

JAPAN CCS Forum 2022

Financing CCUS projects

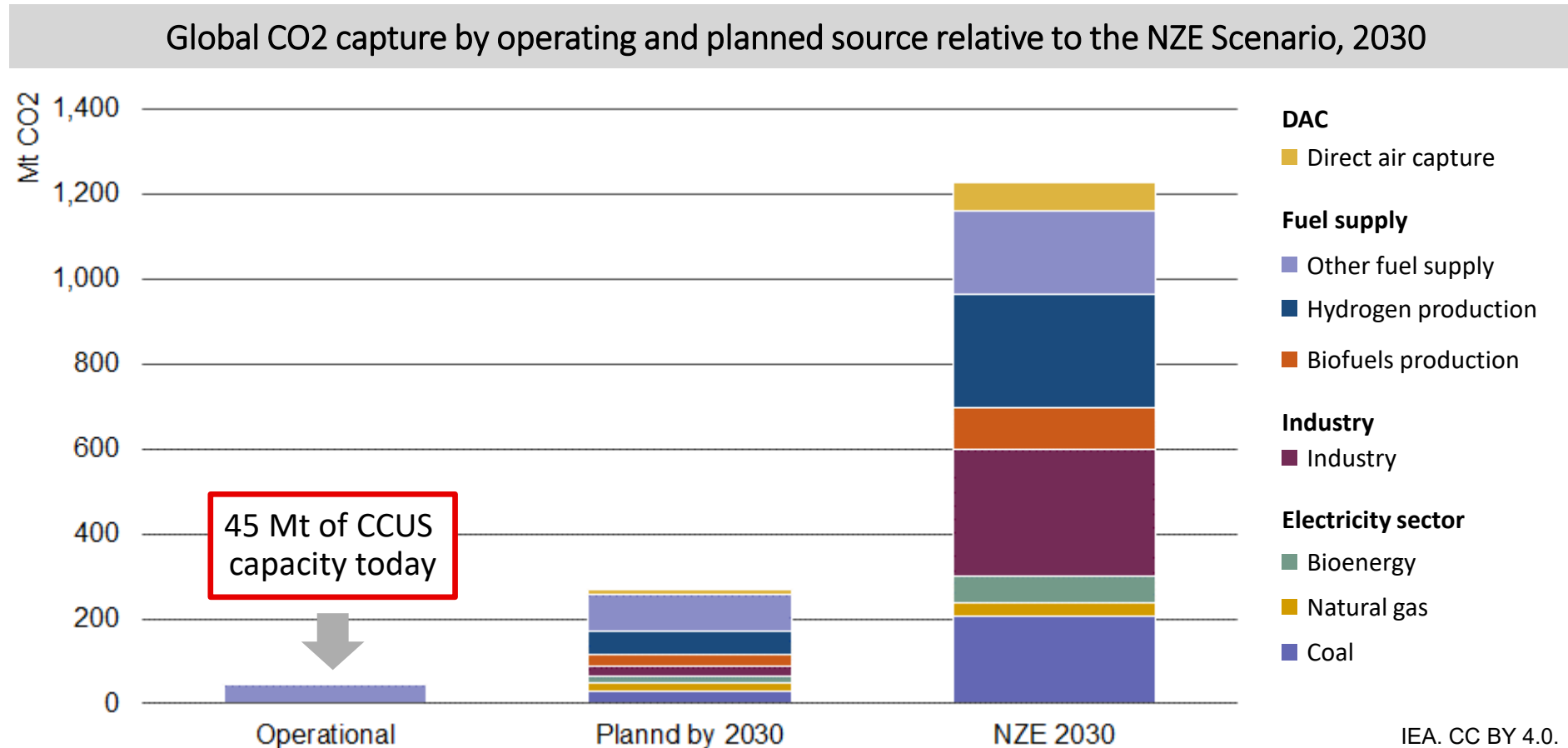
1 December, 2022

MUFG Financial Group



Growing needs for CCUS

- According to the IEA's "World Energy Outlook 2022", the world needs over 1,200 Mt of CO2 capacity for CCUS by 2030, if to follow its NZE scenario.
- Yet the world has only approx. 45 Mt of capacity or 20% of what is planned by 2030.



(Source) International Energy Agency (2022)

Need a business model to make a project bankable

Needs and Purposes

CCUS for zero CO2 emissions from oil/gas fields

CCUS for blue ammonia/methanol/hydrogen production

CCUS for CO2 from utilities/industries/waste management

CCUS for EOR/EGR

BECCS

CCS + DAC

CCS Hub

Points for consideration prior to financing

Compulsoriness

Any regulatory requirements or strong motivation to reduce CO2 emissions from relevant sources?

Financial support

Any incentive schemes or financial assistance from governments?

Business model

Any established business models to duplicate or refer to?



Any alternative business model for suggestion?

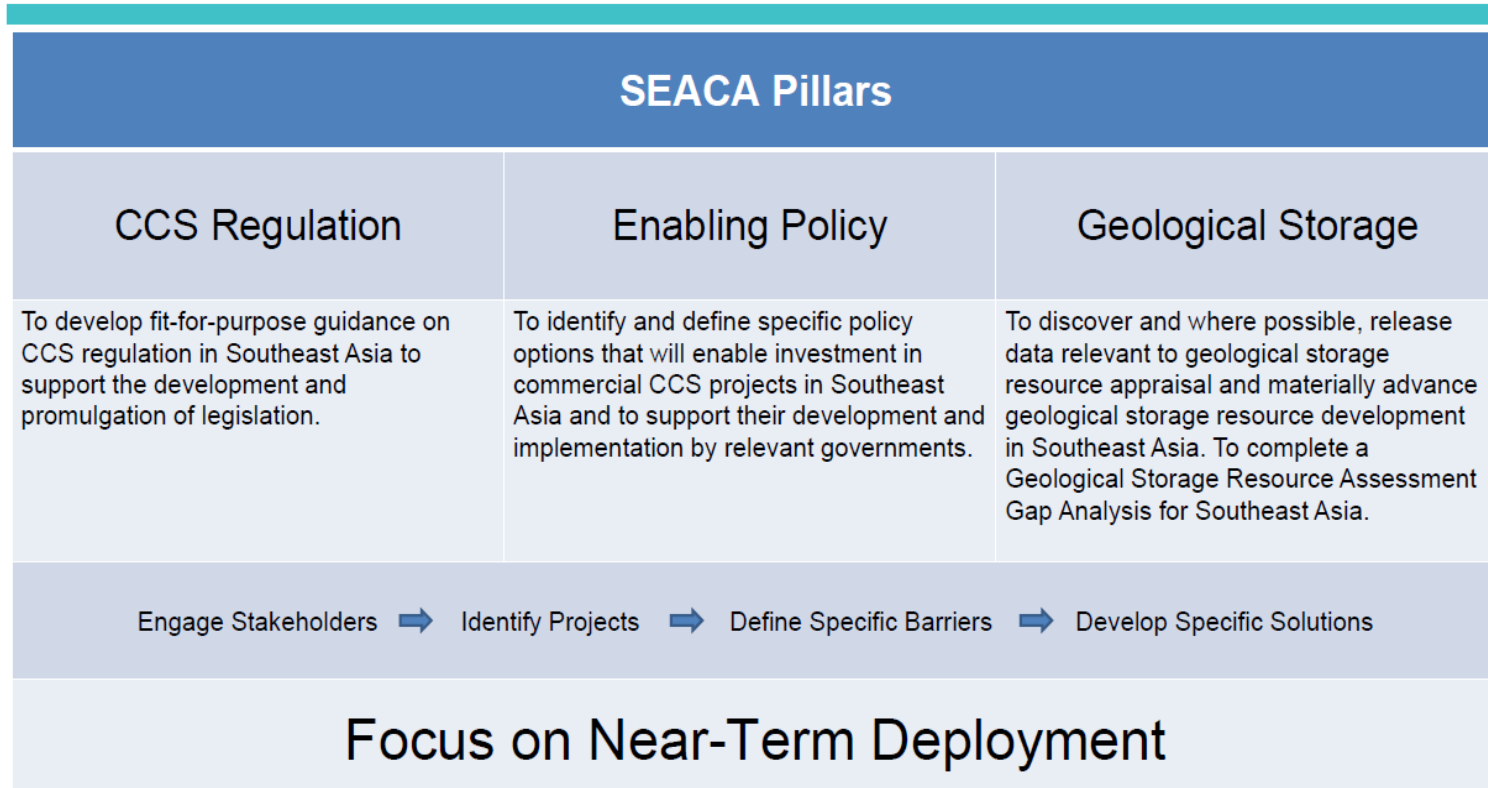
**Importance of “predictability” and “reliability” of cashflows for the bankability
=>Financial institutions can assist in developing a business model**

Financing CCUS projects: Step 1 Identification of risks

Step 1

Identification of risks

SOUTHEAST ASIA CCS ACCELERATOR



(Source) GCCSI (2022)

Main risks involved with CCUS projects

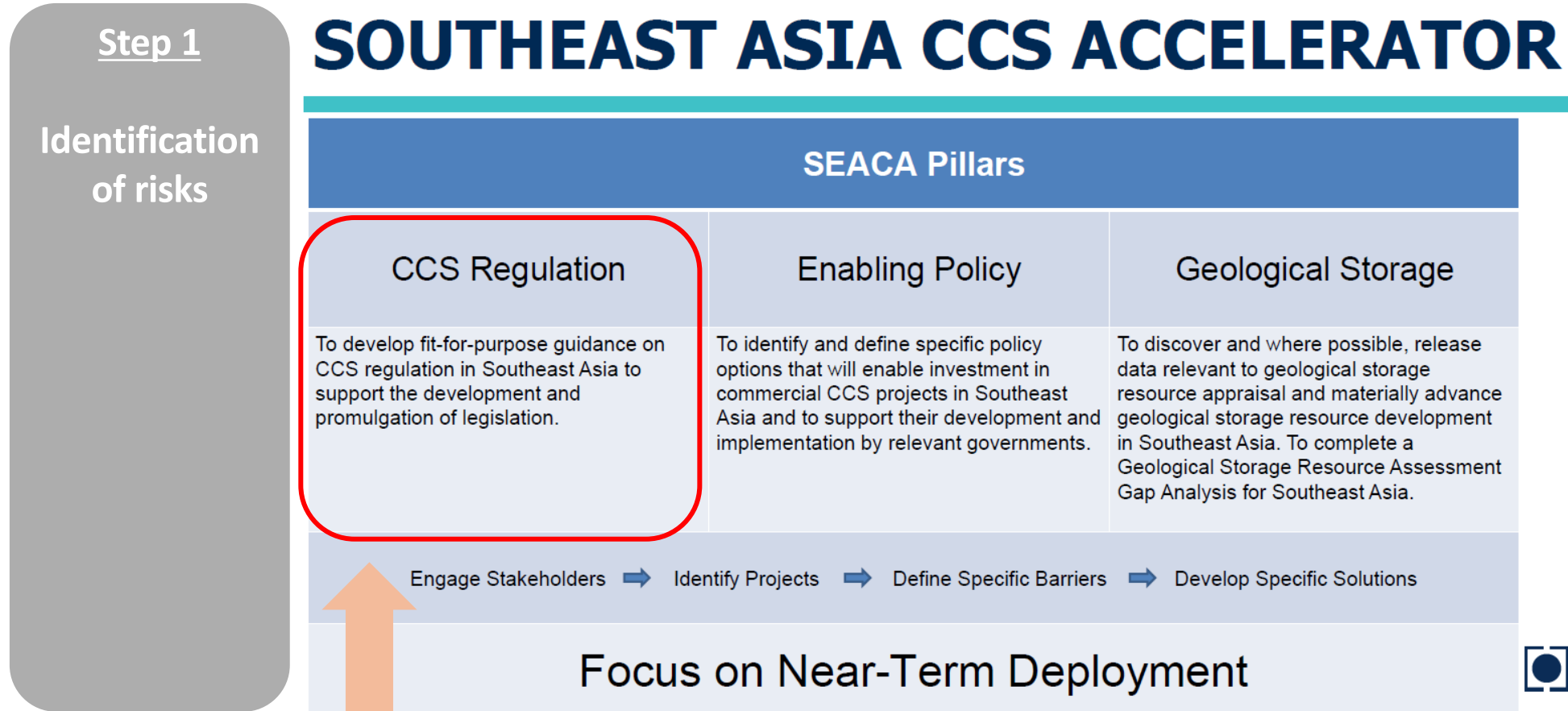
- Risk profile varies with different factors.
- However, for the case of CCUS, it is important to understand not only about the proposed project but also about other projects within a value chain (capturing, transporting, utilizing/storing) for possible negative impacts.

< Examples >

Risks for storing business	Points for consideration
Cashflow risk	■ Assurance for stable sources of revenues and their credibility
Technology risk	■ Commercialized technologies with a track record of applying in a similar environment/conditions ■ With reasonable guarantees
CO2 supply risk	■ Risk-hedging for possible CO2 not supplied from sources
Regulatory risk	■ Measures in case for change in regulations
Construction risk	■ Measures for a possible delay in completion or cost-overruns
Operation risk	■ Measures for possible low-performance, temporary halt of operation, cost-overruns
Carbon credit-related risk	■ Change in a carbon crediting system or rules, if compulsory ■ Measures for a fluctuation of the prices
Site-closing risk	■ Clarity in liability issues and counter-measures

.... and more

Financing CCUS projects: Step 2 Identification of responsible parties



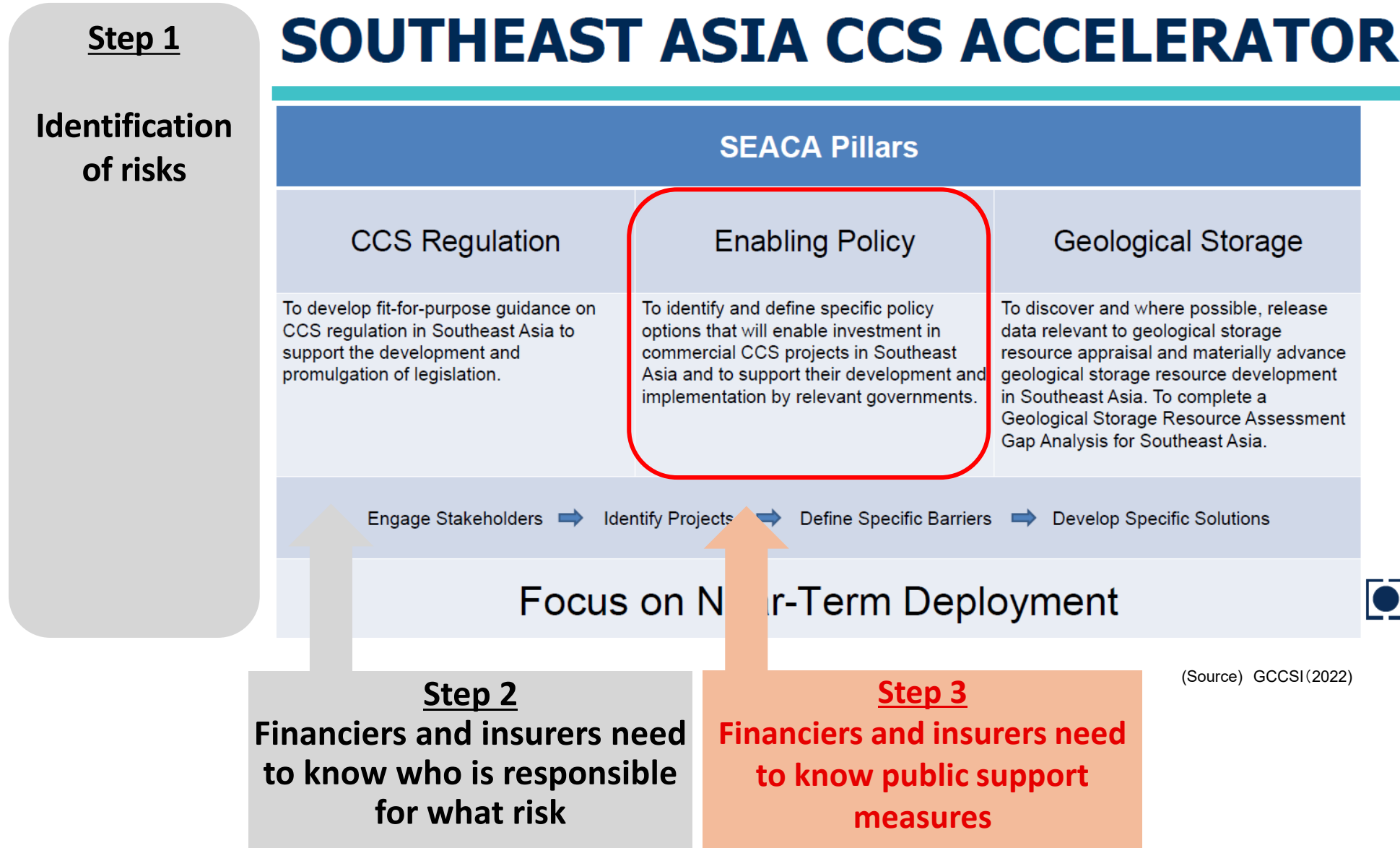
Step 2
Financiers and insurers need to know who is responsible for what risk

(Source) GCCSI (2022)

Identification of responsible parties

- Regulatory frameworks clarify costs borne by and specific liabilities related to CCUS projects
- For liabilities, financiers and insurers have a range of ways to de-risk “conventional” risks related to projects
- What is missing is de-risking measures for “unconventional” project risks (i.e. CCUS-specific risks), especially with:
 - A temporal operation halt due to unexpected technical problems even with commercialized technologies
 - Liability issue related to CO₂ leakage prior to and post-site closure
 - Monitoring requirements
 - Treatment of carbon credits in case of CO₂ leakage

Financing CCUS projects: Step 3 Support measures



Examples of public support measures to secure a revenue stream (1)

Countries	Examples of the sources of the revenue streams	Examples of public support measures
US	<ul style="list-style-type: none"> ■ CO2 capture, transportation, storage service fee or payment using public support schemes from emitters (e.g. industries from hard-to-abate sectors, waste incinerators, hydrogen/ammonia/methanol and other basic chemical producers, etc.) ■ Sale of carbon credits ■ (CCS-EOR/EGR only: Sale of additional oil/gas recovered) 	<ul style="list-style-type: none"> ■ Tax credits with direct payment and transferability provisions (“45Q” and “Inflation Reduction Act”) ■ Subsidies for covering CAPEX for a selected number of CCUS projects ■ Loan guarantees for anthropogenic GHGs
UK		<ul style="list-style-type: none"> ■ “Industrial Decarbonisation and Hydrogen Revenue Support” scheme (under consideration) ■ Subsidies for utilities (e.g. Contract for Difference) ■ Financial support to develop offshore storage and onshore infrastructure for selected projects ■ Possible support measures under the UK Emission Trading Scheme

Examples of public support measures to secure a revenue stream (2)

Countries	Examples of the sources of the revenue streams	Examples of public support measures
Canada	<ul style="list-style-type: none"> ■ CO2 capture, transportation, storage service fee or payment using public support schemes from emitters (e.g. industries from hard-to-abate sectors, waste incinerators, hydrogen/ammonia/methanol and other basic chemical producers, etc.) ■ Sale of carbon credits ■ (CCS-EOR/EGR only: Sale of additional oil/gas recovered) 	<ul style="list-style-type: none"> ■ Investment tax credits for CCUS (excl. CO2-EOR) up to 2040
Japan		<ul style="list-style-type: none"> ■ Subsidies for covering CAPEX for a selected number of CCUS projects
Netherlands		<ul style="list-style-type: none"> ■ Subsidies for covering CAPEX for a selected number of CCUS projects ■ Subsidy for price differences for CO2 against EU-ETS for a list of project type, including hydrogen and CCS for max. 15 years (SDE++ Subsidy Fund)
Malaysia		<ul style="list-style-type: none"> ■ Tax incentives for 10 years ■ Carbon pricing under consideration

Financing CCUS projects: challenges to overcome for the bright future

- CCUS is critical for countries to achieve carbon neutrality.
- Financiers and insurers need regulator frameworks or something of equivalent to clarify the liability issues.
- “Predictability” and “reliability” are important for bankability.
 1. What are core elements that need to be predictable and reliable and for how long?
 2. What are the most important piece(s) in the regulatory frameworks for CCUS?
What are expectations for policymakers?
- Different incentive schemes are available today, and many are still newly introduced or under consideration.
 1. Where the public supports are most needed?
 2. What may work for Asia?

Disclaimer

- This material does not constitute any commitment by MUFG Bank, Ltd. (hereinafter "MUFG Bank") to you or any agreement between you and MUFG Bank. MUFG Bank is not responsible for any legal obligation or responsibility to you arising from or relating to this material.

When considering entering into the financing transaction proposed in this material, you are advised to obtain independent professional advice on accounting, tax and legal matters and risks, etc. in connection with the structure of such financing transaction.

The terms and conditions (such as the interest rates, etc.) set out in this material are indicative only, and are subject to change without notice.

Any commitment by MUFG Bank for arrangement activities or agent services or to provide credit (including the execution of any agreement) will be subject to the completion of satisfactory due diligence by, and internal credit approvals of, MUFG Bank. In some cases, final determination of MUFG Bank may not meet your needs.

This material is for your internal use only, and no part of this material may be reproduced or redistributed for any purpose.

This material is only a proposal from MUFG Bank. Before entering into any particular transaction, you are requested to compare this proposal with other financing methods and consider the advantages and disadvantages and the costs, etc. of this proposal.

This material has been prepared based on general information available as of the date hereof and data which is deemed to be reliable. However, MUFG Bank does not guarantee the accuracy or completeness of such information or data. All of the contents of this material reflect judgments made by MUFG Bank at this stage. MUFG Bank is not and will not be responsible for any loss suffered by you in connection with or relating to this material. You are required to consult with your own lawyers, tax advisors, accountants or other professional advisors on the issues which require professional advice.

MUFG Bank and Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. are separate entities. This material does not describe any products or services offered by Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. None of the directors, officers or employees of MUFG Bank is allowed to conduct solicitation activities in connection with any products or services offered by Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.

MUFG Bank holds the copyright of this material, which is protected by the Copyright Act of Japan and its equivalent. No part of this material may be quoted, reproduced or redistributed for any purpose without the prior written permission of MUFG Bank.

Copyright 2022 MUFG Bank, Ltd. All rights reserved.

Sustainable Business Division 7-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-0005, Japan

Designated dispute resolution organization with which MUFG Bank has concluded an agreement: Japanese Bankers Association

Inquiries: JBA Customer Relations Center

■ Telephone: 0570-017109 (within Japan only) or +81-3-5252-3772

■ Operating Hours: from 9am to 5pm, Monday through Friday (except for national holidays, December 31 and January 1-3 etc.)

Note: Please note that the above organization have certain conditions, including the requirement that a petitioner or his/her/its agent can handle matters in Japanese language and the restriction that governing laws associated with contracts or legal actions that are subject to disputes are limited to Japanese laws.

- MUFG Bank, Ltd. (Sustainable Business Division)
2-7-1, Marunouchi, Chiyoda-ku,
Tokyo 100-8383, Japan

www.mufg.jp/english