Regional Climate Week

Asia-Pacific

Johor, Malaysia – 13-17 November 2023

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Session 1c:
Carbon pricing approaches

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ETS and carbon tax

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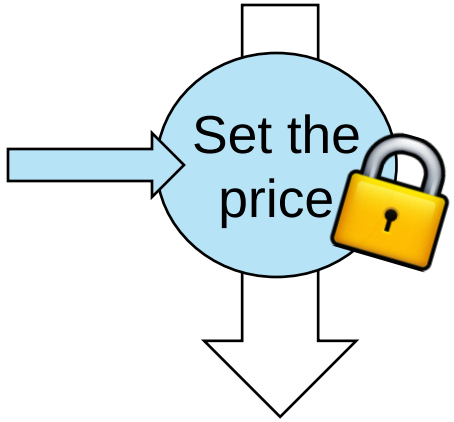
Different types of carbon pricing instruments

Pricing carbon emissions: major approaches

Carbon tax

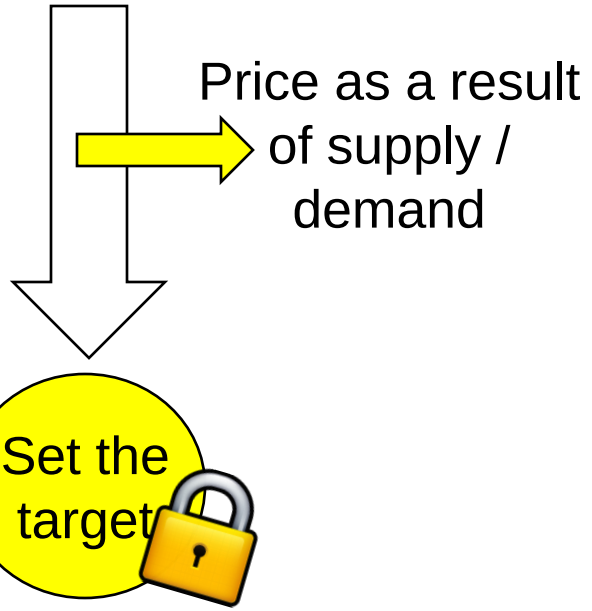
Baseline emissions



Impact (unknown)

Emission Trading System (cap-and-trade)

Baseline emissions



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Pricing carbon emissions: carbon taxes

Carbon taxes

Principle: Entities covered by a carbon tax are required to pay a fee (level of the tax) in accordance with their emissions

- Fixed price (therefore predictable) on GHG emissions provides investment certainty

- Comparatively simple to implement (verification + tax collection)
    - No need to define an emission cap
    - Short implementation time
    - Can also be a steppingstone for adopting an ETS later

- Increasingly considered to raise funds for mitigation activity

- Possible large coverage which can include small sources of direct/indirect emissions

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Pricing carbon emissions: carbon taxes

Carbon taxes

- Tax-free threshold can be applied to protect trade-exposed sectors
- Flexibility and linking (with other countries) is also possible
  - For example, participants in South African carbon tax can lower their taxable emissions by acquiring "emission reduction units" from activities outside the scope of the tax (e.g., afforestation activities, reduction of methane emissions from landfills)
- Major difficulty: assessing the impact of the carbon tax
  - Impact = actual GHG – baseline GHG

    Difficult to determine
  - What GHG emissions have been in the baseline scenario? (without the tax)

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Pricing carbon emissions: ETS

Emission Trading systems *(cap-and-trade)*

Principle: Tradable-permit system for GHG emissions

- Aggregated limit (the cap) on GHG emissions which can be emitted

  - The number of emission units available is limited and reflects the size of the cap in the ETS

  - guarantees that aggregated emissions from all participants will remain within the level set by the cap

- Entities covered by the ETS need to hold one emission unit (allowances) for each tonne of GHG emitted but can buy / sell units.

- Price on carbon: will depend on the balance of the demand and the supply (the size of the cap and corresponding number of emission units) in the ETS.

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Pricing carbon emissions: ETS

- Higher complexity (MRV and setting the cap)
  - Not suited for small-scale dispersed sources of GHG emissions
  - Many jurisdictions started with pilot/voluntary phase
- Certainty on achievement (cap on GHG emissions)
- Price uncertainty
  - Price/demand safeguards available (price floor, price ceiling, market stability reserve, etc.)
- Tradability (flexibility)
- Linking allows additional benefits (investor benefits from lower abatement costs; recipient benefits from investment flow)
- Revenue generation possible (auctioning of emission allowances)
- Compensation possible for sectors exposed to international competition

Pricing carbon emissions: ETS

- Well functioning market requires liquidity (sufficient number of participants)
  - Difficult for countries with very limited number of participants
  - Solutions for increasing flexibility/liquidity exist: use of offsets / linking with other jurisdictions / etc.

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ETS: The challenge of setting the cap

- Cap set too low: low prices / lack of incentive.
- Cap set too high: high prices – too strong impact on trade-exposed sectors.

Some solutions:

- Start with a “trial phase” (e.g., provincial ETS in China).
- Price adjustment mechanism (price ceiling/floor).
- Start operating at “fixed price” before leaving the price to the market (proposed approach in Australia).
- Use a “flexible cap” (e.g., intensity based: New Zealand) – based on “output”.
- Offer flexibility (use of units from domestic emission reductions projects).

Carbon Tax and Emission Trading: Commonalities and Differences

- Both are regulated by the government
- Both put a price on carbon and thereby help to make low-carbon alternatives more attractive, changing consumption patterns and supporting low-carbon investments.
- individuals and firms can decide how best to respond to the price
- Generate public revenue that can be used, for example, to invest in climate and energy measures
- a carbon tax can be easier to implement (no new infrastructure required)
- ETS provides more flexibility (e.g., offsets, banking, extending ETS across borders by linking with other systems)
- Hybrid: Carbon tax and ETS are not mutually exclusive.
  - possibility of complementary ETS and carbon taxes covering different sectors.
  - implement carbon tax as a step towards establishing an ETS
  - e.g., price floors and ceilings in an ETS; offset certificates instead of paying the carbon tax.

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Comparing systems

	Carbon tax	Emission Trading System (ETS)	Hybrid system
Price setting	Direct 	Market	Direct or Market + safety system
Price certainty	Yes		Possible
Achievement certainty	Unknown	Known 	Possible
Coverage	Broad	Only large emitters	Flexible
Complexity	Low (levying a tax)	High	Depending on system
Transparency	High	Medium	Depending on system
Recognition of outcomes	Difficult	High	Possible
International linkage		Yes	Yes

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Hybrid systems

Current trend:

- Get the “best of both worlds” (ETS and carbon tax):
  - Flexibility for compliance
  - Price certainty

Example of hybrid system:

- Alberta (Canada); Participants can choose between
  (i) cutting their emission intensity;
  (ii) purchasing emission reduction credits or
  (iii) paying into an emission reduction fund

Many combinations of instruments possible

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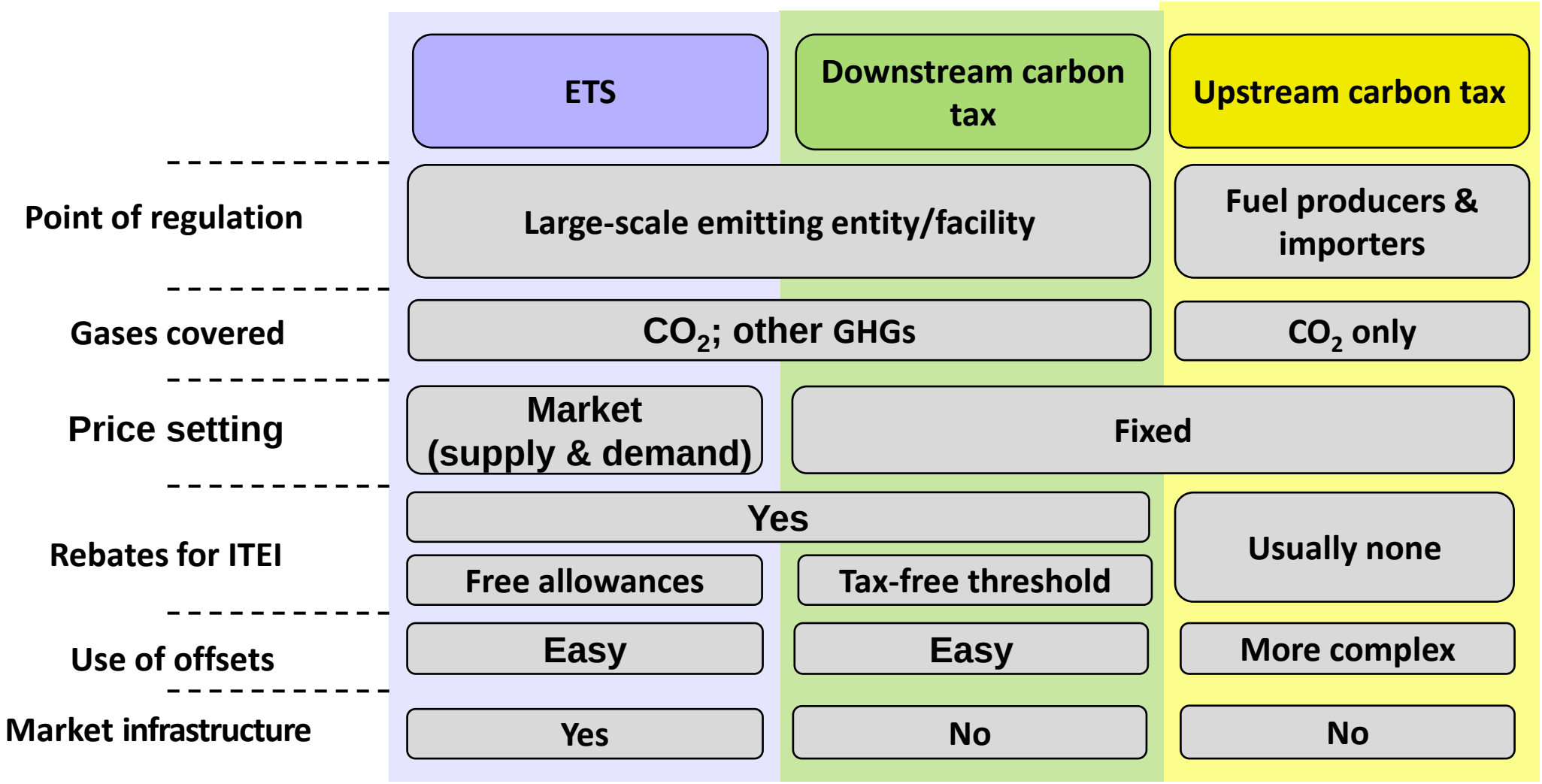
ETS

Upstream carbon tax

Downstream carbon tax

ETS, facility-based carbon tax, upstream carbon tax



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Transition possible

ETS, facility-based carbon tax, upstream carbon tax

ETS and downstream carbon tax:

Overall strong similarities !

- Same coverage: large scale emitters
- Both have a more granular and complex MRV – which also enables the coverage of more GHGs
- Both allow exemptions for internationally trade-exposed industries
- Key difference: price setting and need for market infrastructure
  - ETS: set by the ratio between demand and cap stringency
  - Tax: set fixed
- A downstream carbon tax can transition into an ETS
  - Additional elements required: market infrastructure; cap-setting approach; allocation approach

17

Combining instruments

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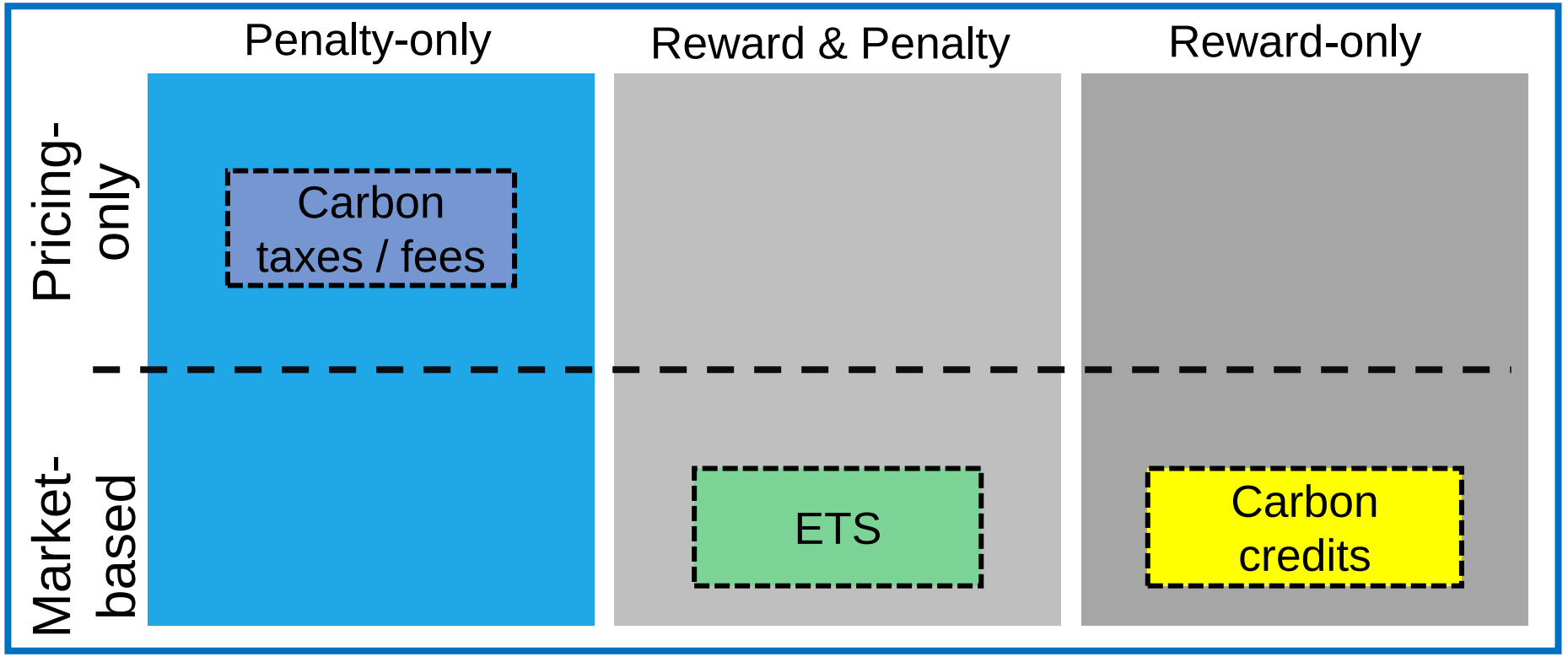
Combining instruments

Many options and combinations of instruments possible

- ETS on large emitters / carbon tax on small sources of emissions
- ETS or carbon tax + emission reduction fund
- ETS + use of offsets (e.g., EU ETS)
- Flexible carbon tax with use of offsets (e.g., South Africa)
- Energy efficiency performance tradings scheme + offsets (Thailand)
- ETS with adjustments for price
- ETS with floating/intensity-based cap: New Zealand

Different instruments

Carbon pricing



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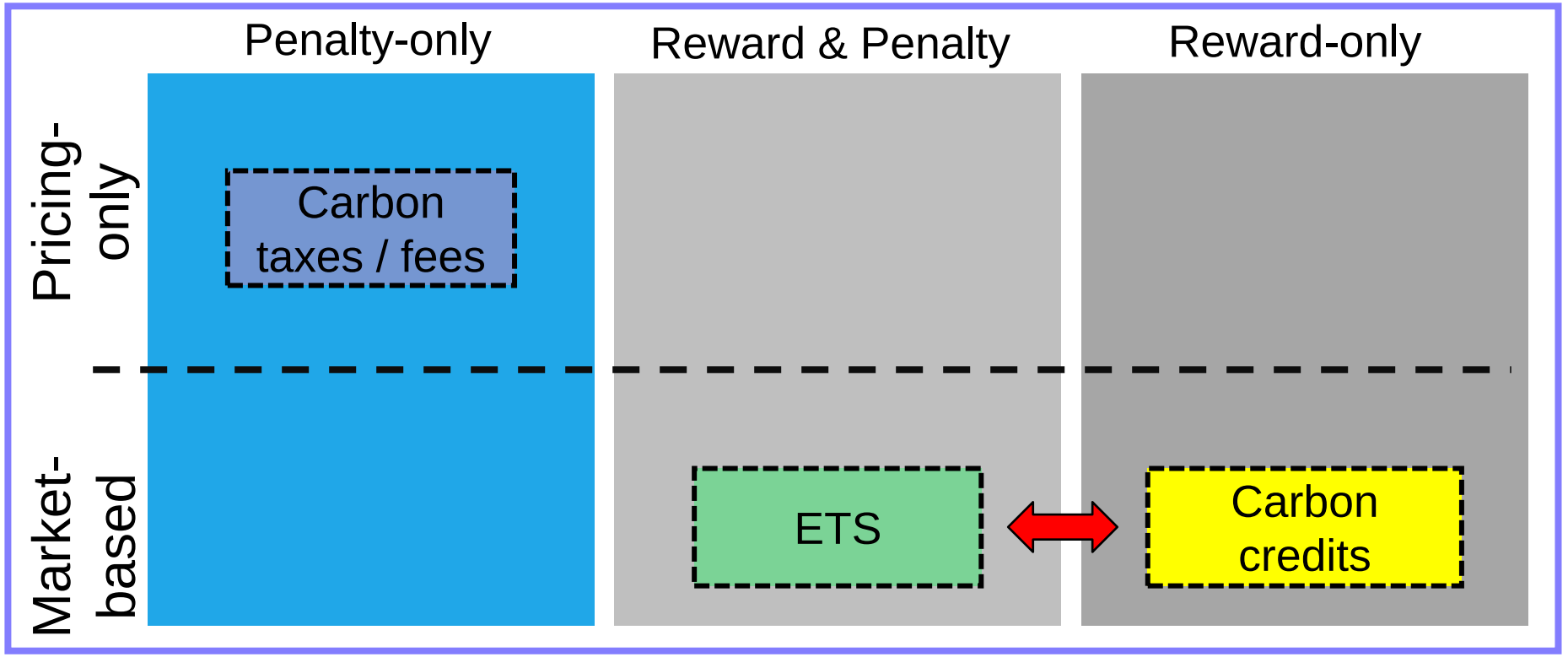
Different instruments

Carbon pricing



ETS allowing the use of carbon credits for compliance

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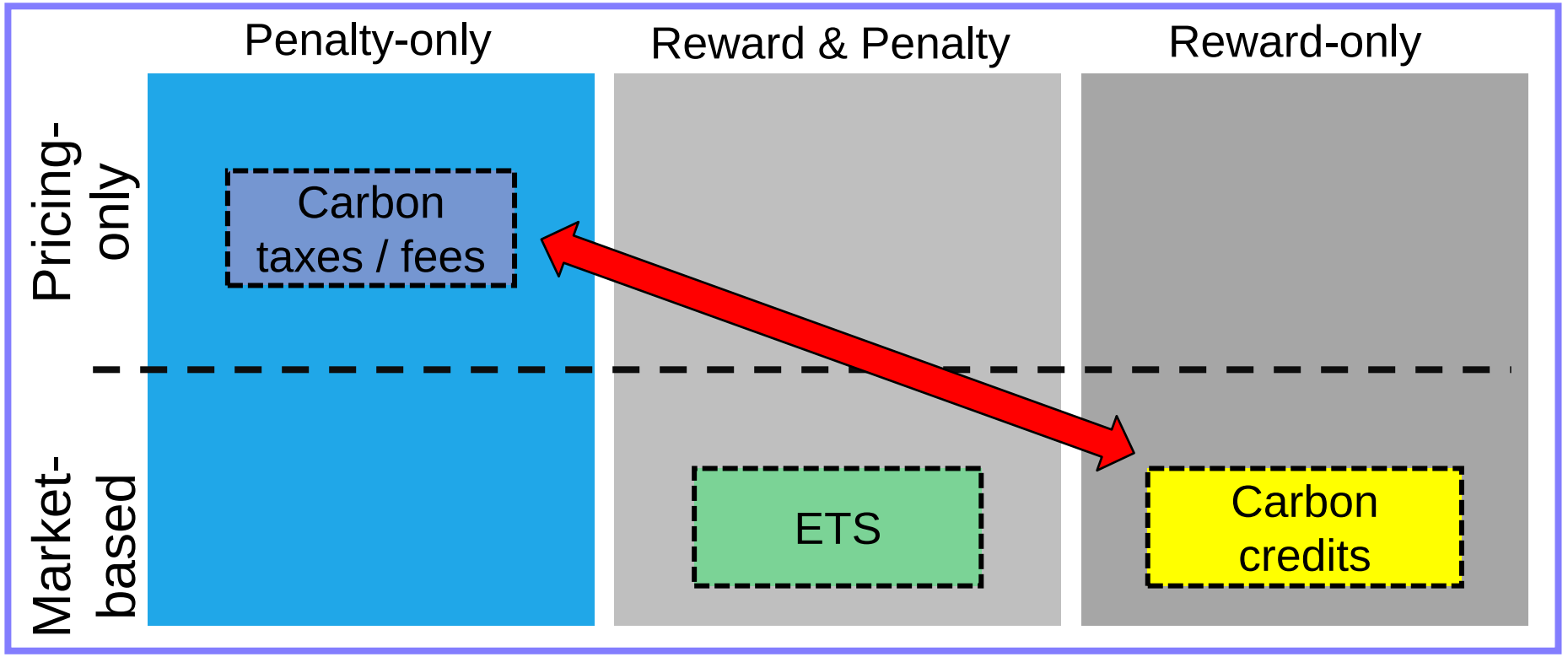
Different instruments

Carbon pricing



Carbon tax allowing carbon credits:

- To pay the tax, or
- To reduce the tax-liable net emissions

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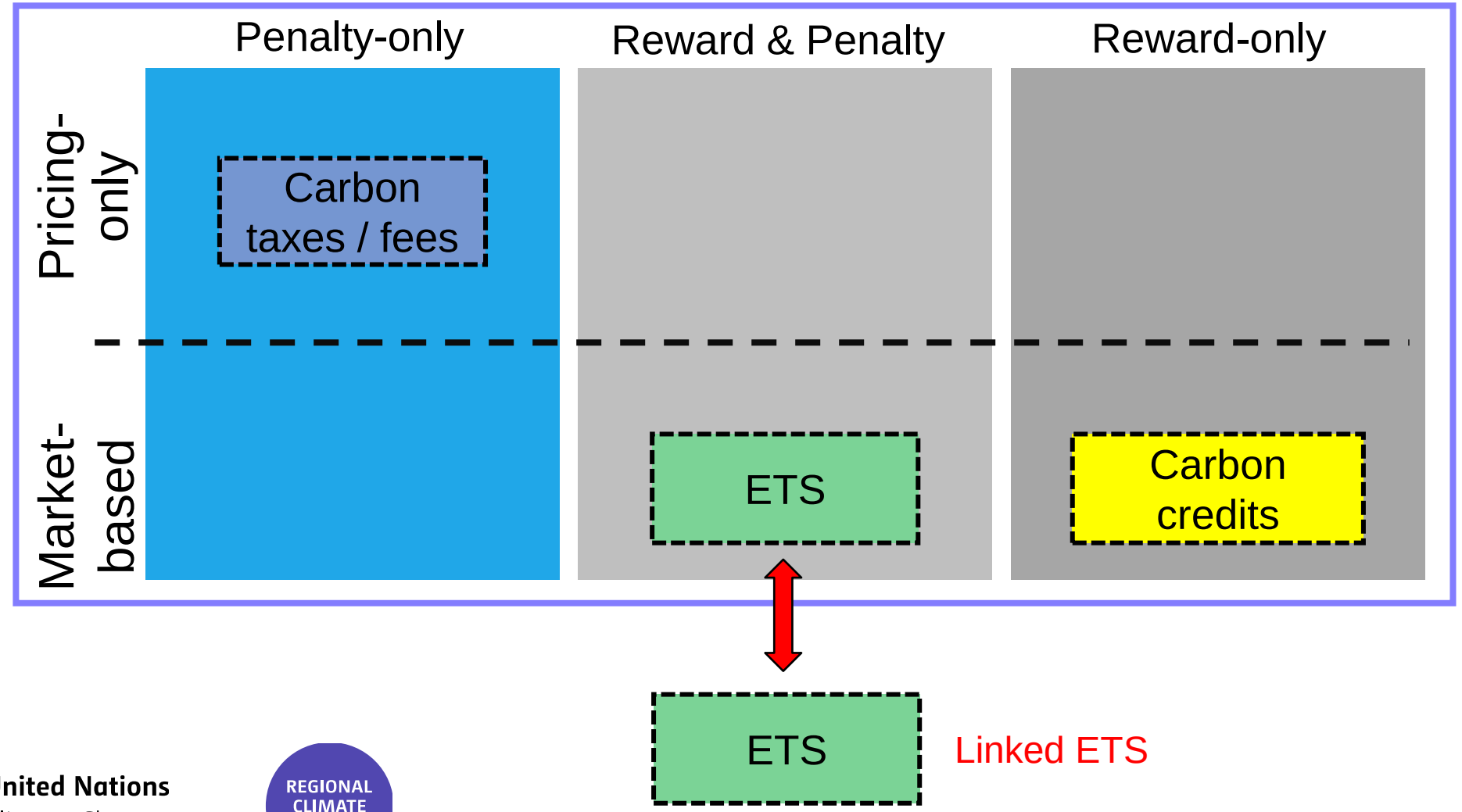
Different instruments

Carbon pricing



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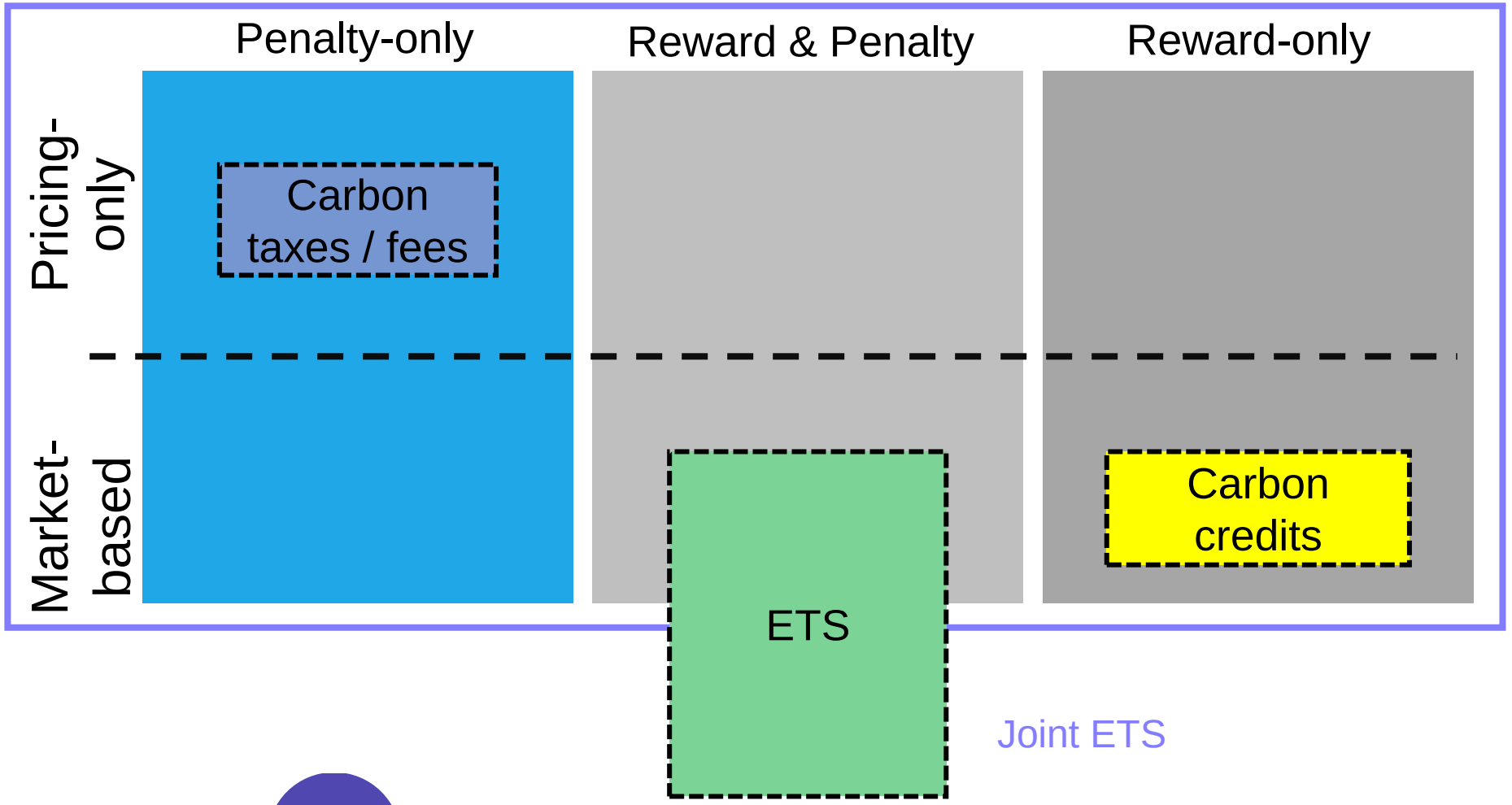
Different instruments

Carbon pricing



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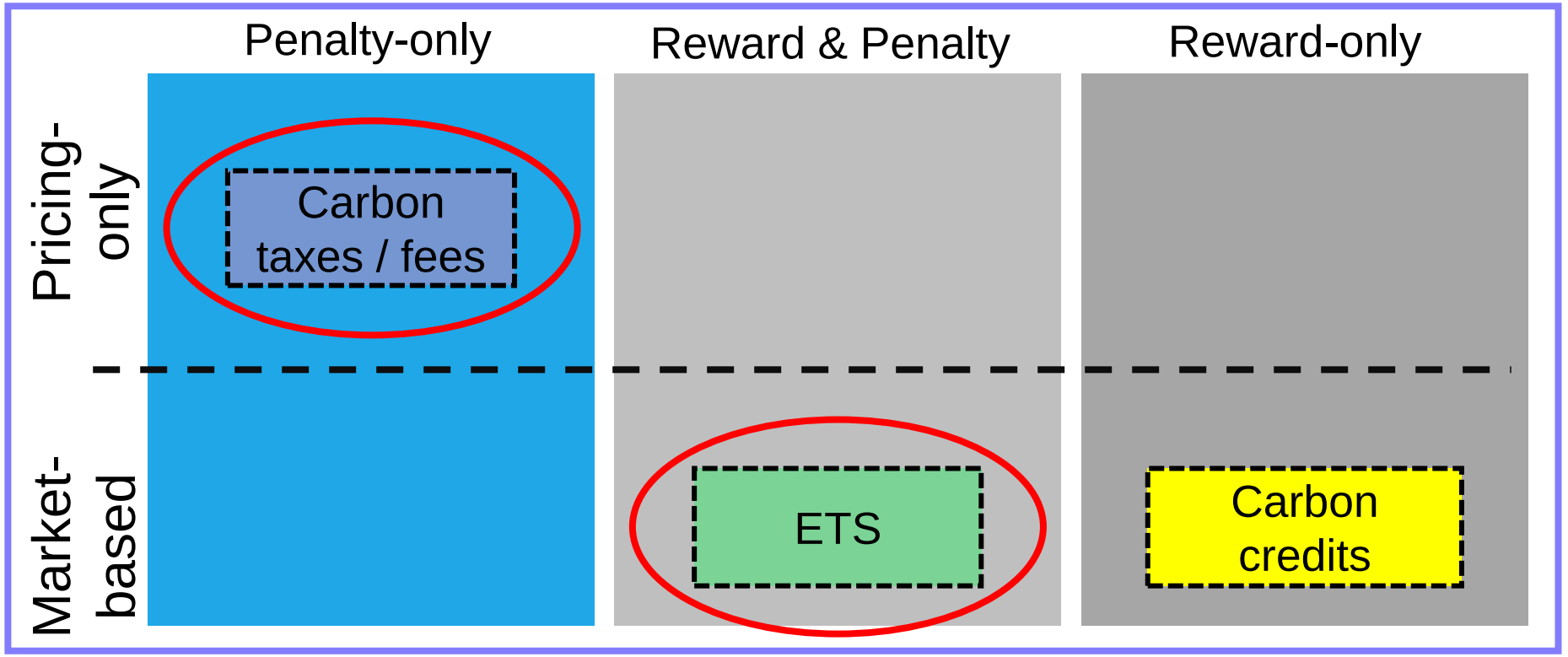
Different instruments

Carbon pricing



Carbon tax and ETS in different sectors

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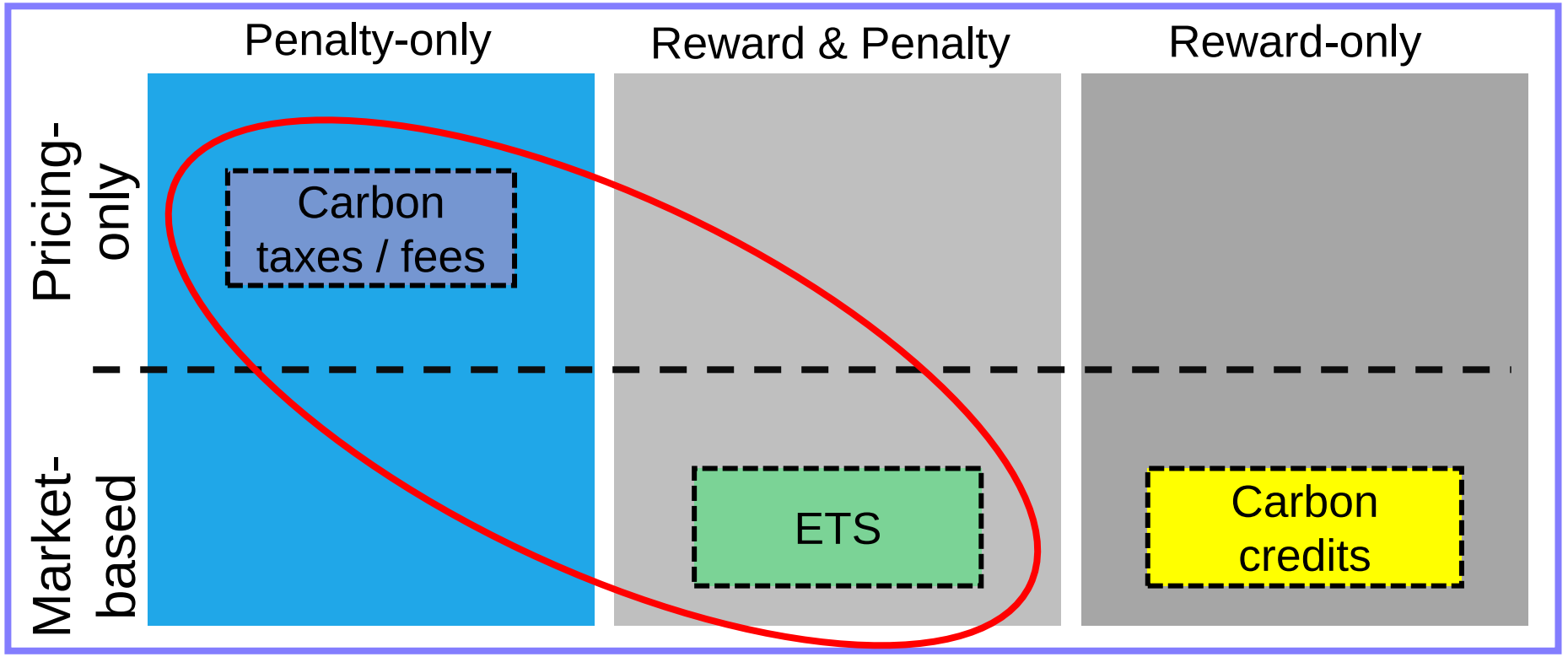
Different instruments

Carbon pricing



Carbon tax and ETS in the same sectors

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Quiz time

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Quiz time

Countries can implement both an ETS and carbon tax

A	**Absolutely not ! You have to chose on or the other.**
B	**Yes, they can be overlapping or cover different sectors/scopes.** ✓

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Based on Best, Burke, Jotzo 2020

Quiz time

I can combine the use of offset with

A	**Carbon tax**	✓
B	**Emission trading schemes**	✓

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Based on Best, Burke, Jotzo 2020

Quiz time

An Emission Trading Schemes would work in any country / environment

A	**True**
B	**Not true** ✓

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Based on Best, Burke, Jotzo 2020

Carbon pricing around the world

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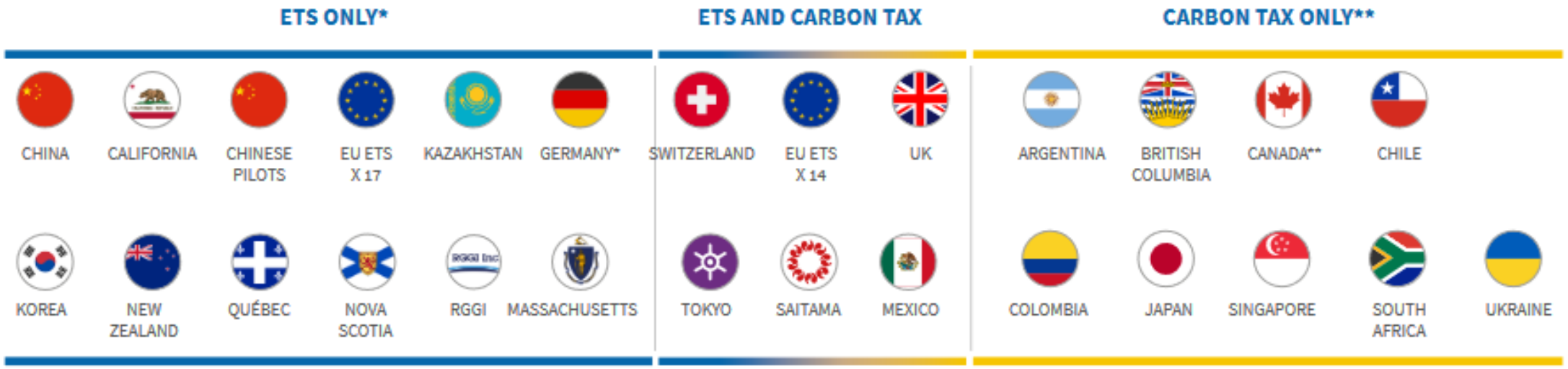
Carbon pricing in practice



* As of 2021

** Canadian Federal 'backstop' measure applied to provinces not already implementing carbon pricing. As of October 2020 this includes Alberta, Manitoba, New Brunswick, Northwest Territories, Nunavut, Ontario, Prince Edward Island, Saskatchewan, Yukon

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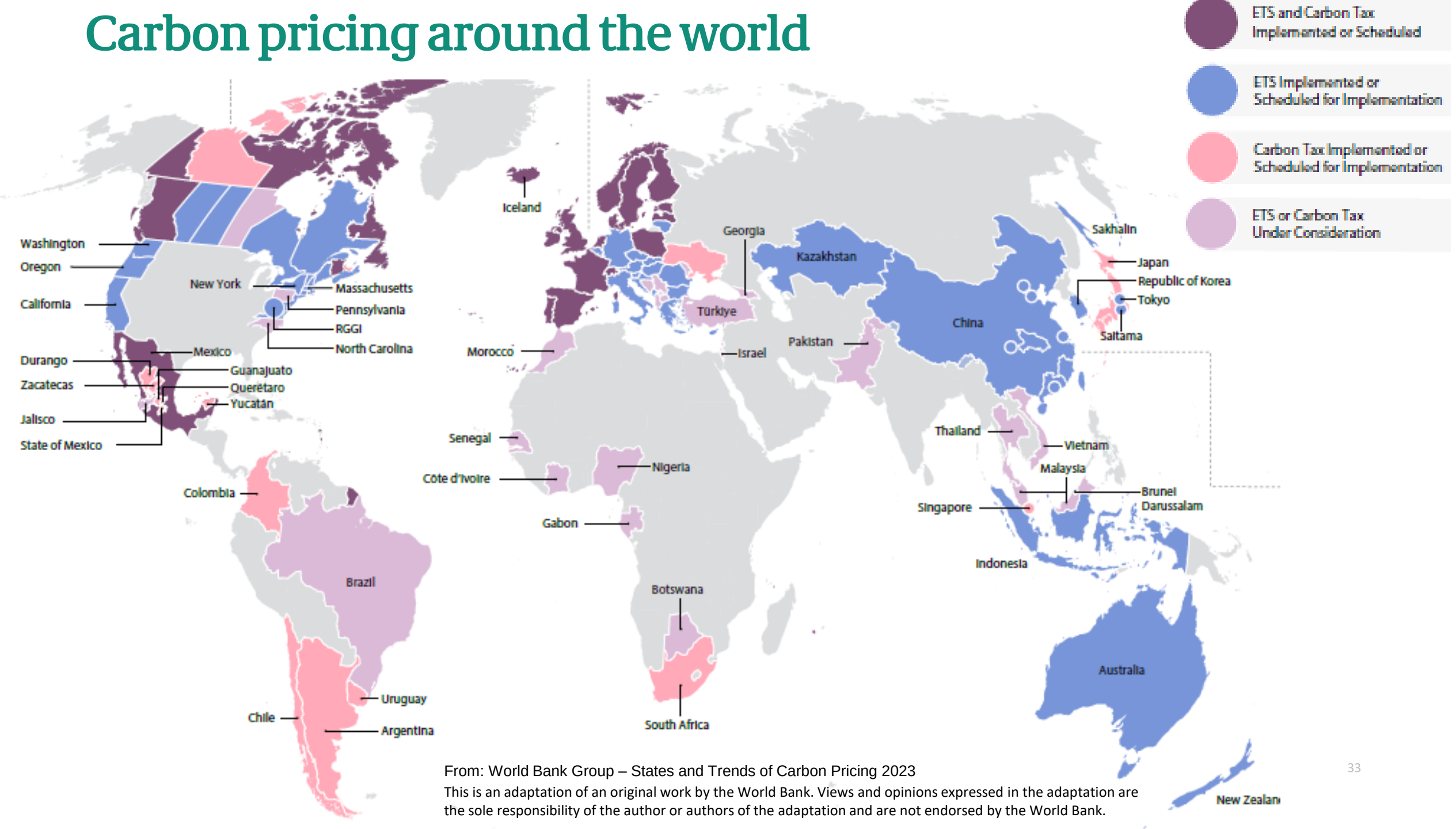
From: INTERNATIONAL CARBON ACTION PARTNERSHIP
ETS BRIEF #8 Emissions Trading and Carbon Tax: Two Instruments, One Goal

Carbon pricing around the world



From: World Bank Group – States and Trends of Carbon Pricing 2023

THANK YOU FOR ATTENDING

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