

***“After Copenhagen:
Challenges and Opportunities
for the Steel Industry”***

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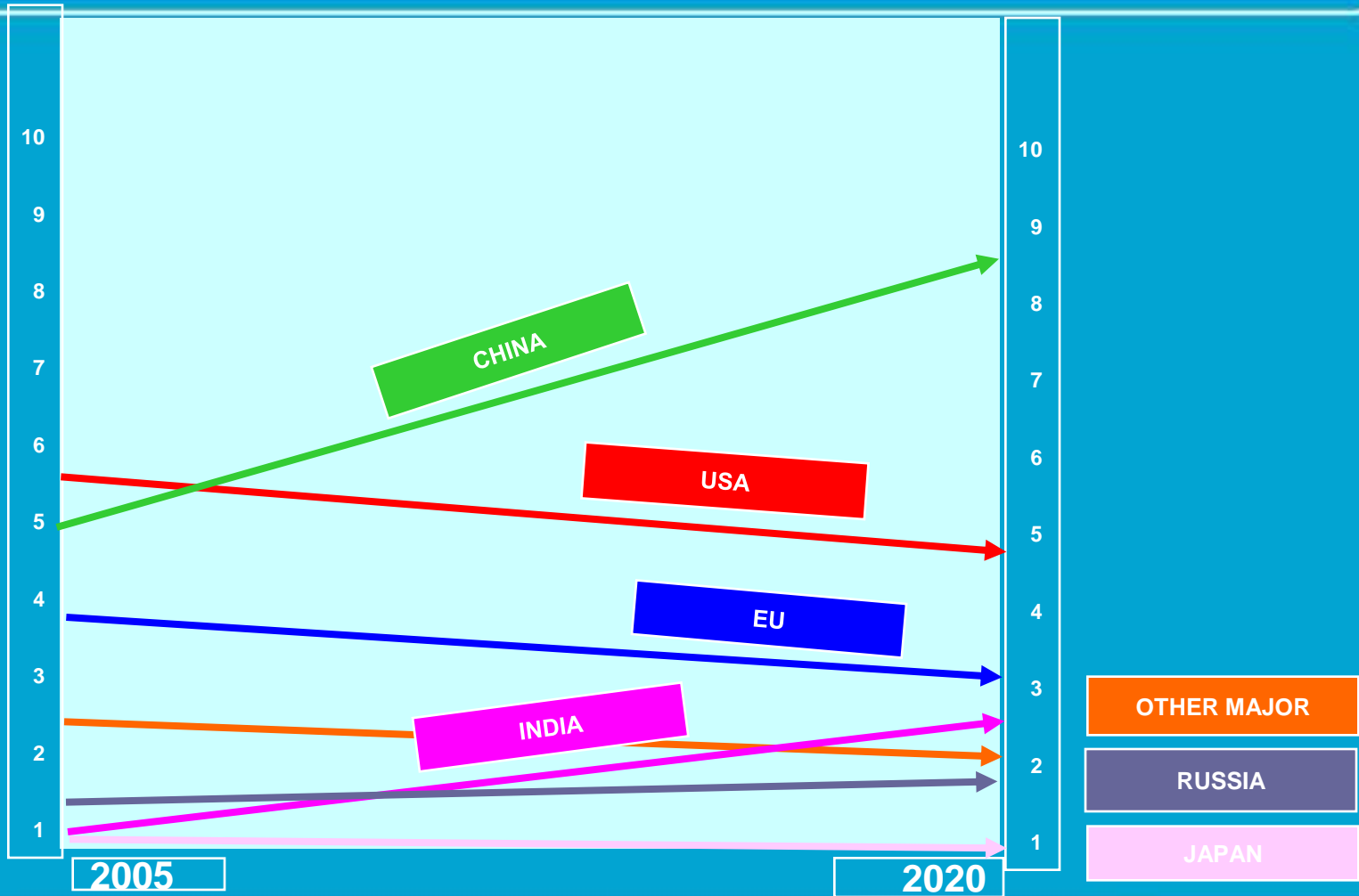


AFTER COPENHAGEN

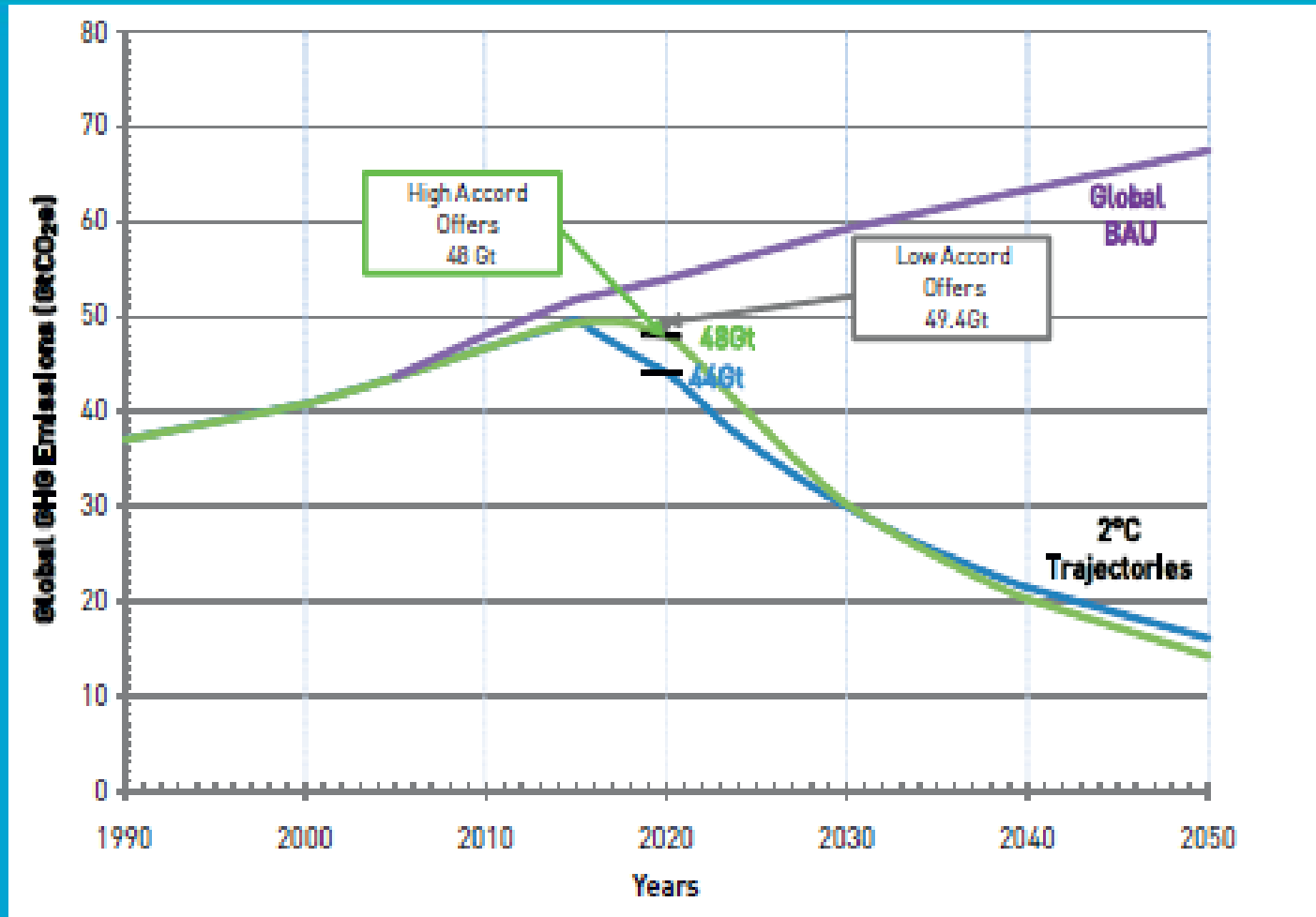
1. The Copenhagen Accord: what did it achieve for 2020 and 2050?
2. Implications for the Steel industry:
 - * the problem of "Carbon Leakage"
 - * the significance of Carbon Capture and Storage
3. Managing two scenarios:
 - * radical decarbonisation 2020-2050
 - * business as usual? – a changing climate



THE COPENHAGEN ACCORD



Mitigation offers under the Copenhagen Accord compared to a business as usual trajectory and a more ambitious trajectory to 2°C



Source : UK Department of Energy and Climate Change, "Beyond Copenhagen" March 2010 based on LSE Grantham Institute (Bowen, A and Ranger, N)

CARBON LEAKAGE: the Solutions

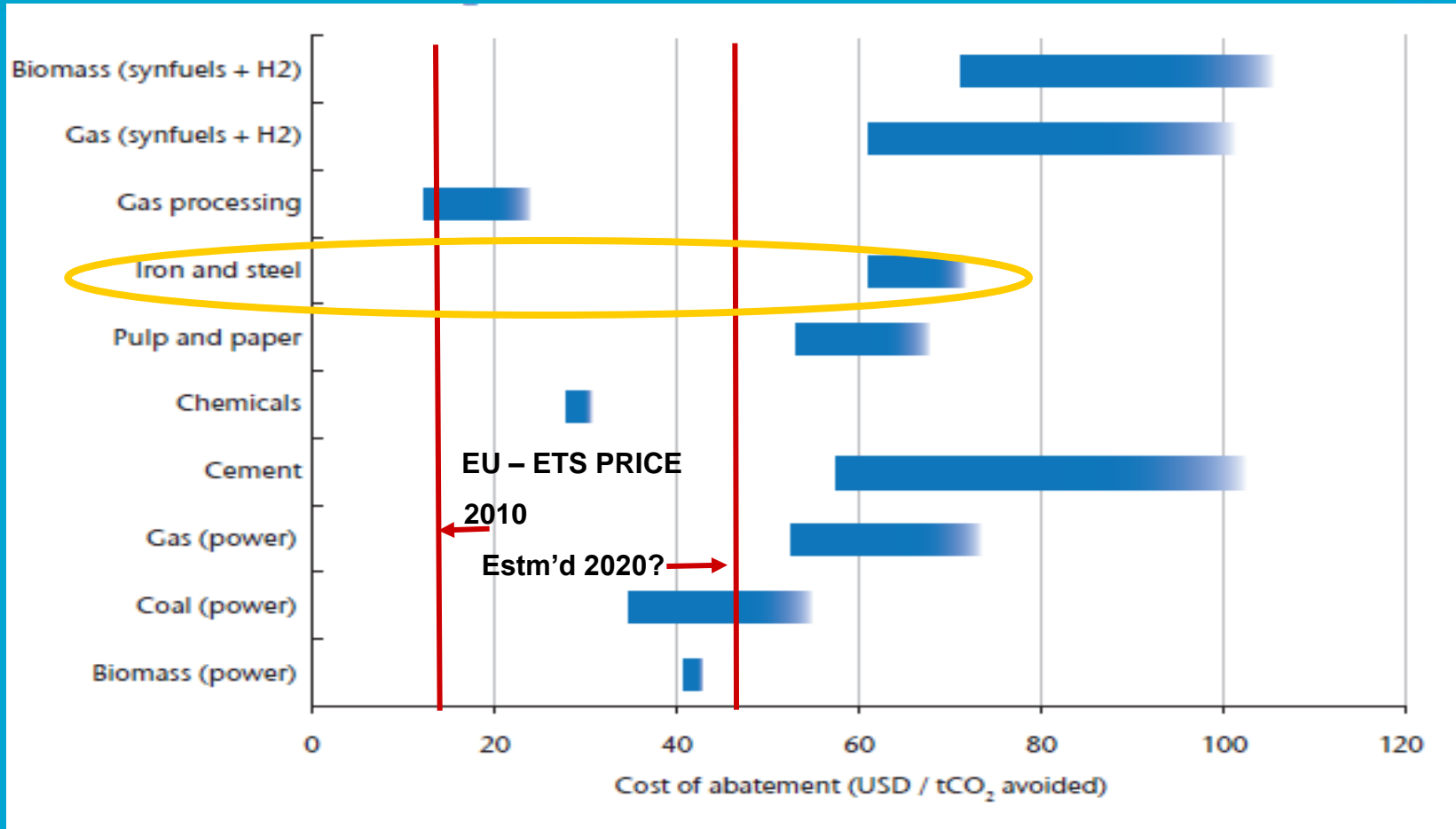
Allocation - Free? Declining over Time?

Border Carbon Adjustment - tariffs based on benchmarks? International agreement compatible with WTO?

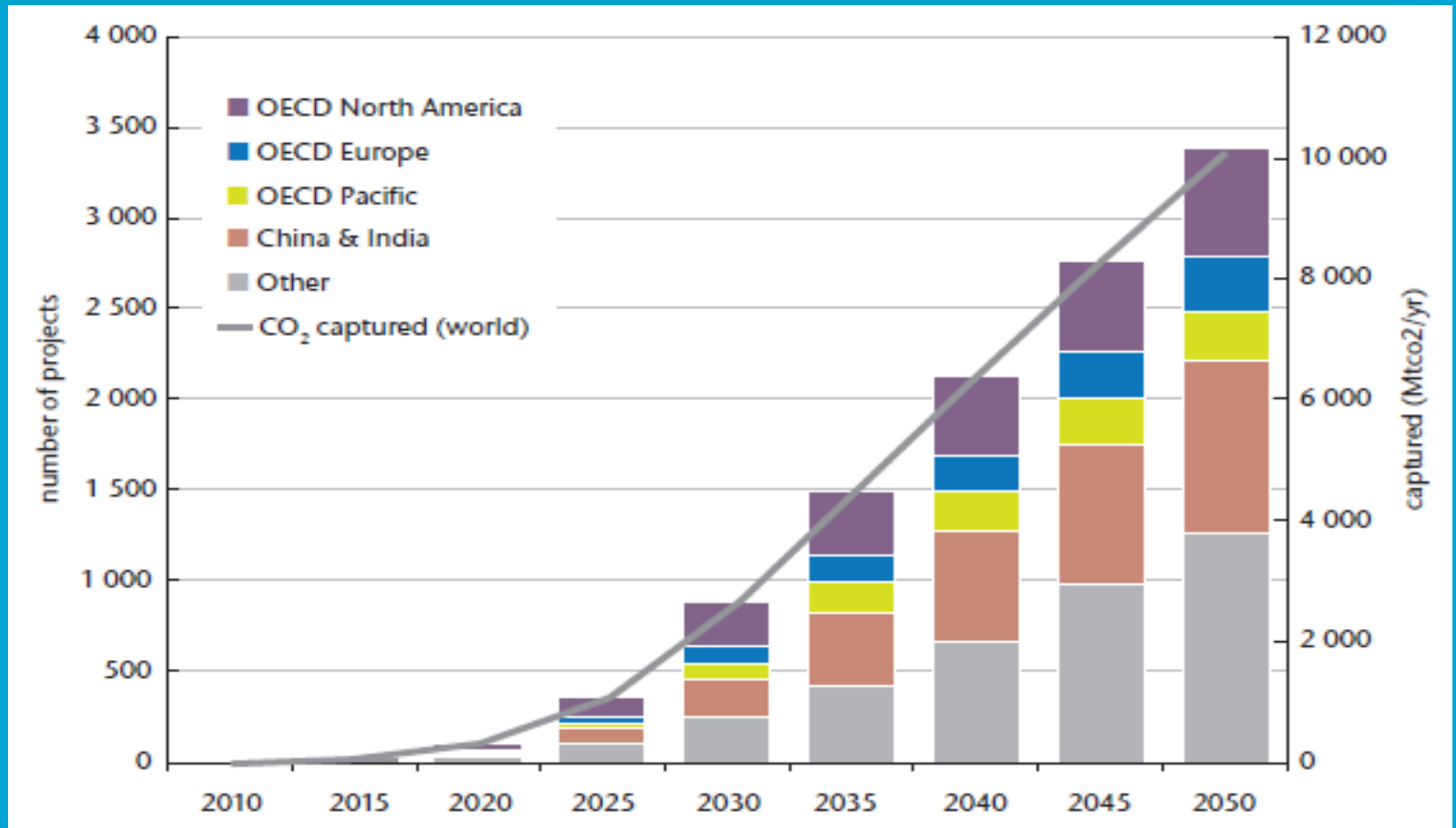
Sectoral Agreement - based on trade agreements, plus support for Research, Development and Demonstration?



IEA CCS ROADMAP TO 2050



IEA CCS ROADMAP TO 2050



RADICAL DECARBONISATION

1. Preconditions

- * Several "Katrinas" 2010-2020?
- * Leadership from China ?

2. Key challenges for the Steel Industry

- * Rapid acceleration of CCS
- * Direct reduction, based on fuel switching towards Gas
- * Financing transformation

3. Opportunities

- * Acceleration of power sector decarbonisation - nuclear, wind, CCGT, CCS pipe networks
- * Higher strength steel for smaller/electric cars
- * Life Cycle Analysis Reengineering – construction, manufacturing



BUSINESS AS USUAL/ A CHANGING CLIMATE?

- 1. The Water issues:**
 - irrigation and crop levels (e.g. China, India, parts of Africa)
 - sea levels (e.g. Netherlands, Bangladesh, China, India)
- 2. The Arctic opportunity?**
- 3. The Decarbonisation/Reengineering Opportunities, especially EU, Japan, US, and China.**
- 4. A turbulent business environment - shocks, tipping-points?
But when...?**

