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Working session on the report to the 4th Clean Energy Ministerial (CEM4)

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Session structure

- Presentations of draft CEM4 recommendations
  Luke Warren, CCSA
  - Iron and steel sector respondent (5 min)
    David Valenti, Eurofer
  - Cement sector respondent (5 min)
    Rob van der Meer, HeidelbergCement
  - Refining sector respondent (5 min)
    Tim Bertels, Shell
  - Chemicals sector respondent (5 min)
    Mike Walton, GrowHow
  - Country respondent: Rep. of Korea (5 min)
    Chonghun Han, Seoul National University
- Discussion of proposed conclusions for policymakers

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Session objectives

- Clean Energy Ministerial important opportunity to raise profile industrial CCS with policymakers and ministers
- Key output; short series of focussed recommendations to policymakers on near-term opportunities to advance CCS in industrial applications
- Opportunity for you to provide feedback on the proposed recommendations
  - Have the key challenges & messages been identified?
  - Is the focus and level of detail of the recommendations appropriate?
  - Do you have suggestions for any other improvements?

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Develop, demonstrate, deploy (1/2)

1. ***Support regional and international consortiums to demonstrate CO2 capture across industry sectors***. Consortiums of relevant firms should be encouraged to jointly lead promising technologies through sequential phases from pilot to demonstration, in such a way that competiveness concerns are minimised; for example, by pooling any intellectual property and focusing on areas that do not currently impact competitive advantage.

2. ***Target cross-sectoral research and development towards generic technologies*** that can be adjusted or combined to tackle the specific circumstances in a given sector or site. Open-access pilot facilities for testing the various CO2 capture technologies on different flue gases, thus advancing CCS for power generation and industrial applications together. To achieve a rapid roll-out of CCS will require the availability of off-the-shelf solutions wherever possible.

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Develop, demonstrate, deploy (2/2)

3. ***Funds that are consistent with a stepwise technology pathway are needed***. Differentiation between sectors will be necessary to target private investment, national funds and international finance (e.g. UNFCCC mechanisms) to where they will be most effective. Gas processing and hydrogen production are ready for large-scale integrated demonstration, whereas steel, cement and some chemical and refining processes require pilot-scale projects before moving to demonstration by 2020. Public funds (or CO2 certificate revenues, production levies etc.) are most needed for projects larger than pilot scale where they can leverage investment from consortium partners. Furthermore, sectors with different CCS costs should not compete against one another for public funds on the basis of a uniform metric but should be targeted according to their maturity and CO2 avoidance needs.

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A policy environment that engages sectors to address longer-term deployment

4. ***Expand national policy plans to address CO2 emissions from industrial applications*** and introduce CCS as a necessary solution. Depending on which sectors are of national relevance, the policy measures will vary between R&D support and technology-neutral fiscal measures. Attention should be given to policy architectures that will effectively reduce emissions whilst being sensitive to technology investment challenges and competitiveness concerns. It will be important to be aware of the ways in which technologies and sectoral dynamics could change in the next twenty years.

5. ***Address competiveness concerns*** with national climate policy instruments and give investors security to plan for a low-carbon future in the absence of a global CO2 price. Instruments for further study include sectoral quantity measures and output- or lifecycle-based emissions standards, at a sectoral level or linked to national/regional financial support, as well as border adjustment measures.

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Engage all sectors in strategic CCS activities, including CO2 transport and storage needs(1/3)

6. ***Involve all relevant stakeholders*** in actions that are being undertaken to progress CCS, and include relevant industrial sectors on an equal footing. This will raise the level of knowledge among all firms that will need to use CCS and will recognise that the local endorsement of CCS will be crucial to the future of the sectors regionally. It will include national and regional actions related to: public engagement, knowledge sharing, CO2 storage capacity mapping, exploration and operation and R&D across the CCS value chain.

7. ***Plan the stepwise deployment of CCS in major industrial clusters***. This includes investigating accessible CO2 storage sites and options that would make the local sectors more 'CCS ready', potentially lowering future costs of CCS deployment and enabling sectors that have commercial CO2 capture technologies to start deploying CCS as soon as the policy drivers are in place. In addition, the establishment of commercial CO2 transport and storage operators will require a solid business case and infrastructure development plans; it is unlikely that many heavy-emitting firms will evolve to become integrated into CO2 storage themselves and will wish to have any remaining liability concerns resolved before undertaking CCS.