The Global Storage Readiness: A Global CCS Institute Analysis*

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Abstract

The identification of suitable sites for the geological storage of carbon dioxide (CO_2) is a critical step in the deployment of a carbon capture and storage (CCS) worldwide. An inventory has been created of the storage readiness of individual countries, which is whether a country has identified suitable storage sites and is prepared to undertake geological storage. This inventory is known as the Global Storage Readiness Indicator. The Indicator uses a series of criteria to evaluate storage readiness of each country, including the level of detail of CO_2 storage studies and technical experience in CO_2 injection. The analysis found that six countries are prepared for large-scale storage, five countries are well advanced and the majority (32) of countries are in the early stages of understanding their storage potential. The Global Storage Readiness Indicator will be updated regularly.

Selected References

Bachu, S., 2003, Screening and Ranking of sedimentary basins for sequestration of CO_2 in geological media in response to climate change: Environmental Geology, v. 44, p. 277-289.

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International Energy Agency (IEA), 2013, Technology roadmap: carbon capture and storage: IEA, 63p. Website accessed April 3, 2016, http://www.iea.org/publications/freepublications/publication/technologyroadmapcarboncaptureandstorage.pdf.

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The Global Storage Readiness: Global CCS Institute Analysis

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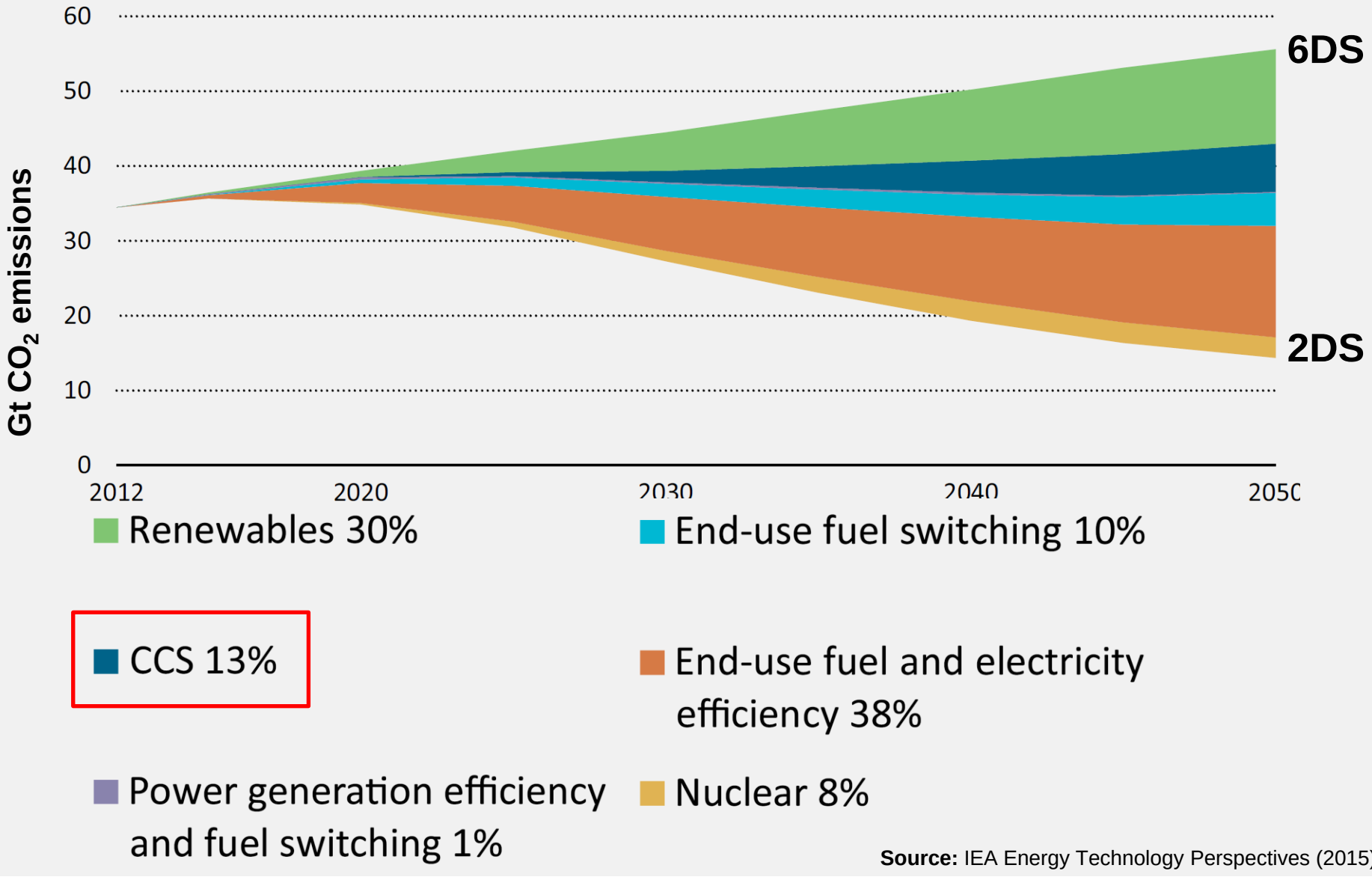
Contributions of technology area/sector to global emissions reductions between 6DS and 2DS



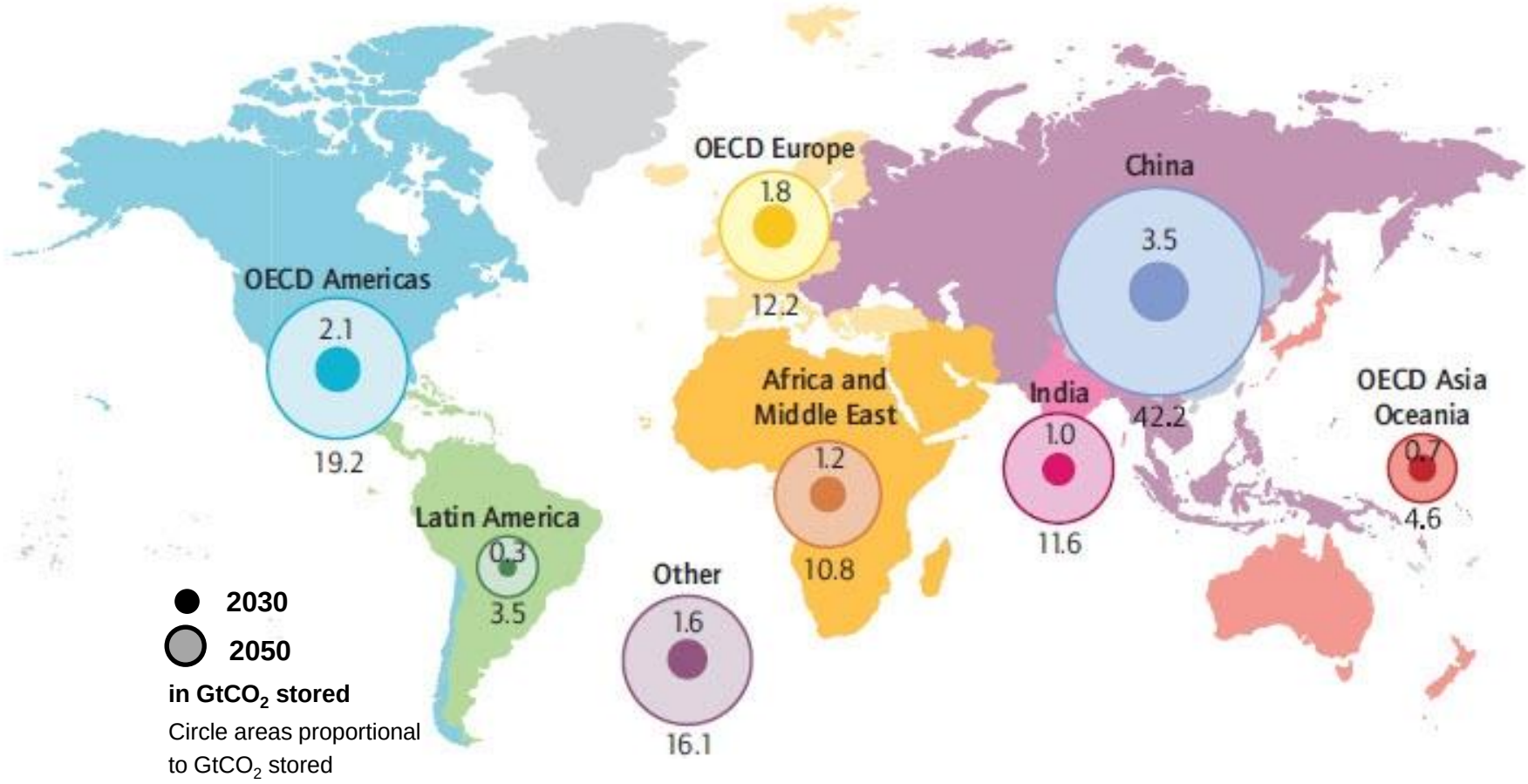
Source: IEA Energy Technology Perspectives (2015)

2015-2050

120 Gt

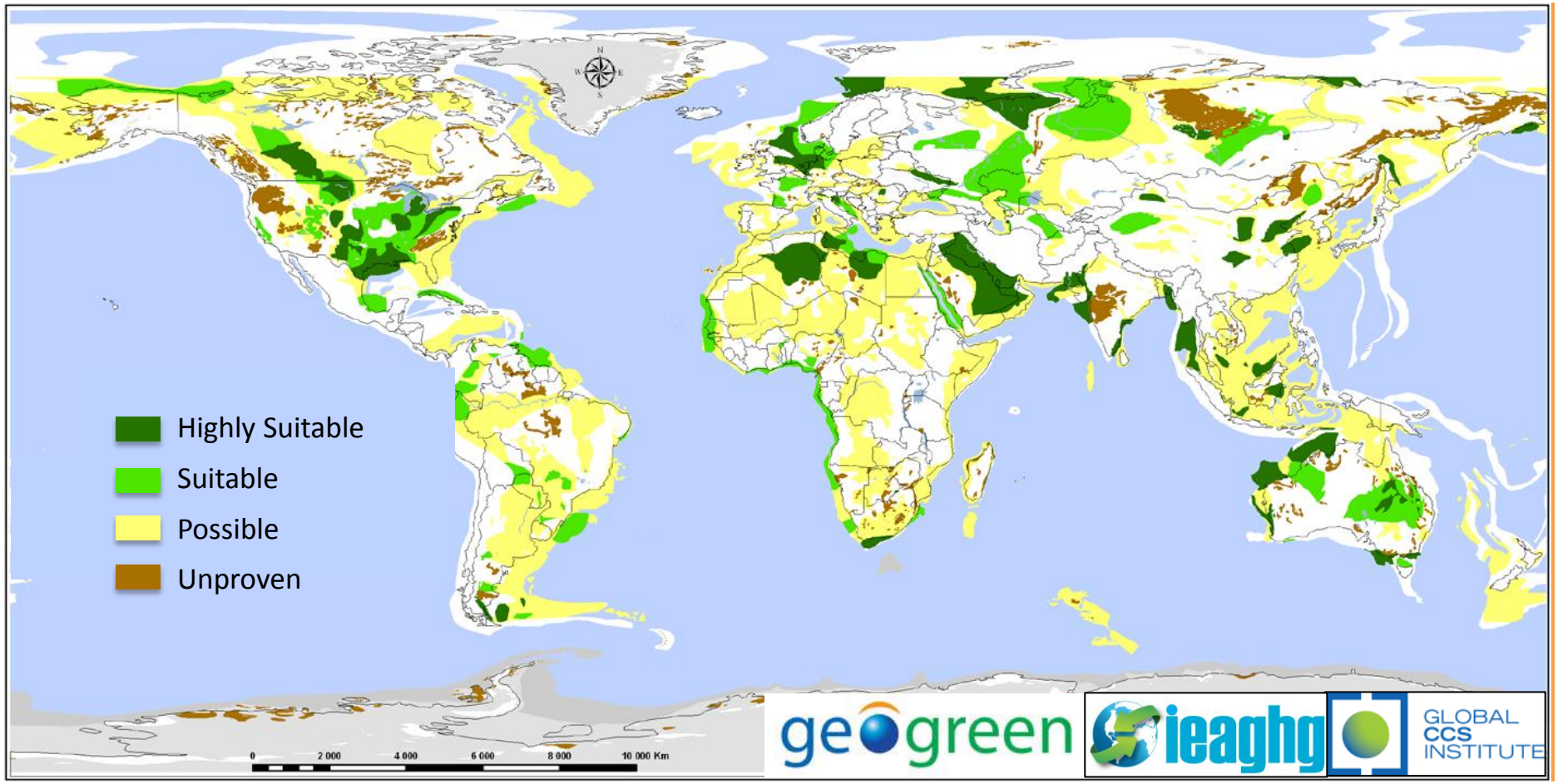
IEA 2 degree scenario: where

- Between 2015 and 2050 we need to store 120 Gt
- 2050 we will need to capture and store 6 Gt/yr



Source: IEA (2012)

Storage is globally distributed



...at this level of detail

What do we need to get to 120 Gt?

“Regionally relevant, globally connected”

Global capacity

National to basin-scale prospectivity

Effective capacity

Site-scale characterisation

Practical capacity

Source-sink matching

National roadmaps and infrastructure plans

Globally storage ready

What is storage ready?

A country that has, within their jurisdictional boundaries, the ability to safely and securely inject millions of tonnes of CO_2. For a country to advance to this stage they have to meet a series of criteria including:

- Strong knowledge of their storage resource
- Applied research and development projects
- Achieve deployment of actual injection projects.

2014
Global Storage Readiness

Global Storage Readiness: 2014

- **60+ countries reviewed**
- Methodology:
  - Focus on geology, expertise, knowledge, projects
    - Similar to Bachu (2003) basin screening method

Criteria

Has the country any conventional storage potential. Yes/No

1. Regional potential
2. Regional assessment
3. Dataset
4. Assessment maturity
5. Pilot project
6. Commercial project
7. Knowledge dissemination

Global Storage Readiness: 2014

- **60+ countries reviewed**
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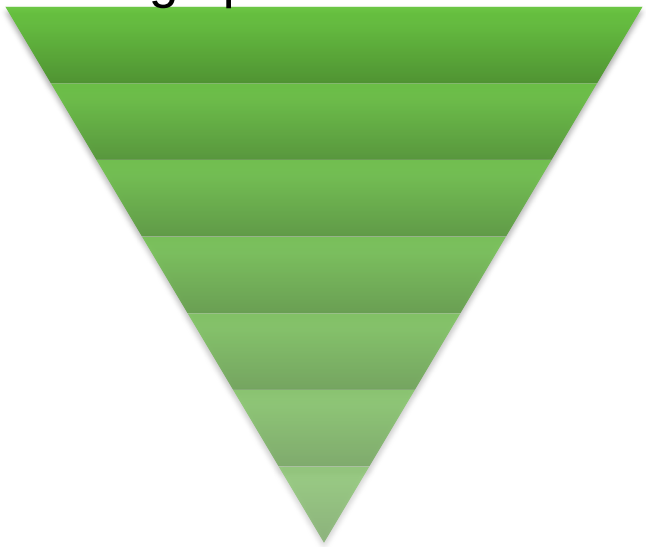
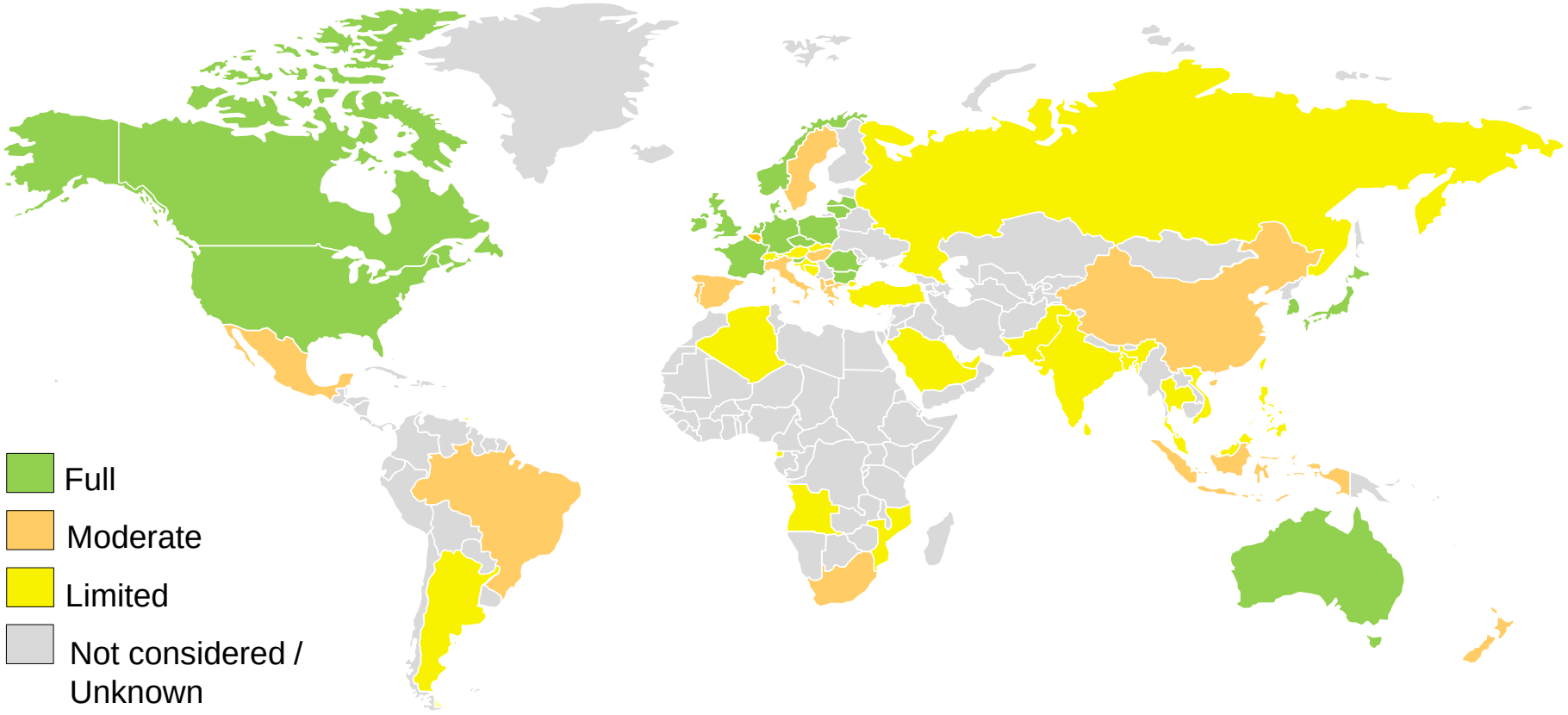
Weighted Criteria

Has the country any conventional storage potential. Yes/No

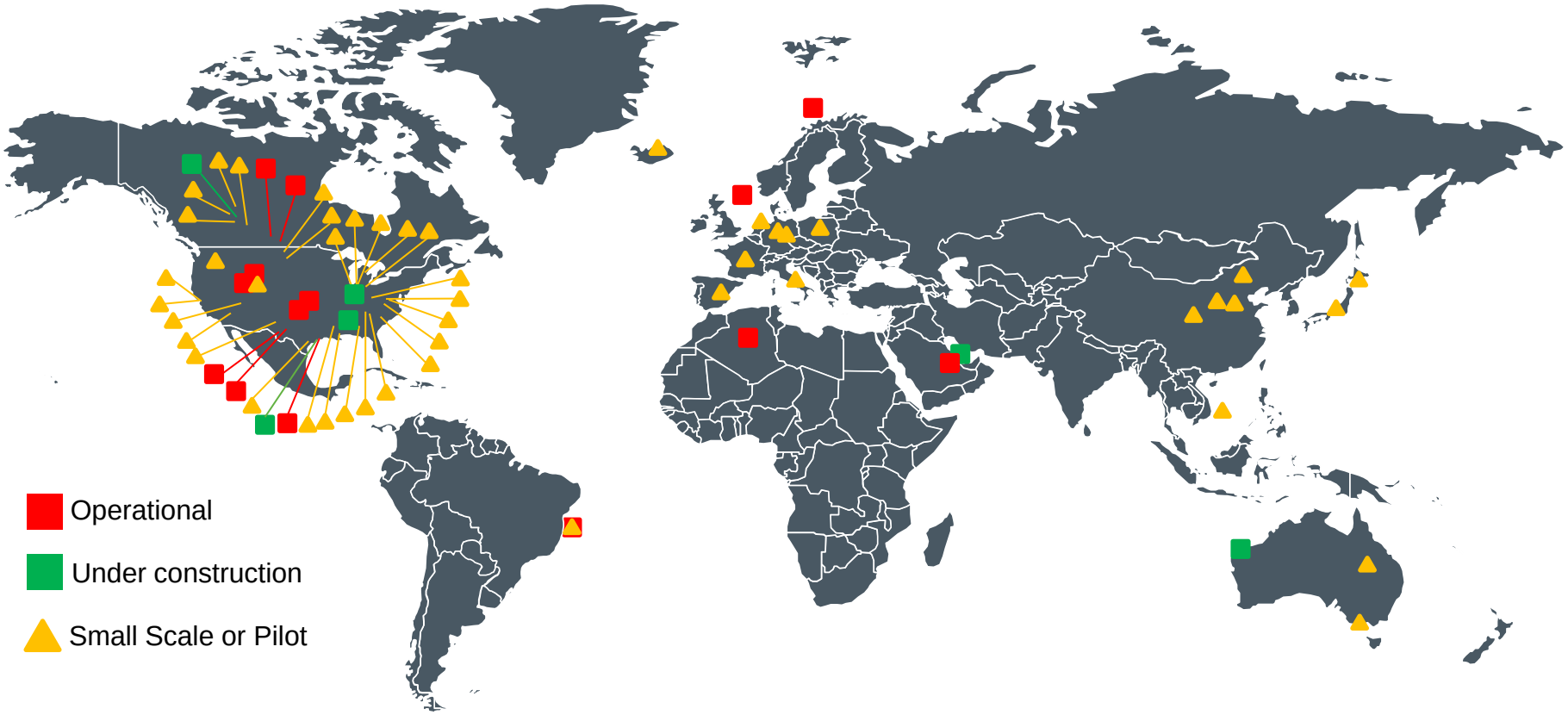
1. Regional potential
2. Regional assessment
3. Dataset
4. Assessment maturity
5. Pilot project
6. Commercial project
7. Knowledge dissemination



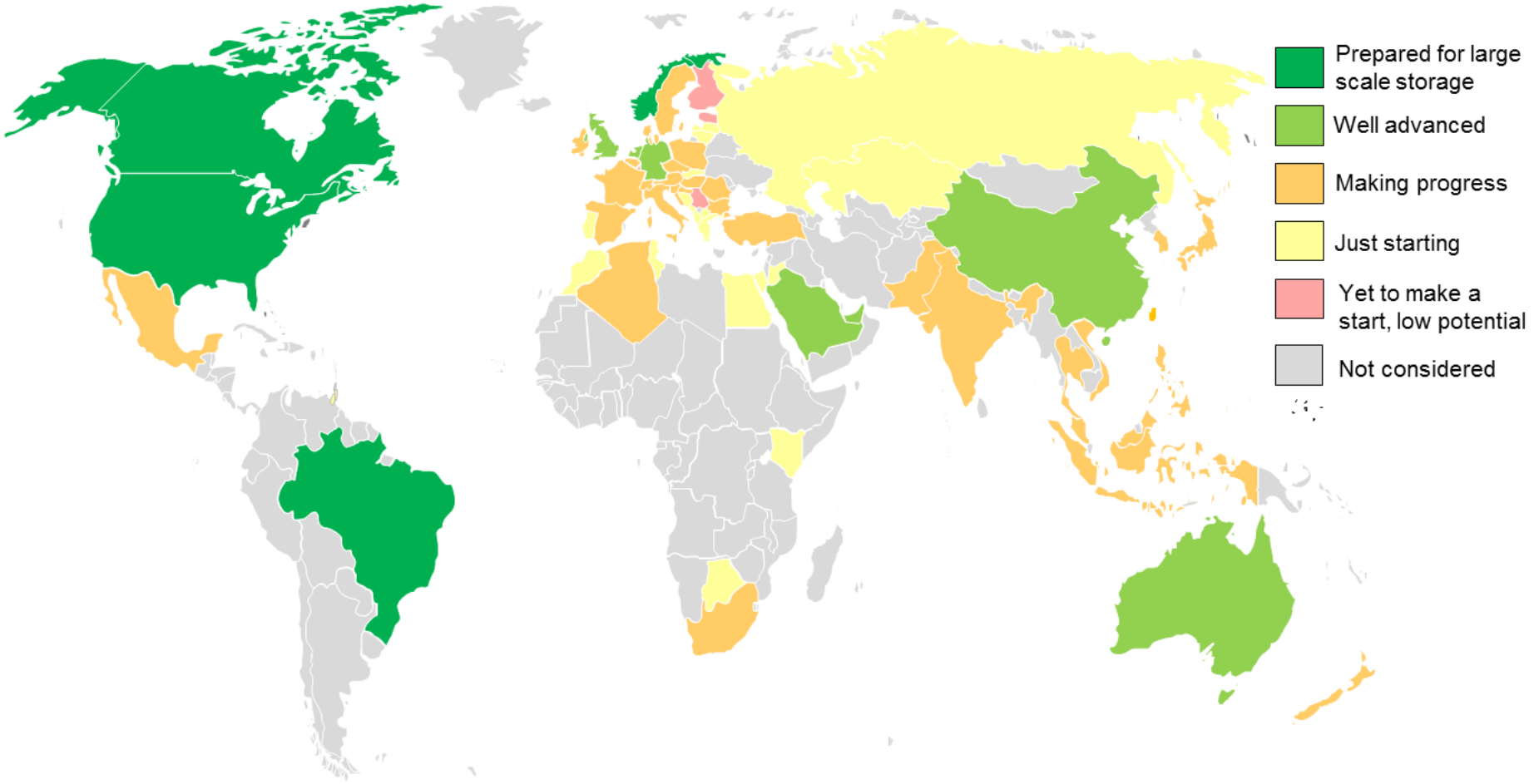
Regional assessment and maturity



CO_2 injection projects



Global Storage Readiness: 2014



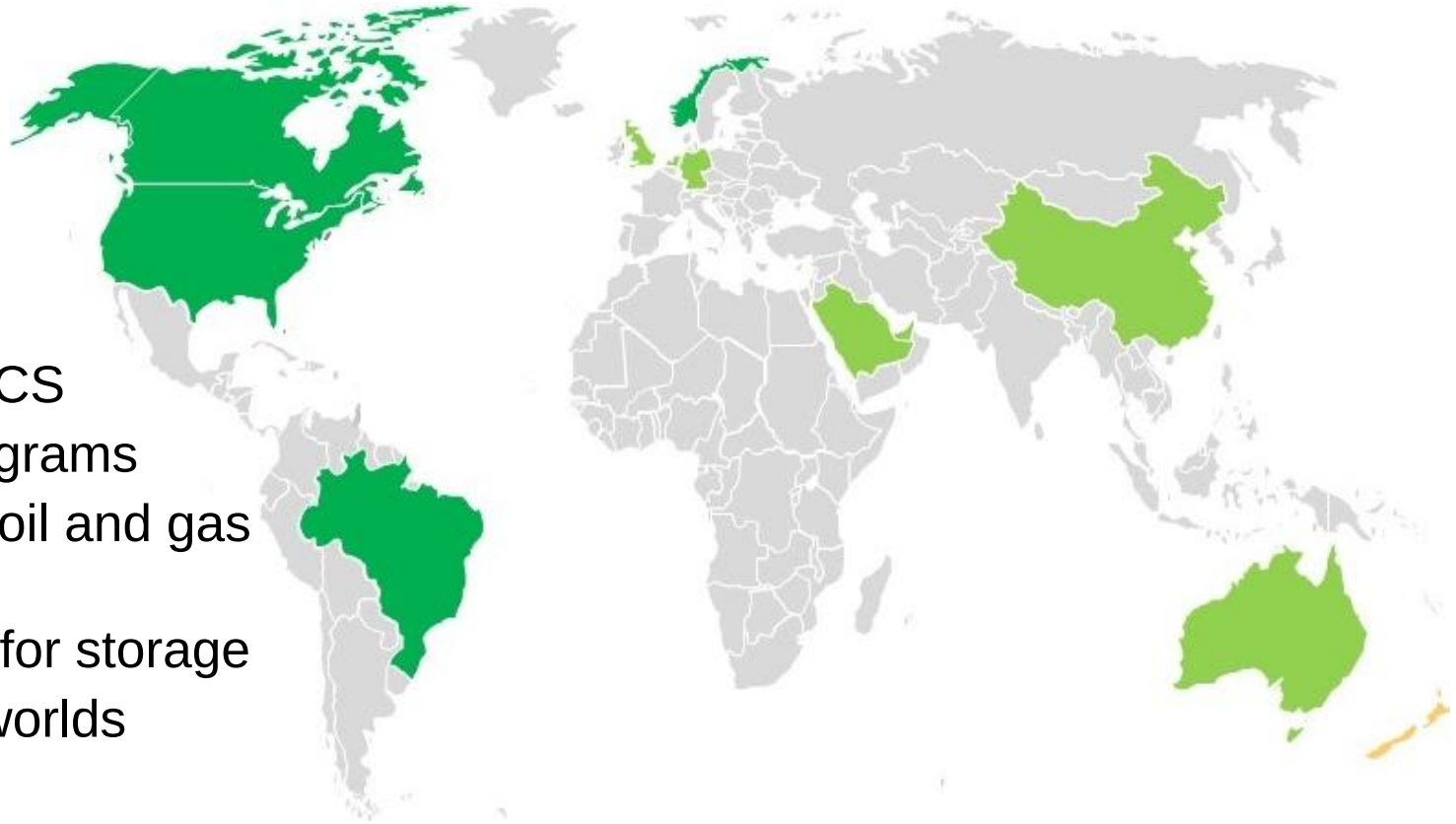
2014: prepared or well advanced

Prepared

- Brazil, Canada, Norway, USA

Well advanced

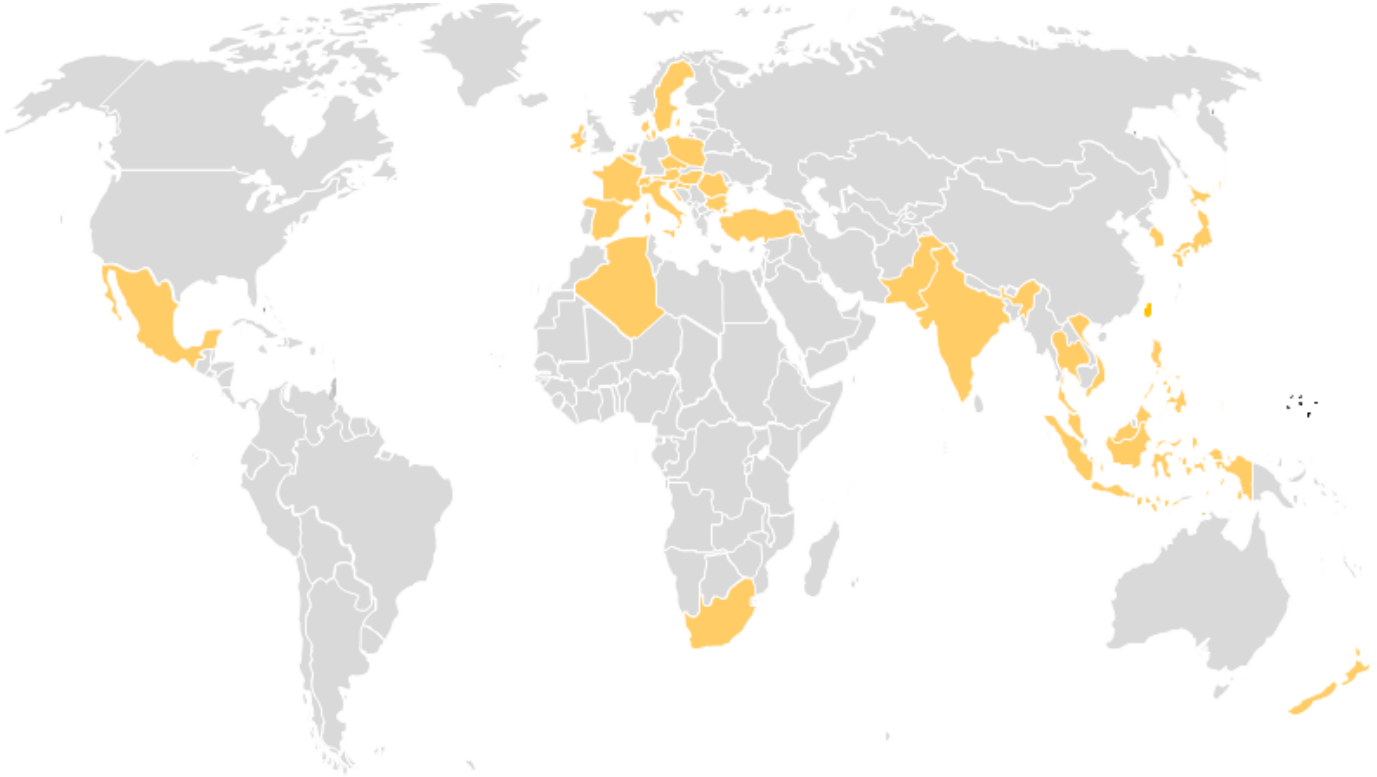
- Australia, China, Germany, Netherlands, Saudi Arabia, UAE, UK



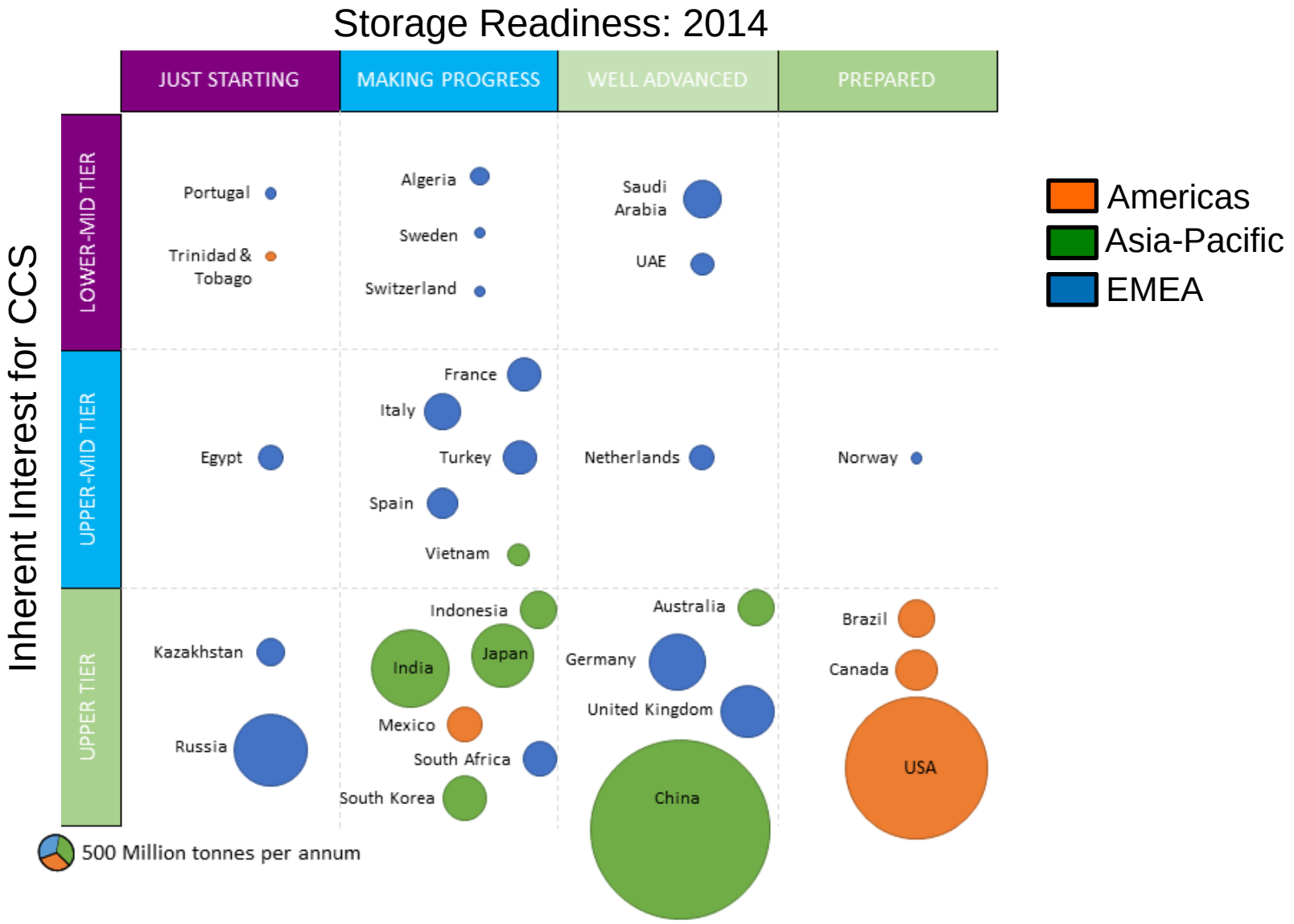
- History of CCS
- Storage programs
- ~Advanced oil and gas industry
- ~Incentives for storage
- Majority of worlds emissions

2014: making progress

- 31 Countries
- Advanced, emerging and developing
- Good to some knowledge of storage and capacity
  - Detailed studies completed in most countries
- Do not meet all criteria or have low-storage potential



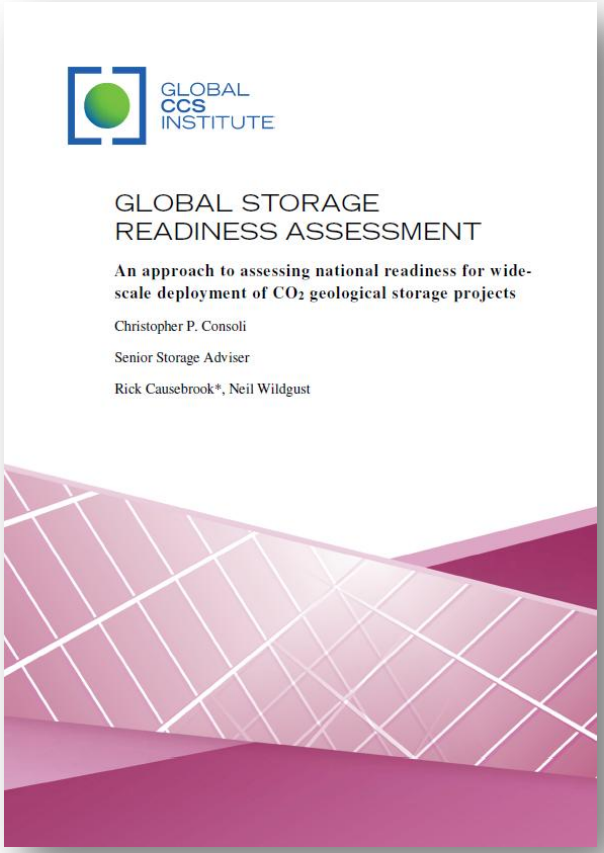
Global Storage Readiness vs CCS Interest



Global Storage Readiness: 2014

- Designed to be updated regularly
- Part of a series of ‘living documents’ to evaluate progression of CCS

- This year’s report:
  - Provides review of the status of global storage readiness in 2014
  - Makes recommendations for decision makers
  - Full report is available online



Now available

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