ("non-financial contributions") to directly support Implementing Arrangement efforts. Prior work can constitute a non-financial contribution.
5. The following costs are expected to be borne entirely by the participating entity incurring the costs and are not included in the cost target, cost ceiling, or Project costs:
  - a. costs associated with any unique national requirements identified by an Agency, Executive Agent as defined in Article X of the S&T Agreement, or Participant; and/or
  - b. any costs not expressly stated as shared costs or any costs that are outside the scope of this Implementing Arrangement.
6. An Agency through its Technical Coordinators(s) intends to promptly notify the other Agency through its Technical Coordinators(s) if available funds are not adequate to carry out Cooperative Activities under this Implementing Arrangement. If an Agency notifies



the other that it is terminating or reducing its funding for a Project, the Agencies' Technical Coordinators are expected to immediately consult with a view toward continuation on a changed or reduced basis. If this is not acceptable to both Agencies' Principal Coordinators, then the Agencies may modify or discontinue the corresponding Project Annex in accordance with its provisions, or may modify or discontinue this Implementing Arrangement in accordance with the provisions of paragraphs 2, 3, 4 and 5 of Section XVI (Commencement, Duration, Modification, and Discontinuation).

7. Each Agency is expected to be responsible for any audit of its activities in support of Cooperative Activities, including the activities of any of its invited Participants. Each Agency's audits are expected to be in accordance with its own national practices. For Project Annexes where funds are transferred from one Agency to the other Agency, the receiving Agency is expected to be responsible for the internal audit regarding administration of the other Agency's funds in accordance with the receiving Agency's national practices. Audit reports concerning such funds are expected to be promptly made available by the receiving Agency to the other Agency.
8. The United States (U.S.) dollar is the reference currency for this Implementing Arrangement, and the fiscal year for any Project is the U.S. fiscal year.

## SECTION X

### **Exchanges of Information and Equipment and Material**

1. The Agencies understand that all exchanges of information and Equipment and Material between the Agencies and between the Agencies and their Technical Coordinators and/or Participants are subject to Articles IV and VI and Annex II to the S&T Agreement, other applicable international agreements of the Agencies or their governments, and the laws and regulations applicable to the Agencies, including those relating to the unauthorized transfer or re-transfer of such information and Equipment and Material.
2. Each Agency intends to safeguard and protect Business Confidential Information that is furnished or created pursuant to this Implementing Arrangement, and to treat Business Confidential Information in accordance with Section IV of Annex I to the S&T Agreement.
3. The Agencies understand that sensitive nuclear technology is specifically excluded from research under this Implementing Arrangement. As used herein, "sensitive nuclear technology" means any information, including information that is incorporated in equipment or an important component, that is not in the public domain and is important to the design, construction, fabrication, operation, or maintenance of any facility designed or used primarily for uranium enrichment, reprocessing of irradiated nuclear material, heavy water production, or fabrication of nuclear fuel containing plutonium, or any other such information that may be so designated by the Agencies or the Government of the United States and the Government of the United Kingdom.

## SECTION XI

### **Intellectual Property Management and Use of Information**

Provisions for the protection and distribution of intellectual property created, developed, or furnished in the course of Cooperative Activities under this Implementing Arrangement are set out in Annex I to the S&T Agreement.

## SECTION XII

### **Publication of Research Results**

1. The Agencies understand that the provisions of Section III of Annex I to the S&T Agreement apply to the publication of any research results created under this Implementing Arrangement.
2. Publication Review: Any Project Annexes and Contracts in furtherance of Cooperative Activities under this Implementing Arrangement may include provisions for the review of material containing research results prior to publication or other disclosure.
3. Affiliation: The sponsorship and financial support of the Agencies for Cooperative Activities should not be used in any public statement of a promotional nature or used for commercial purposes without the express written permission of both Agencies.
4. Publicity and Acknowledgment: All publications relating to the results of the Projects established pursuant to this Implementing Arrangement are expected to include, as applicable, a notice indicating that the underlying investigation received financial support from the Government of the United States of America and/or the Government of the United Kingdom of Great Britain and Northern Ireland. Two copies of such publications are expected to be sent to the Technical Coordinators by the individual or entity that is the author of the publications.

## SECTION XIII

### **Research Safety**

1. The Agencies intend to establish and implement policies and practices to ensure and provide for the safety of their employees, the public, and the environment during the conduct of Cooperative Activities subject to applicable national laws and regulations. If any Cooperative Activity involves the use of dangerous or hazardous materials, the Agencies plan to establish and implement an appropriate safety plan.
2. Without prejudice to any existing arrangements under the Agencies' national laws, the Agencies intend to take appropriate steps to protect the welfare of any subjects involved in Cooperative Activities. Such steps may include the provision of medical treatment and, where appropriate, financial relief.

## SECTION XIV

### **Third Party Sales and Transfers**

Neither Agency intends to:

1. sell, transfer title to, disclose, or transfer possession of Project Foreground Information, or equipment incorporating Project Foreground Information, to a Third Party without the prior written consent of the other Agency; or
2. permit any such sale, disclosure, or transfer by others, including by the owner of the item, without the prior written consent of the other Agency. Such sales and transfers are expected to be consistent with Section XI (Intellectual Property Management and Use of Information).

## SECTION XV

### **Dispute Resolution**

Except as provided in paragraph 2 of Section X (Exchanges of Information and Equipment and Material), Article XI (Intellectual Property Management and Use of Information), and paragraph 1 of Section XII (Publication of Research Results), all questions or disputes between the Agencies that cannot be resolved by the participating entities arising under or relating to this Implementing Arrangement are expected to be referred to the Steering Committee.

## SECTION XVI

### **Commencement, Duration, Modification, and Discontinuation**

1. Cooperation under this Implementing Arrangement is expected to commence upon signature by both Agencies and, subject to paragraph 3 of this Section, to continue so long as the S&T Agreement remains in force.
2. This Implementing Arrangement may be modified by mutual written consent of the Agencies.
3. The Agencies may discontinue their participation in this Implementing Arrangement by mutual written consent. Alternatively, an Agency that wishes to discontinue its participation in this Implementing Arrangement is expected to provide at least six (6) months advance written notice to the other Agency.



4. Unless otherwise mutually decided in writing, the Agencies understand that any Cooperative Activities not completed upon the discontinuation of this Implementing Arrangement may be continued to their completion under the provisions of this Implementing Arrangement.
5. The Agencies intend for the respective rights and responsibilities of the Agencies and Participants under Section X (Exchanges of Information and Equipment and Material), Section XI (Intellectual Property Management and Use of Information), Section XII (Publication of Research Results), and Section XIV (Third Party Sales and Transfers) to continue notwithstanding any discontinuation of this Implementing Arrangement.
6. This Implementing Arrangement does not create any legally binding obligations between the Agencies.

SIGNED in Washington, D.C., in duplicate, this 10<sup>th</sup> day of April, 2019.

11<sup>th</sup> day of April, 2019.

FOR THE DEPARTMENT OF ENERGY  
OF THE UNITED STATES OF  
AMERICA:

FOR THE DEPARTMENT FOR BUSINESS,  
ENERGY AND INDUSTRIAL STRATEGY OF  
THE UNITED KINGDOM:

