

**Carbon Sequestration Leadership Forum**

[www.cslforum.org](http://www.cslforum.org)



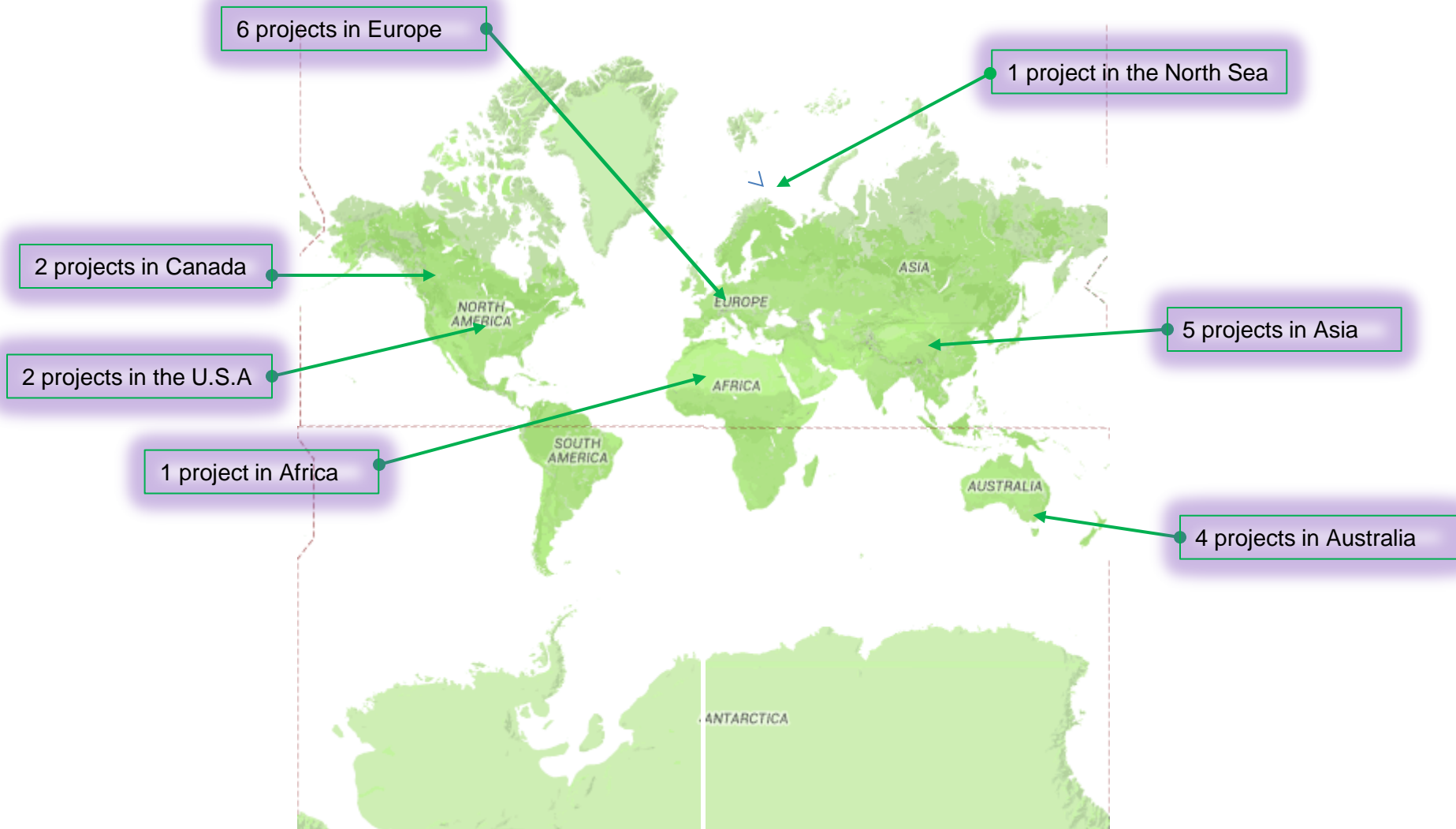
# **GLOBAL COLLABORATION ON LARGE-SCALE CCS PROJECT(S)**

**Co-Leads: China, USA**

# Original Study Scope

- Original study focused on global collaboration efforts for large-scale CCS projects
- This included new green field projects or adding additional functionality and value to existing/planned commercial projects. Such efforts could include both on-shore and off-shore deep saline projects.

# Planned and Active Saline Storage CCS Projects



# Further Scope Discussions

- Based on further discussions regarding the work scope, it was concluded that:
  - There will be multiple facilities world-wide that can serve as test beds for CO<sub>2</sub> capture.
  - Most large CCS projects focus on enhanced oil recovery (EOR) in order to help finance commercial projects.
  - The public needs for large saline formation storage will remain underserved even though significant emissions cuts from major nations such as the US, China, Canada, and Australia, will require CO<sub>2</sub> storage in deep saline formations.
  - In addition to dedicated saline storage facilities, CSLF should implement an information sharing network involving saline projects.

# Proposed Revised Scope

- Promote and coordinate the sharing of knowledge gained from large-scale CO<sub>2</sub> saline storage projects carried out in CSLF member countries.
- Coordinate a process to identify and select a large-scale CO<sub>2</sub> saline storage site suitable for advancing the CO<sub>2</sub> storage state-of-the art.

# Proposed Study Phases

- Phase 1 - Develop an approach for identifying potential candidate knowledge sharing projects for discussion at the June 2014 Policy Group meeting.
- Phase 2 - Develop, for discussion at the Fall 2014 Policy Group meeting, a list of CO<sub>2</sub> storage projects whose owners have expressed an interest in participating in a knowledge sharing network, plus a draft MOU describing what is expected of project owners and CSLF participants (e.g., timing and level of potential cost-sharing).
- Phase 3 – Following approval by the Policy Group at the Fall 2014 meeting, implement the CO<sub>2</sub> saline storage knowledge sharing network. Conduct a review of participating projects to determine if any are suitable for and willing to take on the role of becoming an international, large-scale, CO<sub>2</sub> saline storage test center.

## Excerpt from Modified GCCSI LSIP Data Base

Region	Participants	Stage	Status	Injection Start Date	Capture type	Storage type	Storage details	Annual Injection (million TPY)	Alternative Injection Options	Industry	Potential Info Sharing Interest
Europe		Evaluate	Planned		Pre-combustion capture (gasification)	Dedicated Geological Storage	Offshore deep saline formations			Power Generation	
Europe		Evaluate	Planned		Pre-combustion capture (gasification)	Dedicated Geological Storage	Offshore deep saline formations			Power Generation	
Australia and New Zealand		Evaluate	Planned		TBD	Dedicated Geological Storage	Offshore deep saline formations			Not Specified	
China		Identify	Planned		Post-combustion capture	Not Specified	Not Specified			Power Generation	
China		Identify	Planned		Oxy-fuel combustion capture	Dedicated Geological Storage	Onshore deep saline formations			Power Generation	
Europe		Define	Planned		Pre-combustion capture (gasification)	Dedicated Geological Storage	Offshore deep saline formations			Power Generation	
China		Identify	Planned		Pre-combustion capture (gasification)	Dedicated Geological Storage	Offshore depleted oil and/or gas reservoir			Power Generation	
United States	USDOE, Fut Gen Alliance	Define	Planned	2017	Oxy-fuel combustion capture	Dedicated Geological Storage	Onshore deep saline formations	1		Power Generation	
Australia and New Zealand		Execute	Active		Pre-combustion capture (natural gas processing)	Dedicated Geological Storage	Onshore deep saline formations			Natural Gas Processing	
United States	USDOE, ADM	Execute	Active	2014	Industrial Separation	Dedicated Geological Storage	Onshore deep saline formations	0,9		Chemical Production	
Africa		Operate	Active		Pre-combustion capture (natural gas processing)	Dedicated Geological Storage	Onshore deep saline formations			Natural Gas Processing	

# Prioritizing Potential Storage Projects

- There are 29 projects in the modified GCCSI LSIP data base, and more may be added.
- Screening criteria will be needed to reduce these to a manageable number for more detailed analysis. Potential criteria include:
  - Store over 1 M tons CO<sub>2</sub>/year in a saline formation.
  - Have access to an abundant source of CO<sub>2</sub>, at a low cost and committed supply.
  - Improve the capability to store CO<sub>2</sub> in large, representative reservoirs, ideally more than one.
  - Knowledge-sharing can be initiated in a “useful (TBD) timeframe”
  - Offer multiple injection opportunities via alternative injection zones with different properties and challenges, thus providing opportunities to compare approaches to subsurface. characterization, plume modeling and tracking, mobility control, etc.



# Examples of Potential Knowledge-Sharing Opportunities

- Provide additional monitoring technology to better understand cost/benefit tradeoffs associated with different monitoring strategies
  - Induced seismicity of particular interest
- Develop tests based on limited CO<sub>2</sub> injections that can improve understanding of post-injection plume behavior/immobilization

**Carbon Sequestration Leadership Forum**

[www.cslforum.org](http://www.cslforum.org)



**Questions?**  
有没有问题?