



TECHNICAL GROUP

Key Technical Group Achievements

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KEY TECHNICAL GROUP ACHIEVEMENTS

Note by the Secretariat

Background

The Secretariat, with the advisement of the Technical Group Executive Committee, has developed a document that describes key achievements of the Technical Group since the previous CSLF Ministerial Meeting in 2009.

Action Requested

None.

Key Achievements of the CSLF Technical Group

Preamble

The CSLF Technical Group is unique in that its delegates represent 24 national governments and the European Commission, and as such, the interchange of technical information is at the highest level. The collective aim is to effect the rapid commercial deployment of carbon capture and storage (CCS) across a wide range of industries, through improving technology, development, and implementation.

Technical Group delegates also interact with other technical bodies such as the International Energy Agency (IEA), the European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP), and the Global CSS Institute. This access to a wide range of technical information enhances the role of the Technical Group.

Set out below are key achievements of the Technical Group.

- **CSLF Technology Roadmap**

The CSLF Technology Roadmap has been completed and is widely accepted. The 2009 version of the Roadmap was an important input to the IEA CCS Roadmap, while the 2010 and 2011 versions of the Roadmap were improved to have an increasingly strong emphasis on CCS integration and demonstration of the complete CCS value chain: CO₂ capture, transport, storage, and monitoring. The CSLF Technology Roadmap's importance is that it identifies key components to accelerate CCS commercialization, with particular emphasis on:

- Achieving commercial viability and deployment of CO₂ capture, transport, and storage technologies.
- Reducing the energy penalty and costs related to CO₂ capture.
- Developing an understanding of global storage potential, including matching CO₂ sources with potential storage sites and infrastructural needs.
- Addressing risk factors to increase confidence in long-term CO₂ storage effectiveness.
- Building technical competence and confidence through sharing information and experience from multiple large-scale demonstrations.

The Technology Roadmap also established key milestones for CO₂ capture, transport, storage, monitoring, demonstration, and integration to be achieved through 2020 and beyond.

- **Technical Risk Analysis**

Technical risks associated with the injection and long-term storage of CO₂ have been identified and examined. The risk associated with CO₂ near-term injection processes includes predicting the stress state of the storage unit, while risks associated with long-term processes related to impacts of CO₂ storage include health, safety, and environmental risks, potential impact on natural resources (such as groundwater, mineral resources, etc.), and return of CO₂ to the atmosphere. A comprehensive report on identification and assessment of these kinds of risks has been completed and is publicly available.

- **Technology Gaps Analysis**

A comprehensive analysis of technology gaps has been completed in order to determine areas where further research, development, and demonstration activities are needed. Four categories of technology gaps have been identified: capture, transportation and

infrastructure, storage and monitoring, and integration. Outcomes from this analysis have led to identification of a suite of future areas of activity for the Technical Group, including:

- Investigation of issues related to CO₂ storage in unconventional geological media such as basalt and shale.
 - Identification of technological progress and any new research needs for reducing the energy penalty for CCS, both for traditional CO₂ capture processes and new breakthrough technologies.
 - Identification of opportunities for CCS with industrial non-utility sources, and identification and attempted resolution of technology-related issues (including integration) unique to this type of application.
 - Identification of optimum technical CO₂ transport strategies, both for pipeline and non-pipeline alternatives, including assessment of purity issues as they apply to CO₂ transport.
 - Identification and recommendation of standards for storage and monitoring of the injected CO₂.
 - Identification of most economically attractive CO₂ utilization options.
- **Interactive Information Exchange**
An interactive forum for facilitating the exchange of technical information and real-world experience directly between the sponsors of large CCS demonstration projects has been devised and successfully piloted in a technical workshop held in Saudi Arabia in early 2011. Feedback from project sponsors has been exceedingly positive, and planning for additional topic-specific forums is currently underway.