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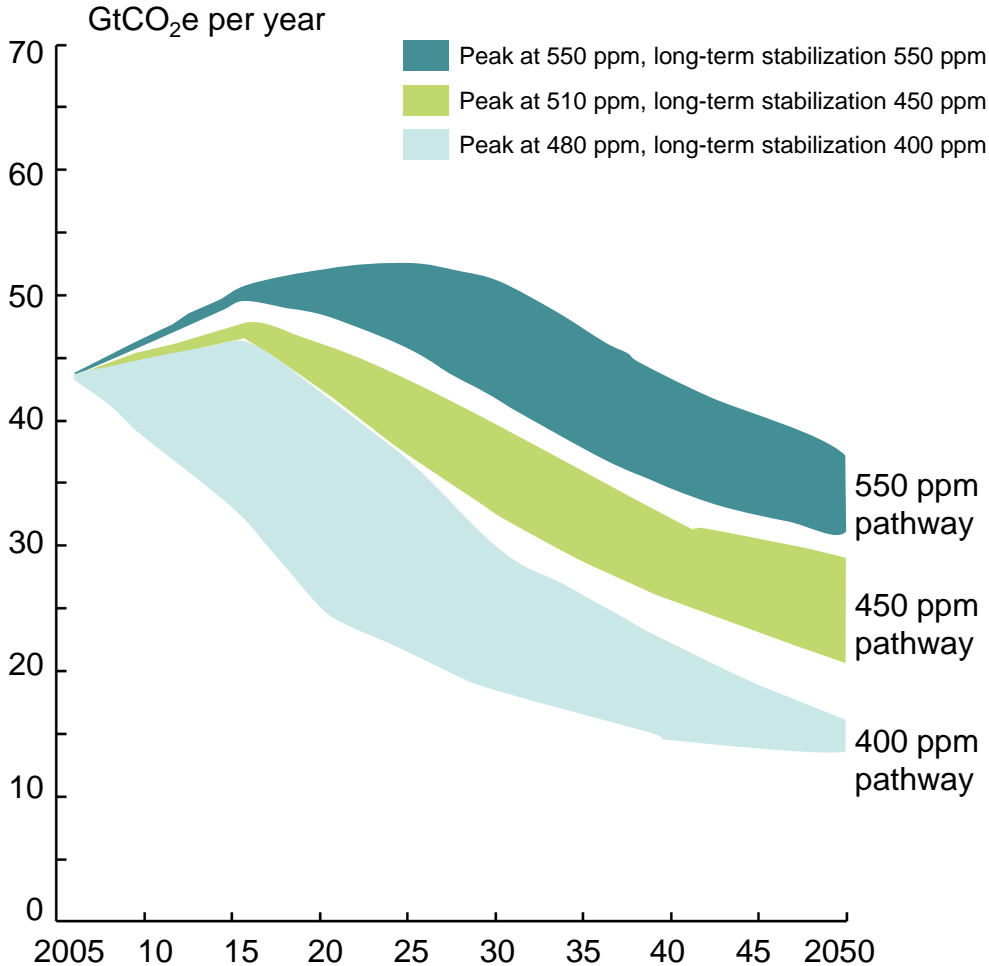
Towards a global climate change agreement  
Side event Bonn, June 6, 2009

- **Initiative** of the ClimateWorks Foundation, a global, non-profit philanthropic foundation headquartered in San Francisco, California with a network of affiliated foundations in China, India, and the European Union
- **Launched** in May 2008 to provide analytical and policy support for the United Nations Framework Convention on Climate Change (UNFCCC) negotiations on a post-Kyoto international climate agreement
- **Provide** a forum where key participants in the global discussions can informally interact, conduct analyses, jointly problem solve, and contribute ideas and proposals to the formal UNFCCC process
- **Organized** in five working groups: mitigation, adaptation, technology, forestry, and finance with a total of about 150 climate negotiators, senior government officials, representatives of multilateral institutions, business executives, and leading experts from over 30 countries. Analytical support from the international consulting firm, McKinsey & Company

# Scientific evidence suggests that a 450ppm CO<sub>2</sub>e pathway with overshoot gives a 40–60% probability to limit global warming to 2 degrees

Probability of temperature increase under 2°C	Expected temperature increase
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## Global GHG emissions and pathways for GHG stability



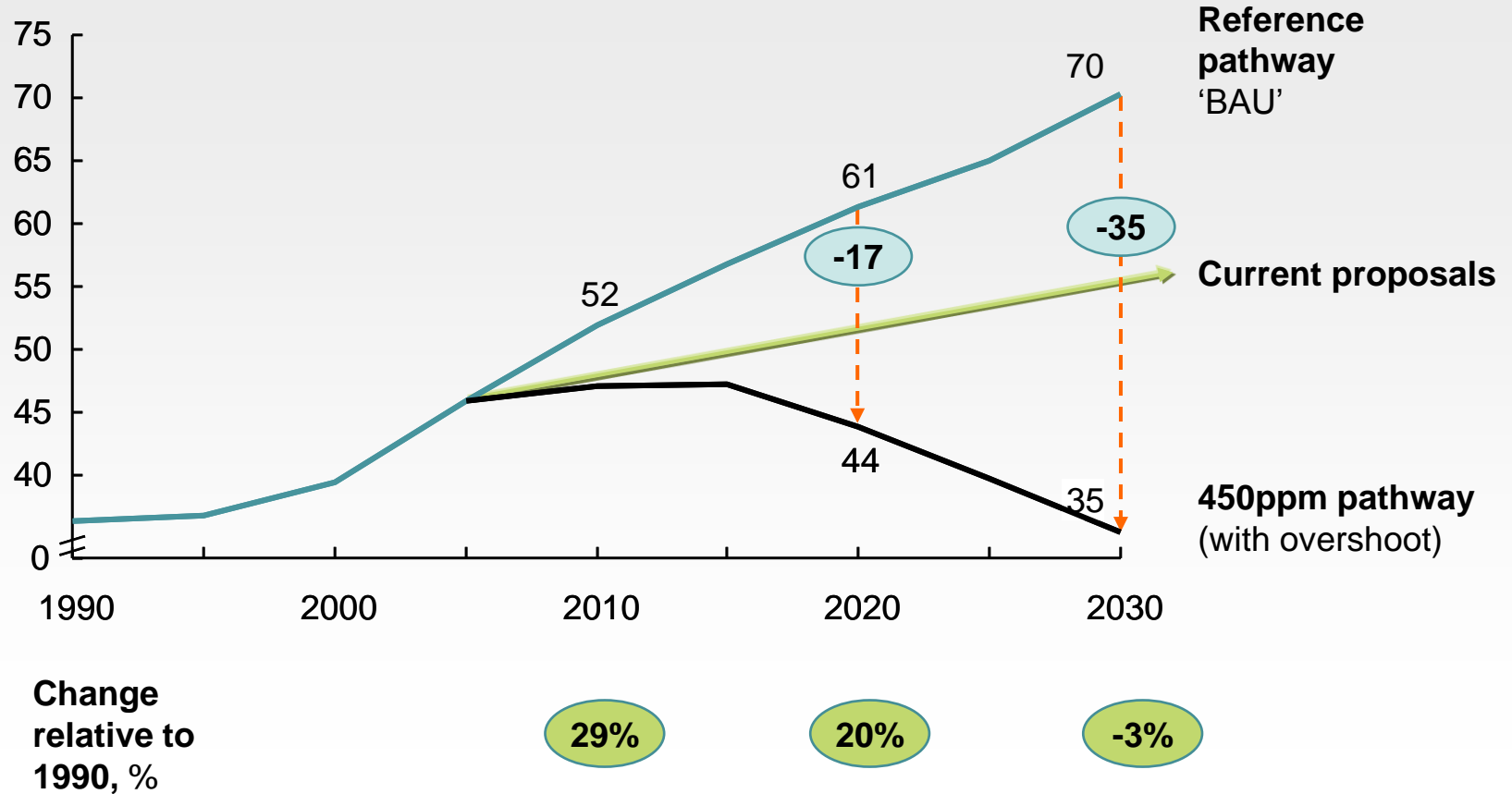
15–30	3.0°C
40–60	2.0°C
70–85	1.8°C

- 450ppm is not safe – it has a 40–60% probability of warming exceeding 2°C
- Even 2°C will require significant investment in adaptation

\* Climate impact estimates for current proposals calculated using C-ROADS model

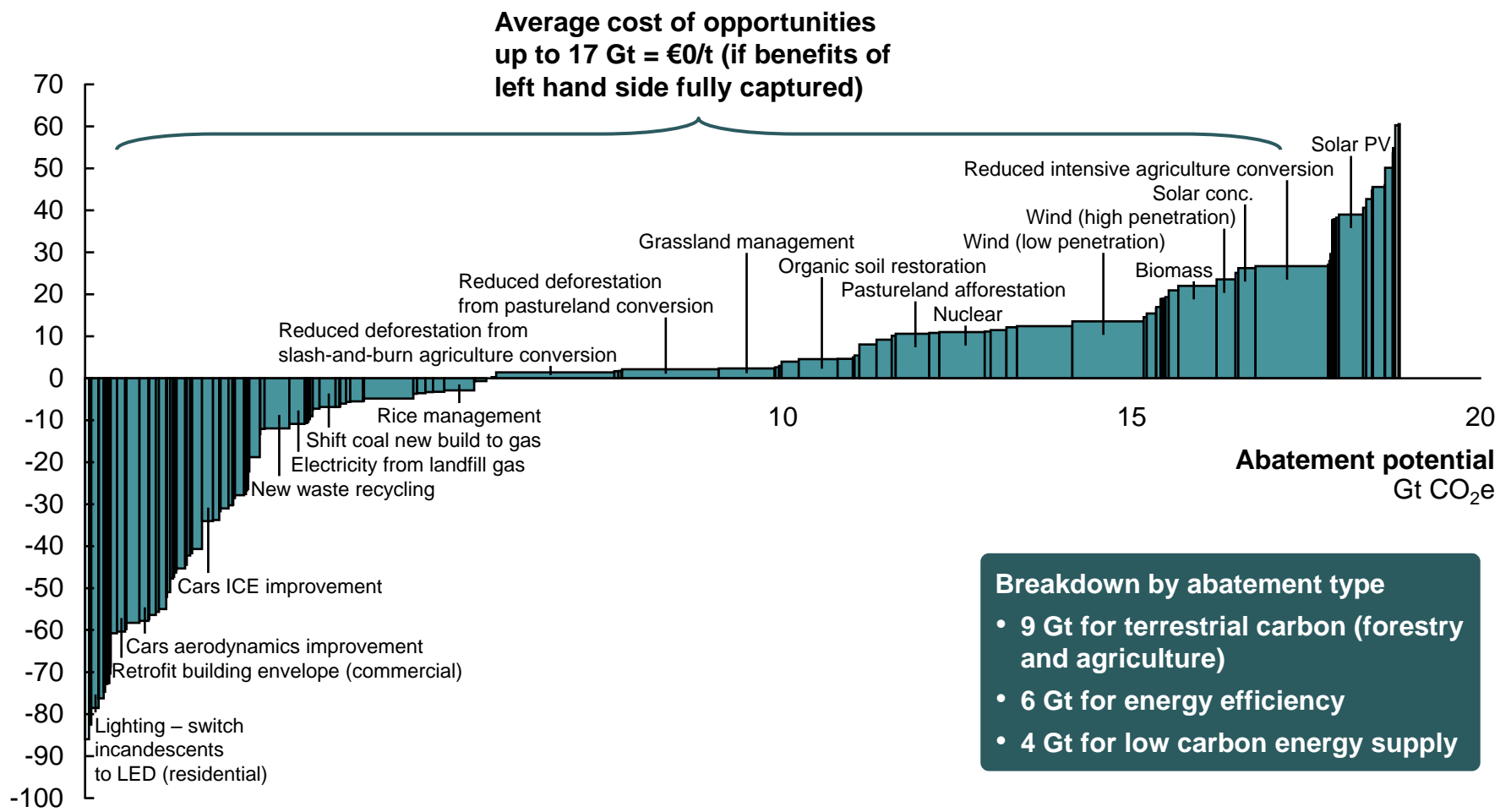
# 17 Gt of reductions below 'BAU' in 2020 are required for 450ppm: Current proposals put us on a 700-750 ppm path and 4 degree future

Global GHG emissions, Gt CO<sub>2</sub>e per year



# Opportunities to achieve a 450ppm pathway exist at under €60/t

Global abatement cost curve, 2020 (up to costs of €60/t, excluding transaction costs, 4% discount rate)



**Breakdown by abatement type**

- 9 Gt for terrestrial carbon (forestry and agriculture)
- 6 Gt for energy efficiency
- 4 Gt for low carbon energy supply

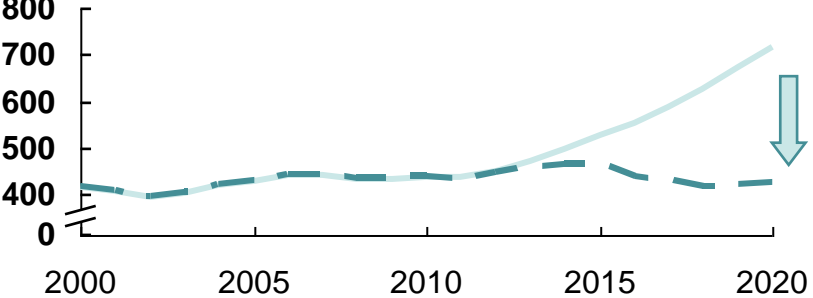
Source: McKinsey Global GHG Abatement Cost Curve v2.0

# Mexico example: investment in emissions reduction measures could increase GDP and create jobs

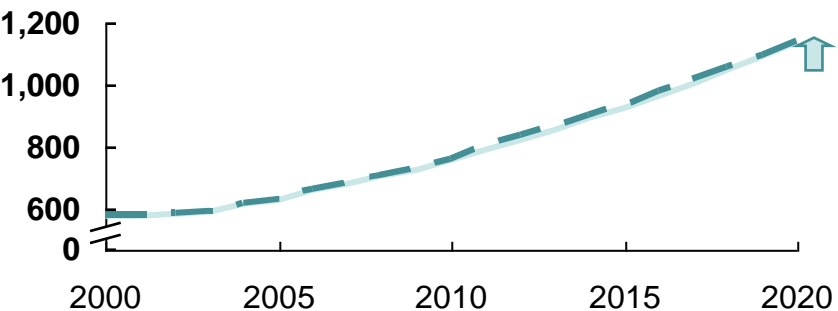
CO2 emissions, MtCO2e

— Reference case

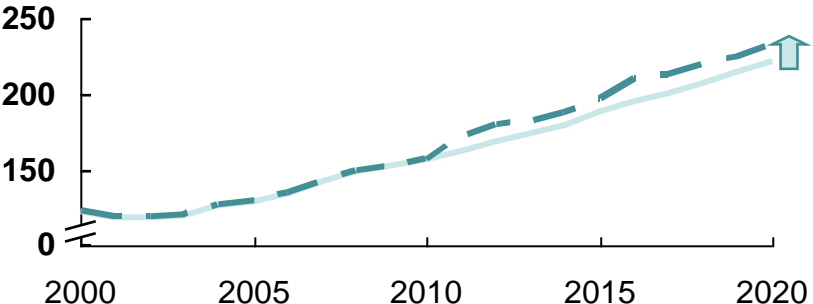
- - Low Carbon Scenario



GDP, USD billion (2000 constant)



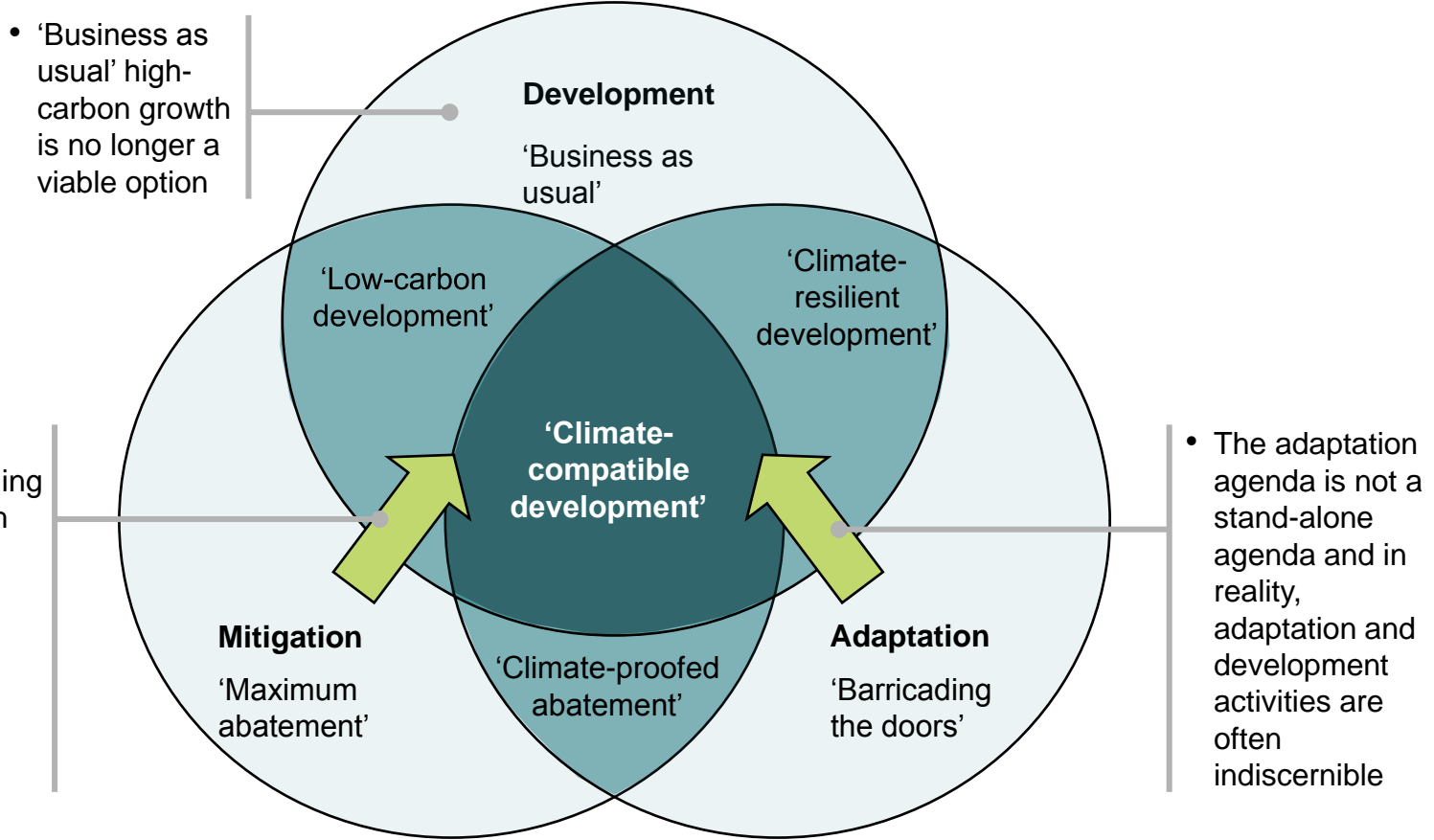
Investment, USD billion (2000 constant)



- Investment in low carbon technologies could stimulate the rest of the economy
- Economic growth could be increased by up to 1 percent
- The net impact on jobs is estimated as an *addition* of half a million jobs by 2030

Source: Cambridge Econometrics E3MG model; McKinsey analysis

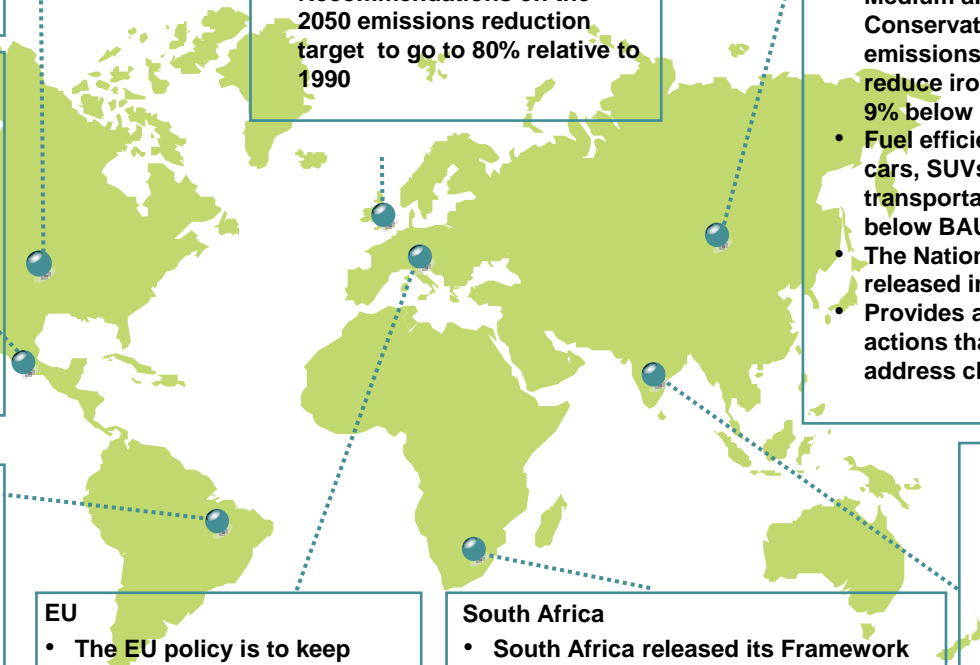
# 'Business as usual', high-carbon development is no longer an option, mitigation and adaptation are fundamental elements of development



# A number of countries are already implementing or have designed national strategies to get on low-carbon pathways

NOT EXHAUSTIVE

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### United States

- The Obama plan has the goal to reduce the GHG emissions 80% below the 1990 levels by 2050 by using a market-based cap and trade system

### Mexico

- The Special Program on Climate Change (PECC) will be launched in 2009
- It includes a voluntary commitment to reduce emissions 50% relative to 2000 baseline by 2050
- The program includes specific short-term and long-term initiatives to achieve this

### Brazil

- Program for Incentive of Alternative Electric Energy Sources (PROINFA): reduce electricity sector emissions by 14 % below BAU levels in 2020
- Ethanol program (flex fuel vehicles and cost competitive ethanol): reduce transportation emissions by 18 % below BAU levels in 2020
- National Plan on Climate Change was launched in December 2008; targets will be met by promoting sustainability in the industrial and agricultural sectors,

### EU

- The EU policy is to keep global warming below 2 degrees
- GHG emissions reduction 20% below 1990 levels by 2020, 20% renewables by 2020, 20% efficiency improvement (unilaterally), Increase use of biofuels

### United Kingdom

- UK implemented Climate Change law with progressive deep emission reductions till 2050
- Recommendations on the 2050 emissions reduction target to go to 80% relative to 1990

### South Africa

- South Africa released its Framework for Climate Policy in July 2008 after two years of multi-stakeholder cooperation
- Aim is low carbon, climate resilient economy by 2050
- Partly unilateral, partly support needed internationally

### China

- Renewable Energy Law and the Tenth Five-Year Plan: reduce electricity sector emissions by 5% below BAU in 2020
- Medium and Long Term Energy Conservation Plan: reduce cement sector emissions by 15% below BAU levels in 2020; reduce iron and steel sector emissions by 9% below BAU levels in 2020
- Fuel efficiency standards for passenger cars, SUVs, an multi-purpose vans: reduce transportation sector emissions by 5% below BAU levels in 2020
- The National Climate Change Program was released in June 2007
- Provides a policy framework that outlines actions that China will take in future to address climate change

### India

- India's transportation policies: reduce transportation sector emissions by up to 15 % below BAU levels in 2020
- National Action Plan on Climate Change was launched in June 2008
- Plan identifies eight "national missions" and directs ministries to submit implementation plans to the Prime Minister's Council on Climate Change

## 450 ppm pathway as global goal and following equity considerations

### Resulting responsibilities for developed countries

#### Caps

- Take on collective caps which are consistent with a 450 ppm pathway
  - 80-95% below 1990 by 2050
  - 25-40% below 1990 by 2020

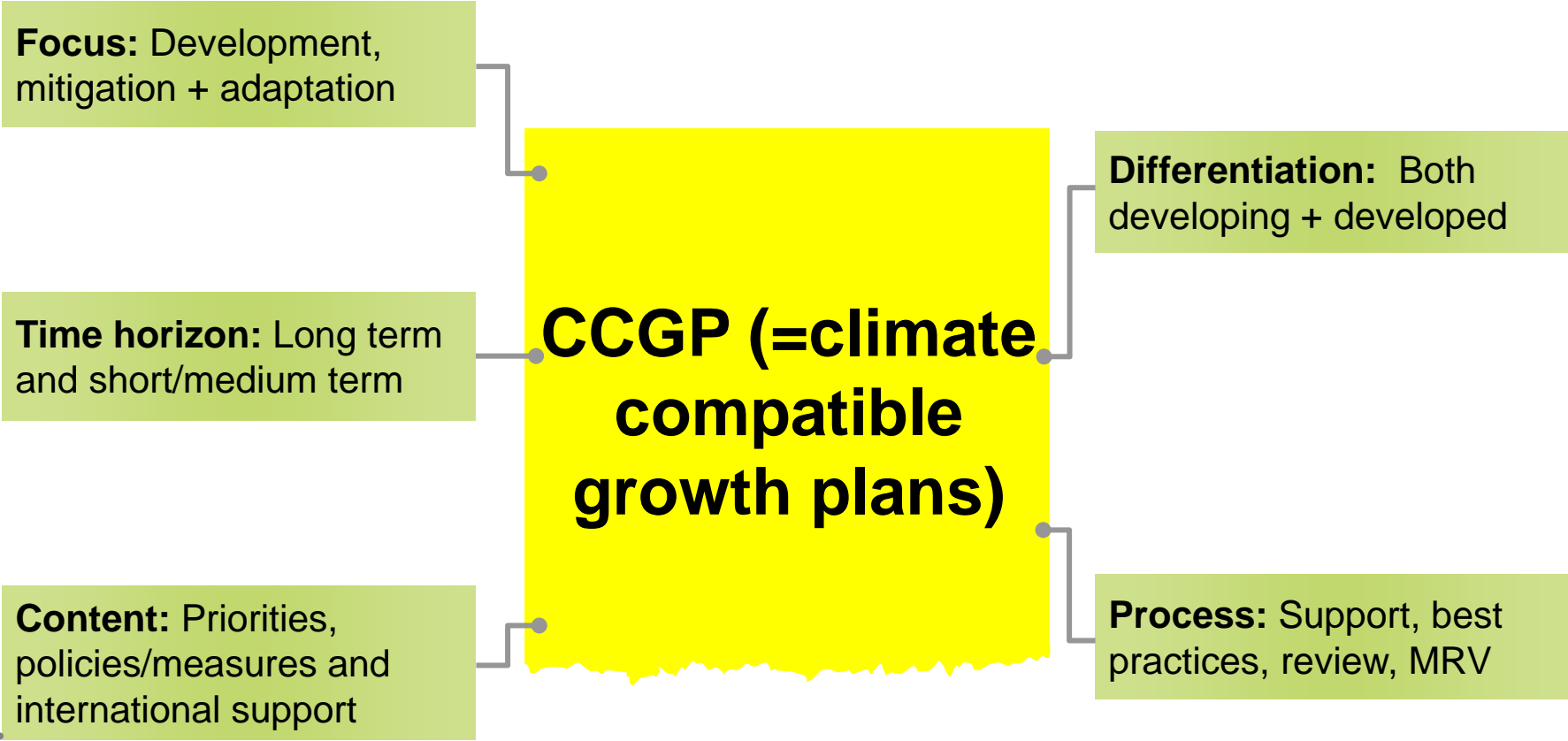
#### Support on mitigation/ adaptation

- Provide financial support to developing countries on adaptation and mitigation

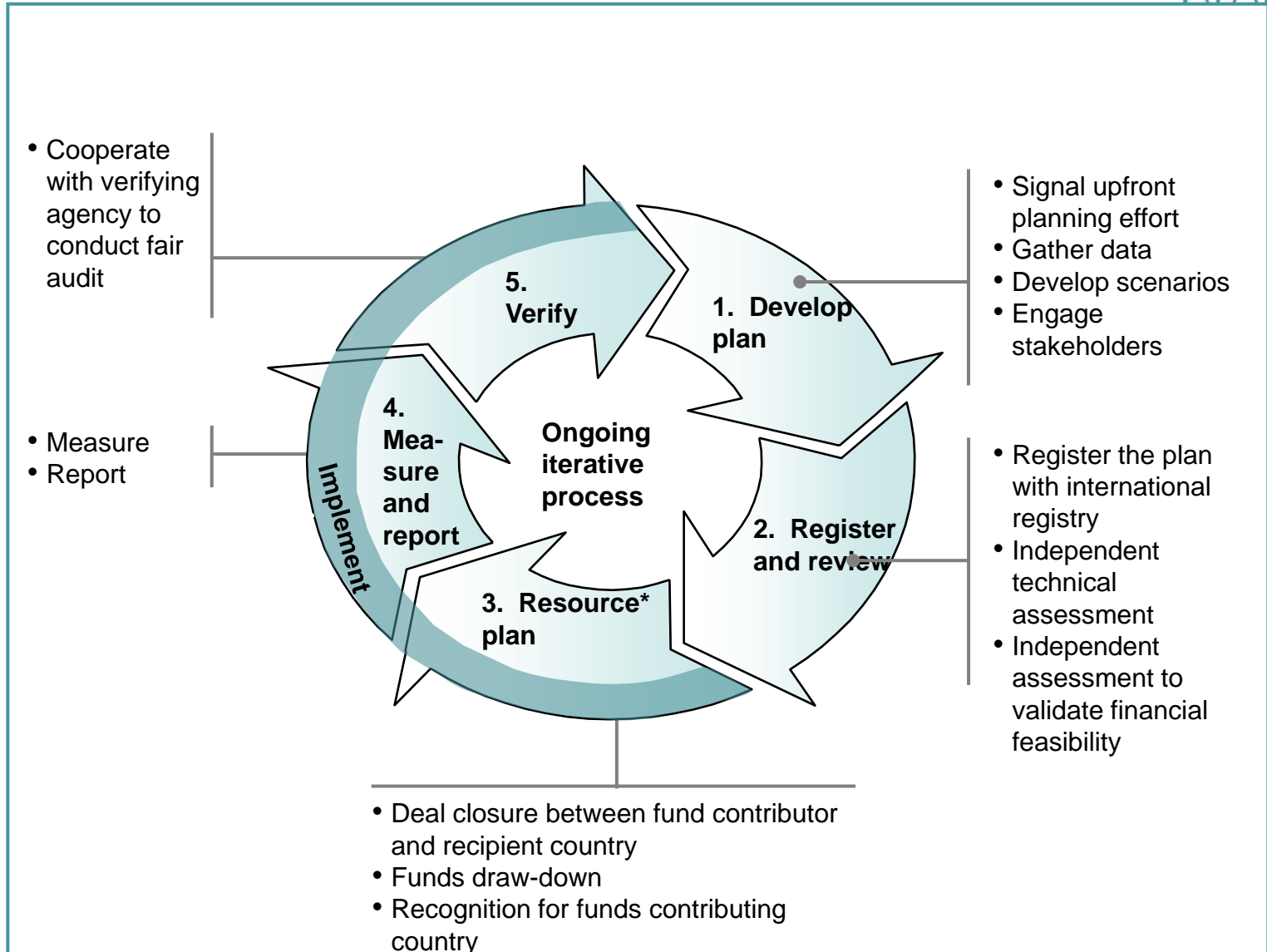
#### Leadership on technology

- Develop/ demonstrate emerging low C technologies
- Facilitate the transfer of environmentally sound technologies, know-how, practices and processes to developing countries

# Climate Compatible Growth Plans (CCGPs) as a way to operationalise developing country mitigation and adaptation actions

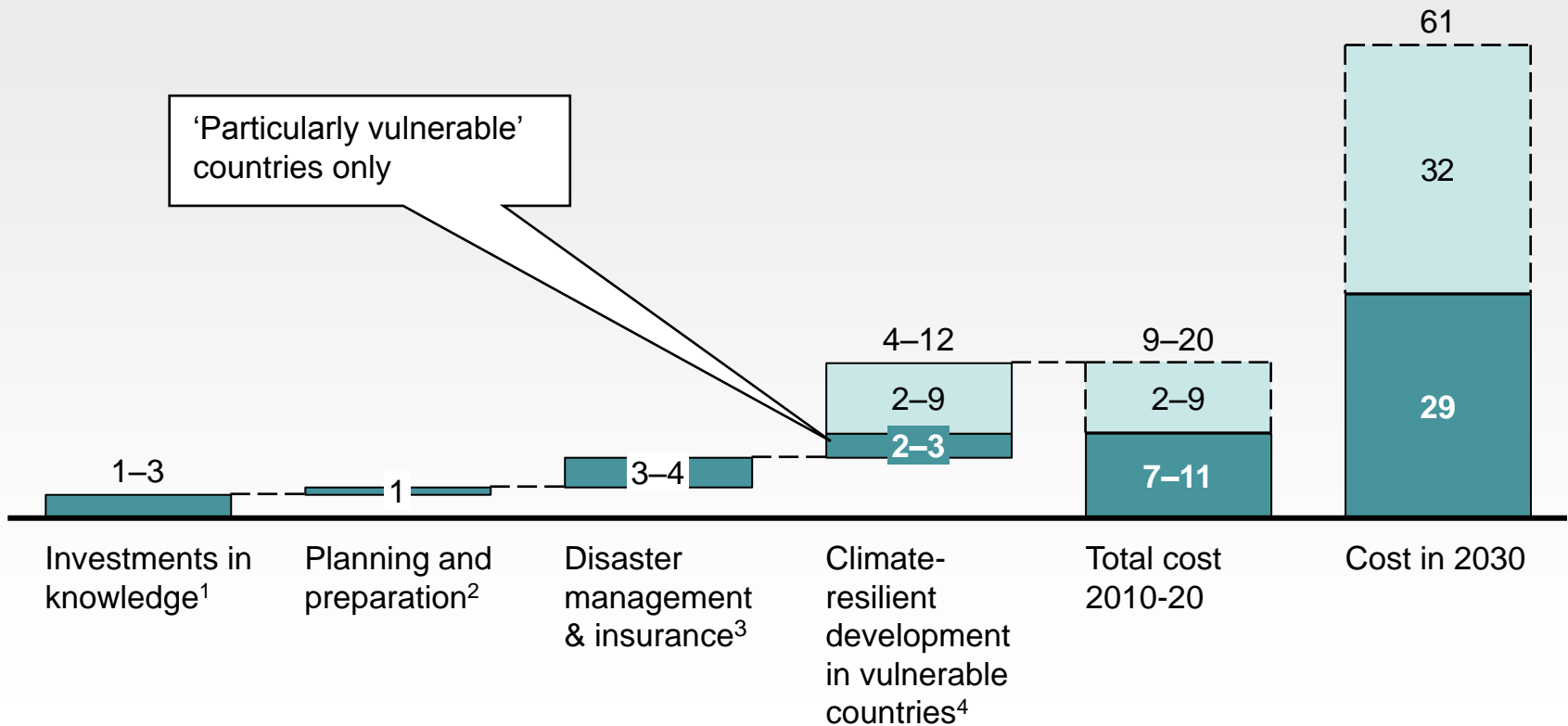


# CCGP lifecycle consists of 6 steps that have domestic and international components



# Public sector adaptation in 4 main areas will cost an estimated €9–20 billion a year through 2010-20 and rises significantly by 2030

**Estimated annual adaptation funding requirements (for public sector actions), € billion p.a**



1 Figures based on benchmarking of existing leading institutions (e.g. NOAA, NASA, Met Office, CGIAR)

2 Figures calculated on the basis of costs of Pilot Programme for Climate Resilience in ten countries, scaled to all developing countries

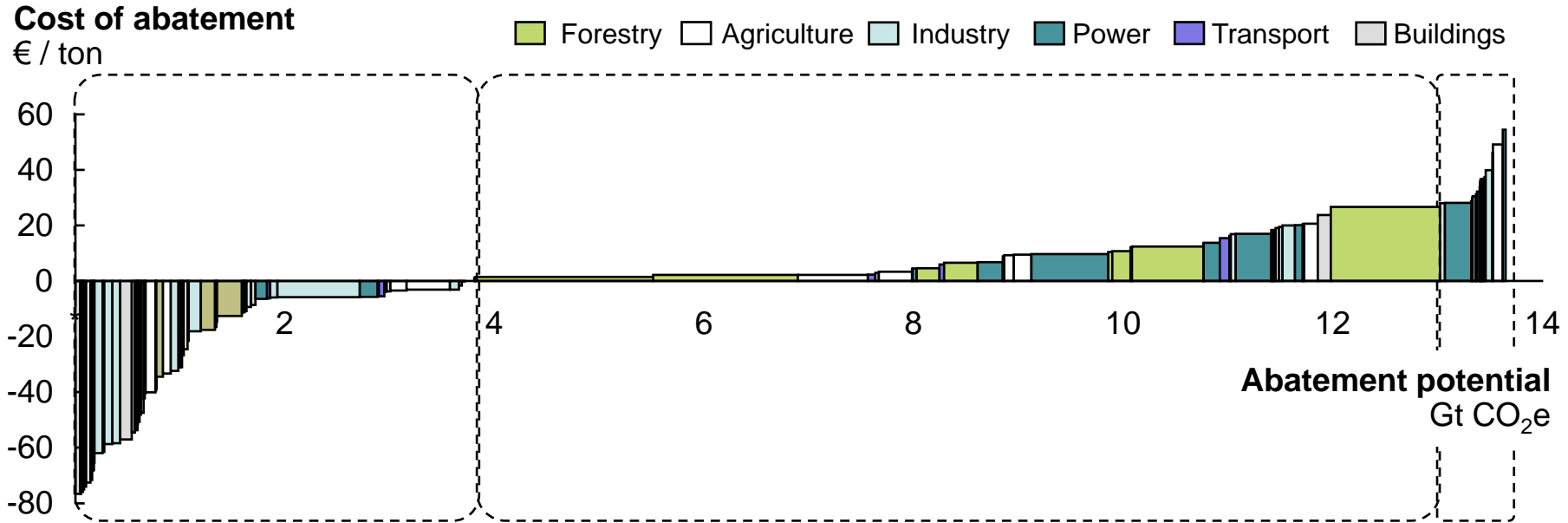
3 Figures based on Munich Climate Insurance Initiative proposal

4 Figures for 2010-20 based on annualised NAPA cost estimates – using median NAPA cost scaled by population

# Developing countries require different types of support for mitigation activities

Developing country abatement cost curve, 2020 (up to costs of €60/t)

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**Energy efficiency in buildings, transportation and industry**

**Agriculture and forestry**      **Power supply**

**Demos / investment in emerging technologies**



**Technology follows investment**

**Support to overcome barriers (best practice info, capacity building, loans)**

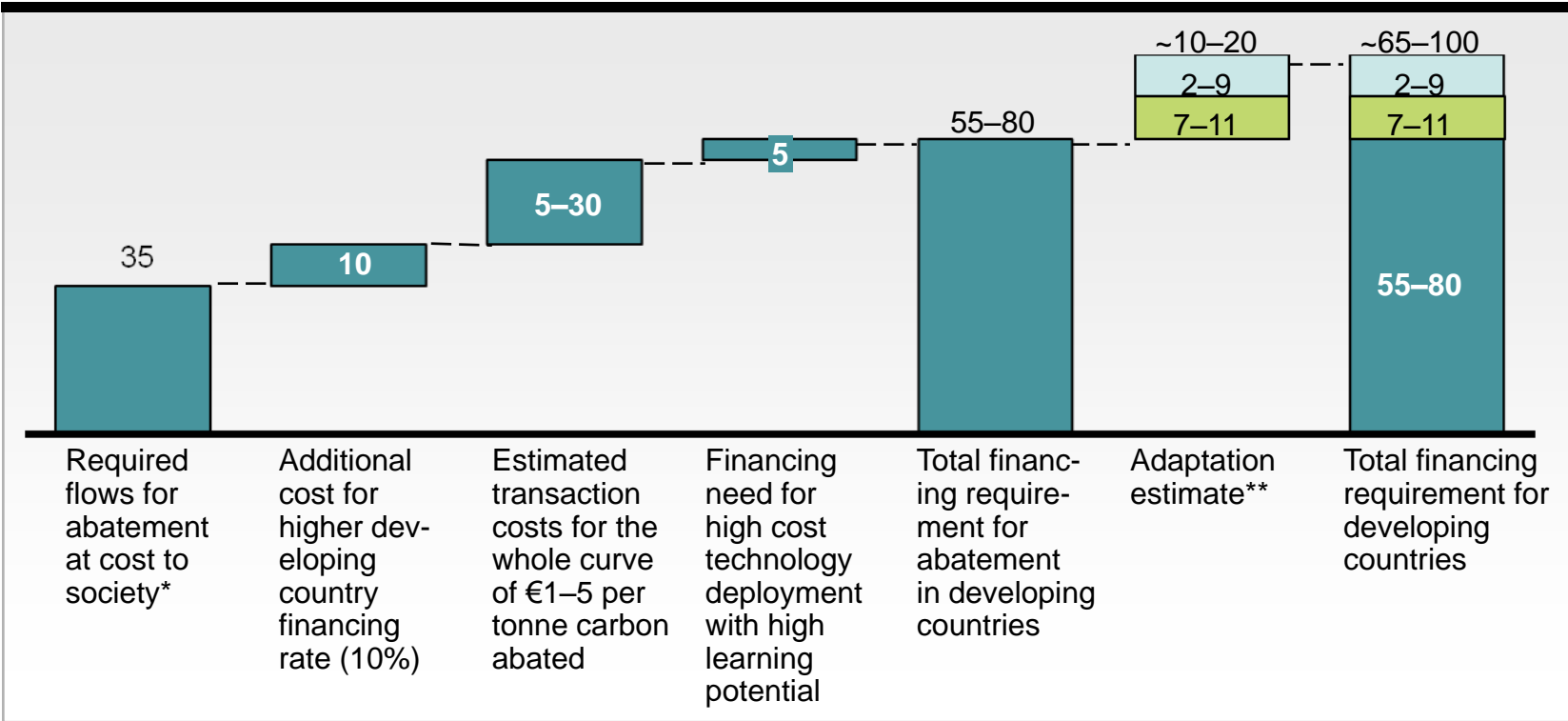
**Support to compensate incremental costs, e.g. through offset market or grants**

**Support to compensate incremental costs (grants) and international cooperation**

# Including elements of adaptation, the total financing need would be €65-100 bn per year 2010-2020

## Annual financing flows requirement for developing countries €b on average p.a. 2010-20

- Costs of 12 Gt of developing countries abatement
- Adaptation cost (knowledge, planning and preparation, disaster management in all developing countries, climate resilient development in vulnerable countries)
- Adaptation cost (climate resilient development in other developing countries)



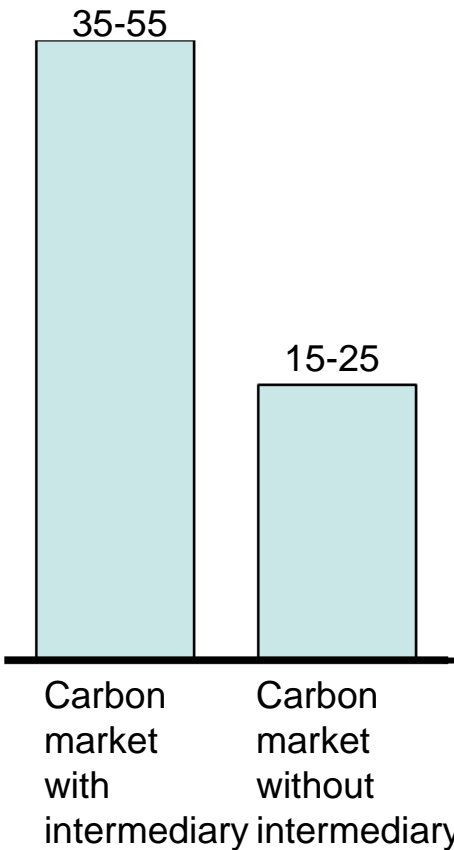
\* Assumes all abatements delivered at average cost; 4% discount rate

\*\* Based on increased financing for global public goods (incl. research), expected funding required priority investments for vulnerable countries (based on NAPA cost estimates), and provision of improved disaster support instruments (based on MCII work)

INDICATIVE ESTIMATES

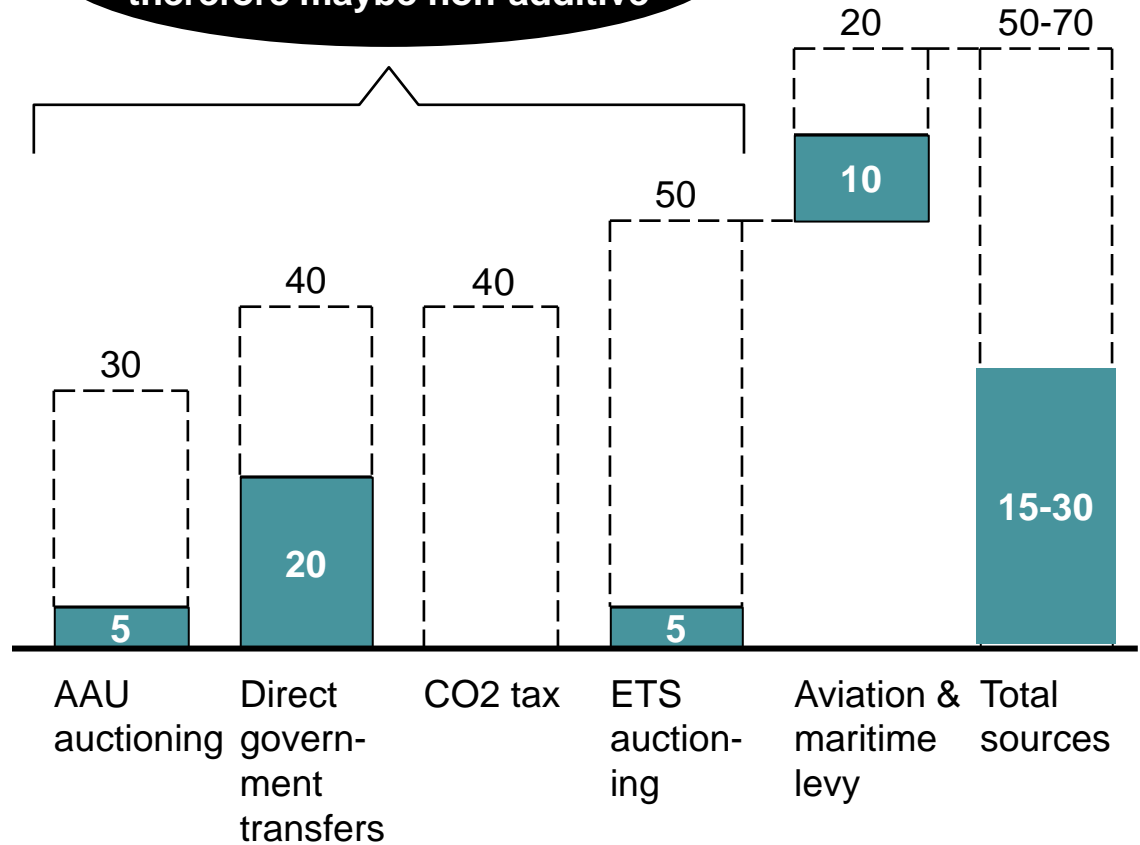
# A combination of an carbon market and public financing could potentially meet the total need

**Potential financing from carbon market, €bn pa**



**Public financing sources, €bn pa**

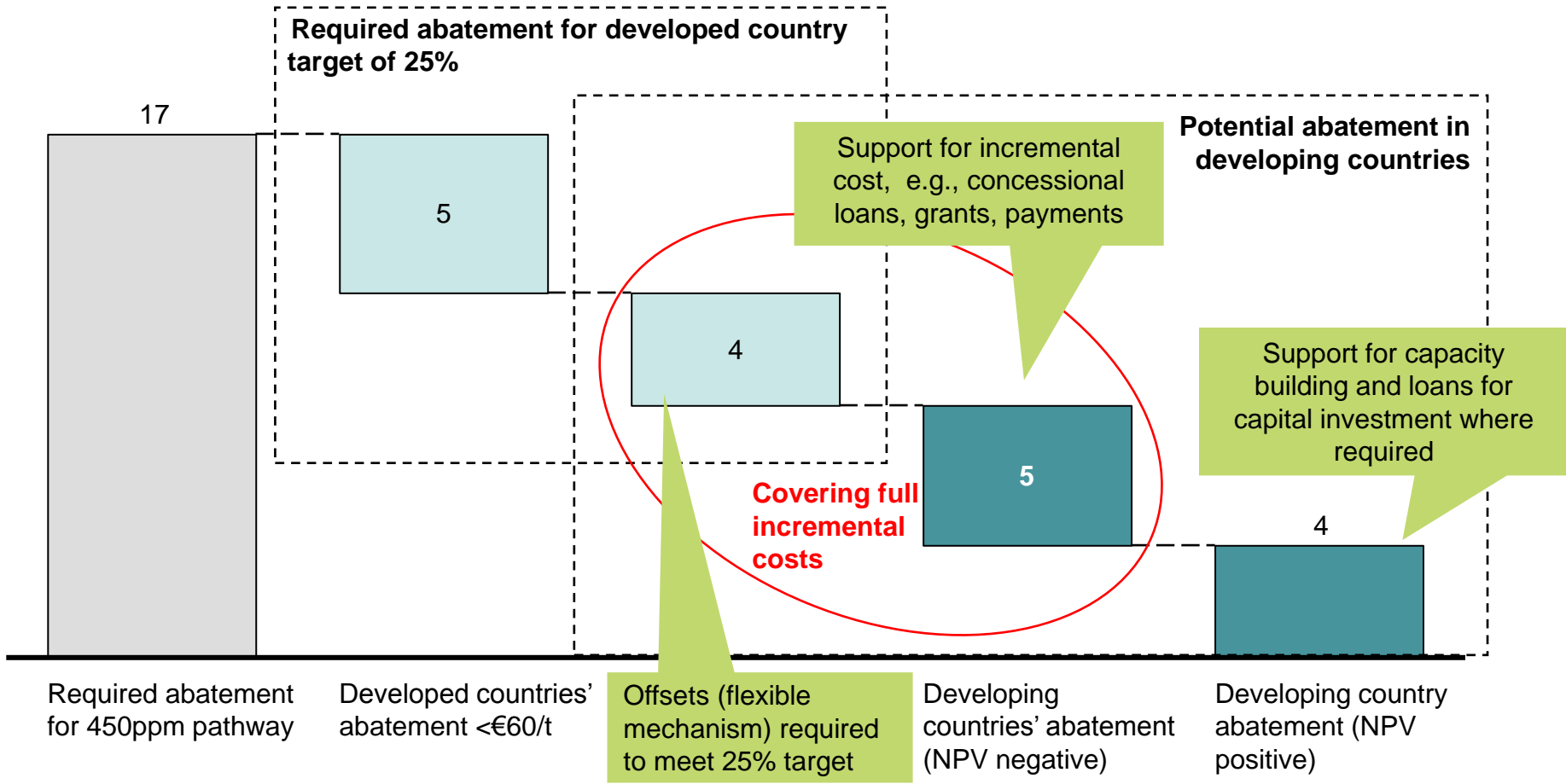
**Could be considered government transfers and therefore maybe non-additive**



# Under a 25% target for developed countries, carbon markets could contribute significantly to developing country low carbon investment

Required abatement in 2020, Gt\*

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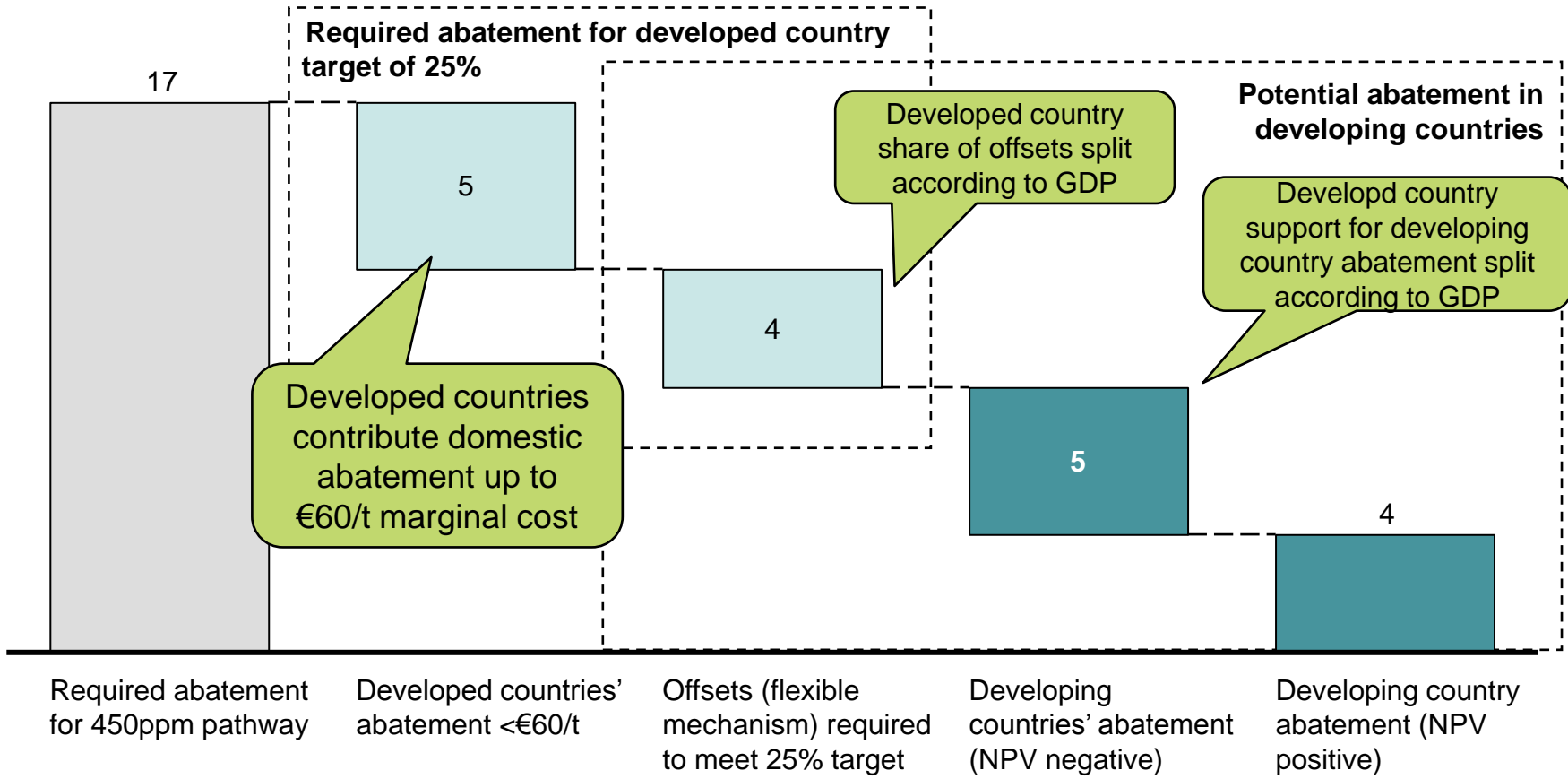


\* Numbers do not add up due to rounding

# Can this be used as a basis for comparability of effort between developed countries?

Required abatement in 2020, Gt\*






Method for allocation of 'effort' across developed countries

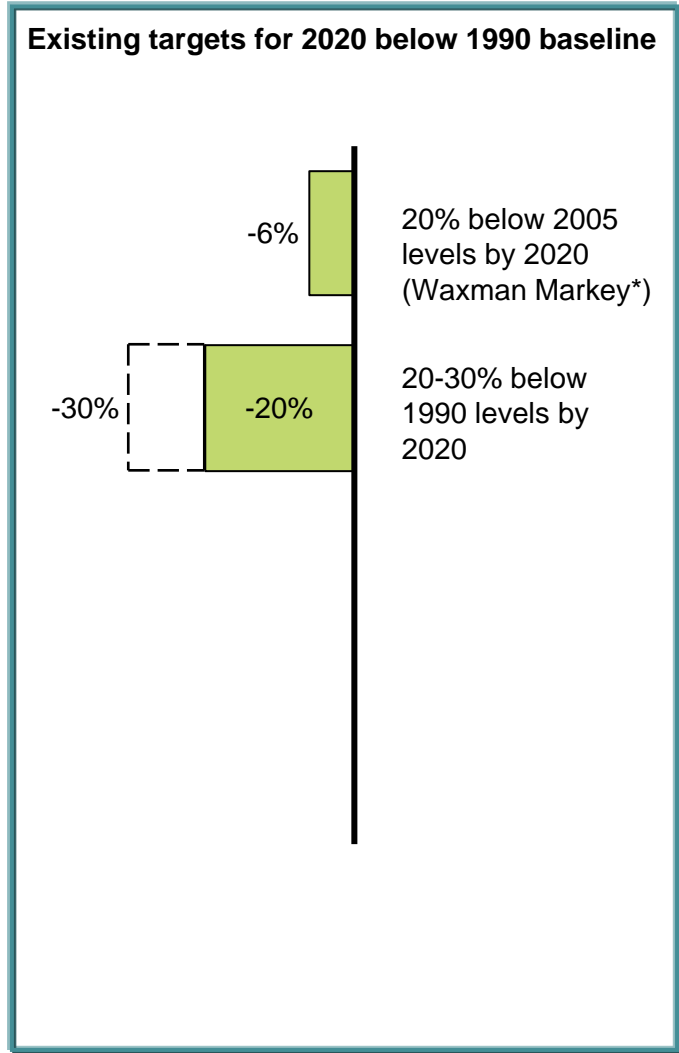
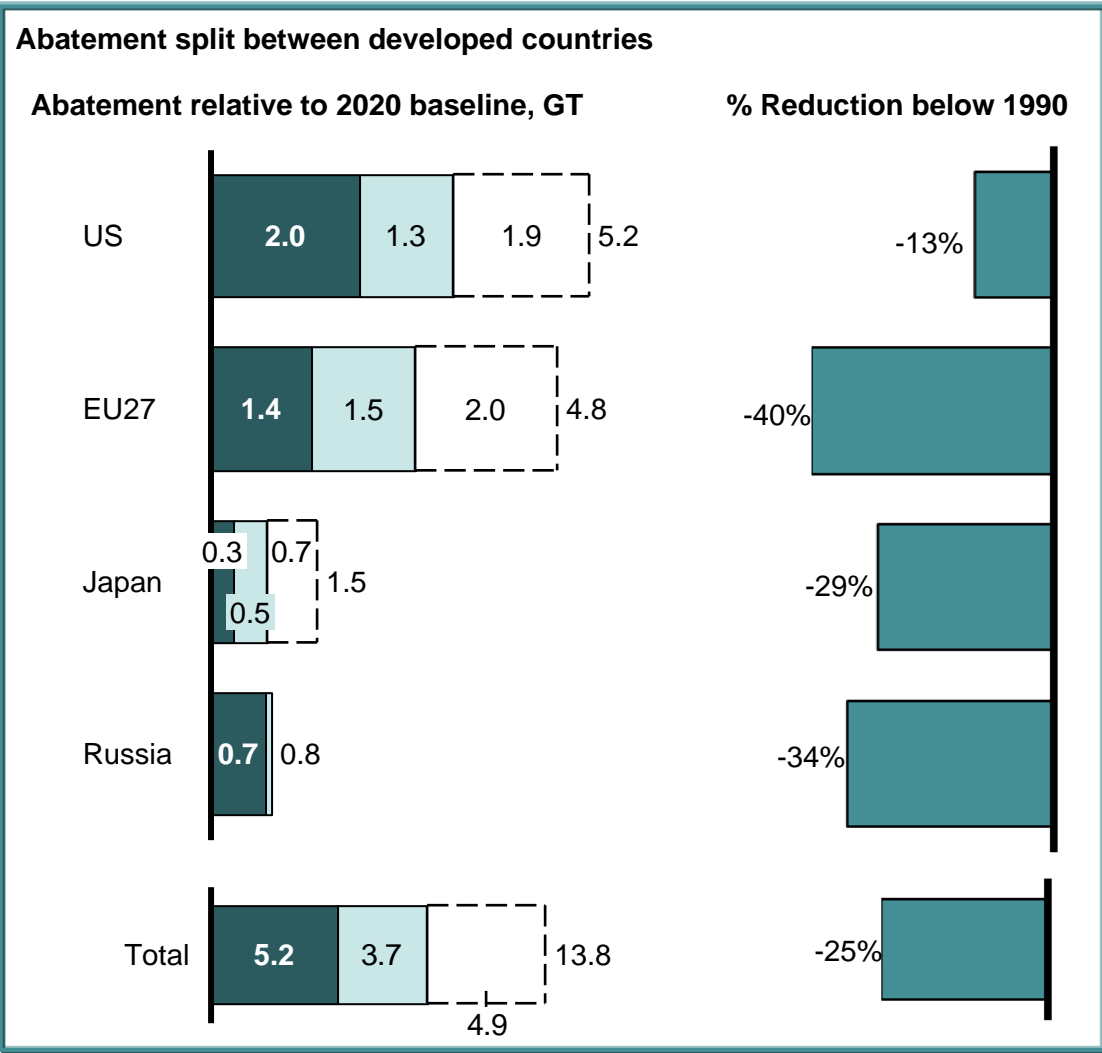


\* Numbers do not add up due to rounding

# Tentative effort sharing amongst developed countries

INDICATIVE NOT BASED ON DETAILED COUNTRY MODELS

-  Share of positive cost developing world abatement by GDP
-  Offsets to 25% below 1990 - allocated by GDP
-  Domestic abatement to €60/t
-  Target below 1990 (including offsets)
-  Currently proposed targets



\* Based on emission data stated in Waxman Markey bill and UNFCCC