Update on Climate Negotiations and Future of Market Mechanisms

Presentation to CCOP and PETRAD Workshop

29th June 2010, Phuket, Thailand

Carbon Limits

Carbon Limits – who we are and what we do

- Formed in 2005 as part of ECON. Independent of ECON since August 2007
- Develop CDM/JI projects (monetize GHG emission reductions) and develop and take ownership in green energy investments
- Currently we develop and present for sale projects representing 50 million tons CO_{2e} in emission reductions (carbon credits), of which 25 million tons CO_{2e} for the Kyoto period
- Senior partners
  - Arve Johnsen, chairman
  - Torleif Haugland, managing director
  - Paul Parks, director of petroleum sector JI/CDM

6 flare reduction projects in West Africa: one registered, probably Africa's largest CDM project

The first registered CDM project in Iran

2 flare reductions projects and 9 gas leak projects in Russia

Copenhagen Accord

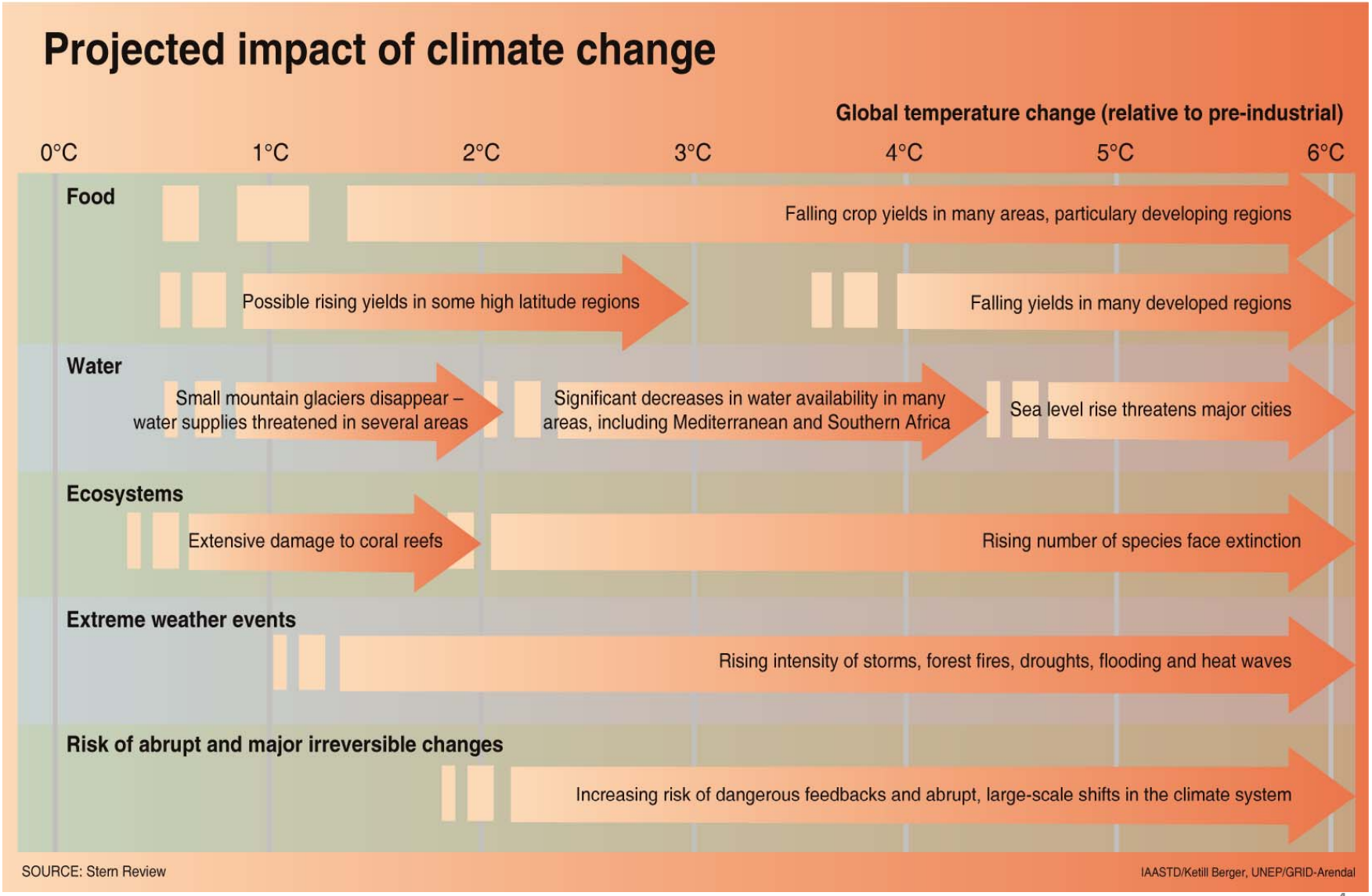
Key elements

- States that: *"... deep cuts in global emissions are required … so as to hold the increase in global temperature below 2 degrees Celsius …"*
- Developed countries to report reduction commitments by 31st January 2010
- Developing countries will implement mitigation actions and will report on such actions.
- Call on developing countries to establish GHG emissions monitoring, reporting and verification (MRV) processes.

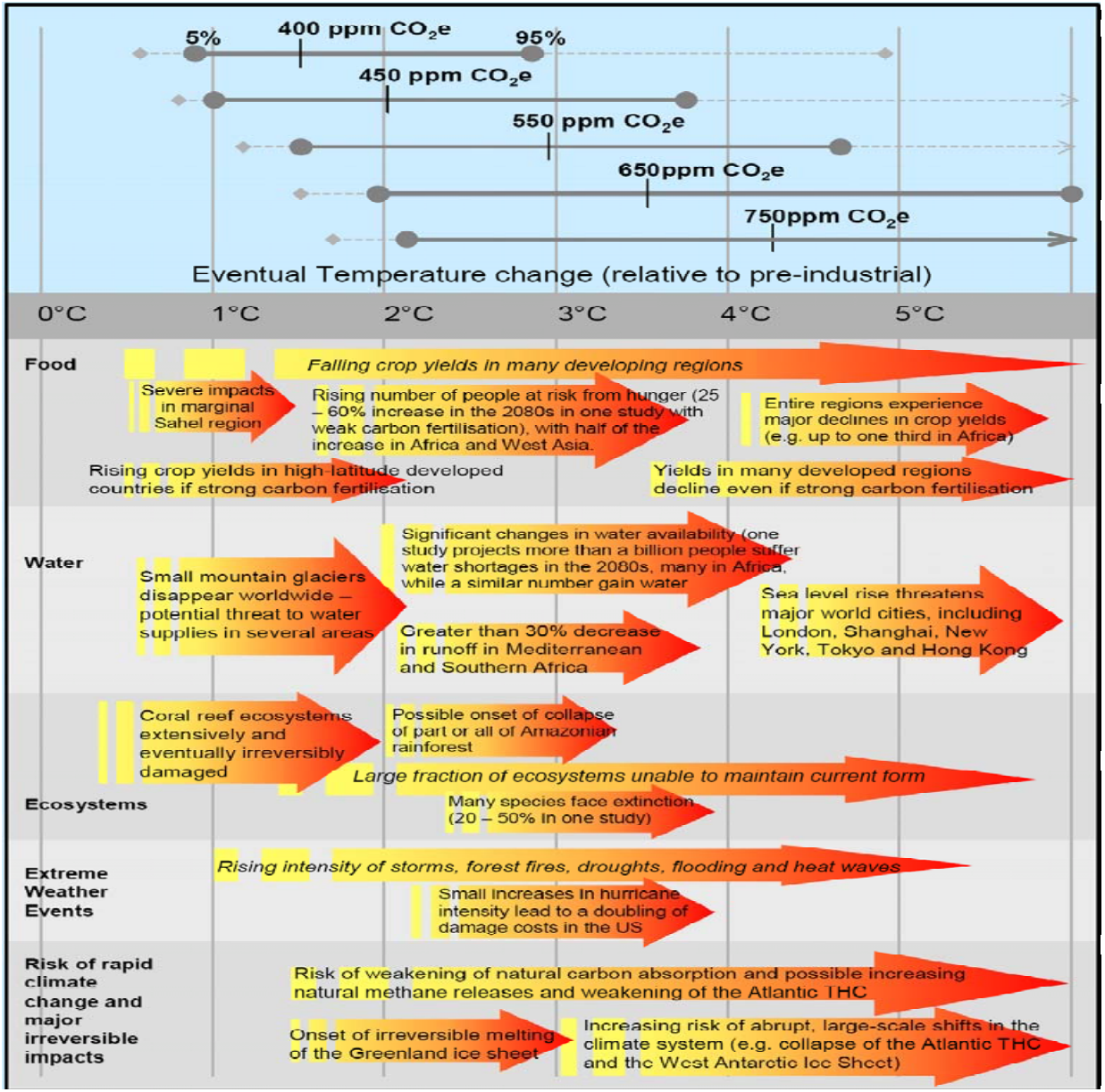
A success or a failure?

- Those having expected a legally binding documents are disappointed
- Unprecedented participation by heads of states in detailed international negotiations
- Climate change policy will remain on top of the international policy agenda
- Major concern with the "UN structure" of negotiations, will a two track process emerge?

Why temperature above 2C is a major risk



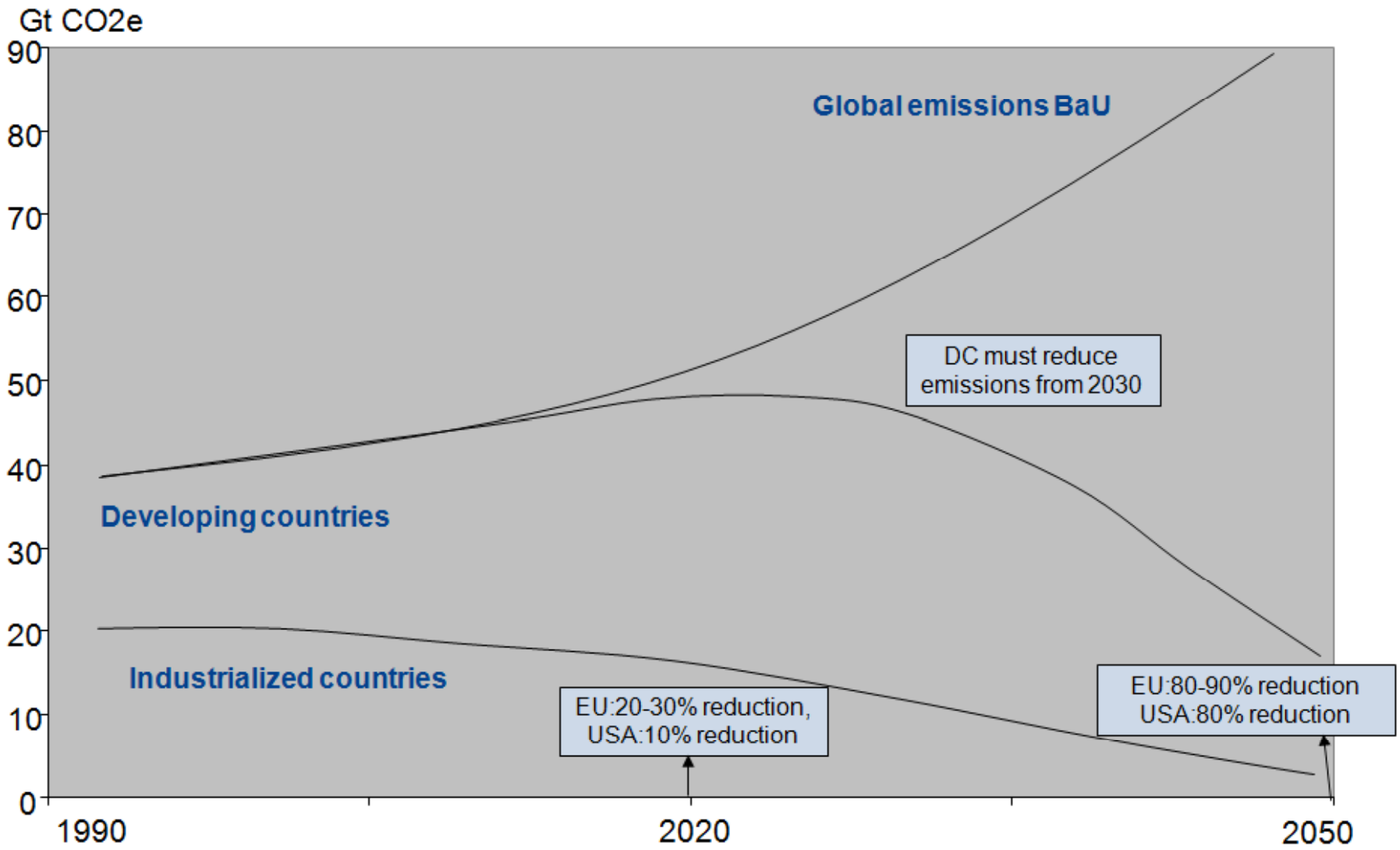
Climate change – the main challenge



Is a 2°C target feasible and economically sound/defensible?

- Must be operationalized in the form of atmospheric concentration and annual emissions of green house gases /GHGs)
  - Current concentration : 430 ppm CO_{2e} increases by 2 ppm per annum
  - Current level of annual emissions 45 GT CO_{2e}
- Projections to 2050 (business-as-usual, BaU):
  - 85 GT CO_{2e} in annual emissions
  - 630 ppm in atmospheric concentration
- 630 ppm: 50% risk of temperature increase exceeding 3.5°C
- Stern Review: stabilise at 450-500 ppm gives the best balance between costs and benefits (avoided damage)
- Stabilise at 450 ppm not possible, requires global peak in emissions in a few years from now
  - 450 ppm in line with target of max 2°C temperature increase
- 500-550 ppm possible
  - Value of damage 3-4 times abatement costs

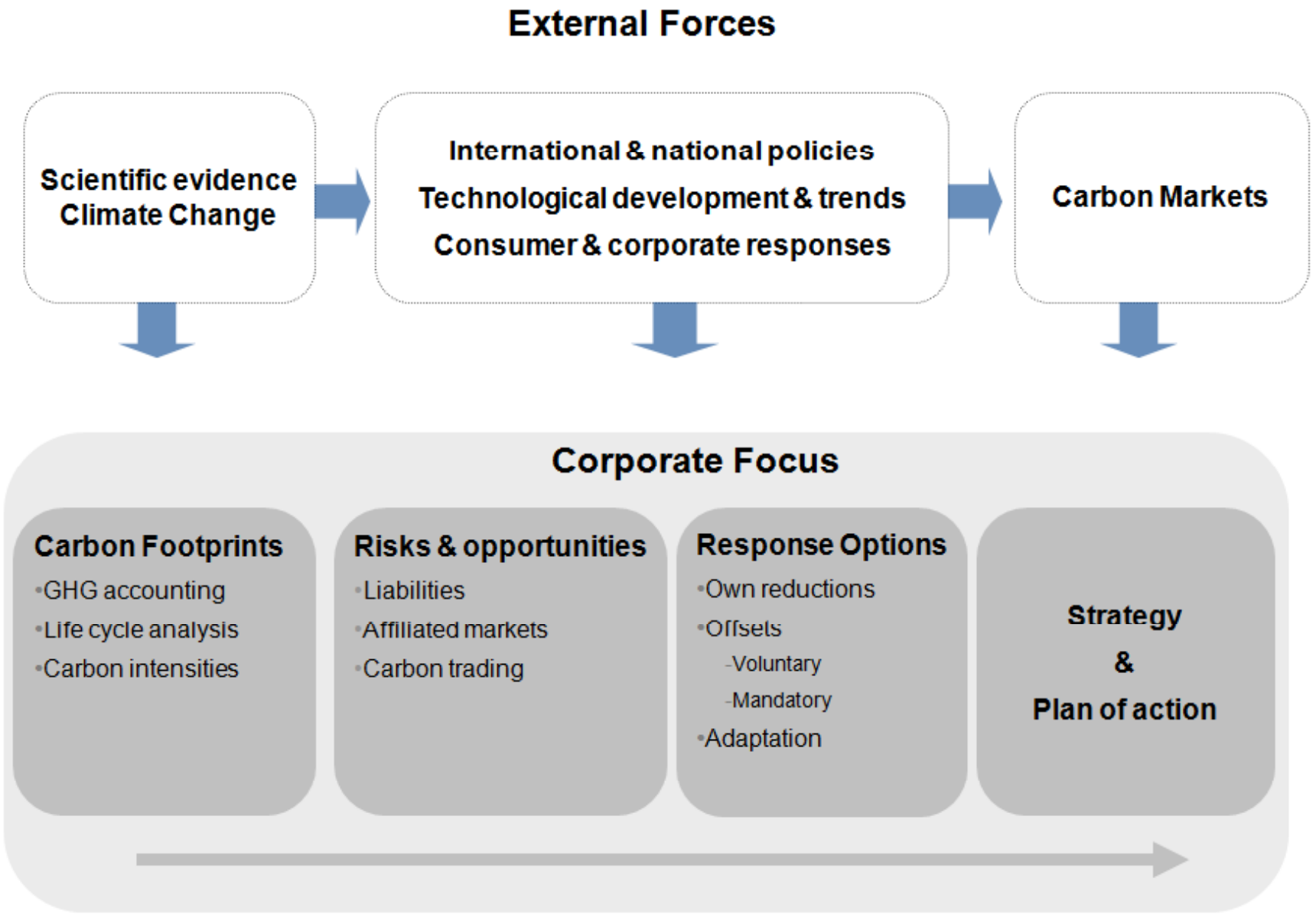
Stabilising at 550 ppm



Are we heading for the 550 ppm scenario?

Country	Base year	Reduction by 2020	Comments
Australia	**2000**	**5% to 15% (or 25%)**	25% if the world agrees on 450 ppm CO2eq, if major developing economies substantially restrain emissions and advanced economies take on comparable commitments
Canada	**2005**	**17%**	To aligned with the final economy-wide emissions target of the US in enacted legislation
EU	**1990**	**20% to 30%**	30% if developed countries commit to comparable emission reductions and developing countries contribute adequately
Japan	**1990**	**25%**	
New Zealand	**1990**	**10% to 20%**	2° C, if developed countries make comparable efforts; developing countries take action, rules for (LULUCF); and broad and efficient international carbon market.
Norway	**1990**	**30% to 40%**	40% if major emitters agree on reductions in line with 2°C
Switzerland	**1990**	**20% to 30%**	30% reduction, if developed countries commit to comparable reductions and developing countries contribute adequately
Russia	**1990**	**15% to 25%**	Range depending on forestry and if other major emitters undertake obligations
USA	**2005**	**17%**	In conformity with anticipated U.S. energy and climate legislation, final target reported to the Secretariat in light of enacted legislation
Ukraine	**1990**	**20%**	
Total without USA: -15% to -21% below 1990			

Carbon Management Strategy



Outlook beyond 2012

Three possible outcome of climate negotiations by end 2012

- A new international climate treaty (with emission caps)
- Expended Kyoto Protocol as a stop-gap
- Years without a new treaty, perhaps until 2015-16

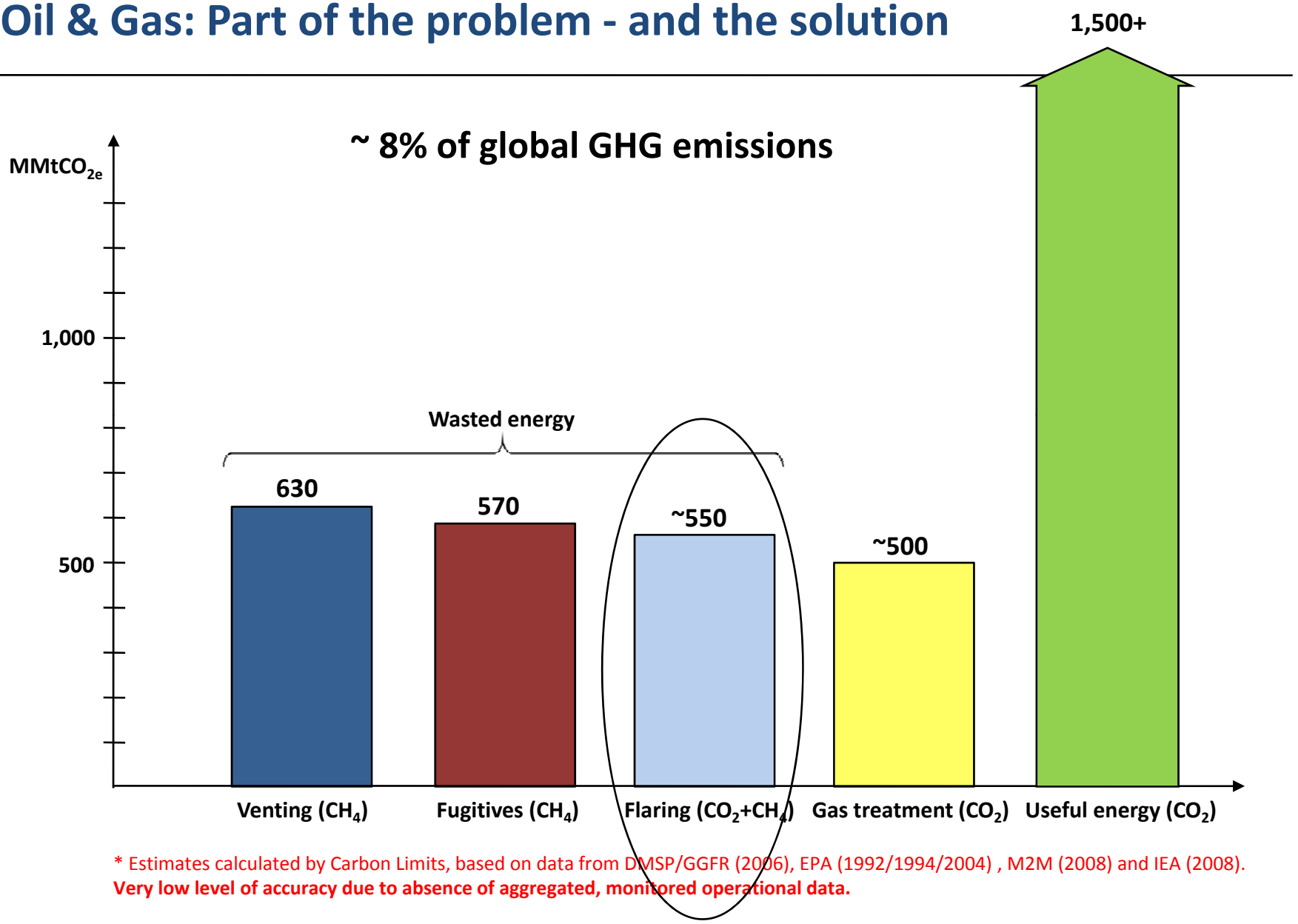
Implications of a “no-treaty” scenario

- CDM will lack an international legal basis
- Still, CDM will continue . Is self-financed and has rules, procedures and institutions with credibility
- Importing countries will have more of a say – bilateral trades will emerge
- EU and (perhaps) USA will import offsets, but will set own import criteria

Climate change policies will radically impact on oil & gas industries

- Impacts through international energy markets
- Liabilities (long term) and business opportunities (short- medium term) through own emission reductions
- Current impasse in climate negotiations will be resolved, but can take 3-4 years

Oil & Gas: Part of the problem - and the solution



* Estimates calculated by Carbon Limits, based on data from DMSP/GGFR (2006), EPA (1992/1994/2004) , M2M (2008) and IEA (2008).
Very low level of accuracy due to absence of aggregated, monitored operational data.

What drives the carbon market prices?

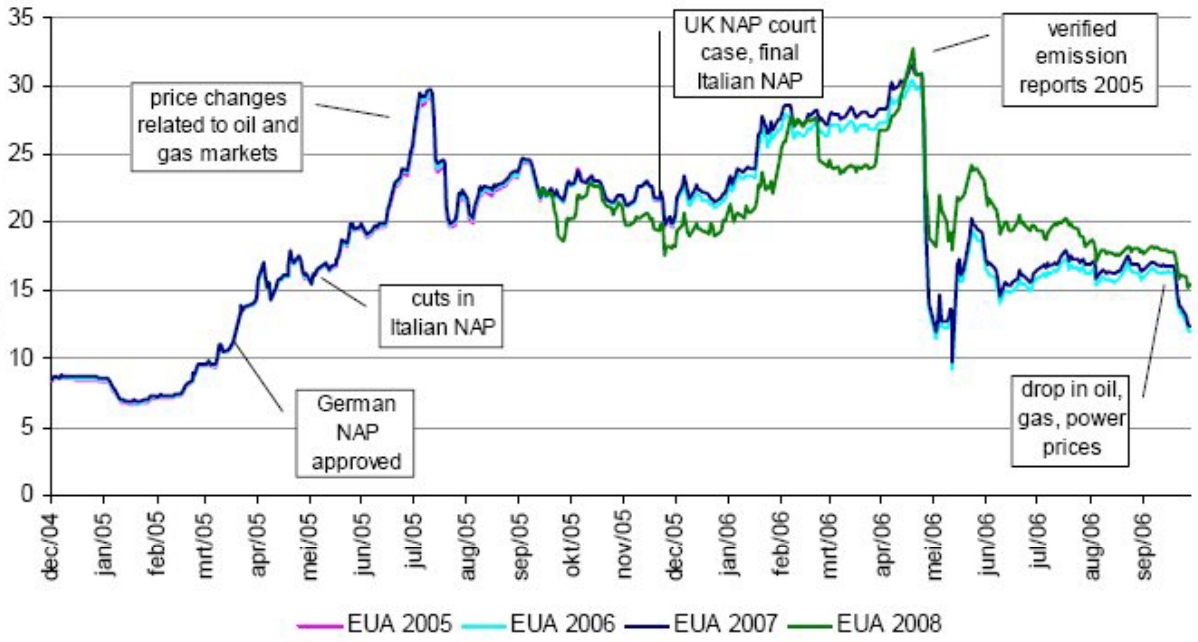
Example: EU ETS

Fundamental factors…

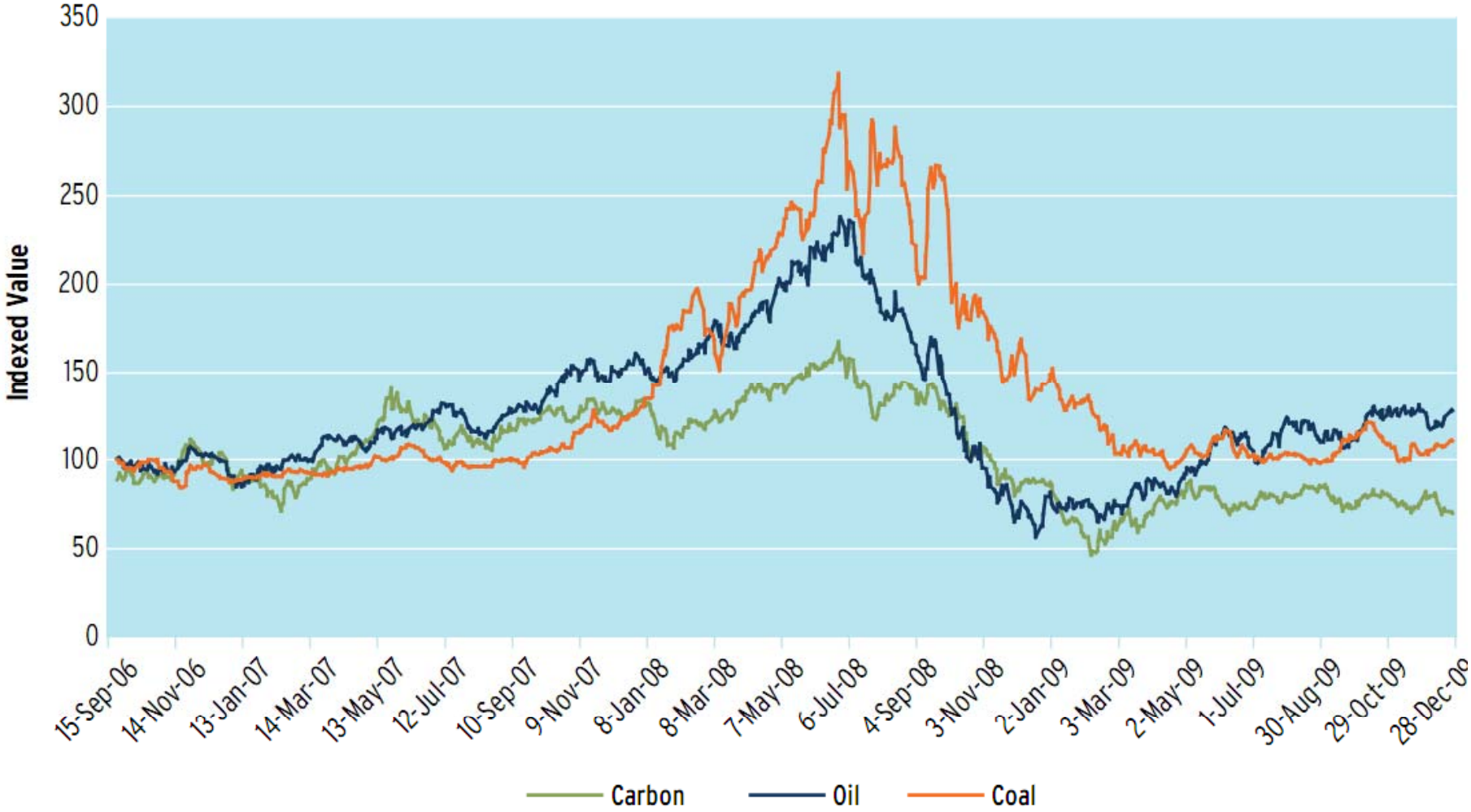
- **Regulatory issues** such as allocation plans
- **Gas-coal spread** impacts the economic viability of fuel switching
- **Economic growth** increases demand for power and therefore increases emissions and demand for credits
- **Weather** impacts demand for power, and availability of renewable energy (e.g. hydro in dry conditions)
- **CDM / JI markets** impacts the supply of credits available

…and major events have driven volatility in carbon prices

EUA Prices
EUR / ton



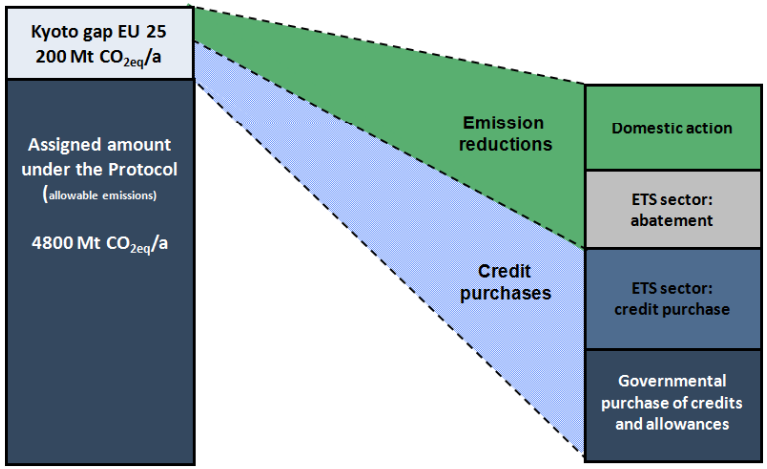
Comparison of carbon, oil, and coal prices, Sept. 06–Dec. 09



Source: World Bank

“Market balance” for the Kyoto period

Demand side:



Countries that have a cap in the Kyoto Period

=

2,400 Million

(Governments decide how to share the burden)

Supply side:

CDM	→ CERs	~	**1,350 Million CERs**
JI	→ ERUs	~	**150 Million ERUs**
“Hot air” Surplus allowances	→ AAUs (With or without green investment scheme (GIS))	~	**5,600 Million AAUs (BaU)**

AAUs converted to ERUs by governments through approval of JI projects

Allowances that can be used for Kyoto compliance

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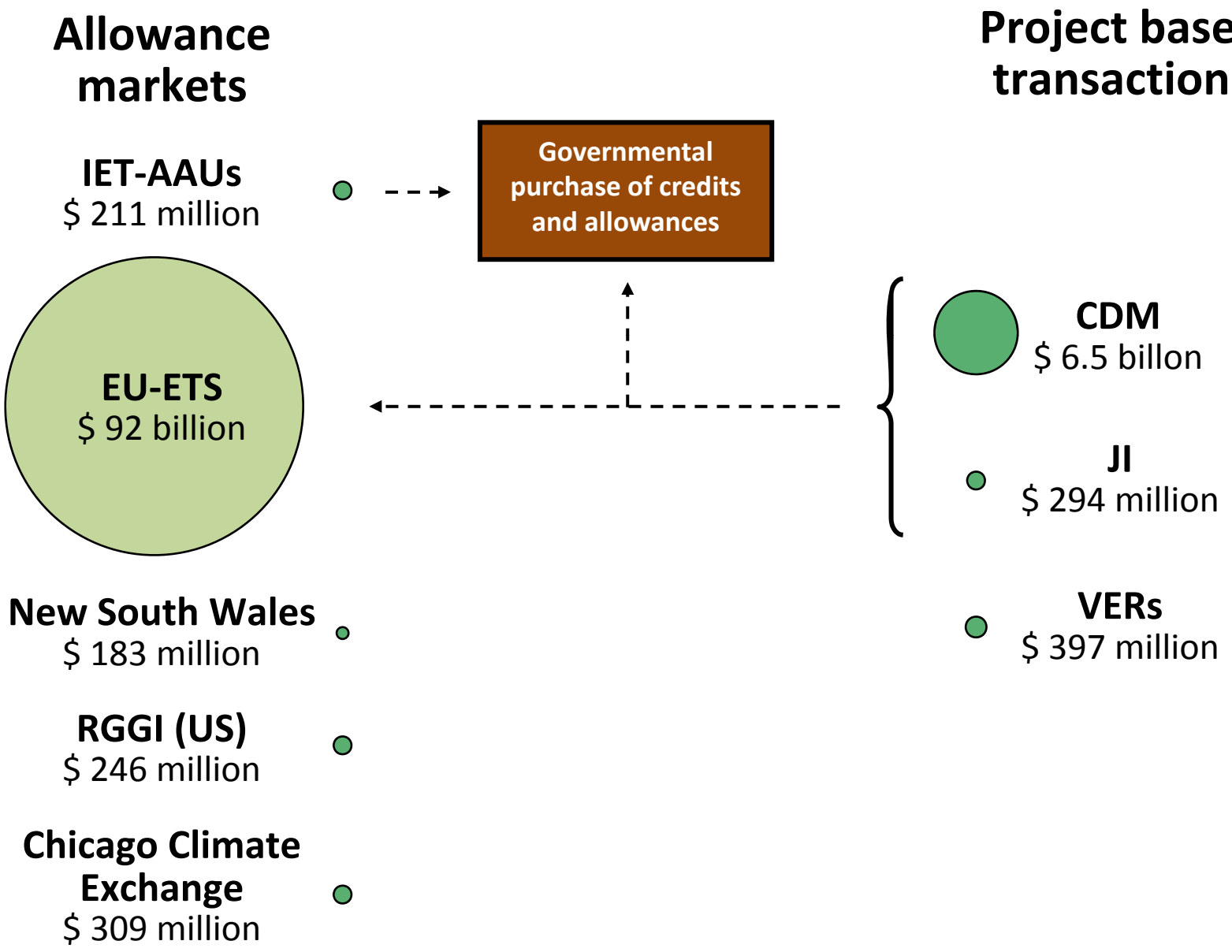
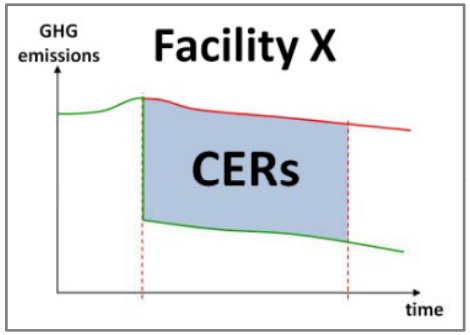
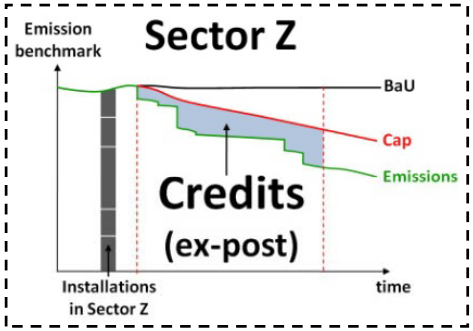
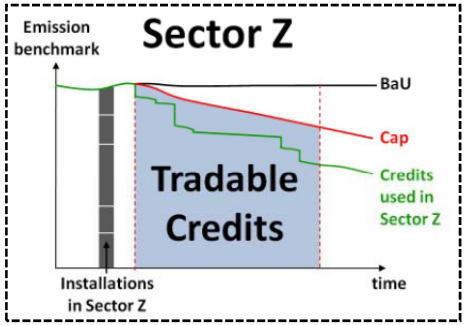
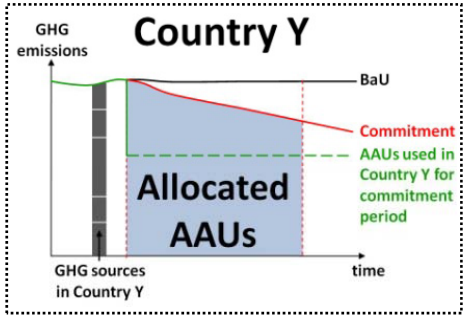
The Carbon Market – $ 100 billion annual turnover

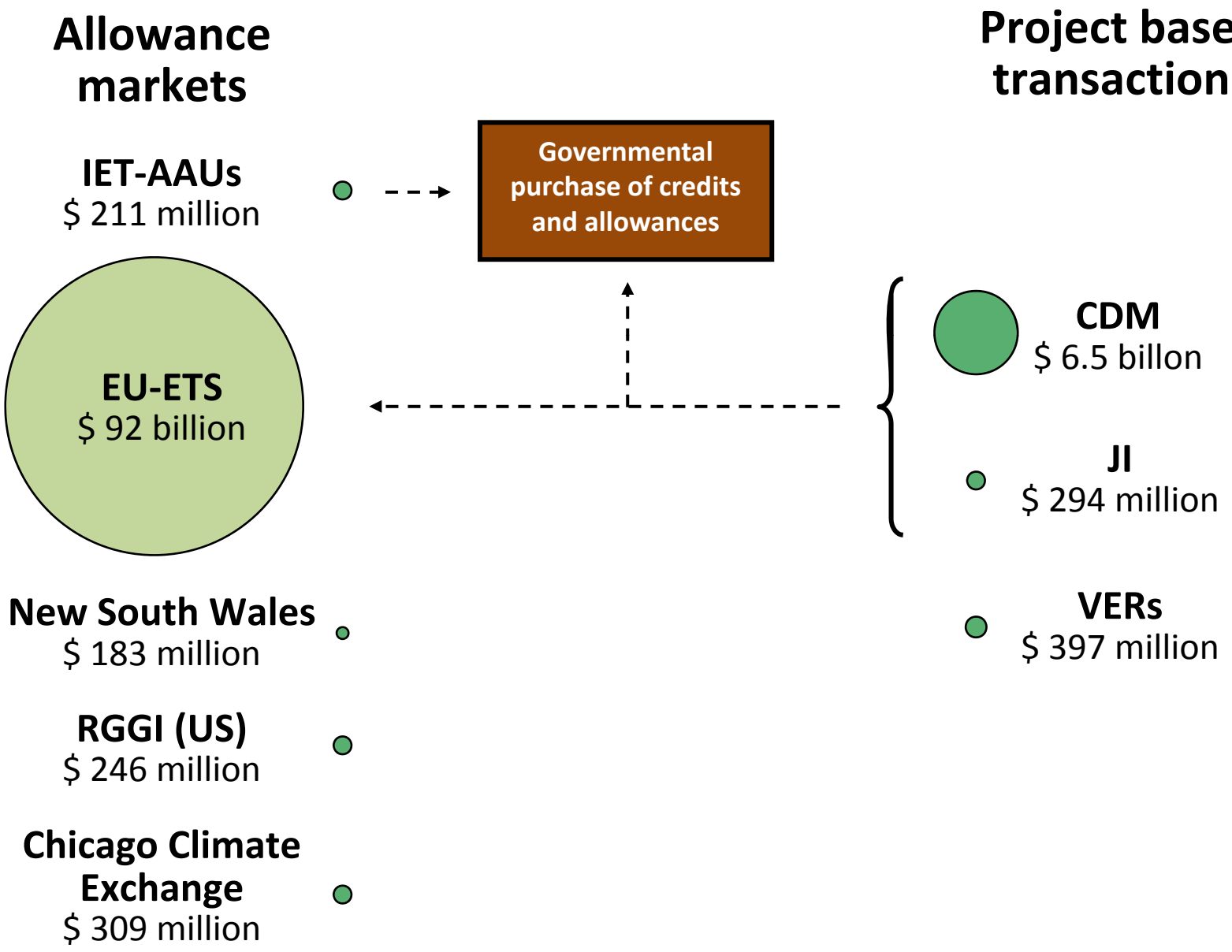


Towards a global emissions trading scheme?

EXISTING MECHANISMS:	POSSIBLE NEW SCHEMES:		
CDM/pCDM :	**Sectoral crediting:**	**Sectoral trading:**	**Global ETS:**
			
National regulations and institutions			
DNA, otherwise modest requirements	Define sector scope, establish baseline, design scheme and incentives for private sector participation. Third party verification.	Identify participating companies/installation and establish their allowances and emissions	National caps. Authorities free to decide how to meet commitments: through ETS and/or other measures. Major institutional challenge.
International regulations and institutions			
No host country reduction commitment Kyoto Protocol rules and procedures, incl CDM EB	"No lose" target Institution to approve sector baselines and transaction of sector credits (preferably UNFCCC institution)	New legally binding climate treaty required. Parties accept emission caps Rules and procedure for international transfer of	New legally binding climate treaty required: establish the concept of international tradable emission allowances.

BACK-UP

The Carbon Market – $ 100 billion annual turnover



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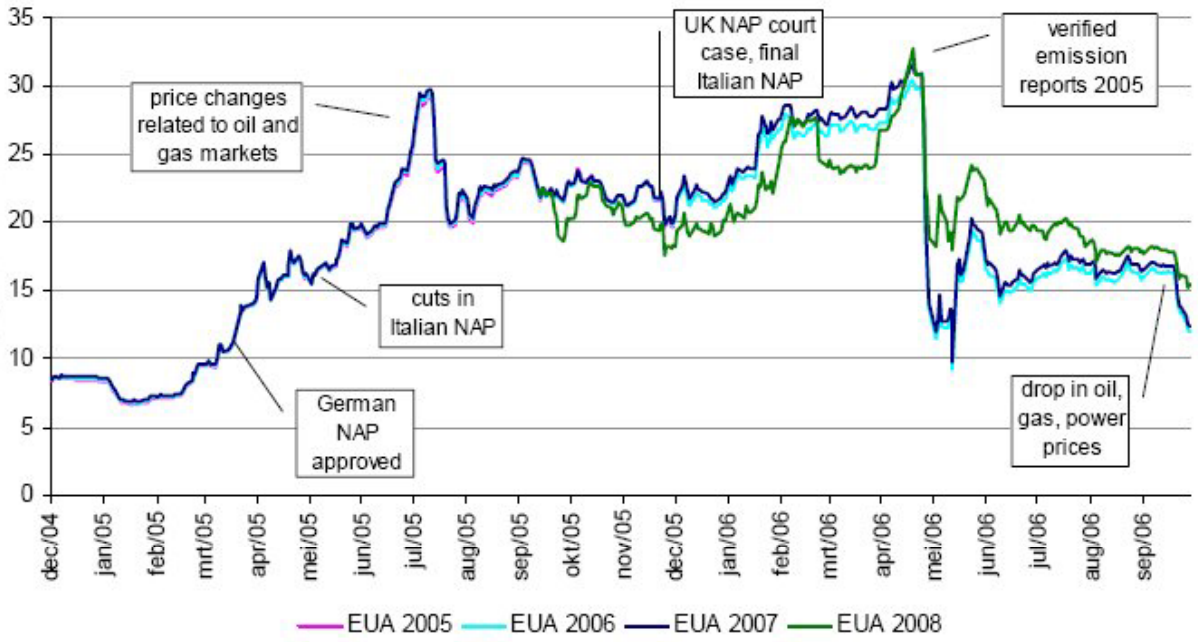

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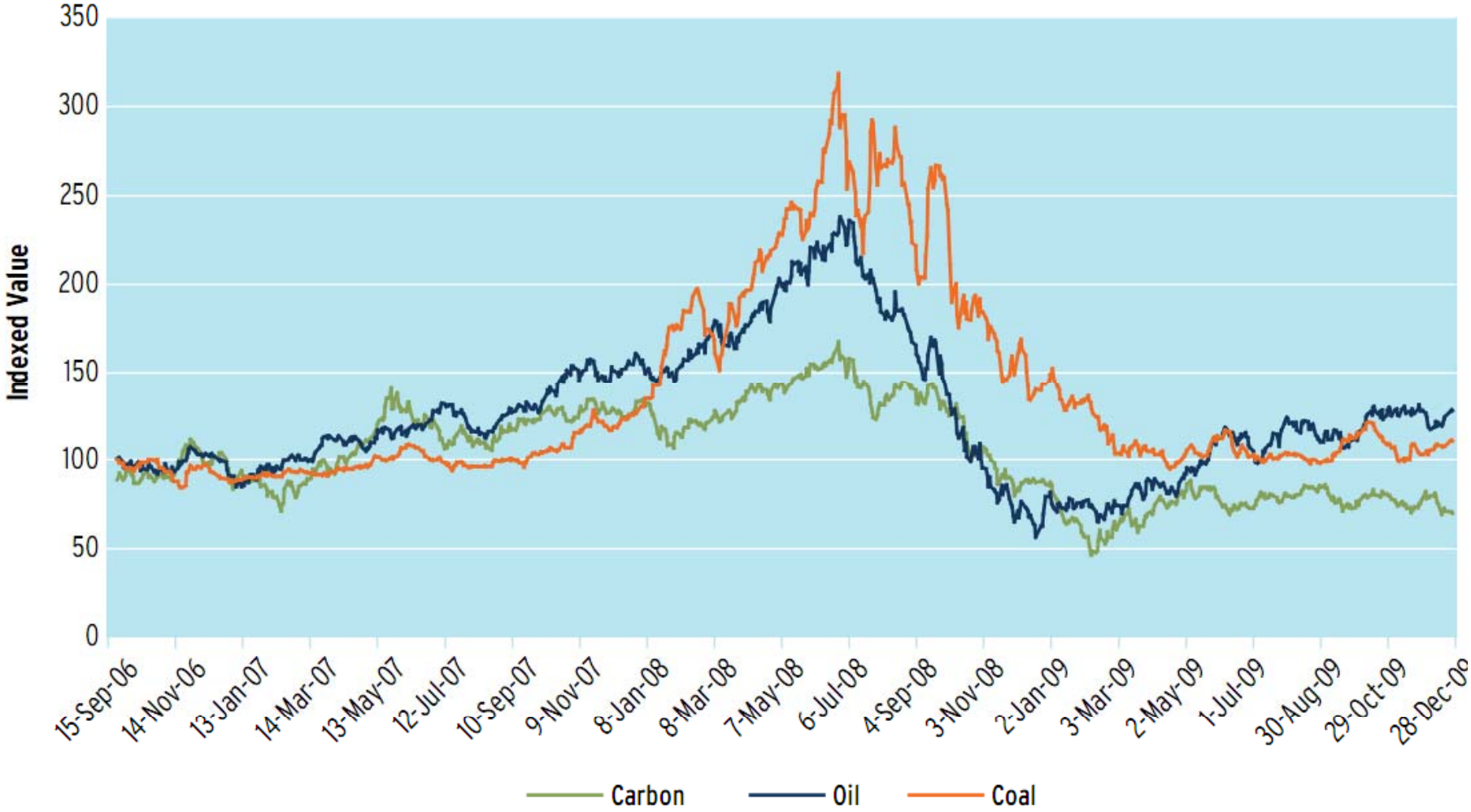

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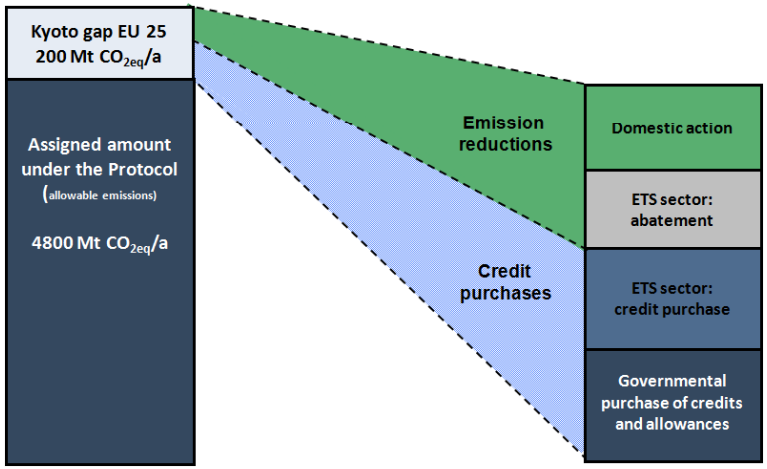

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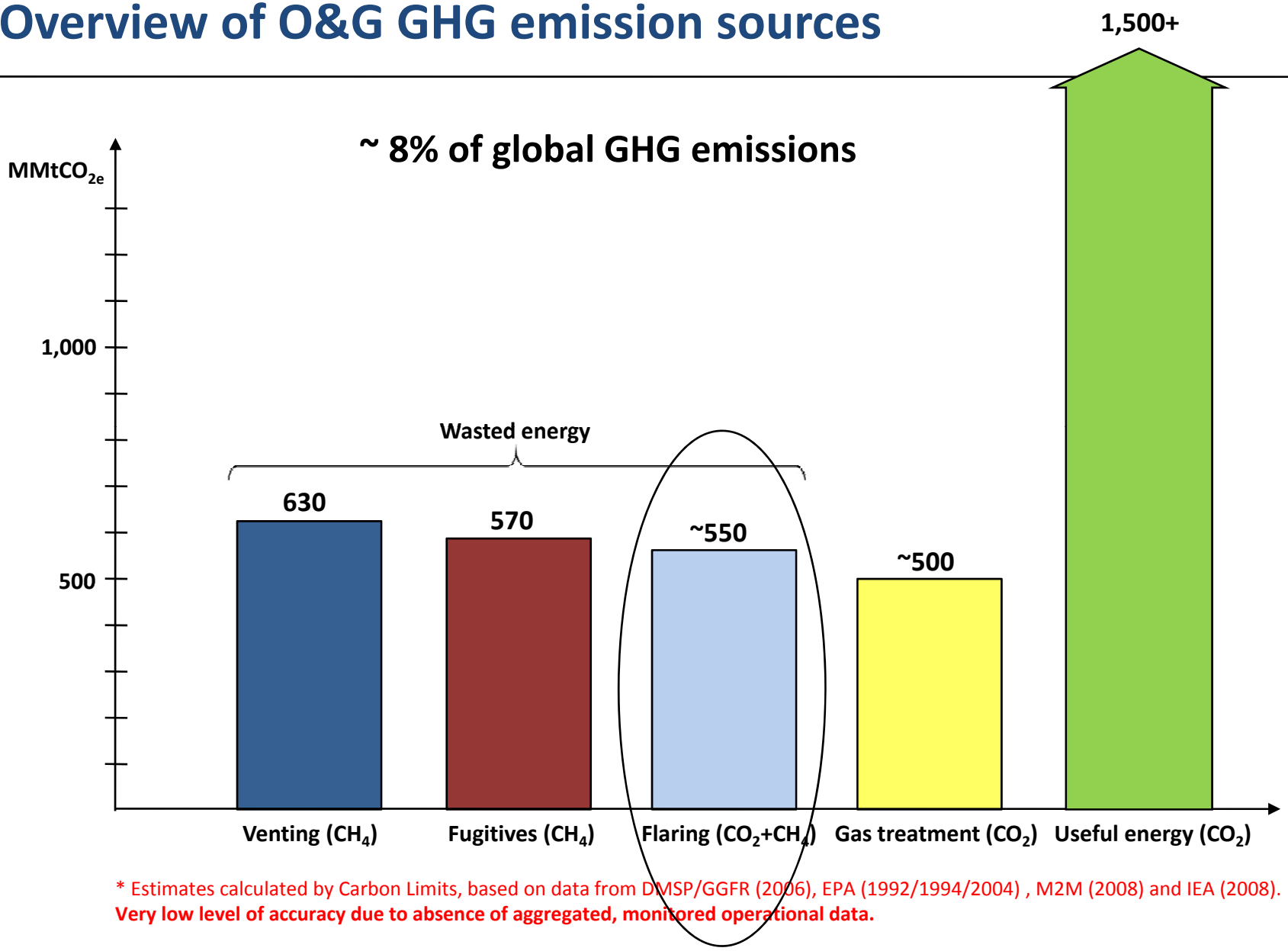
Overview of O&G GHG emission sources



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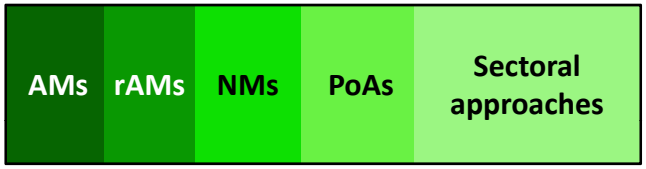
CDM projects in flare reduction and gas leak avoidance

Gas flare reduction – AM0009		
	Total	Annual CERs
Rejected or withdrawn	10	1 126 000
Total active projects	13	11 414 000
Registered with the UNFCCC	7	8 207 000
- Of which with issued CERs	2	1 068 000
Under review	1	291 000
Under validation	5	2 915 000

Leaks in gas distribution – AM0023		
	Total	Annual CERs
Registered with the UNFCCC	1	350 000
Under validation	5	3 544 000

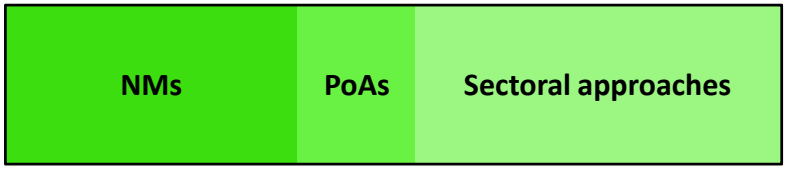
Scaling up in the O&G sector

Gas flaring: (400 million tCO2e)

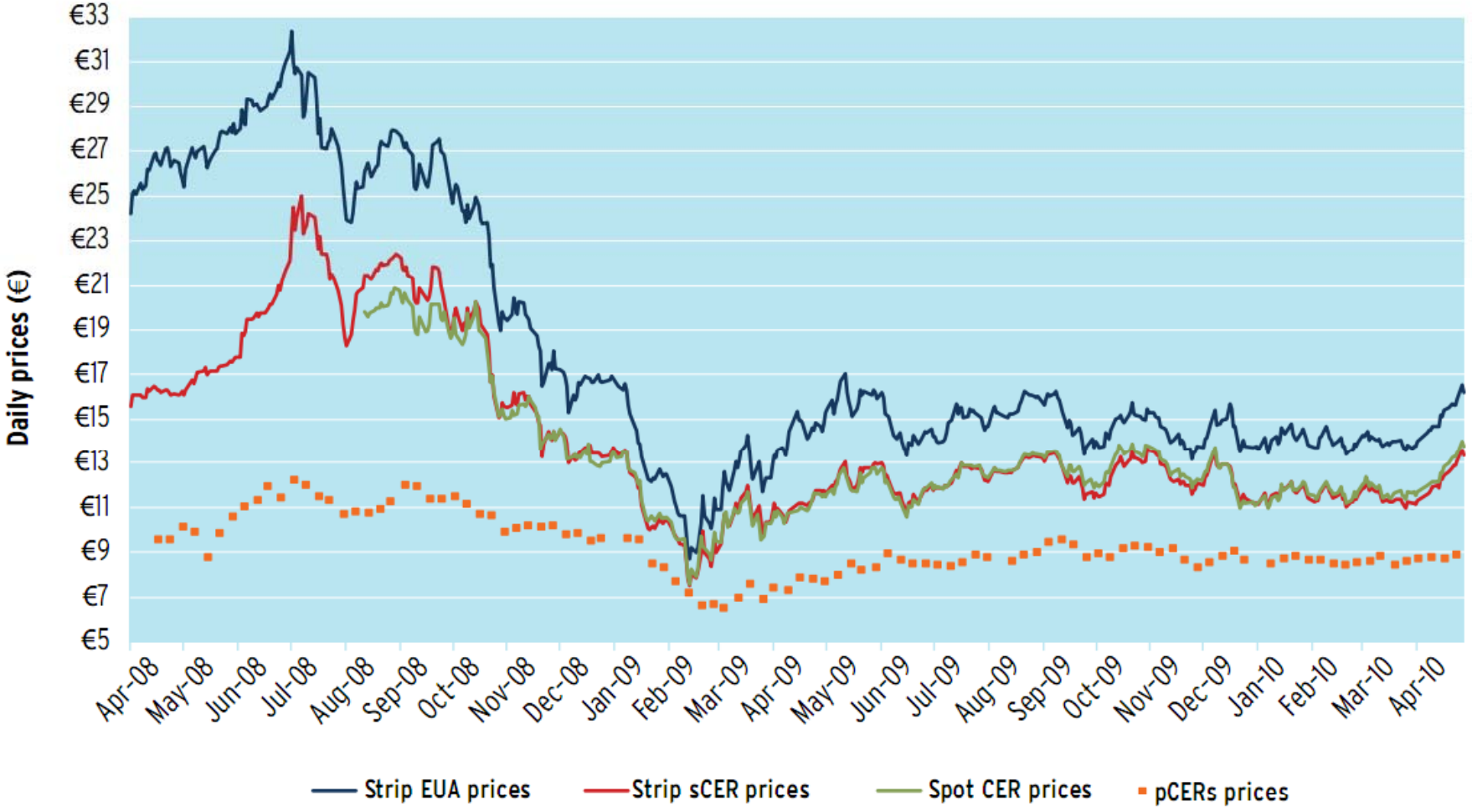


Methane emissions: (1,200 million tCO2e)

Process venting of CO_2: (~500 million tCO2e?)



Carbon prices, 2008–09



Source: ECX, BlueNext, IDEAcarbon, and World Bank