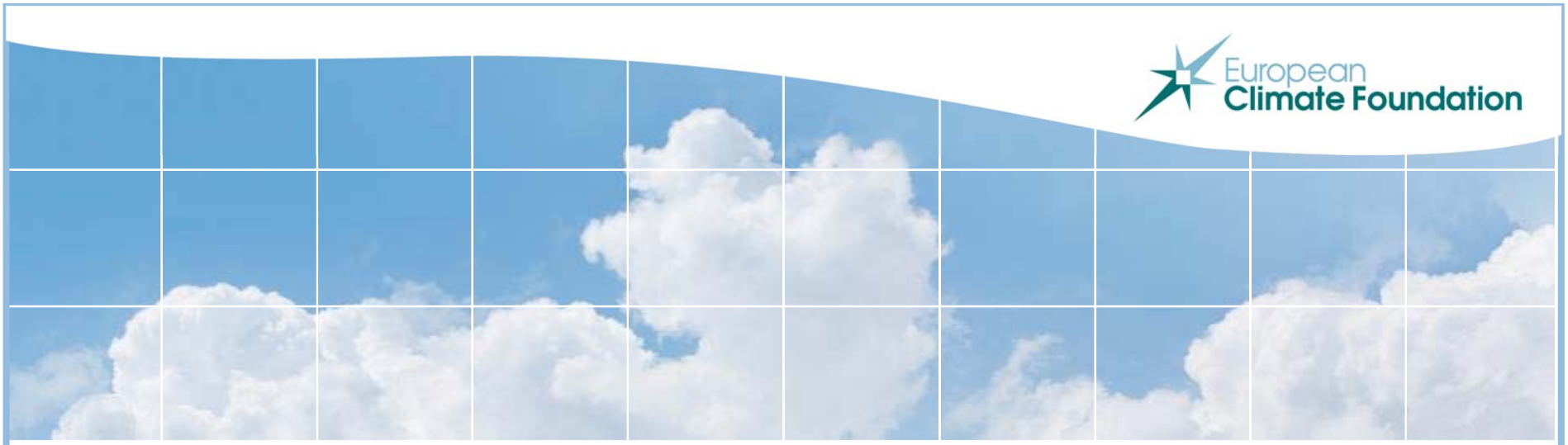

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INTERNATIONAL CLIMATE FINANCE: SCALE AND POSSIBLE SOURCES

23 February 2010

Overview

- Why international climate finance: 4 approaches
- Overall scale 2010-2020
- Scaling up
- Potential sources

Backup

Why international climate finance?

1) Legal justification
2) Climate justice 1: Effort sharing
3) Climate justice 2: Compensation
4) Pragmatic justification

Choosing an approach has consequences for the calculation of scale needed

Legal justification: Incremental cost

Rationale:

- Art. 4.3 UNFCCC: The developed country Parties (…) shall provide new and additional financial resources (…), needed by the developing country Parties to meet the **agreed full incremental costs** of implementing measures that are covered by paragraph 1 of this Article {i.e. programmes on mitigation, technology and adaptation}

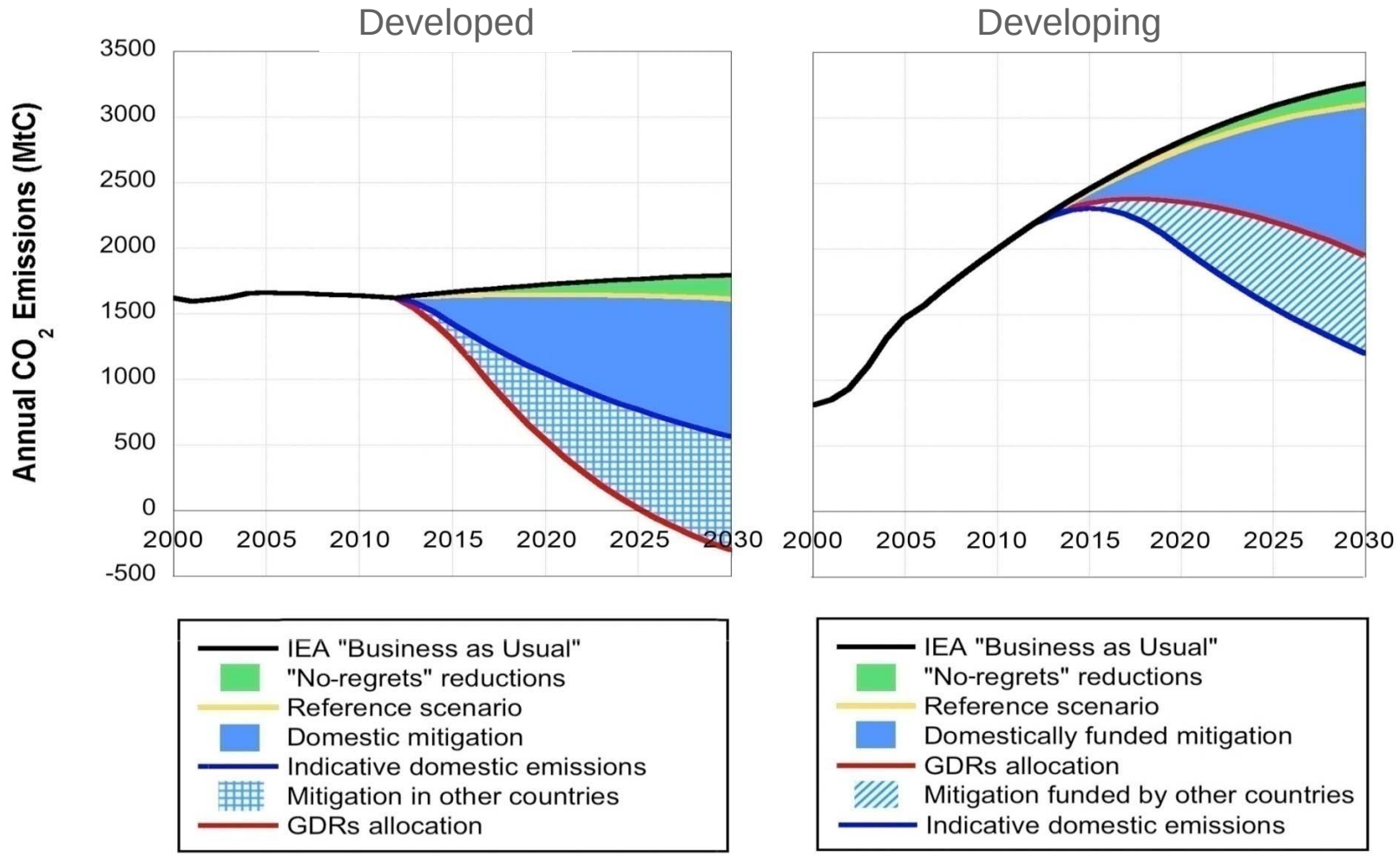
Consequence:

- No support for profitable abatement w/o incremental cost

Challenge:

- how to define **agreed full incremental cost?** Definition of baseline? Co-benefits?

Climate Justice 1: Effort Sharing



Climate Justice 2: Compensation

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Rationale:

- Compensation would be paid for a) **climate damages** and/or b) **overuse of environmental space** that morally belongs to developing countries or poor individuals

Consequence:

- Compensation claims are unconditional and irrespective of the worthiness of the recipient.
- Payments should go to places with highest climate damage or least use of environmental space

Challenge:

- Little acceptance in North, difficult to sustain compensation payments over long periods of time w/o performance

Pragmatic justification: Incentive

Rationale:

- Climate funding needed to tip the balance within political system in developing countries towards more ambitious climate friendly development pathways
- Incentives to shift private sector investments from high carbon into low carbon alternatives
- Funding needed for concrete projects that can't be funded locally

Consequence:

- Different types of support needed for different types of climate action (grants vs. loans)
- Incentivizing/redirecting private capital becomes crucial, as well as performance of payments

Challenge:

- scale difficult to quantify

Overview

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Developing countries require different types of financial support for mitigation activities

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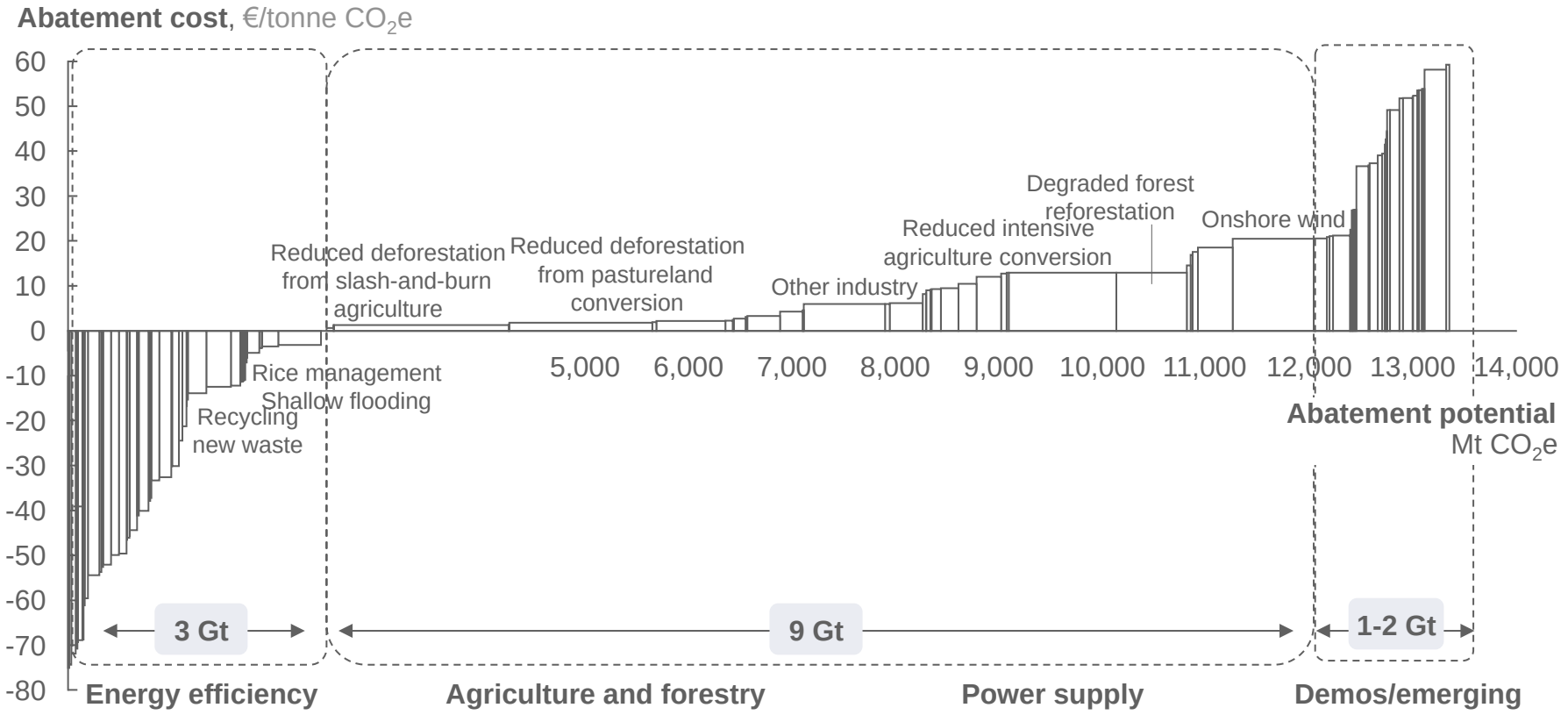
Developing country cost curve, 2020 (up to €60/tonne, 10% discount rate)



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

Source: McKinsey Global GHG Abatement Cost Curve v2.0

Methodology for incremental cost calculation

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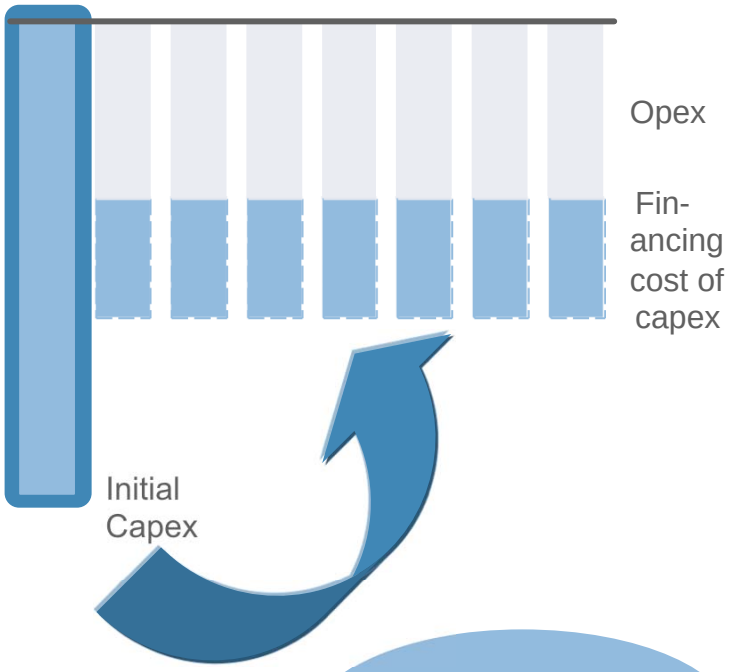
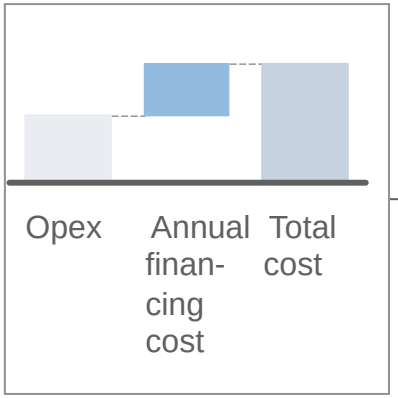
Cash flow profile of abatement project

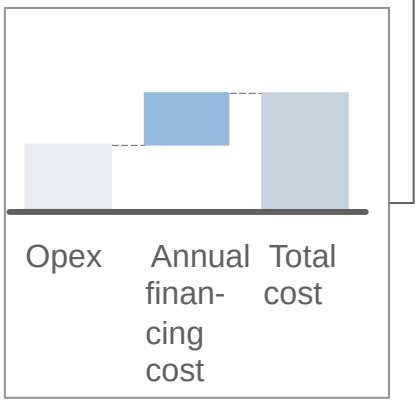


Initial Capex annualised using discount rate

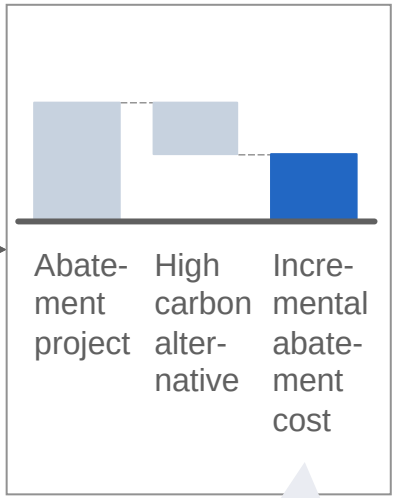
Abatement project



High carbon alternative



Annual incremental cost



Financing flows are the annual income support required to cover incremental cost relative to high carbon alternative

The costs of adaptation are uncertain: estimates vary substantially and are incomplete

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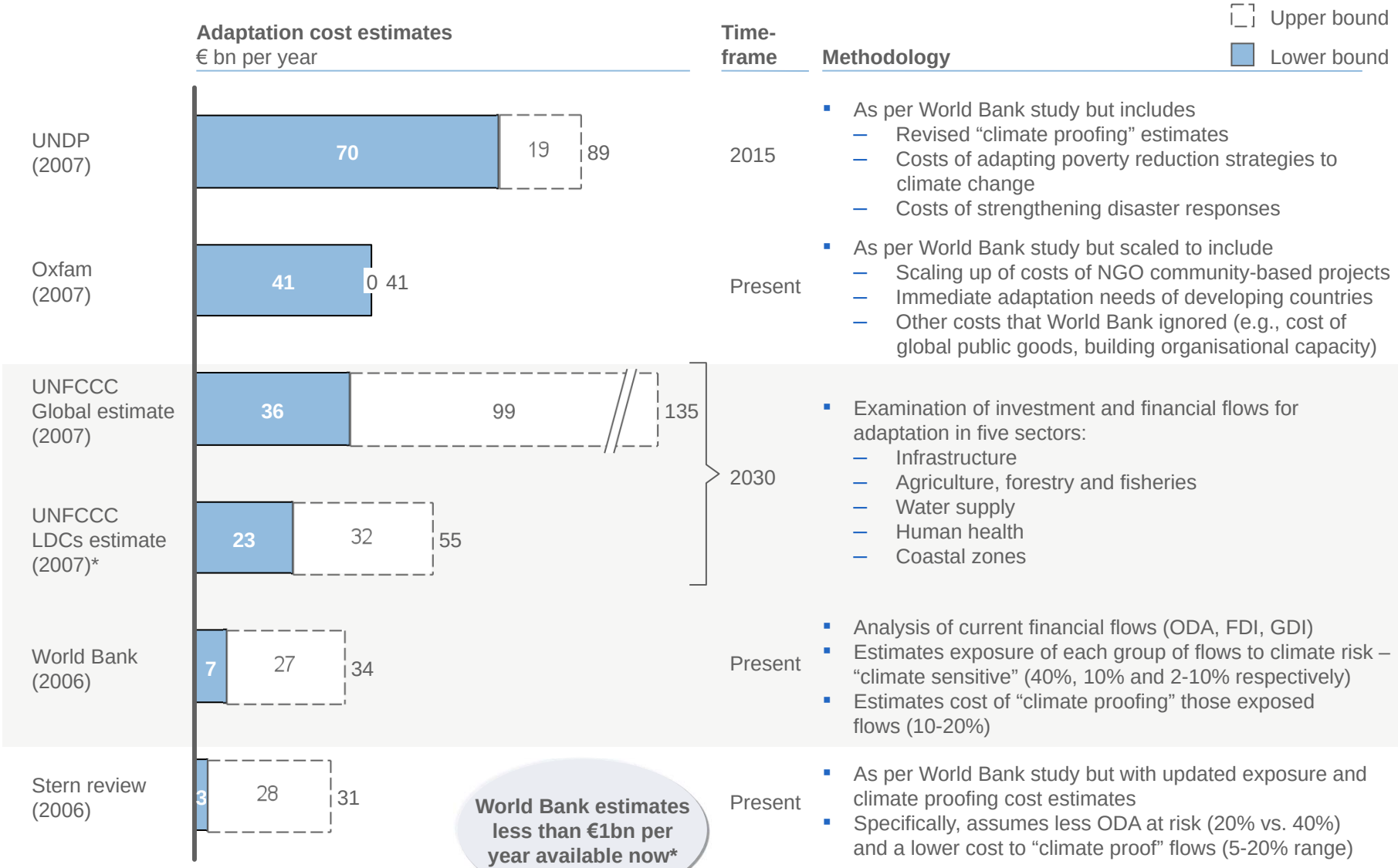
Primary research



*World Development Report 2010, chapter 6

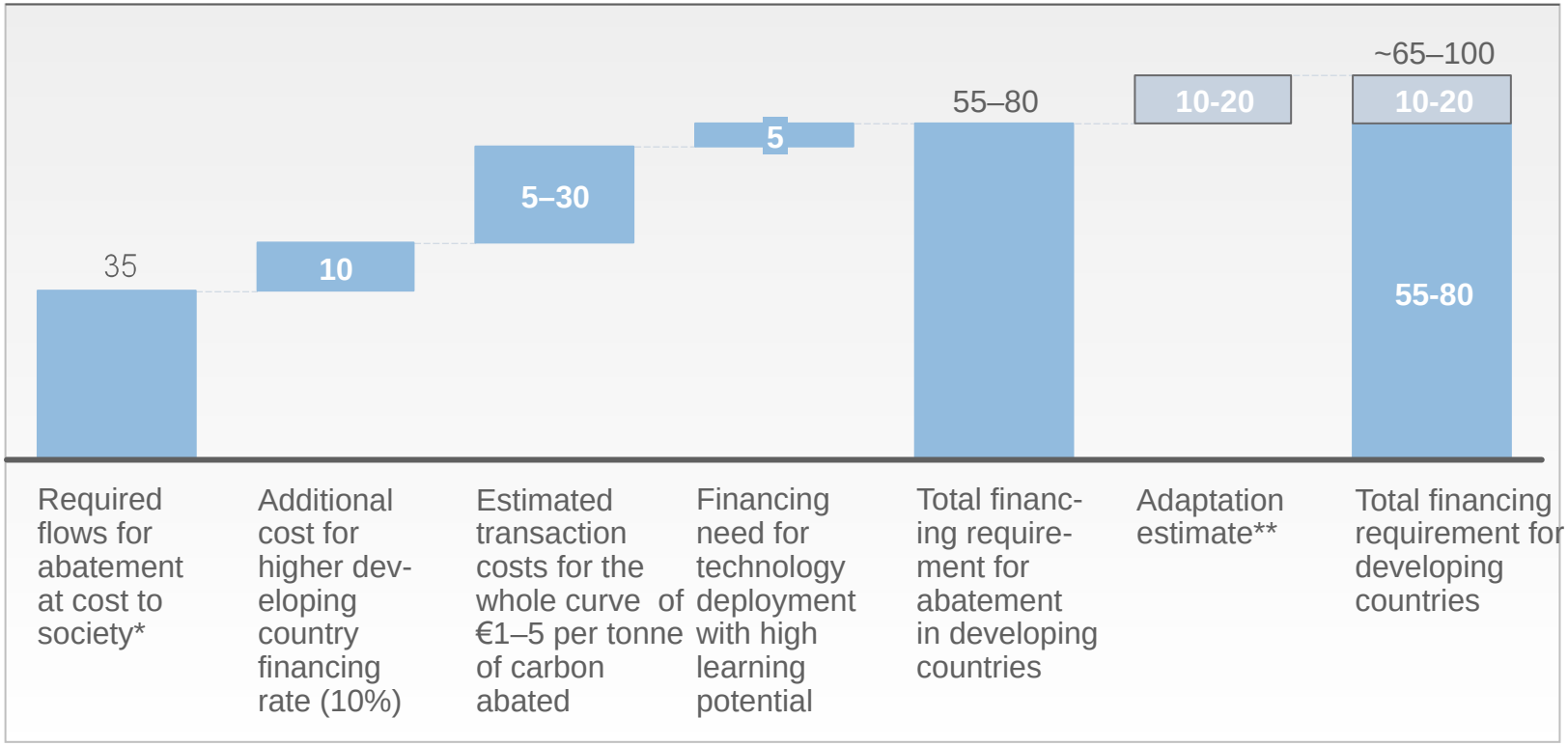
Source: Agrawal & Fankhauser (2008); Oxfam briefing paper 04 (2007); Project Catalyst analysis

Financing flows: €65-100 billion required in developing countries

Costs of 12 Gt of abatement indeveloping countries

Adaptation cost

Developing country financial requirements,
€ billion on average p.a. 2010–20 (excluding self-financing)



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

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

Source: McKinsey Global GHG Abatement Cost Curve v2.0; 'Bosetti; Carraro; Massetti; Tavoni'; UNFCCC; Project Catalyst analysis

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Backup

Project Catalyst estimates the financing needs will ramp up from €15-30 bn pa to €90-145 bn during the 2010-2020 period

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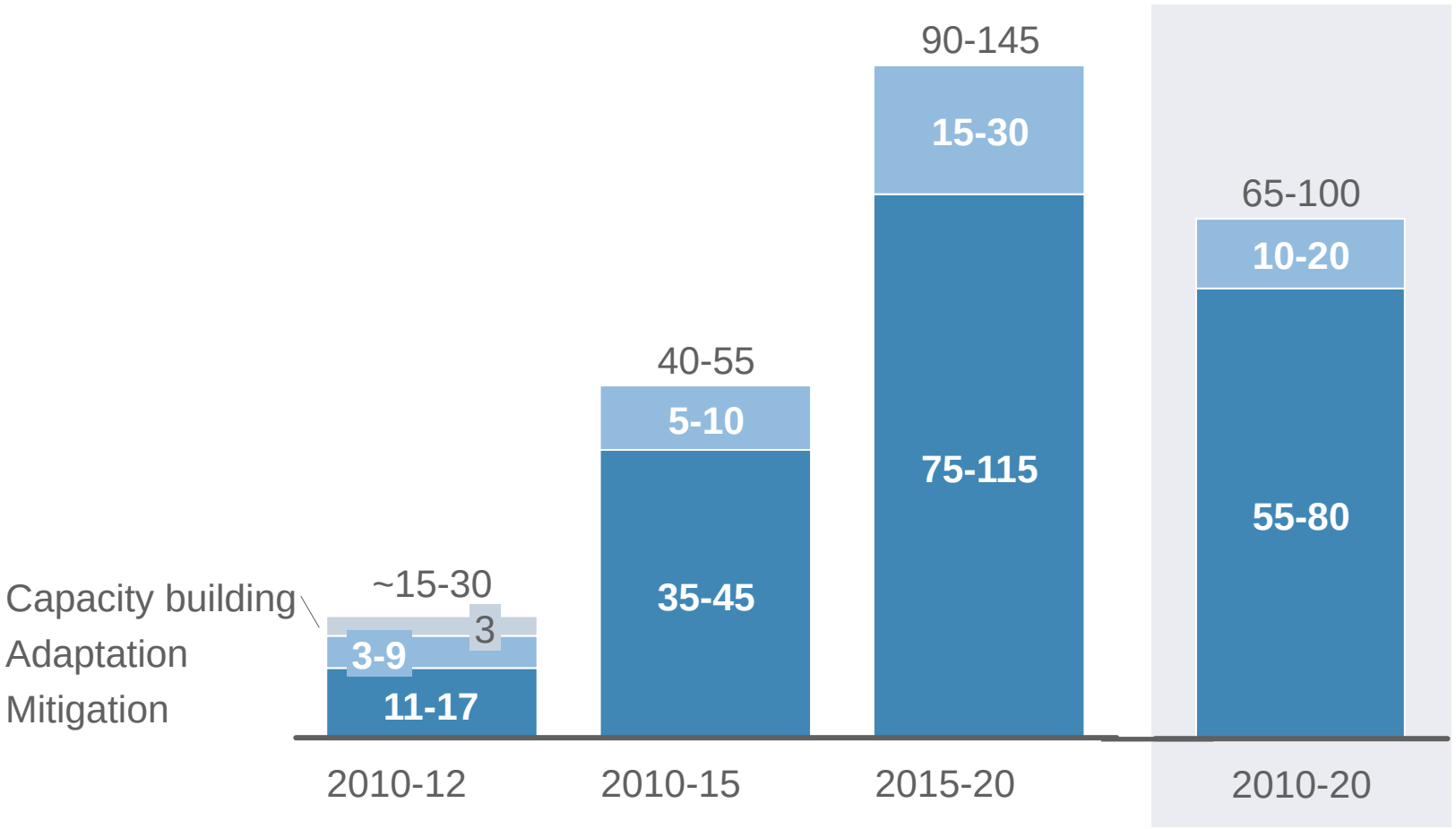
Developing country financing needs
€ billion (annual averages)



Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

Overview

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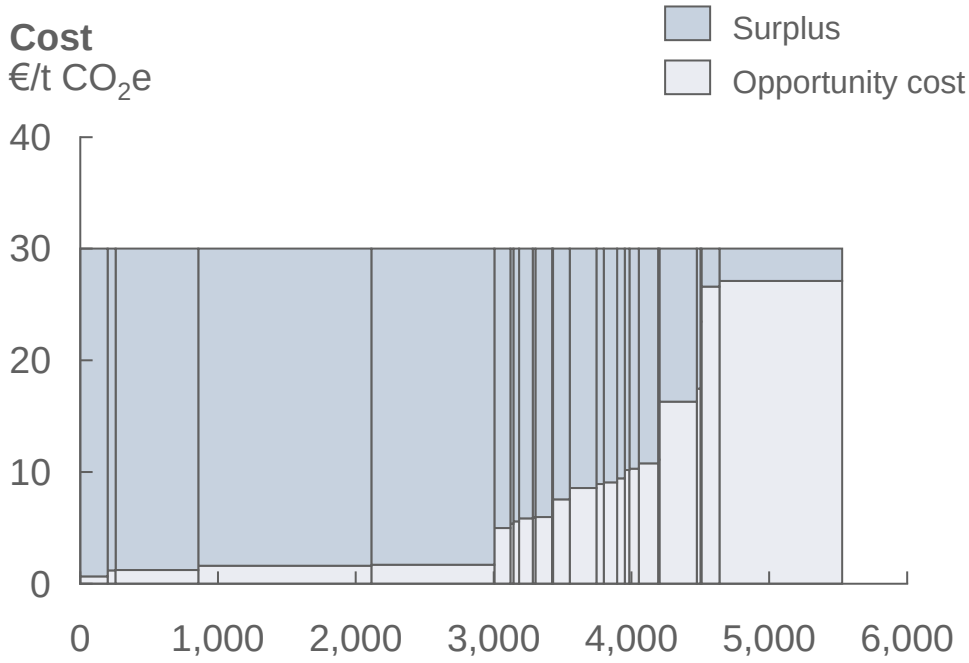
Backup

Carbon markets might create significant surplus for investors/intermediaries

ILLUSTRATIVE

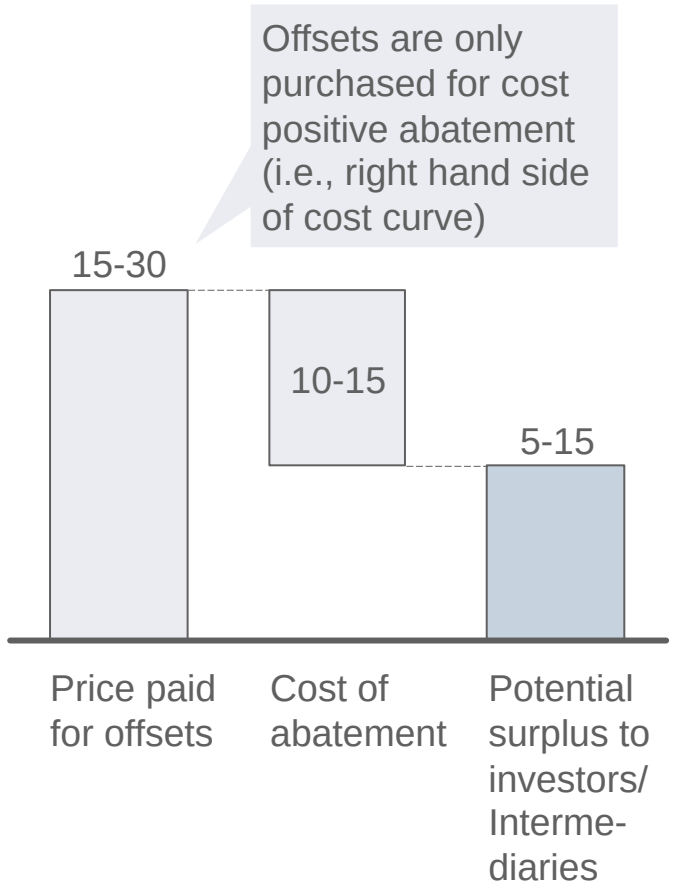
Forest sector cost curve
Non-Annex 1, 2020

FORESTRY EXAMPLE



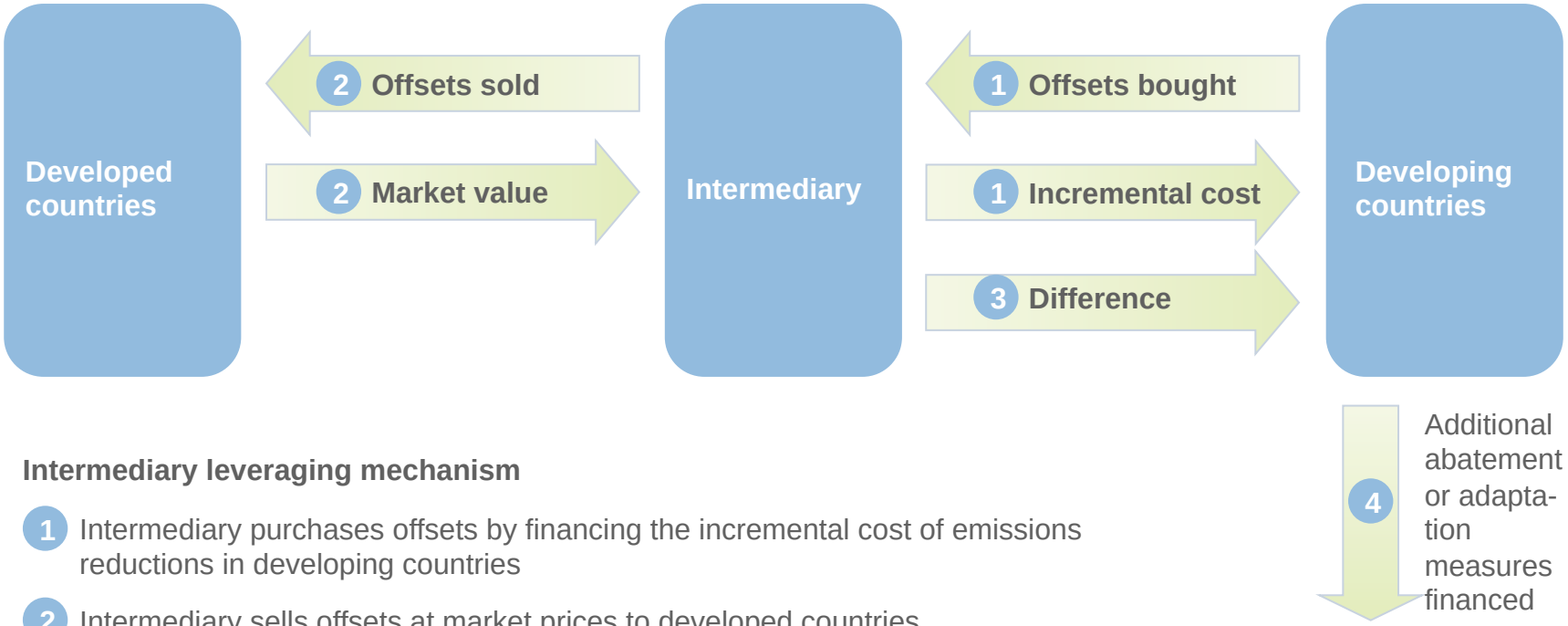
Note: the surplus could be much smaller if 7 Gt of AAUs are allowed to be carried over to next commitment period

Carbon markets under 25% target,
€bn2010-20 p.a.*



Source: Project Catalyst analysis, UNFCCC

Principle of intermediation

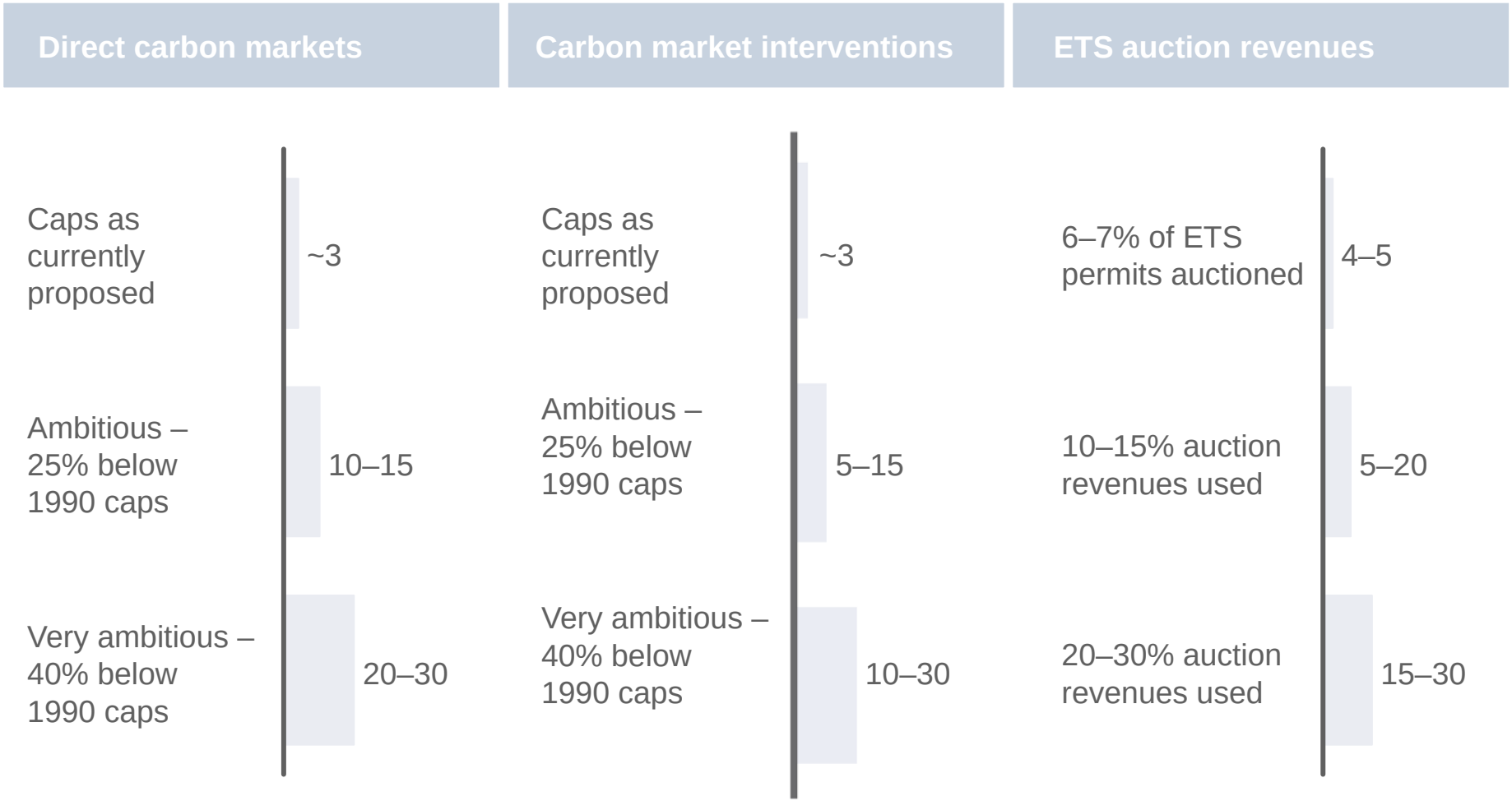


Intermediary leveraging mechanism

1. Intermediary purchases offsets by financing the incremental cost of emissions reductions in developing countries
2. Intermediary sells offsets at market prices to developed countries
3. Intermediary captures difference between incremental cost of emissions reductions in developing countries and the market cost of emissions sold to developed countries
4. Intermediary uses the difference to finance either incremental costs of further abatement in developing countries or adaptation measures

Overview of financing raised from carbon markets

€ billion, 2010–20 annual average

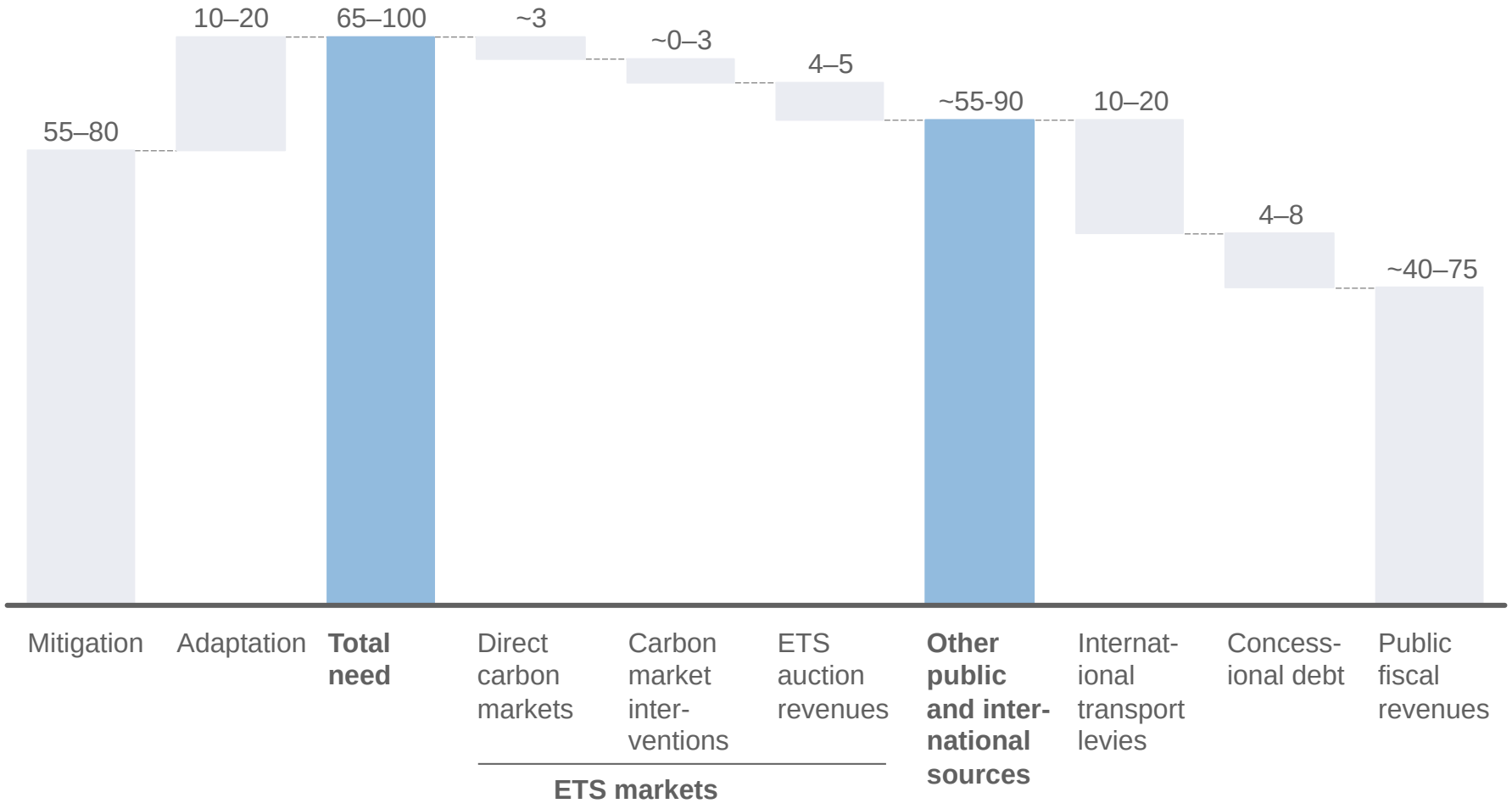


Source: Project Catalyst analysis

Current proposals would suggest very little funding from the ETS markets, leaving a much higher public finance bill

Financing needs and sources assuming current emissions reduction proposals in developed countries*, € billion, annual average 2010–20
rounded to nearest € 5 billion

APPROXIMATIONS ONLY



*Current proposals as at November 2009 - add up to ~16% below 1990 levels for developed world

Source: Project Catalyst analysis

Overview

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Sensitivities on financing requirements for developing countries

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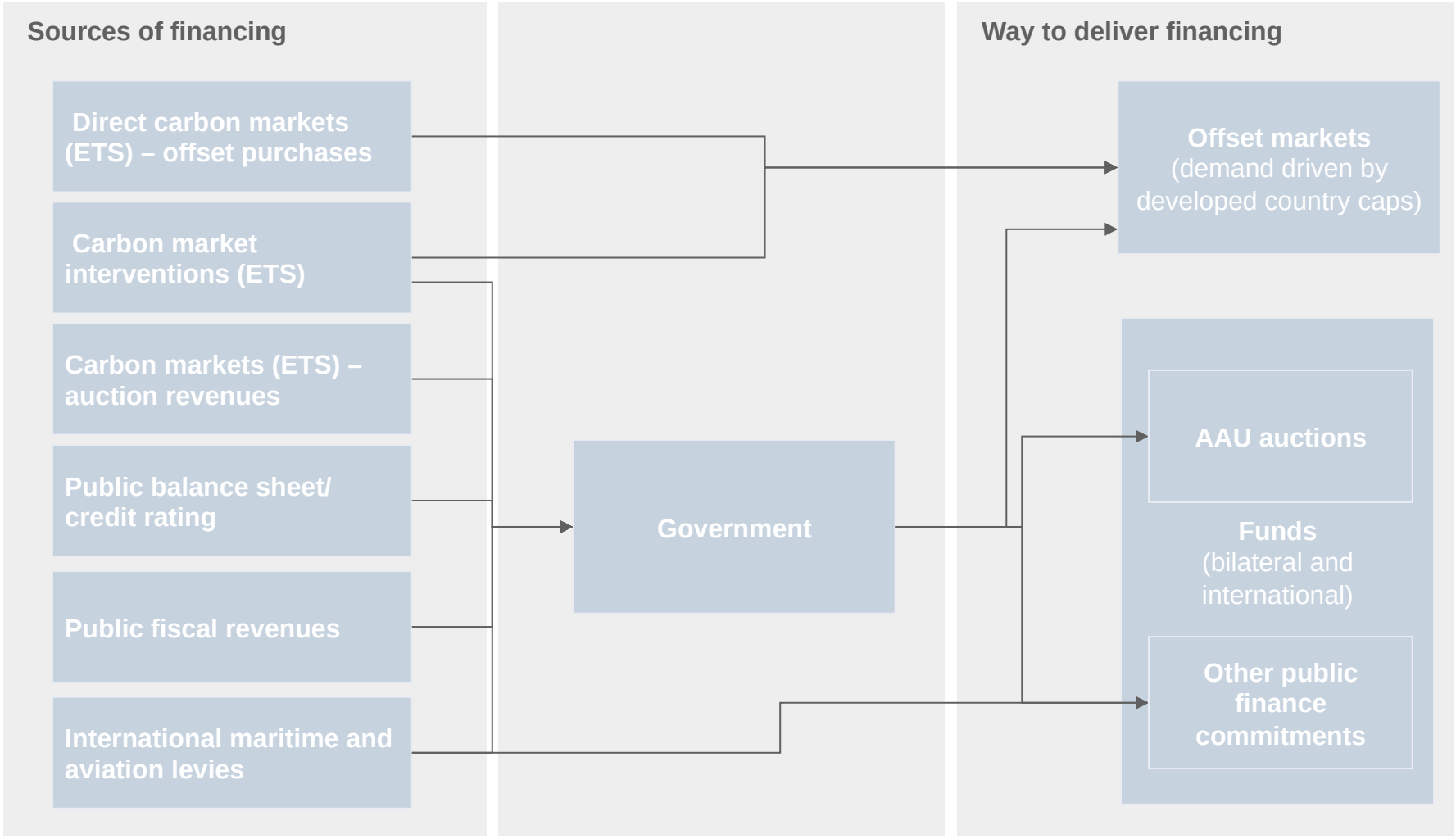
Developing country financing needs to achieve 450ppm pathway

	Description	Average annual financing need **2010–20**, € billion
High case	▪ Reduced agriculture (only 50% achieved) replaced by high cost abatement up to €60/t ▪ No self-financing in developing countries except NPV positive abatement ▪ Transaction costs €1–5/t ▪ Adaptation costs (€10–20 billion)	95–130
Base case	▪ Cheapest abatement achieved (up to €30/t) ▪ No self-financing in developing countries except NPV positive abatement ▪ Transaction costs €1–5/t ▪ Adaptation costs (€10–20 billion)	65–100
Low case	▪ Cheapest abatement achieved (up to €30/t) ▪ Self-financing of abatement with co-benefits (estimated at 50%) in more advanced developing countries amounting to total of €20–25 billion ▪ Low transaction costs €1–3/t ▪ Adaptation costs (€10–20 billion)	40–55

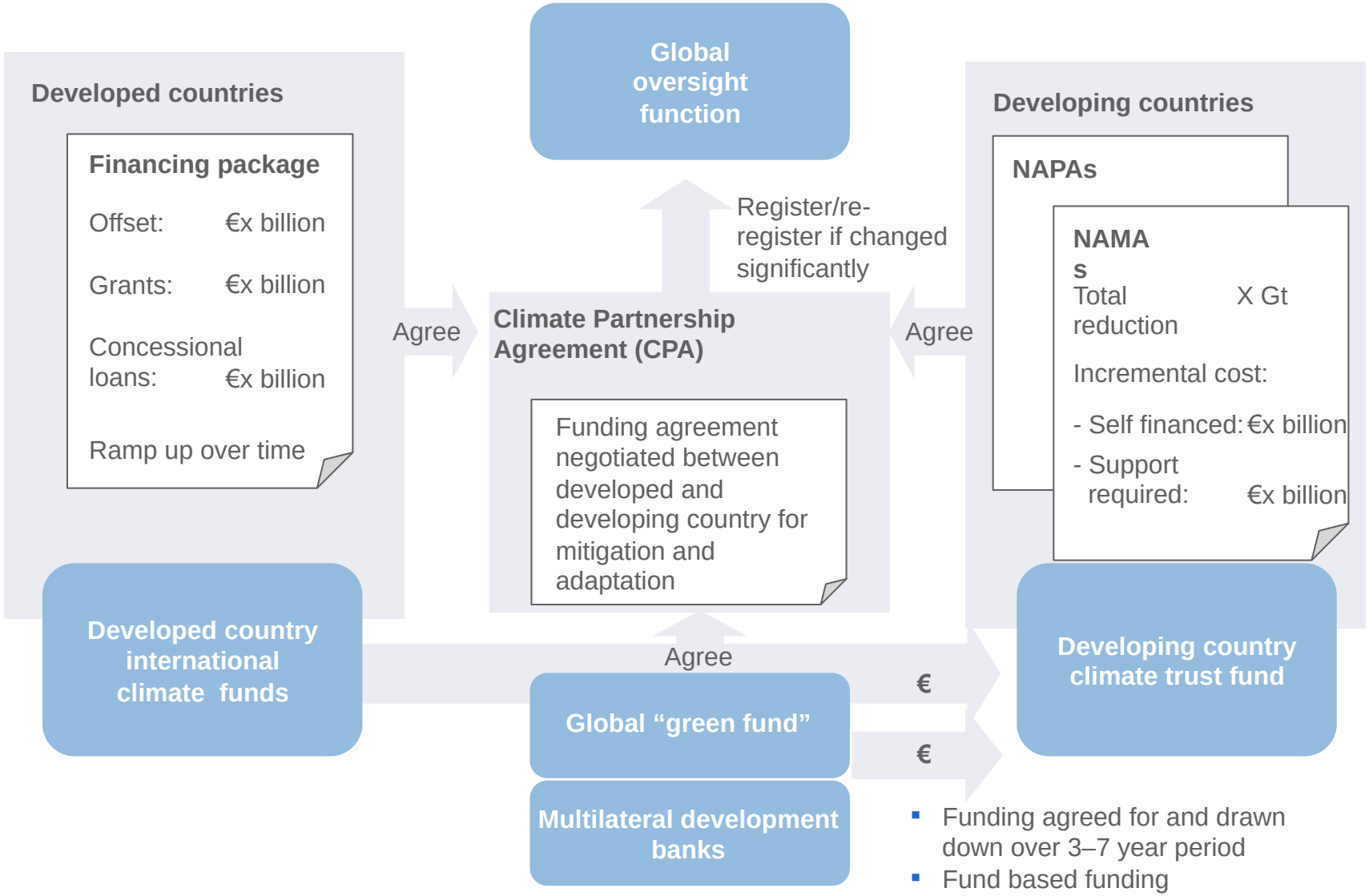
Using an alternate baseline with less abatement required (only 10 Gt in developing countries) reduces total to about €55–85 billion

Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

Link between sources and different ways to deliver financing

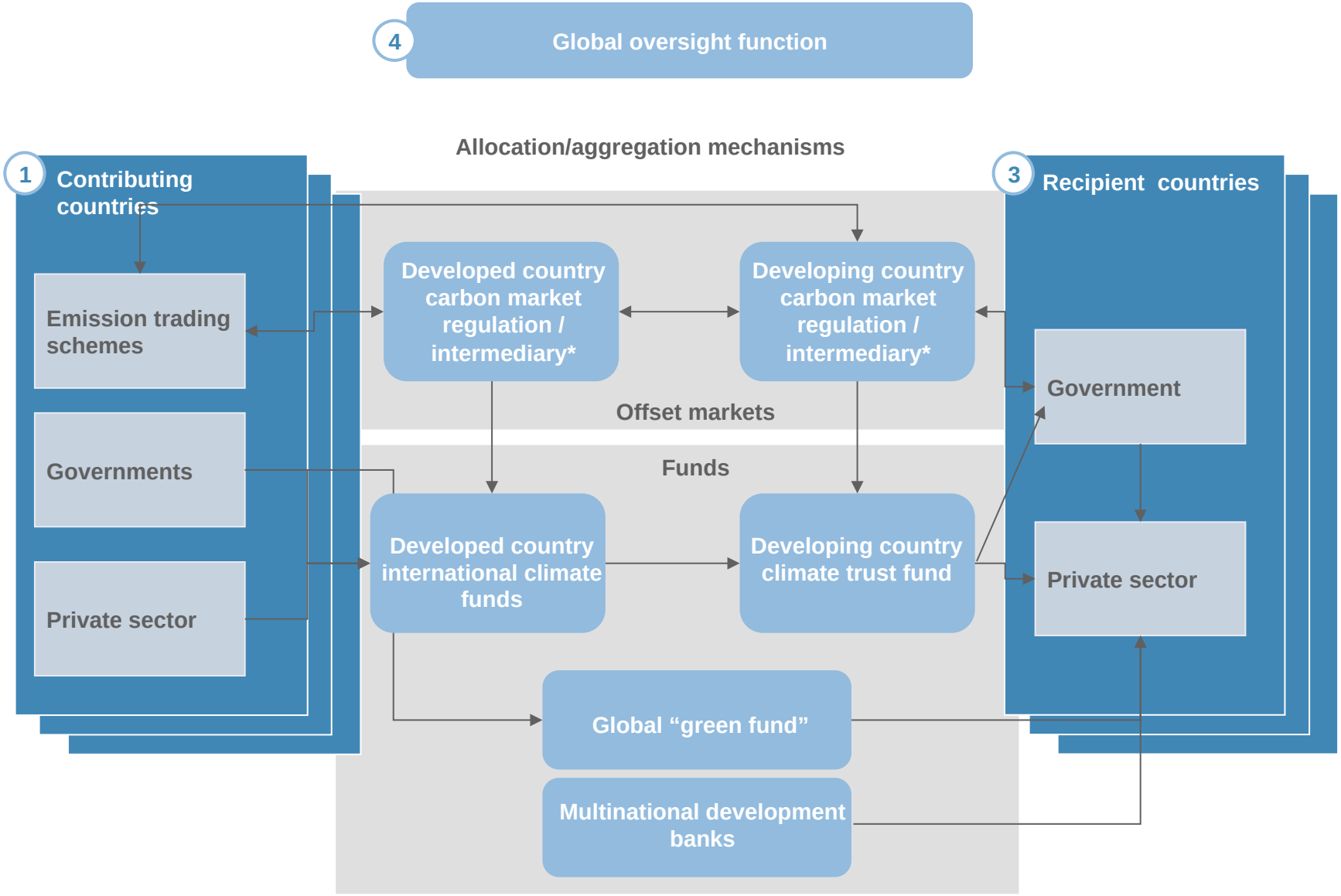


Overview of process for agreeing climate partnership agreements



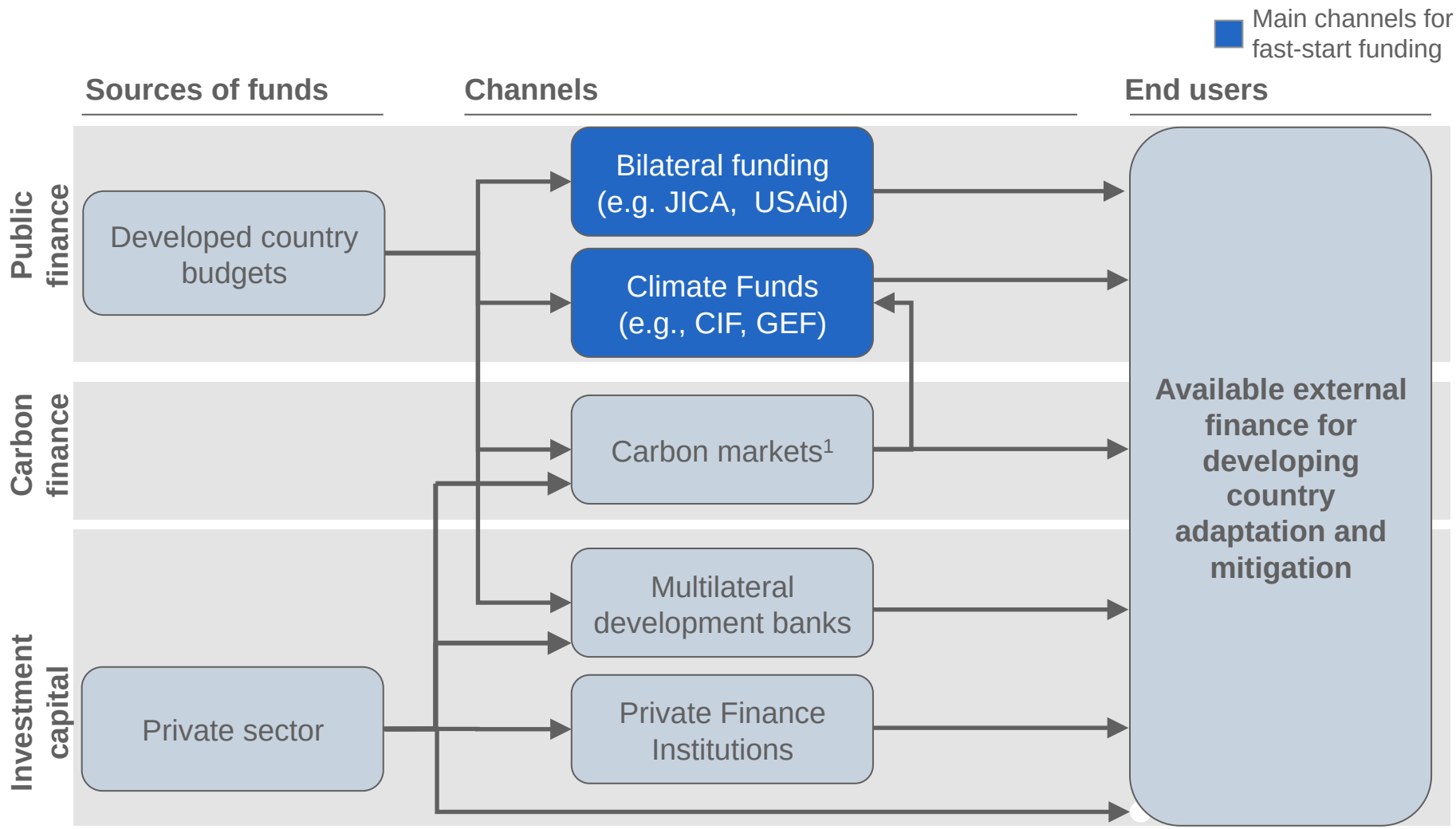
Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

Overview of climate financing system



*Function could be performed by developed and developing country trust funds

Mapping of external finance channels for climate change mitigation and adaptation initiatives in developing countries



1 Carbon markets also indirectly fund some of the intermediaries (e.g. CDM levy funding the Adaptation Fund)

SOURCE: Project Catalyst analysis

Suitability of different financing instruments for different uses

NON-EXHAUSTIVE

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✓ Where instrument should be used

✗ Where instrument should not be the main financing instrument

		Capacity building	Power & industry*	Forestry	Energy efficiency	Technology	Adaptation	Description
Offset markets	Project based offsets	✗	✓	(✓)**	✗	✗	✗	▪ Mitigation in sectors that are MRV-able on installation basis, e.g., power, industry ▪ To be limited to least developed countries
	Sector / programmatic schemes	✗	✓	(✓)**	✗	✗	✗	▪ Mitigation in sectors that are MRV-able on sector basis, e.g., power, forestry, industry, which use credible baselines ▪ Sectoral plans are part of LCGPs and reviewed by independent panel
Funds	Grants	✓	✗	✗	✗	✓	✓	▪ Grants primarily for capacity building, adaptation, technology
	Payments (linked to performance)	✗	✓	✓	✗	✗	✗	▪ Payments with link to performance for positive cost sector (e.g., advanced market commitments like feed-in tariffs in power, reduction of deforestation)
	Concessional debt	✗	✓	(✓)**	✓	✗	✓	▪ Concessional loans (or debt guarantees) should be used in positive cost sectors with project finance/ high upfront capital expenditure

* Excluding energy efficiency ** Concessional debt and offsets could be used for afforestation (where national REDD strategy exists); limited market access for REDD, only with sectoral caps and in case of tight developed country caps

Source: Project Catalyst analysis

Incremental capital requirements

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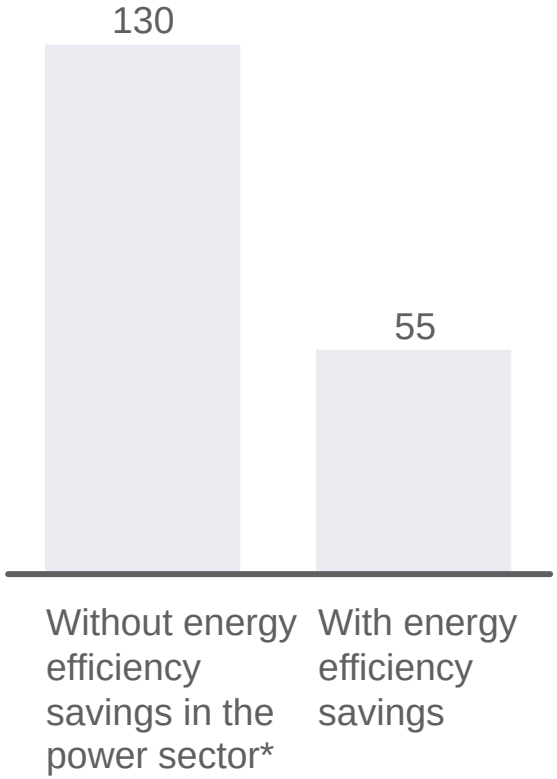
Definition of incremental capex:

- Incremental upfront capital investment required for mitigation measures in developing countries relative to business as usual pathway
- Based on comparison of mitigation technology (e.g., wind) relative to high carbon alternative (e.g., coal)
- Based on calculation to deliver 12 Gt of reductions to achieve 450 ppm pathway

Required incremental capital investment (developing countries)
€ billion, annual average 2010–20



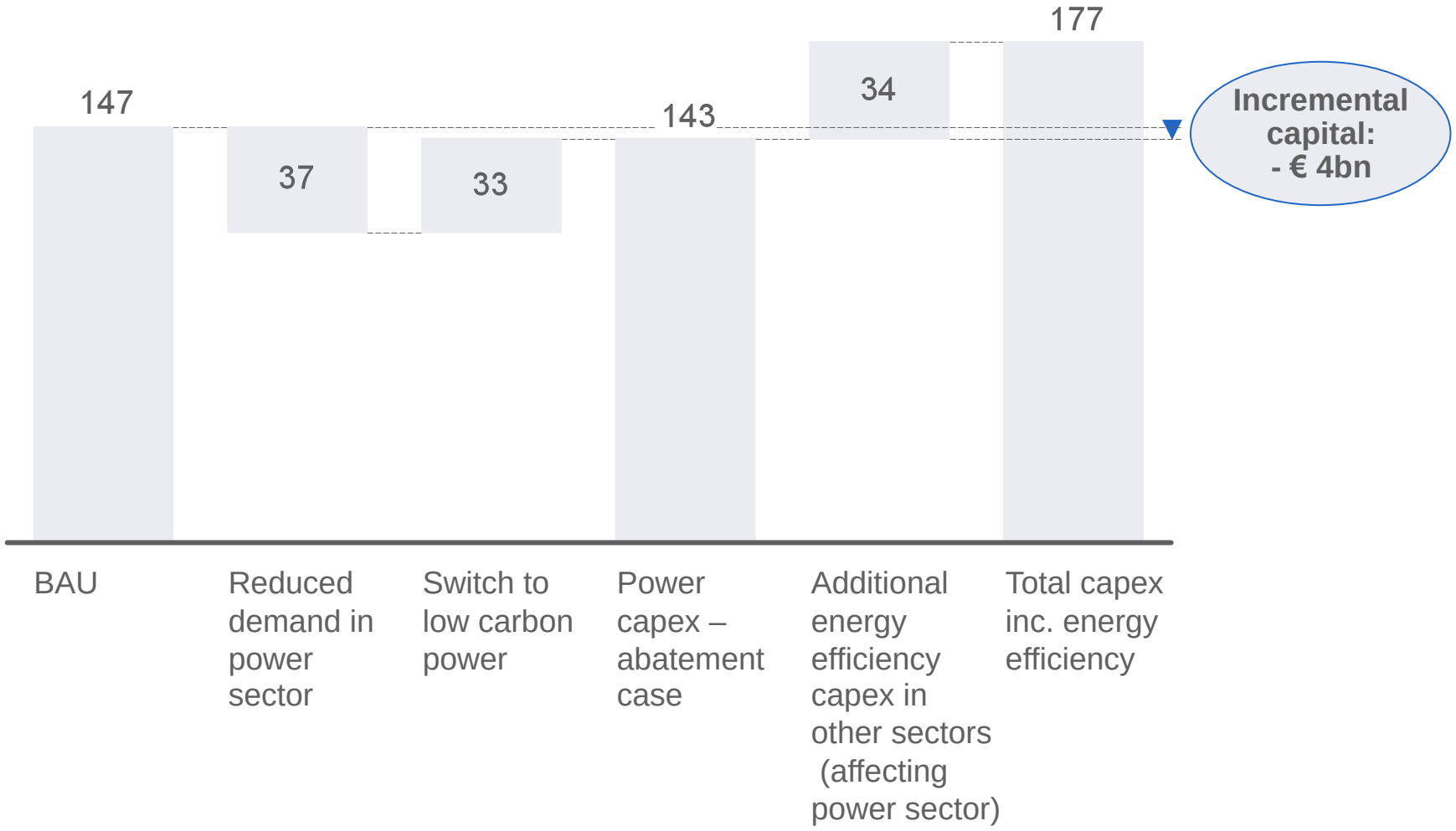
*Excludes savings in upfront capital investment in power generation as a result of reduced demand from energy efficiency measures as well as other factors (e.g., mix of mitigation levers)

Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

Capital expenditure in the power sector

€bn, 2010–20 average

Capital expenditure in the power sector, developing countries



Source: Project Catalyst, McKinsey Global Abatement Cost Curve v2.0

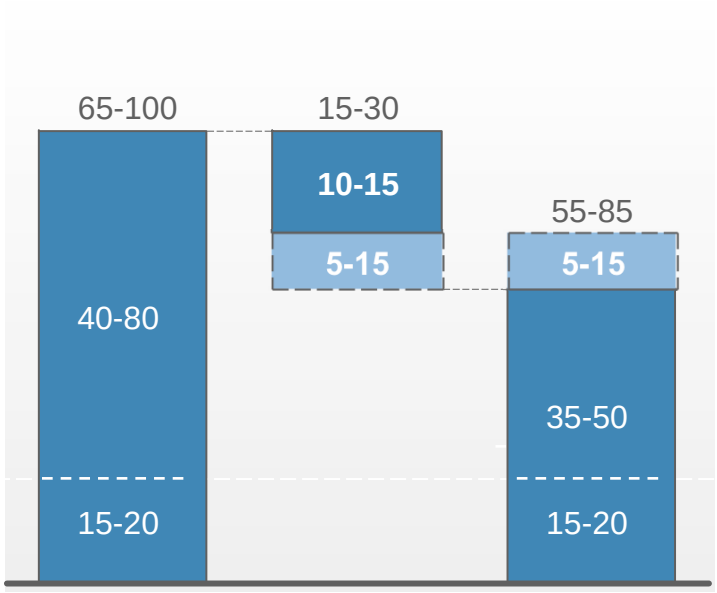
Market intervention could increase financing from markets by around €3bn under current proposals, well short of €5-15bn under 25% cap

European Climate Foundation

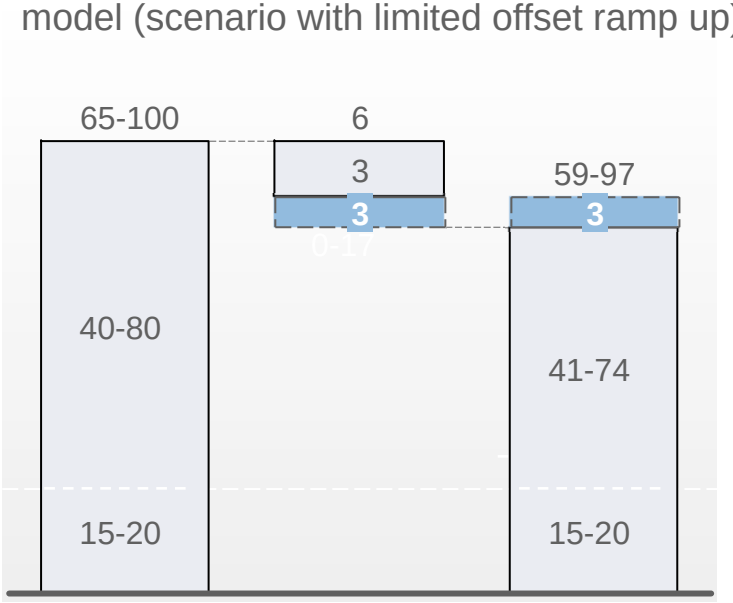
Required and proposed financing from developed countries €b on average p.a. 2010–20

Potential captured through market intervention

25% developed country caps
Carbon price € 15-30



Current proposals
Carbon price from bottom up carbon market model (scenario with limited offset ramp up)

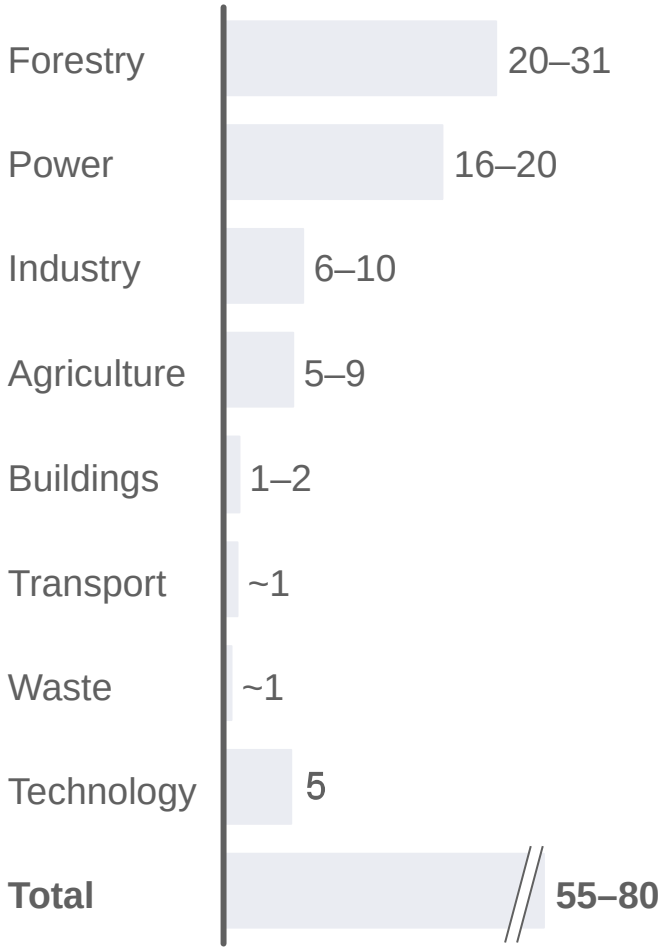


*Share of cost between carbon markets and public finance allocated by average cost of developing country NPV negative abatement levers, with 10% transaction costs

Source: McKinsey Global abatement cost curve v2.0

Financing flows by sector and region

Financing flows, 10% discount rates, including transaction costs of €1–5 per tonne
€ billion, average p.a. 2010–20

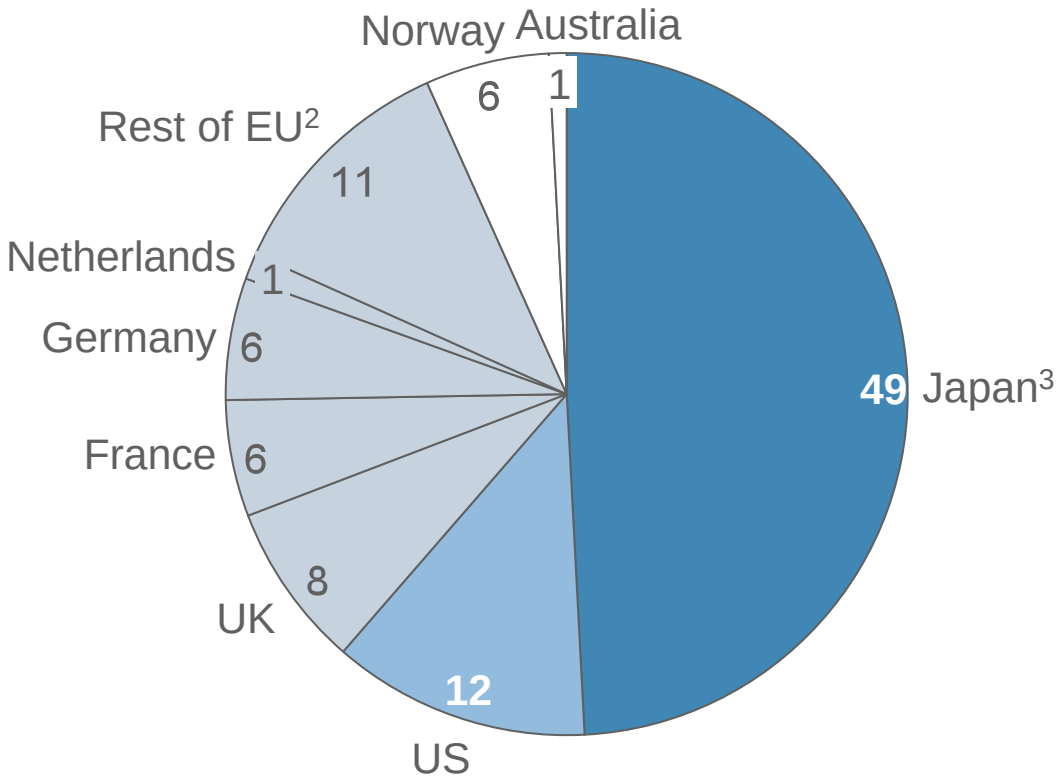


Source: McKinsey Global Cost Curve v2.0, Project Catalyst analysis

Preliminary estimate of public climate finance breakdown by country, including grants and loans

2010-12[1], in percent

100% = USD 31 Billion



1 Incl. Australia, EU (and its member states Germany, France and UK), Japan, Norway, and US; Commitments of other developed countries to be added; Includes bi-lateral financing and financing for multi-lateral climate funds
2 Additional EU-commitments including Poland (USD ~0.08 billion) and Ireland (USD 0.1 billion); others need to be added
3 Incl. USD 4 billion committed private financing through the Japan Bank for International Cooperation

SOURCE: Team interviews; Press search; Project Catalyst analysis

Different market interventions are required for different parts of the surplus

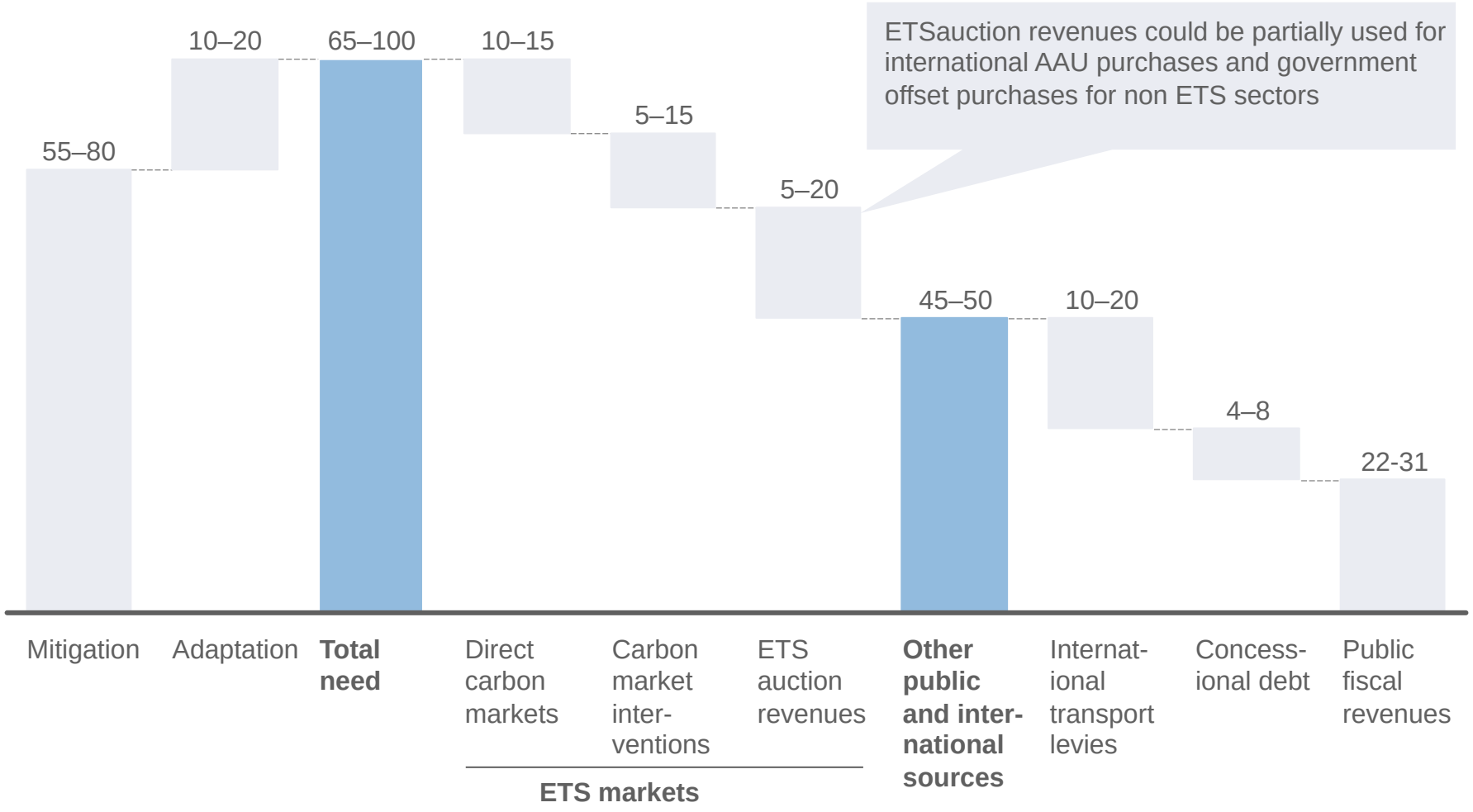
Preferred market interventions

Project schemes	Programmatic and sectoral no-lose schemes
Discounting	Discounting; Intermediation
Taxation	Intermediation and baseline setting

Source: Project Catalyst analysis

Developing country financing needs can be met by a mix of direct & indirect carbon market financing and public finance

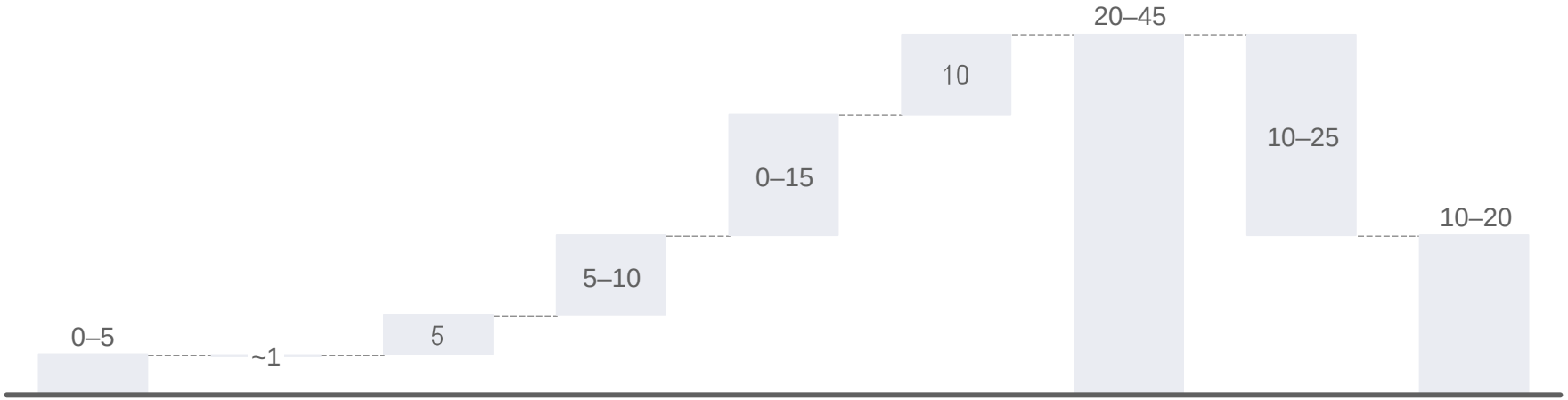
Financing needs and sources assuming 25% caps in developed countries, € billion, annual average 2010–20 rounded to nearest € 5 billion



Source: Project Catalyst analysis

Project Catalyst estimates between €10-20b per annum are required through 2010-20

Average annual adaptation cost 2010–2020, € billion



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

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

3 Based on Munich Climate Insurance Initiative proposal

4 Based on annualised NAPA cost estimates – using median NAPA cost to scale to all developing countries

5 Derived from UNDP cost estimates for "climate proofing investment"

6 Derived from UNDP cost estimates for social adaptation

Source: NASA; UK Met Office; NOAA; CGIAR; UNFCCC; NAPAs; Munich Climate Insurance Initiative; EM-DAT International Disaster database; Project Catalyst