IEA Global Industry Experts Dialogue Workshop
Chemical Industry's View

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Chemical Industry and "Energy & Climate Change"

Chemical Industry's Footprint (IEA ETP 2012)

- Energy Demand: 15 EJ/y (excl. feedstock), 42 EJ/y (incl. feedstock)
- CO2 Emission: 1.5 Gton (5.5% of global energy-related CO2 emissions)
- If the world pursues the 6DS IEA scenario, CO2 Emission could increase to 3.0 Gton by 2050

ICCA's position on energy & climate change

- Recognize itself as a large energy user, but a even larger solutions provider
- Strongly advocate energy efficiency and emissions reduction at own sites
- Extend capability of energy efficiency and GHG emissions reduction along value chains

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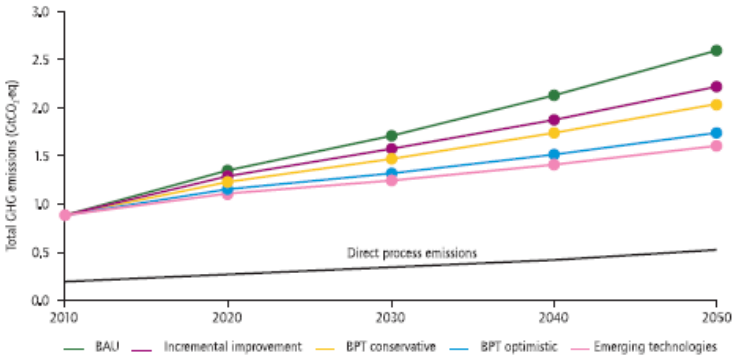
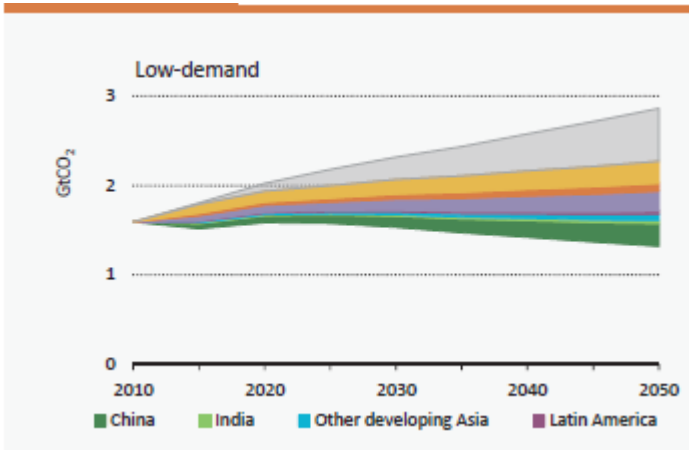
Catalysis Technology Roadmaps (IEA, DECHEMA, ICCA 2013)

- 0.85 Gton CO2 emission reduction in BPT optimistic scenario
- 1.0 Gton CO2 emission reduction in emerging technology scenario

Figure 8: GHG impact of improvement options for the top 18 chemical products to 2050



(Energy and GHG Reductions in the Chemical Industry via Catalytic Processes, IEA, DECHEMA, ICCA, 2012)



(Source: Energy Technology Perspectives, IEA 2012)

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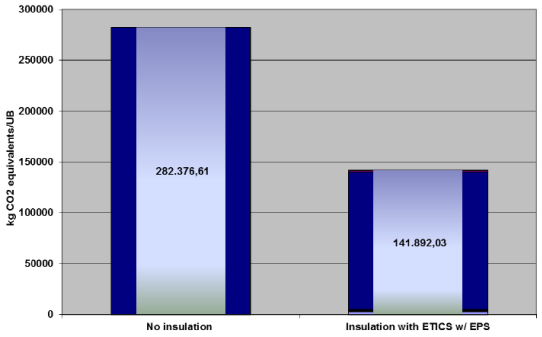
cLCA (carbon-Life Cycle Analysis) Guidelines (ICCA, WBCSD 2013)

- Practical guidelines to increase consistency and transparency in assessment of the "avoided emissions"
- Five (5) case studies shown in the guidelines
- Life cycle approach elucidates GHG reduction opportunities along the life cycle of products

Figure 3: Cradle-to-grave GHG emissions of the base case



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Industrial Technology Innovation in Catalysis Roadmap

Emerging Technologies

- Olefin cracking via **catalytic cracking of naphtha**
- Olefin production via **MTO (Methanol to Olefin)**
- Propylene peroxide via **HPPO** process (now commercialized)

Game-Changing Technologies

- Ammonia and methanol production using **renewable hydrogen**
- Olefin production using **biomass** as feedstock

Policies for Closing the Gaps

- Policies to encourage developments in positive game-changers, and incentives to move away from more carbon intensive options (e.g., CTO process)

Thank you for your attention.

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