Energy Technology Perspectives for the Global Cement Industry

**EBRD side-event**: Material Impact of Low Carbon Pathways, Deep Decarbonisation Technologies and Policy Dialogue

Eric Masanet, PhD
Energy Technology Policy Division
International Energy Agency
As production expands in emerging and developing economies...

While global cement demand flattens, production capacity shifts to India, Africa, and other non-OECD economies.
... adoption of BATs and innovative processes can achieve the 2DS ...

The 2DS requires a mix of technologies, and significant decoupling of CO2 emissions from energy use.
... but further decarbonisation is needed for a well-below 2DS pathway.

Decarbonizing energy-intensive industries is critical, requiring accelerated technology and policy innovation.
While expanding spatial boundaries can achieve greater energy savings …

Global excess heat recovery technical potential – Cement

Globally, 6% of the final energy use in cement making could be technically recovered.
... more innovative low-carbon technology options are crucial ...

Low-carbon cement technology RD&D is promising, but progress must be accelerated
... and greater investment and policy support is needed to accelerate progress.

- CCS is currently not on track to meet IEA Cement Technology Roadmap targets (2009)
  - 3 oxy-fuel demos & 3 chemical looping demos by 2020
  - Scaling up of CCS and significant cost reductions in oxy-fuelling by 2030; widespread deployment by 2040
  - Further improvements in cost and deployment through 2050
**IEA Roadmaps: action plans to accelerate industrial energy transitions**

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2013</th>
<th>2015</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ Global Cement</td>
<td>✔ India Cement ✔ Chemical catalysis ✔ CCS</td>
<td>✔ Hydrogen</td>
<td>✔ Brazil Cement ✔ India Cement Update Tentative: - Global Cement Update - Iron and steel</td>
<td></td>
</tr>
</tbody>
</table>

- **Goal to achieve**
- **Milestones to be met**
- **Gaps to be filled**
- **Actions to overcome gaps and barriers**
- **What and when things need to be achieved**

Available at http://www.iea.org/roadmaps/
Priorities for the global cement industry

- Achieving BAT performance is critical, while accelerating low-carbon innovations is essential
  - BAT includes energy and resource efficiency (e.g., clinker ratios)
  - The pace of CCS deployment must increase
  - Low-carbon cements can be a major breakthrough

- Biomass/waste fuels can reduce emissions, but supplies may be uncertain

- Expanding boundaries of influence can create new opportunities
  - Waste heat recovery for local plants/buildings
  - Materials efficiency in end use product applications

- Multiple aspects of strong policy support are needed:
  - Long-term energy and climate policy signals
  - Increased support for technology RD&D
  - Low-carbon and energy efficiency labels and standards
The IEA works around the world to support an accelerated clean energy transition that is enabled by real-world SOLUTIONS supported by ANALYSIS and built on DATA.