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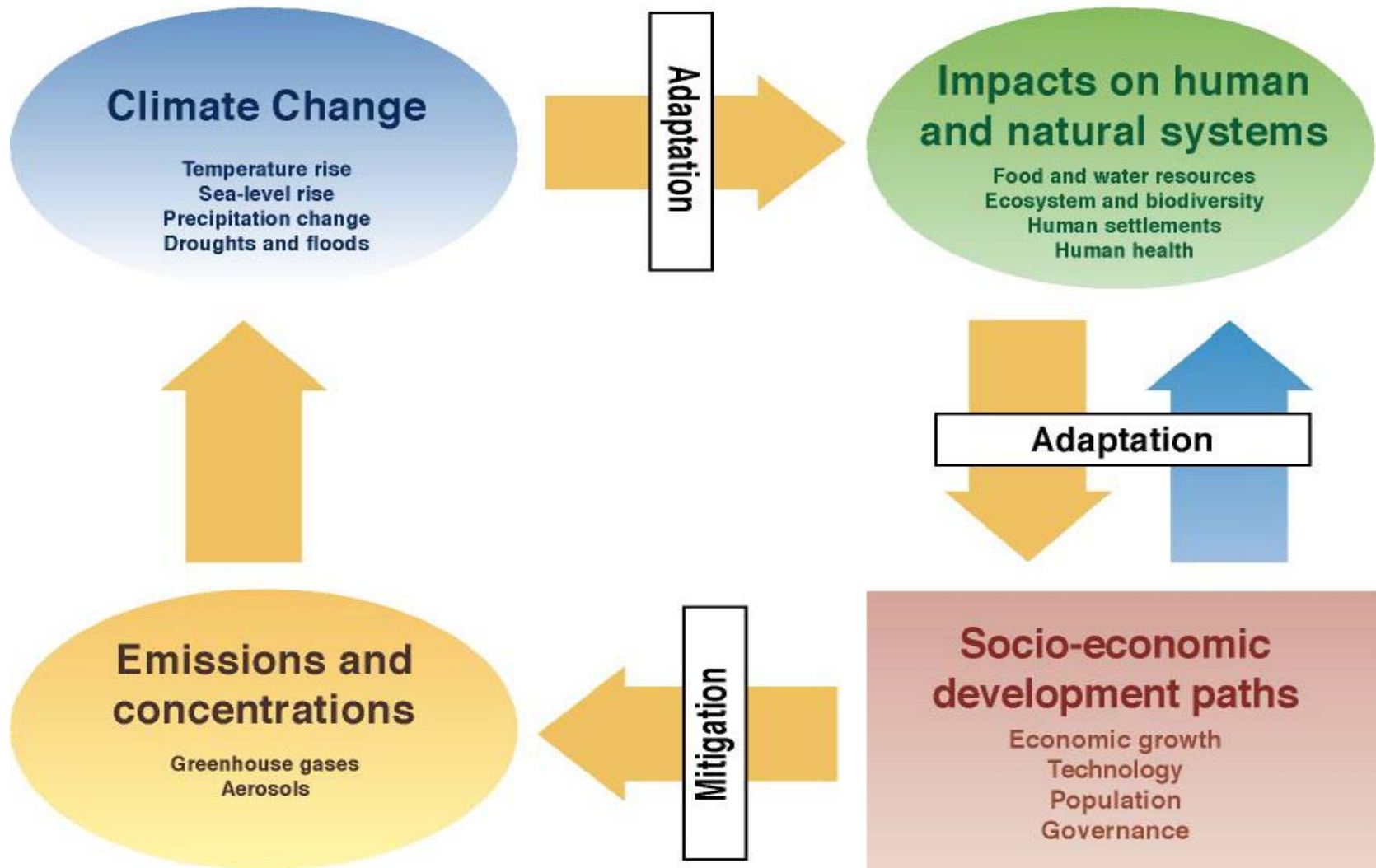
Technology, development and climate:  
the need for an integrated approach

Bert Metz, European Climate Foundation

# Key messages:

1. Climate change is a development problem (causes and impacts)
2. Solving climate change is also a development problem
3. An international climate change regime should be based on a transition to low carbon, climate resilient development
4. Technology is a means to solve climate change , not a goal in itself
5. Institutional structures in such a regime need to integrate technology in the instruments needed for the transition to low carbon, climate resilient development.

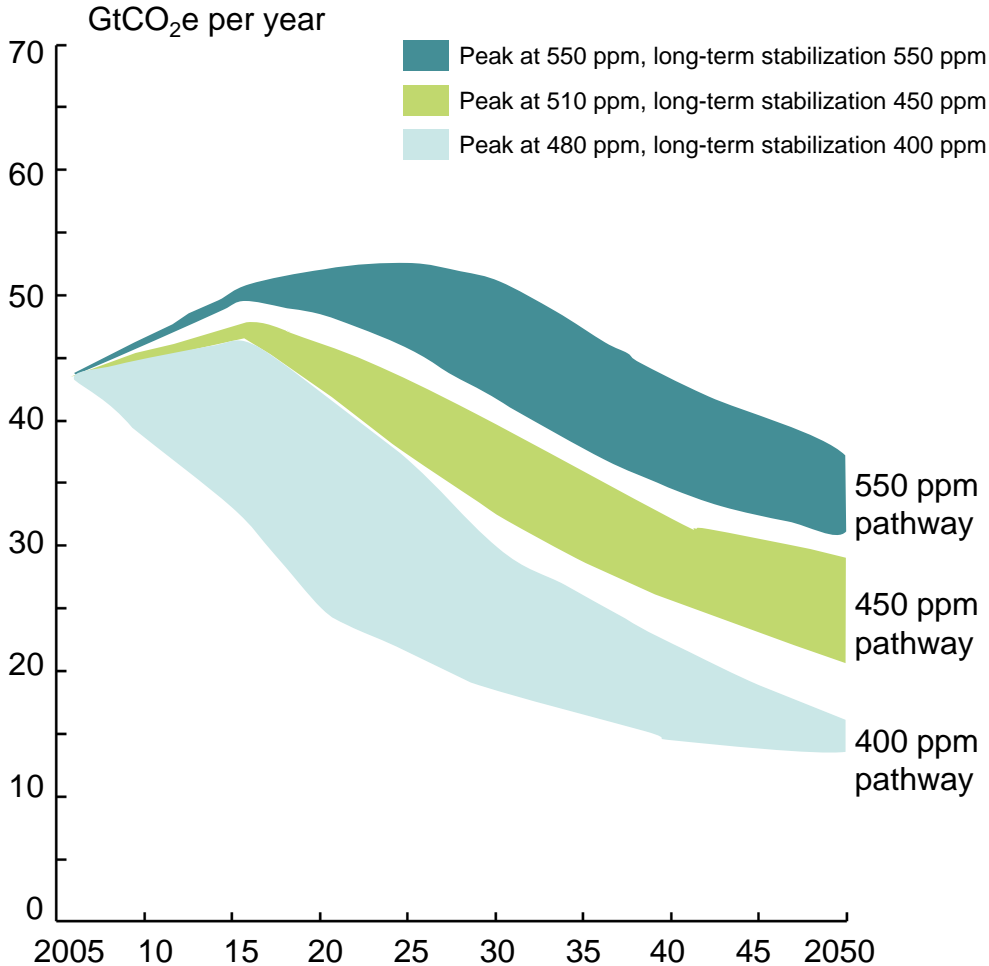
# Climate Change: a development problem



# 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



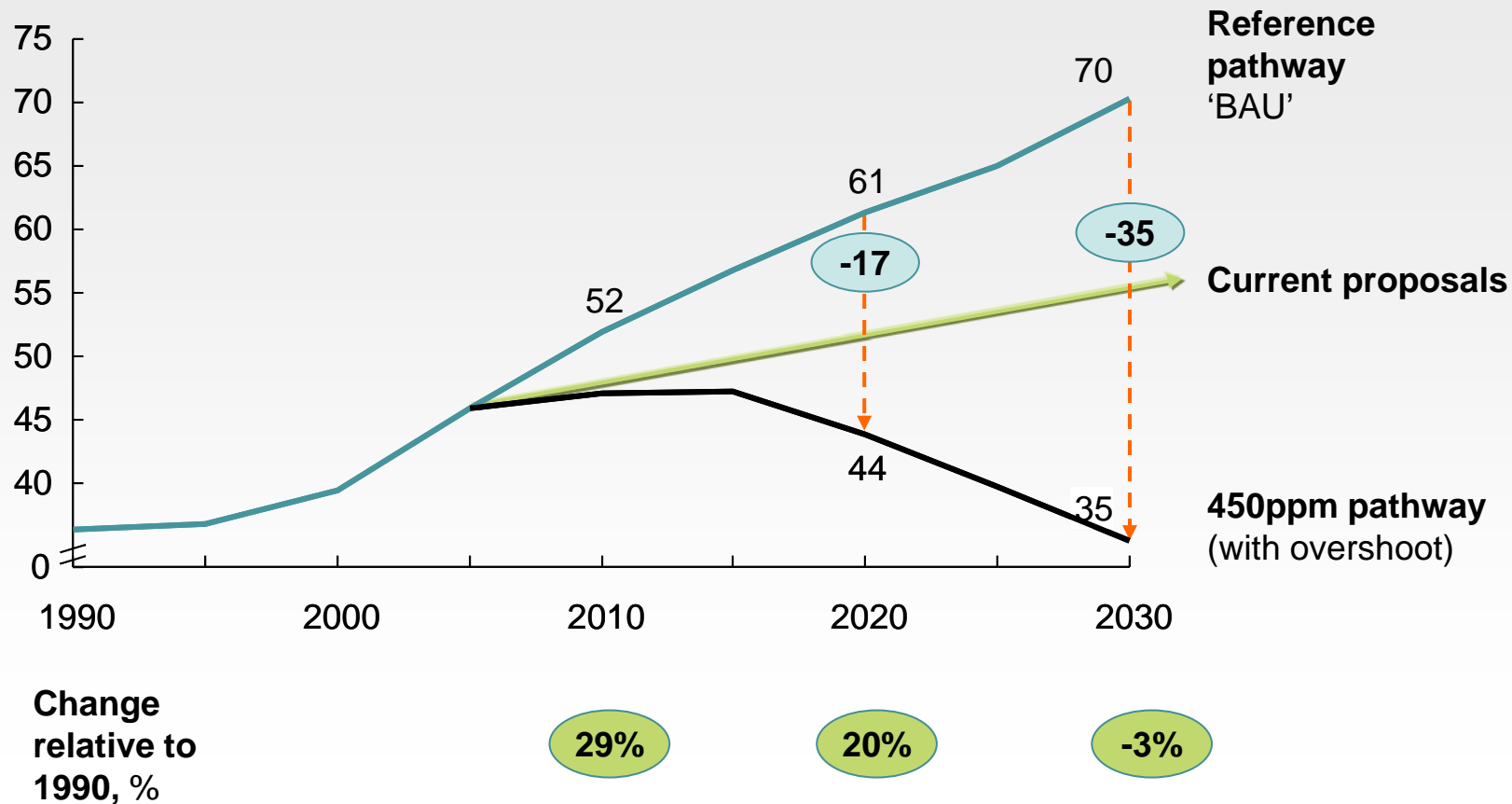
15–30	3.0°C
40–60	2.0°C
70–85	1.8°C

- 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

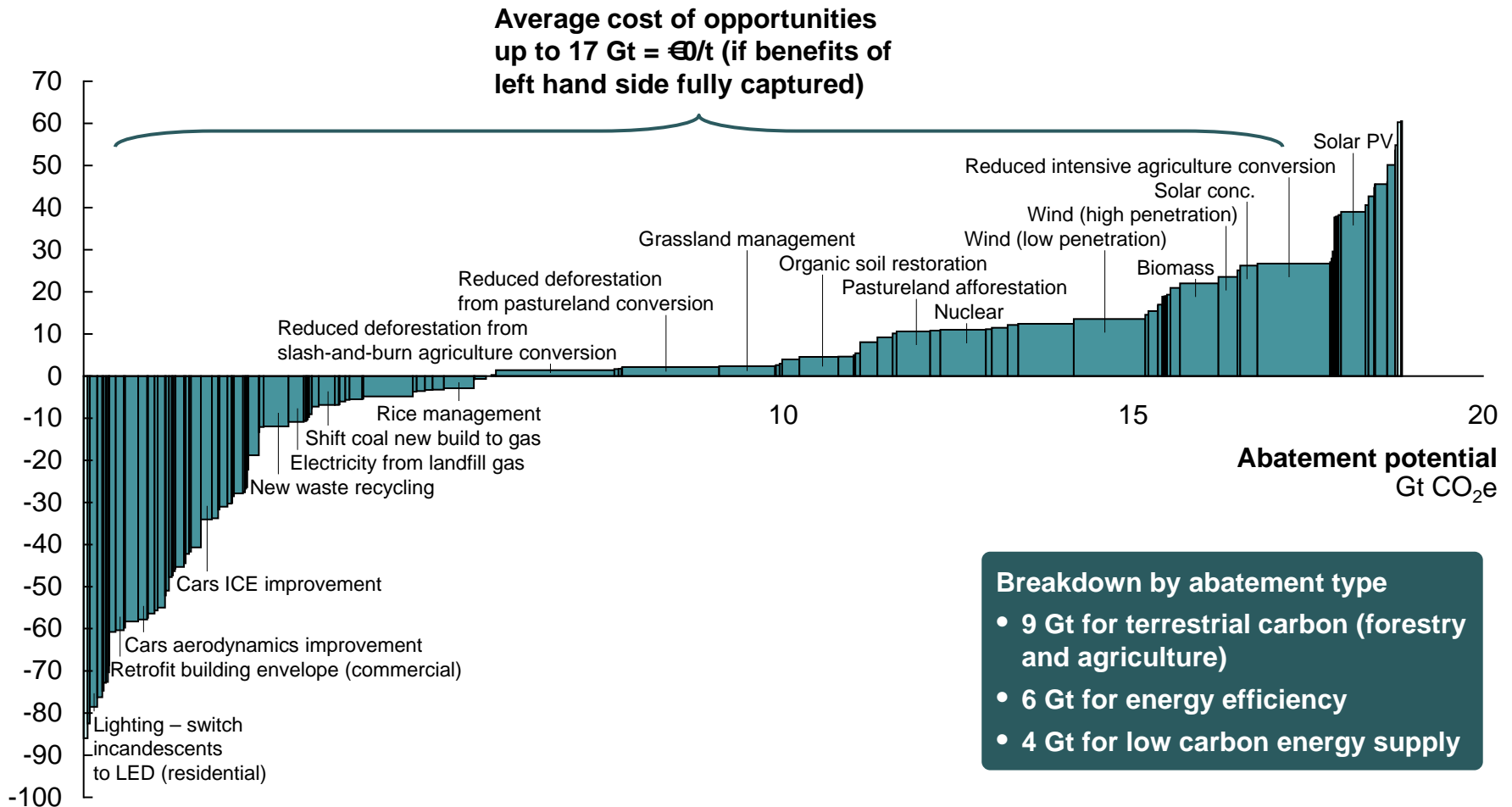
# 17 Gt of reductions below 'BAU' in 2020 are required for 450ppm

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

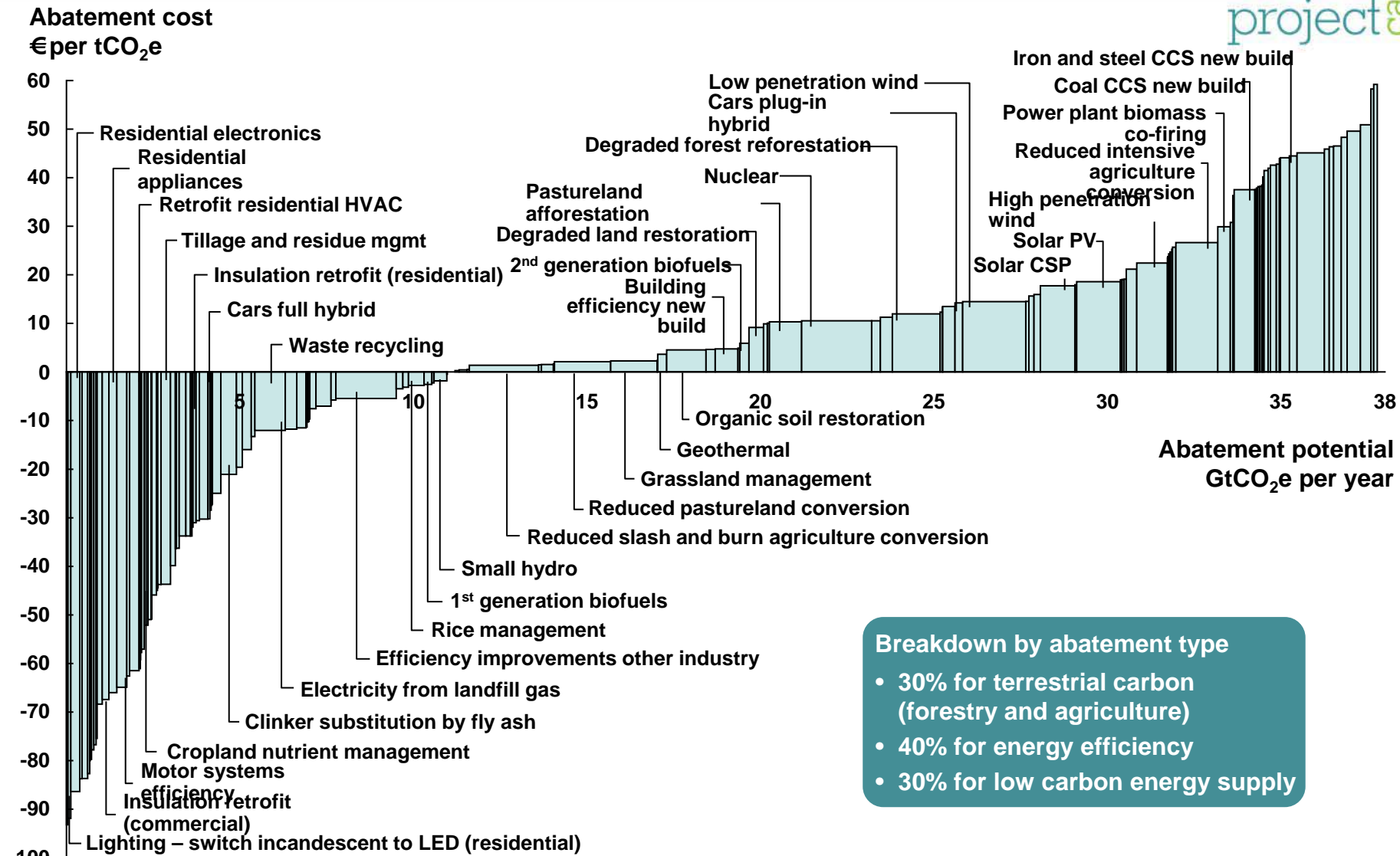


# Opportunities to achieve a 450ppm pathway exist at under €60/t

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



# In 2030 reduction opportunities are much larger



**Breakdown by abatement type**

- 30% for terrestrial carbon (forestry and agriculture)
- 40% for energy efficiency
- 30% for low carbon energy supply

Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO<sub>2</sub>e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.

# South African vision for the road ahead on climate change

1. Transition to climate resilient and low-carbon economy
2. Our climate response policy, built on six pillars, will be informed by what is *required by science* – to limit global temperature increase to 2°C above pre-industrial levels
3. Continue to pro-actively build the knowledge base and our capacity to adapt to the inevitable impacts of climate change,
4. GHG emissions must peak, plateau and decline - stop growing at the latest by 2020-2025, stabilise for up to ten years, then decline in absolute terms
5. Long term: redefine our competitive advantage and structurally transform the economy by shifting from an energy-intensive to a climate-friendly path as part of a pro-growth, pro-development and pro-jobs strategy

# The role of technology

- Technology is the means to get to a low carbon, climate resilient economy, not the goal
- It means:
  - Application of existing technologies
  - Improvement of existing and development of new technologies

## 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

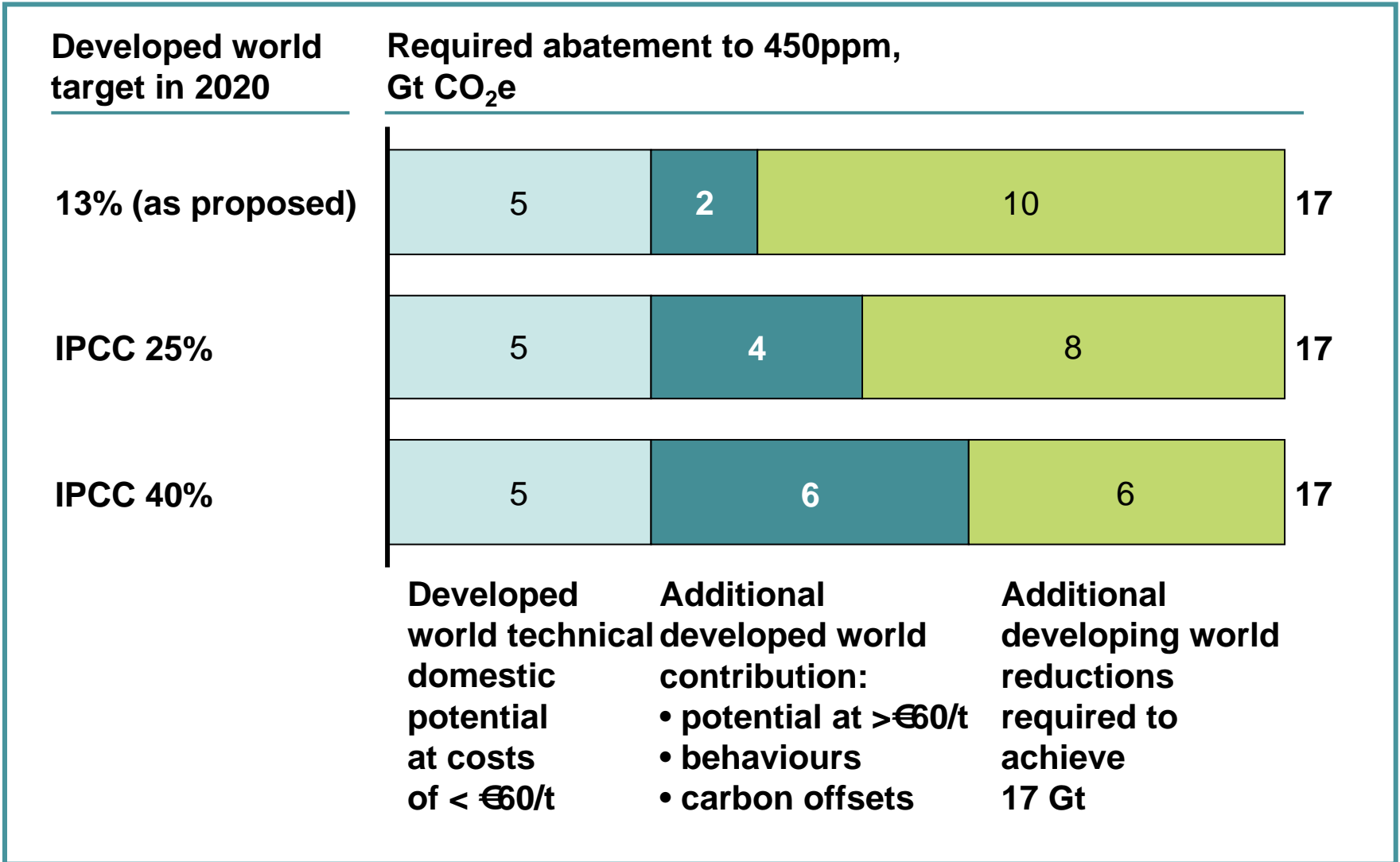
#### Support on mitigation/ adaptation

- Provide financial support to developing countries on adaptation and mitigation

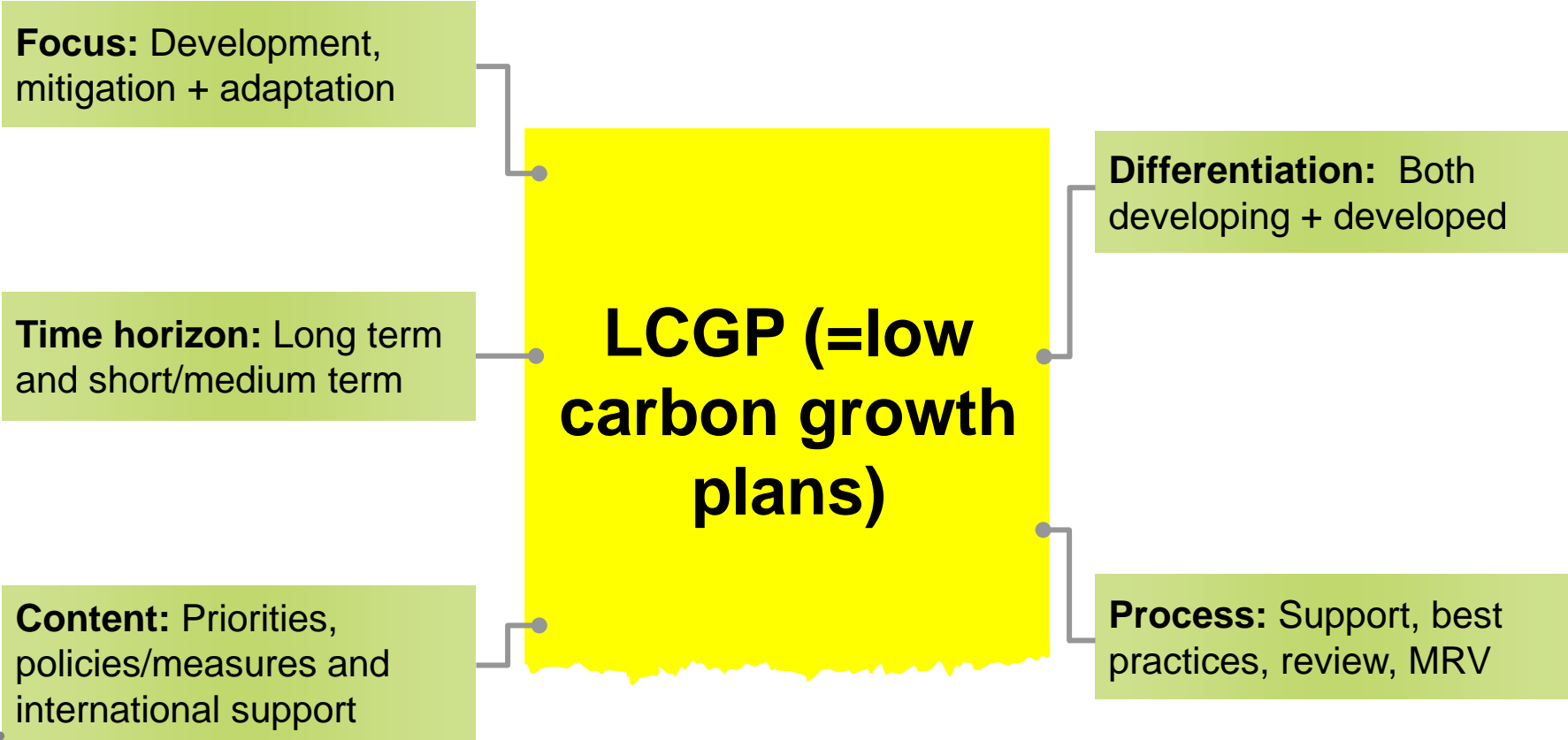
#### Leadership on technology

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

# Achieving necessary abatement of 17 Gt relies on both developed and developing nations



# Low Carbon Growth Plans (LCGPs) as a way to operationalise developing country mitigation and adaptation actions



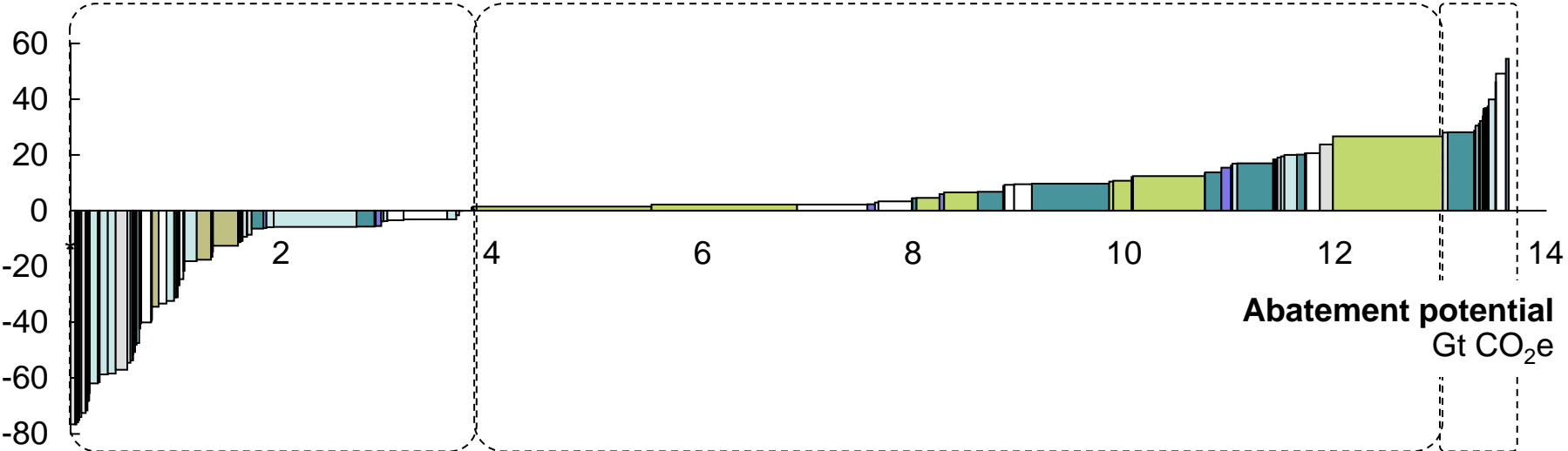
# Developing countries require different types of support for their LCGPs

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

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**Cost of abatement**  
€/ ton

Forestry Agriculture Industry Power Transport Buildings



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

**Agriculture and forestry**

**Power supply**

**Demos / investment in emerging technologies**

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

**Technology follows investment**

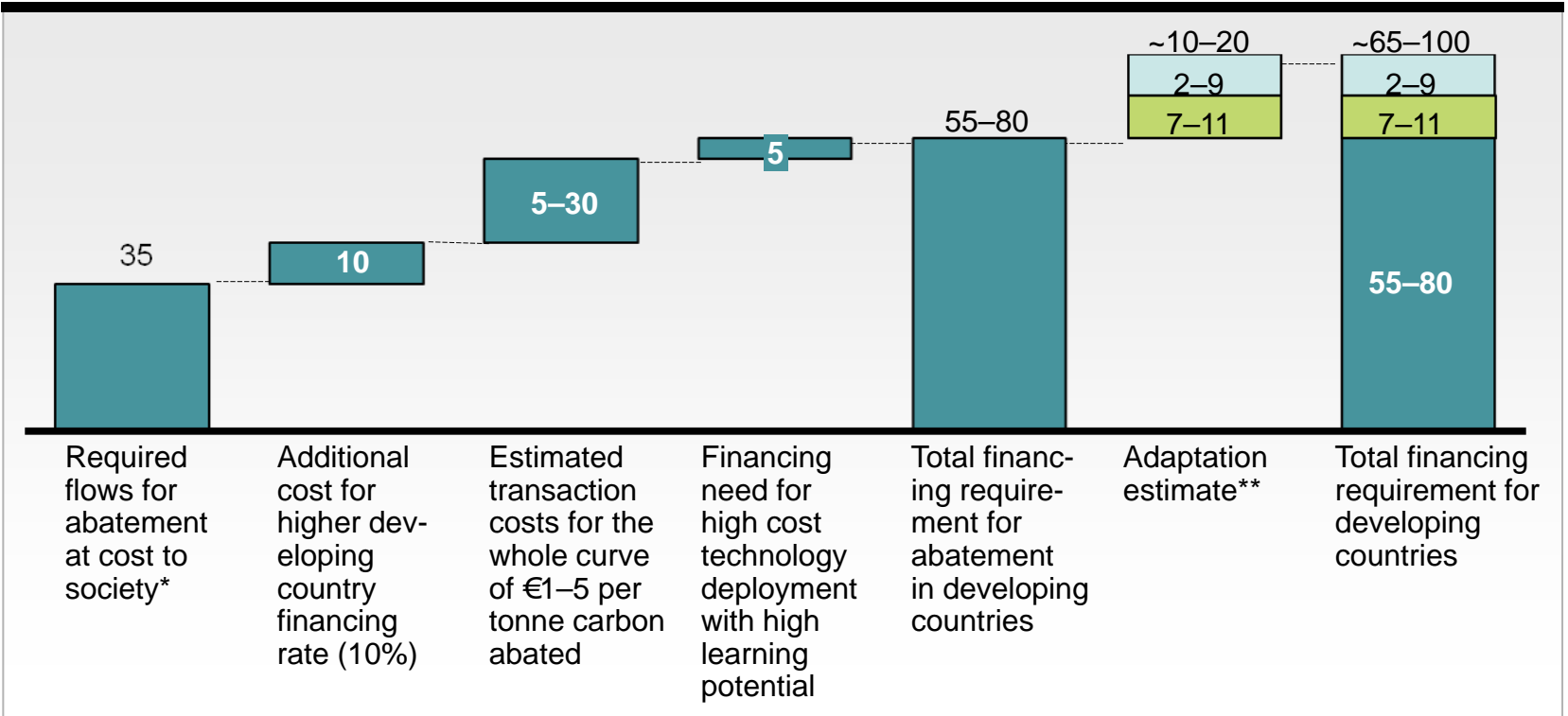
Support to compensate incremental costs, e.g. through offset market or grants

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)



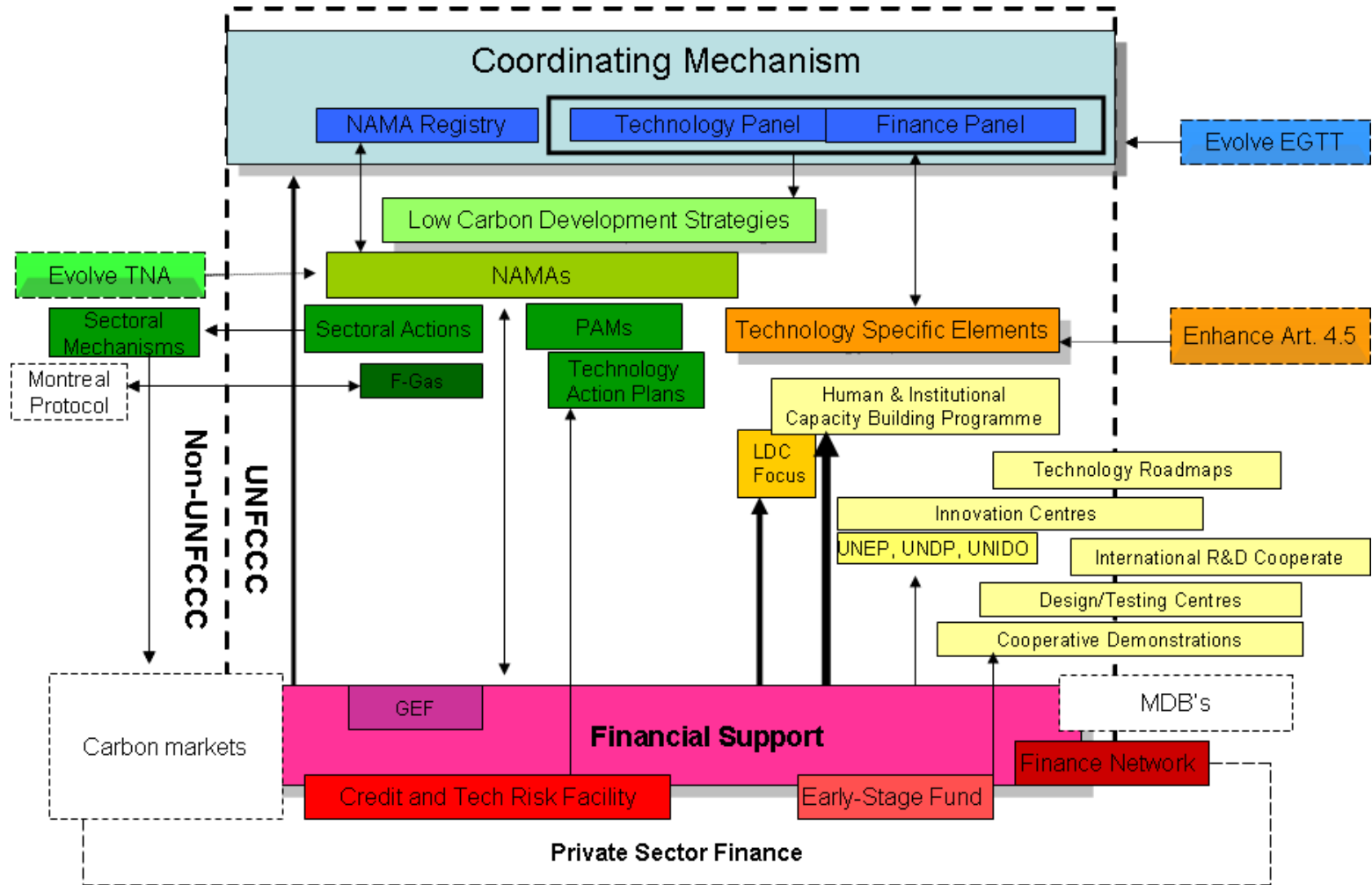
\* Assumes all abatements delivered at average cost; 4% discount rate

\*\* 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)

# Technology follows investment, but what else is needed?

- Technology application:
  - Capacity in developing countries
  - Good investment climate
  - Acquiring the capacity to produce the technology locally (licensing; IP)
  - Know how to use the new technology effectively
- Technology development/ improvement:
  - R&D (capacity and magnitude)
  - Demonstration programmes
  - Innovation capacity
  - Technology for the poor

# Institutional structures that have been proposed (not complete)



# Simplified institutional structure

- Low carbon growth plans, integrating technology needs assessment and technology development capability
- Financing system based on paying incremental costs of low carbon technology to developing countries, covering costs of planning for and acquiring and deploying technology
- Additional agreement on strengthened R&D and establishment of R&D networks (including for poor mans technologies)
- Innovation centres in developing countries as part of capacity building
- Coordinated demonstration programmes for emerging technologies

**Leave out all things that are better handled elsewhere (technology roadmaps, technology assessments, R&D priorities, etc)**

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# Thank you

Further Information on Project Catalyst can be  
found at

[www.project-catalyst.info](http://www.project-catalyst.info)