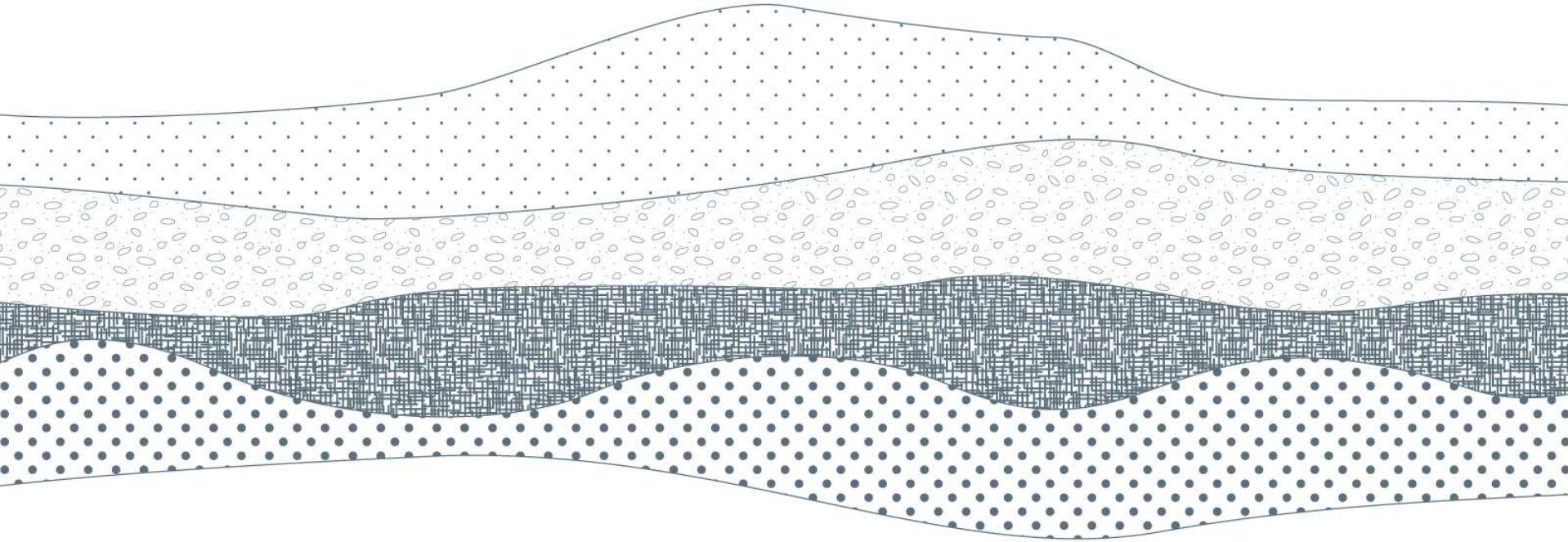




GLOBAL
CCS
INSTITUTE



Maurice Hanegraaf
Global CCS Institute

OVERVIEW

- GLOBAL CCS INSTITUTE
- THE GLOBAL STATUS OF CCS 2010 REPORT
- PRIORITIES

Global CCS Institute

To accelerate the development and deployment of CCS globally so that CCS plays a significant role in reducing GHG emissions

1. ASSISTING PROJECTS

- Bridging between demonstration efforts
- Developing project-specific solutions for early movers

1. SHARING KNOWLEDGE

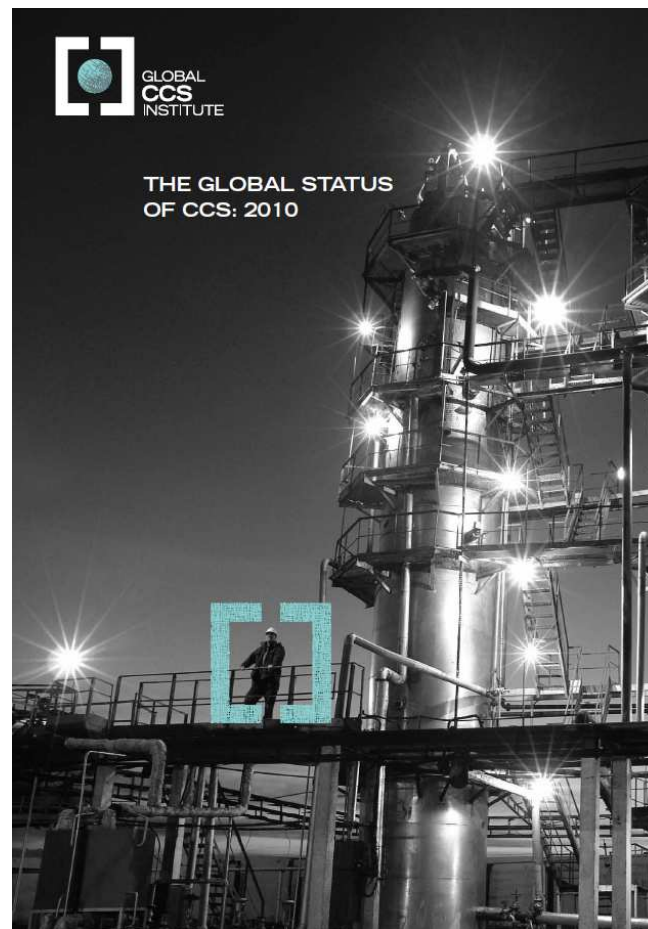
- Sharing real experiences, filling knowledge gaps and building capabilities

1. FACT-BASED ADVOCACY

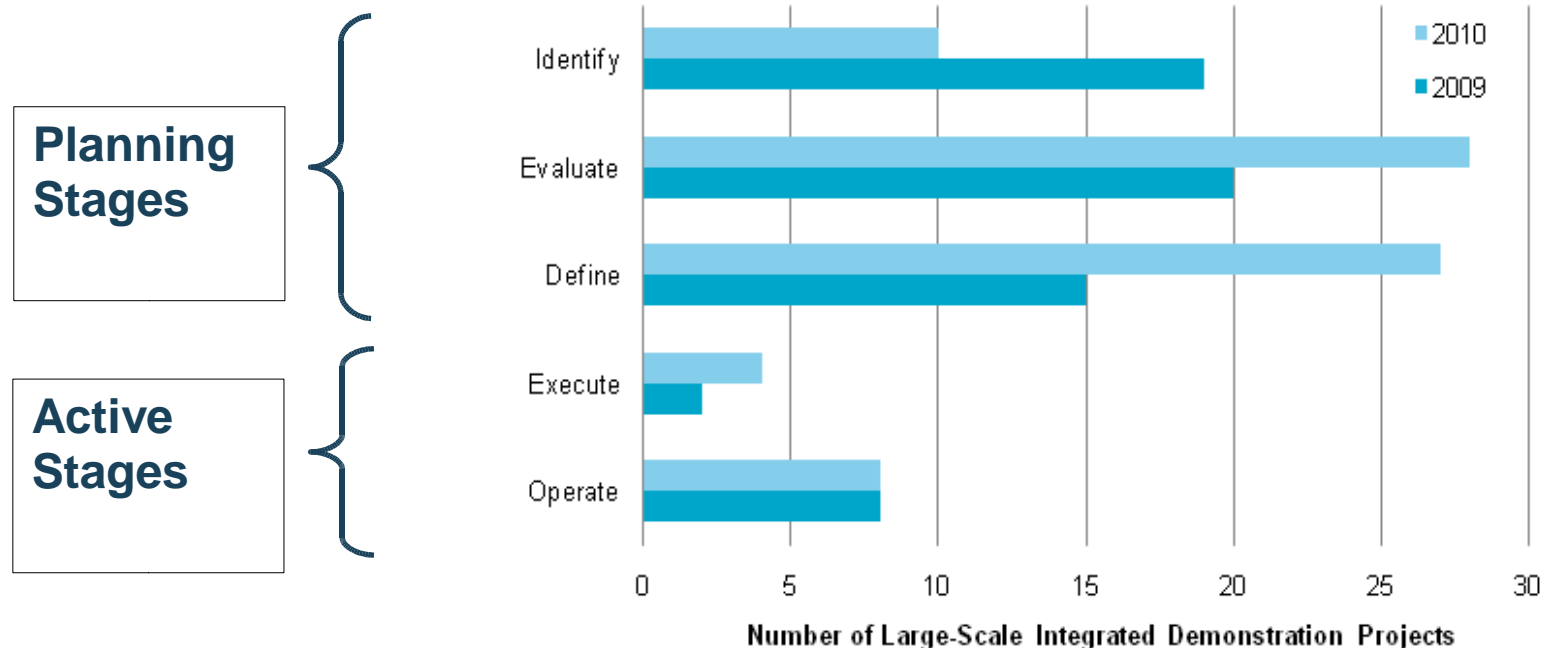
- Increasing awareness of CCS
- Informing and influencing policy
- Advancing financing solutions and risk regimes

THE GLOBAL STATUS OF CCS – 2010 REPORT

- Government Funding
- CCS Projects
- CO₂ Storage
- CO₂ Networks
- Legal and Regulatory Developments
- CCS Costs
- Knowledge Sharing Initiatives
- Public Engagement



Challenges for ccs – plans but few active projects



- Over 234 projects have been identified (at various stages of development).
- Since 2009, 63 large-scale integrated projects (LSIPs) have been newly identified, but 37 LSIPs were delayed or cancelled. Overall, 77 LSIPs among the total 234 projects.
- All eight of the operating LSIPs and further four in the execute stage are linked to the oil and gas sector.

14 Possible CCS Demo projects in Europe

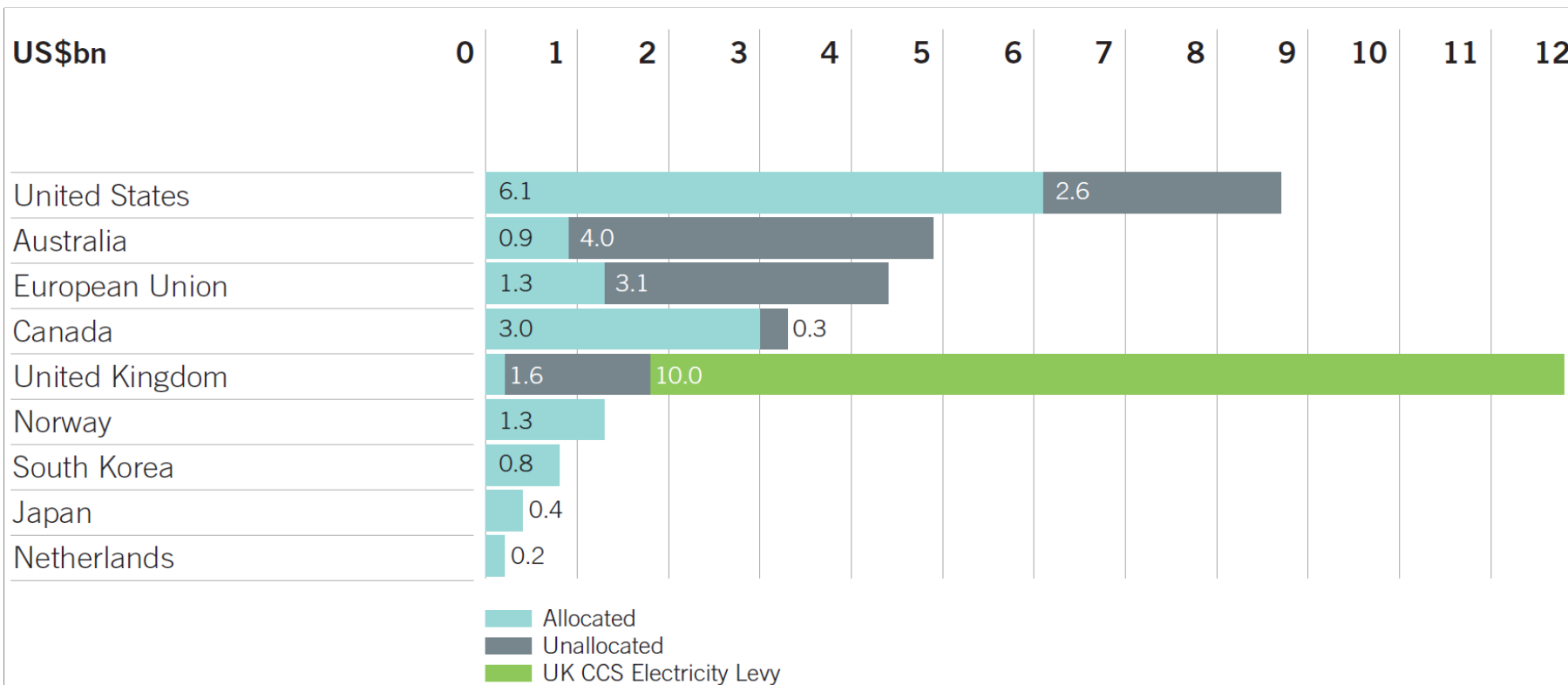
0 0 projects will be operational in 2015/2016

- Progressive Energy (Teeside, UK)
- Ayrshire Power Limited, Hunterston (Scotland, UK)
- Don Valley Power Project (Yorkshire, UK)
- SSE Peterhead (Scotland, UK)
- Longannet Clean Coal Power Station (Scotland, UK)
- Cgen (Yorkshire, UK)
- Drax Powerplant (Yorkshire, UK)
- Turceni PP CCS Demo Project Romania (Romania)
- Air Liquide Rotterdam (Netherlands)
- ROAD Rotterdam (Netherlands)
- Vattenfall Jämschwalde (Germany)

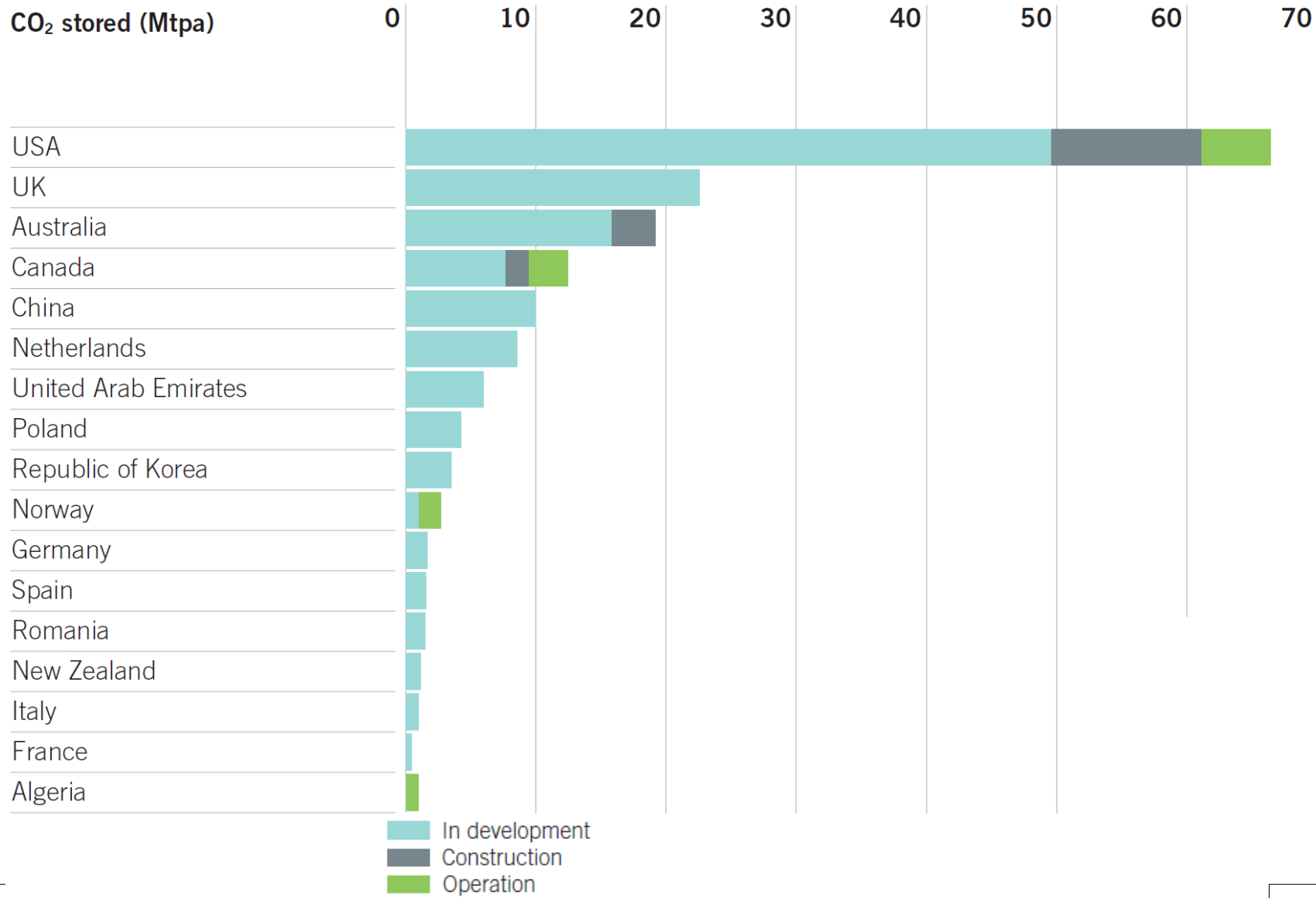
0 0 projects will be operational in 2015/2016

0 0 projects will be operational in 2015/2016

Public funding support commitments to CCS by country



LSIPs: amount of potentially stored CO₂ per annum bv region



Institute supported Projects

American Electric Power, Mountaineer
 • FEED studies
 • AU\$4 million

Project Pioneer, TransAlta
 • FEED studies
 • AU\$5 million

Rotterdam CCS Network Project, RCI
 • Storage and shipping studies
 • AU\$2.2 million

ROAD Project, Maasvlakte CCS
 • FEED studies & execution planning
 • AU\$5 million

Getica, ISPE
 • Feasibility Study
 • AU\$2.55 million

Tenaska Trailblazer Project
 • FEED studies
 • AU\$8.03 million

Chiyoda Project, Chiyoda/Tokyo University
 • Shuttle shipping study
 • AU\$0.47 million

Tenaska/Entergy Nelson 6 CCS Project
 • Development studies
 • AU\$825,600 (Phase 1)

CarbonNet, Victorian Government
 • Commercial and Planning studies
 • AU\$2.3 million

Callide Oxyfuel Project, OPTL*
 • Transport and CO2 injection studies
 • AU\$1.83 million

* Letter of Intent

4 in North America, 3 in Europe, 2 in Australia, 1 in Japan. Commitment from the Institute ~ AU\$32.2 million

FUNDED PROJECTS: Upcoming deliverables from Europe

Knowledge products – GETICA Romania

Permitting Report

Summary Report NER300 Application

Financial Scenarios Report

Public Feasibility Study Report

Knowledge products – Rotterdam CCS Network Project

Historic Case Study on the Rotterdam CCS network

Overall supply chain optimization Liquid Logistics Shipping Concept

Report on Rotterdam CO2 hub safety – including port and offshore infrastructure development, along with a range of CO2 transportation solutions, including shipping

Report on lessons learned from the feasibility study of the CO2 liquid logistics shipping concept

Knowledge products – ROAD Project

Special report on CO2 capture technology selection methodology

Non-confidential FEED study report

Reports on permitting processes and public engagement

Report on Mitigating project risks including handling of business risks

Report on the Execution Strategy of the project

KNOWLEDGE TOPICS COVERED

Project	Feasibility/FEED			Case Studies			
	Capture	Transport/ Infrastructure	Storage and MMV	Finance and Commercial	Policy, Legal and Regulation	Public Engagement	Risk and Environment
Rotterdam CCS Network Project	▪	✓	✓	✓	✓	✓	✓
Romanian CCS Demo Plant	✓	✓	✓	✓	✓	▪	▪
Trailblazer Energy Center	✓	▪	✓	✓	✓	✓	▪
Nelson 6 CCS Project (Phase 1)	✓	▪					
TransAlta Pioneer	✓	✓	✓	✓	✓	✓	✓
AEP Mountaineer	✓		✓	✓			
Chiyoda Project		✓					
ROAD Project	✓			✓	✓	✓	✓

priorities 2011

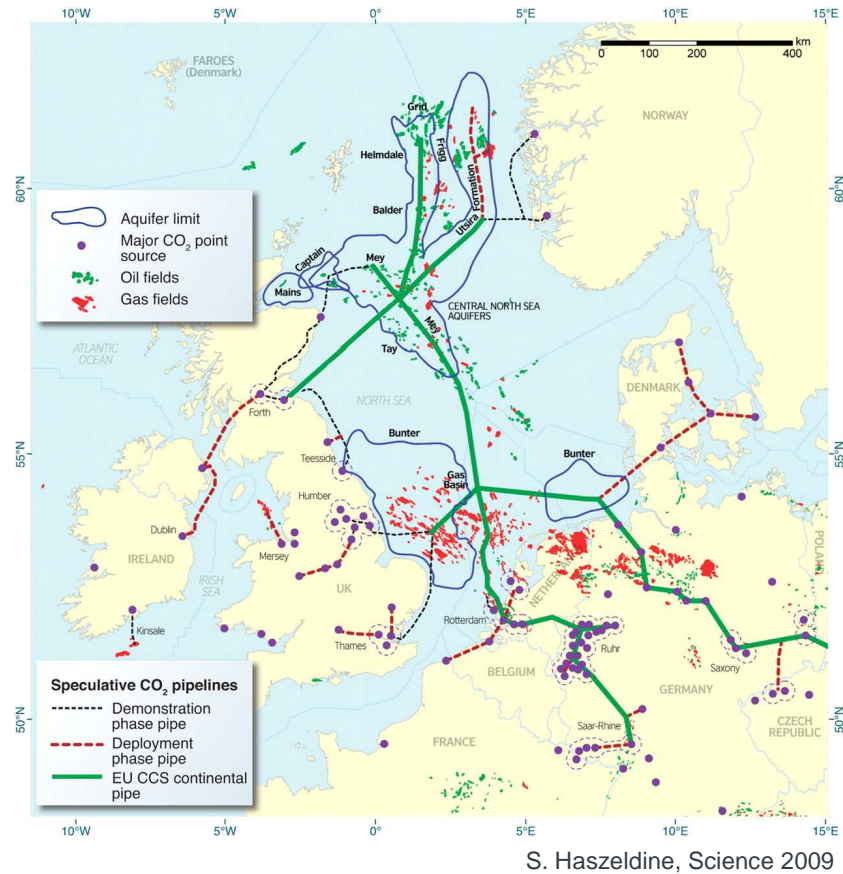
- **Publish the next Global Status CCS Report (October 2011)**
- Work closely with IEA on legal and regulatory issues
- **Roll-out regulatory toolkit in 4 countries**
- Develop and release Storage Guidance Compendium
- Analyse issues associated with long term liability and permitting
- Further analysis on technology costs, including comparative costs
- CCS inclusion in the Clean Development Mechanism (CDM)
- Hub Development Challenges, in collaboration with the Clinton Foundation;
- **North Sea regions group**
- Managing Impacts of CO₂ Storage on Groundwater, with IEAGHG;
- **Storage Learning from EOR Operations, in collaboration with IEAGHG; and**
- Public Engagement / acceptability learning issues to be disseminated through further development of the CSIRO/Institute

Priorities: North Sea CCS Regions Group & North Sea Basin task force

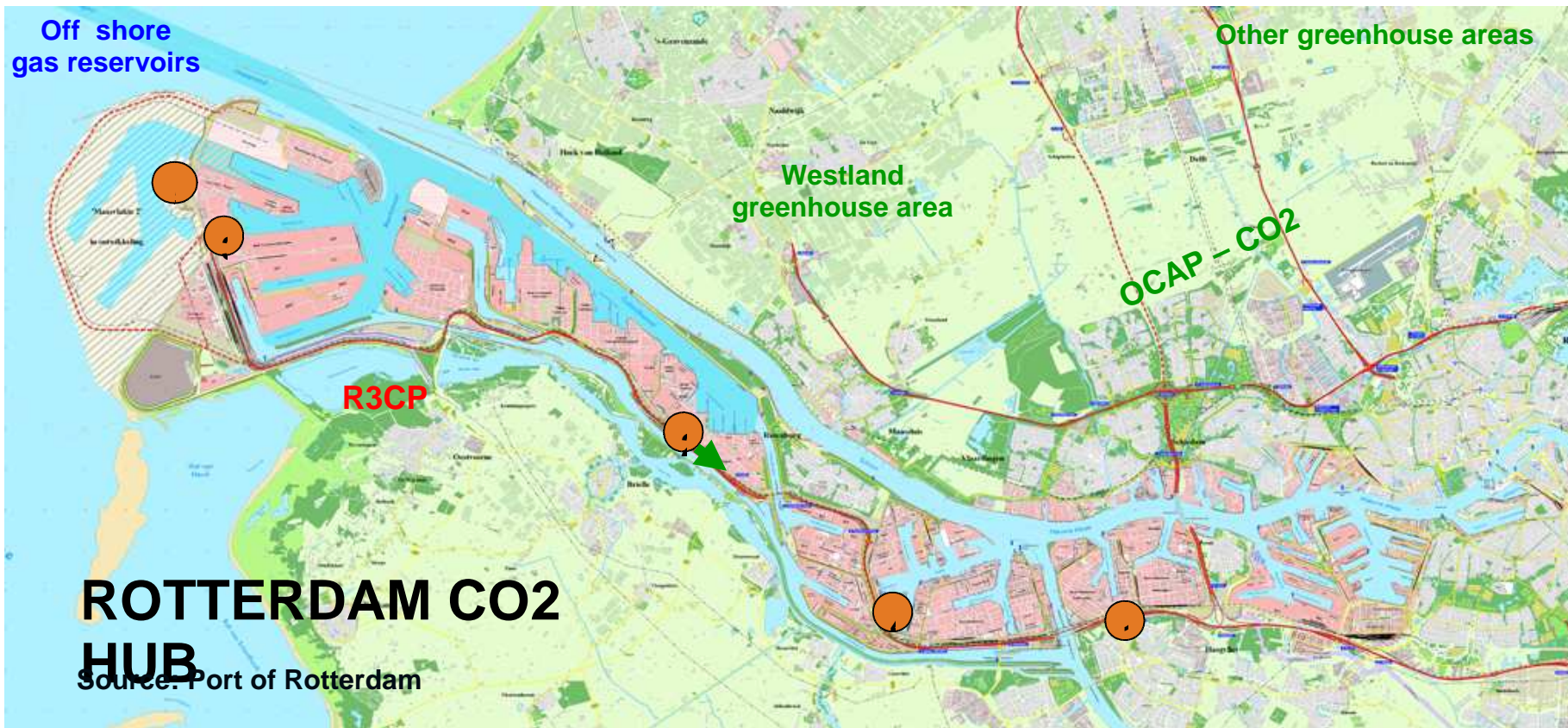
Infrastructure and storage

Project permitting

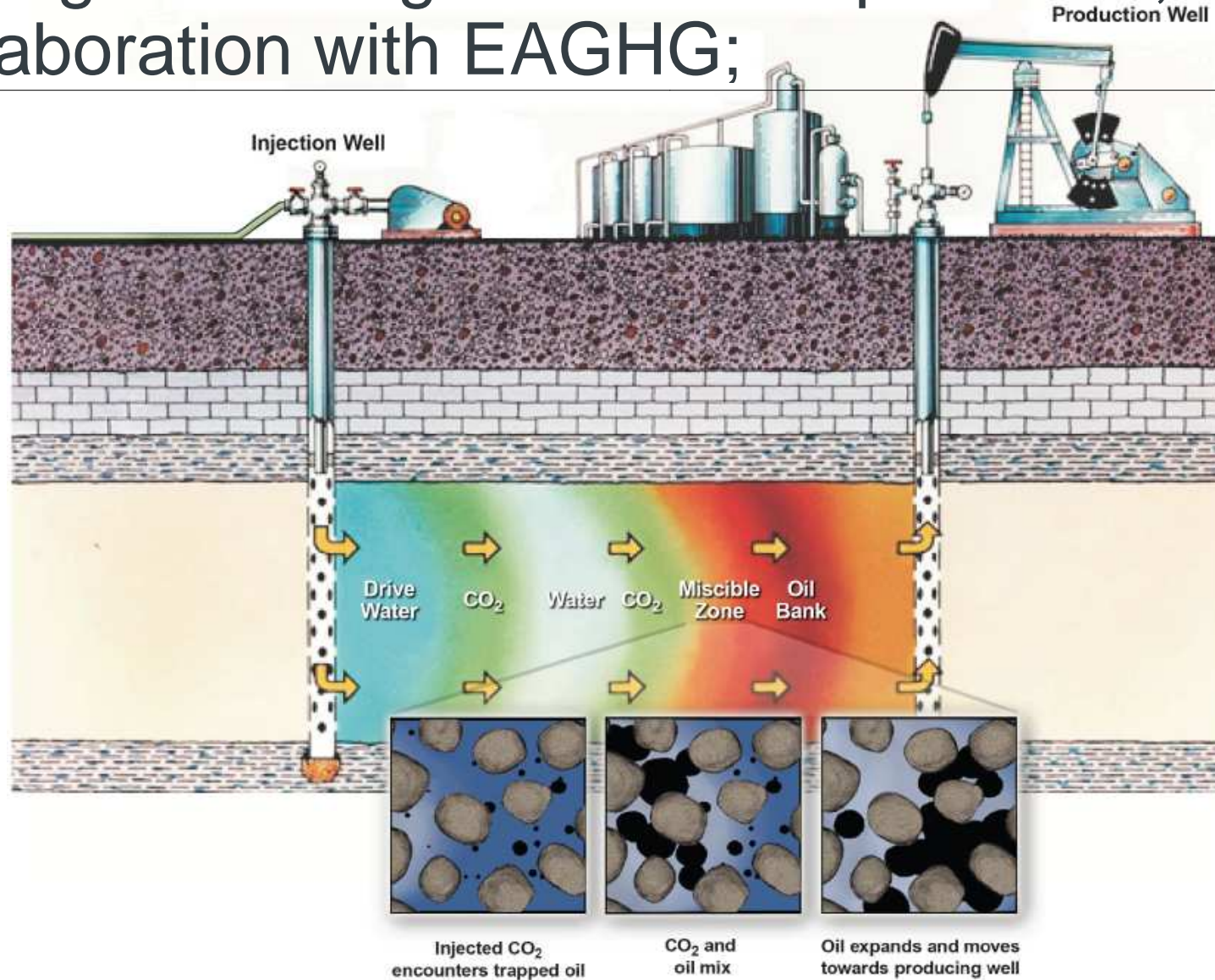
Public engagement



Hub Development Challenges



Storage Learning from EOR Operations, in collaboration with EAGHG;



Source: US DoE NETL

conclusion

The Global CCS Institute will:

- Further develop strong business planning and performance culture.
- Be a catalyst to address the challenges of development and deployment of large scale integrated projects.
- Be a robust advocate of CCS as a low emission technology.
- Work with all stakeholders (Governments, industry, research institutes, community groups, NGOs) to overcome barriers to CCS.
- Be globally collaborative and become the most comprehensive global reference library and knowledge sharing platform on CCS.

www.globalccsinstitute.com

