

# CCS in Industrial Applications

Workshop on behalf of  
Clean Energy Ministerial CCUS Action Group  
London, 30 January 2013

Juho Lipponen  
Head of Unit, Carbon Capture and Storage  
International Energy Agency

# Workshop purpose

## Clean Energy Ministerial (CEM3) 2012, London

- requested a paper on CCS in Industrial Applications
- IEA and CCSA leading the preparatory work

## Clean Energy Ministerial (CEM4) 2013, New Delhi, 17/18 April

- paper to be submitted to delegates by CCUS Action Group

## Objectives

1. Explain the Clean Energy Ministerial concept
2. Learn from current experience from different countries and sectors
3. Receive feedback on the draft recommendations
4. Facilitate a discussion on challenges and messages for policymakers

**Focus:** messages and policy recommendations, not technical issues

# Agenda

<b>13.50</b>	The CEM process and the role of the CCUS AG	Chris Barton, UK DECC
<b>Recent work from on CCS in industrial applications in different regions</b>		
<b>14.00</b>	UK perspectives on industrial CCS - technology readiness and costs	Jane Lumb, UK BIS; Jon Gibbins, UKCCSRC; Harsh Pershad, Element Energy
<b>14.20</b>	A European perspective on the opportunities	Jonas Helseth, ZEP WG Other Industries
<b>14.40</b>	Supporting non-power CCS in Shaanxi, China	Lin Gao, China Academy of Sciences
<b>15.00</b>	CCUS AG Working Group analysis to date	Simon Bennett, IEA
<b>15.15</b>	Q&A	
<b>15.45</b>	Coffee	
<b>Working session on the report to the 4<sup>th</sup> Clean Energy Ministerial (CEM4)</b>		
<b>16.00</b>	Presentations of draft CEM4 recommendations	Luke Warren, CCSA
	Responses from key sectors and governments	
	Discussion of conclusions for policymakers	
<b>17.50</b>	Summing up of the discussion and conclusions	
<b>18.00</b>	<b>Drinks reception</b>	

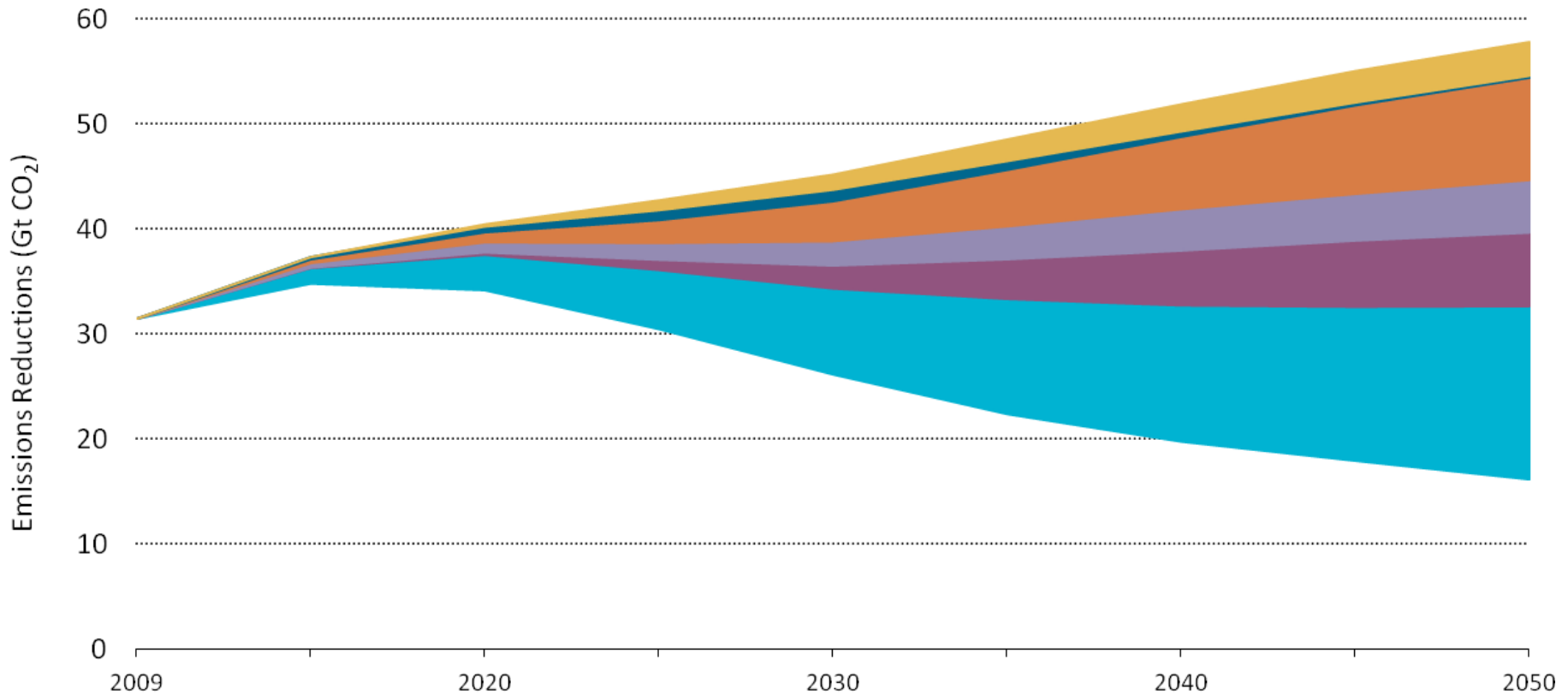


# Why do we emphasise CCS in industrial applications?

1. Significant potential but limited political attention
2. General lack of incentives
3. Particular challenge:
  - Diversity of sectors → need for tailored policies
  - Impact on global competitiveness of sectors
4. Opportunity to increase attractiveness of CCS in general
5. Clean Energy Ministerial can be a useful vehicle to stress key issues and to drive more positive messaging

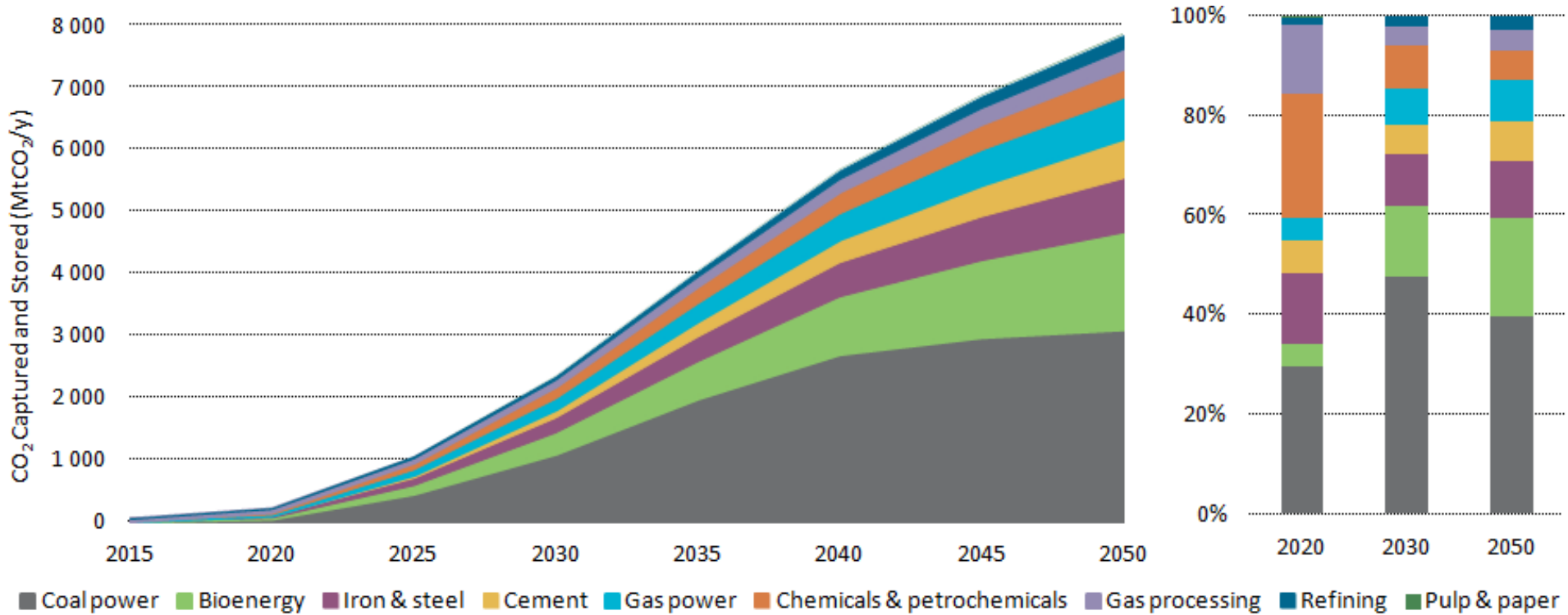


# Contribution of CCS to achieving a 2°C world



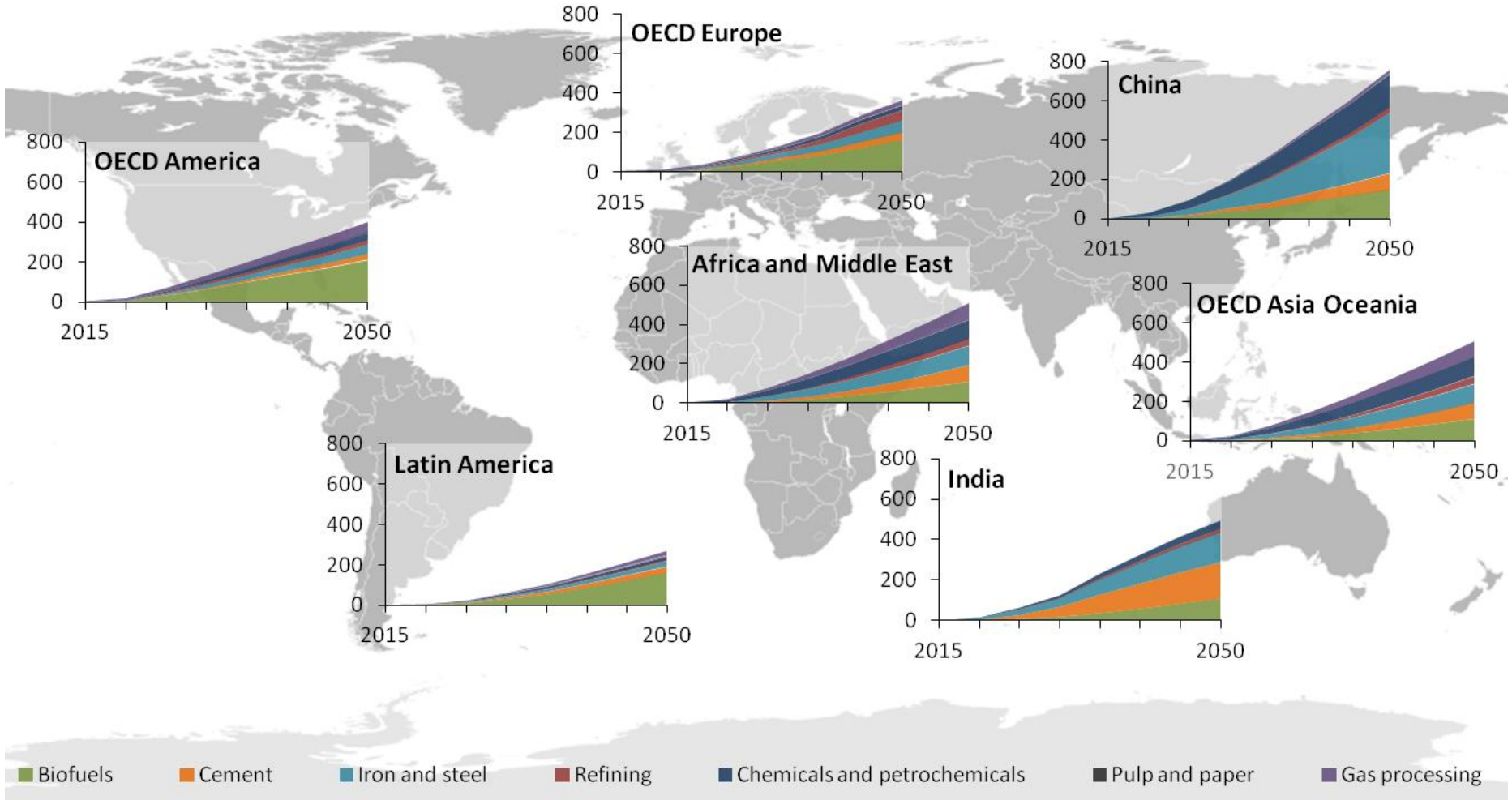
- End-use fuel and electricity efficiency 42% (39%)
- End-use fuel switching 12% (12%)
- Power generation efficiency and fuel switching 3% (1%)
- CCS 14% (17%)
- Renewables 21% (23%)
- Nuclear 8% (8%)

# The potential importance of CCS in industry



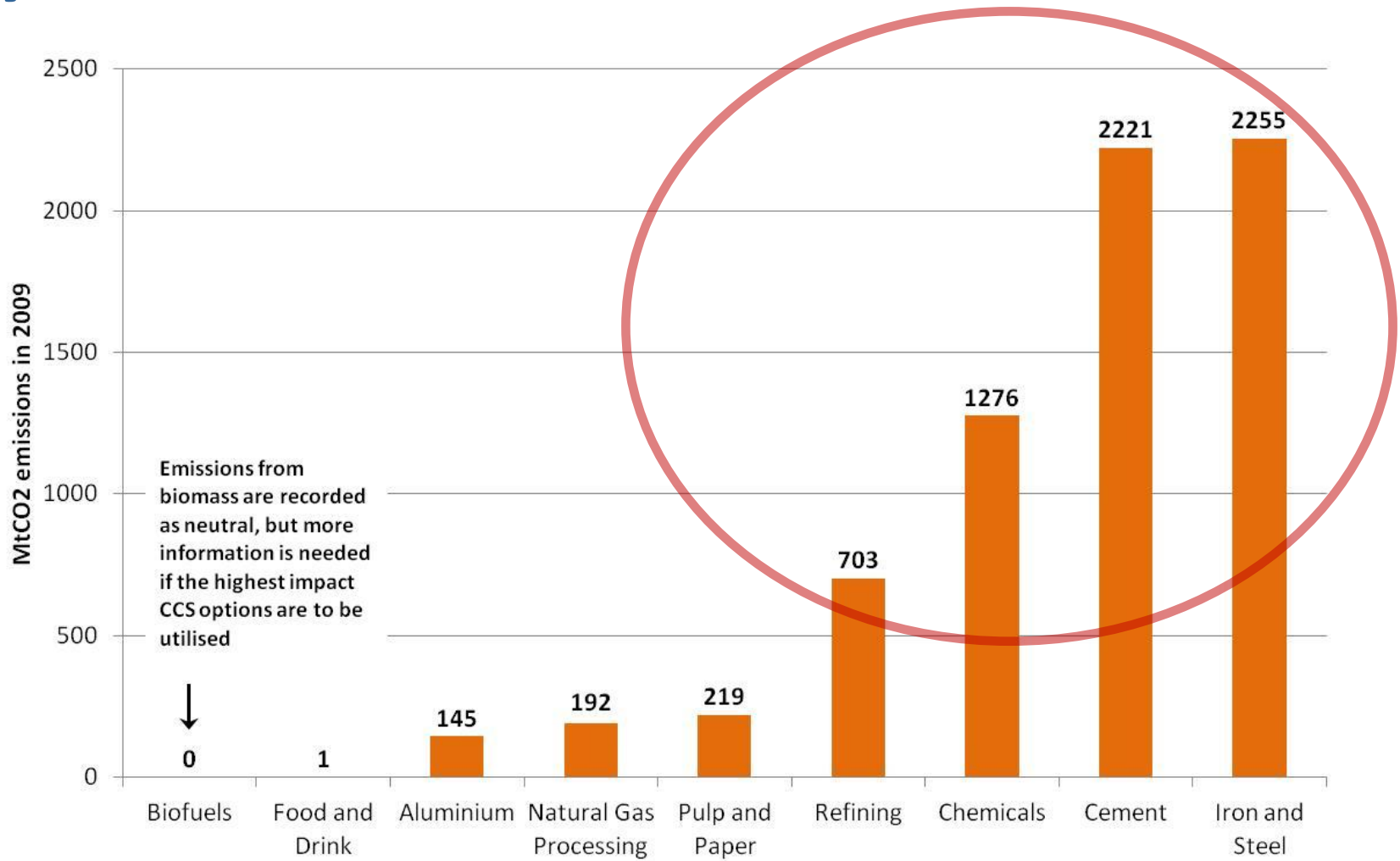
**Non-OECD** countries account for **72%** of cumulative CO<sub>2</sub> captured from industrial applications of CCS between 2015 and 2050 – China alone accounts for 21% of the global total

# Contributions of the sectors vary by region





# Key sectors





# We're looking forward to hearing from you!

- **CCS needs to be a technically proven option for these sectors**
  - What are the strategic challenges for industry?
  - What are the challenges for policy?
  - What needs to be done in this decade to ensure this outcome?
- **CCS needs to be a commercial solution for these sectors**
  - What types of policies will create momentum this decade?
  - What types of policies will deliver deep emissions cuts?

**Let's be PRACTICAL – we need recommendations that are relevant  
HERE and NOW**