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GLOBAL CCS INSTITUTE UPDATE

CSLF Technical Group Meeting
1 May , 2017

Cover image: Aerial view of Tomakomai CCS Demonstration Project facilities located at Tomakomai City, Hokkaido, Japan. Image provided by JCCS.



The Global CCS Institute

Our Vision for CCS:

CCS is an integral part of a low-carbon future

OUR MISSION
To accelerate the
deployment of CCS
globally

1

Fact-based,
influential
advice and
advocacy

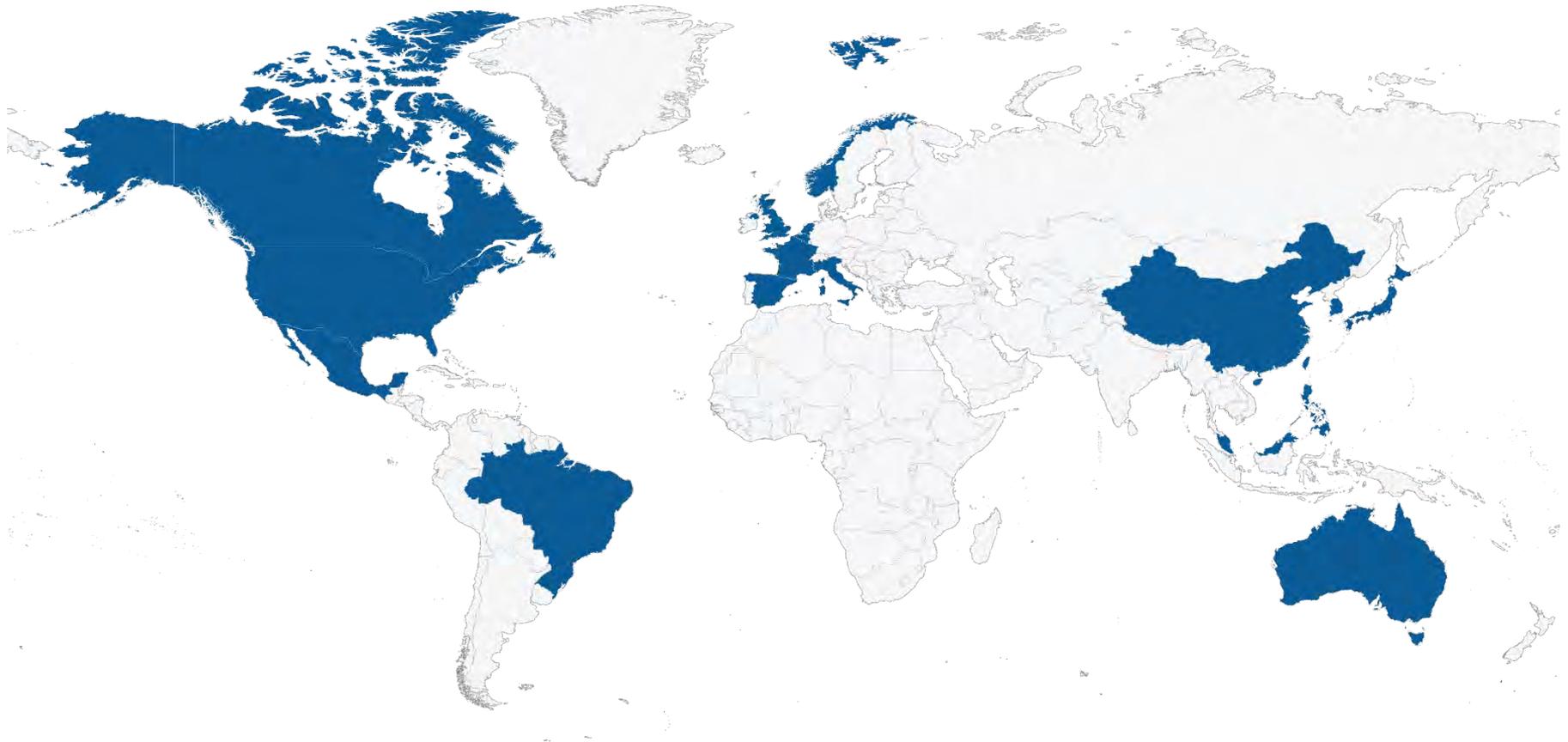
2

Authoritative
knowledge
sharing

- An international membership organisation
- Melbourne, Washington DC, Brussels, Beijing and Tokyo
- Diverse international membership
 - governments
 - global corporations
 - small companies
 - research bodies
 - non-government organisations
- Specialist expertise covers the CCS/CCUS chain

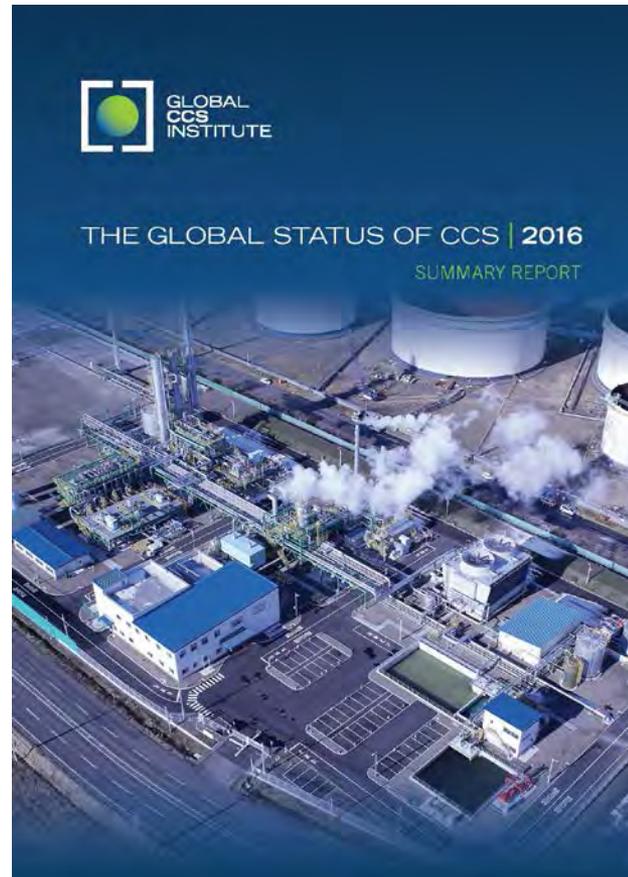


The Global CCS Institute





The Global Status of CCS





A significant task within one generation

Global Status of CCS April 2017

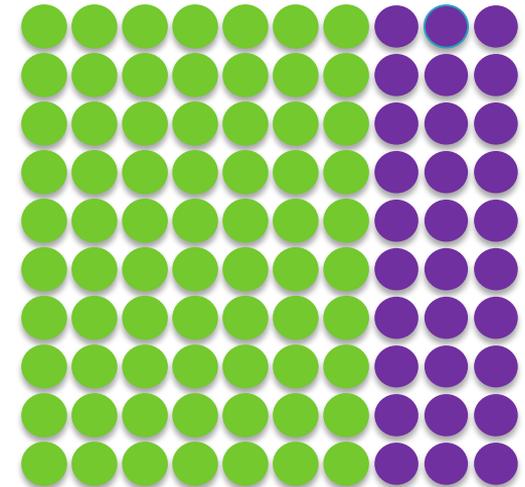
40 large-scale CCS facilities - combined CO₂ capture capacity of approximately 73 Mtpa*:

- 22 facilities in operation or construction (~40 Mtpa)
- 7 facilities in advanced planning (~14 Mtpa)
- 11 facilities in earlier stages of planning (~19 Mtpa)

40 Mtpa



Almost 4,000 Mtpa of CO₂ captured and stored by 2040
(IEA 2DS Scenario)**



● Non-OECD ● OECD

*Mtpa = million tonnes per annum

**Source: IEA, 2016. *Energy Technology Perspectives: Towards Sustainable Urban Energy Systems*. Paris. OECD/IEA.



Large-scale CCS facilities by region/country

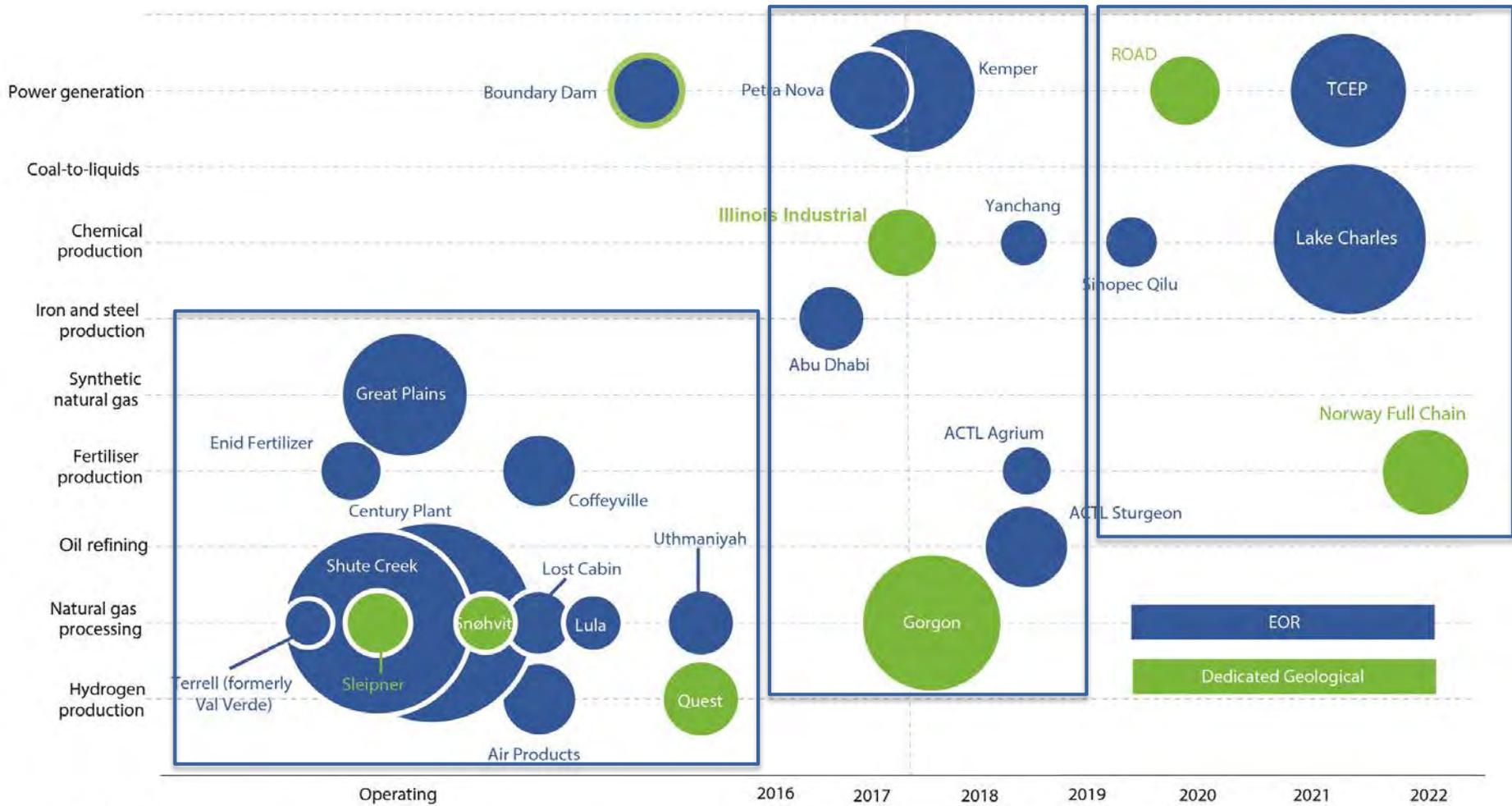
	Early planning	Advanced planning	Construction	Operation	Total
North America	1	2	3	12	18
China	5	2	1	-	8
Europe	2	2	-	2	6
Gulf Cooperation Council	-	-	-	2	2
Rest of World*	3	1	1	1	6
Total	11	7	5	17	40

* Includes facilities in Australia, Brazil and South Korea.

North America dominates – 15 (of 22) facilities in operation or construction, China has most facilities in planning, facility pipeline needs replenishment



Large-scale CCS projects by industry, storage type*



 = 1Mtpa of CO₂ (area of circles proportional to capacity)

* Includes projects in the Operate, Execute and Define stages



Expanding beyond North America





Regional analysis – North America

- Has well over half the large-scale projects in operation or under construction
- Home to all three of the world's large-scale CCS power projects in operation or under construction
- CO₂-EOR providing significant business case support
- Policy actions and incentives to drive CCS deployment must complement regulatory action on emissions standards (which are under legal challenge in the US)
- US DOE supports an extensive R&D program into CCS technologies
- Brazil and Mexico advancing CCS/CCUS programs



Regional analysis – Asia Pacific

- Yanchang Integrated CCS Demonstration Project in China progressed to construction March 2017 – first large-scale CCS project in Asia
 - China has additional seven large-scale CCS projects in various stages of planning, and many demonstration and pilot-scale projects in operation
- World's largest dedicated geological storage project – the Gorgon Carbon Dioxide Injection Project in Australia – is expected to be operational in 2017
- Japan and Korea have CCS activities at pilot and demonstration scale:
 - Japan – Tomakomai CCS Demonstration Project began operations in April 2016; carbon capture at the Mikawa power plant is planned for ~2020; first phase of the Osaki CoolGen Project is operational
 - Korea – KEPCO is testing advanced capture technologies
- A key focus is increasing knowledge of storage potential in the region
- Legal and regulatory advances are required in some jurisdictions



Regional analysis – Europe

- CCS ambition at start of the decade has not been realized, however Europe continues to make a significant contribution to CCS development
 - 20 years of successful CO₂ storage at Sleipner (Norway)
 - Initiation of Norwegian full-chain CCS project concept definition studies
 - The Dutch ROAD Project remains a significant project in mainland Europe
 - The Teesside Collective Project could be key demonstrator of Industrial CCS

- UK affirmed continued commitment to CCS, a new CCS strategy is expected from UK Government

- Ongoing reform to EU-ETS and activities under the Strategic Energy Technology (SET) Plan process offer platforms for longer term CCS deployment

- Development of CCS ‘Hub and Cluster’ opportunities are key area of interest in region



Regional analysis – Gulf Coast Council (GCC)

- GCC countries are at an early stage of CCS deployment
- Saudi Arabia is home to region's first operational large-scale CCS project
- UAE hosts world's first CCS project in iron/steel sector
- Focus of CCS activity in region is two-fold:
 - validate large-scale projects under local conditions
 - support R&D activities
- Confidence from these programs is key driver for longer-term deployment



Evolution of the Institute

The CCS landscape is changing, and so is the Global CCS Institute

Aspect	From	To
Members	Membership	Member-led
Focus	Knowledge Sharing	Advocacy
Approach	Quiet, Non-controversial	Bold, Provocative
Research	Prolific	Deliberative, Impactful
Finances	Deficit	Break-Even



Changing the Narrative



Affordable

Versatile

Profitable

Essential

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