Mobilizing Resources for Climate Finance

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Content

1. Sources: principle, scale and risks
2. Bottom-up funds and their role in the global architecture of climate finance
3. A political conundrum

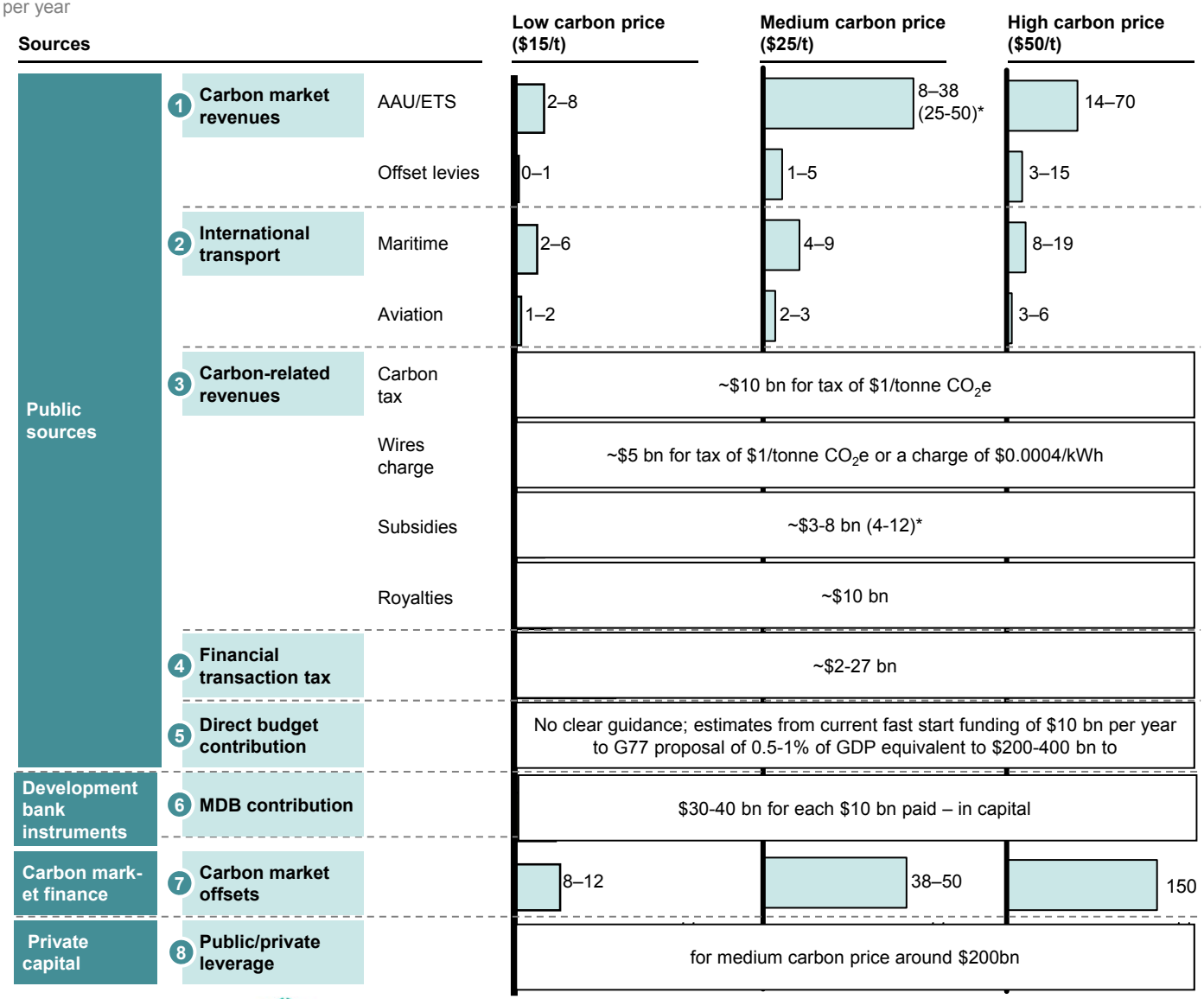
Sources of finance: the principles

1. Taxing the bad
2. Additionality as new-ness or innovative finance
3. Incidence on rich countries
4. Public sources needed for adaptation and market failures
5. Scalability, robustness and credibility
6. Raising domestic revenues in developed countries

Source Romani and Stern (2011)

Sources of finance: individual sources

$bn, 2020, per year



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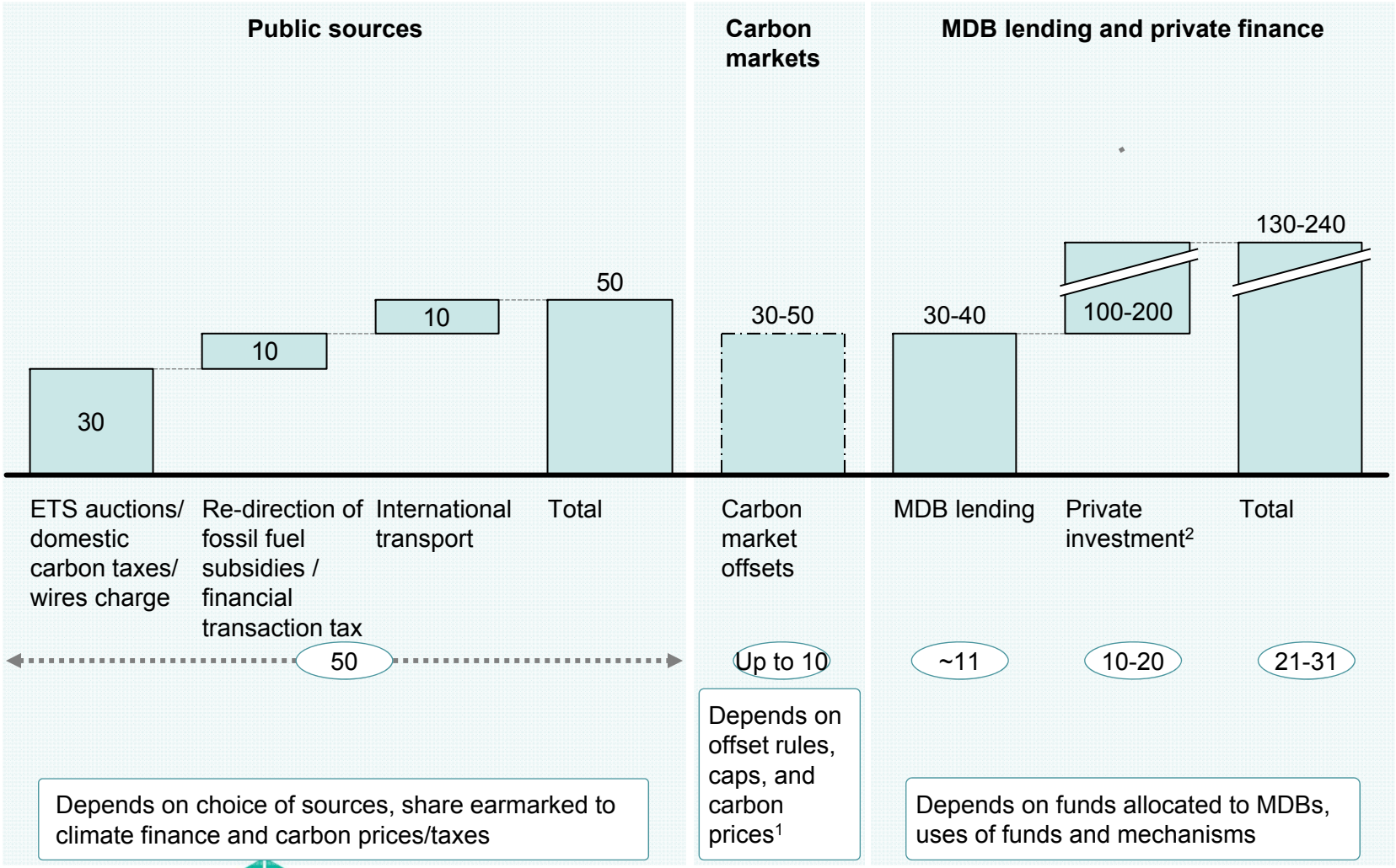
** Estimates in parenthesis are from World Bank (2011). Mobilizing Climate Finance. Washington DC*
Note: The figures in this table refer to the flows available for international climate finance using AGF and World Bank assumptions. A substantial amount of revenues, not accounted for in this table, would be retained in national budgets. For example, the AGF assumes that 90% of auction revenues and 50- 75% of travel would be retained domestically

Approximately $50bn could be raised from public sources with a carbon price of $20-25

$bn, 2020, per year



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1 Not counted towards financing needs as carbon finance increases needs proportionally
2 International private finance; excludes domestic private finance

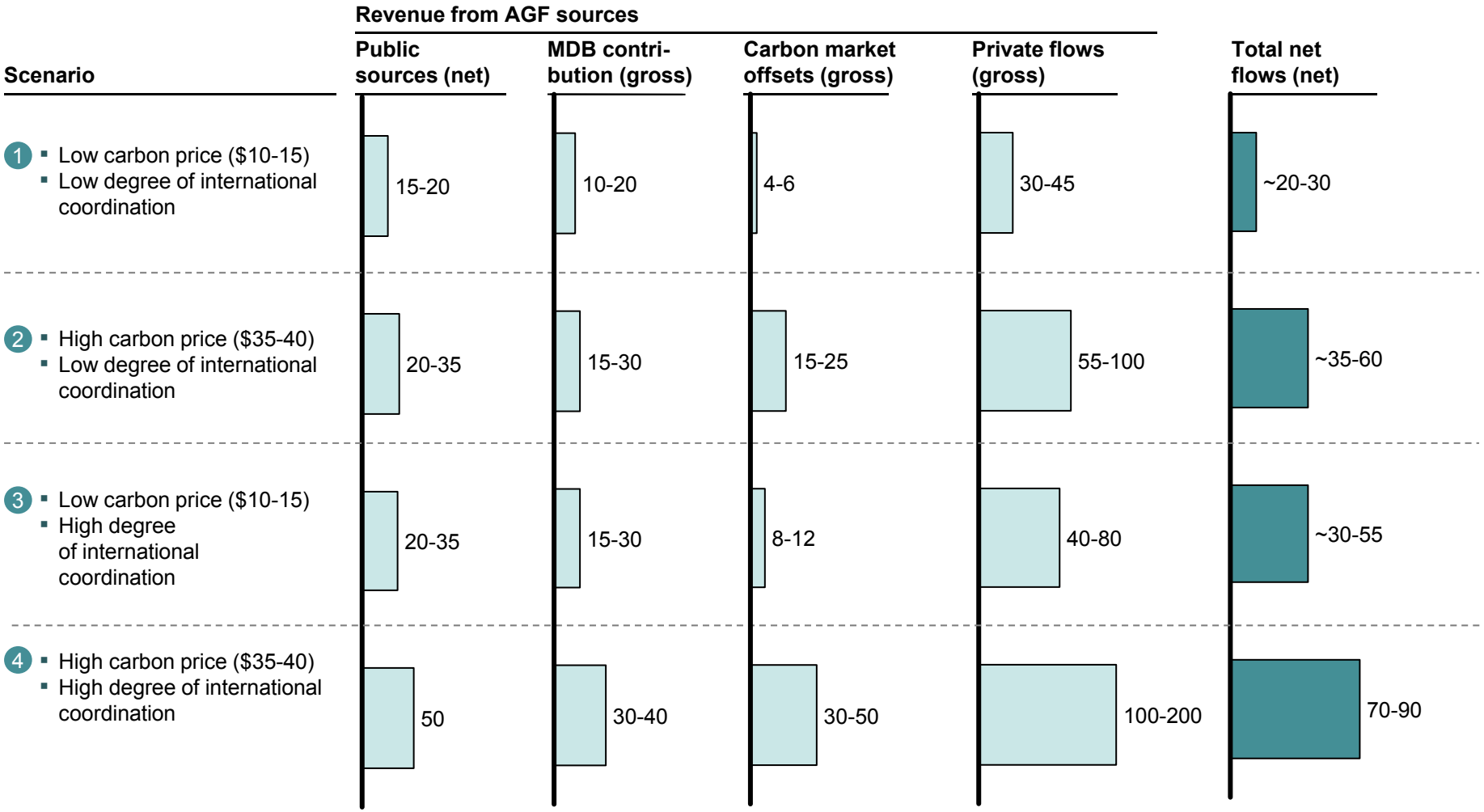
SOURCE: AGF report

Innovative sources require action by different parties

Sources	Action required by
Funds collected domestically ▪ Carbon tax, auctioned domestic allowances, lower fossil fuel subsidies, higher fossil fuel royalties, wires charge	Developed countries governments in national decisions
Funds collected domestically ▪ Financial transactions tax, border cost leveling, carbon exports optimization tax	Developed country governments in coordination with international institutions (eg WTO)
Funds collected internationally ▪ Pricing of international aviation and shipping emissions, auctioned AAUs	International agreements with highly coordinated action
Leveraged private funds ▪ Carbon market, MDB capital increase, private flows leveraged by public policies and instruments	Governments of both developed and developing countries in close collaboration with private sector

However, total flows will depend on carbon prices and international coordination

$bn, 2020, per year



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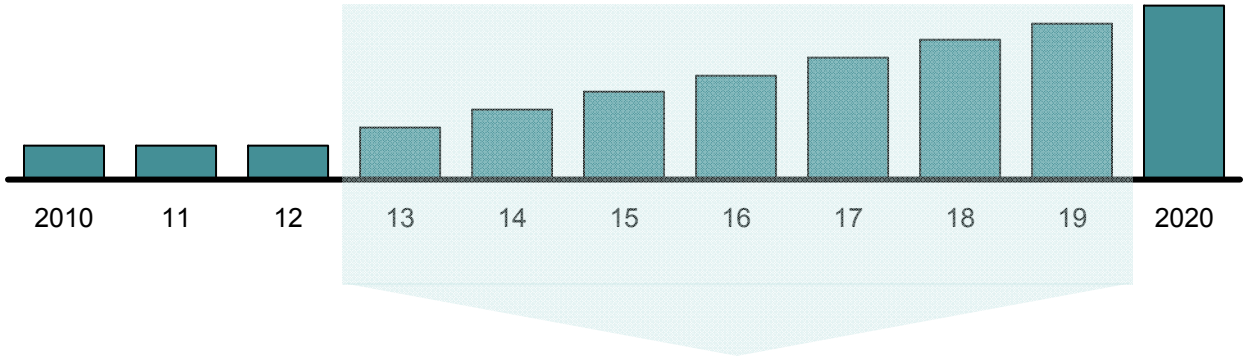
SOURCE: AGF report

Defining the interim financing period will be crucial

2013-2015 period overview

Rationale for interim climate finance period

- Need for meaningful, short-term objectives showing action and possibilities.
- Demonstrate ability to scale-up financing sources
- Start establishing investment pipeline and delivering concrete mitigation and adaptation measures



Potential sources

- Some AGF sources can be used to meet short-term objectives:
  - Carbon pricing related revenues (ETS auctions, carbon tax)
  - Domestic tax on transport
  - Other public sources e.g., royalties, subsidies

Uses

- GCF will play a central role
- But in the short term we should accept that some interim funds will be created bilaterally/plurilaterally
- Projects need to be kicked-off to meet these short term targets
- Mix of top down and bottom up initiatives likely – will need management

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Sources of finance: the bundles

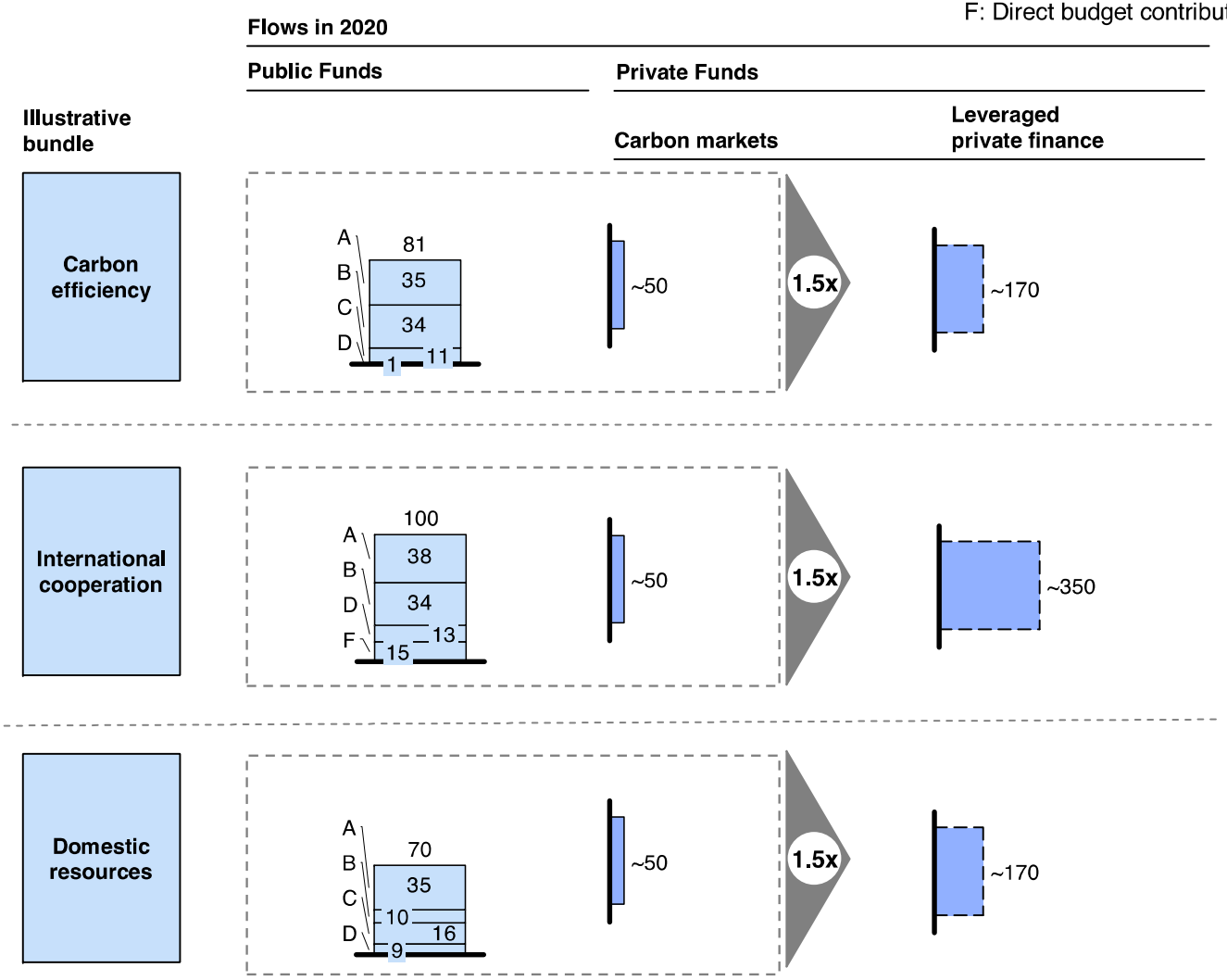
- 'Bundles' of mutually supportive and consistent financial sources are particularly attractive:
  - Provides source countries with flexibility in choosing domestic sources according to countries' preferences
  - Allows for the spreading of the risks associated with individual sources not delivering the expected flows increasing reliability
  - Different sources can reinforce each other, strengthening arguments for their joint inclusion in any package or bundle.
- Some sources will overlap with each other, the overall revenue potential of a bundle, therefore, is not necessarily the sum of its parts
- Bundles are built on the dynamic relationship between the sources, and the potential for mutual reinforcement in the wider context of a move towards a low-carbon economy
- Portfolio approach pursued by the AGF Report: from picking individual sources in isolation ("a menu approach"), to reliable, self- reinforcing bundles of source

SOURCE: AGF report

Illustration of potential combinations

$ Billions

A: Carbon market public revenues
B: International transport
C: Carbon related revenues
D: IFIs
E: Financial transactions tax
F: Direct budget contributions



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Source Romani and Stern (2011)

Spending wisely: aid budgets increasingly under pressure

- Several rich countries are looking for effective ways of spending money dedicated to supporting action on cliamte in developing countries
- These countries face enormous domestic political pressures: they increasingly need to demonstrate that every penny is spent wisely – good for everyone!

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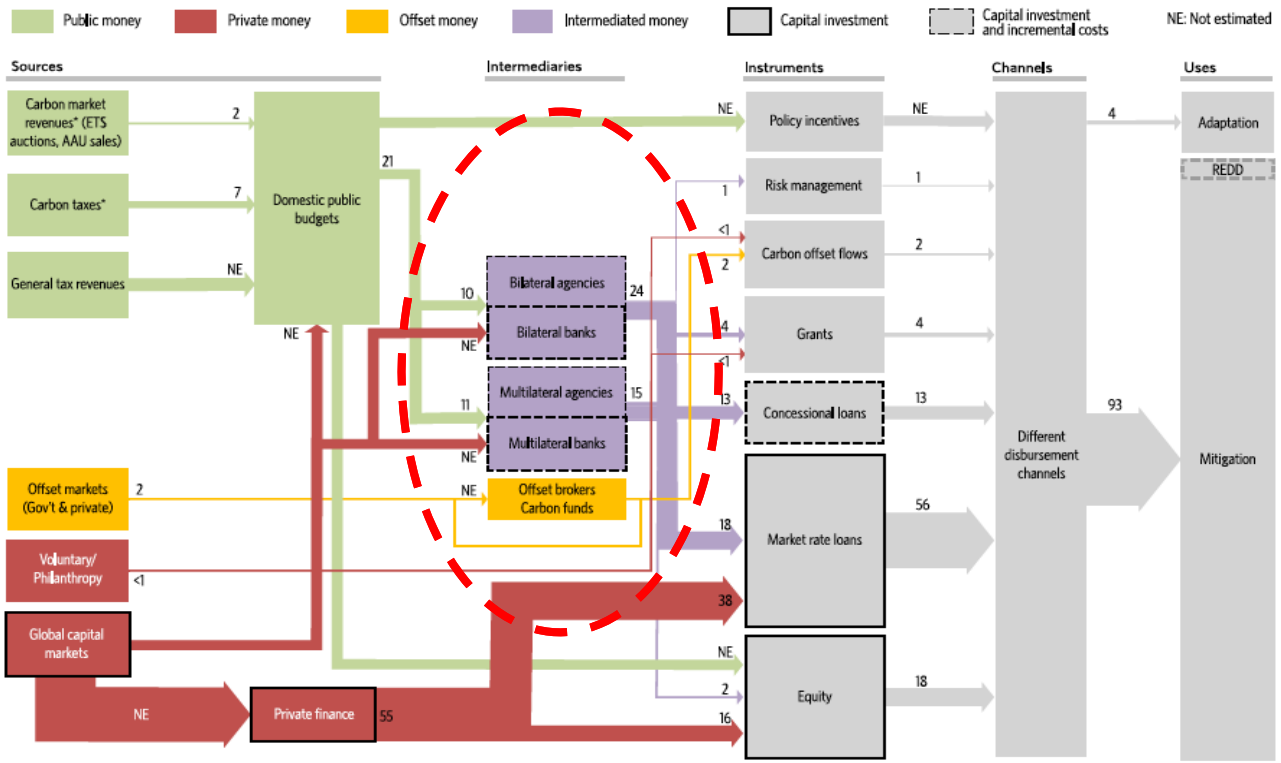
Emergence of new bilateral/plurilateral instruments

- A number of funds are being created at bilateral or multilateral level to channel climate funds transparently and effectively
- These are intermediaries, but thanks to their ability to leverage they can become sources of additional (interpreted here as new) funds – both public budget contributions and private funds



Source: Climate Policy Initiative (2011)

Examples of innovation in this areas: sources of funds

	Market	Non-market
Public	Compliance markets Creditable NAMA Bilateral markets	Global Green Fund Decentralised (National) Funds Bilateral initiatives (performance based payments)
Private	Compliance markets Creditable NAMA Voluntary markets	CRS PR Foundations/Charities

Source: Satgas REDD+ (2012)

Examples of innovation in this areas: sources of funds

	Market	Non-market
Public	Compliance markets Creditable NAMA Bilateral markets	Global Green Fund Decentralised (National) Funds Bilateral initiatives (performance based payments)
Private	Compliance markets Creditable NAMA Voluntary markets	CRS PR Foundations/Charities

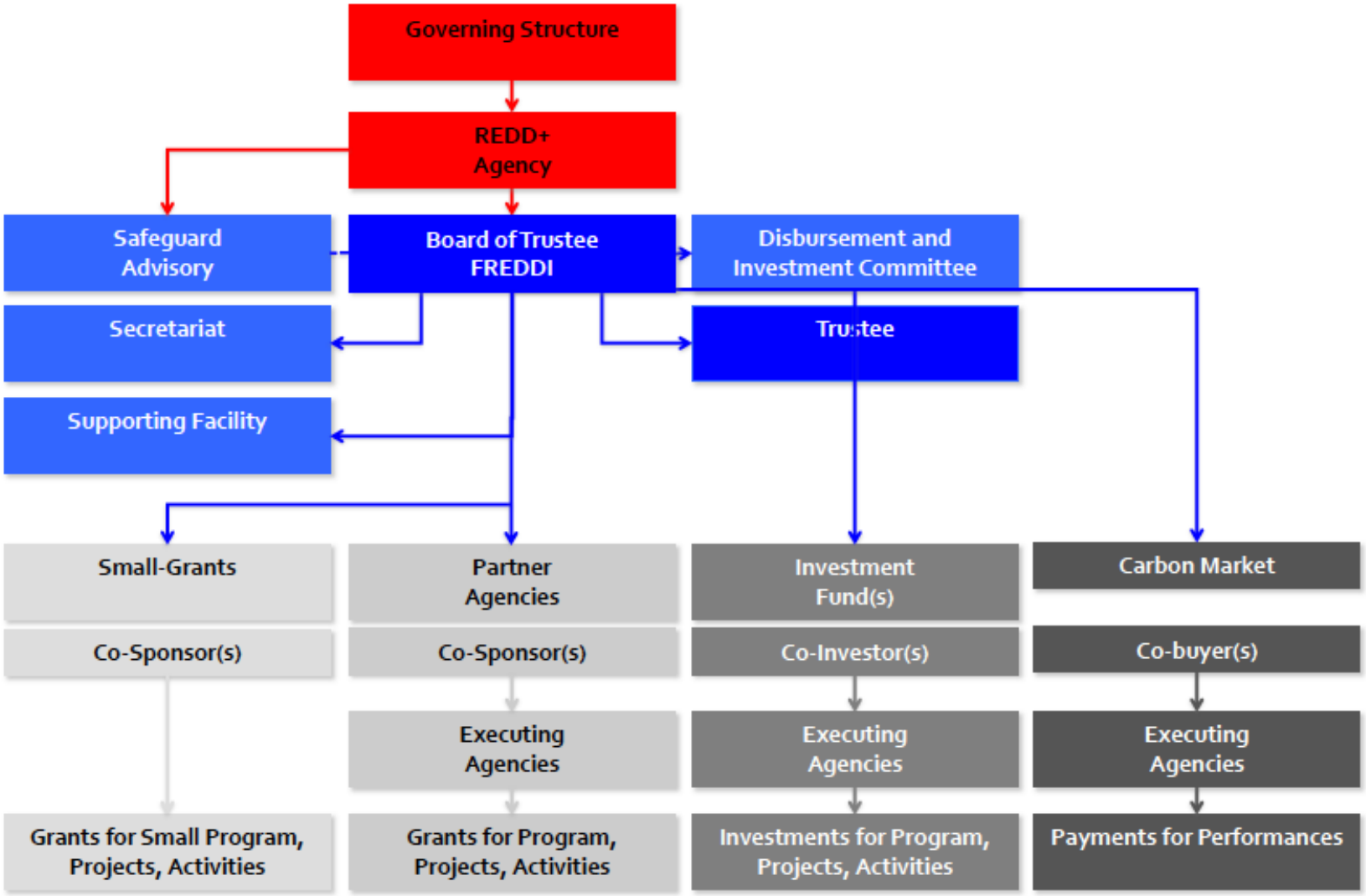
Source: Satgas REDD+ (2012)

Examples – FREDDI (Indonesia)

- LOI with the Government of Norway was signed on May 26, 2010, as the basis for the **pledge of $1 billion performance-based grants** to Indonesia
  - A Joint Consultation Group (JCG) will be established
  - All relevant stakeholders are consulted and included
  - Problems in land and tenurial rights need to be addressed
  - **Two-year moratorium** in land use-change permitting in forested and peat lands
  - In Phase 3 of the LOI, emissions need to be verified. Reference Emission Levels need to be established and **MRV needs to be in place** for the emission reductions
- Fund for REDD+ in Indonesia: FREDDI
  - It is being established using Presidential Decree No. 80/2011 on Trust Fund as a public trust fund
  - **Fund of funds**
  - The funds underneath FREDDI, the subsidiary funds, can be special-purpose vehicle companies, fund managers, or collective investment agreements
  - These subsidiary funds can form joint ventures with other funds or other companies, among others, to use it as disbursement vehicles and as **leverage to mobilize other funds**

Source: Satgas REDD+ (2012)

Examples – FREDDI (Indonesia)



Source: Satgas REDD+ (2012)

Examples – CRGE Facility (Ethiopia)

- Ethiopia – developed an **ambitious and innovative green growth strategy**, the Climate Resilient Green Economy Strategy, and launched it in Durban in 2011
- On September 12th 2012 the Ministry of Finance, together with the EPA, launched a **financial facility to support the implementation** of the CRGE Strategy
  - A national financial mechanism, **owned and managed by the MoFED** of the Government of Ethiopia, **to support the implementation** of the priorities set out in the CRGE Strategy and of the associated programmes and investment plans
  - Purpose is **to mobilize, access, sequence and blend** domestic and international, public and private sources of finance
  - Will enable Ethiopia to meet the **international fiduciary standards required for national entities for 'direct access' to international climate finance**
  - Will enable **coordination between all stakeholders** to improve the effectiveness of spending by minimizing transaction costs and duplication of efforts

Source: Satgas REDD+ (2012)

(Provocative) question: are bilateral funds making a attempts to global coordination futile?

- We see increasingly a blending between sources of finance and uses of such sources, particularly at a bilateral/plurilateral basis. These funds have the following characteristics
  - Nationally owned
  - Focused on leveraging private finance
  - Prompted by desire for coordination/avoiding duplications/reducing transactional cost
  - Bilateral deals on MRV are happening on the back of these funds, often through pay-for-performance deals
  - Substantial flows of funds post 2013

If not futile, then international coordination needs to build on the momentum created by this funds

- Design GCF and other global institutions so that they can make best use of such funds
- Recognize innovation in terms of sources, instruments, leverage and make the best of it
- Accounting of these funds does not fit well with the current negotiations. Some issues that need resolving are:
  - How will these funds fit in the GCF?
    - GCF becomes and investor in these funds?
    - GCF becomes a trustee to these funds?
  - How do we count aid flows going into these funds (e.g. DFID funds in the CRGE Facility?) to meet additionality requirements?
  - How do we count private sector funds leveraged by these funds?
  - How do we count pay-for-perfromance payments when they are part of a domestic compliance system in rich countries? How about if it is a voluntary system? Or a corporate commitment?

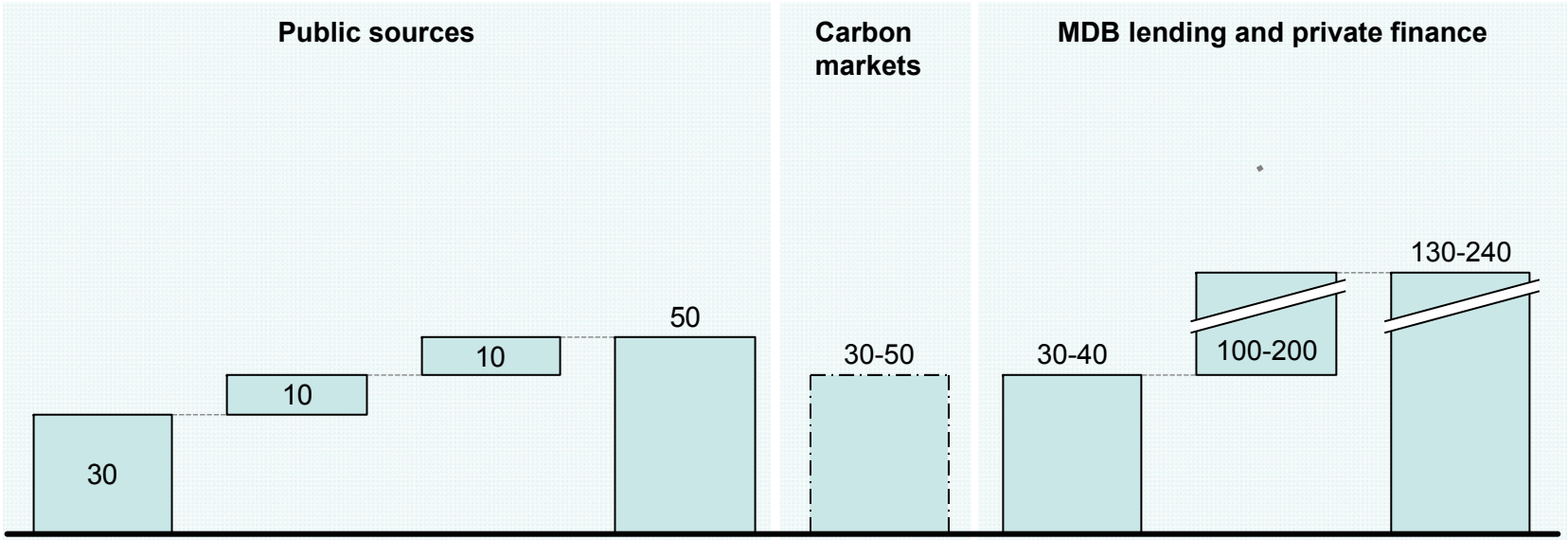
A political conundrum

- **Rio rejected the concept on green growth** on the back of concerns about shifting responsibilities
- The new bilateral and multilateral funds we discussed are **used to implment nationally driven green growth strategies**
- Are the public funds from developed countries going to green growth **part of the 100bn commitment**? Or are they 'normal' ODA?
- Are these transfers about climate finance or sustainable developemnt? It challenges the concept of **additionally in the context of sustainable development.**
- **Alternative concepts may become useful**:
  - **AGF additionality=newness**
  - **Equitable access to sustainable development**

Back up

Approximately $50bn could be raised from public sources

$bn, 2020, per year



1 Not counted towards financing needs as carbon finance increases needs proportionally
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SOURCE: AGF report

However, total flows will depend on carbon prices and international coordination

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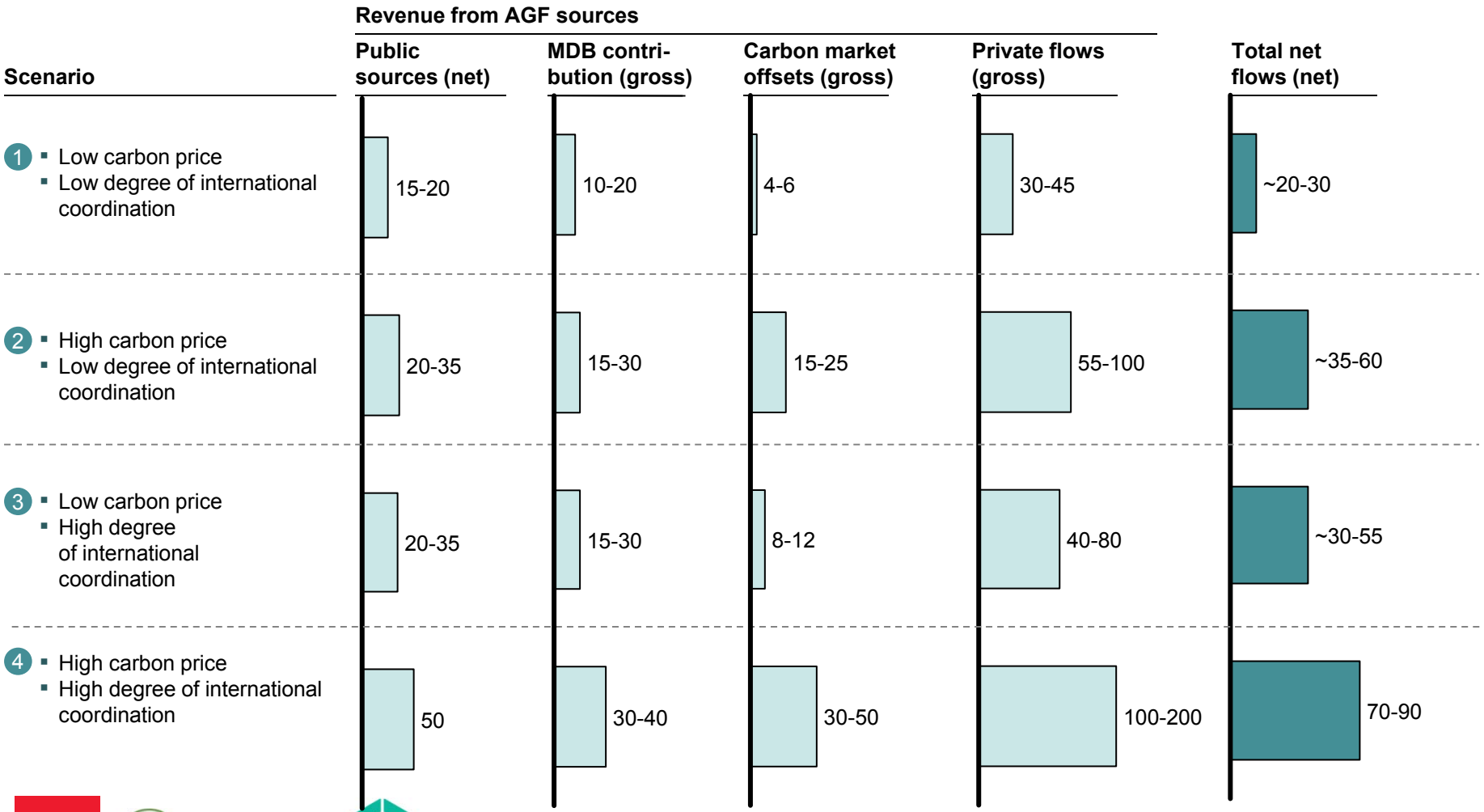


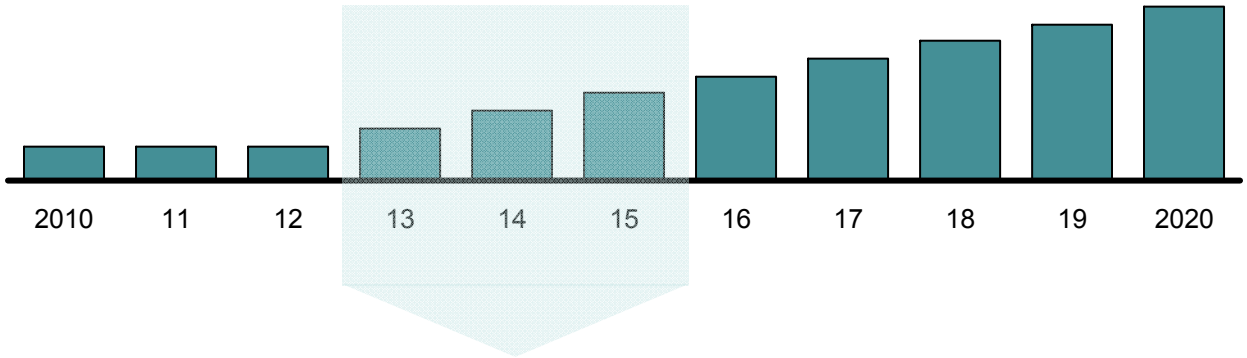
SOURCE: AGF report, Project Catalyst analysis

Defining the interim financing period will be crucial

2013-2015 period overview

Rationale for interim climate finance period

- Goal for policy makers to work towards a more relevant time frame and reach consensus on meaningful, short-term objectives.
- Scale-up financing sources while establishing investment pipeline and delivering concrete mitigation and adaptation measures



Potential sources

- Majority of the AGF sources can be used to meet short-term objectives:
  - Carbon pricing related revenues (ETS auctions, carbon tax)
  - Domestic tax on transport
  - Other public sources e.g., royalties, subsidies

Uses

- Governments will need to establish short term objectives e.g. 50% of avoided deforestation by 2015
- Projects need to be kicked-off to meet these short term targets

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Overview on major estimates - ETS for the maritime Sector

Imposing a carbon price on the international maritime sector through a sectoral emission cap

High level description of methodology

- Estimate of total emissions from international maritime transport based on:
  - IMO estimates of CO_2 emissions from *base estimates* (based on the IPCC Special Report on Emission Scenarios , SRES)
- Calculation of revenues by multiplication of estimated emissions under the IMO SRES base case scenarios with carbon prices for three defined scenarios (assumes ETS is linked to global carbon markets and therefore global carbon prices, here approximated by offset prices).

Resulting revenue estimates ($bn)

- Scenario 1: 2.4 – 5.6
- Scenario 2: 4.1 – 9.3
- Scenario 3: 8.1 – 18.5

Tax base assumptions

Driver	Value	Information source
International maritime emission projections	▪ Estimates range from 925 – 1058 Mt CO_2 in 2020	▪ IMO

Caveats:
The maximum potential revenue from the measure ranges from $9.3 - $52.9 bn. These have been discounted by an indicative figure of 30% as compensation for developing countries (assuming that developing countries are compensated based on their share of global imports).

These estimates would an assumption that 25-50% of remaining revenues are made available for climate finance.

Revenue estimates could be further reduced depending if less than 100% of permits are auctioned and if there are strong emission reductions in the sector due to technical and operational measures to reduce sector emissions.

Tax-rate/price assumptions

Driver	Value	Information source
Price for carbon (assumed or equivalent)	▪ Scenario price ($15-50)	▪ AGF scenario paper
Compensation for developing countries	▪ Indicative 30%	▪ Assumption by authors that developing countries are compensated based on their share of global imports
Share of revenues earmarked for climate finance	▪ 25-50%	▪ Assumption by authors

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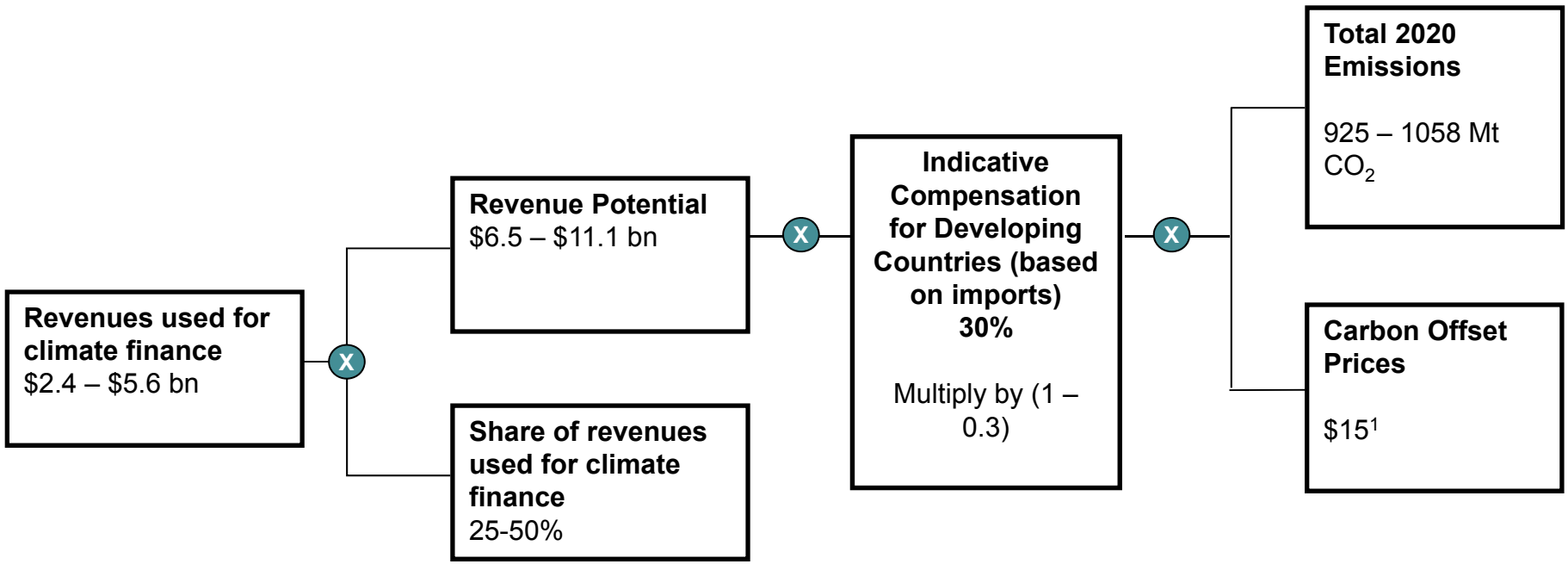
Detailed calculation tree - ETS for maritime, low scenario



[1] Linked to carbon scenario, value shown for low

Overview on major estimates - Carbon levy for maritime

Imposing a carbon price on the international maritime sector through a sectoral carbon levy.

High level description of methodology

- Estimate of total emissions from international maritime transport based on:
  - IMO estimates of CO_2 emissions from *base estimates* (based on the IPCC Special Report on Emission Scenarios , SRES)
- Calculation of revenues by multiplication of estimated emissions under the IMO SRES base case scenarios with carbon prices for three defined scenarios (assumes ETS is linked to global carbon markets and therefore global carbon prices, here approximated by offset prices).

Resulting revenue estimates ($bn)

- Scenario 1: 2.4 – 5.6
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- Scenario 3: 8.1 – 18.5

Tax base assumptions

Driver	Value	Information source
International maritime emission projections	▪ Estimates range from 925 – 1058 Mt CO_2 in 2020	▪ IMO

Caveats:

The maximum potential revenue from the measure ranges from $9.3 - $52.9 bn. These have been discounted by an indicative figure of 30% reflecting the provision of compensation for developing countries (based on the developing countries share of global imports).

These estimates would an assumption that 25-50% of remaining revenues are made available for climate finance.

Revenue estimates could be further reduced if the carbon levy is applied to less than 100% of emissions in the sector and if there are strong emission reductions in the sector due to technical and operational measures to reduce sector emissions.

Tax-rate/price assumptions

Driver	Value	Information source
Price for carbon (assumed or equivalent)	▪ Scenario price ($15-50)	▪ AGF scenario paper
Reimbursement of developing countries	▪ Indicative 30%	▪ Assumption by authors that developing countries are compensated based on their share of global imports
Share of revenues earmarked for climate finance	▪ 25-50%	▪ Assumption by authors

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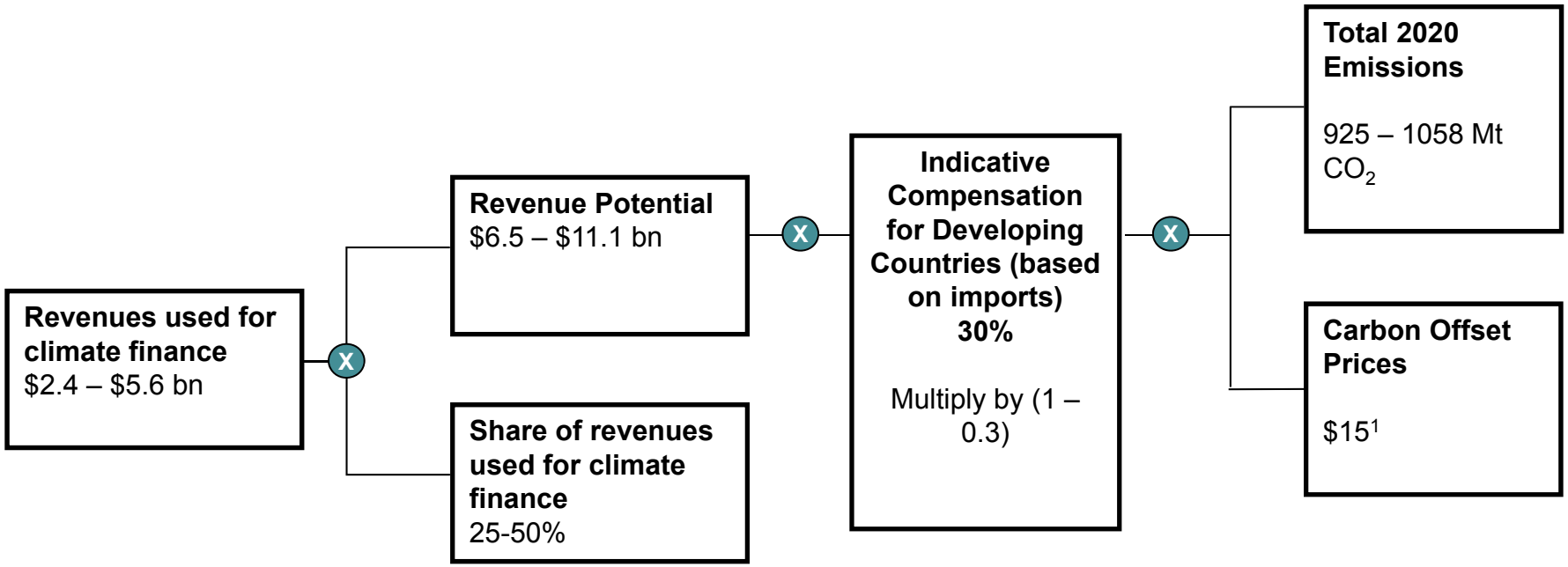
Detailed calculation tree - Carbon Levy for maritime, low scenario



[1] Linked to carbon scenario, value shown for low

Overview on major estimates - ETS for aviation

Creation of a global sectoral cap on emissions for international air travel and auctioning of resulting permits to raise revenue.

High level description of methodology

- Estimate of total emissions from international air travel and air transport based, using
  - Detailed routing information to estimate passenger-kilometers flown and tonne-kilometers transported
  - Assumptions on average fuel emissions by kilometer
- Emissions from domestic flights, flights between developing countries and intra-EU flights excluded (covered by EU ETS)
- Calculation revenues by multiplication of estimated emissions with carbon prices for three defined scenarios (assumes ETS is linked to global carbon markets and therefore global carbon prices, here approximated by offset prices)

Resulting revenue estimates ($bn)

- Scenario 1: 0.9 – 1.9 bn
- Scenario 2: 1.6 – 3.1 bn
- Scenario 3: 3.1 - 6.3 bn

Tax base assumptions

Driver	Value	Information source
Passenger air travel		
▪ Passenger capacity by route 2009[2]	▪ 3.3 tr (total)	▪ OAG
▪ Load factor	▪ 77%	▪ IATA
▪ Distance by route	▪ Actual route km	▪ OAG
▪ Emissions per passenger-kilometer	▪ 0.12-0.15 kg[3]	▪ Defra, EEA, Atmosfair
▪ Annual passenger growth rate	▪ 4.1%	▪ ACI, Boeing
▪ Annual efficiency increase	▪ 1.7%	▪ GHG emissions outlook
Air freight transport		
▪ Freight volume by route 2013[2]	▪ 190 bn TKM (total)	▪ IATA industry forecast
▪ Distance by route	▪ Actual route km	▪ OAG
▪ Emissions per tonne-kilometer	▪ 0.6-1.3 kg[3]	▪ Defra
▪ Annual freight growth rate	▪ 5.4%	▪ ACI
▪ Annual efficiency increase	▪ 1.7%	▪ GHG emissions outlook

Caveats:

Actual revenues would be reduced:

i) Depending on the actual compensation percentage for developing countries
ii) If less than 100% of permits were auctioned,
iii) Depending on the design and the extent of market-based instrument that is applied to aviation emissions
iv) If emissions are reduced in the sector due to technical and operational measures to reach mitigation goals

Tax-rate/price assumptions

Driver	Value	Information source
▪ Price for carbon (assumed or equivalent)	▪ Scenario price ($15-50[1])	▪ AGF scenario paper
▪ Percent of revenues earmarked for climate financing	▪ 25-50%	▪ Assumption by authors

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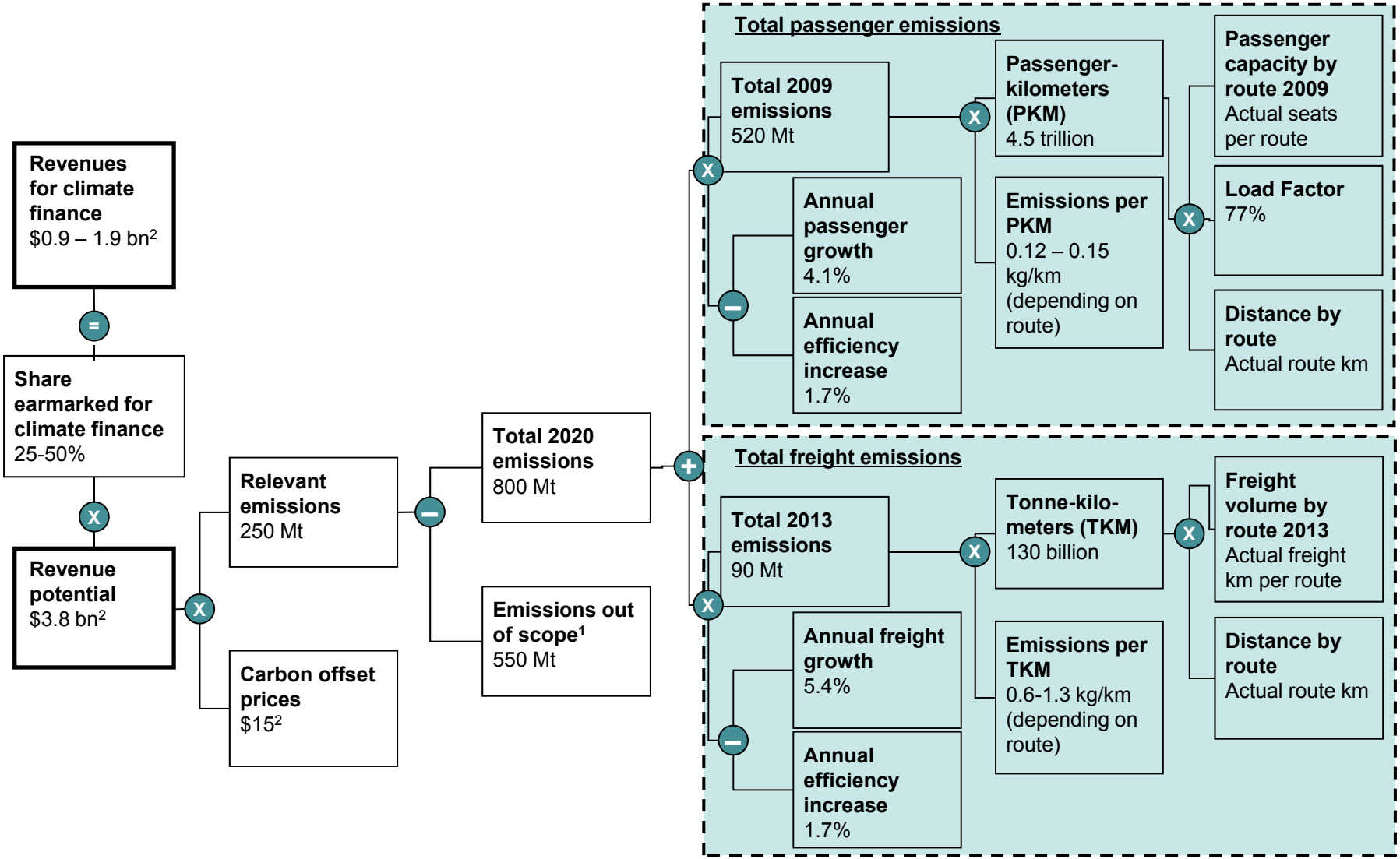
1 Depending on scenario 2 excluding domestic and intra-EU flights 3 depends on flight distance

Detailed calculation tree - ETS for aviation, low scenario



1 Emissions for domestic flights, intra-EU flights, and flights between developing countries

2 Linked to carbon scenario, value shown for low

Overview on major estimates - Fuel Levy on Aviation

Implementation of a global tax on jet fuel.

High level description of methodology

- Estimate of total fuel consumed from international passenger air travel and air freight transport, using
  - Detailed routing information to estimate passenger-kilometers flown and tonne-kilometers transported
  - Assumptions on average fuel consumption by kilometer
- Emissions from domestic flights, flights between developing countries and intra-EU flights excluded (covered by EU ETS)
- Fuel tax per ton of jet fuel estimated to capture the carbon externality and therefore set equal to carbon prices for three defined scenarios
- Calculation of revenues by multiplication of estimated fuel consumption with fuel tax

Resulting revenue estimates ($bn)

- Scenario 1: 0.9 – 1.9 bn
- Scenario 2: 1.6 – 3.1 bn
- Scenario 3: 3.1 - 6.3 bn

Tax base assumptions

Driver	Value	Information source
▪ Passenger air travel		
– Passenger capacity by route 2009[1]	– 3.3 tr (total)	– OAG
– Load factor	– 77%	– IATA
– Distance by route	– Actual route km	– OAG
– Fuel consumption per passenger-kilometer	– 38-48 g[2]	– Defra, EEA, ATAG, Atmosfair
– Annual passenger growth rate	– 4.1%	– ACI, Boeing
– Annual efficiency increase	– 1.7%	– GHG emissions outlook
▪ Air freight transport		
– Freight volume by route 2013[1]	– 190 bn TKM (total)	– IATA industry forecast
– Distance by route	– Actual route km	– OAG
– Fuel consumption per tonne-kilometer	– 0.2-0.4 kg[2]	– Defra, ATAG, EEA
– Annual freight growth rate	– 5.4%	– ACI
– Annual efficiency increase	– 1.7%	– GHG emissions outlook
▪ Carbon content of jet fuel	▪ 3.2 tonnes CO2e/ton	▪ ATAG , EEA

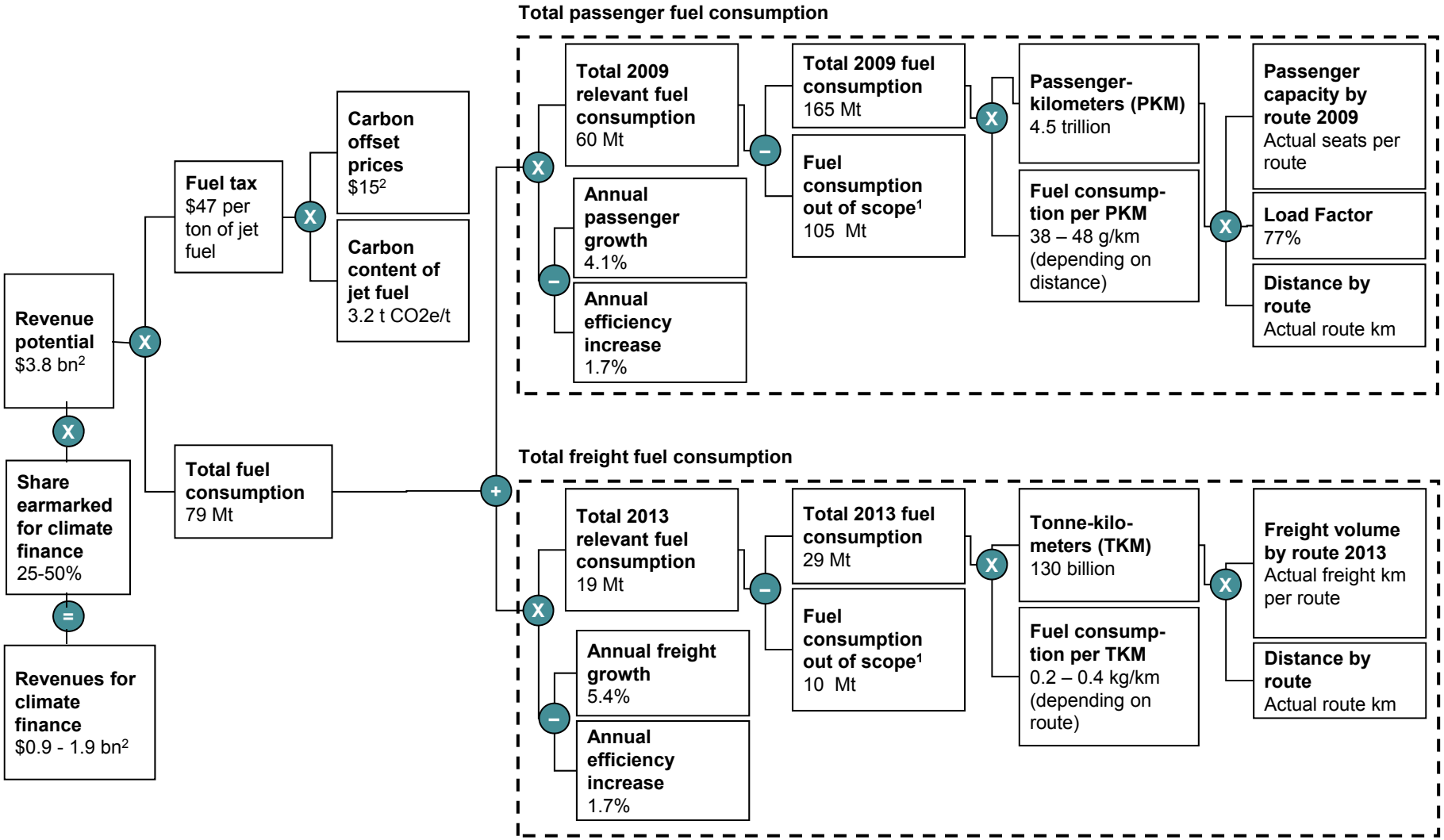
Caveats:
Actual revenues would be reduced:
i)depending on the actual compensation percentage for developing countries
ii) if the levy applied to less than 100% of emissions.
iii)If emissions are reduced in the sector due to technical and operational measures to reach mitigation goals

Tax-rate/price assumptions

Driver	Value	Information source
▪ Price for carbon	▪ Scenario price ($15-50[3])	▪ AGF methodology paper
▪ Percent of revenues earmarked for climate financing	▪ 25-50%	▪ Assumption by authors

1 excluding domestic and intra-EU flights; not including charter flights which account for ~5% of passenger air transport
2 depends on flight distance
3 Depending on scenario

Detailed calculation tree - Fuel Levy for Aviation, low scenario



1 For domestic flights and intra-EU flights
2 Linked to carbon scenario, value shown for low

Overview on major estimates - Ticket Tax

Implementation of a tax on every international airline ticket.

High level description of methodology

- A ticket tax can potentially raise any amount of revenue – only dependant on political will
- Approach taken here: ticket tax should cover carbon externality and is therefore equal to the revenue raised under a sector ETS or fuel levy (passenger travel only)
- The revenue was broken down to measure the results on individual tickets, based on the number of passengers traveled and the average fuel consumption per short, medium and long haul flight

Resulting revenue estimates ($bn)

- Scenario 1: 0.7 – 1.4
- Scenario 2: 1.2 – 2.4
- Scenario 3: 2.4 - 4.7

Resulting ticket surcharges ($)[2]

- Scenario 1: 1 – 7
- Scenario 2: 1 – 12
- Scenario 3: 2 - 24

Tax base assumptions

Driver	Value	Information source
▪ Estimates from WS2 ETS/fuel levy calculations		
– Revenue estimates	– $1.9 bn – $9.5 bn	– WS 2 calculations
– Relevant emissions[1] 2020 (passenger only)	– 189 Mt	– WS 2 calculations
▫ Short haul (<500 km)	▫ 1 Mt	
▫ Medium haul (500 – 1.600 km)	▫ 13 Mt	
▫ Long haul (> 1,600 km)	▫ 175 Mt	
▪ Total number of relevant passengers 2009[1]	▪ 330 m	▪ OAG
– Short haul	– 18 m	
– Medium haul	– 76 m	
– Long haul	– 236 m	
▪ Annual passenger growth rate	▪ 4.1%	▪ ACI, Boeing

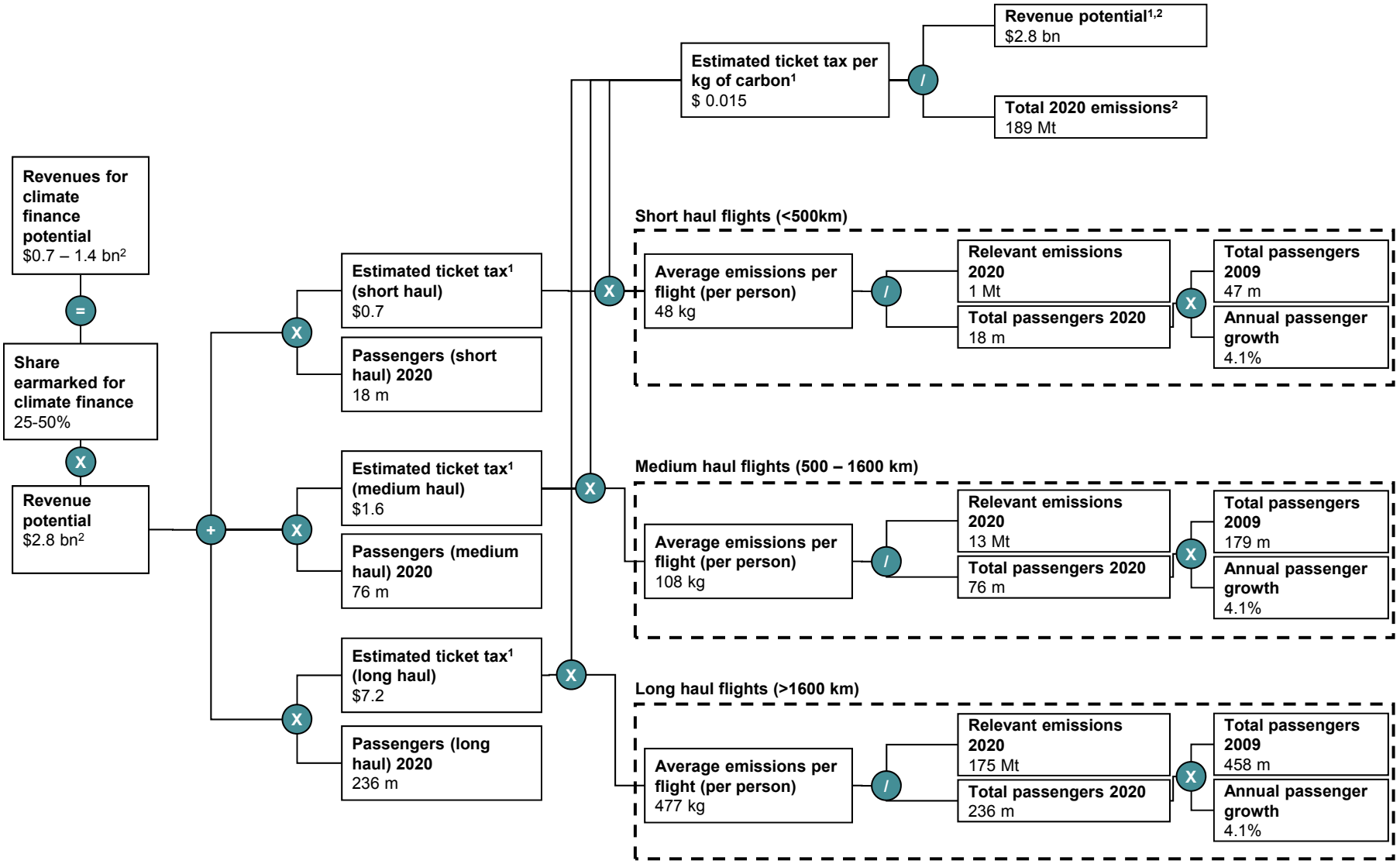
Tax-rate/price assumptions

Driver	Value	Information source
▪ - (see aviation ETS/fuel tax calculations)	▪ -	▪ WS 2 calculations

Caveats:
The calculations represent the maximum potential revenue from a ticket tax. These have NOT been discounted. The revenue estimates will be lower than presented:
i)Depending on the actual compensation percentage for developing countries
ii)If the ticket tax is applied to less than all eligible tickets,

1 Excluding inter-developing country, domestic and intra-EU flights
2 Depends on flight type (short-, medium-, long-haul)

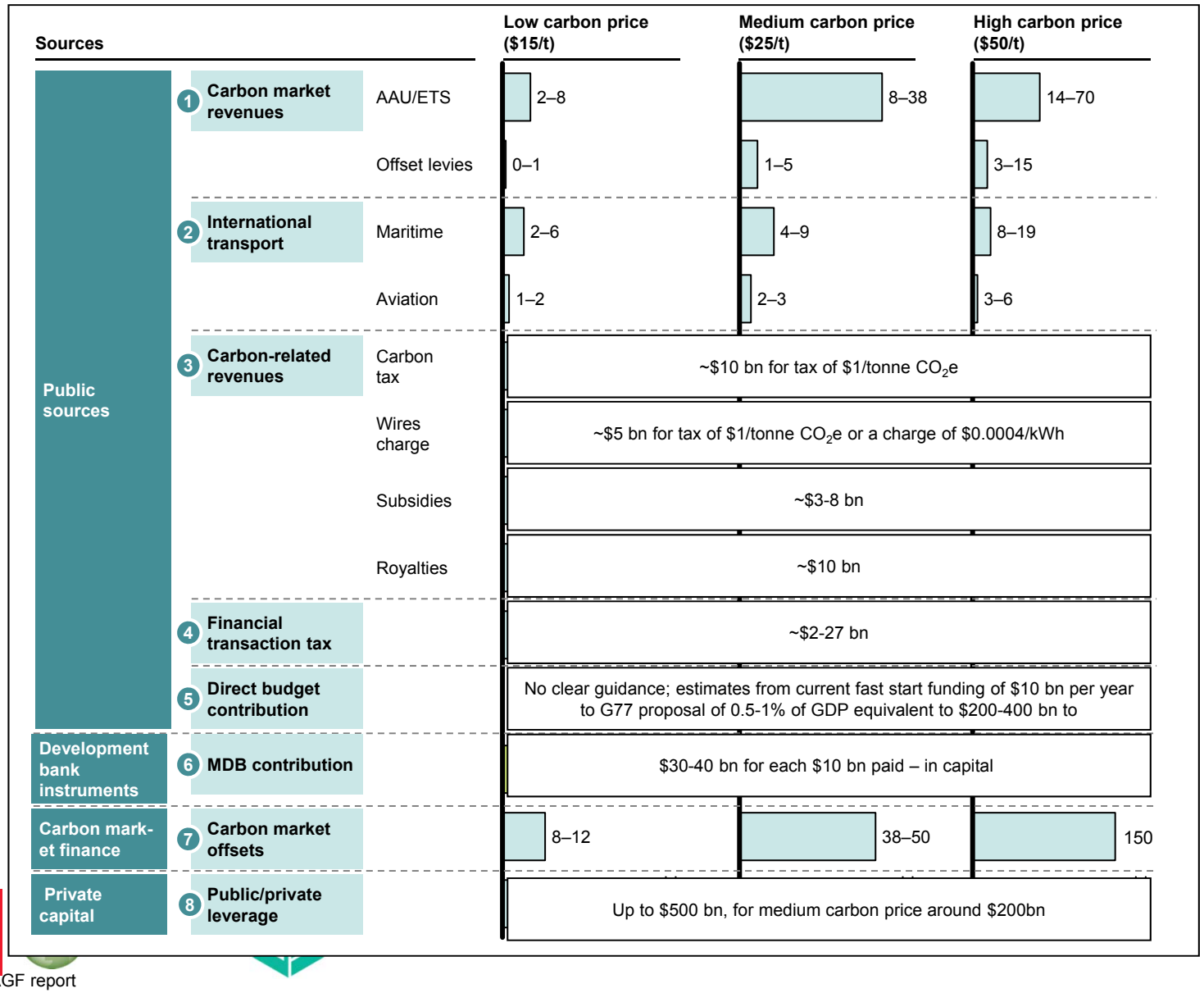
Detailed calculation tree - Ticket Tax, low scenario



1 Linked to carbon scenario, value shown for low
2 Only for passenger air travel between Annex-I countries and 50% of travel between Annex-I countries and other countries

Overview of sources analysed by AGF

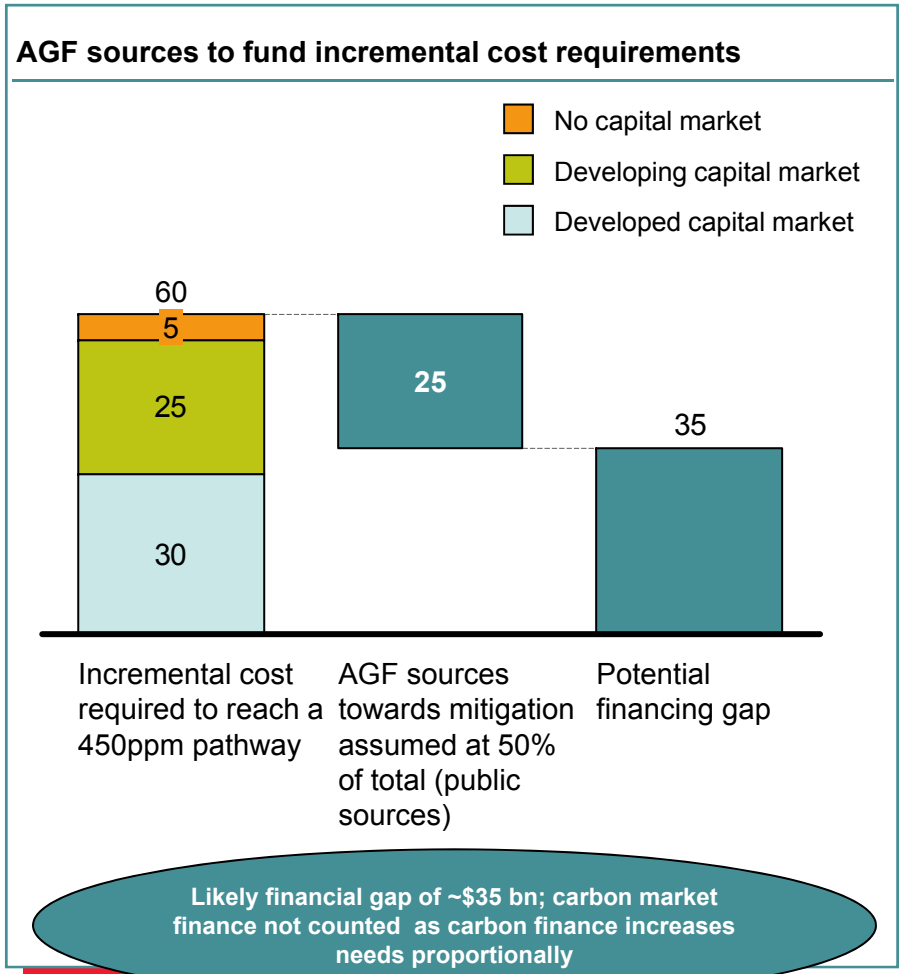
$bn, 2020, per year

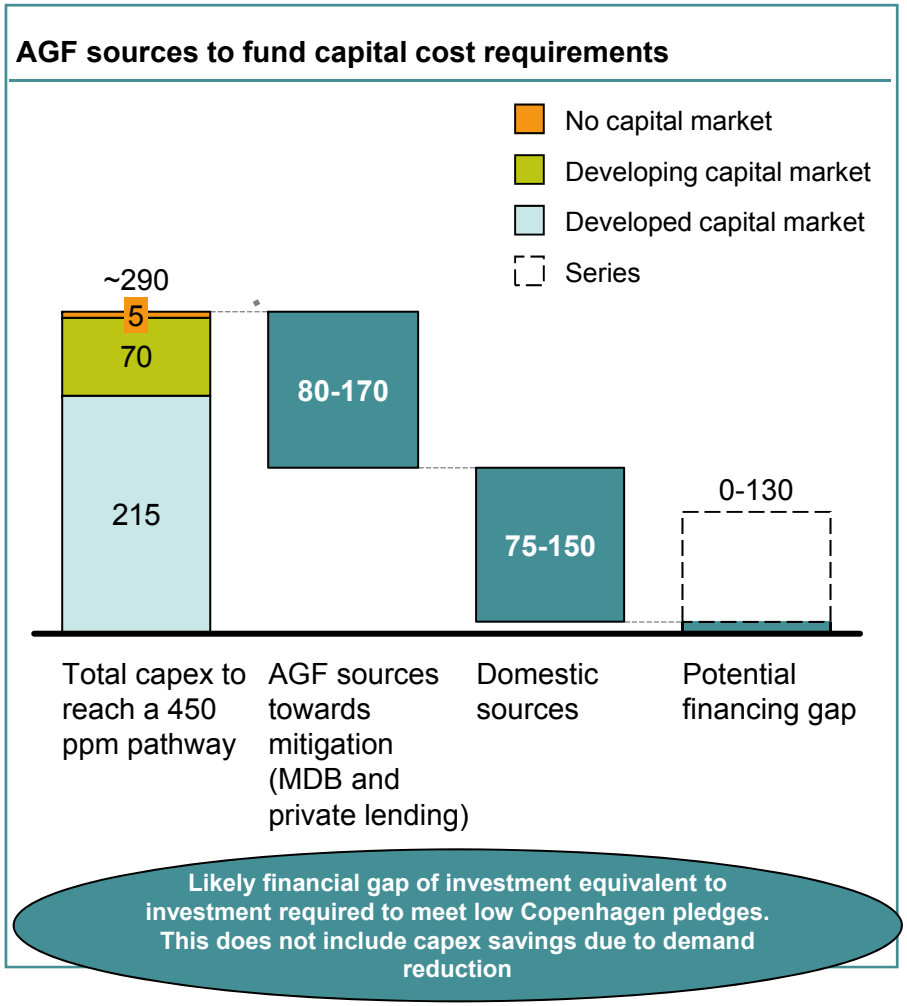


SOURCE: AGF report

The funds raised by the AGF could make a significant contribution towards financing needs

$bn, 2020, per year





SOURCE: McKinsey Global GHG Abatement Cost Curve v2.1; Project Catalyst analysis; AGF report