



## **TECHNICAL GROUP**

### **CSLF Technical Group Action Plan**

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## CSLF TECHNICAL GROUP ACTION PLAN

*Note by the Secretariat*

### Background

At the 4<sup>th</sup> CSLF Ministerial Meeting, at Beijing, China in September 2011, the Technical Group approved a new multi-year Action Plan. This paper is a listing of individual Actions in the Action Plan, with descriptions of each Action and Projected Outcomes.

### Action Requested

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

# 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<sub>2</sub> 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<sub>2</sub> Compression and Transport**

**Action:** The Technical Group will review technologies and assess pipeline standards for CO<sub>2</sub> transport, in particular in relation to impurities in the CO<sub>2</sub> 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<sub>2</sub> transport strategies, both for pipeline and non-pipeline alternatives. Assessment of purity issues as they apply to CO<sub>2</sub> 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<sub>2</sub> storage and monitoring.

**Outcome:** Identification of standards for storage and monitoring of injected CO<sub>2</sub>. The application of such standards should inform CO<sub>2</sub> crediting mechanisms.

#### **Action Plan 7: Technical Challenges for Conversion of CO<sub>2</sub> 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<sub>2</sub> EOR applications that apply for CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> Utilization Options**

**Action:** The Technical Group will investigate CO<sub>2</sub> utilization options.

**Outcome:** Identification of most economically attractive CO<sub>2</sub> utilization options.