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# TECHNICAL GROUP

# Update on CSLF Technical Group Action Plan

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**CSLF IS GOING GREEN***

# UPDATE ON CSLF TECHNOLOGY GROUP ACTION PLAN

*Note by the Secretariat*

## Background

At the 4th CSLF Ministerial Meeting, at Beijing, China in September 2011, the Technical Group approved a new multi-year Action Plan to identify priorities and provide a structure and framework for conducting Technical Group efforts through 2016. This paper provides an update of Action Plan activities to date and provides a listing of all 12 Action Plan Items.

## Action Requested

The Technical Group is requested to review the updated Summary and Action Plan.

* **Note:** This document is available only electronically. Please print it prior to the CSLF meeting if you need a hardcopy.

# Update on the Technical Group Action Plan

At the Beijing Meeting, the Technical Group set forth a strategic outlook and adopted a Five-Year Action Plan, in which 12 Action Items were listed. (Copy attached) At the direction of the CSLF Technical Group the Secretariat conducted a survey to identify the priorities of the Technical Group Delegates. The results of the survey were reported at the PIRT and Technical Group Meetings held in Bergen Norway in June 2012.

To date, 4 Task Forces have been formed to identify the activity regarding the status and to identify a technology path forward for Action Plan Items. The 4 Task Forces established are:

- A Task Force chaired by Canada has been formed entitled "Technical Challenges for Conversion of $CO_2$ EOR to CCS" (Action Plan Item # 7)
- A Task Force chaired by the United States has been formed entitled "$CO_2$ Utilization Options" (Action Plan Item # 12)
- A Task Force chaired by Norway has been formed entitled "Monitoring Geologic Storage for Commercial Projects" (Action Plan Item # 6)
- A Task Force chaired by Australia has been formed entitled "Technology Gaps Closure" (Action Plan Item #1)

On several items such as "Competition of CCS with Other Resources", the Technical Group at the Bergen meeting deferred action to wait to see the forthcoming report from a similar IEA GHG study before considering a new task force on this topic.

# CSLF Technical Group Action Plan, 2011-2016

**Action Plan 1: Technology Gaps Closure**

***Action:*** The Technical Group will identify and monitor key CCS technology gaps and related issues and recommend any R&D and demonstration activities that address these gaps and issues.

***Outcome:*** Identification of all key technology gaps/issues and determination of the effectiveness of ongoing CCS RD&D for addressing these gaps/issues.

**Action Plan 2: Best-Practice Knowledge Sharing**

***Action:*** The Technical Group will facilitate the sharing of knowledge, information, and lessons learned from CSLF-recognized projects and other CCS RD&D. (*note: This activity could also be linked with the Capacity Building Task Force*.)

***Outcome:*** Development of interactive references for assisting next-generation commercial CCS projects, which will include links with other CCS entities.

**Action Plan 3: Energy Penalty Reduction**

***Action:*** The Technical Group will identify technological progress and any new research needs for reducing the energy penalty for CCS, both for traditional $CO_2$ capture processes and new breakthrough technologies.

***Outcome:*** Identification of opportunities for process improvements and increased efficiency from experiences of "early mover" projects.

**Action Plan 4: CCS with Industrial Emissions Sources**

***Action:*** The Technical Group will document the progress and application of CCS for industrial emissions sources and will identify demonstration opportunities for CSLF Members.

***Outcome:*** Identification of opportunities for CCS with industrial sources. Identification and attempted resolution of technology-related issues (including integration) unique to this type of application.

**Action Plan 5: $CO_2$ Compression and Transport**

***Action:*** The Technical Group will review technologies and assess pipeline standards for $CO_2$ transport, in particular in relation to impurities in the $CO_2$ stream. Issues such as thermodynamics, fluid dynamics, and materials of construction, will be considered. Alternatives to pipelines, such as ship transport, will also be assessed.

***Outcome:*** Identification of optimum technical $CO_2$ transport strategies, both for pipeline and non-pipeline alternatives. Assessment of purity issues as they apply to $CO_2$ transport. Identification of optimal compression options and alternatives.

**Action Plan 6: Storage and Monitoring for Commercial Projects**

***Action:*** The Technical Group will identify and review standards for $CO_2$ storage and monitoring.

***Outcome:*** Identification of standards for storage and monitoring of injected $CO_2$. The application of such standards should inform $CO_2$ crediting mechanisms.

**Action Plan 7: Technical Challenges for Conversion of $CO_2$ EOR to CCS**

***Action:*** The Technical Group will determine technical and economic aspects that can affect moving from enhanced oil recovery (EOR) to carbon storage.

***Outcome:*** Identification of permitting, monitoring, and reporting requirements for $CO_2$ EOR applications that apply for $CO_2$ credits.

**Action Plan 8: Competition of CCS with Other Resources**

***Action:*** The Technical Group will examine criteria for assessing competing development priorities between CCS (particularly $CO_2$ storage) and other economic resources. (*note: This could be undertaken as a Joint Policy and Technical Group activity*.)

***Outcome:*** Identification of criteria for determining relative economic viability of $CO_2$ storage sites.

**Action Plan 9: Life Cycle Assessment and Environmental Footprint of CCS**

***Action:*** The Technical Group will identify and review methodologies for Life Cycle Assessment (LCA) for CCS, including life cycle inventory analysis, life cycle impact assessment, and interpretation of results.

***Outcome:*** Identification of criteria for determining the full range of environmental effects for CCS technologies.

**Action Plan 10: Risk and Liability**

***Action:*** The Technical Group will identify and assess links between technology-related risks and liability.

***Outcome:*** Identification of guidelines for addressing long-term technology-related risks with respect to potential liabilities.

**Action Plan 11: Carbon-neutral and Carbon-negative CCS**

***Action:*** The Technical Group will investigate technical challenges in use of CCS with power plants that utilize biomass (either pure or co-fired), to determine a pathway toward carbon-neutral or carbon-negative functionality.

***Outcomes:*** Identification of issues and challenges for use of CCS with biomass-fueled power plants.

**Action Plan 12: $CO_2$ Utilization Options**

***Action:*** The Technical Group will investigate $CO_2$ utilization options.

***Outcome:*** Identification of most economically attractive $CO_2$ utilization options.