



CSLF Technology Roadmap (TRM) 2017

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Main changes from TRM 2013

General

- New time horizon for medium- and long-term recommendations and targets,
 - 2025 and 2035 vs. earlier 2030 and 2050
 - Kept 2020 to emphasise the need for immediate acceleration
- Revised background chapter to reflect COP21 targets
- Introduced quantitative targets that meet IEA 2 °C scenario
- Added section on non-technical measures, including regulations
- Defined CCUS as a subset of CCS



Main Findings (1)

Based on reviews of several status reports on CCS and technical papers, as well as comments and input from international experts, the main findings of this *Technology Roadmap 2017* are as follows:

- CCS has been proven to work and has been implemented in the power and industrial sectors.
- The coming years is a critical period for CCS; therefore, a sense of urgency must be built to drive action.
- Substantial, and perhaps unprecedented, investment in CCS and other low-carbon technologies is needed to achieve the targets of the Paris Agreement.
- The main barriers to implementation are inadequate government investment and policy support/incentives, challenging project economics, and uncertainties and risk that stifle private sector investment.



Main Findings (2)

Based on reviews of several status reports on CCS and technical papers, as well as comments and input from international experts, the main findings of this *Technology Roadmap 2017* are as follows:

- Rapid deployment of CCS is critical in the industry and power sectors especially in those industries for which CCS is the most realistic path to decarbonization.
- Negative CO₂ emissions can be achieved by using a combination of biomass and CCS.
- Costs and implementation risks can be reduced by developing industrial clusters and CO₂ transport and storage hubs.
- Members of the CSLF consider it critical that public-private partnerships facilitate material and timely cost reductions and accelerated implementation of CCS.



Priority Recommendations (1)

Governments and industries must collaborate to ensure that CCS contributes its share to the Paris Agreement's aim to keep the global temperature increase from anthropogenic CO₂ emissions to 2°C or below by implementing sufficient large-scale projects in the power and industry sectors to achieve the following:

- Long-term isolation from the atmosphere of at least 400 megatonnes (Mt) CO₂ per year by 2025 (or have permanently captured and stored of 1,800 Mt CO₂).**
- Long-term isolation from the atmosphere of at least 2,400 Mt CO₂ per year by 2035 (or have permanently captured and stored of 16,000 Mt CO₂).**



Priority Recommendations (2)

To this end, CSLF members recommend the following actions to the CSLF Ministers:

- **Promote the value of CCS in achieving domestic energy goals and global climate goals.**
- **Incentivize investments in CCS by developing and implementing policy frameworks.**
- **Facilitate innovative business models for CCS projects.**
- **Implement legal and regulatory frameworks for CCS.**
- **Facilitate CCS infrastructure development.**



Priority Recommendations (3)

- **Build trust and engage stakeholders through CCS public outreach and education.**
- **Leverage existing large-scale projects to promote knowledge-exchange opportunities.**
- **Drive costs down along the whole CCS chain through RD&D.**
- **Accelerate CCS in developing countries by funding storage appraisals and technology readiness assessments.**
- **Facilitate implementation of CO₂ utilization**
(Note: The Technology Roadmap emphasizes that not all utilization (CCU) options can be considered climate mitigation; life cycle analysis must be undertaken)



Governments have a critical role in accelerating the deployment of CCS.



Follow-up (1)

- The CSLF should
 - Continue to be a platform for an international coordinated effort to commercialize CCS technology working with, amongst others, the IEA, the GCCSI and the IEAGHG.
 - Through its Projects Interaction and Review Team (PIRT), monitor the progress in CCS in relation to the Recommended Priority Actions.



Follow-up (2)

- Through the CSLF Secretariat, the PIRT will:
 - Solicit input with respect to progress of CCS from all members of the CSLF
 - Gather information from a wide range of sources on the global progress of CCS, including collaboration partners
 - Prepare a simple reporting template that highlights the progress of the Priority Actions
 - Report annually to the CSLF Technical Group
 - Report biennially, or as required, to the CSLF Ministerial Meetings.



Thank you for your attention!