



The 2007 EU Climate Change & Energy Package: Opportunities and Challenges

get to grips with
**climate
change**



International workshop

“Future Climate Change Policy: Looking beyond 2012”

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Outline

- The EU's international ambition: Limiting climate change to 2 degrees Celsius
- Leadership starts at home: EU domestic proposals to make the EU fit for the 21st century



The EU's international ambition:
Limiting global average temperature increase to
2 degrees Celsius compared to pre-industrial
levels



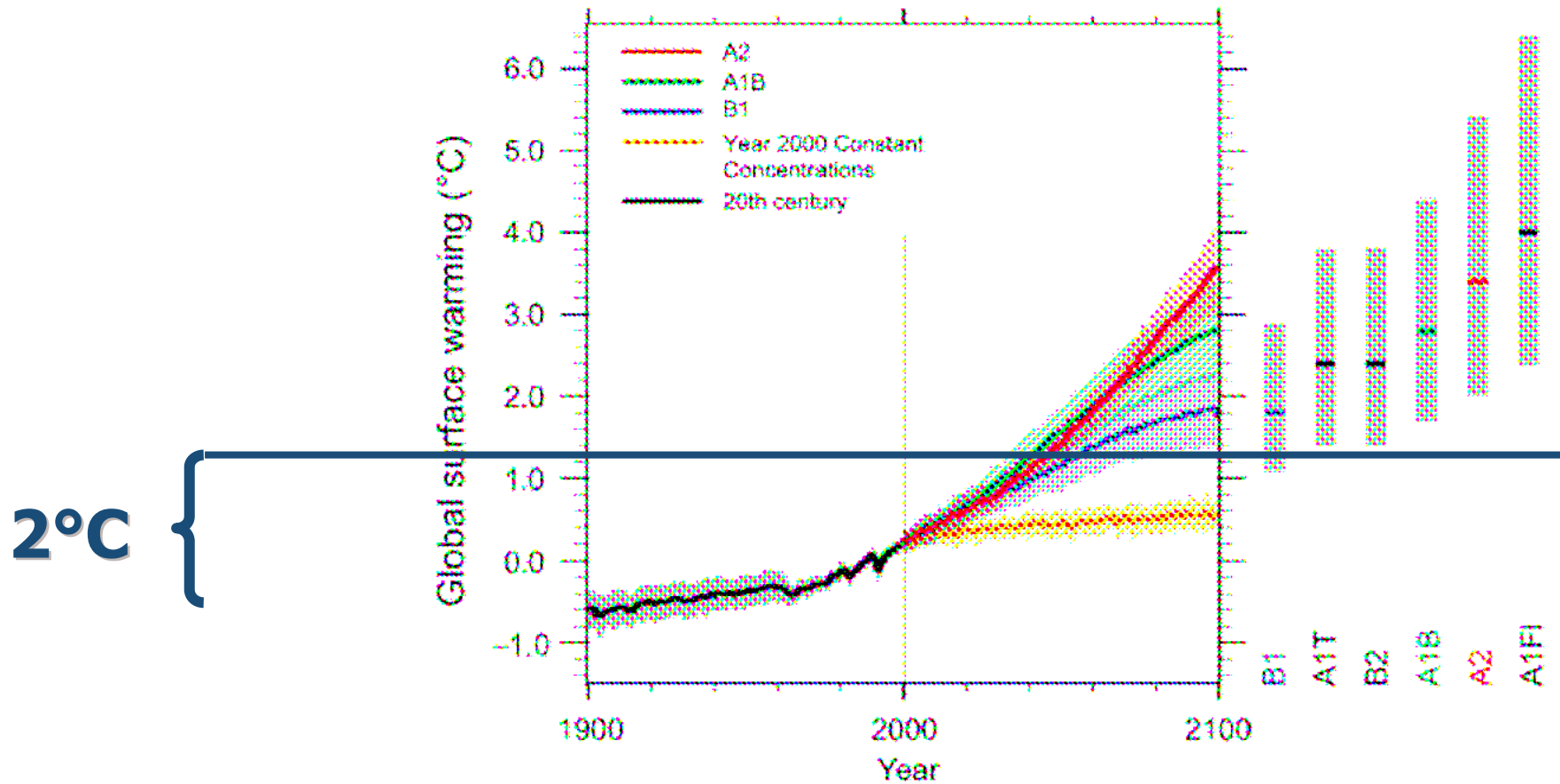
EU Climate change & energy package

- 10 January 2007: European Commission has put forward a fully integrated policy package covering both climate change and energy policies:
 - “Limiting Global Climate Change to 2°C: The way ahead for the EU and the World for 2020 and beyond”
 - “An Energy Policy for Europe”
- 15 February 2007: Energy Council conclusions
- 20 February 2007: Environment Council conclusions
- **8/9 March 2007: EU Heads of State, Spring Council conclusions**



The EU's 2 degrees Celsius objective

Multi-model Averages and Assessed Ranges for Surface Warming

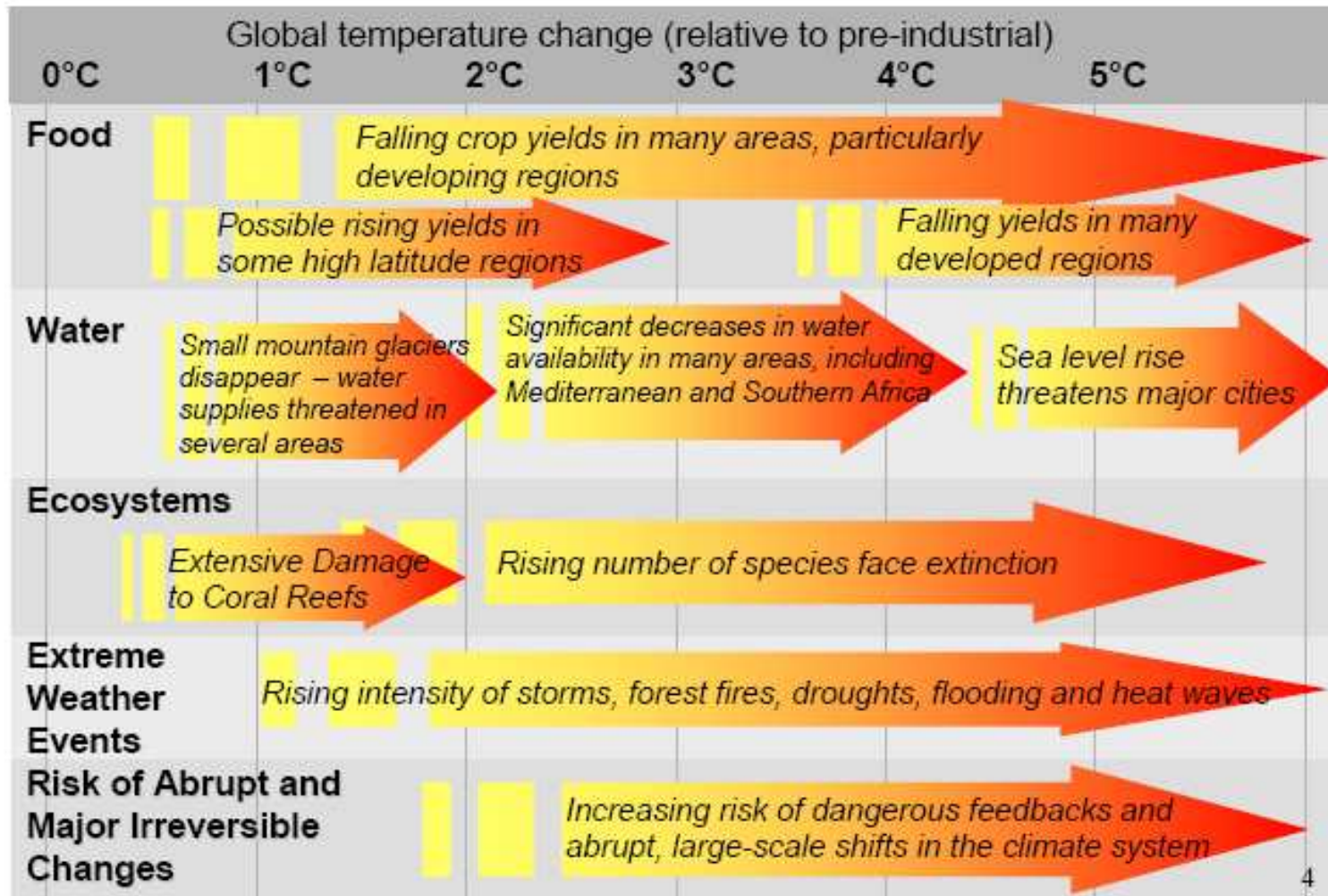


Source: IPCC 2007



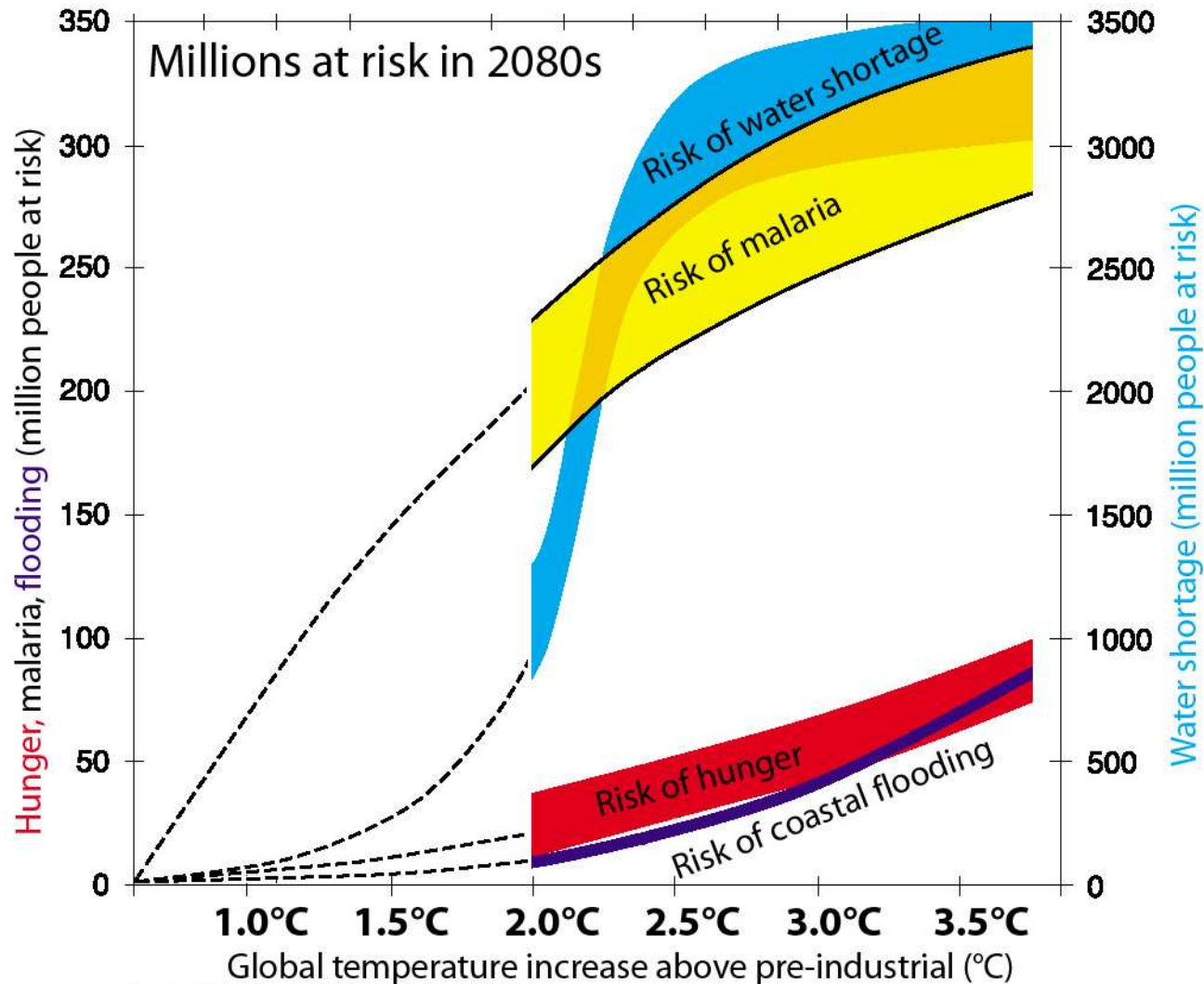
Why 2 degrees Celsius? Getting into the red danger zone

Projected Impacts of Climate Change





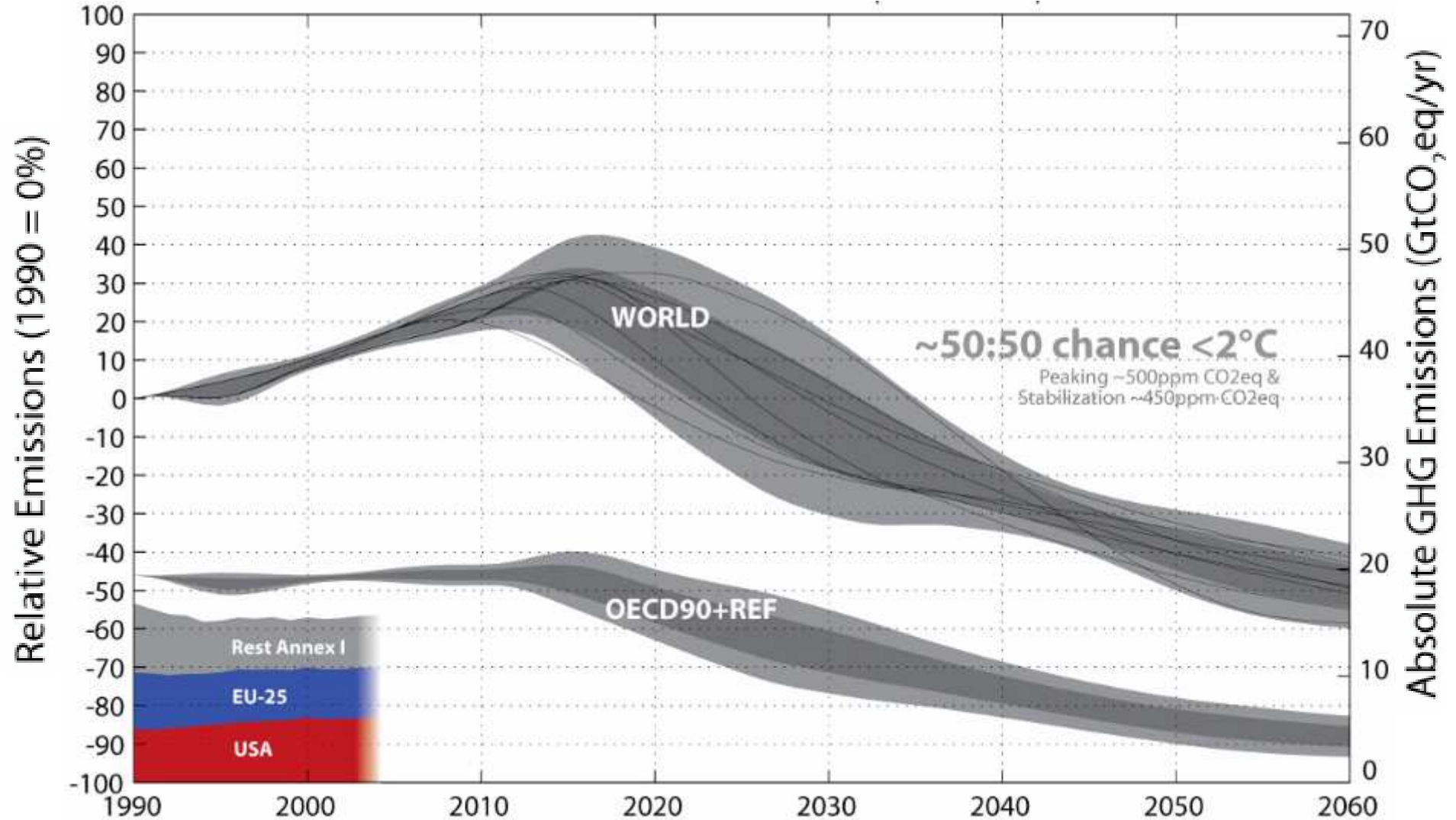
Why 2 degrees Celsius? "Millions at risk"



Source: Parry et al. (2001) "Millions at Risk" Glob. Env. Change. Graph adapted by M. Meinshausen
Note: The original graph presented temperature levels above 1990, not above pre-industrial. Thus, a 0.6°C temperature difference has been added.
Furthermore, the original graph presented temperature levels in 2080 for different CO₂ equivalance (f) stabilization scenarios.
For a climate sensitivity of 2.5°C (as underlying the work of Parry et al), the 2080 temperature level for the S550 CO₂eq emission path has been about 1.4°C above 1990 (2°C above pre-industrial).



Global emissions until 2060 to remain within 2 degrees Celsius

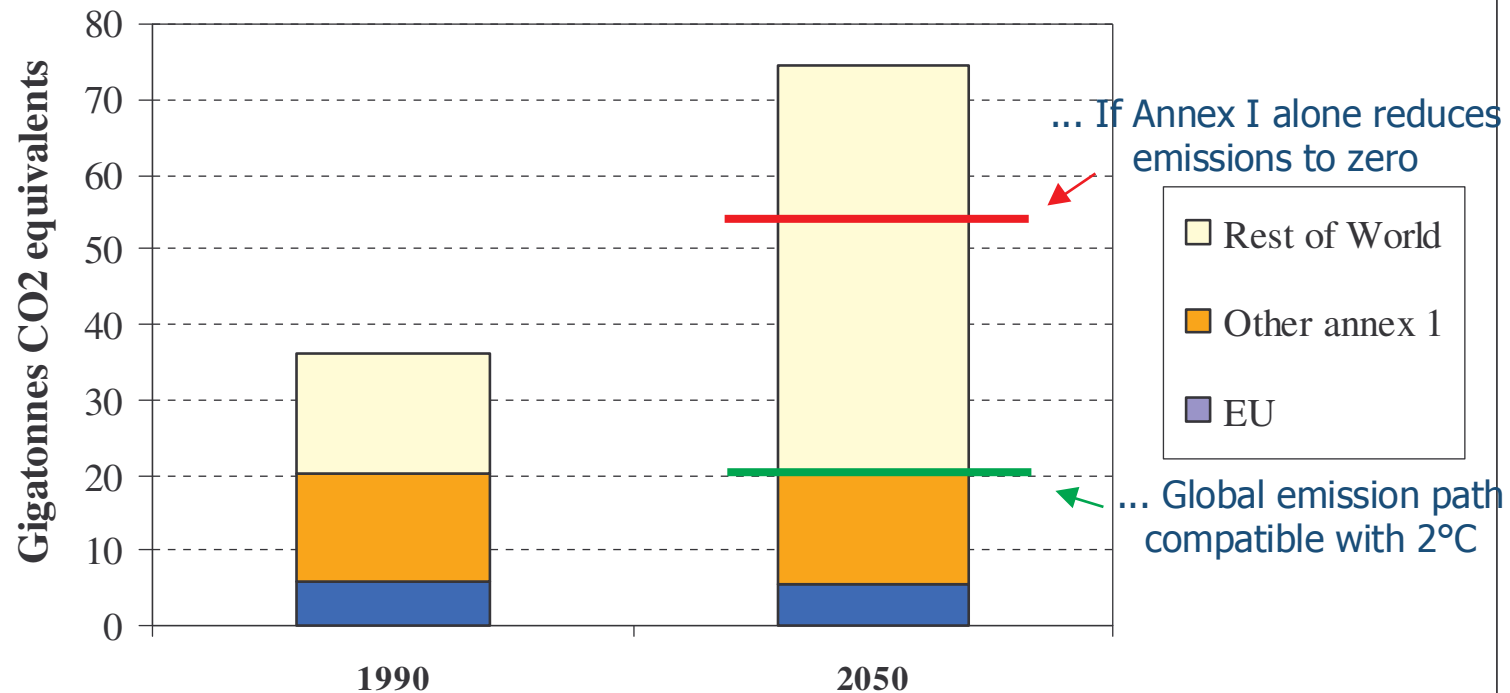


Source: Malte Meinshausen 2006



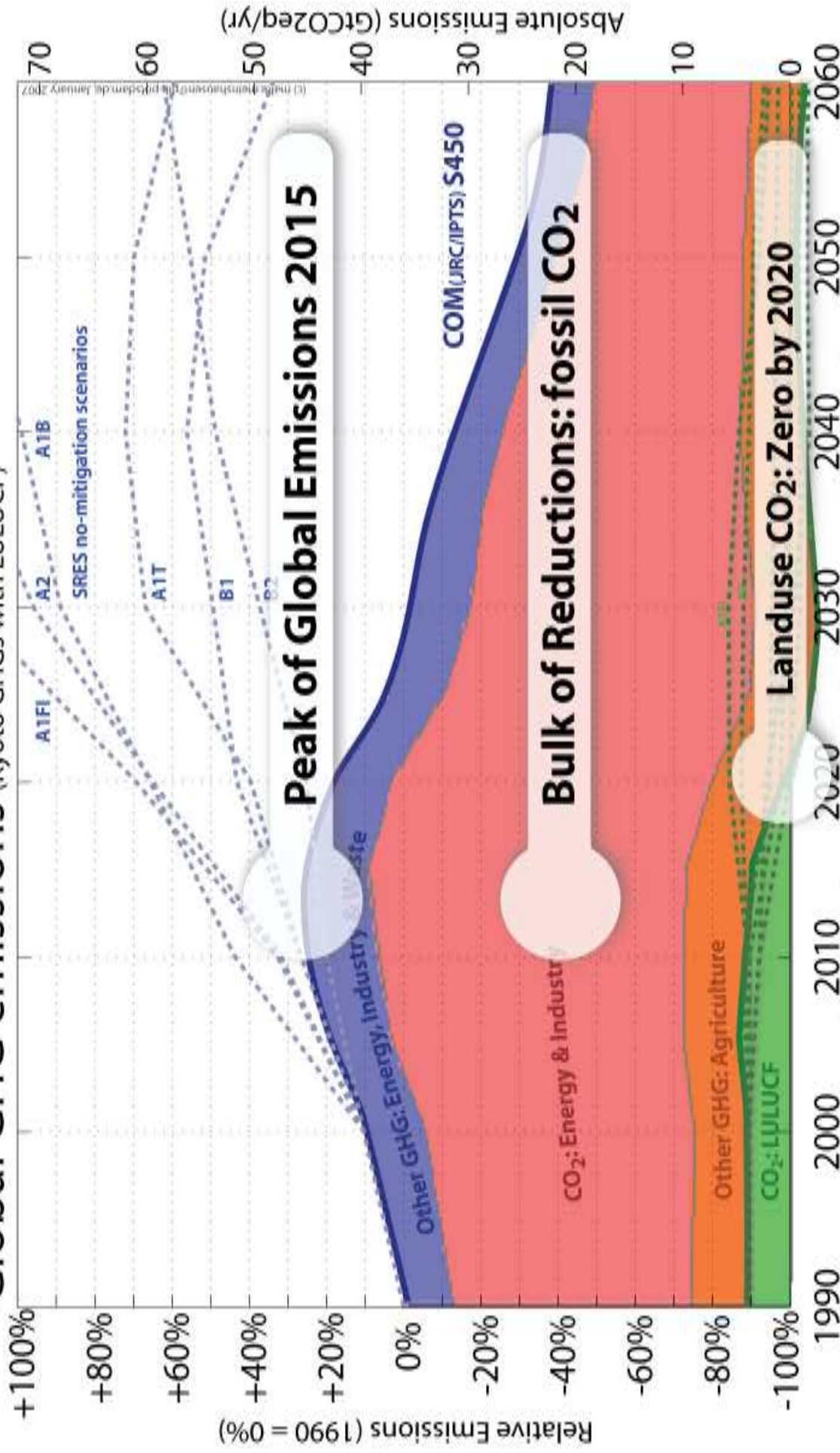
EU alone cannot solve the climate change problem

Figure 1: Projected development of greenhouse gas emissions in different regions of the world



Source: Greenhouse gas reduction pathways in the UNFCCC process up to 2025, CNRS/LEPII-EPE, RIVM/MNP, ICCS-NTUA, CES-KUL (2003).

Global GHG emissions (Kyoto GHGs with LULUCF)

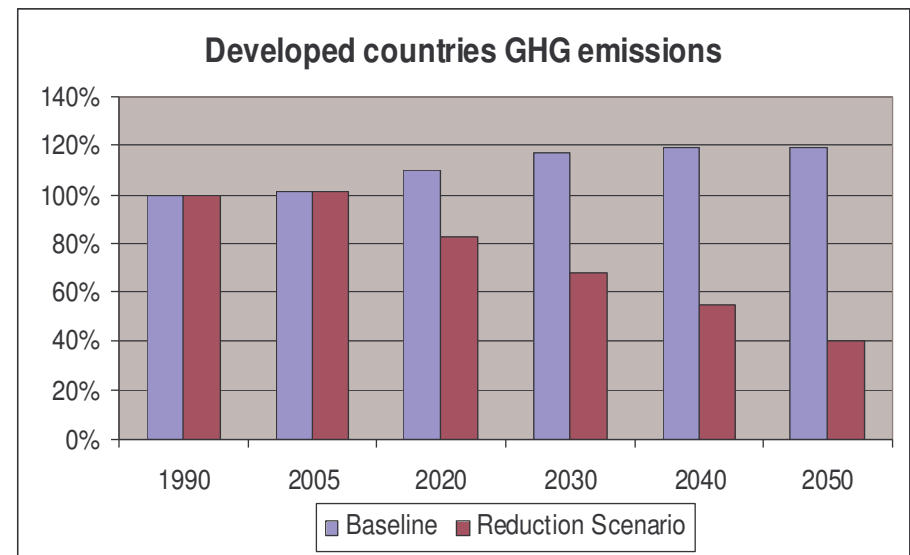


Notes: (a) Historic 1990-2003 GHG emissions including LULUCF for Annex I country groups based on Table 1-7 in UNFCCC (2005) "Key GHG Data"; (not shown in all slides)
 (b) Shown are various multi-gas FAP-SIMCap (den Eben & Meinhausen, 2006) and ECW pathways (Meinhausen et al. 2006) relative to 1990 for peaking at approximately 500 ppm and stabilizing at 450ppm CO₂eq (grey pathways) and peaking at 475 with subsequent stabilisation at 400ppm CO₂eq (green pathways).
 (c) Shown are as well SRES scenarios (Nakicenovic and Swart, 2000), emission pathways used in the STERN review (2006), and the scenario presented by EU Commission COM(2007)2. Fig 11, 10th January 2007. The scenarios shown comprise the SRES country groups GED90 and REF (Economies in Transition). Note that the absolute GHG emission data is 1-15% higher compared to absolute Annex I emissions reported to the UNFCCC, partially due to non-reported sources, as landuse related emissions, and slight differences in countries (Turkey, some-REF).
 (d) The probabilities are given to stay below 2°C global-mean warming relative to pre-industrial levels, assuming a IPCC consistent climate sensitivity path with a 50% confidence that climate sensitivity lies between 1.5°C and 4.5°C (for details see Chapter 28 in Scheffner et al. "Assessing Dangerous Climate Change" 2006).
 (e) The light and dark patches show the mean plus / minus one and two standard deviations, respectively for the set of analysed FAP-SIMCap and ECW pathways.
 (f) The calculations imply default WAGCC carbon cycle feedbacks, comparable to approximately the mean across the C4MIP studies (Friedlingstein et al. 2005).



Action by developed countries

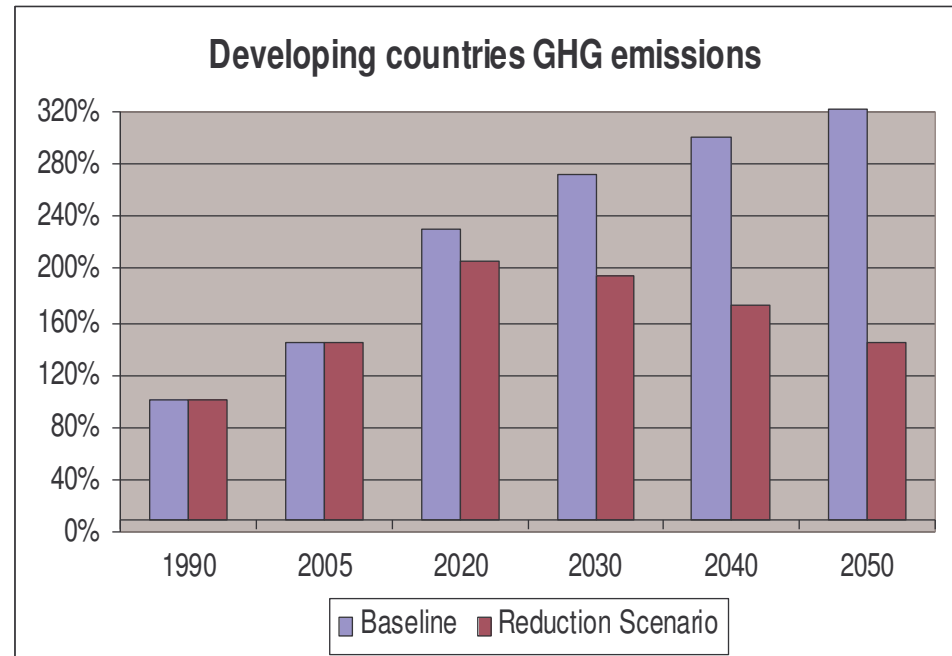
- Common but differentiated responsibility: take the lead and make most of the effort
- Reduction efforts:
 - 30% by 2020
 - 60-80% by 2050
- Emissions trading, linking domestic schemes and global carbon market
- Binding and effective rules for monitoring and enforcing commitments





Action in developing countries

- Reduce growth of emissions *asap*
- Absolute reductions after 2020
- Toolbox:
 - Sustainable development policies
 - New approach to CDM
 - Improved access to finance
 - Sectoral approaches
 - Quantified emission limits
 - No commitments for least developed countries



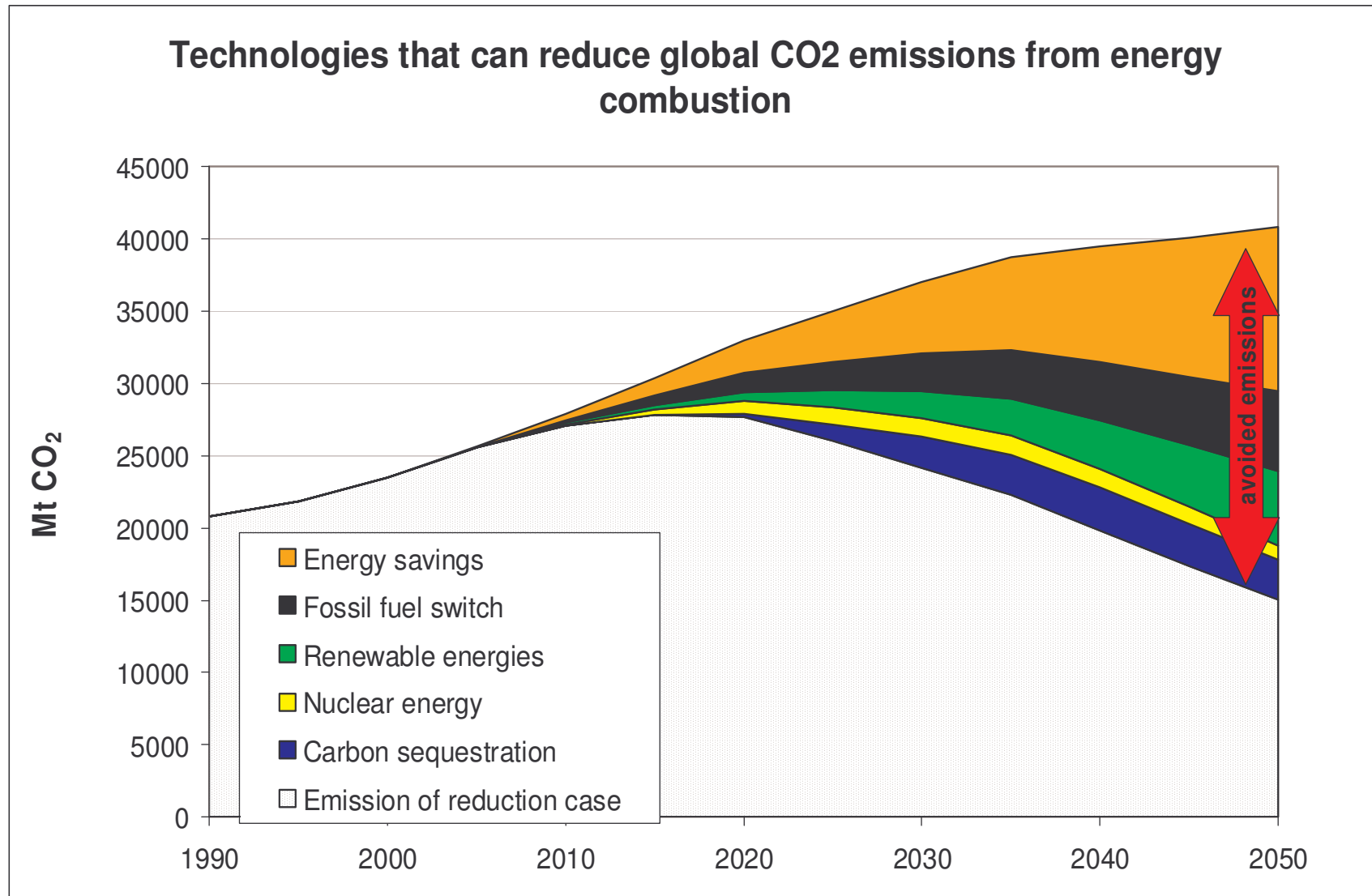


Further elements

- International research and technology cooperation
 - Large-scale technology demonstration
 - Quantification of regional and local impacts and adaptation and mitigation strategies
- Action to halt deforestation within 2-3 decades and reverse afterwards
 - Large-scale pilot schemes
- Adaptation measures
 - Integrate in public and private investment decisions
 - Enhanced alliance building with developing countries building on EU action plan on climate change and development
- International agreement on energy efficiency standards

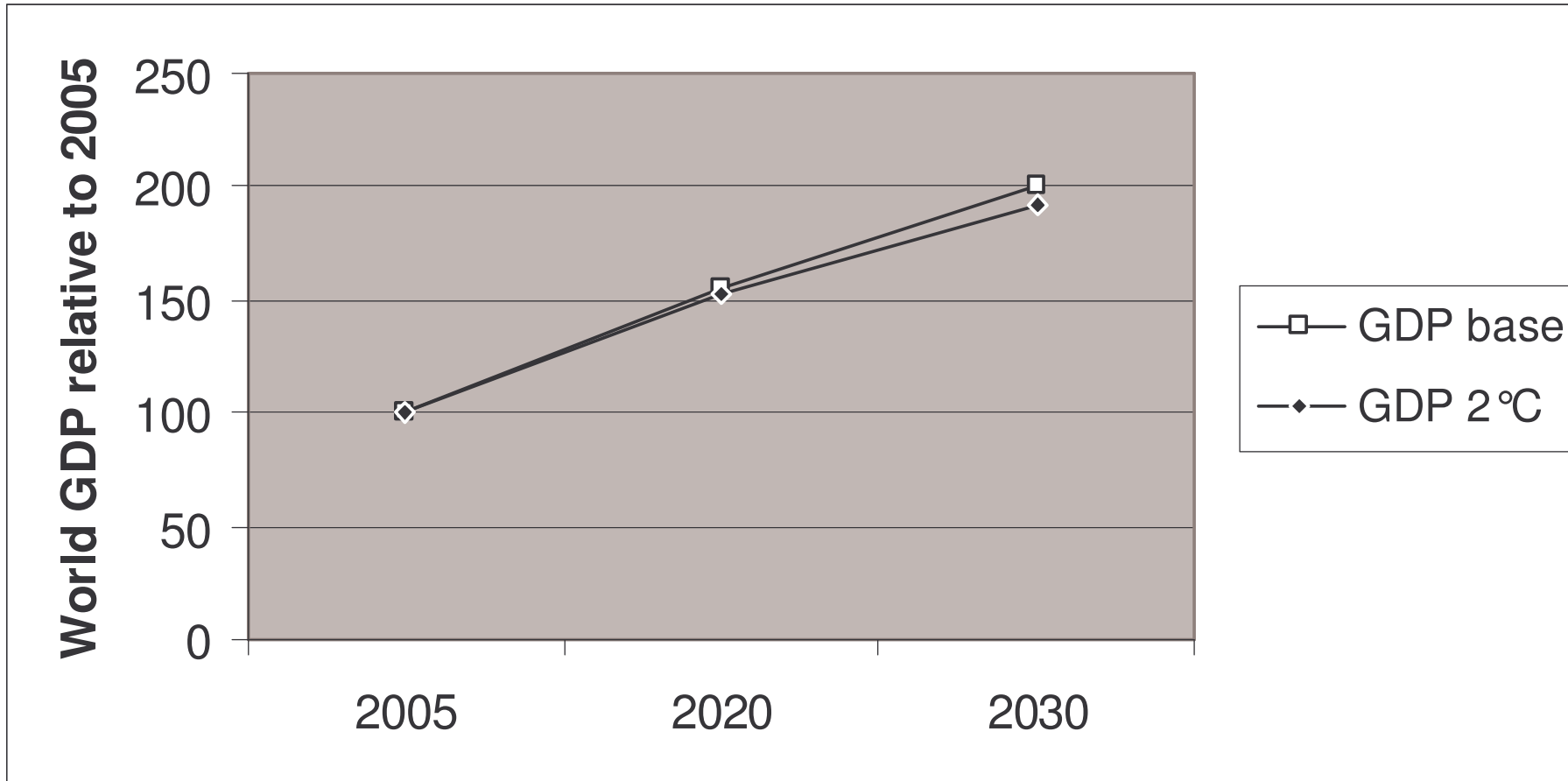


It is technically feasible: e.g. the energy sector





It is economically affordable



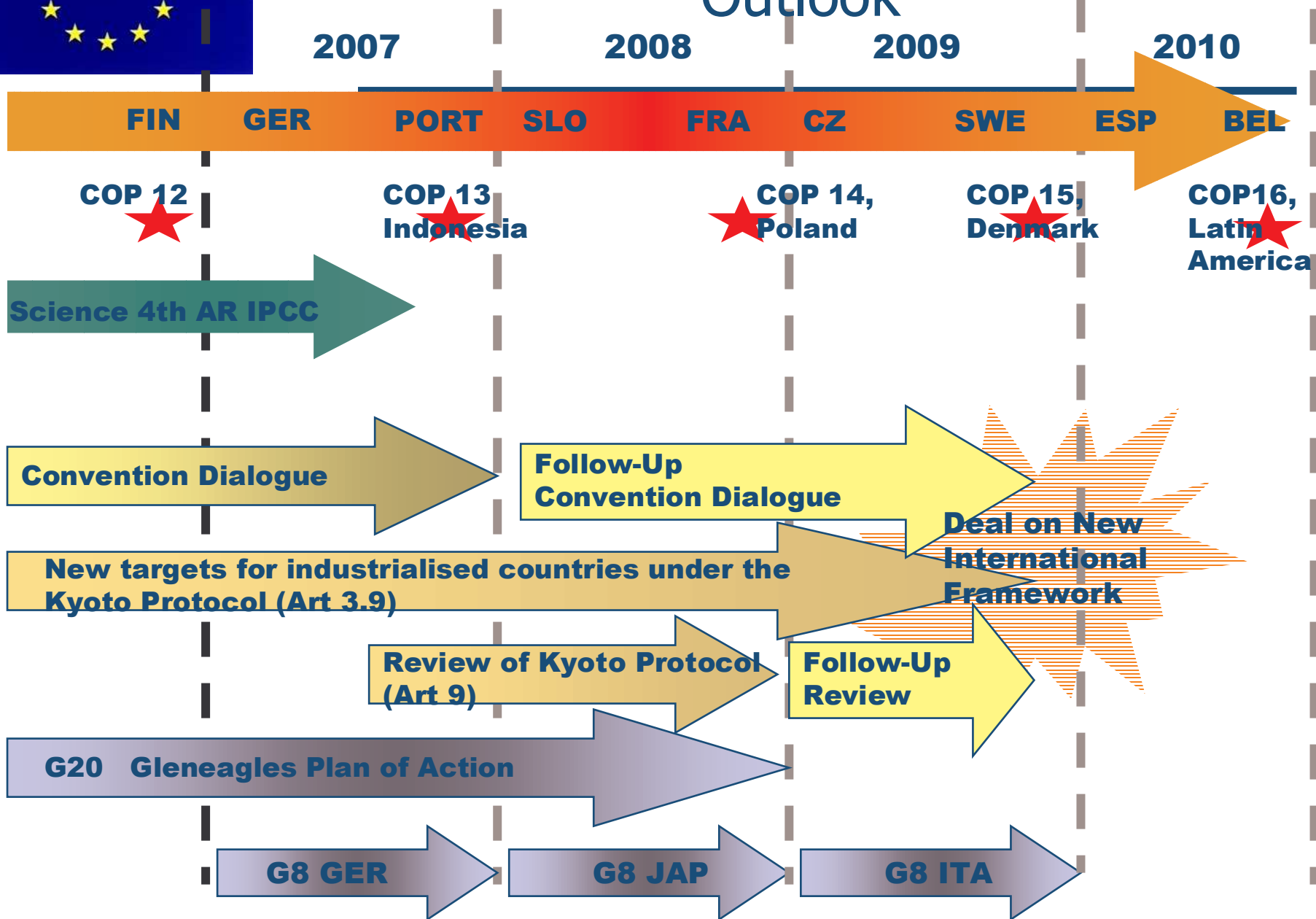


Benefits and Costs

- “Winning the Battle” & Stern Review: benefits of limiting Climate Change outweigh costs of action
- Costs of inaction: 5-20% of global GDP (Stern Review)
- Costs of global action (2030):
 - Investment costs: 0.5% of global GDP / year
 - Reduce global GDP growth by 0.19% / year
(Expected global GDP growth of 2.8% / year)
- Co-benefits:
 - Increased energy security
 - Improved competitiveness through innovation
 - Health benefits from reduced air pollution



International climate negotiations: Outlook





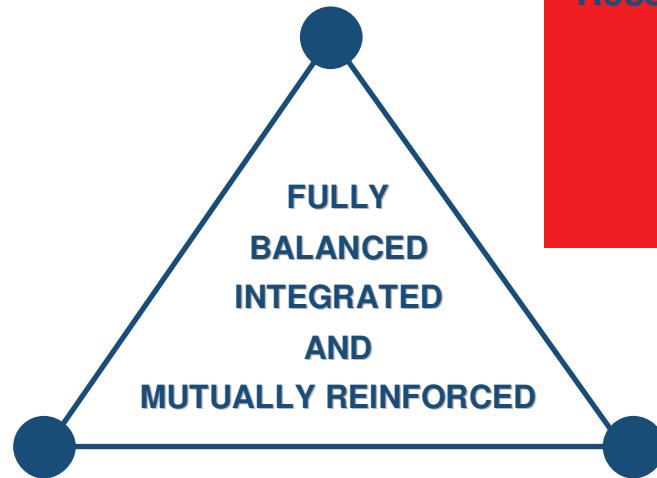
Leadership starts at home:
domestic proposals to make the EU fit for the
21st Century



THE THREE CHALLENGES

Competitiveness "LISBON"

- Internal Market
- Interconnections (Trans-European networks)
- European electricity and gas network
- Research and innovation
 - Clean coal
 - Carbon sequestration
 - Alternative fuels
 - Energy efficiency
 - Nuclear



Climate security "POST-2012"

- Emissions trading
- European Climate Change Program
- Renewable energy
- Energy efficiency
- CCS
- Research and innovation
- Nuclear

Security of supply

- International Dialogue
- European stock management (oil/gas)
- Refining capacity and energy storage
- Diversification



EU climate action up to 2020: mitigating climate change

- **EU independent commitment: Reduce EU-27 GHG emissions by at least 20% in 2020 compared to 1990**
- **Energy Package:**
 - Energy efficiency: 20% improvement by 2020
 - Renewable energy: 20% mandatory objective by 2020
 - differentiation of targets between countries
 - flexibility in target setting within a country between sectors
 - Biofuels target of 10% by 2020
 - Sustainable power generation from fossil fuels: 12 large scale CCS demonstration plants by 2015; aiming at near-zero emissions by 2020
 - Strategic energy technology plan
 - Internal market-options unbundling & regulatory powers:
 - Important for functioning EU ETS
 - Overcome hurdles for renewables
 - Nuclear: member states' choice
- **Climate Strategy:**
 - EU ETS (Review, aviation)
 - Other policies (e.g. fuel quality)
 - Global carbon market (incl. CDM)

**At least
-20 %
CO₂**

**Up to - 5% of GHG
emissions**



Synergy with future energy policy

- Reduces energy dependency
 - By 2030, EU will have to import 80% of gas and 90% of oil.
 - Attaining the objectives of the energy package will decrease imports of oil and gas by more than 15% by 2020 compared to baseline.
- Costs depend on energy prices, e.g. 20% renewables:
 - At \$ 48/barrel estimated cost is € 18 billion annually
 - At \$ 78/barrel estimated cost is € 10,6 billion annually
- Prepares our economy for a low carbon future, e.g.:
 - An oil price of \$ 78/barrel plus a carbon price of more than € 20, will make renewables competitive with “traditional” fossil energy sources



Improve competitiveness through innovation

- Climate change policies are an opportunity, e.g. wind sector employs already more than 100,000 people in Germany, Denmark and Spain. EU companies have 60% of the global market.
- Companies ask for a long term investment horizon to develop and deploy new technologies, e.g. demand for a harmonized regulatory framework for CCS.
- Additional investment costs for new technology are recycled inside our economy, higher expenses for imports are not.
- Preliminary results of a study of the European Trade Union Confederation show that climate change policies in total can increase employment.



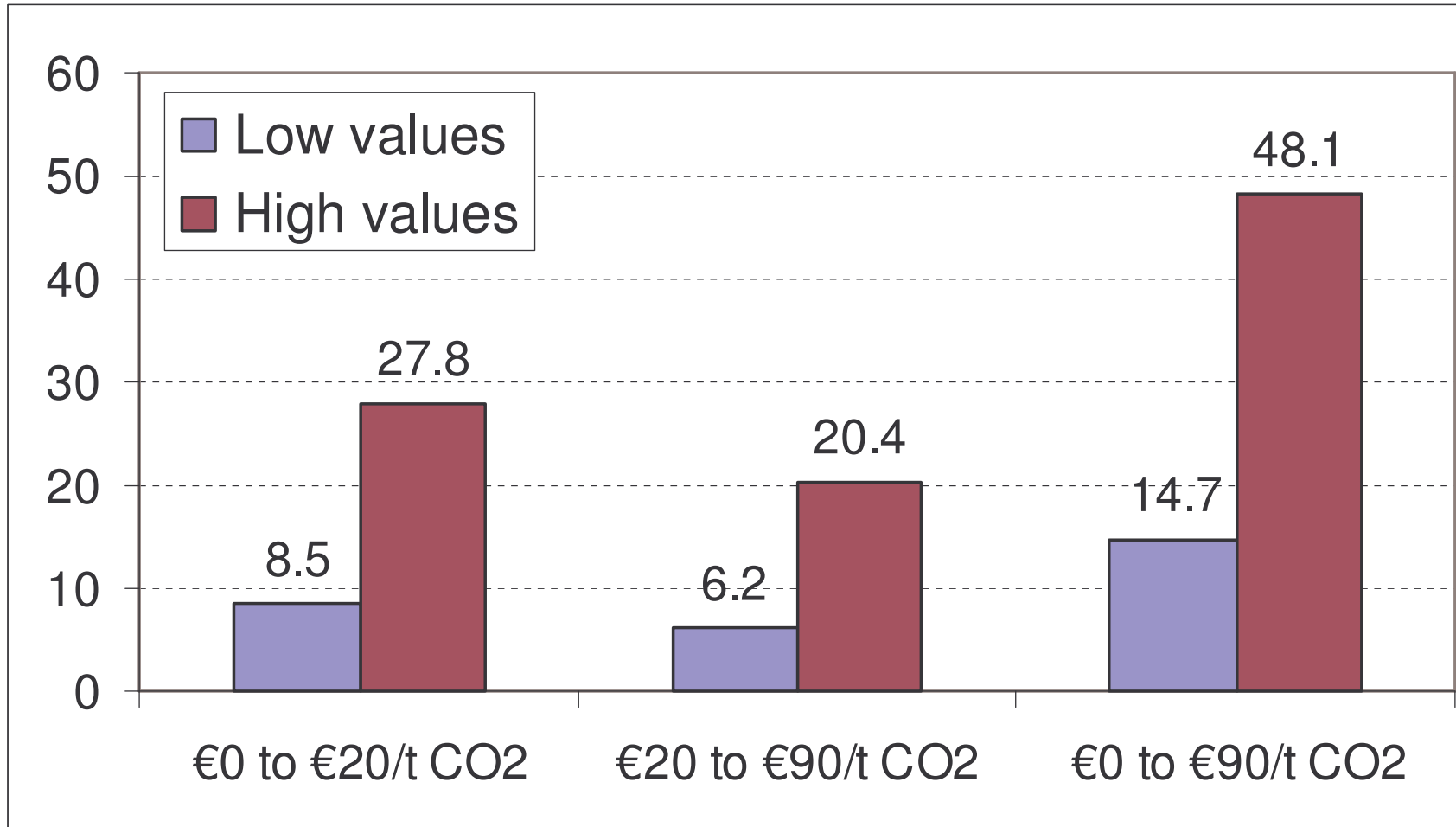
Health benefits from reduced air pollution (1)

Costs of air pollution policies in the EU would decrease significantly due to climate policies.

Co-benefits from Climate Change Policies		
	Reduction compared to 2020 baseline emissions	
CO ₂	-9.31%	-22.75%
SO ₂	-5.90%	-12.11%
NO _x	-2.30%	-6.08%
PM _{2.5}	-3.15%	-5.94%



Health benefits from reduced air pollution (2)





EU climate action up to 2020: living with the effects of inevitable climate change



- identify vulnerabilities
- implement measures to increase resilience





Conclusions

- Kyoto is only a first insufficient step. Further global action needs to be taken urgently.
- EU Heads of State have made a feasible proposal. EU is ready to negotiate and to take on new commitments for deep long-term emission cuts.
- EU is determined turn the climate change challenge into an opportunity for EU energy security, innovation, its international competitiveness and the renaissance of its industry and economy.



More information on how to...

get to grips with
climate change



http://europa.eu.int/comm/environment/climat/home_en.htm

http://ec.europa.eu/environment/climat/future_action.htm

http://ec.europa.eu/energy/energy_policy/index_en.htm