WMO

Key findings from the IPCC Fourth Assessment Report

UNEP

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Chairman, IPCC

Director-General, TERI

European Climate Forum

Berlin, 23rd November 2007

Contents

The Fourth Assessment Report

WMO

The process

UNEP

+2500 scientific expert reviewers

800 contributing authors

450 lead authors from

+130 countries

The Fourth Assessment Report

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Progress in knowledge

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Progress in knowledge included in the AR4
is based on:

- New and more comprehensive data
- More sophisticated analyses of data
- Improvements in understanding of processes

‘Climate change is unequivocal’

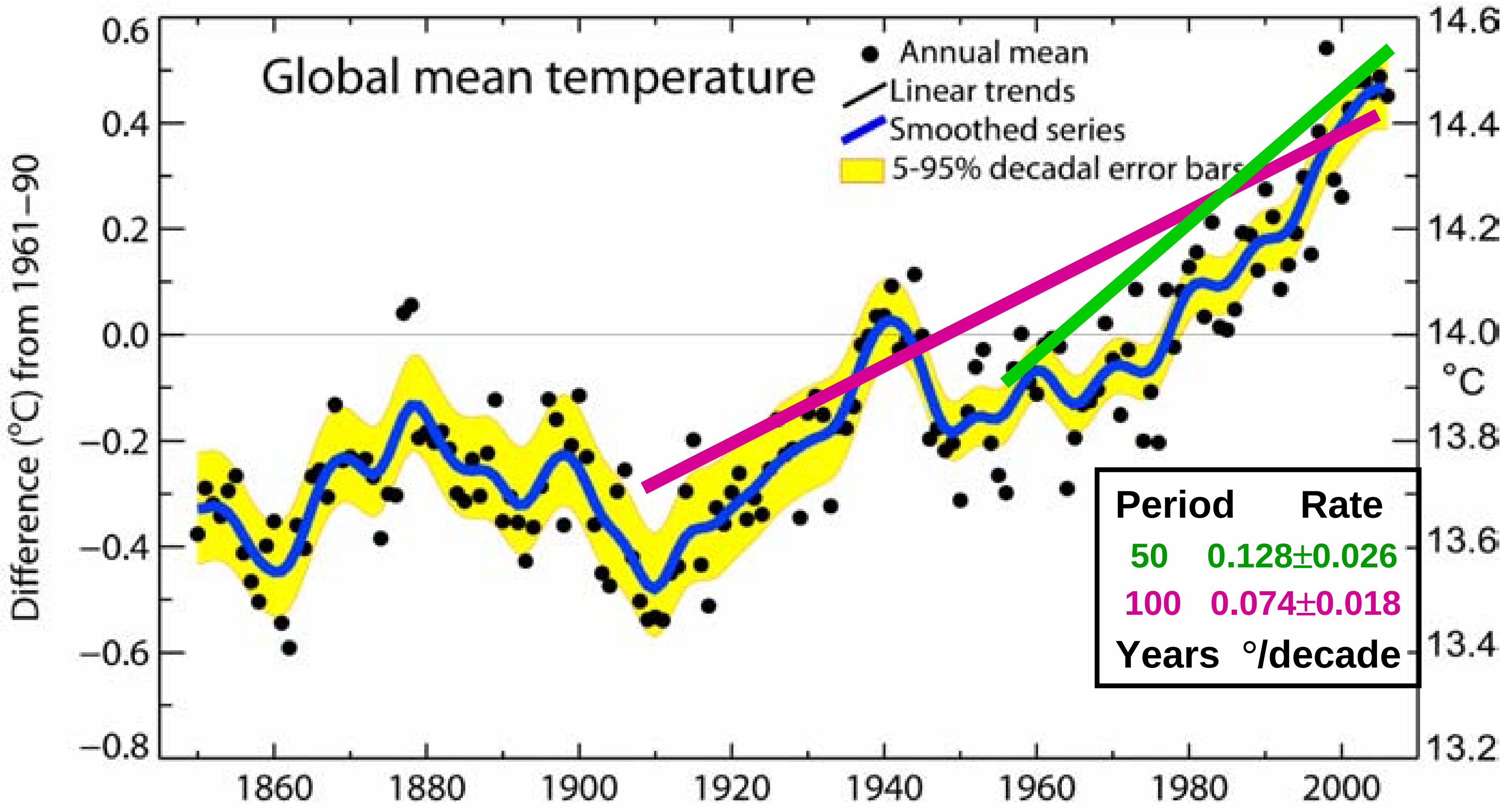
Paleoclimatic perspective

- Last time the polar regions were significantly warmer than present for an extended period (about 125,000 years ago), reductions in polar ice volume led to **4 to 6 m of sea level rise**

- Warmth of the last half century is unusual in at least the previous **1,300 years**

‘Climate change is unequivocal’

Evolution of global mean temperature

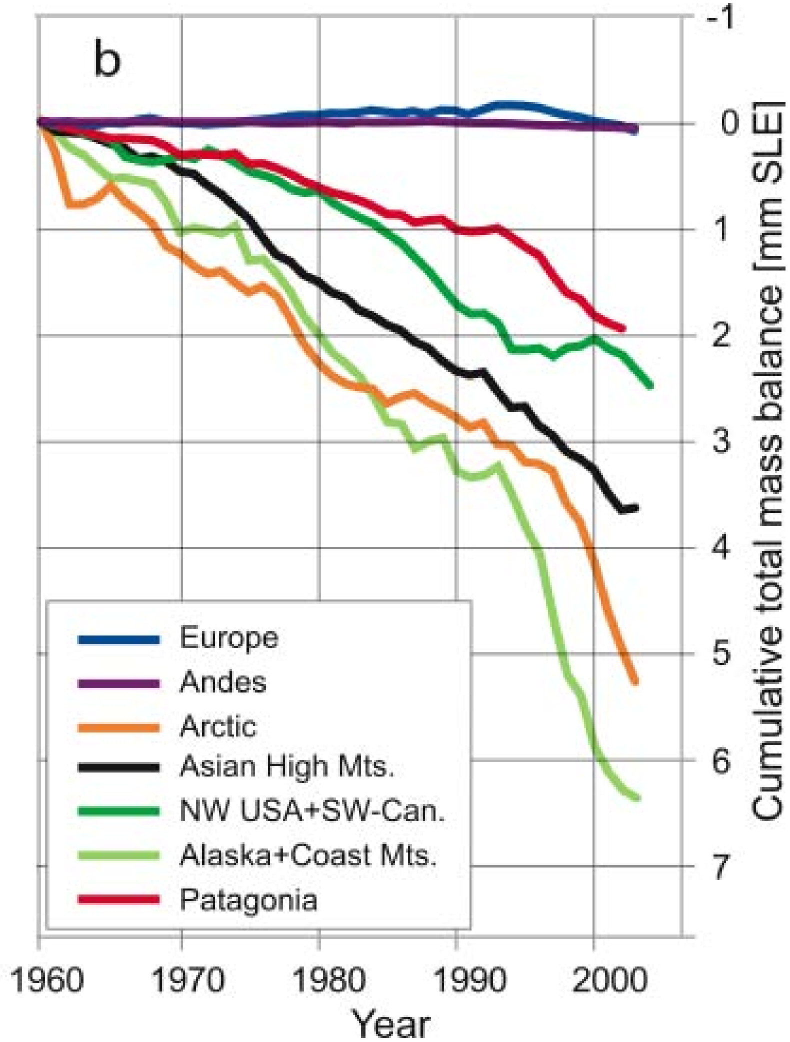


‘Climate change is unequivocal’

Cumulative balance of glacier mass

During the 20th century, glaciers and ice caps have experienced **widespread mass losses**

New data show that losses from the ice sheets have very likely contributed to **sea level rise** over 1993 to 2003



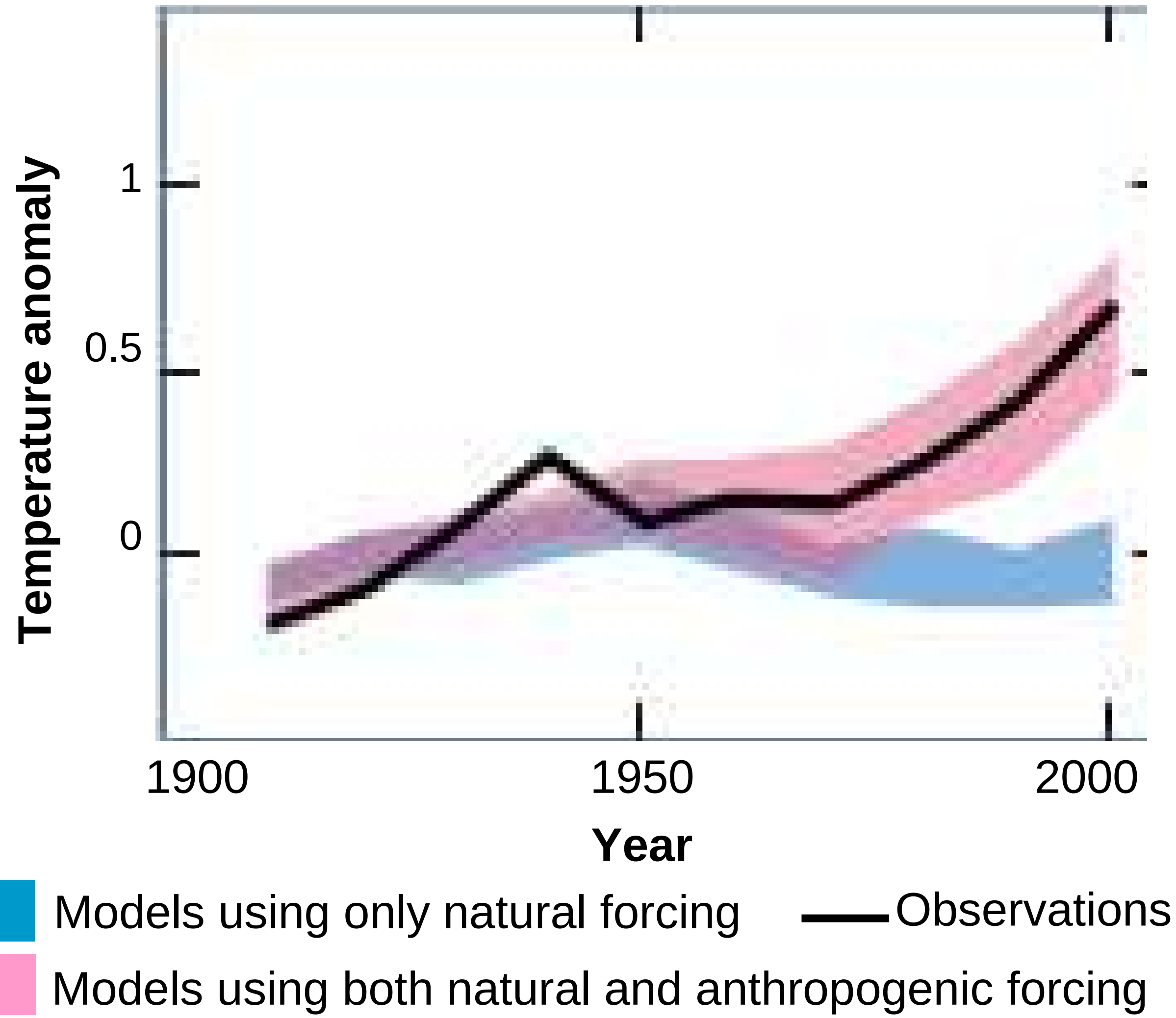
‘Climate change is unequivocal’

Observed impacts

‘Climate change is unequivocal’

Human influence on global temperature change

There is now **stronger evidence** of human influence on climate

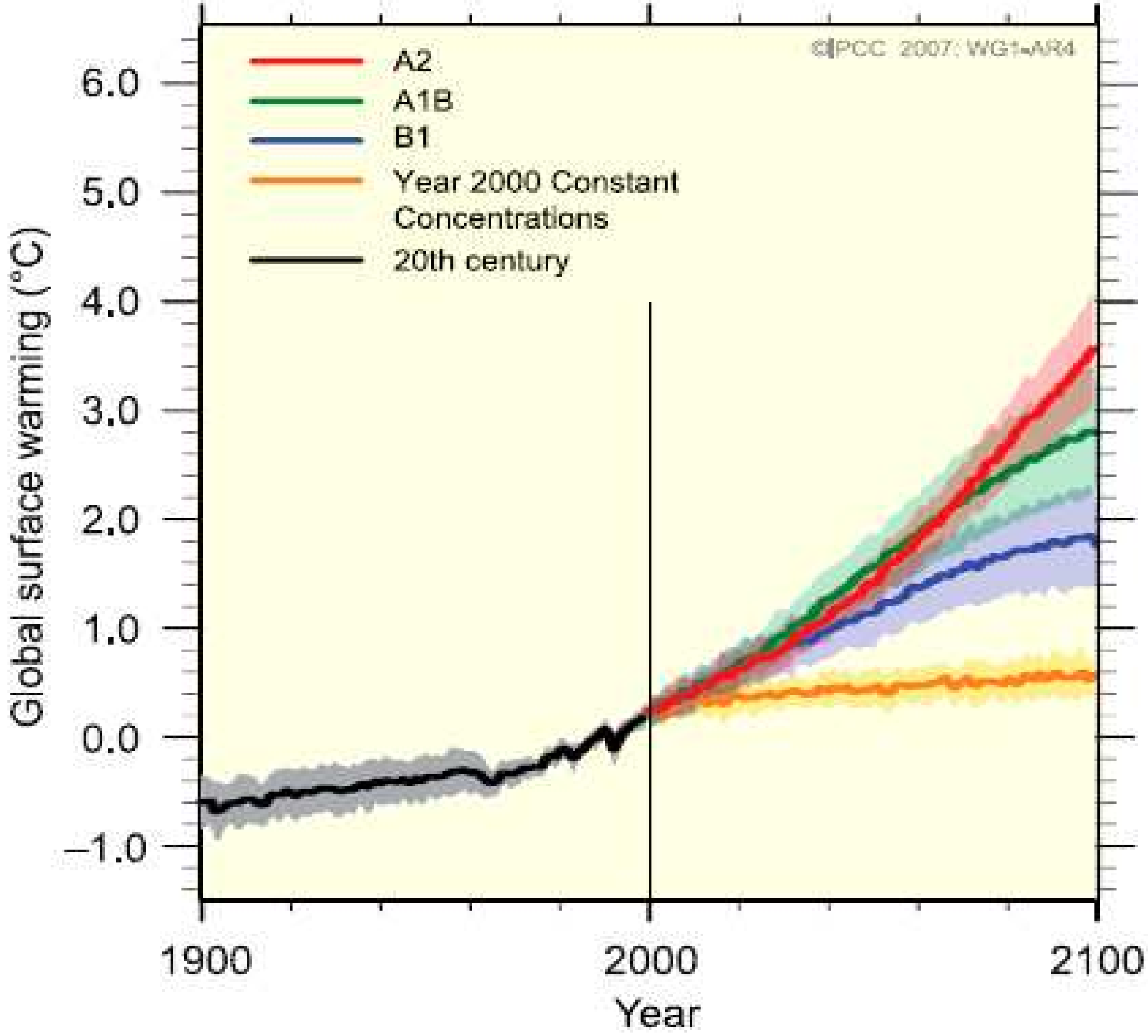


IPCC

Expected trends and impacts

Assessed ranges for surface warming

Continued emissions would lead to further warming of **1.8ºC to 4ºC** over the 21st century



Expected trends and impacts

Vulnerability of poor regions

- Aggravation of **malnutrition, water stress and health** problems in Africa, Asia and Latin America

- Vulnerability exacerbated by **existing stresses**:
  - Endemic poverty
  - Limited access to capital
  - Ecosystem degradation
  - Disasters and conflicts
  - Failure of government system to respond effectively

Expected trends and impacts

Impacts on natural ecosystems

- Climate change will reduce **biodiversity** and perturb functioning of most ecosystems

- 20-30% of plant and animal species at **risk of extinction** if increases in global average temperature exceed 1.5-2.5°C

- **Some ecosystems** are highly vulnerable:
  - Coral reefs, marine shell organisms
  - Tundra, boreal forests, mountain, Mediterranean regions

Expected trends and impacts

Coastal settlements most at risk

Expected trends and impacts

Impacts in Europe

- **Mountainous areas**: glacier retreat, reduced snow cover and winter tourism, extensive species losses
- **Southern Europe**: worsened climate conditions (high temperatures and drought), reduced water availability, crop productivity and summer tourism
- **Central and Eastern Europe**: higher water stress, increased health risks due to heat waves, increased frequency of peatland fires
- **Northern Europe**: more frequent winter floods, endangered ecosystems and increasing ground instability and some benefits such as reduced demand for heating

Mitigation urgently needed

- **Adaptation to climate change is necessary** to address impacts resulting from the warming which is already unavoidable due to past emissions

- However:
  - Adaptation alone cannot cope with all the projected impacts of climate change
  - The costs of adaptation and impacts will increase as global temperatures increase

Need for a mix of strategies including adaptation and mitigation of GHG emissions

Mitigation urgently needed

UN Framework Convention on Climate Change, Article 2

“The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent **dangerous anthropogenic interference** with the climate system”

Mitigation urgently needed

Defining mitigation targets

- **Climate system inertia**: even if GHG concentrations were held constant, further warming trend would occur in the next two decades at a rate of about 0.1°C per decade

- **Energy system inertia**: delayed emission reductions lead to investments that lock in more emission intensive infrastructure and development pathways

Choices about the scale and timing of GHG mitigation involve balancing costs of emission reductions against risks of delay

Mitigation urgently needed

Characteristics of stabilization scenarios

Global mean temp. increase (ºC)	Stabilization level (ppm CO_2-eq)	Year CO_2 needs to peak	Year CO_2 emissions back at 2000 level
2.0 – 2.4	445 – 490	2000 - 2015	2000- 2030
2.4 – 2.8	490 – 535	2000 - 2020	2000- 2040
2.8 – 3.2	535 – 590	2010 - 2030	2020- 2060
3.2 – 4.0	590 – 710	2020 - 2060	2050- 2100

Mitigation efforts over the next two to three decades will have a large impact on opportunities to achieve lower stabilization levels

The cost of mitigation

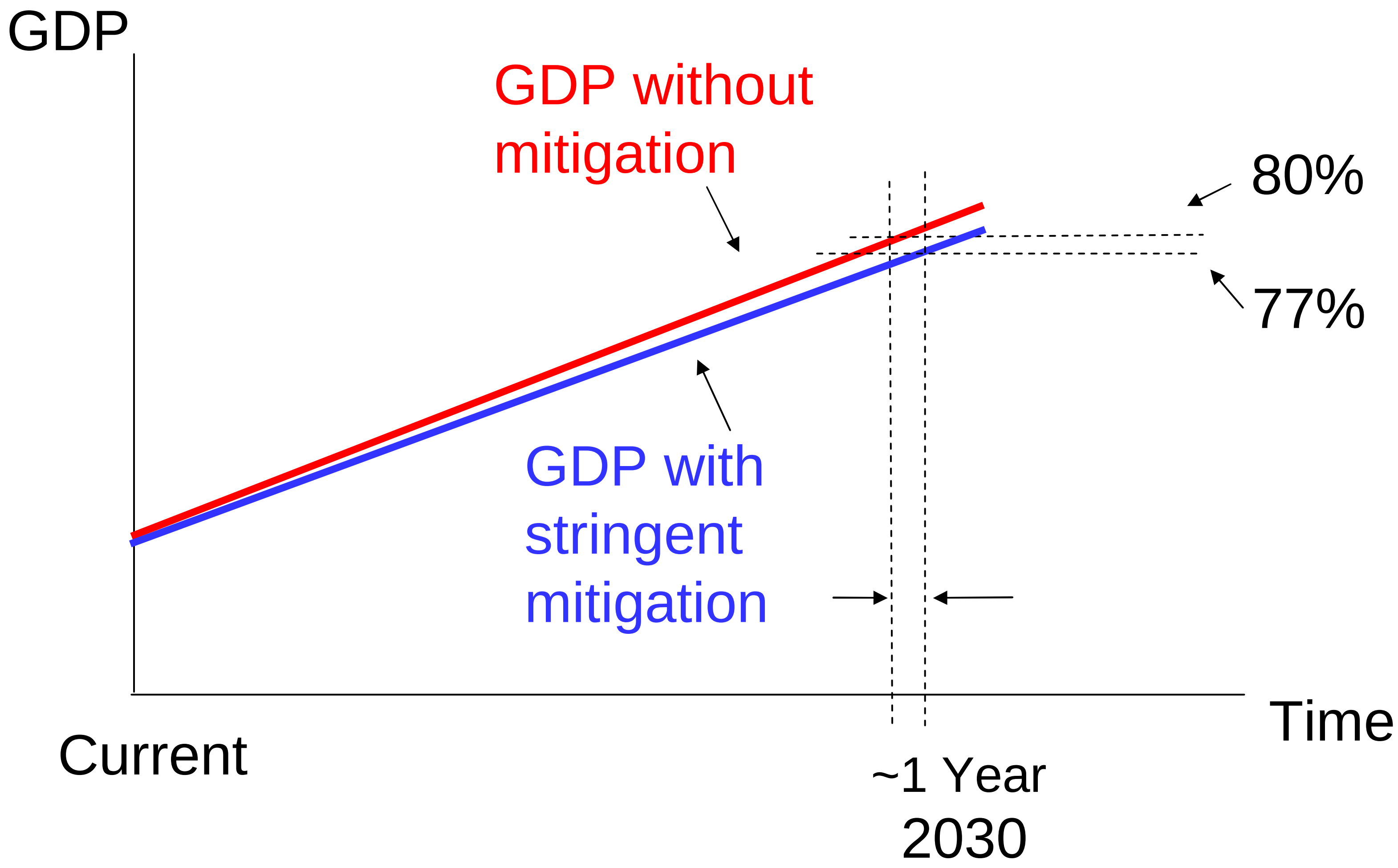
Global costs in 2030 for least-cost trajectories

Stabilisation levels (ppm CO2-eq)	Range of GDP reduction (%)	Reduction of average annual GDP growth rates (percentage pts)
590 - 710	-0.6 – 1.2	< 0.06
535 - 590	0.2 – 2.5	< 0.1
445 - 535	< 3	< 0.12

Mitigation measures would induce 0.6% gain to 3% decrease of GDP in 2030

The cost of mitigation

Illustration of costs numbers



Key technologies and policies

Key technologies currently available

Energy Supply

Efficiency; fuel switching; renewable (hydropower, solar, wind, geothermal and bioenergy); combined heat and power; nuclear power; early applications of CO2 capture and storage

Transport

More fuel efficient vehicles; hybrid vehicles; biofuels; modal shifts from road transport to rail and public transport systems; cycling, walking; land-use planning

Buildings

Efficient lighting; efficient appliances and aircodition; improved insulation ; solar heating and cooling; alternatives for fluorinated gases in insulation and appliances

Key technologies and policies

Key policies and measures

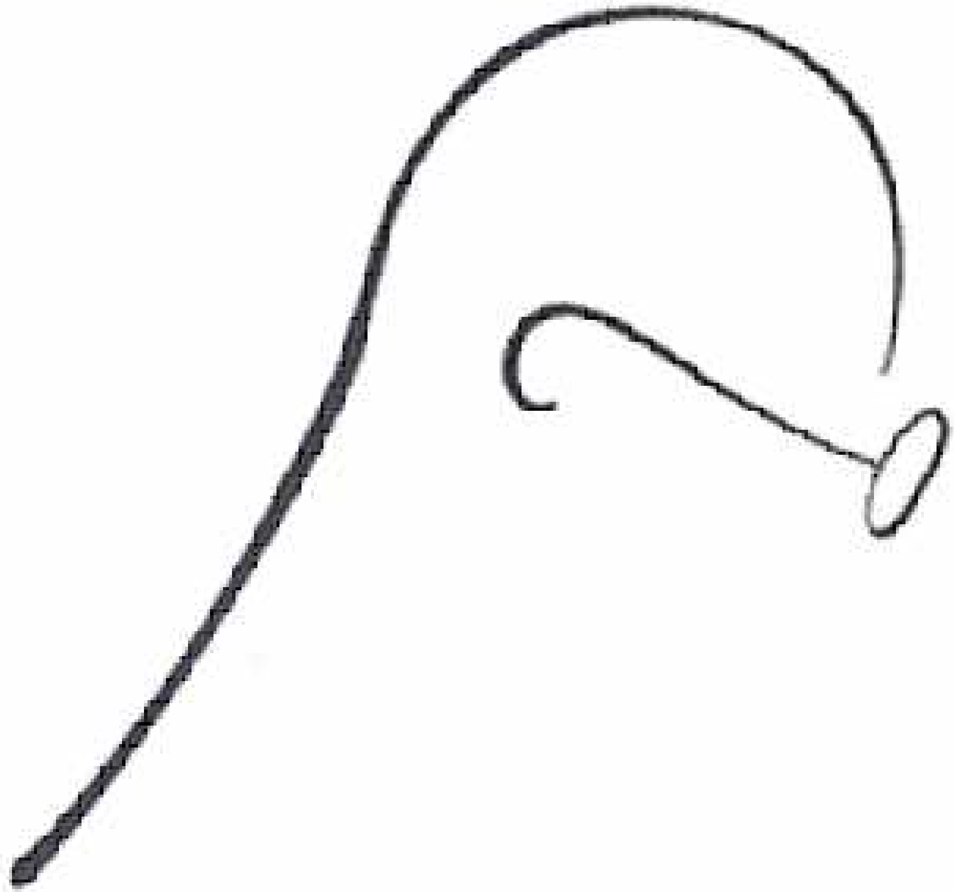
- Appropriate incentives for **development of technologies**
- Effective **carbon price** signal
- Appropriate **energy infrastructure** investments
- Changes in **lifestyle and behavior**

Key technologies and policies

Towards a new development path

- Committing to **alternative development paths** can result in very different future GHG emissions

- This will require **major changes** in areas other than climate change:
  - Economic structure
  - Technology
  - Geographical distribution of activities
  - Consumption patterns
  - Urban design and transport infrastructure
  - Demography
  - Institutional arrangements and trade patterns



A technological society has two choices. First it can wait until catastrophic failures expose systemic deficiencies, distortion and self-deceptions…

Secondly, a culture can provide social checks and balances to correct for systemic distortion prior to catastrophic failures.

How Can Global GHG Emissions Peak in the Next 10 to 15 Years?

Nebojša Nakićenović
International Institute for Applied Systems Analysis
Technische Universität Wien
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International Conference, Abgeordnetenhaus Berlin – 23 November 2007

The main finding from the comparison of SRES and new scenarios in the literature is that (*high agreement, much evidence*):

- The ranges of main driving forces and emissions have not changed very much
- Population scenarios from major demographic institutions are lower than they were at the time of TAR
- Regional medium-term (2030) economic projections for some developing country regions are currently lower than the highest scenarios used in TAR.
- The most noticeable changes are lower projections of SOx and NOx emissions.

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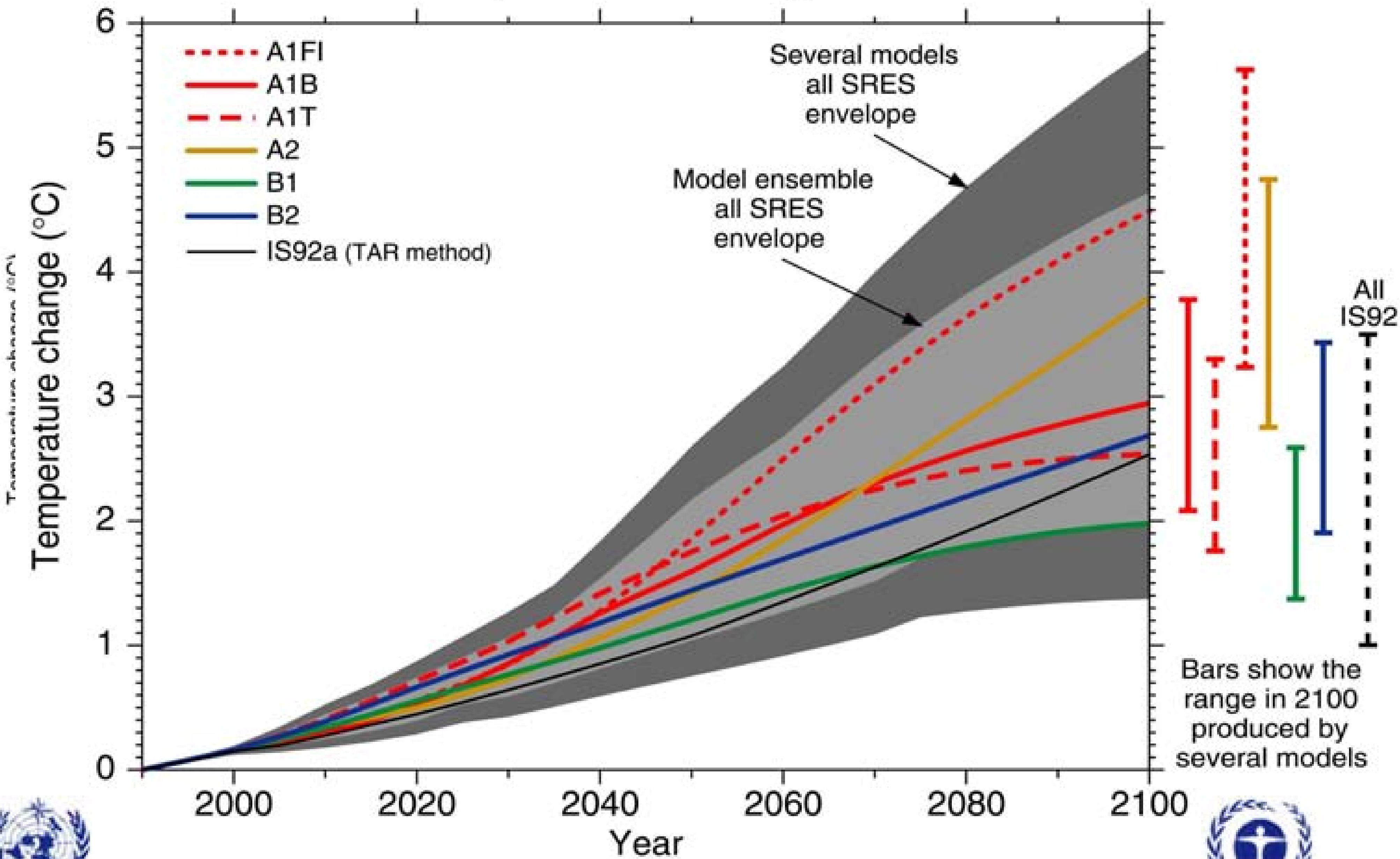

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

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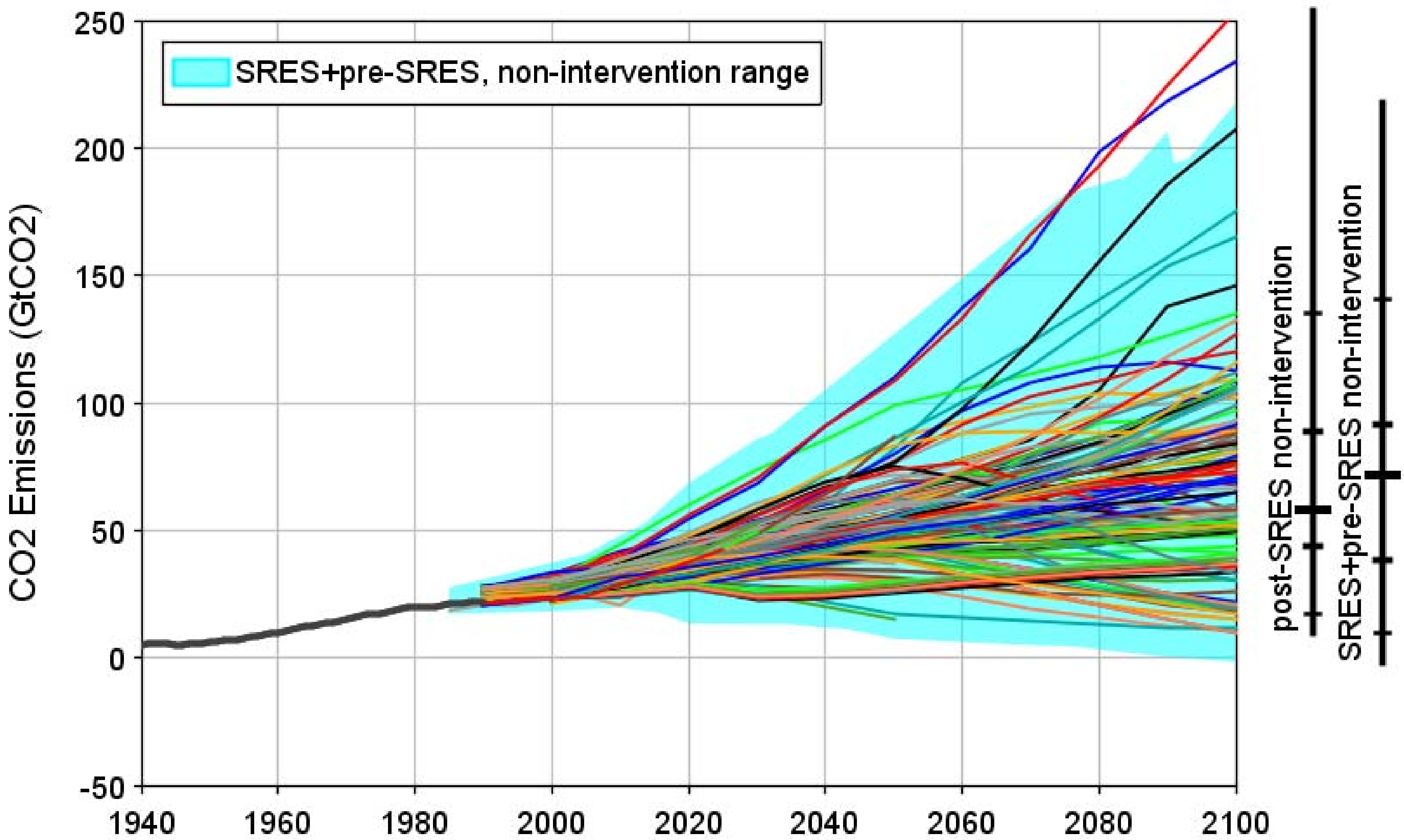
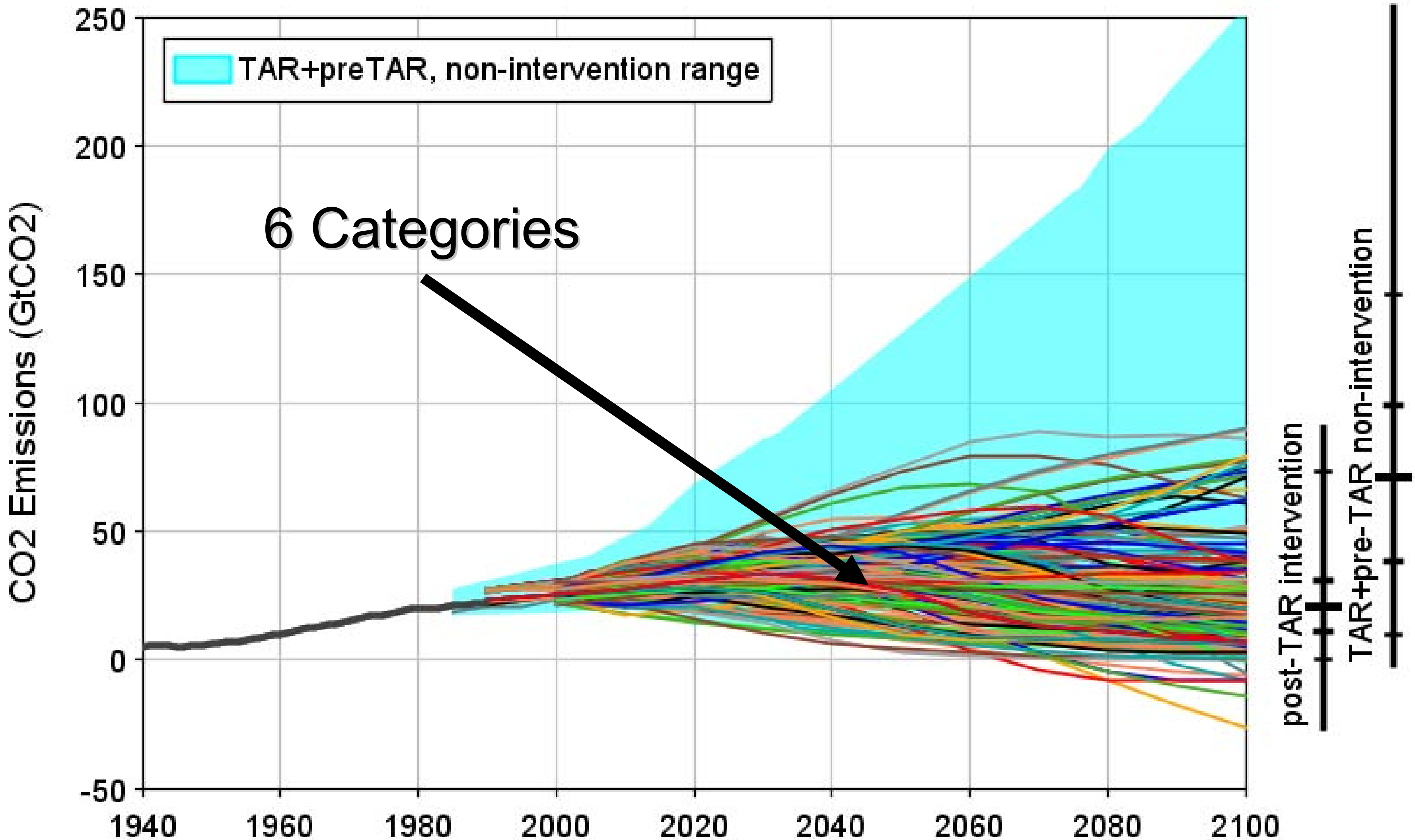
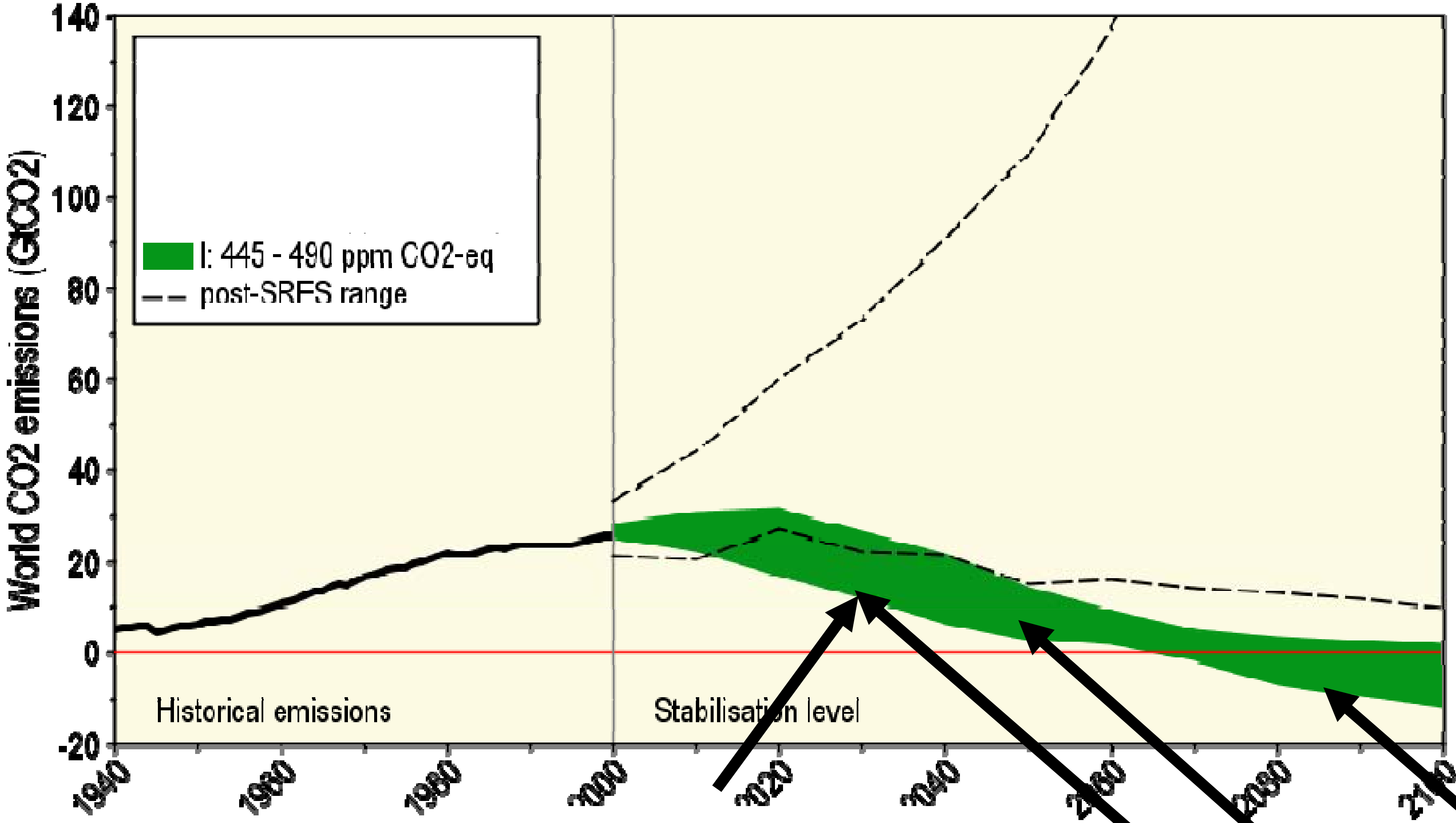
Global CO2 Emissions



Global CO2 Emissions



Long-Term Stabilization Profiles



~$100/t$CO_2$

INTERGOVERNMENTAL PANEL ON CLIMATE CHNGE (IPCC)

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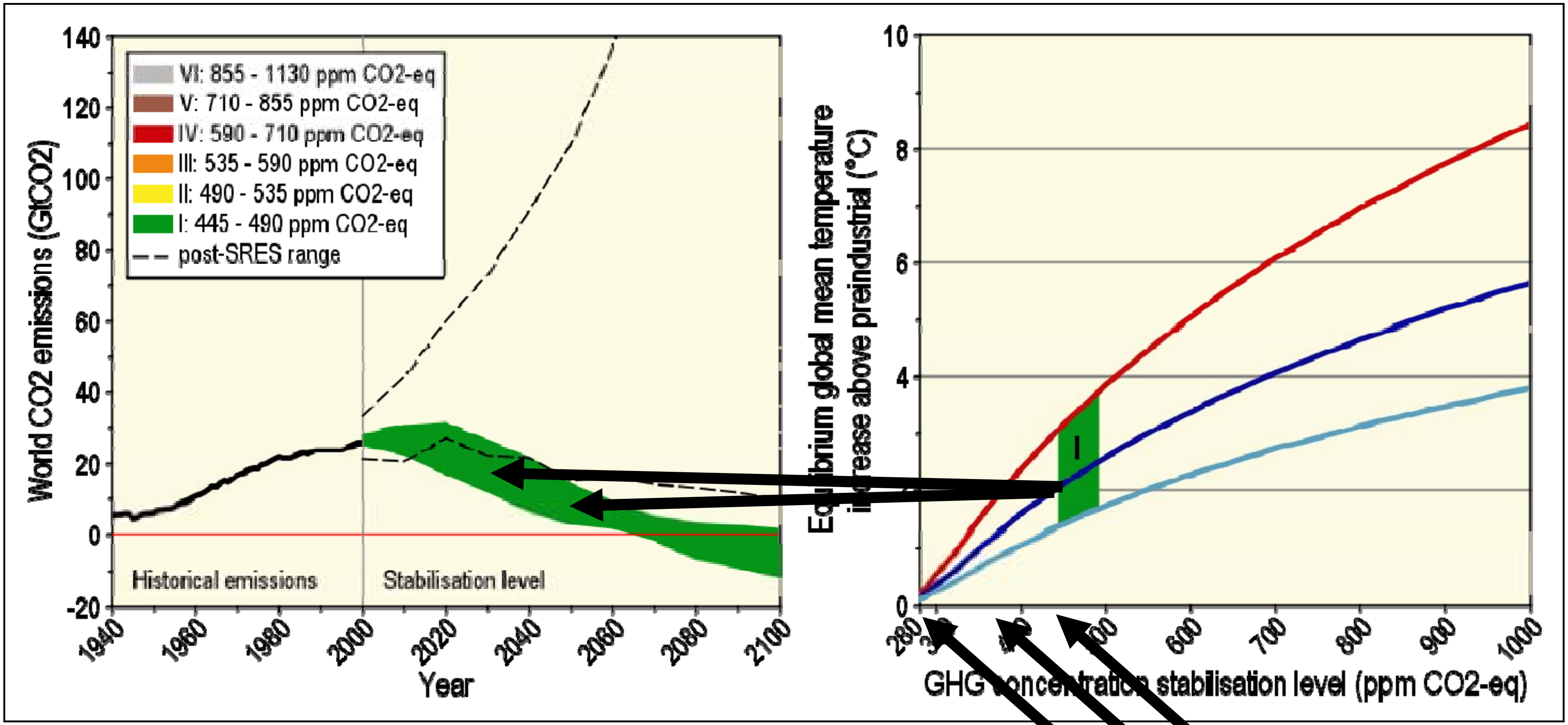
Long-term mitigation: stabilisation and equilibrium global mean temperatures



INTERGOVERNMENTAL PANEL ON CLIMATE CHNGE (IPCC)

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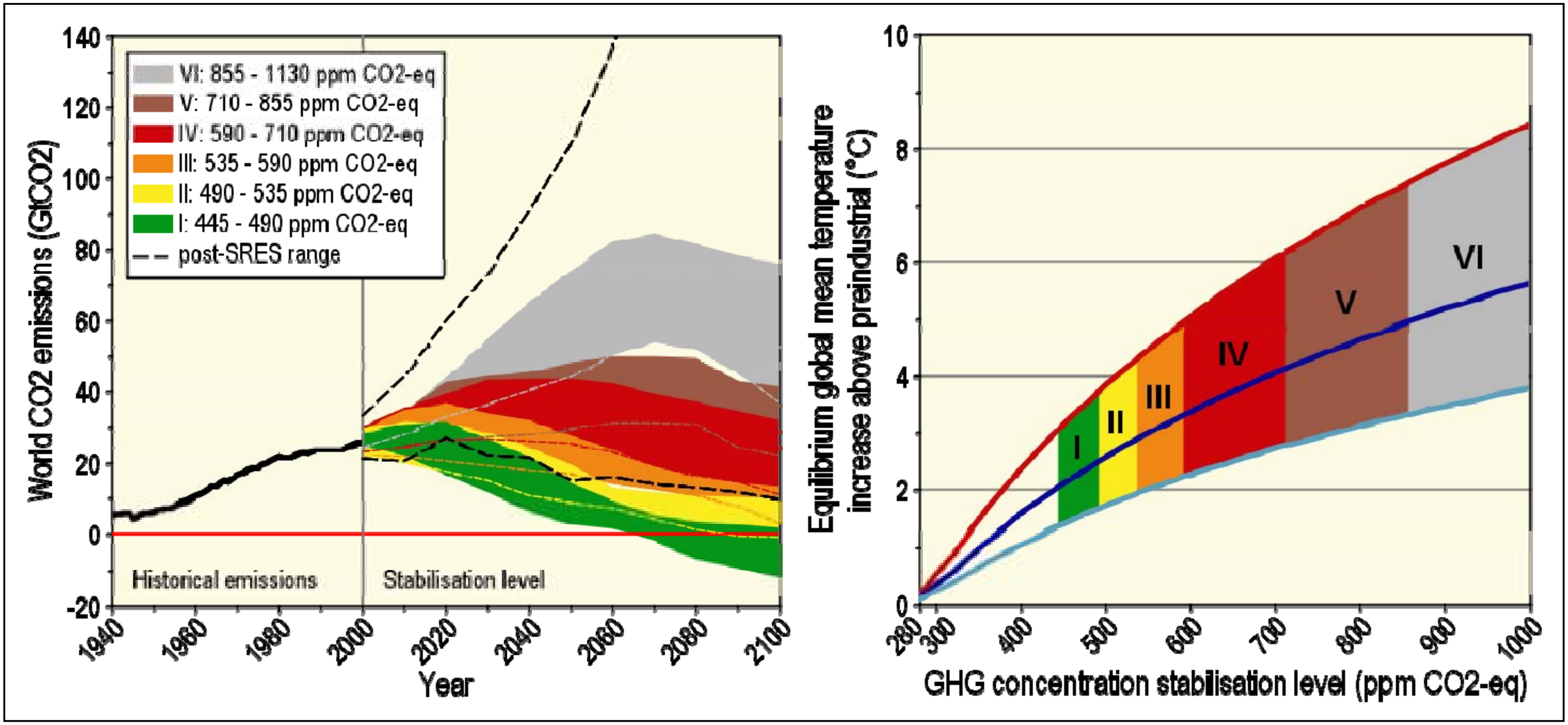
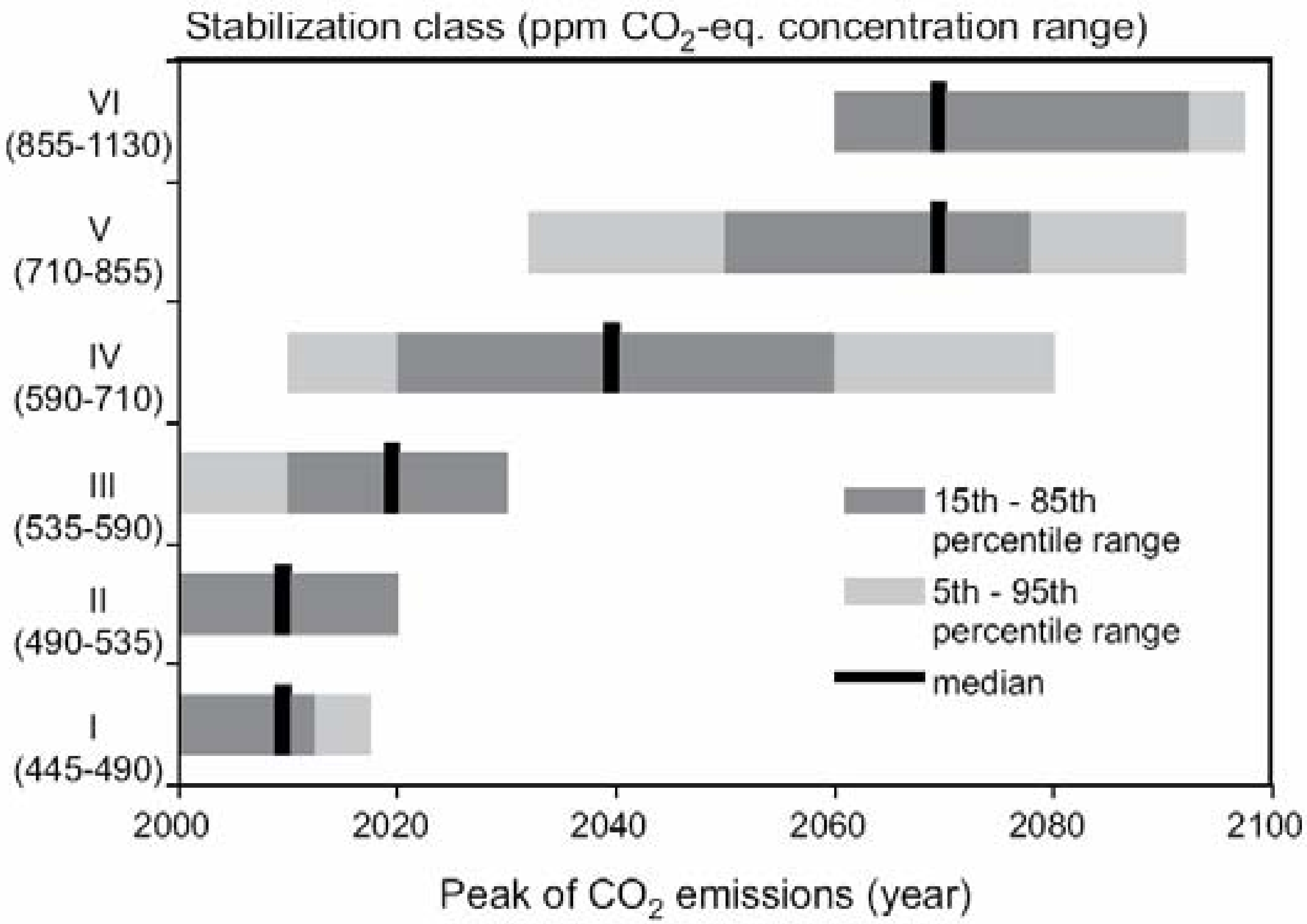
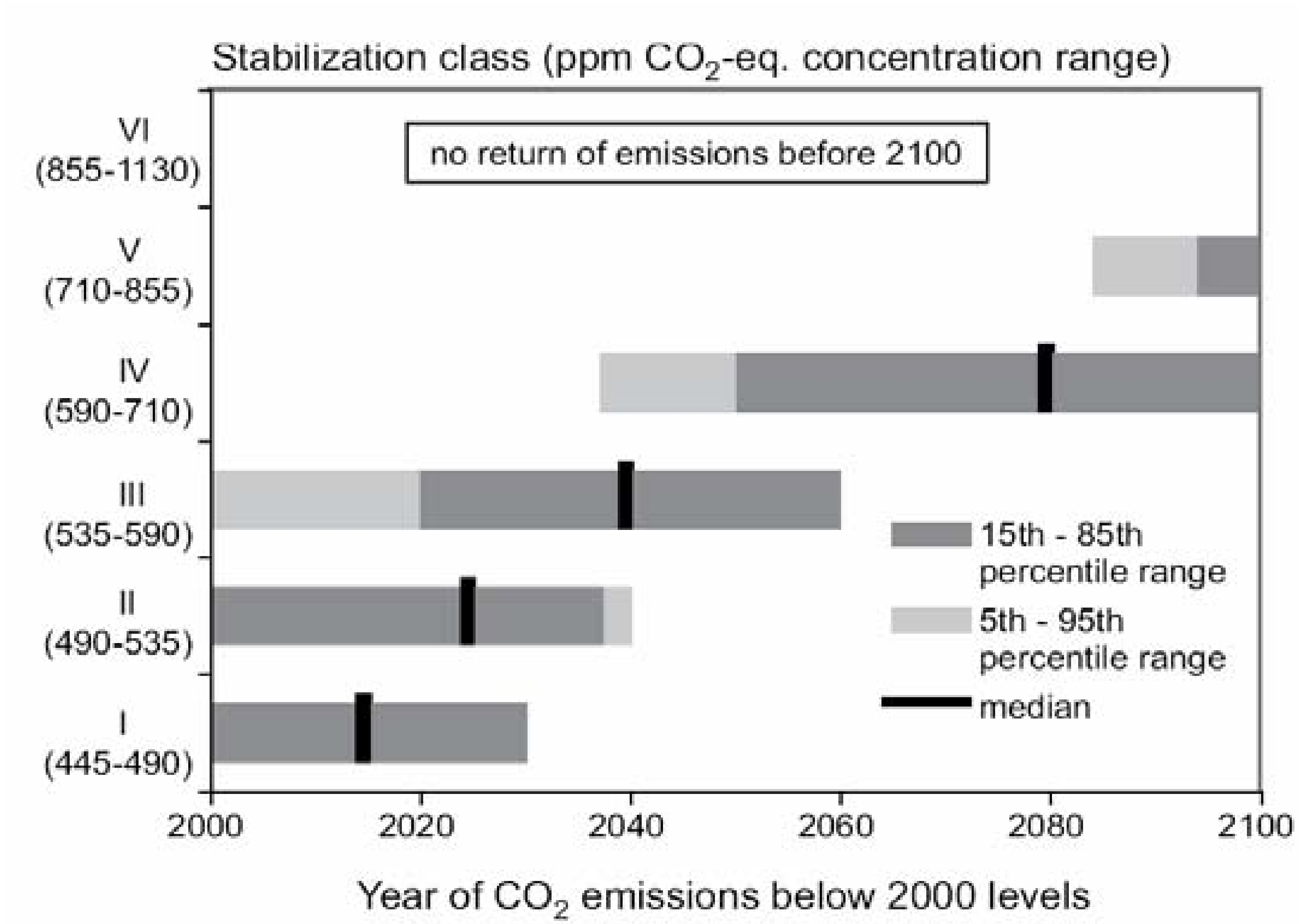
Long-term mitigation: stabilisation and equilibrium global mean temperatures



Emissions Peak



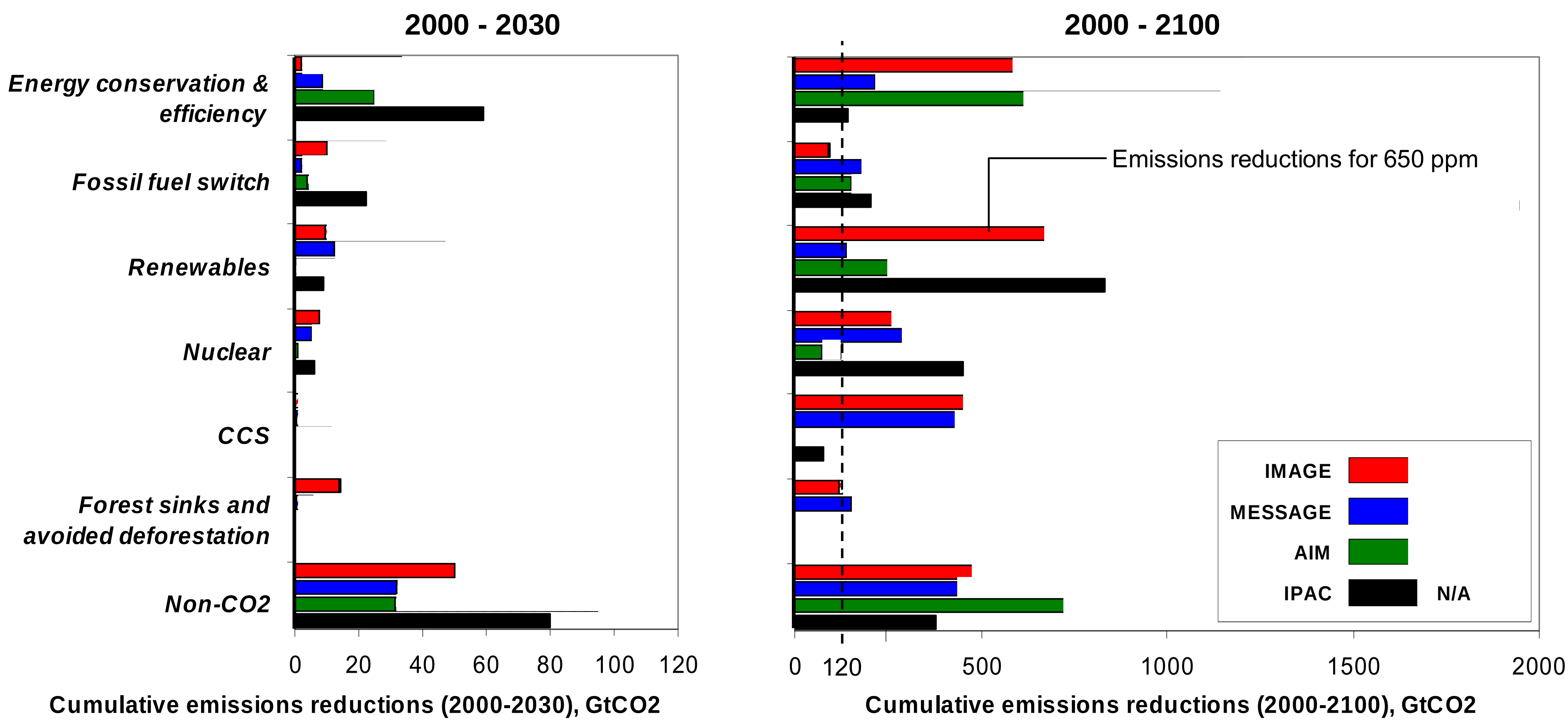
Below 2000



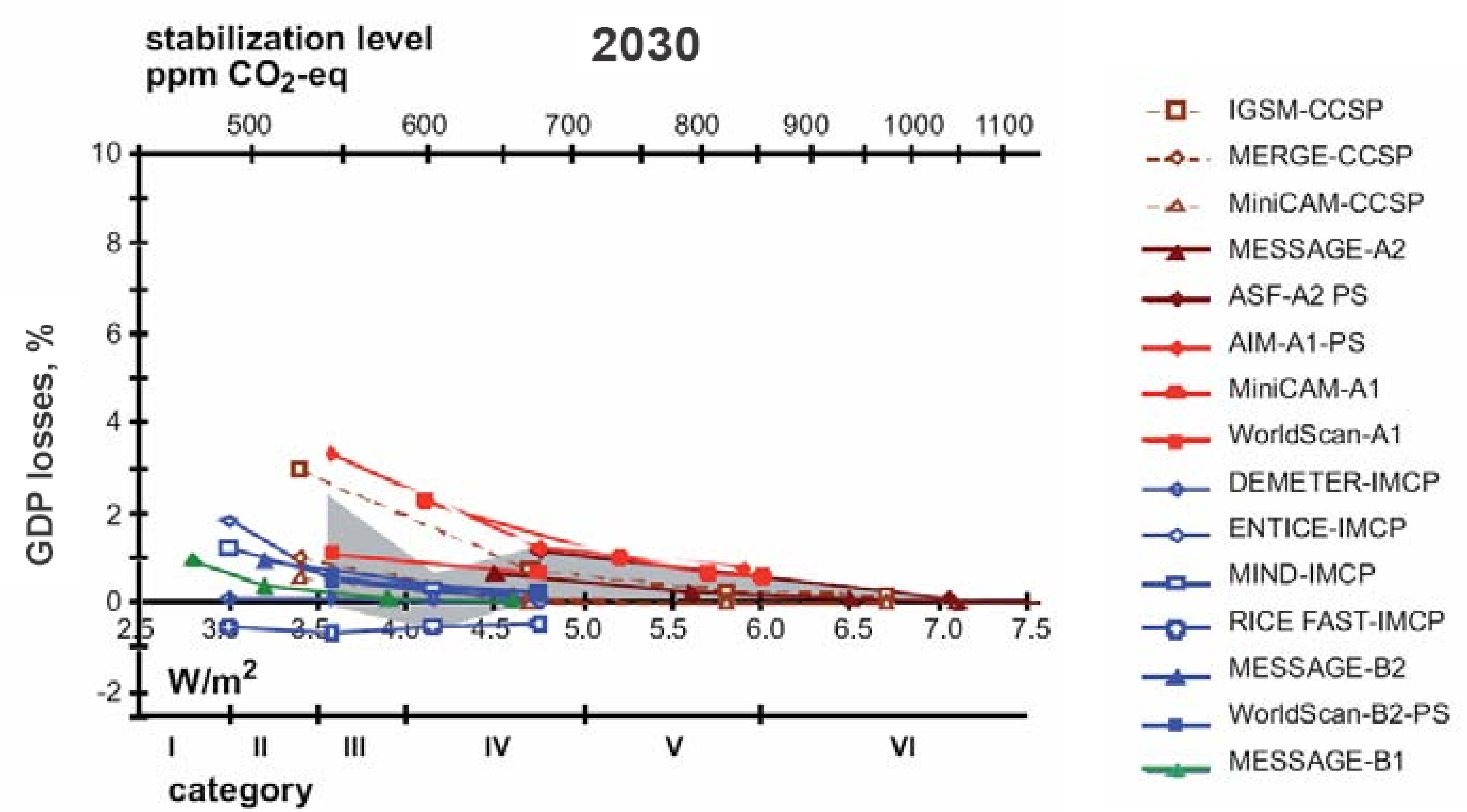
Stabilization class (ppm CO_2-eq. concentration range)
no return of emissions before 2100
VI
(855-1130)
V
(710-855)
IV
(590-710)
III
(535-590)
II
(490-535)
I
(445-490)
15th - 85th percentile range
5th - 95th percentile range
median
2000
2020
2040
2060
2080
2100
Year of CO_2 emissions below 2000 levels

Cumulative Emissions Reductions

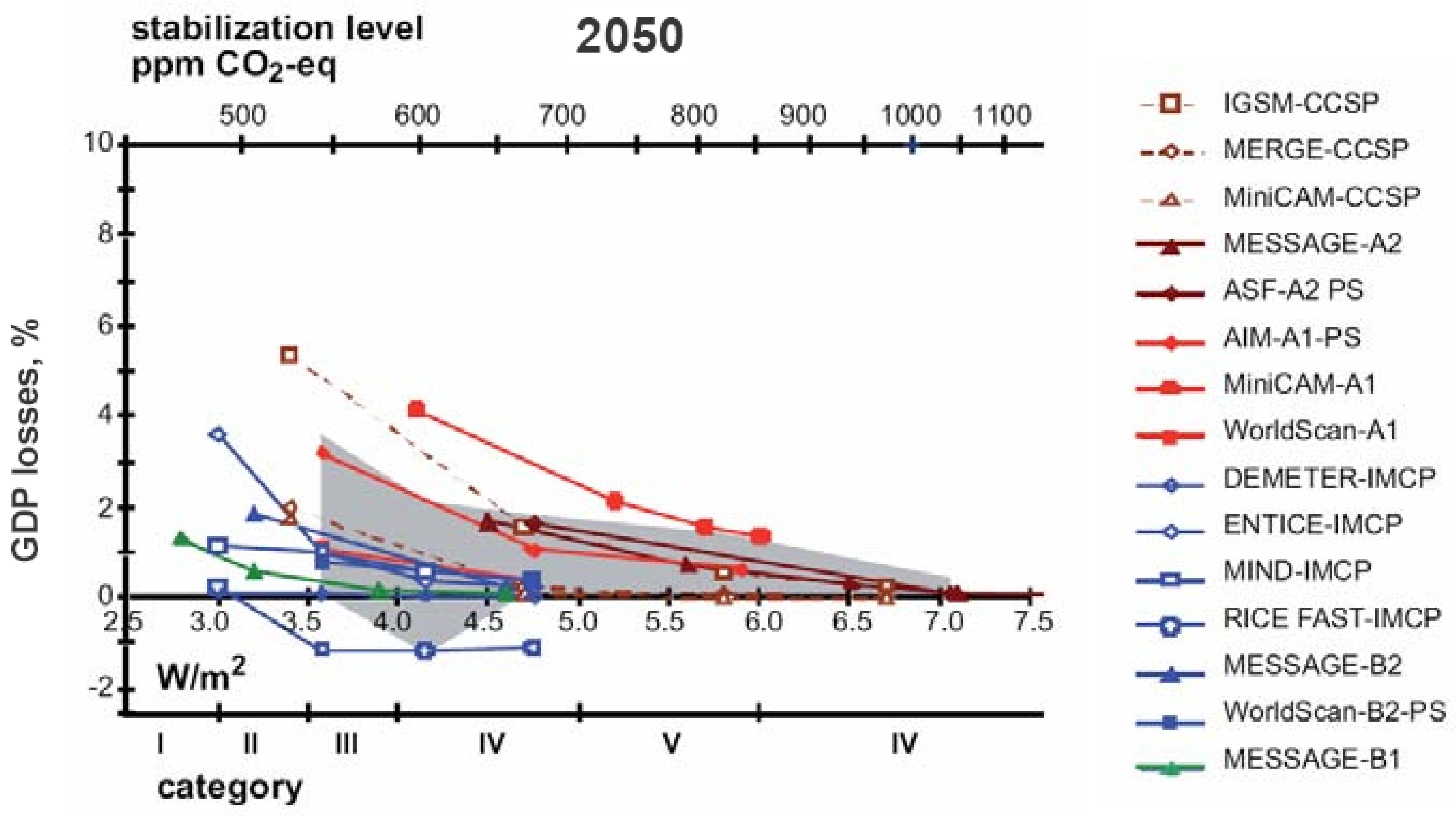
Mitigation measures, 4 IAMs and 2 stabilization levels



GDP Loss

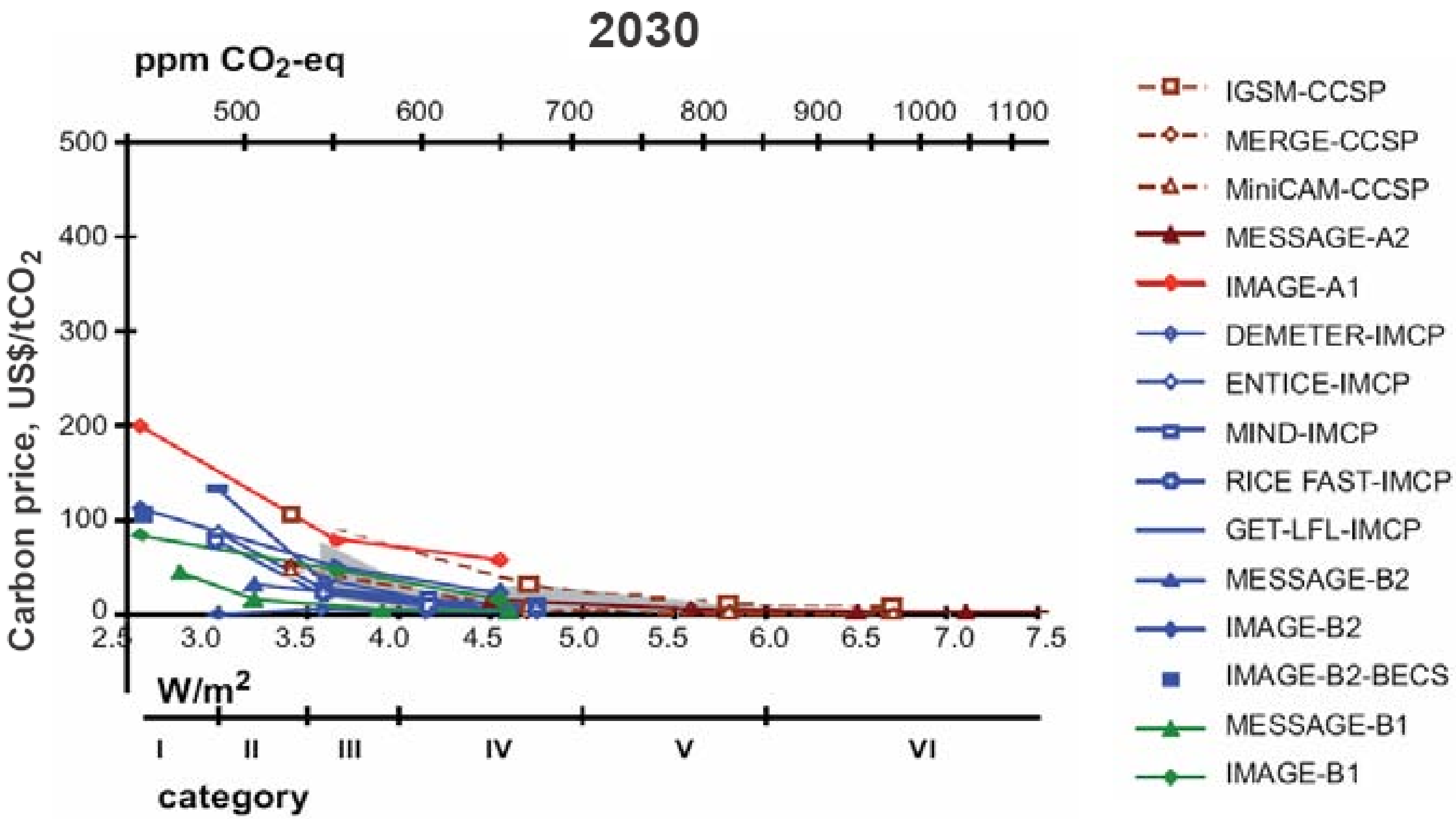

stabilization level
ppm CO_2-eq
2030
500
600
700
800
900
1000
1100
10
8
6
4
2
0
-2
GDP losses, %
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
W/m²
I
II
III
IV
V
VI
category
IGSM-CCSP
MERGE-CCSP
MiniCAM-CCSP
MESSAGE-A2
ASF-A2 PS
AIM-A1-PS
MiniCAM-A1
WorldScan-A1
DEMETER-IMCP
ENTICE-IMCP
MIND-IMCP
RICE FAST-IMCP
MESSAGE-B2
WorldScan-B2-PS
MESSAGE-B1

GDP Loss

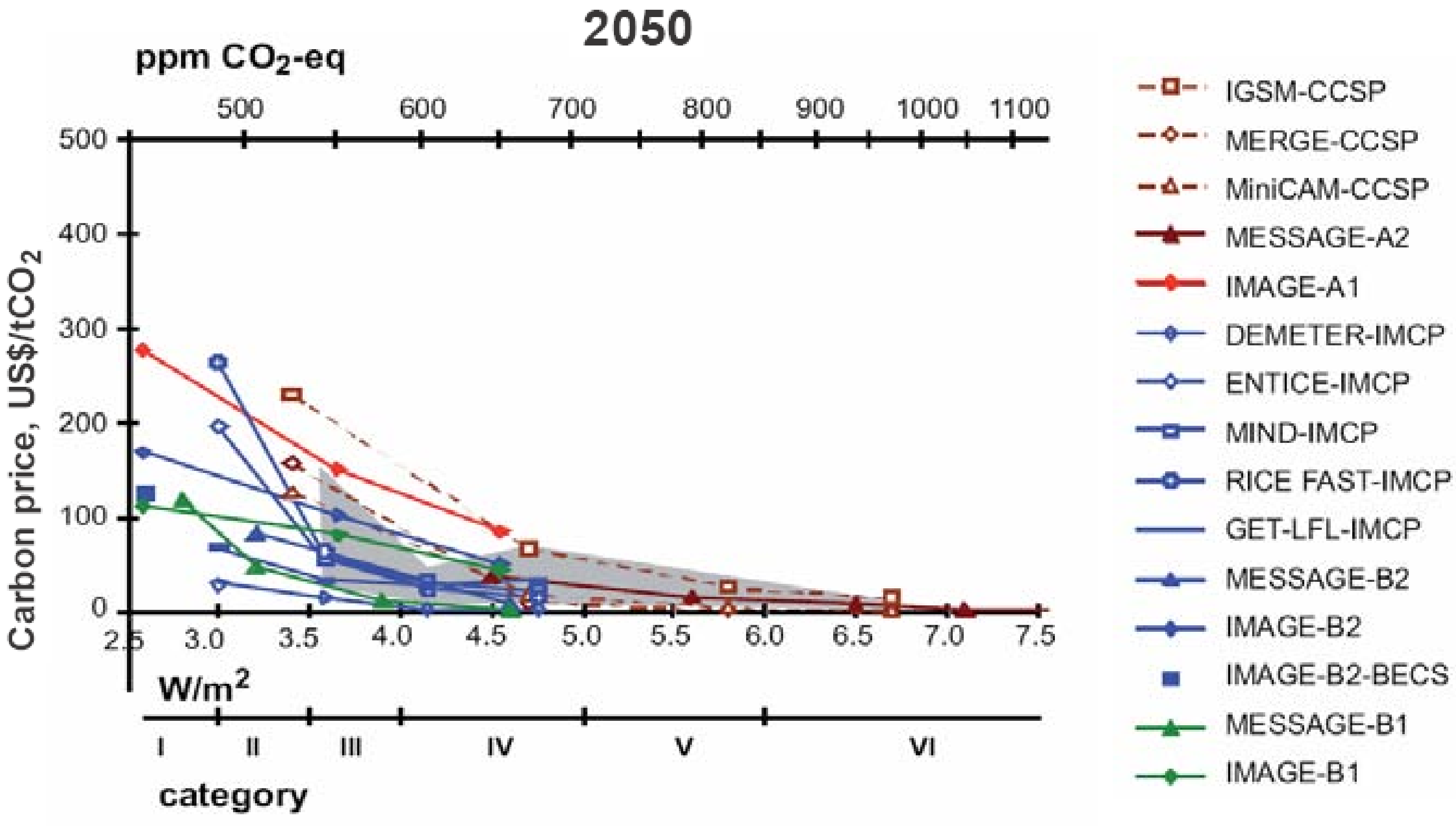


stabilization level
ppm CO2-eq
2050
500
600
700
800
900
1000
1100
GDP losses, %
10
8
6
4
2
0
-2
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
W/m2
I
II
III
IV
V
IV
category
IGSM-CCSP
MERGE-CCSP
MiniCAM-CCSP
MESSAGE-A2
ASF-A2 PS
AIM-A1-PS
MiniCAM-A1
WorldScan-A1
DEMETER-IMCP
ENTICE-IMCP
MIND-IMCP
RICE FAST-IMCP
MESSAGE-B2
WorldScan-B2-PS
MESSAGE-B1

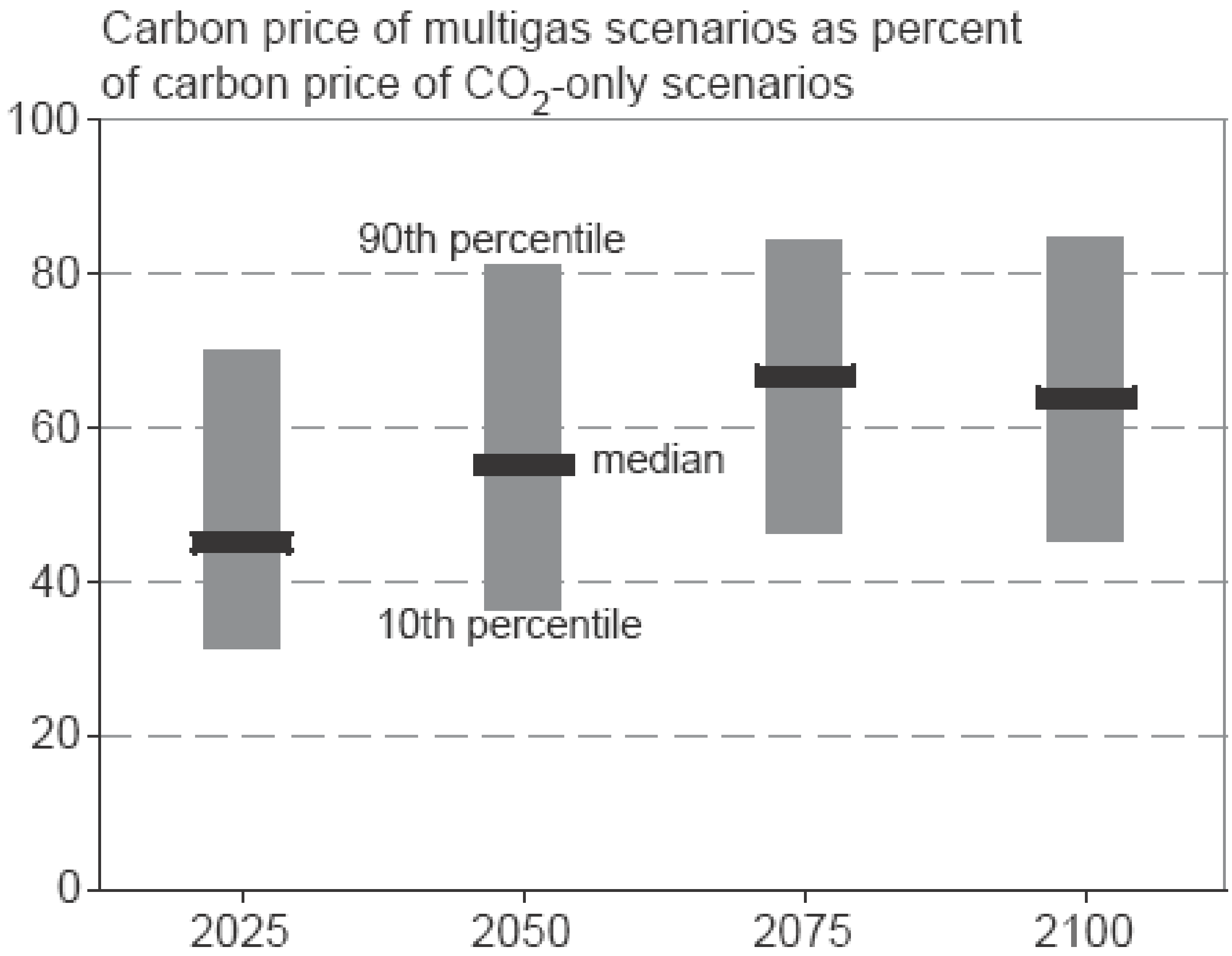
Carbon Price



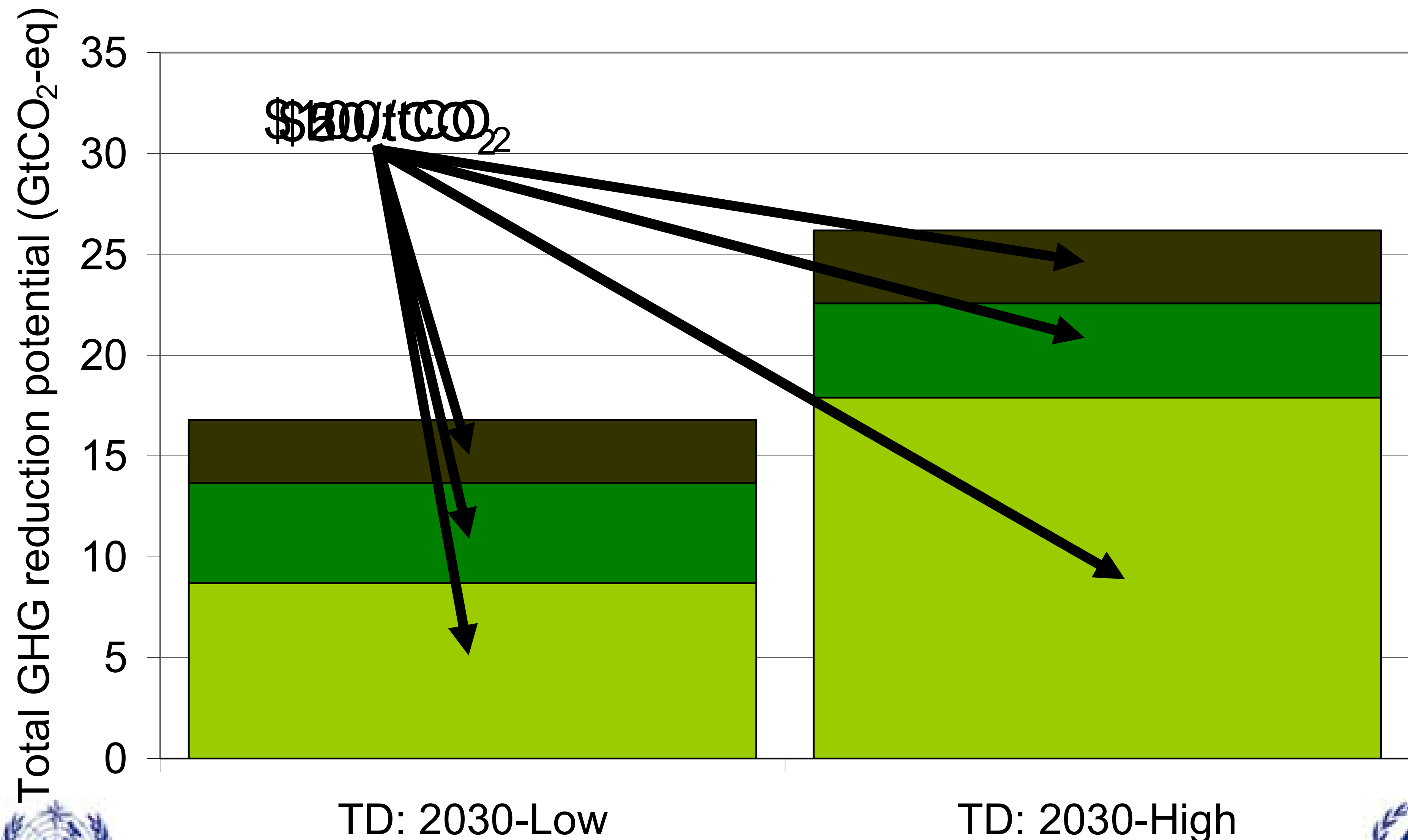
Carbon Price



Carbon Price



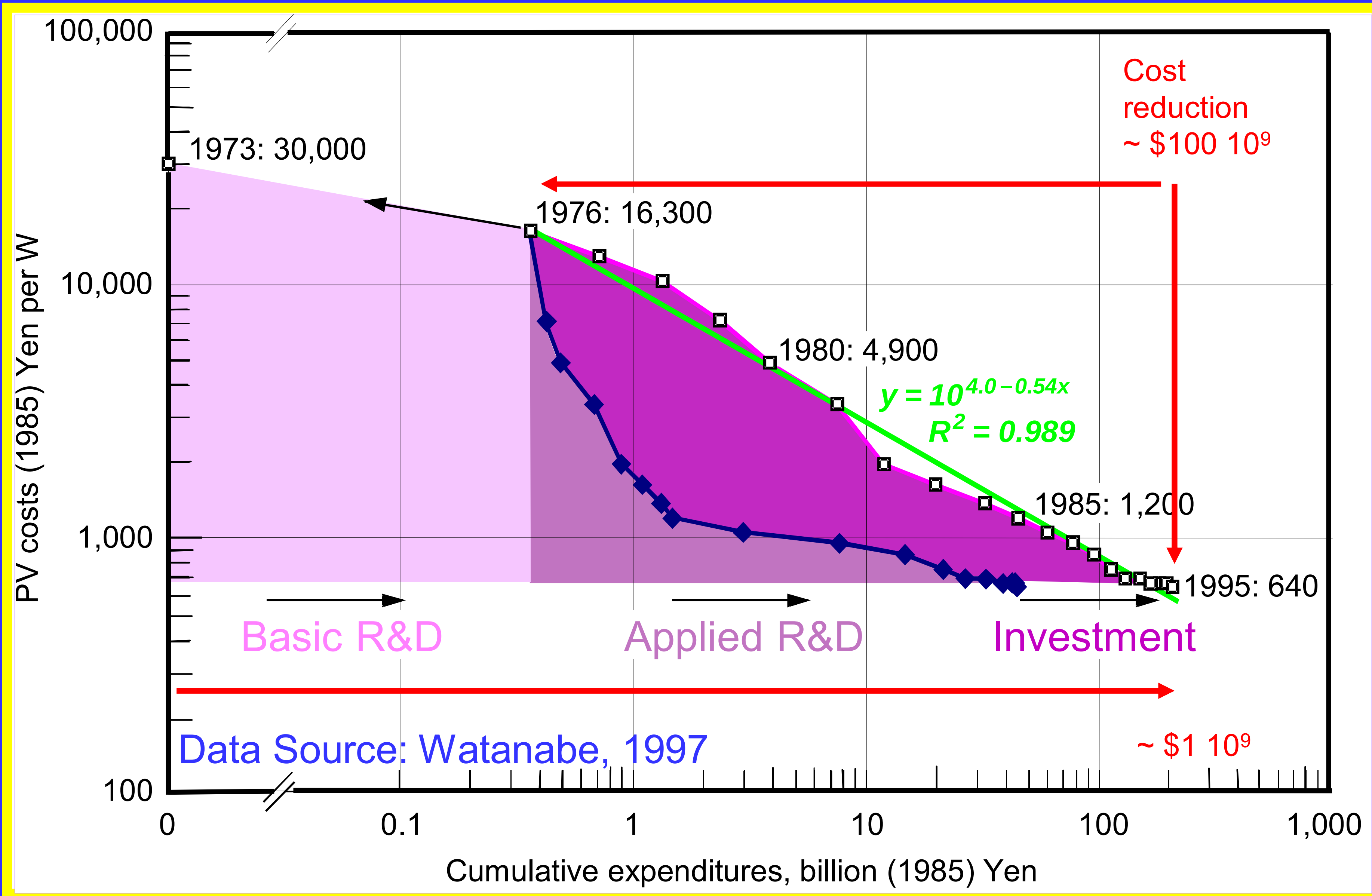
Total reduction potential



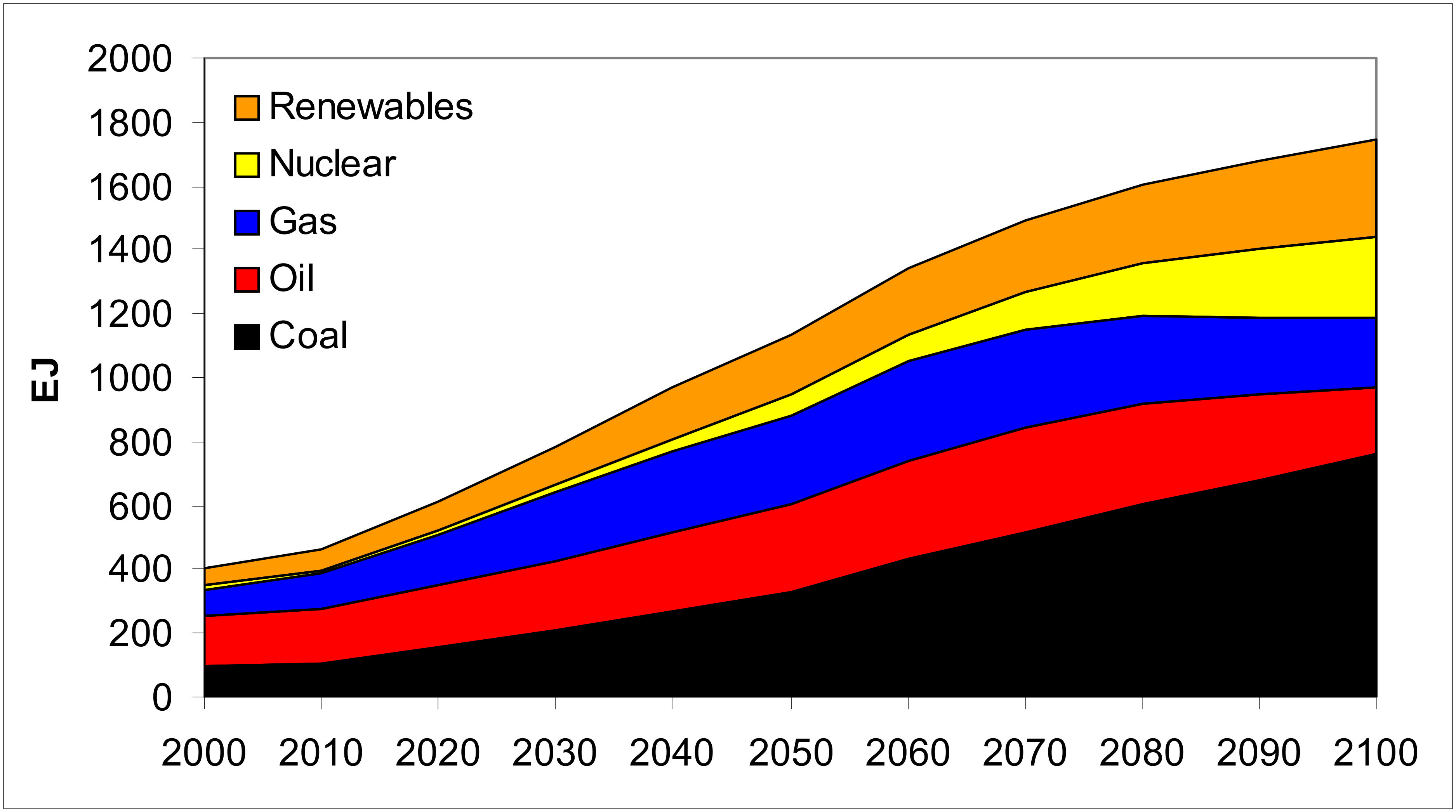
Global Mitigation Challenges

- Significant mitigation potential by 2030 and beyond at costs <$100/t$CO_2$
- Technological change essential for reducing mitigation costs and increasing potentials
- "Upfront" investments reduce longer-term mitigation costs and increase potentials
- High emissions baselines have higher mitigation costs and higher stabilization levels.
- Investment in RD&D and diffusion reduce mitigation costs

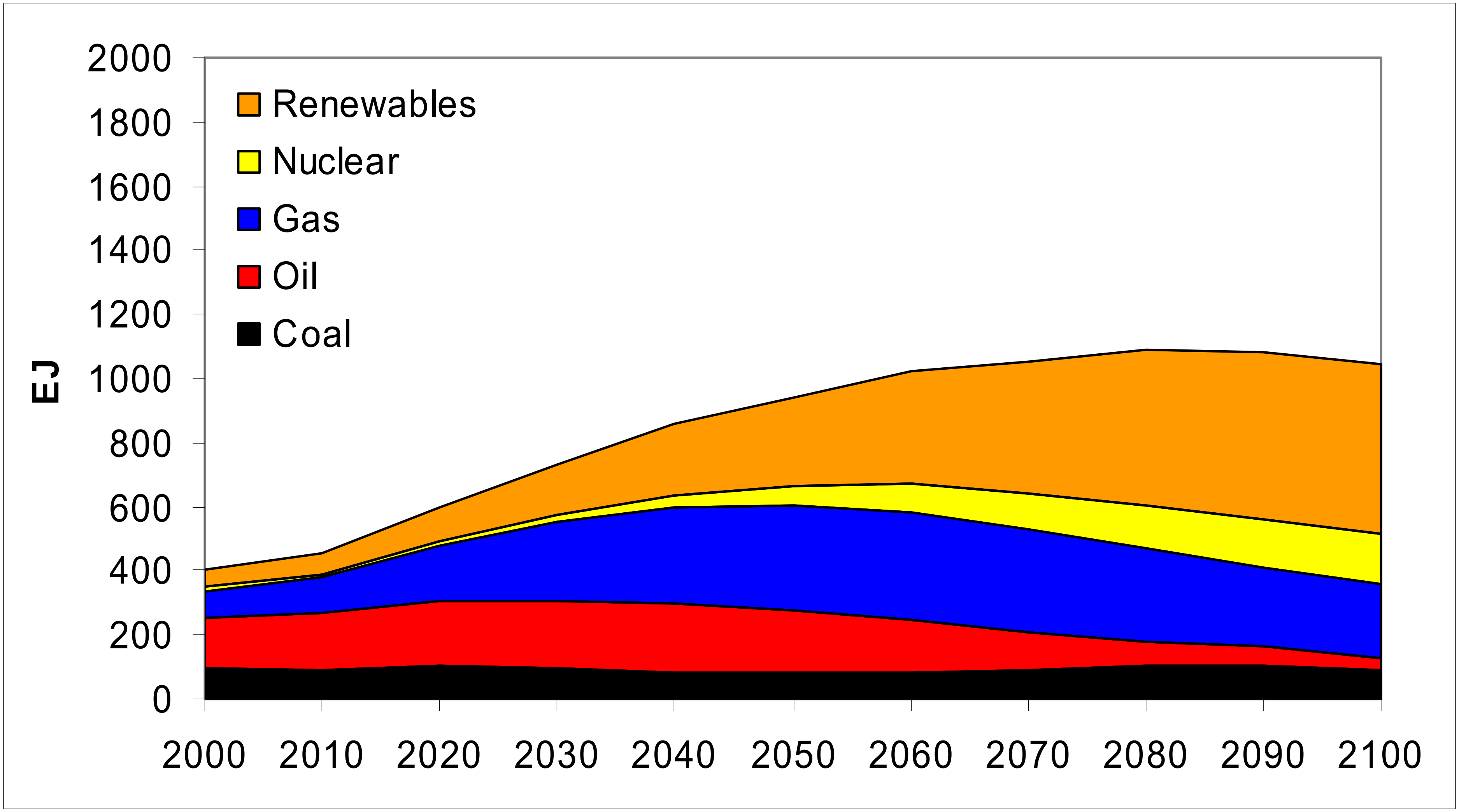
Japan - PV Costs vs. Expenditures



Global Primary Energy – A2r

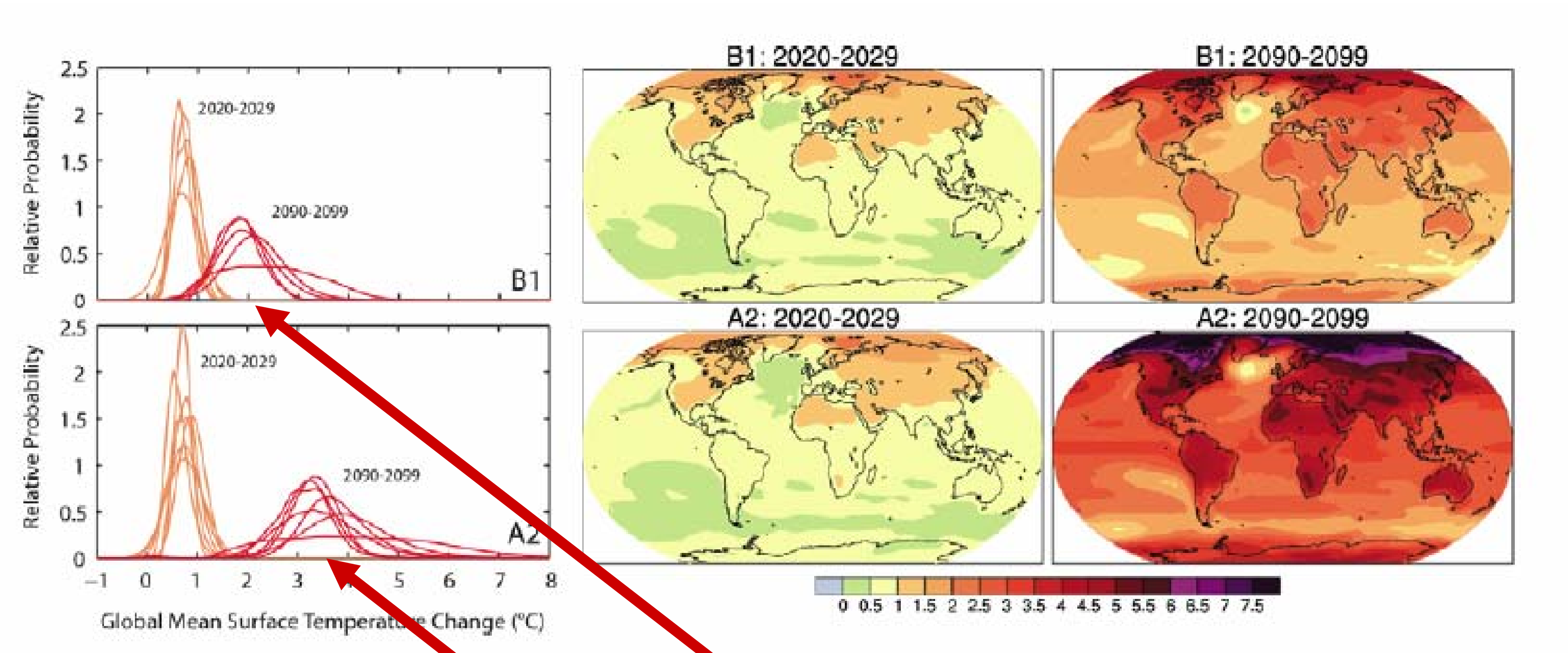


Global Primary Energy – B1



Surface Temperature Change

AOGCM projections for illustrative SRES scenarios



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INTERGOVERNMENTAL PANEL ON CLIMATE CHNGE (IPCC)

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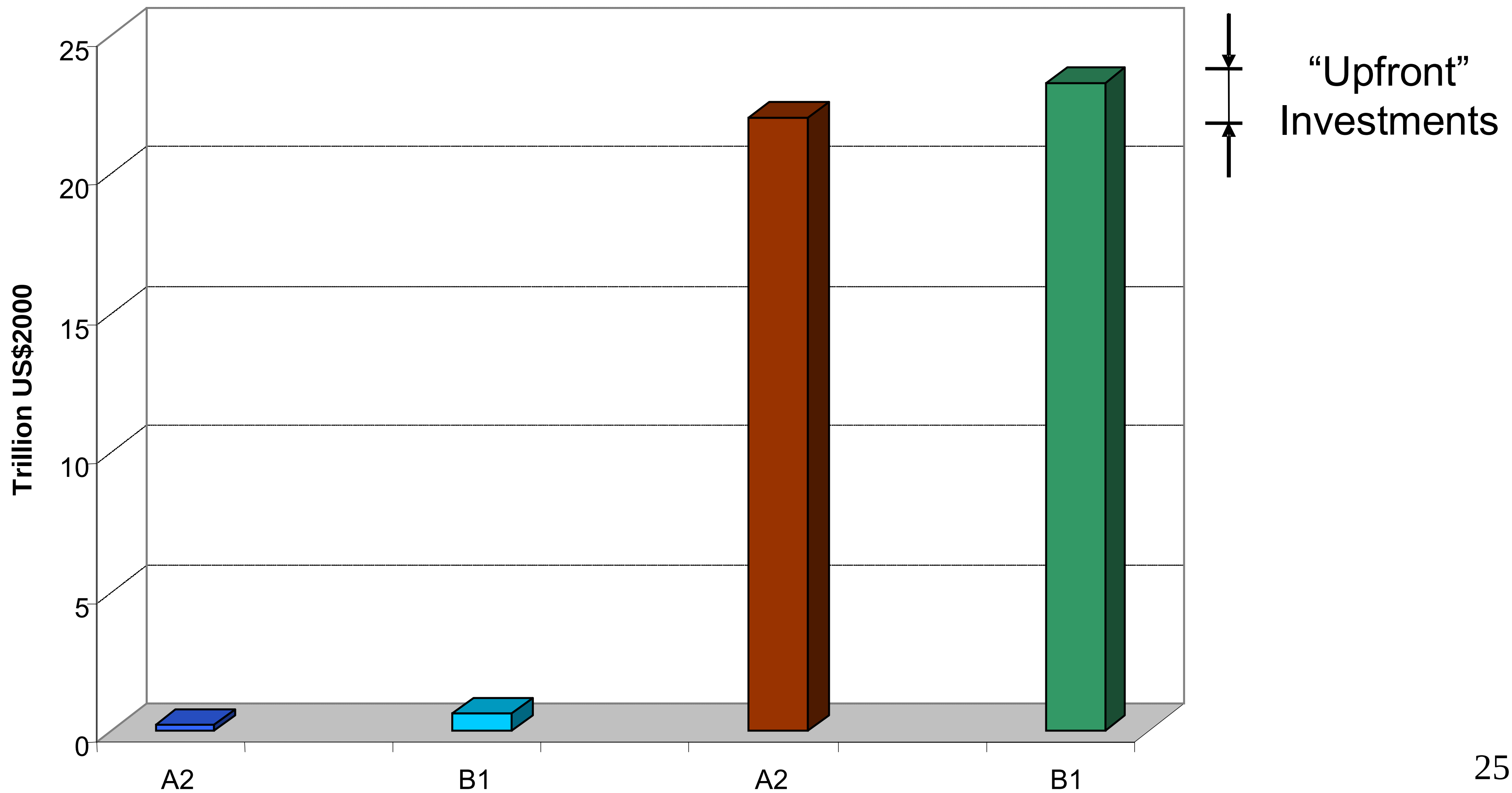
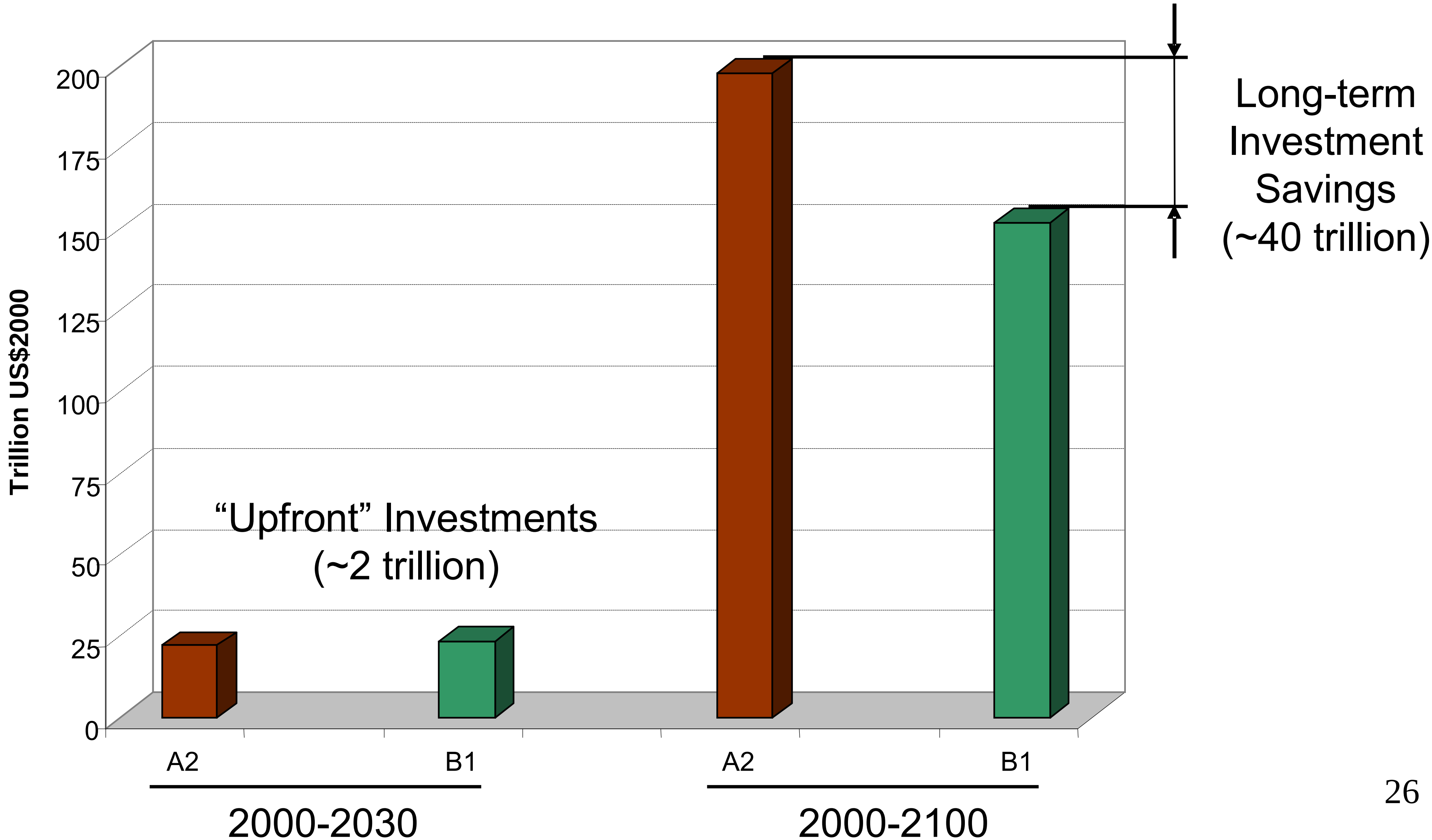
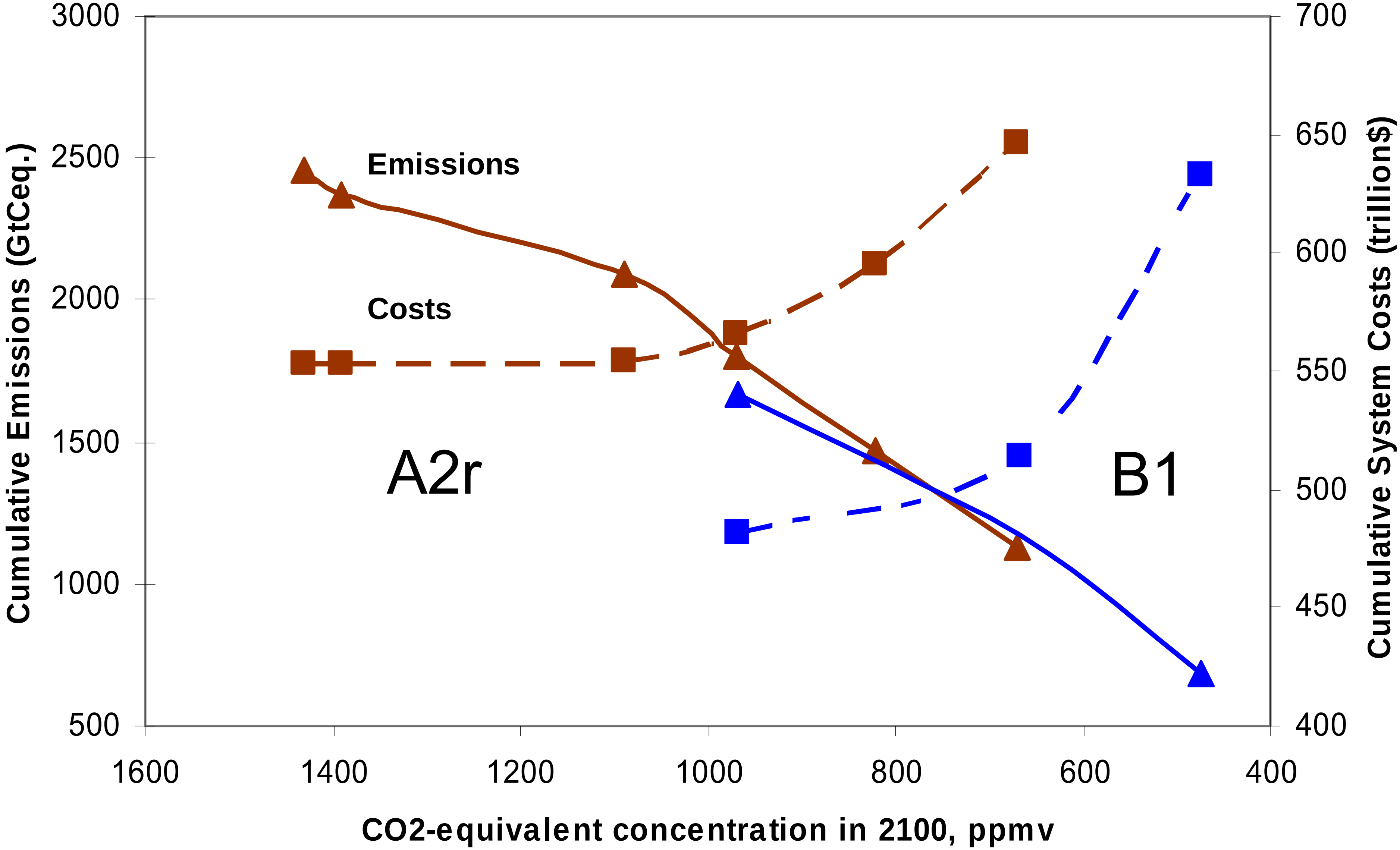
Climate Mitigation vs Total Energy Investments (World, 2000-2030)



Total Energy-related Investments (World, short & long-term)

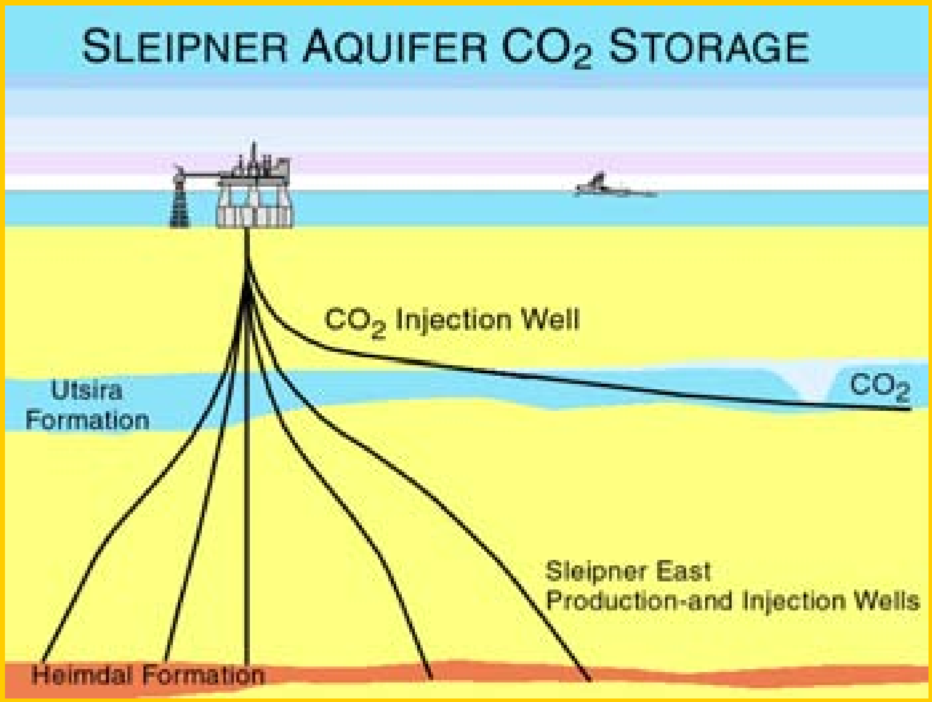


Emissions and Costs 2000-2100



Existing and Planned Projects

- Sleipner Project, saline formation, North Sea
- Weyburn, EOR, Saskatchewan, Canada
- In Salah, gas reservoir, Algeria (development)
- Snohvit, off-shore saline formation, North Sea
- Gorgon, saline formation, Australia (planning)



Nakicenovic #30

Source: Sally Benson, 2003

Usina Santa Elisa mill in Sertaozinho, Brazil

http://www.nrel.gov/data/pix/Jpegs/06442.jpg

Tesla Electric Roadster

Source: www.fuel-efficient-vehicles.org

Toyota Prius Methane

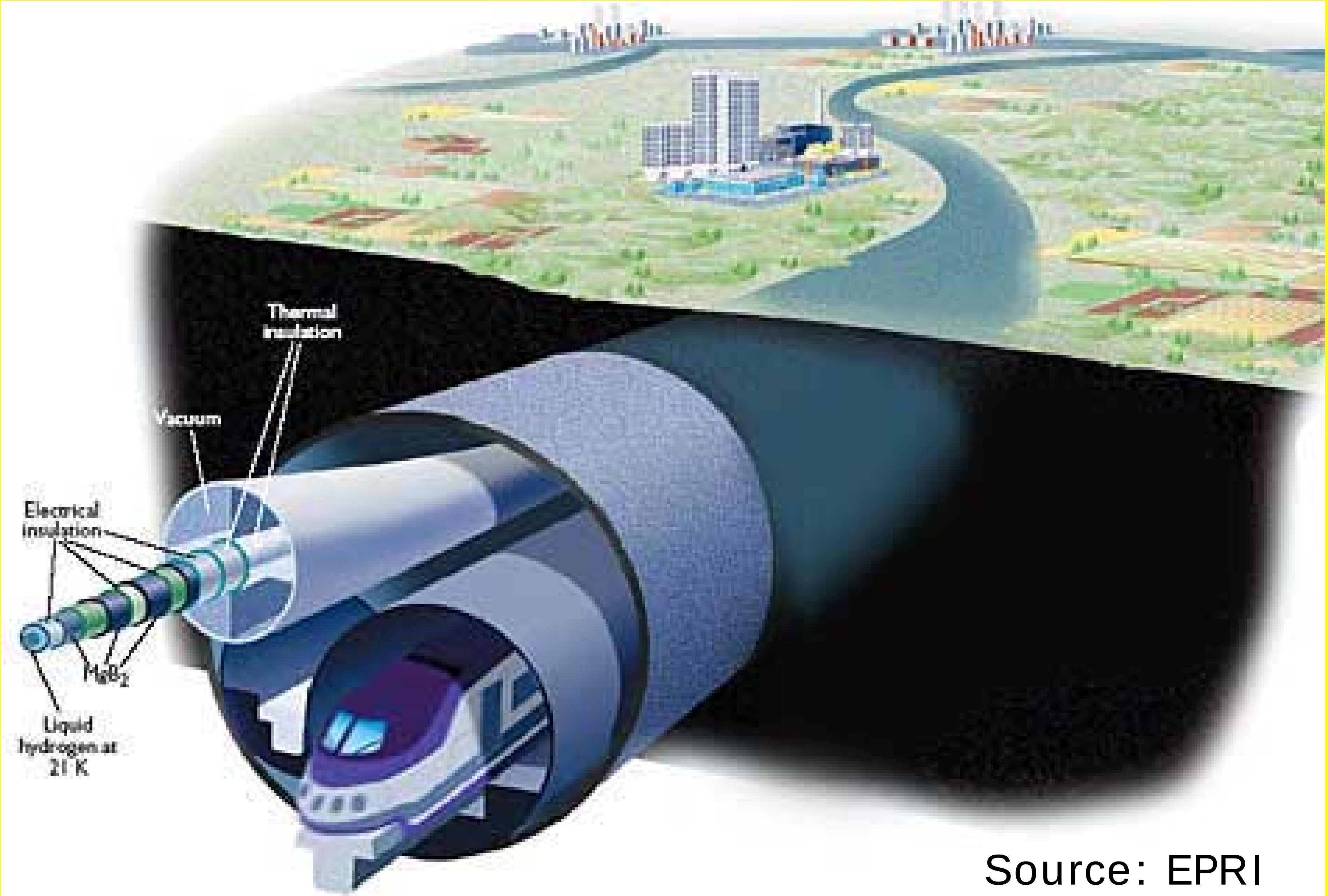
Honda Puyo Fuell Cell

CITARO H_2 Fuel Cell Bus

Hydrogen Airplane Design

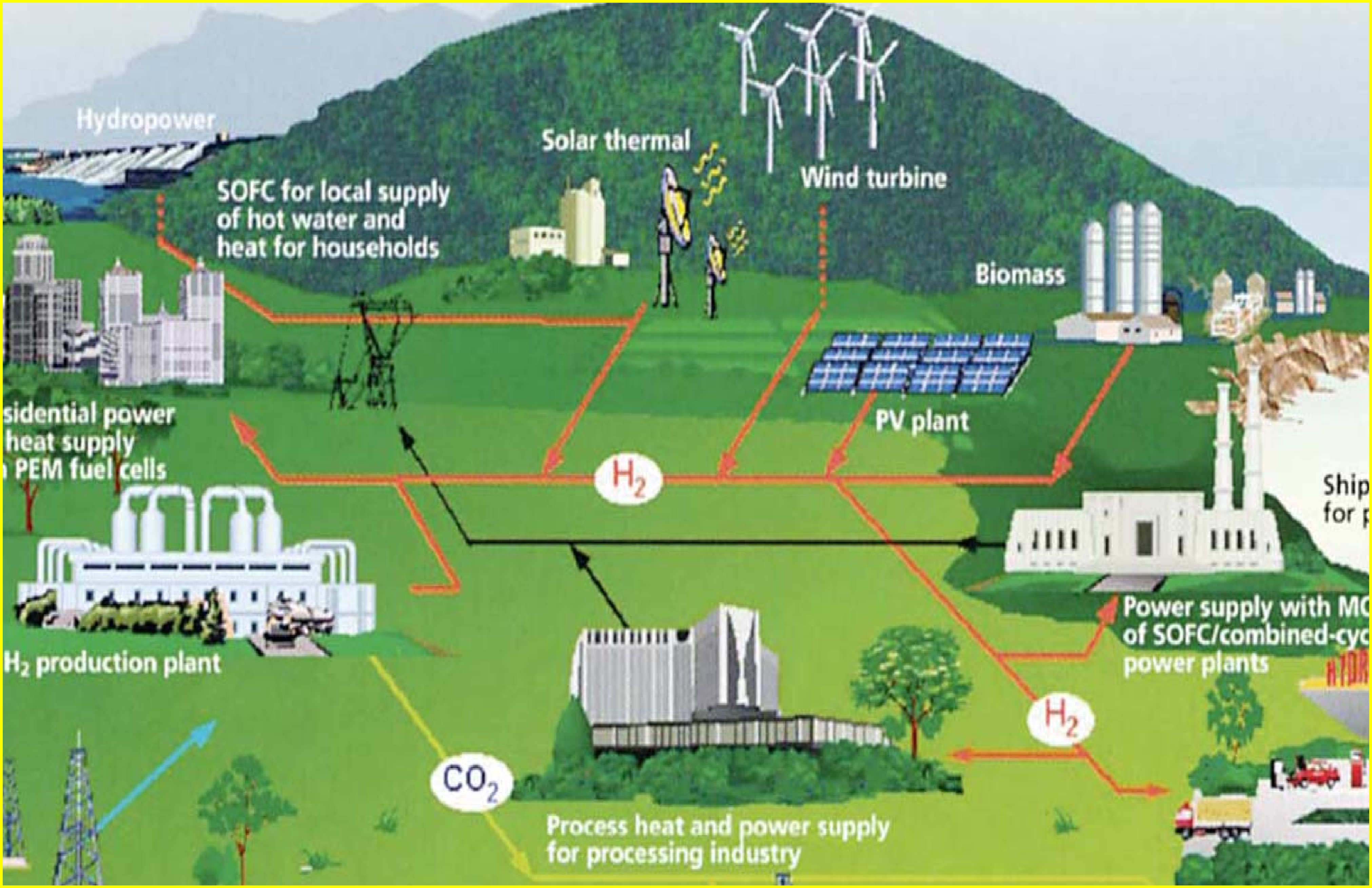
Source: Tupolev

Energy SuperGrid and MagLev Trains



Source: EPRI

A Vision of a Future Energy System



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How can dangerous climate change be avoided?

Findings from the IPCC Fourth Assessment Report

Bert Metz

Co-chair IPCC WG III

ECF/BMU, Berlin, November 23, 2007

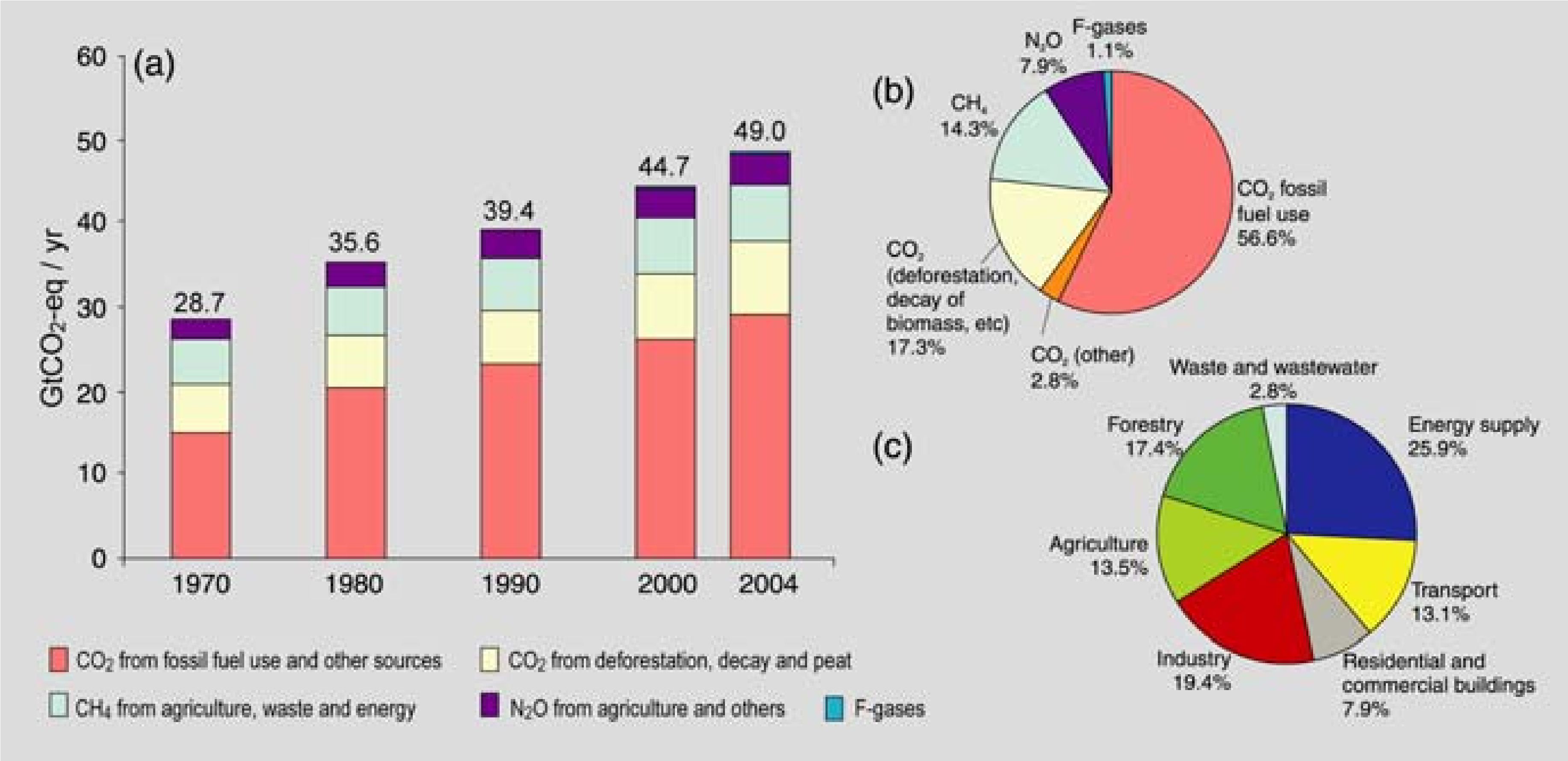
The challenge for limiting temperature increase to 2 degrees C above pre-industrial

Stababilization level (ppm CO_2-eq)	Global Mean temperature increase at equilibrium (ºC)	Year global CO_2 needs to peak	Year global CO_2 emissions back at 2000 level	Reduction in 2050 global CO_2 emissions compared to 2000
445 – 490	2.0 – 2.4	2000 - 2015	2000- 2030	-85 to -50
490 – 535	2.4 – 2.8	2000 - 2020	2000- 2040	-60 to -30
535 – 590	2.8 – 3.2	2010 - 2030	2020- 2060	-30 to +5
590 – 710	3.2 – 4.0	2020 - 2060	2050- 2100	+10 to +60
710 – 855	4.0 – 4.9	2050 - 2080		+25 to +85
855 – 1130	4.9 – 6.1	2060 - 2090		+90 to +140

Implications for international agreements

Scenario category	Region	2020	2050
A-450 ppm CO_2 –eq[2)]	Annex I	-25% to -40%	-80% to -95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia	Substantial deviation from baseline in all regions
B-550 ppm CO_2 -eq	Annex I	-10% to -30%	-40% to -90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East
C-650 ppm CO_2 -eq	Annex I	0% to -25%	-30% to -80%
	Non-Annex I	Baseline	Deviation from baseline in Latin America and Middle East, East Asia

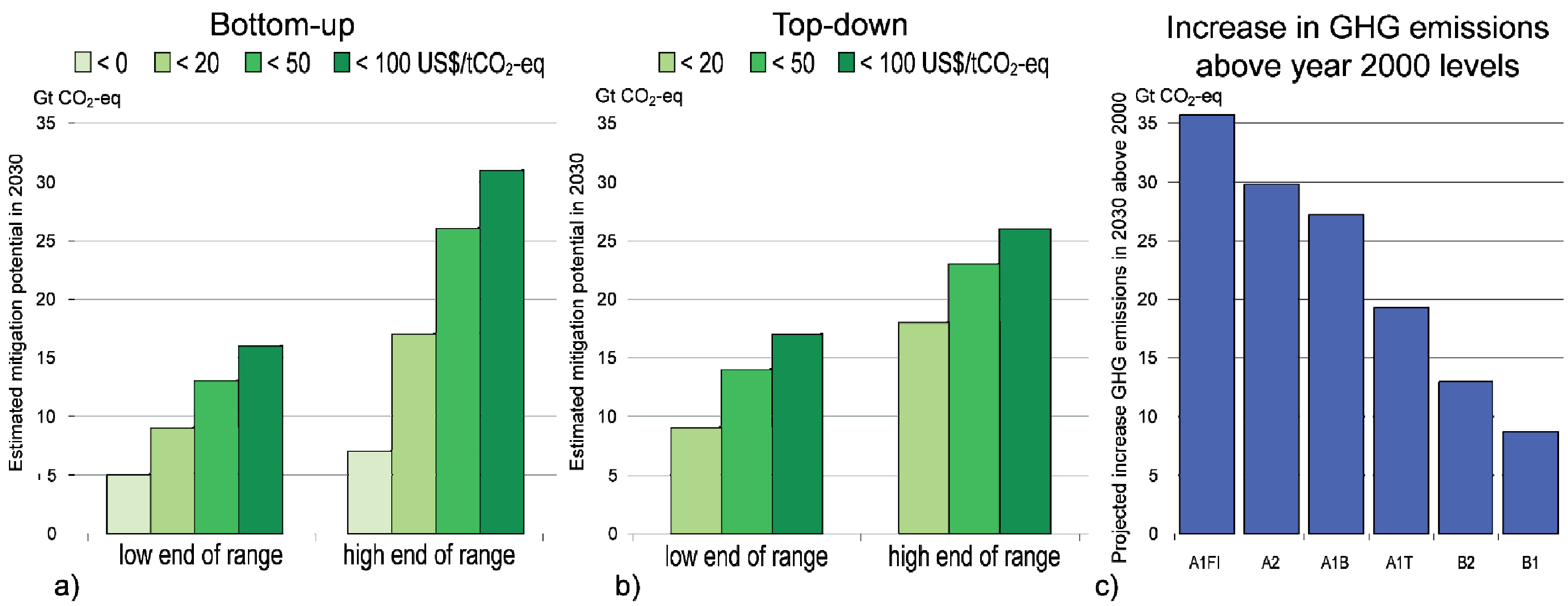
Emissions of Greenhouse Gases increased by 70% between 1970 and 2004



Economic mitigation potential in 2030 could offset the projected growth of global emissions, or reduce emissions below current levels

Potential decrease

Projected increase 25-90% above 2000



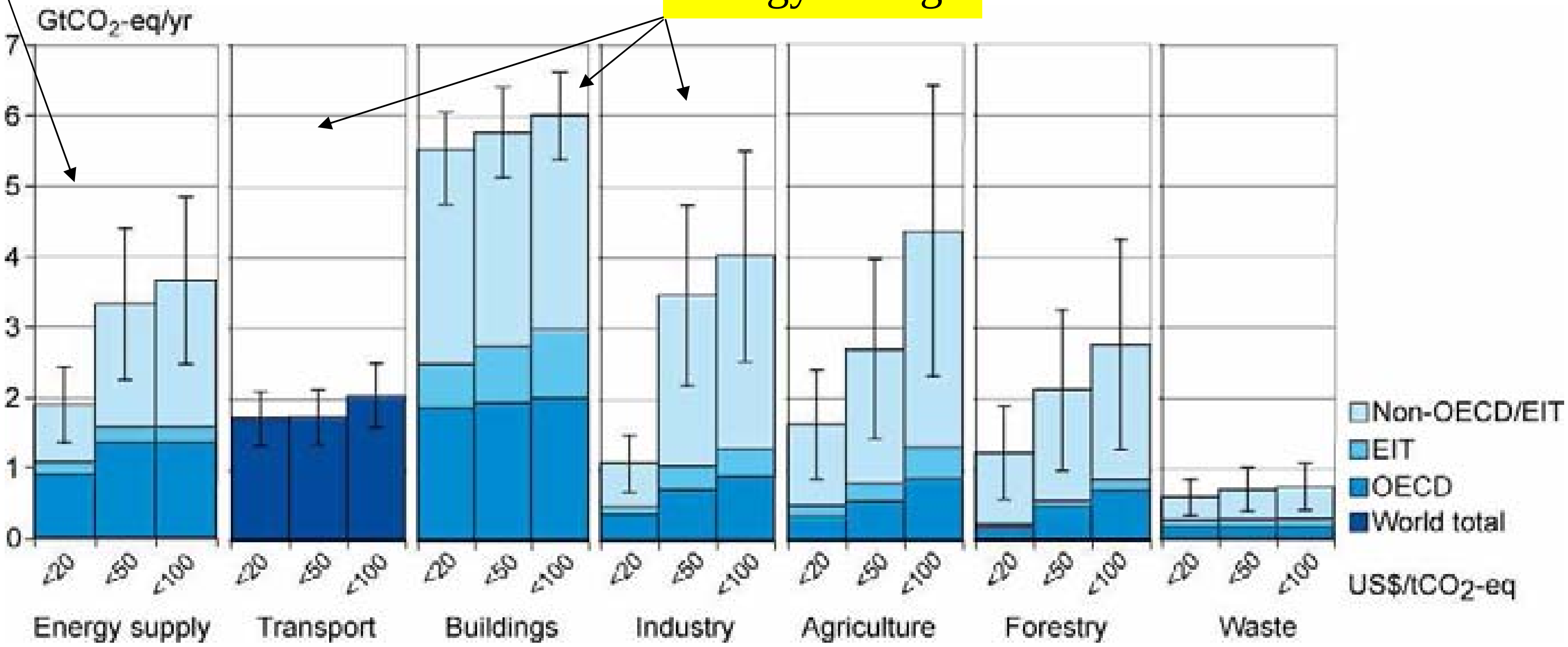
What does US$ 50/ tCO_2eq mean?

- Crude oil: ~US$ 25/ barrel
- Gasoline: ~12 ct/ litre (50 ct/gallon)
- Electricity:
  - from coal fired plant: ~5 ct/kWh
  - from gas fired plant: ~1.5 ct/kWh

All Sectors and Regions have potential to contribute to CC mitigation

Changing energy source

Energy savings



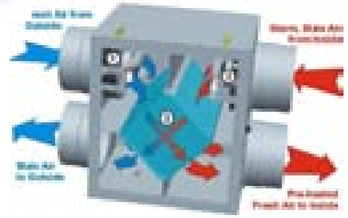
Note: estimates are for 2030 and do not include non-technical options, such as lifestyle changes.

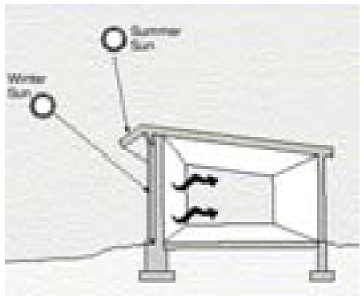
Mitigation potential in energy supply

- Potential share of global electricity supply in 2030 for carbon prices < US$50/tCO2eq:
  - Renewable energy: 30-35% (now 18%)
  - Nuclear energy: 18% (now 16%) (warning)
  - Coal with CCS: 9%

Building sector potential

- About 30% of projected GHG emissions by 2030 can be avoided with net economic benefit.
- New buildings: >75% savings compared to current (at low to zero additional cost)
- Barriers include availability of technologies, financing, cost of reliable information and limitations in building designs




Changes in lifestyle and behaviour patterns can contribute to climate change mitigation

- Changes in occupant behaviour, cultural patterns and consumer choice in buildings.
- Behaviour of staff in industrial organizations in light of reward systems
- Reduction of car usage and efficient driving style, in relation to urban planning and availability of public transport

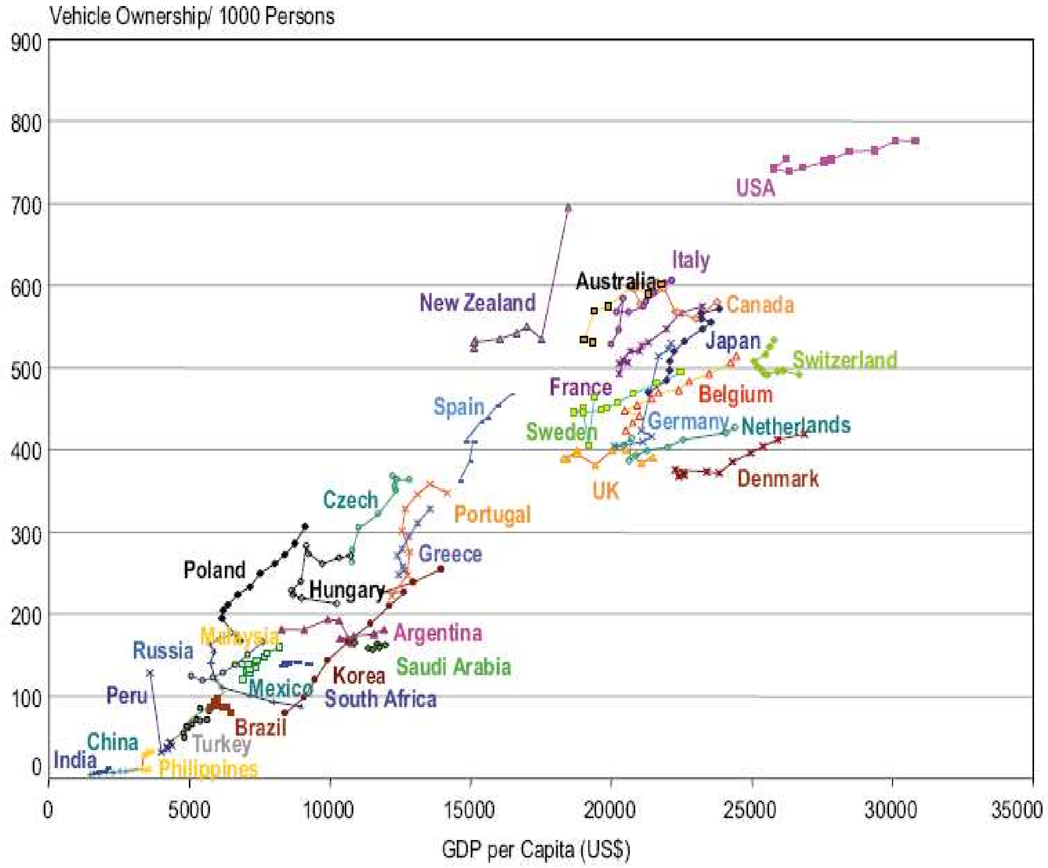


Figure TS.14: *Vehicle ownership and income per capita as a time line per country [Figure 5.2].*

Note: data are for 1900–2002, but the years plotted vary by country, depending on data availability.

Co-benefits of mitigation

- Near–term *health benefits* from reduced air pollution may offset a substantial fraction of mitigation costs

- Mitigation can also be positive for: *energy security*, *balance of trade improvement*, *provision of modern energy services to rural areas*, *sustainable agriculture* and *employment*

Technology

- The range of stabilization levels can be achieved by
  - deployment of a portfolio of technologies that are currently available and
  - those that are expected to be commercialised in coming decades

- This assumes that appropriate and effective incentives are in place for development, acquisition, deployment and diffusion of technologies and for addressing related barriers

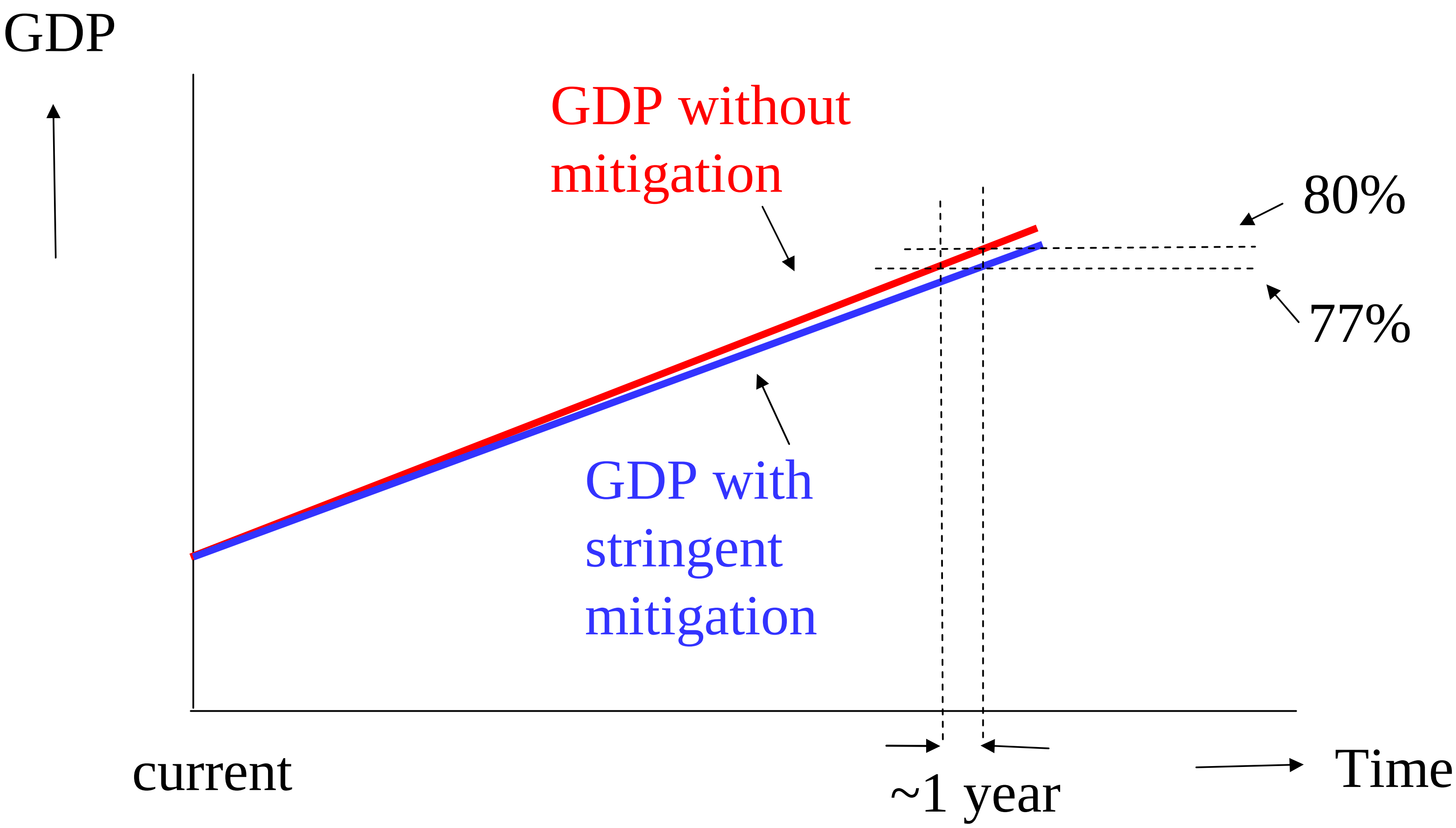
Macro-economic costs

Stabilisation levels (ppm CO_2-eq)	Median GDP reduction [a] (%)		Range of GDP reduction [b] (%)		Reduction of average annual GDP growth rates (percentage points) [b], [c]	
	2030	2050	2030	2050	2030	2050
590 – 710	0.2	0.5	-0.6 to 1.2	-1 to 2	< 0.06	< 0.05
535 – 590	0.6	1.3	0.2 to 2.5	slightly negative to 4	< 0.1	< 0.1
445 – 535 [d]	Not available		< 3	< 5.5	< 0.12	< 0.12

•Costs are global average for least cost appoaches from top-down models

•Costs do NOT include co-benefits and avoided climate change damages

Illustration of cost numbers



Climate change policies

- Many barriers for implementing low-cost mitigation measures
- Effectiveness of policies depends on national circumstances, their design, interaction, stringency and implementation
- Types of policies:
    - Regulations and standards
    - Taxes and charges
    - Tradable permits
    - Financial incentives
    - Voluntary agreements
    - Information instruments
    - Research and development

An effective carbon-price signal could realise significant mitigation potential in all sectors

- Policies that provide a real or implicit price of carbon could create incentives for producers and consumers to significantly invest in low-GHG products, technologies and processes.

- Such policies could include economic instruments, government funding and regulation

- For stabilisation at around 550 ppm CO2eq carbon prices should reach 20-80 US$/tCO2eq by 2030 (5-65 if "induced technological change" happens) <> current EU-ETS price:~ $25/t; CDM price $ 5-15/t

- But… do not forget the co-benefits

Investments

- Energy infrastructure investment decisions, (20 trillion US$ till 2030) will have long term impacts on GHG emissions.
- The widespread diffusion of low-carbon technologies may take many decades, even if early investments in these technologies are made attractive.
- Returning global energy-related CO2 emissions to 2005 levels by 2030 would require a large shift in the pattern of investment, although the net additional investment required ranges from negligible to 5-10%
- It is often more cost-effective to invest in end-use energy efficiency improvement than in increasing energy supply

Climate policy alone will not solve the climate change problem

- *Macro-economic policy*: taxes, subsidies, other fiscal policies, structural adjustment
- *Trade policy: "*embodied carbon", removing barriers for low-carbon products, domestic energy sources
- *Energy security policy :* efficient energy use, domestic energy sources (low-high carbon)
- *Access to modern energy:* bioenergy, poverty tariffs
- *Air quality policy:* clean fuel
- *Bank lending policies*: lending for efficiency/ renewables, avoid lock-in into old technologies in developing countries
- *Insurance policy:* Differentiated premiums, liability insurance exclusion, improved conditions for green products

International agreements

- ***Notable achievements of the UNFCCC/Kyoto Protocol that may provide the foundation for future mitigation efforts***:
  - global response to the climate problem,
  - stimulation of an array of national policies,
  - the creation of an international carbon market and
  - new institutional mechanisms
- ***Future agreements***:
  - Greater cooperative efforts to reduce emissions will help to reduce global costs for achieving a given level of mitigation, or will improve environmental effectiveness
  - Improving, and expanding the scope of, market mechanisms (such as emission trading, Joint Implementation and CDM) could reduce overall mitigation costs

The full WG III Report and the Synthesis Report can be downloaded from www.mnp.nl/ipcc

Further information:

IPCC Working Group III Technical Support Unit
at the Netherlands Environmental Assessment Agency:
ipcc3tsu@mnp.nl

Back-up slides

Technological learning

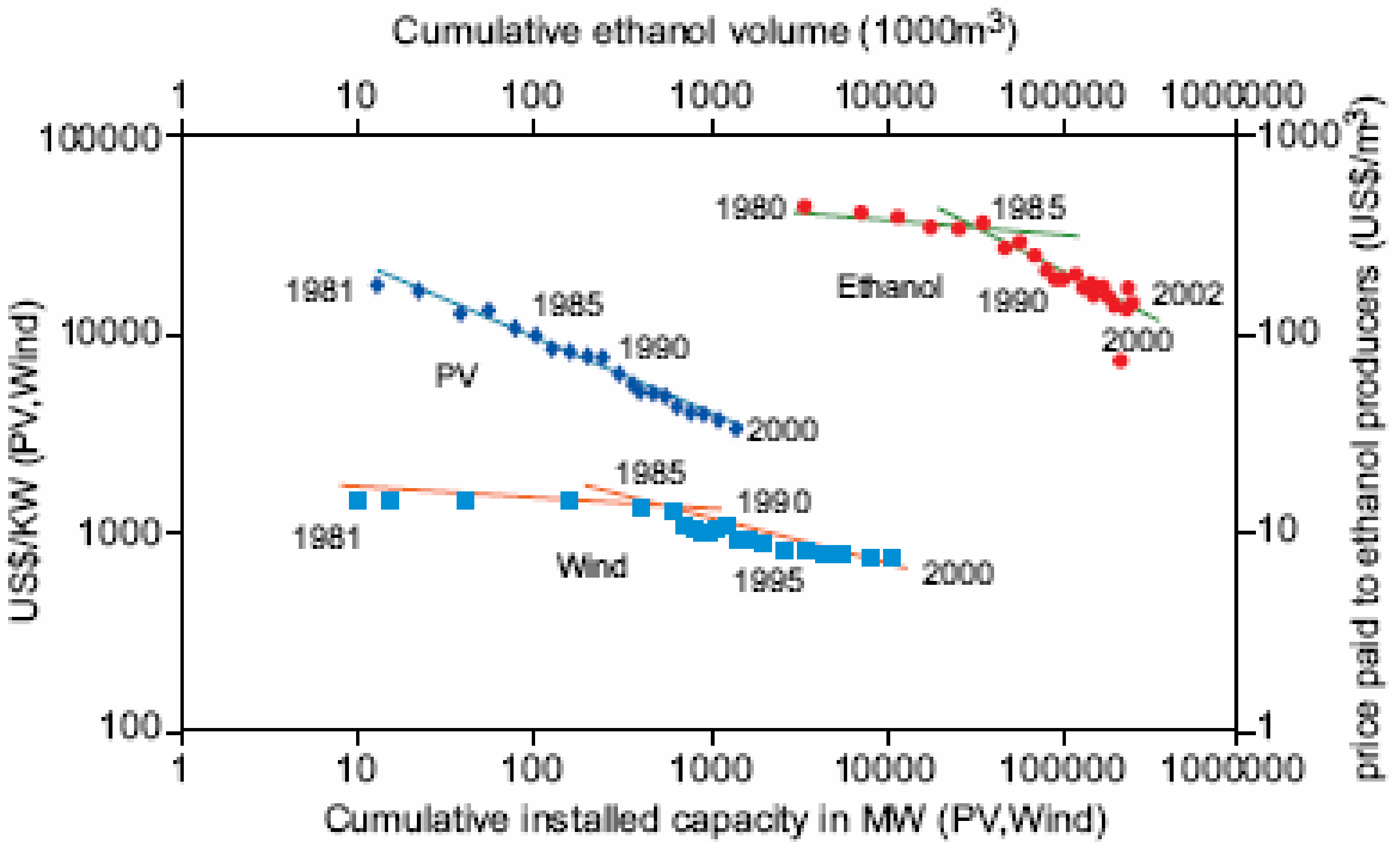


Figure 4.11: *Investment costs and penetration rates for PV, wind and bioethanol systems showing cost reductions of 20% due to technological development and learning experience for every doubling of capacity once the technology has matured.*

Source: Johansson et al., 2004.

How can emissions be reduced?

Sector	**(Selected) Key mitigation technologies and practices currently commercially available.**	**Key mitigation technologies and practices projected to be commercialized before 2030. (Selected)**
Industry	• More efficient electrical equipment; • heat and power recovery; • material recycling; • control of non-CO_2 gas emissions	• Advanced energy efficiency; • CCS for cement, ammonia, and iron manufacture; • inert electrodes for aluminium manufacture

“The newest plants tend to have the best energy performance, and many of them are located in developing countries, which now account for 57% of nitrogen fertilizer production”

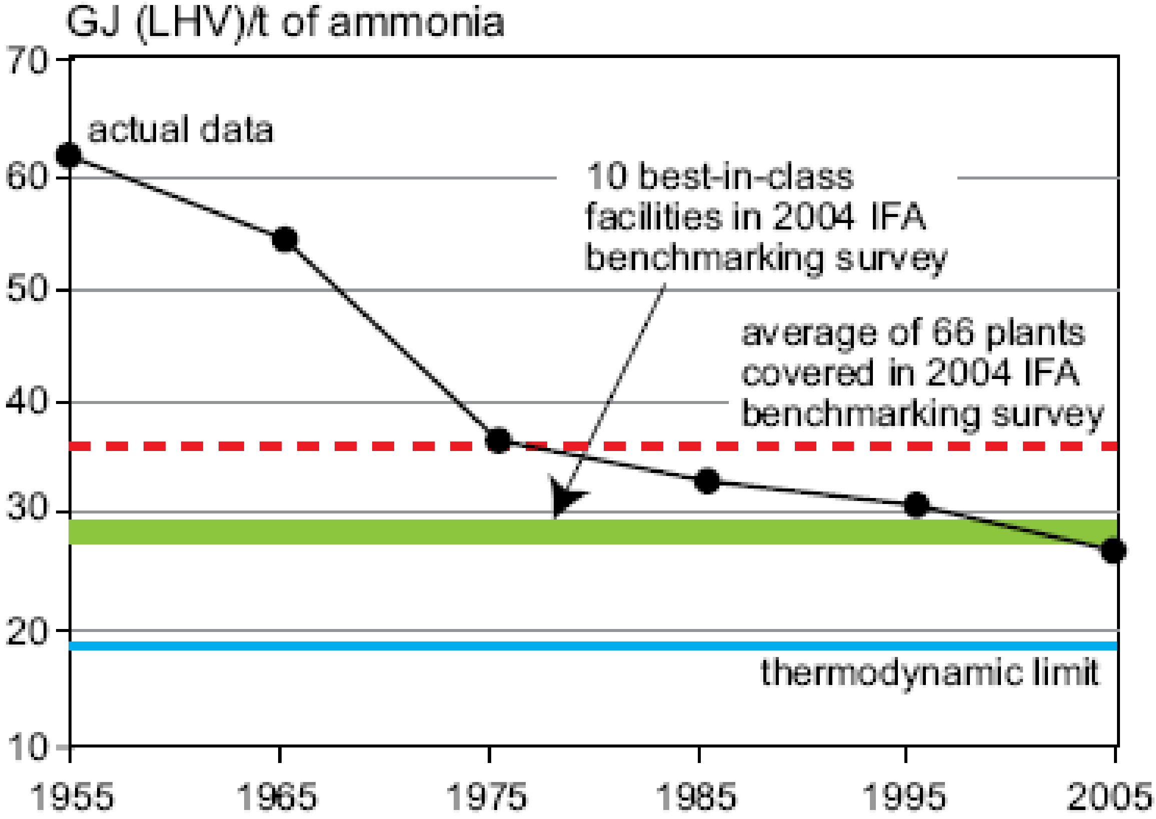


Figure 7.2: *Design energy consumption trends in world ammonia plants*

Sources: Chaudhary, 2001; PSI, 2004.

What are the macro-economic costs in 2030?

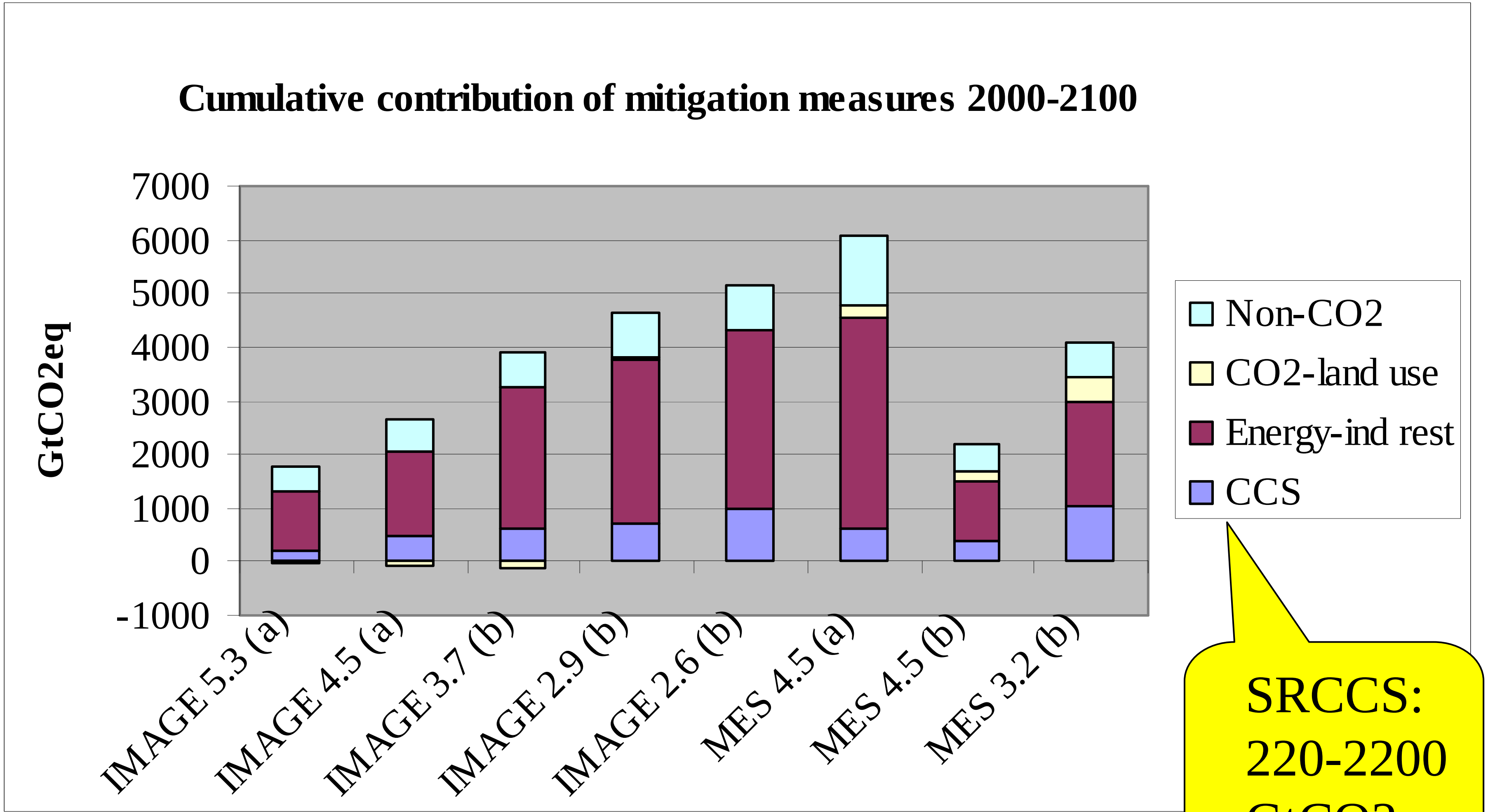
•Costs are global average for least cost appoaches from top-down models

•Costs do not include co-benefits and avoided climate change damages

Trajectories towards stabilization levels (ppm CO_2-eq)	Median GDP reduction[1] (%)	Range of GDP reduction [2] (%)	Reduction of average annual GDP growth rates [3] (percentage points)
590-710	0.2	-0.6 – 1.2	< 0.06
535-590	0.6	0.2 – 2.5	<0.1
445-535[4]	Not available	< 3	< 0.12

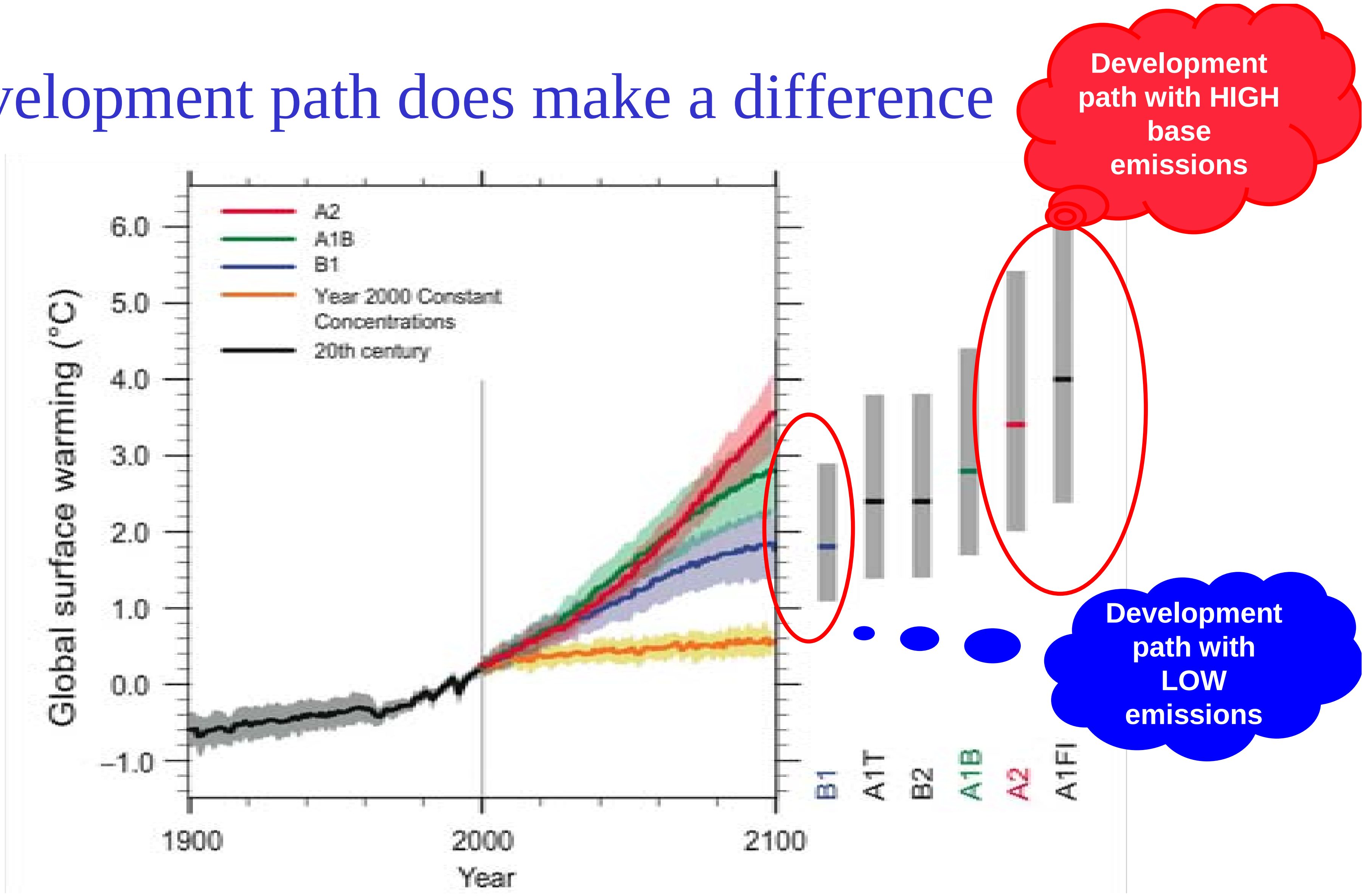
[1] This is global GDP based market exchange rates.
[2] The median and the 10th and 90th percentile range of the analyzed data are given.
[3] The calculation of the reduction of the annual growth rate is based on the average reduction during the period till 2030 that would result in the indicated GDP decrease in 2030.
[4] The number of studies that report GDP results is relatively small and they generally use low baselines.

The share of CCS



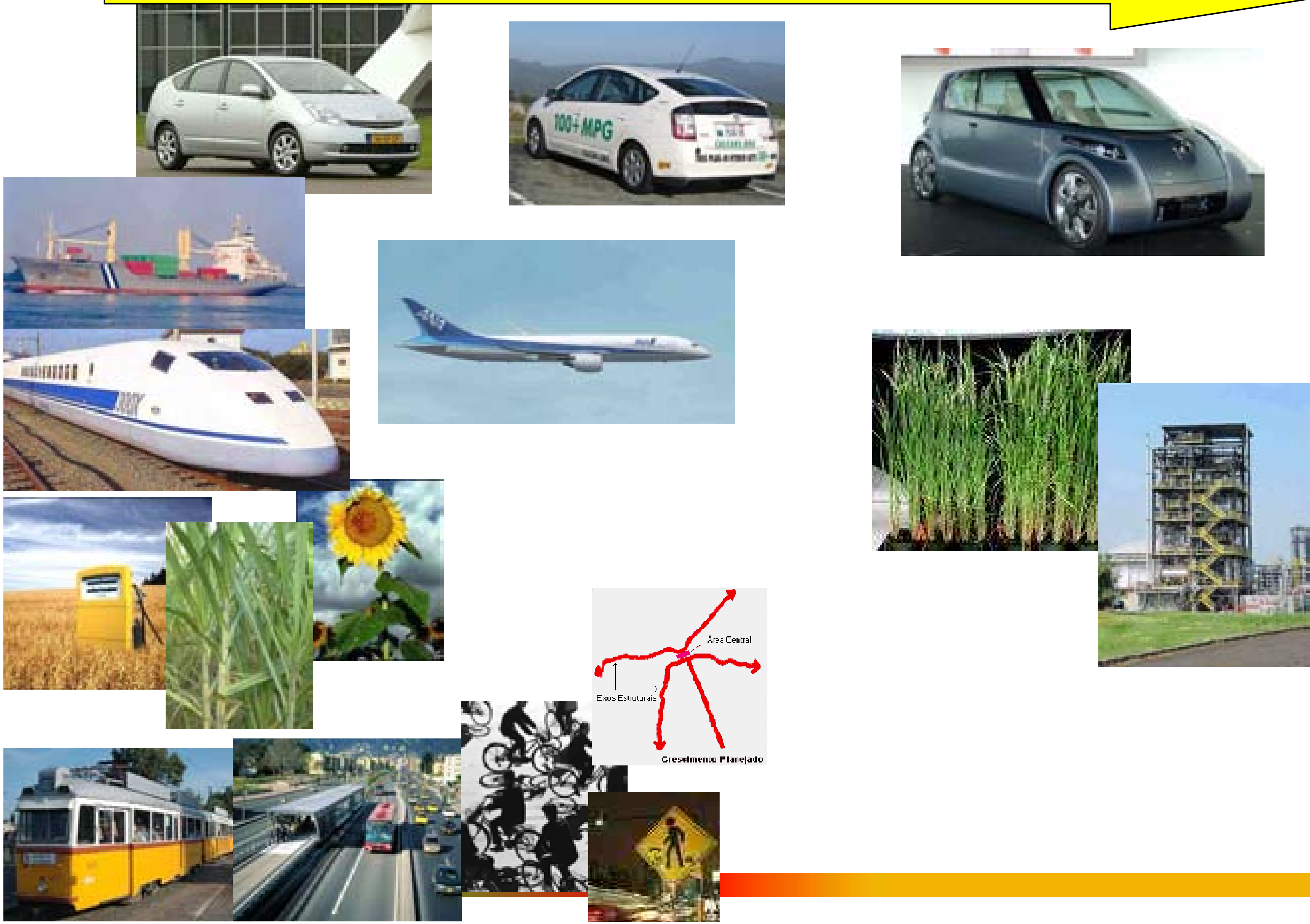
SRCCS: 220-2200 GtCO2

Development path does make a difference

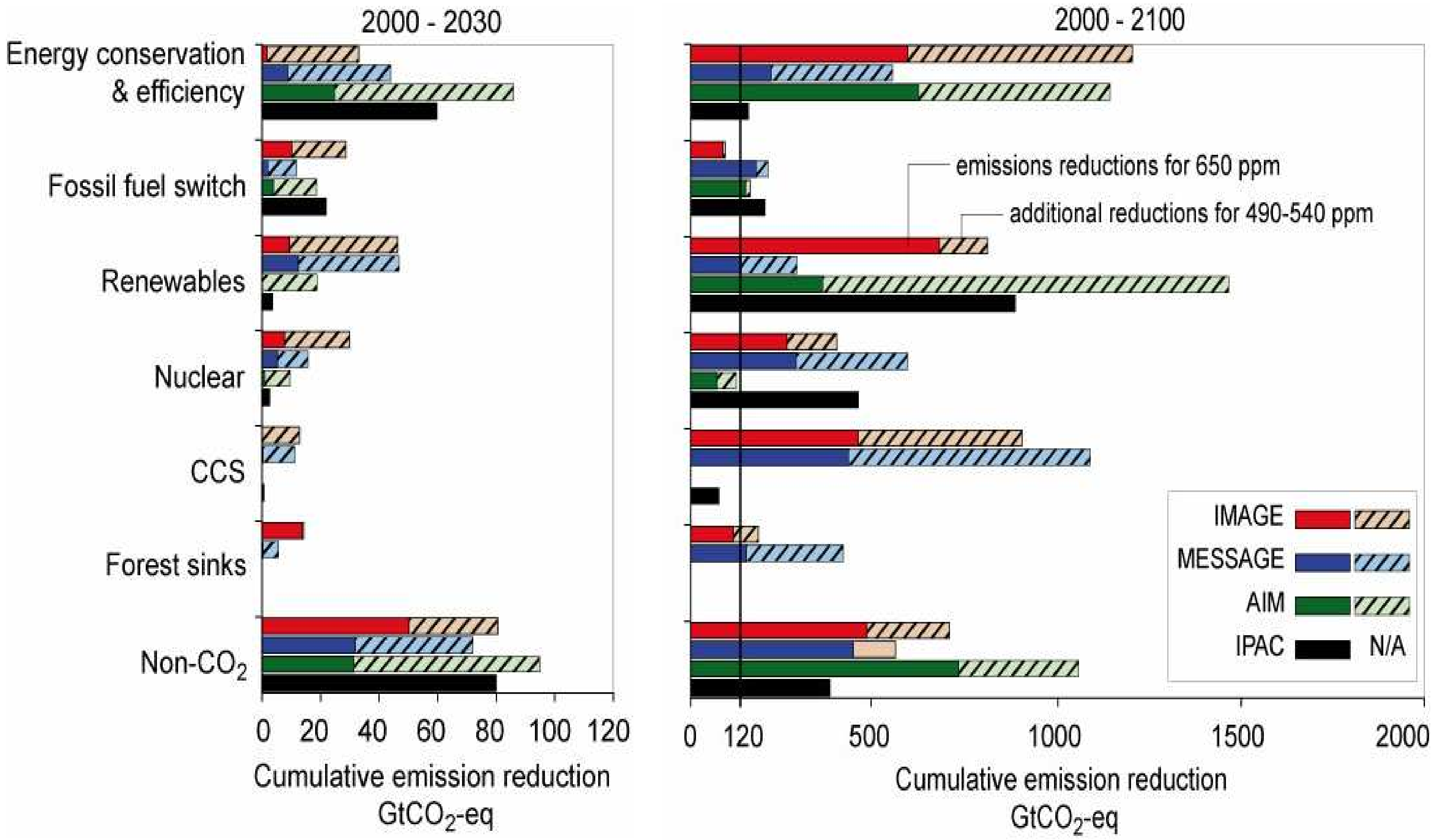


Commercial transport mitigation technologies

NOW → 2030



The role of mitigation technologies



Changes in primary energy mix

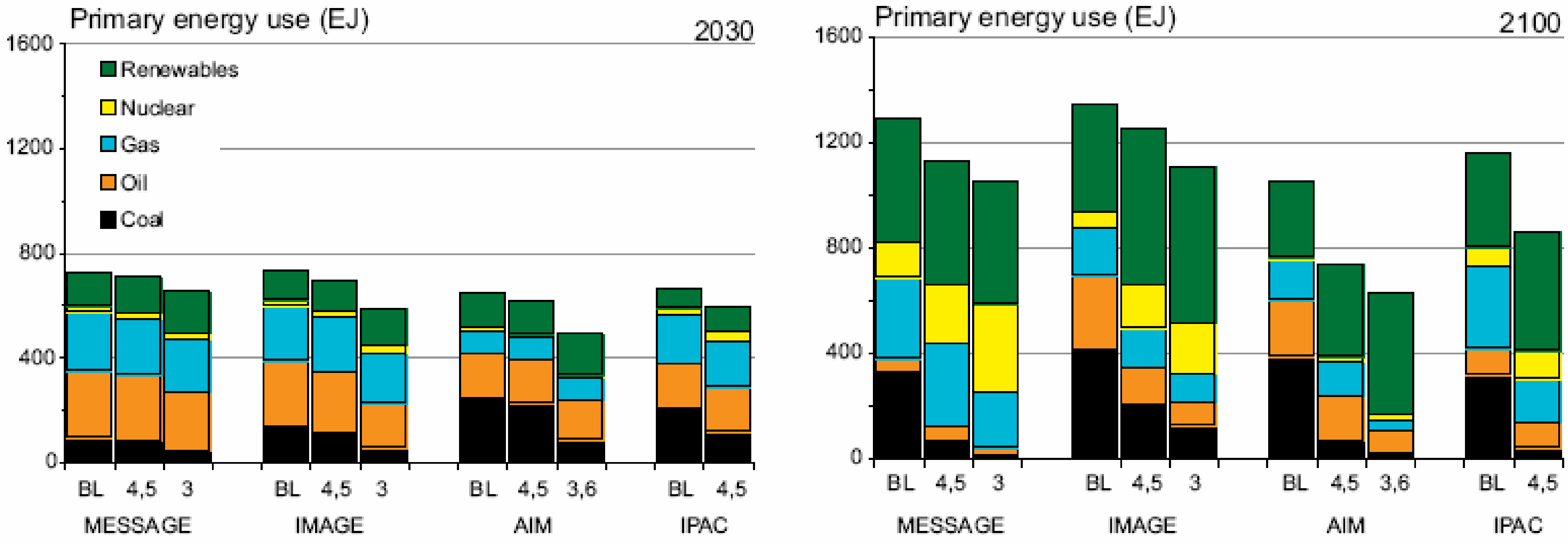


Figure 3.24: *Primary energy mix for the years 2030 and 2100. Illustrative scenarios aim at stabilizing radiative forcing at low (3–3.6 W/m²) and intermediate levels (4.5 W/m2) respectively.*

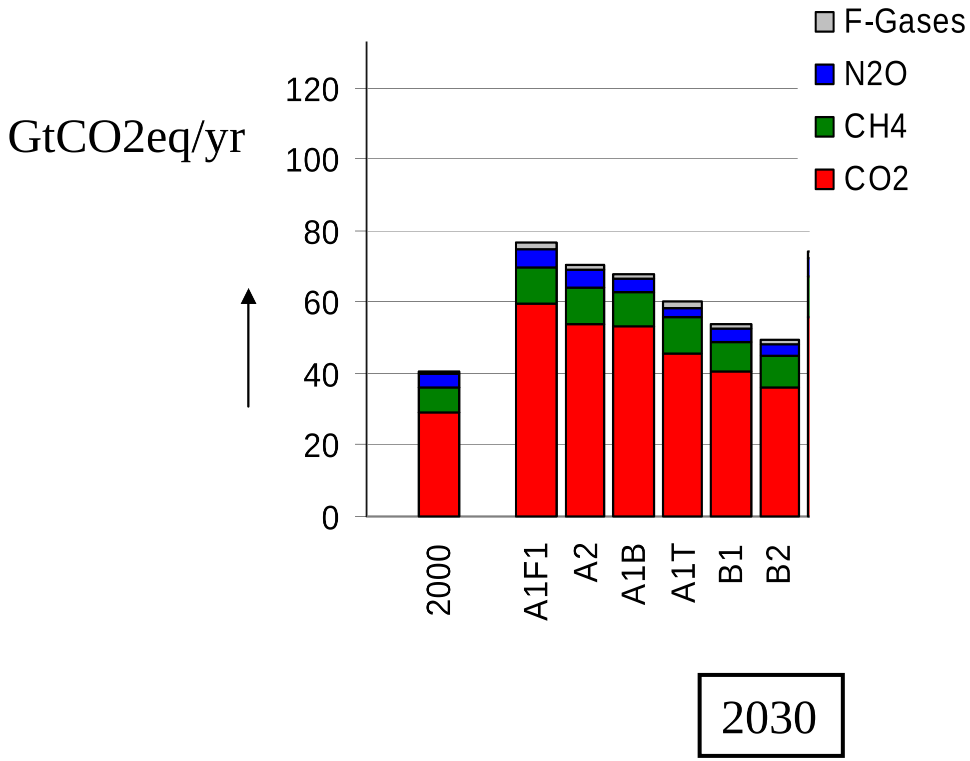
Note: BL= Baseline. For the corresponding contribution of individual mitigation measures in (in $GtCO_2$) see also Figure 3.23.

With current climate change mitigation policies *and related sustainable development practices*, global GHG emissions will continue to grow over the next few decades

- IPCC SRES scenarios: 25-90 %

  increase of GHG emissions

  in 2030 relative to 2000



The importance of technology policies

- The lower the stabilization levels (550 ppm CO2-eq or lower) the greater the need for more efficient *RD&D efforts* and *investment* in new technologies during the next few decades
- Government support is important for effective technology development, innovation and deployment through
    - financial contributions,
    - tax credits,
    - standard setting
    - market creation.
- BUT, government funding for most energy research programmes has been declining for nearly two decades: now about half of 1980 level.

Mitigation potential in the transport sector till 2030

- Goods transport, public transport: not quantified
- Vehicle efficiency: net benefits (many cases), but big barriers
- Aviation: efficiency, but not offsetting growth
- Biofuel potential :
  - Depends on production pathway, vehicle efficiency, oil and carbon prices
  - 3% of global transport energy in 2030; 5-10% , if cellulose biomass is commercialised
  - Watch out for: local land and water availability, competition with food

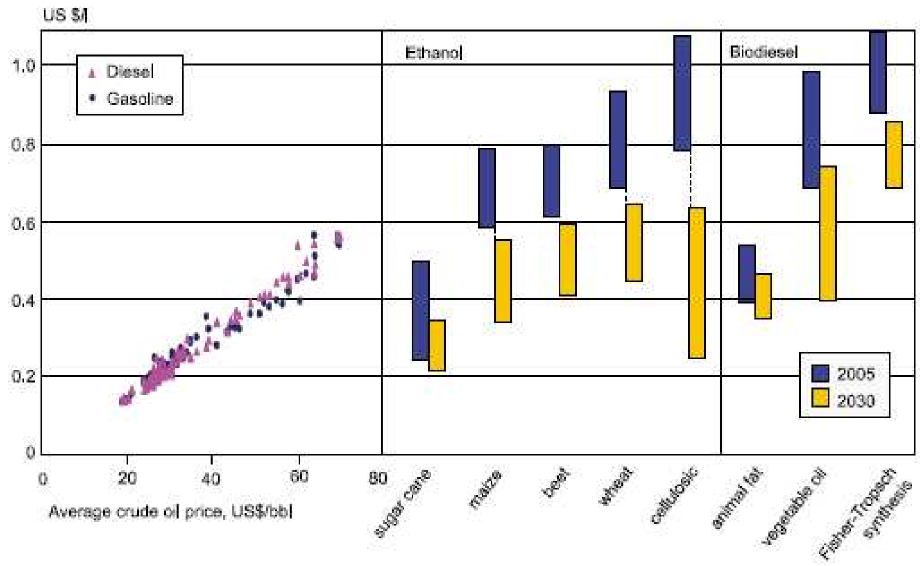


Figure TS.16: Comparison between current and future biofuels production costs versus gasoline and diesel ex-refinery (fob) prices for a range of crude oil prices [Figure 5.9].
Note: prices excl. taxes

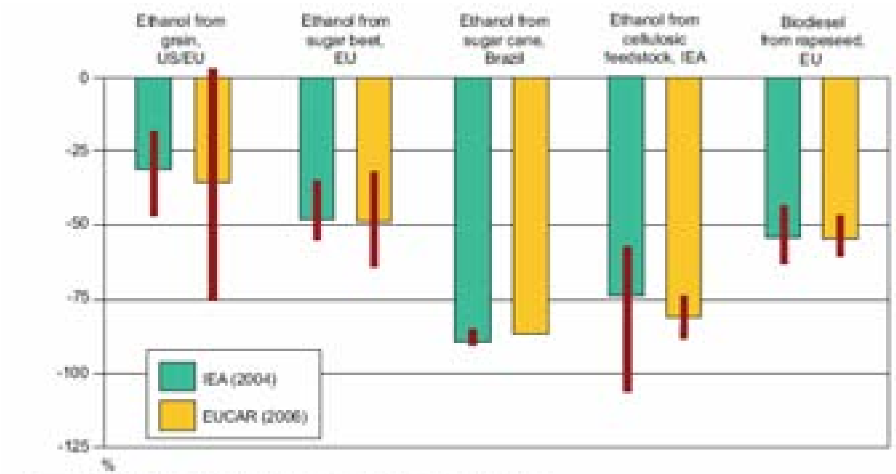


Figure 5.10: Reduction of well-to-wheels GHG emissions compared to conventionally fuelled vehicles
Note: bars indicate range of estimates.
Source: IEA, 2004; EUCAR/CONCAWE/JRC 2006

Bali and the Post-2012 Process

What needs to be achieved in Bali and beyond?

European Climate Forum Conference

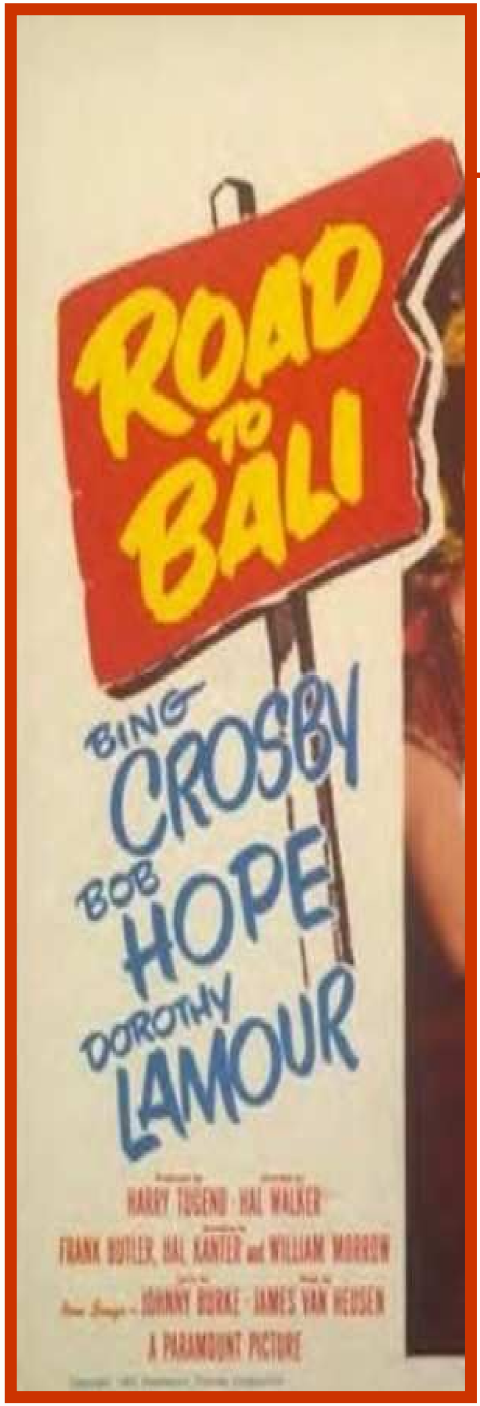
"What's Next – Policy responses to the Fourth IPCC Assessment Report (AR 4)"

Berlin, 23 November 2007

Richard Kinley
Deputy Executive Secretary
UNFCCC secretariat
http://unfccc.int

2007 | Unprecedented Momentum

- **AR4: Science settled unequivocally**
- **World Leaders**
- **Business community**
- **National climate change policies and initiatives**
- **International climate policy: turning point**



The Eve of Bali | Political imperative

- **The eyes of the world**
  - ➔ **UN Climate Change Conference in Bali, 3-14 December 2007**
- **Conference scale**
  - ➔ **Beyond Kyoto**
- **Political imperative**
  - ➔ **"Today, the world's scientists have spoken, clearly and with one voice. In Bali, I expect the world's policymakers to do the same."**
- **What must Bali delivery**
  - ➔ **Launch an intensive global effort to design a post-2012 agreement**

Breakthrough in Bali | What is success?

- **Decision to negotiate a comprehensive post-2012 agreement ➔ Strong support**
- **Establishment of a negotiating process with an agenda and clear tasks**
  - **➔ Working Group under Convention**
- **Agreement on a timeframe ➔ 2009**
- **To meet this deadline**
  - **➔ Early start, elect officers, both a formal and an informal discussion**
- **Progress with on current discussions**
  - **➔ Clear progress under the AWG**
  - **➔ Agreement on the Adaptation Fund**

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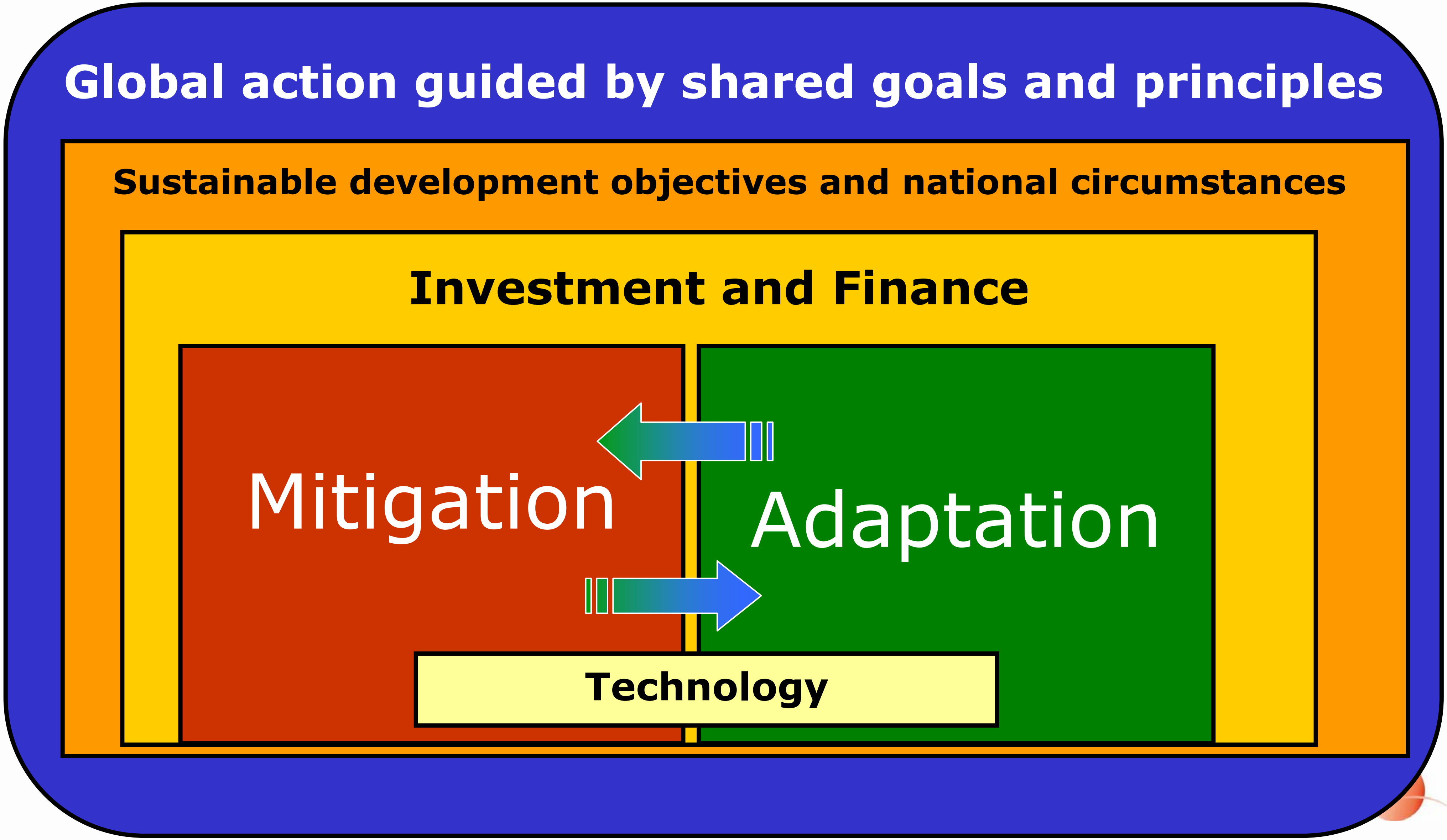
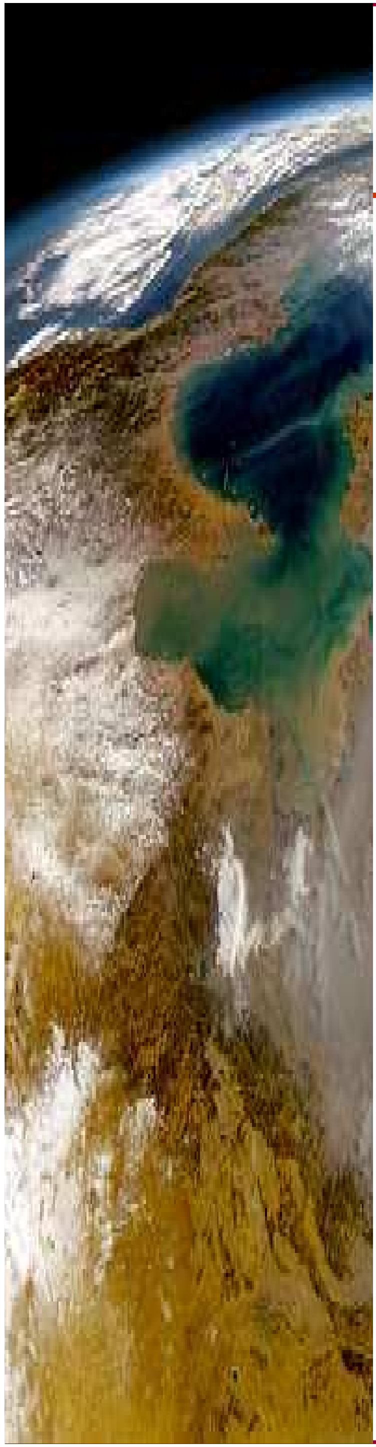
Building blocks | Intensive design process





Closing remarks | Bali

- **Remarkable year of momentum**
  - ➔ **Intense negotiations await**
- **Turn a broad consensus into a decision that leads the way forward**

Details

- **Important to remember**
  - ➔ **What needs to be agreed and what does not**
- **"What we do in the next two or three years will define our future".**

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