

Global carbon abatement and carbon markets

LSE

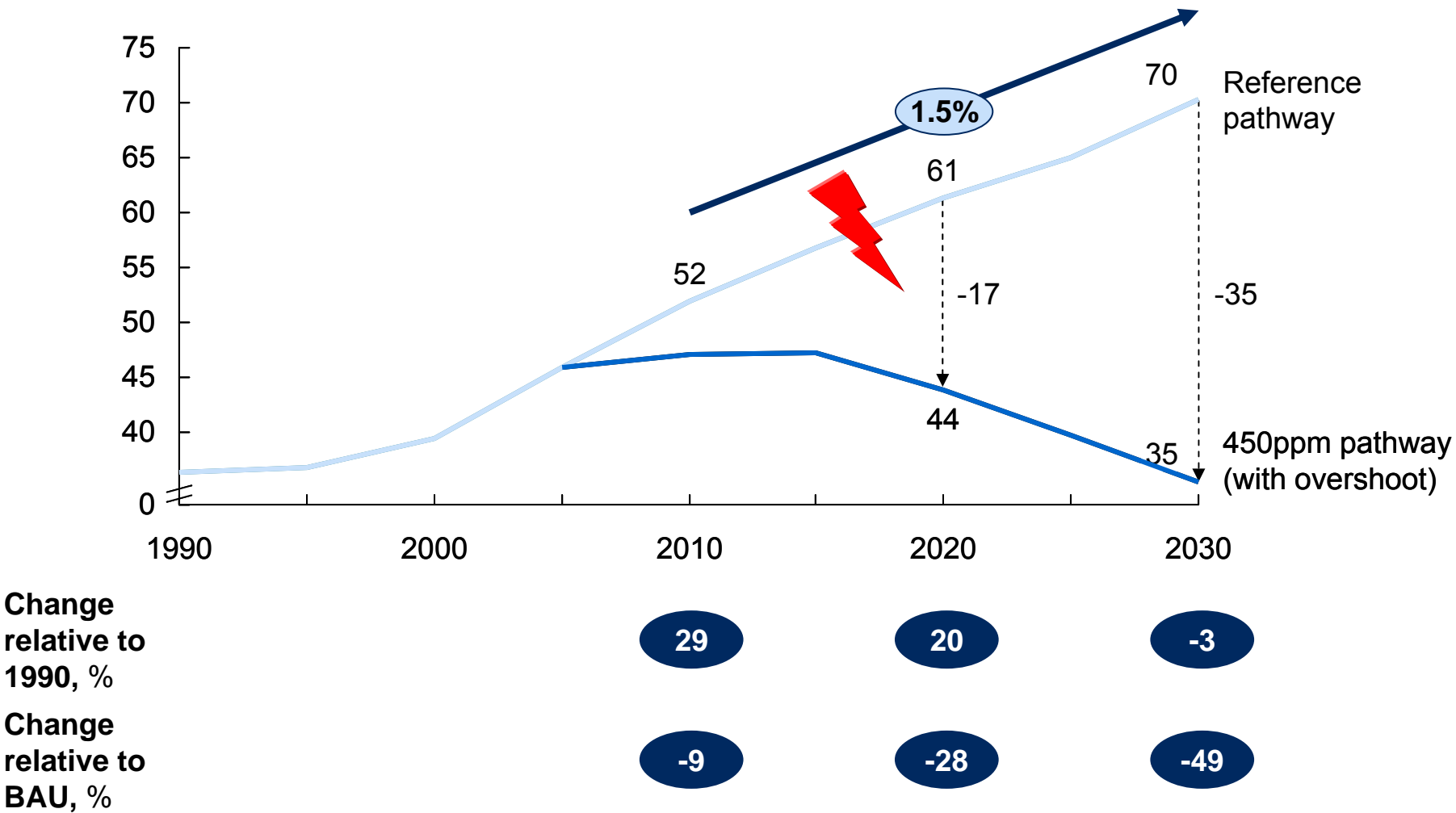
Presentation

May 5, 2009

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17 Gt of reductions below the reference pathway in 2020 are required to stay limit global warming to 2 degrees

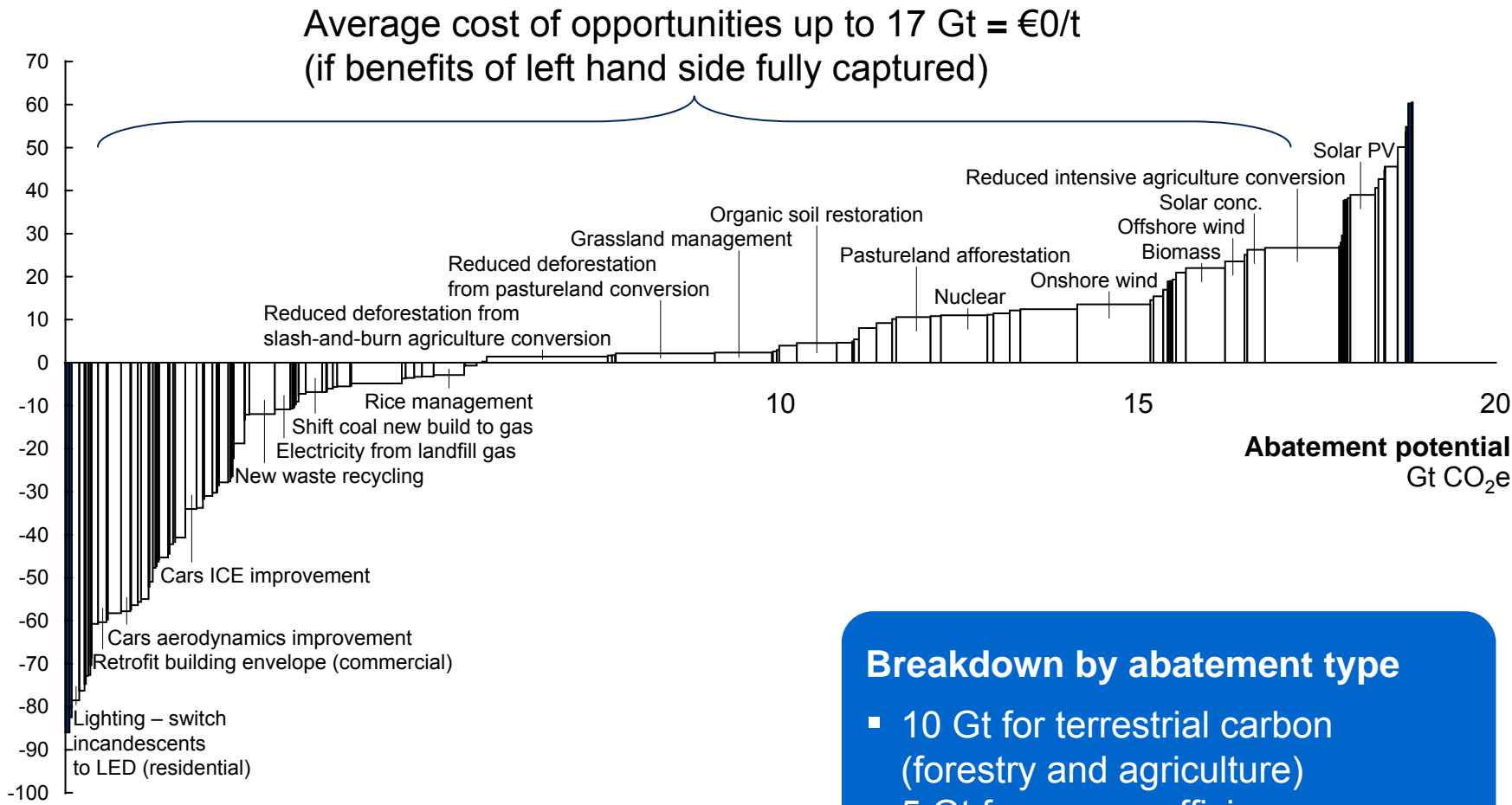
Global GHG emissions, Gt CO2e per year



SOURCE: McKinsey Global GHG Abatement Cost Curve v2.0; Den Elzen, M.G.J. and M. Meinshausen, 2006: Multi-gas emission pathways for meeting the EU 2°C climate target.; IEA World Economic Outlook 2007; Project Catalyst analysis

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

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

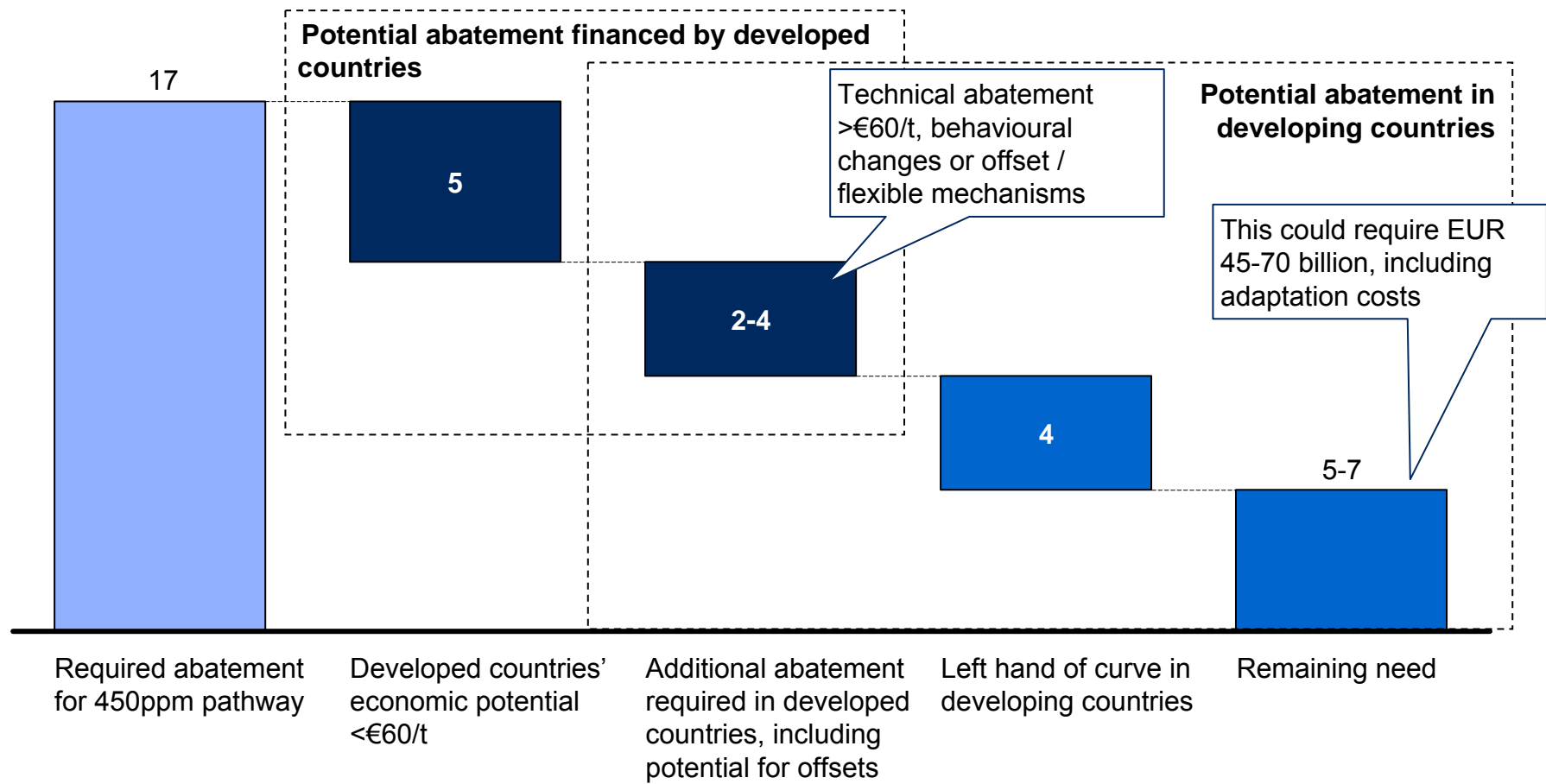


Breakdown by abatement type

- 10 Gt for terrestrial carbon (forestry and agriculture)
- 5 Gt for energy efficiency
- 4 Gt for low carbon energy supply

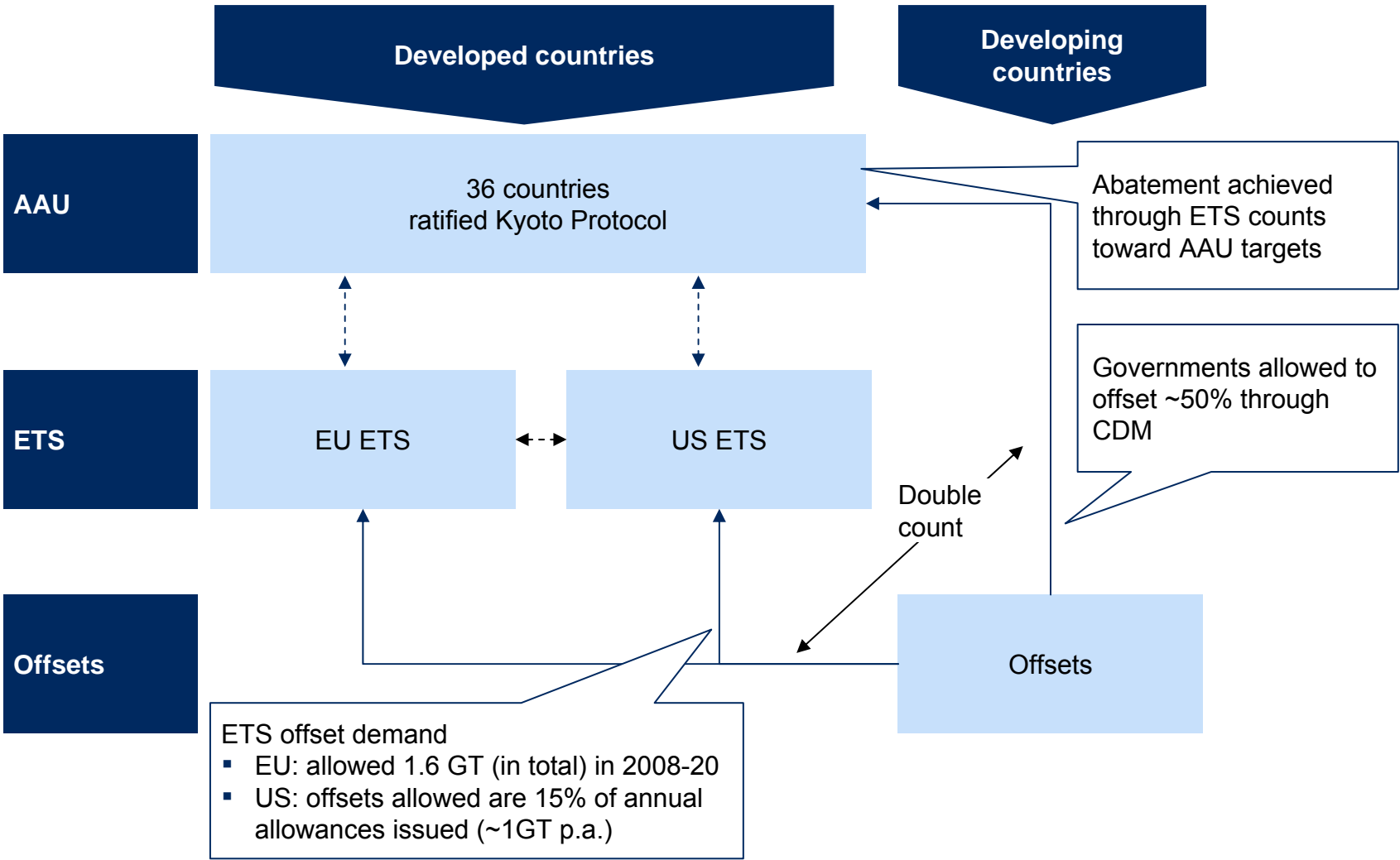
Offset market is a critical component in the global abatement picture

Required abatement in 2020, Gt



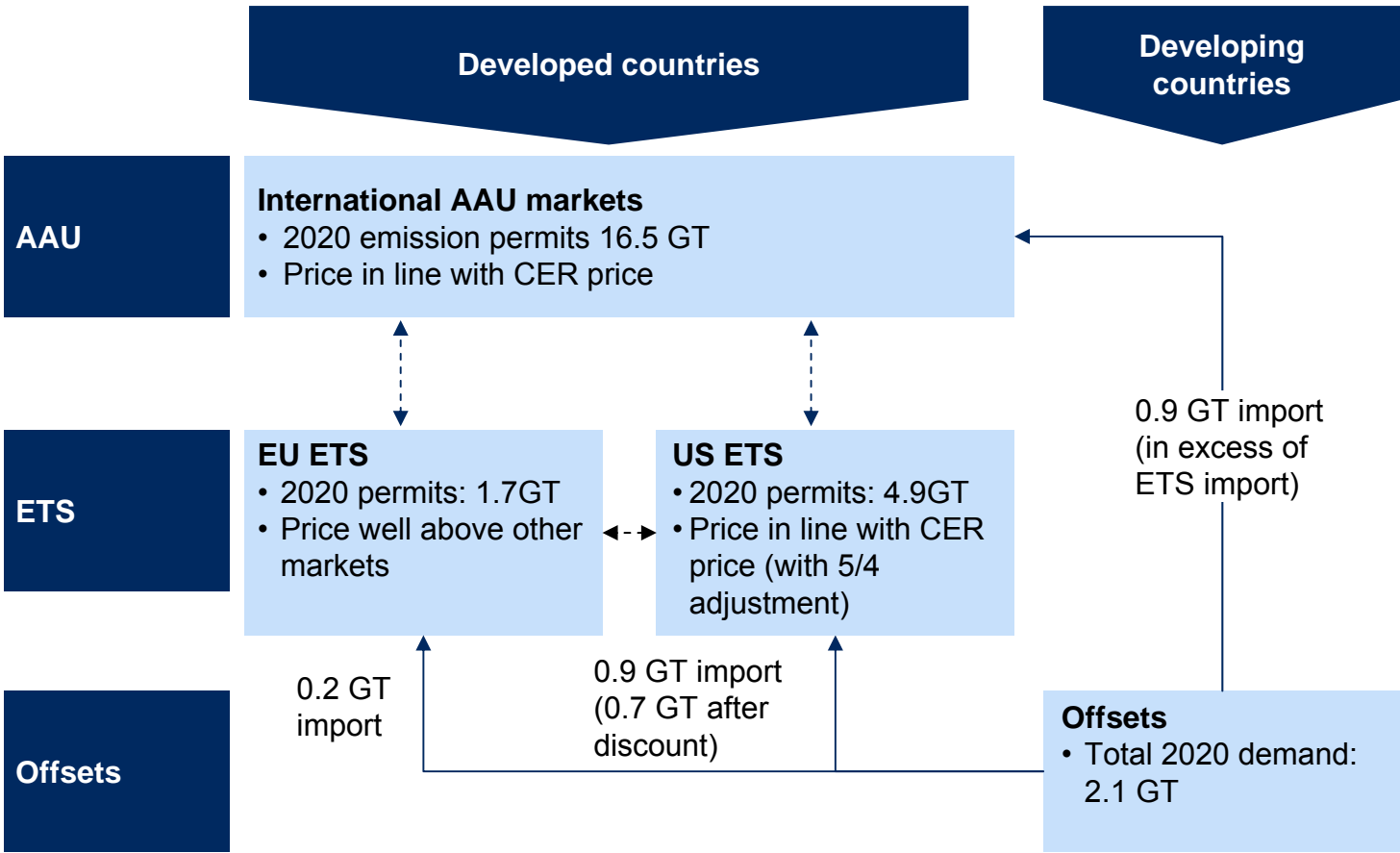
The outline of the carbon finance system is becoming clear

2020 snapshot; Based on currently announced or proposed targets



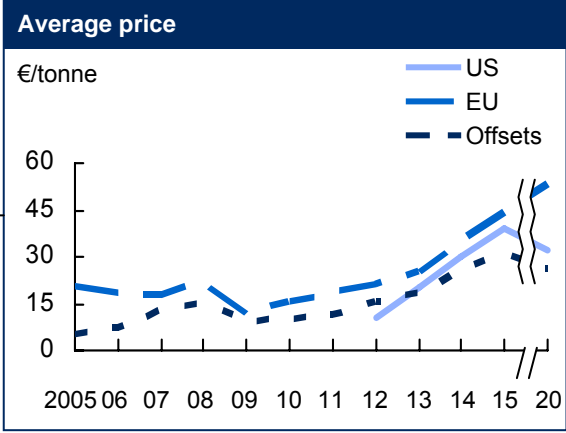
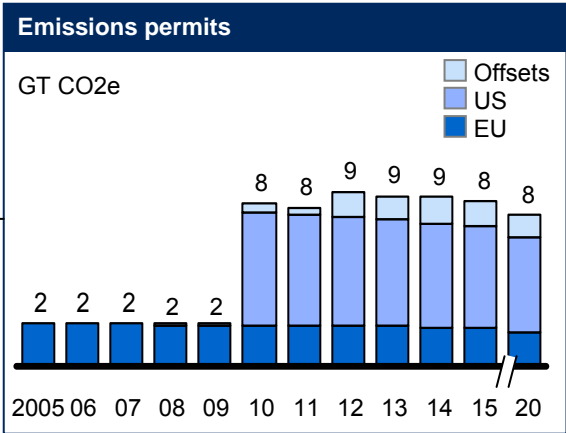
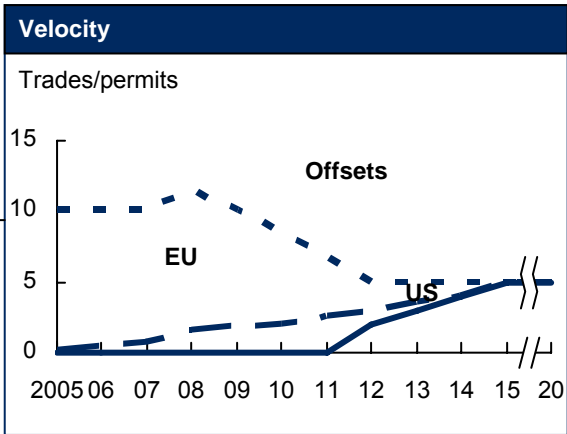
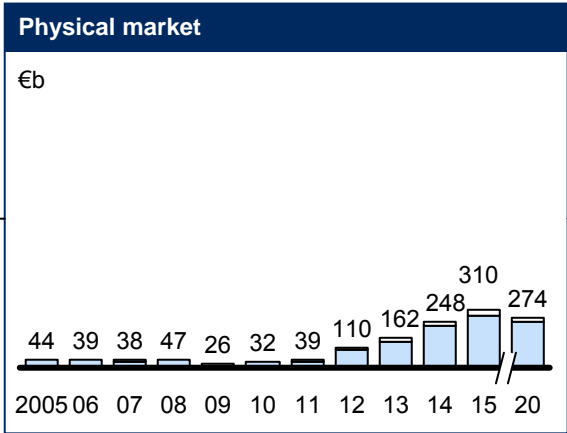
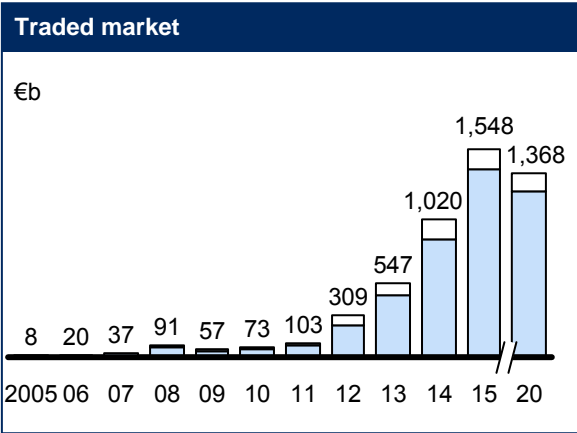
Based on current (proposed) regulation, some of the future market dynamics are becoming visible

2020 snapshot; Based on currently announced or proposed targets



The traded market is multiple times the size of the physical market

ROUGH ESTIMATES



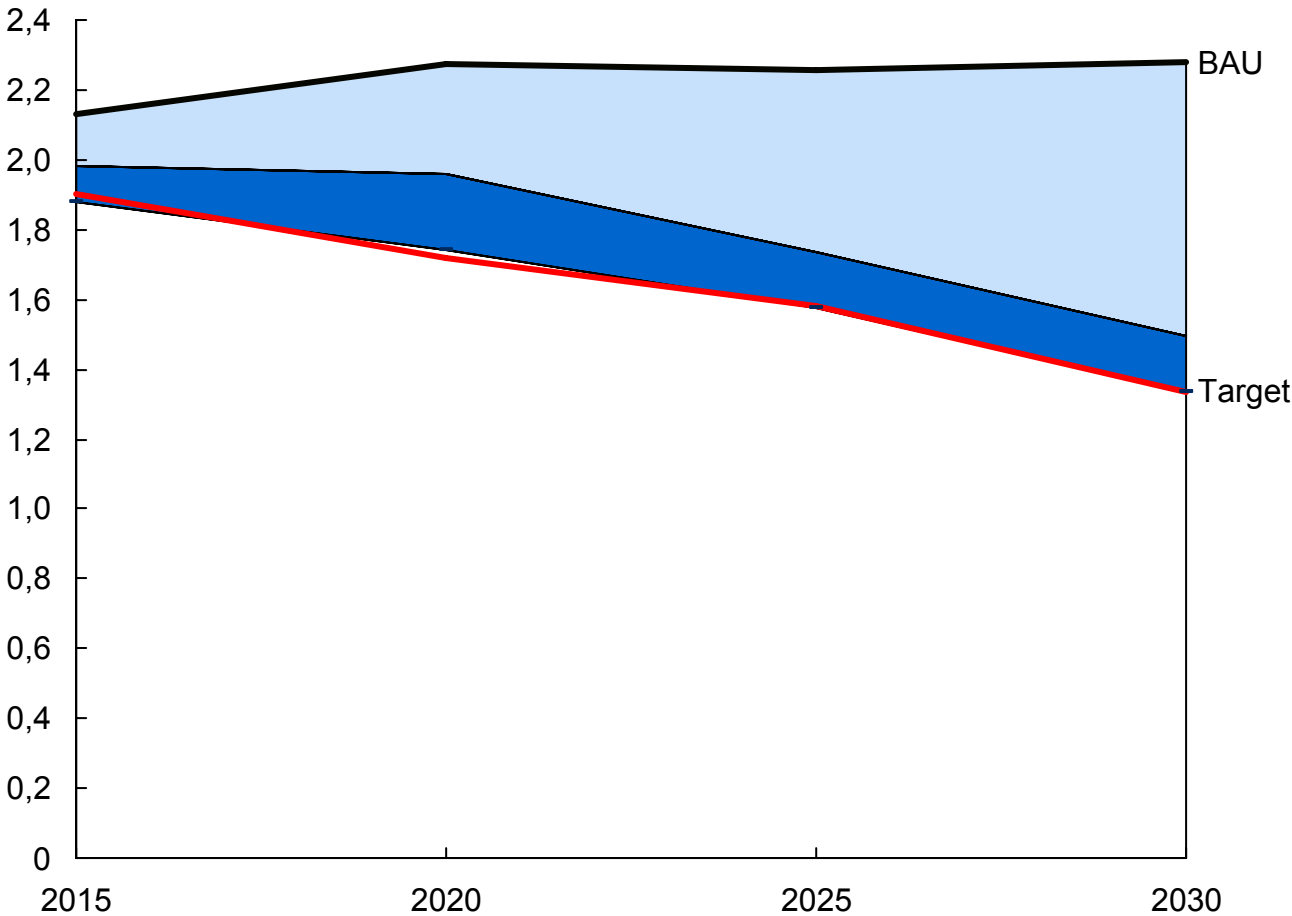
Key assumptions: Only includes EU and US ETS and offsets related to those 2 markets. Velocity assumed to approach that of the current oil market (5x) after 2012

EU ETS – The share of domestic abatement increases over time

Emissions in EU ETS, Gt CO2e

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- Realized domestic abatement
- Domestic offsets
- International offsets
- Emissions after abatement



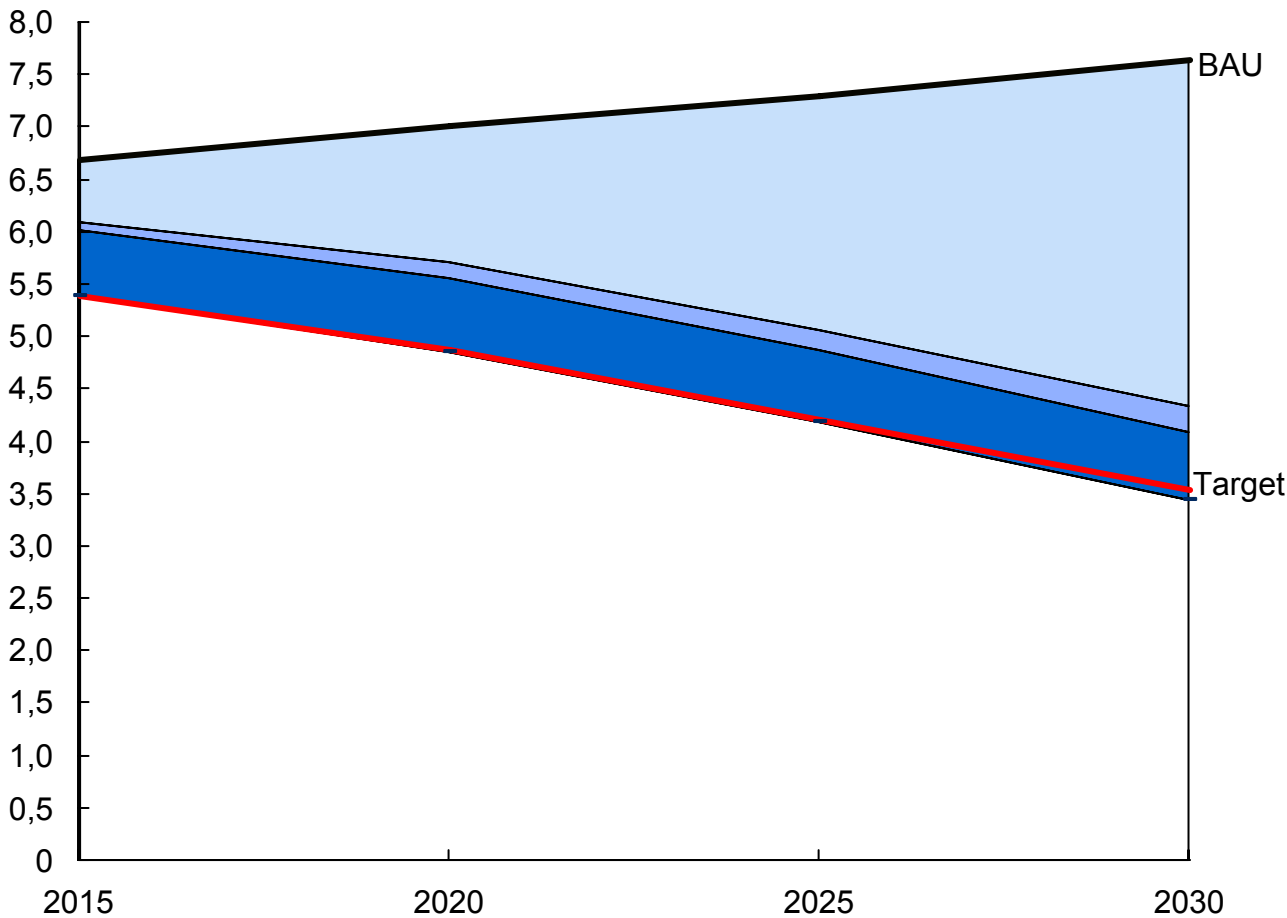
- EU ETS is relatively tight market with a tight offset quota (1.6 GT in 2008–12)
- Once quota is maxed out, price setting capacity will be relatively high cost domestic abatement

US ETS – The share of domestic abatement increases over time

Emissions in US ETS, Gt CO2e

ANNOUNCED
SCENARIO

- Realized domestic abatement
- Domestic offsets
- International offsets
- Emissions after abatement



The US Waxman-Markey carbon market has much more stringent targets than EU ETS, but

- Allows relatively high amount of domestic and international offsets over time
- Domestic abatement unlikely play a major role, given supply constraint
- International offsets likely the price setting capacity in first years, taking into account 5/4 discount

Demand for offsets comes from several sources, including (EU) ETS, Kyoto member governments and the voluntary markets

	Description	Comments	Potential 2020 demand (Gt)
Kyoto member governments	<ul style="list-style-type: none"> Annex-I countries can offset domestic abatement requirement with offsets 	<ul style="list-style-type: none"> “Soft” demand because countries remain sovereign and could choose not to purchase CERs or meet their Kyoto commitments at all (e.g., Canada) 	<ul style="list-style-type: none"> Potentially 1 GT, or more depending on Copenhagen targets
ETS	<ul style="list-style-type: none"> Companies covered by the ETS can offset their obligations with offsets 	<ul style="list-style-type: none"> ETS demand is “hard” demand: there are real penalties for noncompliance There is a cap on the amount of CERs that individual companies can import 	<ul style="list-style-type: none"> EU 0.2 GT US 1.0 GT
Voluntary consumers	<ul style="list-style-type: none"> Consumers (e.g., companies, governments, individuals) that are not legally required to offset emissions can choose to buy offsets to reduce their carbon footprint 	<ul style="list-style-type: none"> “Softest” form of demand, as consumption depends on preferences rather than legal obligations 	<ul style="list-style-type: none"> Likely low

Thank you