

Policy Group-Technical Group Task Force  
Co-chaired by Canada and Norway



# Accelerating the Adoption of 2nd and 3rd Generation Carbon Capture Technologies

## What We Learned

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Policy Group Meeting  
6<sup>th</sup> CSLF Ministerial  
Riyadh, Saudi Arabia  
November 3, 2015

# Context for Task Force



At the 2013 CSLF Ministerial in Washington, it was determined that CSLF needed to better understand role of emerging generation technologies.

- Cost of CCS (especially capture) is a significant barrier to its deployment
- Role of next gen tech to potentially lead to cost reductions

Joint Policy Group-Technical Group Task Force co-chaired by Canada and Norway was formed to address this need by undergoing a joint study.



# Recall...

## The Policy Group Meeting Regina, June 2015

- Norway presented the Technical group's findings on emerging technology groupings and test facilities
- Complementing the technical analysis, Canada reported on existing/potential policy and funding mechanisms to drive RD&D and reduce costs
  - Consultant interviewed over 35 CCS stakeholders

# Conclusions

## Technologies & Test facilities



Technical literature review identified:

- Approx. 30 groupings of emerging technologies
  - Most are 3rd generation, ie. unlikely to reach large scale implementation before 2030
  - Minority classified as 2nd generation, ie. ready for large scale implementation by 2020 – 2025
- 11 test facilities around the world to speed up the development of emerging technologies
  - Majority designed for post-combustion capture of CO<sub>2</sub>

# Conclusions

## Policy/Funding Mechanisms



Barriers	High priority mechanisms identified in interviews
Lack of a market	<ul style="list-style-type: none"> <li>• Carbon pricing</li> </ul>
High costs	<ul style="list-style-type: none"> <li>• Government funding programs</li> <li>• Tax incentives for research and development</li> <li>• Operational support programs</li> <li>• Test centers / facilities</li> <li>• Cooperation and knowledge-sharing networks</li> </ul>
Technical and operational challenges	<ul style="list-style-type: none"> <li>• Government funding programs</li> <li>• Operational support programs</li> <li>• Test centers / facilities</li> <li>• Cooperation and knowledge-sharing networks</li> </ul>
Insufficient test sites in key geographies/sectors	<ul style="list-style-type: none"> <li>• Test facilities, ie. Industrial pilots/demos</li> </ul>
Storage availability and lack of clear regulations	<ul style="list-style-type: none"> <li>• Cooperation and knowledge-sharing networks</li> </ul>

# The Reported Findings



View the Executive Summary posted in CSLF Policy Group Meeting documents

A screenshot of the Carbon Sequestration Leadership Forum (CSLF) website. The page is titled "Riyadh, Saudi Arabia" and "6th CSLF Ministerial Meeting November 1-5, 2015". It features a navigation menu with links for Home, About the CSLF, Organization, Get Involved, and Contact Us. A sidebar on the left contains links for Meetings/Workshops, Projects, Publications / Links, Technology Roadmap, and Press Room. The main content area lists "CSLF Meeting Information" (Online Meeting Registration, Meeting Overall Schedule, Hotel Venue Information), "Meeting Agendas" (PIRT Meeting, Technical Group Meeting, Policy Group Meeting, Stakeholders Meeting Agenda, Ministerial Conference), "CSLF Background Documents" (CSLF Charter, CSLF Terms of Reference, 2015 Technology Roadmap Interim Report, CSLF Technology Roadmap, CSLF Projects), "Policy Group Documents" (Draft Policy Group Minutes from Regina meeting, Application of Romania for CSLF Membership, Report from CCS in the Academic Community Task Force, Executive Summary of Joint Policy-Technical Group Task Force Report on Accelerating Adoption of 2nd and 3rd Generation Carbon Capture Technologies, Election of Policy Group Chair), "Technical Group Documents" (Draft Technical Group Minutes from Regina meeting, Final Report from Task Force on Identifying Technical Barriers and Opportunities for Offshore, Sub-Seabed Storage of CO2, Working Group Report on Potential New Action Plan Activities, Report from Joint Task Force on the Development of 2nd and 3rd Generation CCS Technologies, Election of Technical Group Chair and Vice Chairs), and "Projects Interaction and Review Team (PIRT) Documents" (Draft Summary from Regina meeting, PIRT Terms of Reference). A red box highlights the "Executive Summary of Joint Policy-Technical Group Task Force Report on Accelerating Adoption of 2nd and 3rd Generation Carbon Capture Technologies" link. The footer contains the copyright notice: "© 2008 CSLF | CSLF Home | Contact Us | CSLF Site Map".

# The Reported Findings

A Ministers' brief was also prepared



# 7 Recommendations for CSLF for Ministerial Consideration



1. **Enhance membership network** to cover additional regions, sectors, and levels of scale
2. Sustain a **global inventory of test facilities**
3. Implement mechanisms that allow **developers of emerging technologies** and **operators of test facilities** to **cooperate** in mutually beneficial and cost-effective ways
4. **Assess cooperative mechanisms between projects**, similar to EU twinning approach, to enhance global knowledge and cooperation in emerging technologies



# 7 Recommendations for CSLF for Ministerial Consideration



5. Foster the **sharing of best practices**, including funding mechanisms
6. Contribute to **consistent terminology and performance evaluation methods** for emerging technologies, project maturity levels, and testing scales
7. Enhance opportunities for researchers and developers to participate in **extended visits, training opportunities, and staff exchanges**



# How Do We Deliver



With enhanced networks:

- **Increase coverage**, using successful models like International CCS Test Centre Network (ITCN), European Carbon Dioxide Capture and Storage Laboratory Infrastructure (ESSCEL)
- **Match projects**, similar to EU twinning approach

With expanded online tools:

- Make global inventory of **all large and small** test facilities accessible
- **Highlight** all next gen technologies and leaders, with CSLF playing a facilitative role

\* Include CSLF disclaimer

# How Do We Deliver



With enhanced research cooperation:

- **Create opportunities** for researchers and developers for extended visits, staff exchanges, training (with CSLF Academic Community Task Force)
- Document best practices of **funding mechanisms**
- Facilitate bi-lateral and/or multi-lateral **agreements** between facilities

# How Do We Deliver



Other suggestions / proposals?