

**MEMORANDUM OF COOPERATION**  
**BETWEEN**  
**THE MINISTRY OF ECONOMY, TRADE, AND INDUSTRY OF JAPAN**  
**AND**  
**THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA**  
**CONCERNING**  
**COLLABORATION IN THE FIELD OF CARBON CAPTURE, UTILIZATION AND**  
**STORAGE, AND CARBON RECYCLING**

The Department of Energy of the United States of America and the Ministry of Economy, Trade, and Industry of Japan, hereinafter referred to as the "Participants":

RECOGNIZING technologies involving carbon capture, utilization and storage (CCUS) and Carbon Recycling as one of the future's most promising options to achieve carbon neutral or net negative carbon emissions and promote economic growth;

NOTING, in particular, the important role of advanced fossil fuel technologies together with CCUS and Carbon Recycling in ensuring affordable, reliable, and sustainable energy supplies as well as contributing to a hydrogen economy;

RECOGNIZING the Memorandum of Cooperation between the Department of Energy of the United States of America and the Ministry of Economy, Trade, and Industry of Japan concerning Collaboration in the Field of Carbon Capture, Utilization and Storage signed on October 17, 2017 (the "2017 MOC"); and

DESIRING through this Memorandum of Cooperation (MOC) to enhance collaboration in the area of CCUS and Carbon Recycling as well as enabling a hydrogen value chain, particularly in developing carbon utilization and carbon recycling technologies, such as carbon dioxide plus hydrogen to chemicals, and fossil fuels or waste to hydrogen technologies,

Have reached the following mutual understanding:

## Section 1

### SCOPE

Collaboration under this MOC may include, but is not limited to, the following fields:

1. Sequestration options for carbon dioxide from fossil-fuel-based systems, including capture and storage;
2. Seismic monitoring and risk assessment;
3. Exploration technology and methodology (for example: seismic, logging, reservoir characterization);
4. Development and production technology (for example: enhanced oil production);
5. Carbon dioxide transportation;
6. Prospective CCUS and Carbon Recycling projects in Japan, the United States and in a third country as the Participants may jointly decide;
7. Carbon utilization or carbon recycling;
8. Fossil-fuel-based hydrogen technologies, such as (but not limited to) carbon dioxide plus hydrogen to chemicals and fossil fuel or waste to hydrogen production technologies; and
9. Other fields as the Participants may jointly decide in writing.

## Section 2

### FORMS OF COLLABORATIVE ACTIVITIES

Collaboration under this MOC may include, but is not limited to, the following forms:

1. Exchange of all forms of unclassified scientific and technical information and results of research and development;
2. Organization of seminars, workshops, and other meetings on specific topics;
3. Exchange of samples, materials, instruments, and components for testing, under appropriate written arrangements between both entities involved in the exchange;
4. Visits by specialist teams of individuals from an entity located in the country of one Participant to facilities located in the country of the other Participant, under appropriate

written arrangements between both entities;

5. Exchange of all forms of information which may include business environment (e.g. related regulations and funding sources) as necessary to pursue prospective CCUS or Carbon Recycling projects under Section 1.6 of this MOC;
6. Cooperation in relevant international conferences;
7. Support for efforts in multilateral fora to accelerate cooperation for CCUS and carbon recycling and hydrogen technologies worldwide; and
8. Other specific forms of cooperation as may be added by written arrangement of the Participants.

### Section 3 MANAGEMENT

1. To supervise the cooperation under this MOC, each Participant should designate a Lead Coordinator. Each Participant should also designate a Technical Coordinator and a Project Coordinator to assist its Lead Coordinator in carrying out activities under this MOC. In addition, each Participant should designate a representative responsible for its collaboration in each of the fields listed in Section 1 of this MOC.
2. The Lead Coordinators should meet each year, or as otherwise jointly decided. At those meetings, the Lead Coordinators should evaluate the status of cooperation under this MOC. This evaluation should include a review of the past year's activities and accomplishments and of the activities planned for the coming year. In addition, the Lead Coordinators should consider and act on any major new proposals for collaboration. Technical and Project Coordinators may, at the discretion of the Lead Coordinators, participate in these annual meetings.
3. In particular, Project coordinators should hold a meeting in a timely manner with representative public and/or business sectors as necessary to pursue prospective CCUS and Carbon Recycling projects under Section 1.6. If participants in this meeting anticipate sharing business-confidential information, the Participants should consult with each other and make appropriate written arrangements for the protection of such business-confidential information.

#### Section 4

### INTELLECTUAL PROPERTY; BUSINESS-CONFIDENTIAL INFORMATION

The Participants do not anticipate that this MOC will result in the creation of intellectual property or the exchange of business-confidential information. If the Participants determine that a particular activity under this MOC may result in the creation of intellectual property or the exchange of business-confidential information, they intend to consult with each other and make appropriate written arrangements for the protection of such business-confidential information and intellectual property, and the allocation of rights for such intellectual property.

#### Section 5

### FUNDING

1. Unless jointly decided otherwise in writing, any costs arising from the conduct of activities under this MOC are the responsibility of the Participant that incurs such costs.
2. Collaboration under this MOC is subject to the availability of appropriated funds, personnel, and other resources.

#### Section 6

### GENERAL CONSIDERATIONS

1. Each Participant should conduct the cooperation contemplated by this MOC in accordance with the applicable laws and regulations to which it is subject.
2. This MOC is not legally binding upon either Participant.
3. Upon signature by the Participants, this MOC replaces the 2017 MOC.

#### Section 7

### COMMENCEMENT, MODIFICATION, AND DISCONTINUATION

1. Collaboration under this MOC may commence upon signature by both Participants.
2. This MOC may be modified from time to time by both Participants in accordance with appropriate written arrangements.

3. The Participants may discontinue their collaboration under this MOC at any time in writing by their mutual written decision. A Participant that wishes to discontinue its participation in this MOC may do so at any time and should endeavor to provide at least 90 days prior written notice to the other Participant.

Signed in duplicate in the English language.

FOR THE MINISTRY OF ECONOMY,  
TRADE, AND INDUSTRY OF  
JAPAN:

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

Date:  
Place:

Date:  
Place: