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 / CONVERSION AND RECYCLING, AND CARBON DIOXIDE REMOVAL

The Ministry of Economy, Trade and Industry of Japan (METI) and the Department of Energy (DOE) of the United States of America, hereinafter referred to individually as a “Participant” and collectively as “the Participants",

NOTING the Japan-U.S. Joint Leaders’ Statement of April 16, 2021, the Japan-U.S. Climate Partnership on Ambition, Decarbonization, and Clean Energy, and the Japan-U.S. Clean Energy and Energy Security Initiative (CEESI) in which Carbon Capture, Utilization and Storage (CCUS) / Carbon Recycling and Hydrogen are recognized as clean-energy technologies that Japan and the United States are working together to advance;

RECOGNIZING technologies involving CCUS / conversion and recycling, carbon dioxide removal (CDR), and low-carbon hydrogen / fuel ammonia as critical components of the overall strategy for achieving carbon neutrality or net negative carbon emissions while promoting economic growth;

RECOGNIZING their cooperation on accelerating the transition to a decarbonized society in third countries through multilateral fora, such as the Clean Energy Ministerial CCUS Initiative and the Asia CCUS Network;

RECOGNIZING the 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 signed on October 12 and 13, 2020 (hereinafter referred to as “the 2020 MOC”); and

DESIRING through this Memorandum of Cooperation (hereinafter referred to as “this MOC”) to enhance collaboration in the field of CCUS / conversion and recycling and CDR as well as enabling a low-carbon hydrogen / fuel ammonia value chain, particularly in developing

technologies that produce low-carbon hydrogen / fuel ammonia and carbon-dioxide-derived chemicals and fuels,

Have reached the following recognition:

Section 1
SCOPE

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

1. CCUS / conversion and recycling (for example: reservoir characterization, seismic monitoring and risk assessment, infrastructure);
2. CDR (for example: direct air capture, biomass carbon removal and storage, CO_2 mineralization);
3. Low-carbon hydrogen / fuel ammonia value chain, particularly the production of low-carbon hydrogen / fuel ammonia and carbon-dioxide-derived chemicals and fuels; and
4. 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. Collaborative research and development (R&D) activities, under appropriate written arrangements between the Participants;
2. Facilitation of prospective projects in areas identified under Section 1 of this MOC in Japan, the United States, or a third country as the Participants may jointly decide;
3. Exchange of information on and identification of opportunities to improve business environment (e.g., related regulations and funding sources) for development of technologies identified under Section 1 of this MOC;
4. Exchange of relevant unclassified scientific and technical information and results of research and development, in areas including (but not limited to) CDR and production of low-carbon concrete/cement, chemicals, and fuels as outcomes of the Green Innovation Fund of Japan;
5. Organization of seminars, workshops, and other meetings on specific topics;
6. Exchange of samples, materials, instruments, and components for testing, under appropriate written arrangements between both entities involved in the exchange;
7. 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;

8. Cooperation in relevant international conferences;
9. Cooperation in multilateral fora to accelerate the worldwide advancement of technologies identified under Section 1, including (but not limited to) innovation catalyzation for carbon dioxide removal through Mission Innovation, and capacity building, such as in Asia through the Asia CCUS Network; and
10. Other specific forms of cooperation as may be added by written arrangement of the Participants.

The Participants intend to conduct the following joint activities:

1. Dedicate at least one joint workshop to pursuing joint opportunities for CDR and carbon dioxide conversion technologies;
2. Organize at least one joint seminar or workshop with the goal of building markets for clean energy resources, such as hydrogen and fuel ammonia; and
3. Develop a joint white paper outlining the steps that the Participants can take to best promote technologies identified under Section 1 of this MOC.

Section 3
MANAGEMENT

1. METI's Director General for Natural Resources and Fuel Department and DOE's Assistant Secretary for Fossil Energy and Carbon Management are designated as co-Lead Coordinators to supervise the cooperation under this MOC. Each Participant should also designate a Technical Coordinator and a Project Coordinator to assist its Lead Coordinator in carrying out activities under this MOC. Given other platforms for hydrogen collaboration, all DOE hydrogen / fuel ammonia activities under this MOC are expected to be coordinated with the DOE Hydrogen Program Coordinator and relevant DOE offices.
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. The Project Coordinators should hold a meeting in a timely manner with representative public and/or business sectors as necessary to pursue prospective

projects in areas identified under Section 1. 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.

4. To accelerate cooperation on technologies identified under Section 1 of this MOC, Lead Coordinators are expected to co-chair annual Working Group meetings with participation from government-related, R&D, and industry organizations as necessary to pursue prospective joint projects.

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 intellectual property and business-confidential information, as well as 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 2020 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 through 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:
_____	_____
HAGIUDA KOICHI	JENNIFER M. GRANHOLM
MINISTER OF ECONOMY, TRADE AND INDUSTRY	SECRETARY OF ENERGY
DATE: _____	DATE: _____
PLACE: _____	PLACE: _____