



Energy research Centre of the Netherlands

## CCS in the Kyoto Protocol... and beyond

Heleen de Coninck, November 7<sup>th</sup>, 2007  
Swiss Re and IRGC CCS Workshop, Zurich



## Myths about Kyoto

Myth # 1: Kyoto does not reduce emissions

Myth # 2: Kyoto does not recognise CCS

Side-step: CCS in the CDM

Myth # 3: There is no future for Kyoto or the CDM

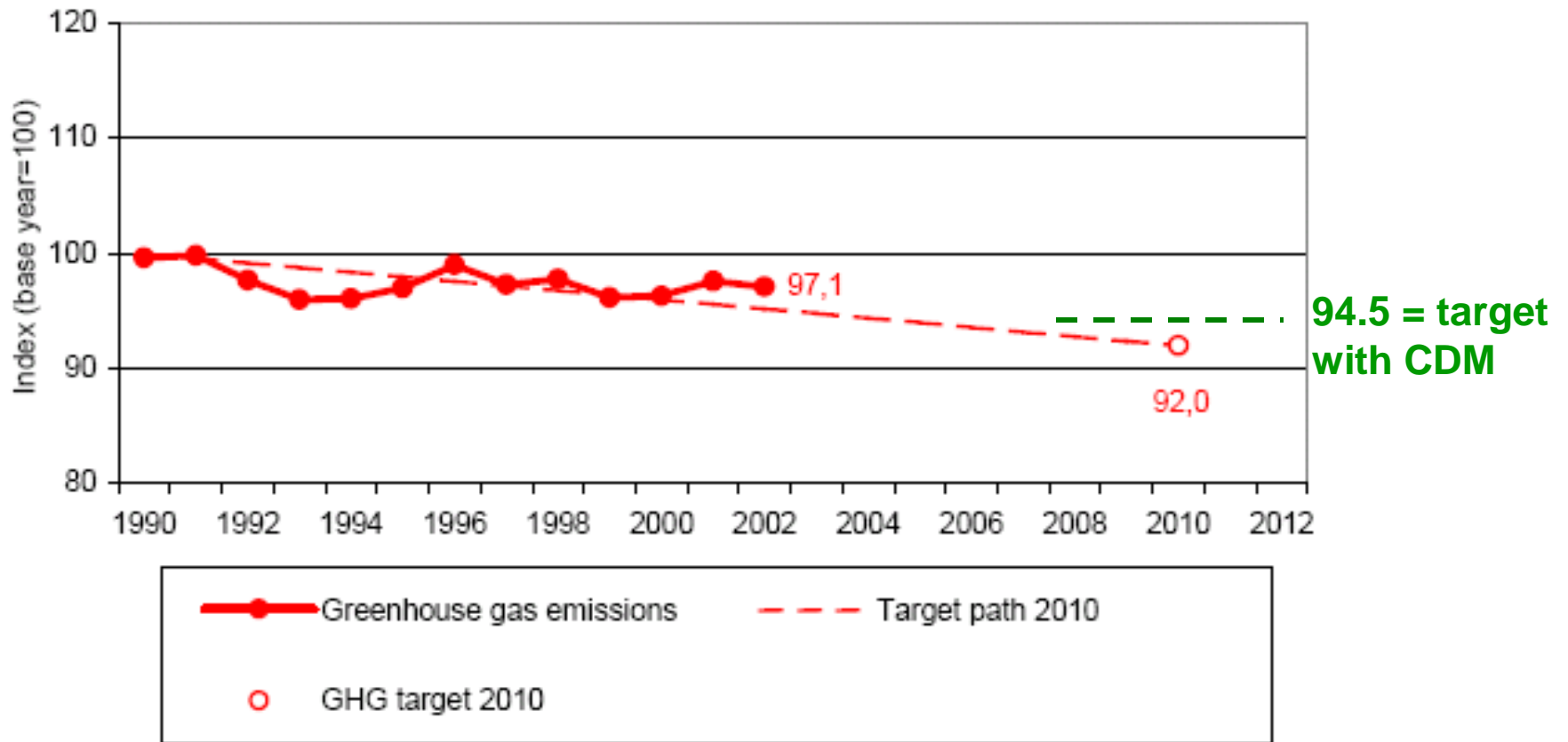
Side-step: Post-2012 CDM potential

## Myth # 1: Kyoto does not reduce emissions

IPCC (2007): Notable achievements of the UNFCCC and its Kyoto Protocol are

- The establishment of a global response to the climate problem
- Stimulation of an array of national policies
- The establishment of an international carbon market
- Establishment of new institutional mechanisms
- Limited influence on global emissions (but makes a difference in places)
- Economic impacts on participating countries lower than projected in earlier projections

# Myth # 1: Kyoto does not reduce emissions



Source: EEA (2005, 2006)

## Myth # 1: Kyoto does not reduce emissions

Emissions in EU would have been higher without the various policies

- Germany: Economic restructuring new states
- UK: coal-to-gas switch beginning 90s
- However, not enough to explain all reductions

But the Kyoto policies still need to mature and prove their value

- EU ETS: Announcements for ETS post-2012 to improve incentives → Auctioning?
- Improvements in the CDM
- Broader participation?

## Myth # 2: Kyoto does not recognise CCS

- “Carbon sequestration technologies” mentioned in Article 2.1
- CCS has been prominently on the negotiation table since the IPCC Special Report on CCS was published (2005)
- Annex-B CCS emissions reductions likely to be recognised in Kyoto commitment period
- CCS and CDM: healthy debate ongoing, but it’s a bumpy road

## **Side-step: the bumpy road of CCS in the CDM**

November 2005: two CCS-methodologies and projects submitted to the CDM Executive Board

Forwarded to COP/MOP: more information needed

Workshop held SB-24: Bonn, 22<sup>nd</sup> May 2006

The two submitted CCS methodologies reviewed and rejected on procedural grounds

Report and follow-up discussed at COP/MOP2 in Nairobi

Current status: Observer and Party submissions done

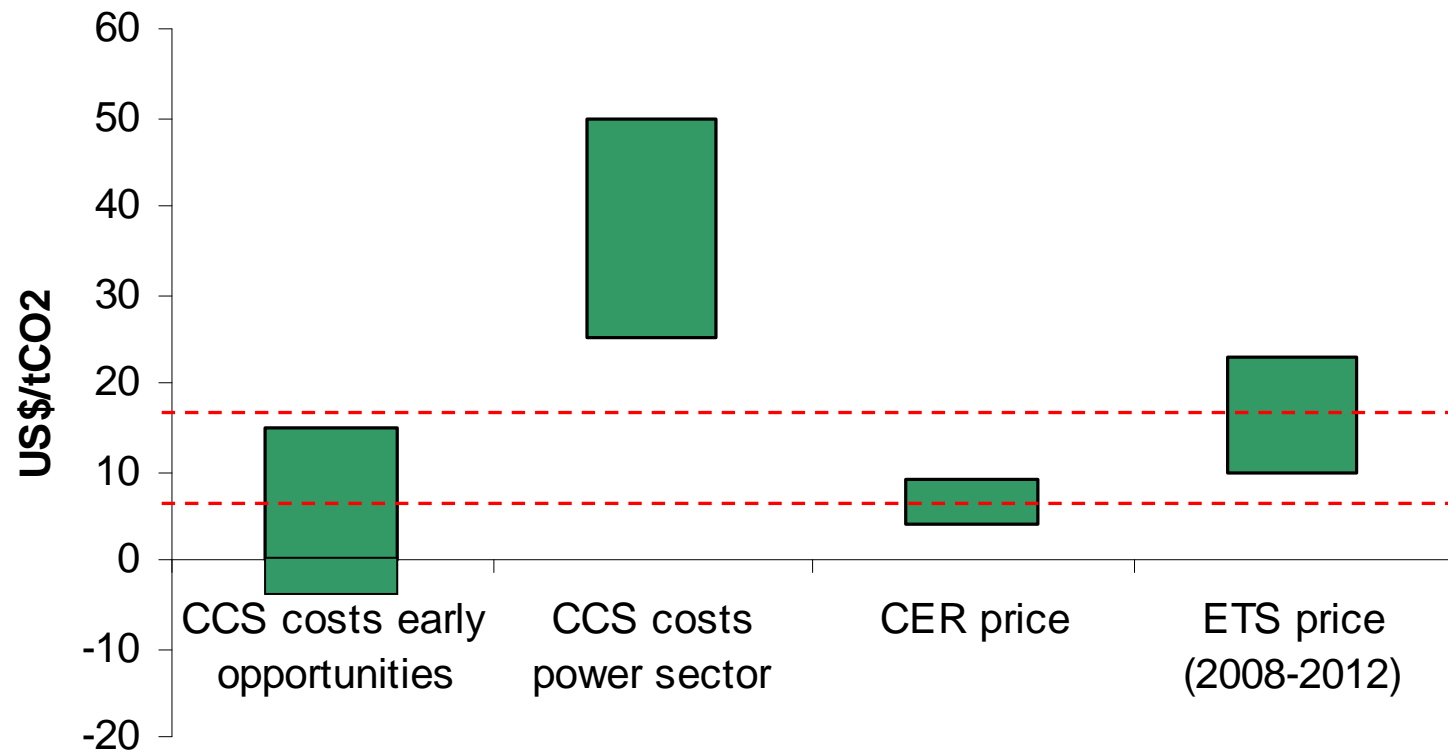
## CCS and CDM: Submitted projects – NM 0167

	White Tiger Field (Vietnam)	
Description	CO <sub>2</sub> capture from NGCC plants, pipeline transport, storage in offshore EOR operation	
Project boundary	Capture, compression, transport, storage reservoir	
Leakage	No leakage	
Seepage	Benchmark set at 0.1% per year	
Reduction	2.3 - 7.7 MtCO <sub>2</sub> per year	
Monitoring	4D seismic	
Other	No EIA foreseen	

## CCS and CDM: Submitted projects – NM 0168

	Petronas (Malaysia)	
Description	Co-capture CO <sub>2</sub> and H <sub>2</sub> S from offshore gas well, storage in aquifer	
Project boundary	Compression, transport, storage reservoir	
Leakage	No leakage	
Seepage	No seepage	
Reduction	3.1 MtCO <sub>2</sub> per year	
Monitoring	Reservoir simulation, 4D seismic	
Other	No EIA foreseen	

## CCS and CDM: cost comparison



## Side-step: the bumpy road of CCS in the CDM

Procedural issues: current CDM procedures not compatible with CCS technology

Uncertainty: CCS technology considered relatively new and not fully proven

Emotional issues: Resistance to CCS in the CDM by environmental organisations and some governments

- Sustainable development, “developing countries as guinea pigs”, impact of CCS on other options

Potential CCS in the CDM in 2020: ca. 85 MtCO<sub>2</sub> (ECN, 2007)

Funding for awareness raising, regulatory support and small pilots in developing countries under consideration (GEF?)

## Myth # 3: There is no future for Kyoto

24 September 2007: UN High-level meeting on climate change: agreement to agree.. But on what?

EU and other Kyoto parties: continue on emissions trading path – continue Kyoto

- CDM is likely to stay part of it

Non-Kyoto Annex B countries: uncertain

- Sectoral or technology-oriented agreements?

Emerging economies: uncertain

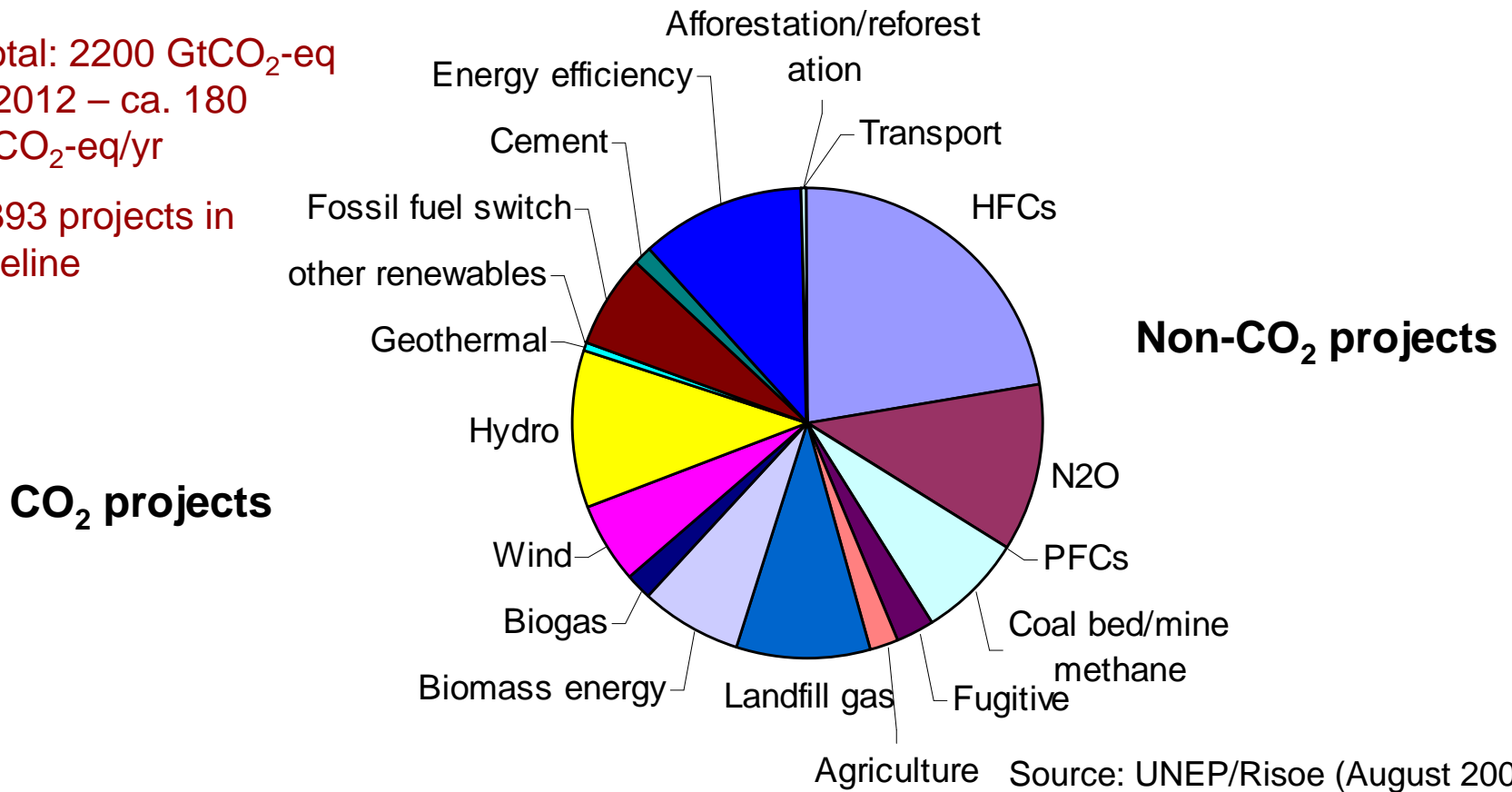
- Join sectoral agreements? Continue participation CDM?

CDM potential not exhausted

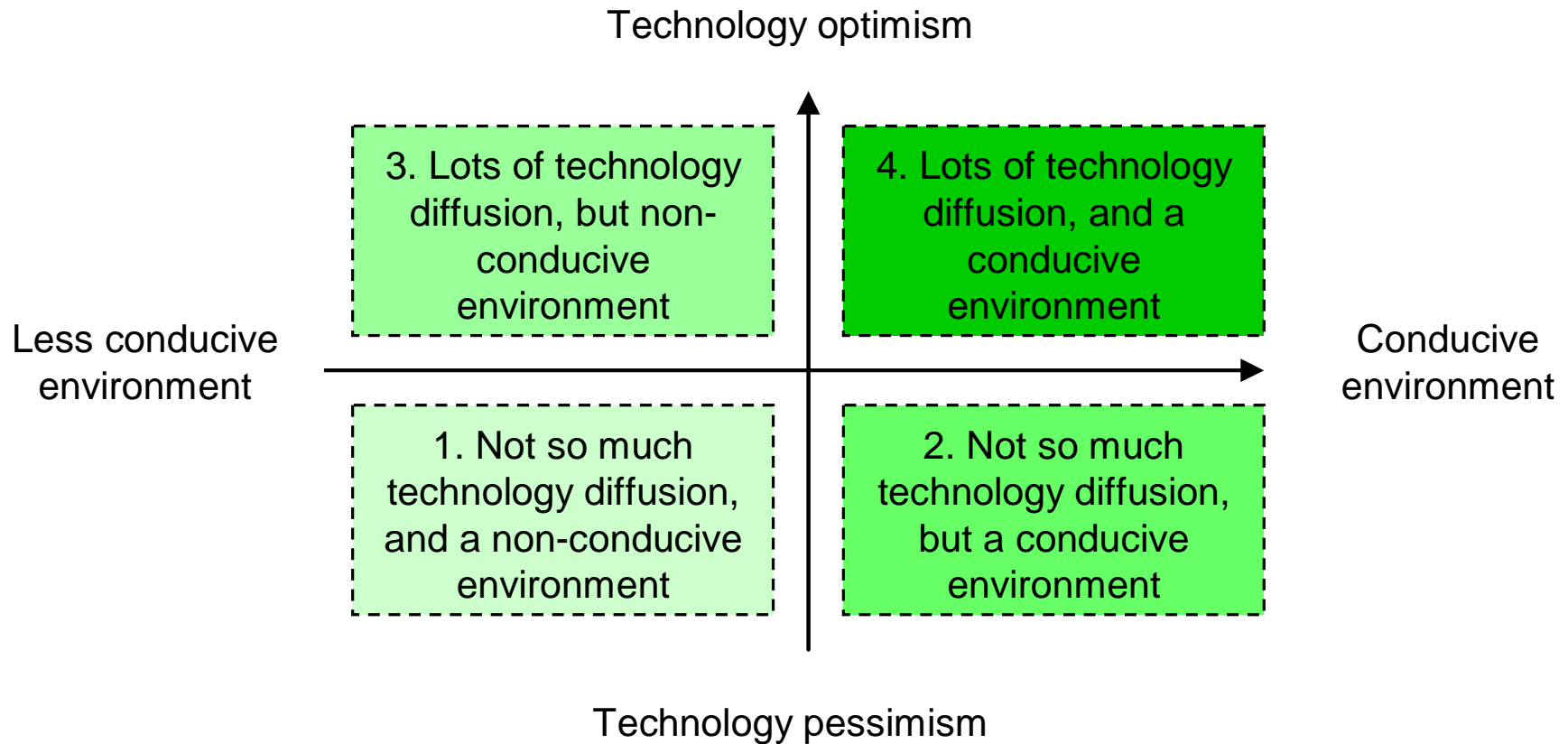
# Side-step: Post-2012 CDM potential

- Projects up for validation
- Total: 2200 GtCO<sub>2</sub>-eq to 2012 – ca. 180 MtCO<sub>2</sub>-eq/yr
- 2393 projects in pipeline

**CERs up to 2012 by technology**



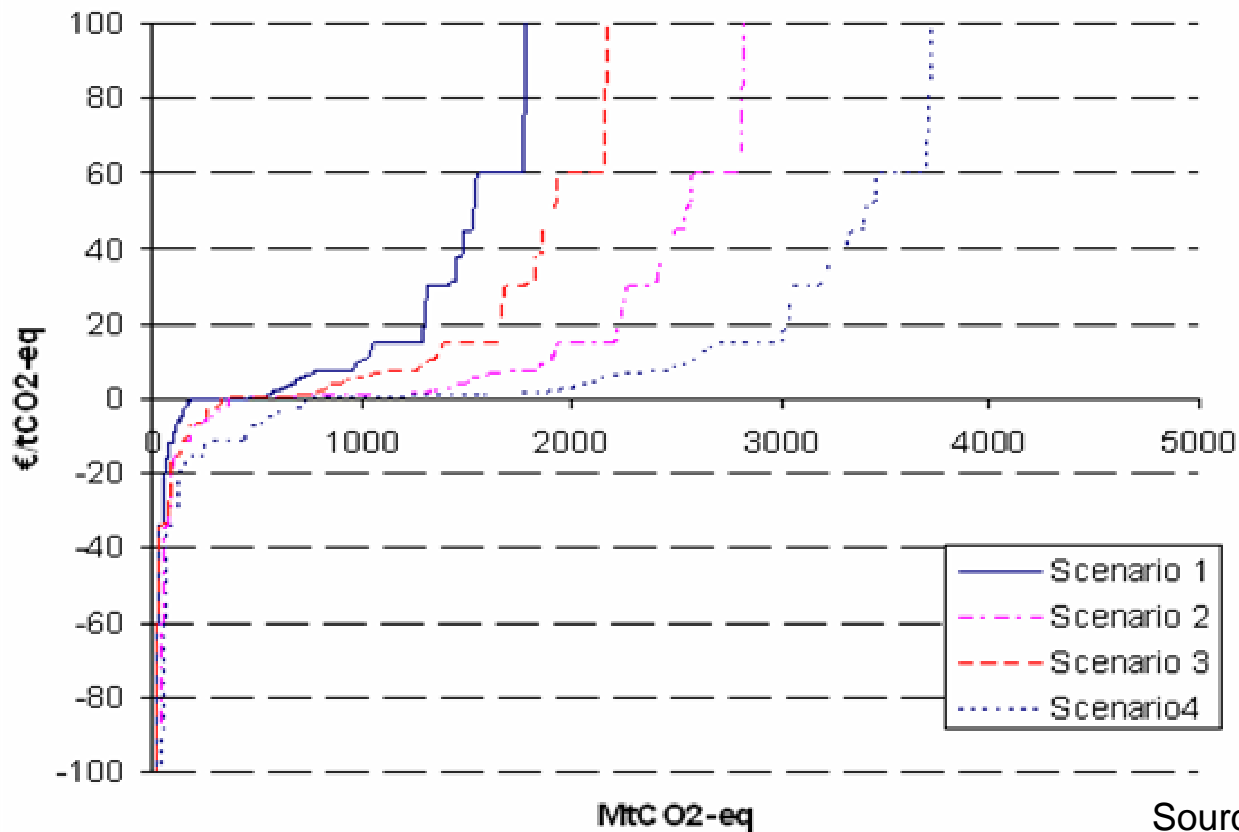
# Side-step: Post-2012 CDM potential



Source: ECN (2007, forthcoming)

## Side-step: Post-2012 CDM potential

MAC curve for CDM 2020 (ECN, 2007)



Source: ECN (2007, forthcoming)

## Conclusions

Kyoto has made a difference and something similar likely to continue after 2012, possibly alongside sectoral or technology agreements

There is a future for the CDM. The CDM potential is by far not exploited, even in conservative scenarios for future credit supply

The CDM is currently the only mechanism that provides incentives for CCS in developing countries

- The procedural problems around CCS in the CDM can be solved
- The convictions that lead to positions against CCS/CDM require time and confidence building
- Enabling activities (e.g. through the GEF or IRGC?) can help

**Thank you**

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