Regional Climate Week

Africa

Nairobi, Kenya – 4-8 September 2023

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Session 1: Introduction to carbon pricing

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What is carbon pricing?

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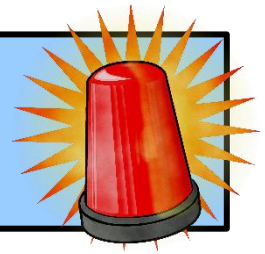
Initial situation: World without Carbon Pricing:

Cost of GHG damage is not incorporated into the economy

Atmosphere = “free dumping ground for carbon pollution

GHG intensive development

Climate crisis



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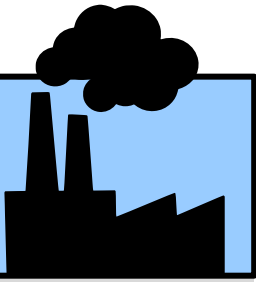
Associated pollution



Cost of air pollution:
4.2 million deaths /year;
3 trillion USD/year economic cost

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Carbon Pricing - Opportunities

- **Putting a price on carbon reduces emissions and the costs associated with these emissions**, costs that end up being borne by everyone, including companies and societies, through an array of impacts resulting from climate change.

- Carbon pricing has long been recognized as a **cost-effective** means to reduce greenhouse gas (GHG) emissions.

- Proposed national actions to mitigate climate change, embodied by Nationally Determined Contributions (NDCs), are widely understood to be collectively insufficient to achieve the ambitious goals of the Paris Agreement.

  ➢ Carbon pricing has proven to be one of the **most effective tools to unlock potential from the private sector**, companies, as well as investors. It is therefore an important **part of the toolkit** available to policy makers, both to **achieve current NDCs at least cost** and to **encourage greater ambition in future**.

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Price signal on carbon emissions

Carbon Price:

What is it?

- Price signal on greenhouse gases (GHG) emissions: X$ per tCO_2e

Why put it in place?

- To take into account [all of] [part of] the cost of carbon pollution (social cost of carbon) in decisions (planning, investments, operations, etc.).
- Recognized by most economist as the simplest, most straightforward and most cost-effective way to address GHG emissions

> *"Putting a price on carbon is the only effective way to curb emissions to combat climate change"*

Jean Tirole (2014 Nobel Price in Economics).

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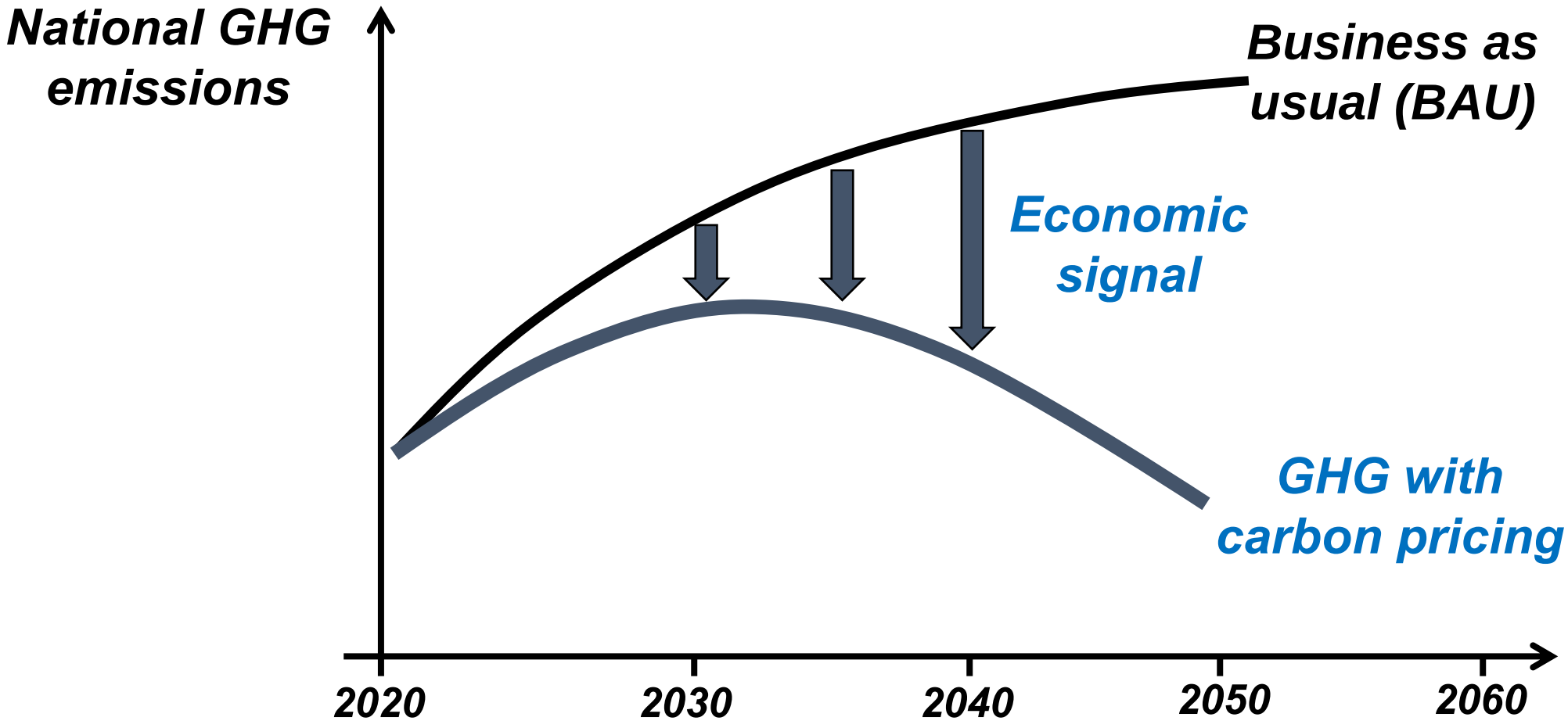
Price signal on carbon emissions



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How carbon pricing works

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How carbon pricing works

A few considerations:

- Governments require tax income to be able to operate
- Carbon pricing is **not about increasing taxes**
- Carbon pricing is about **taxing the "bads"** (pollution) instead of taxing the "goods"

(e.g. tobacco products)

Response to signal	No response to signal
↑Reduces the associated health costs ↑Reduces associated import costs	↑Creates revenues

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How carbon pricing works

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E.g.: payroll tax

↓ Discourages the creation of added value

↓ Encourages undeclared work / informal sector

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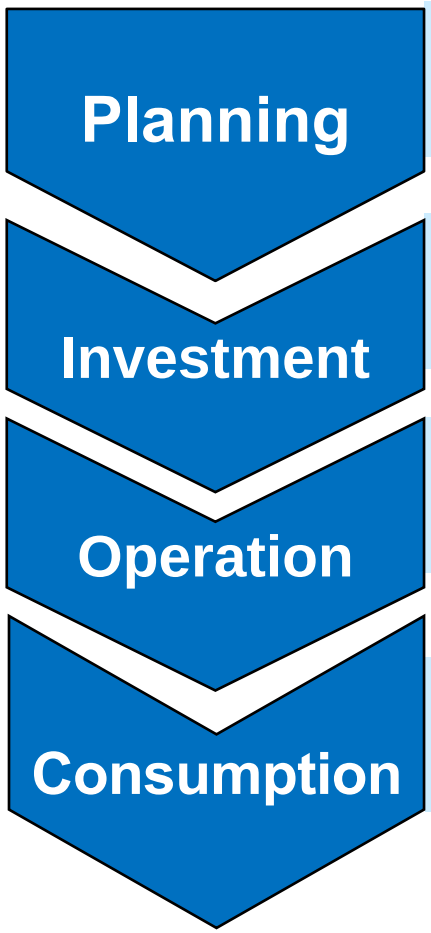
How carbon pricing works



Through the whole economic decision chain

→ fosters a move towards low carbon technologies & practices

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Co-benefits of carbon pricing

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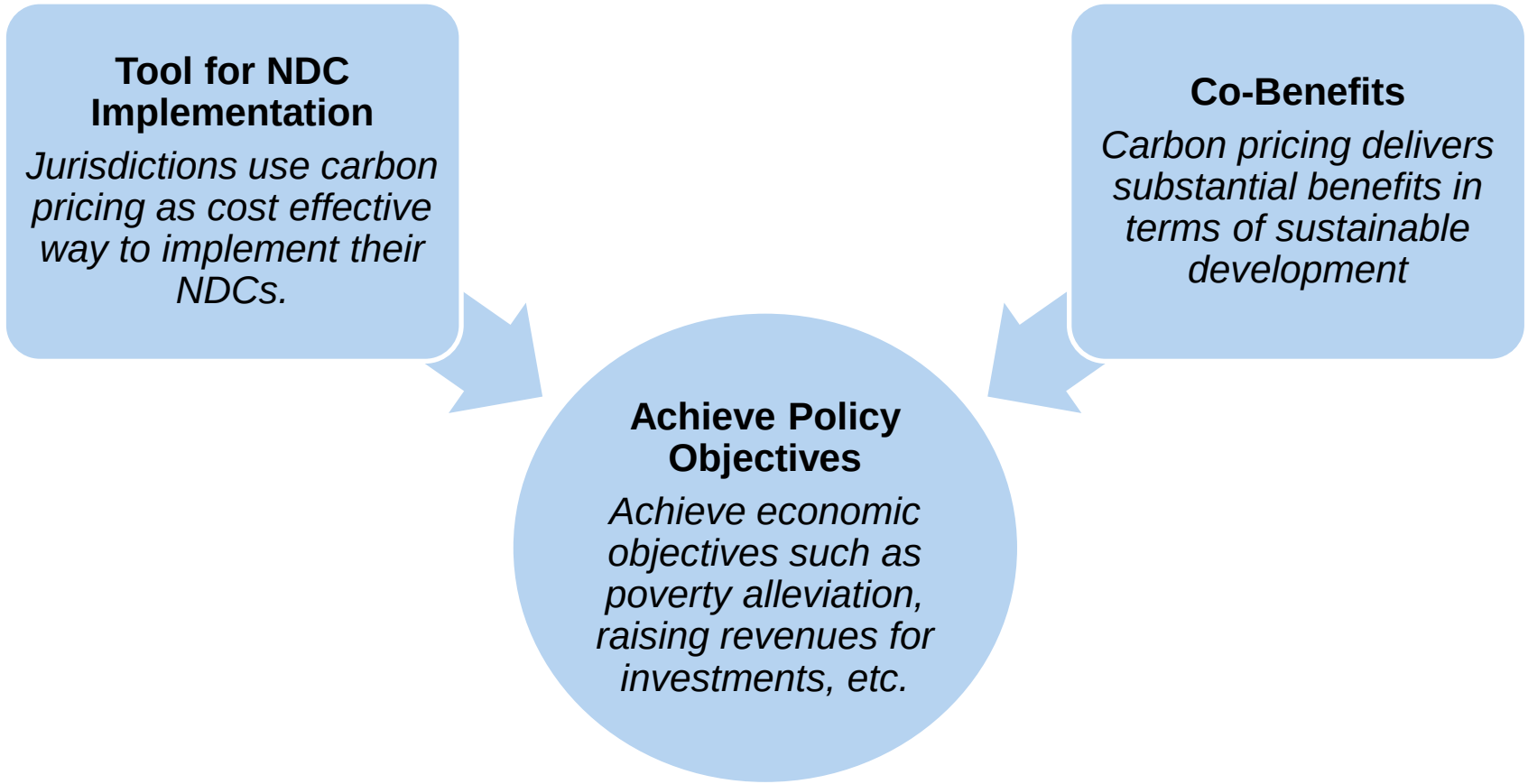
Why Carbon Pricing?



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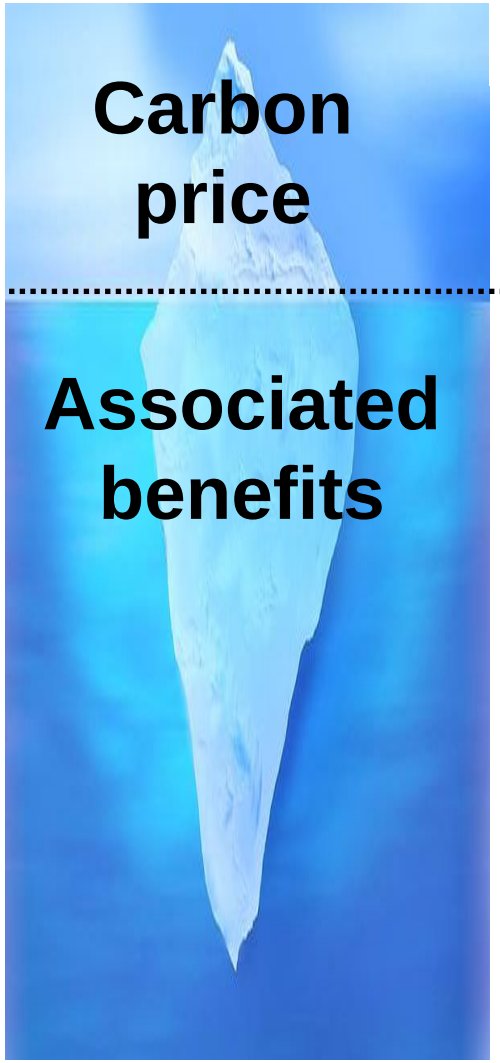
Co-benefits of carbon pricing



- **Reduce emissions**
- **Encourage action by peers**

- Environmental and health benefits
- Economic diversification / job creation
  - Penetration of new technologies
  - Attracting investments
- Raises revenue for other purposes
  - Investments / cutting inefficient taxes
- Increased energy security
- Reduced waste
- Reduce the cost of fossil fuel subsidies
- Reduced exposure to carbon border measures

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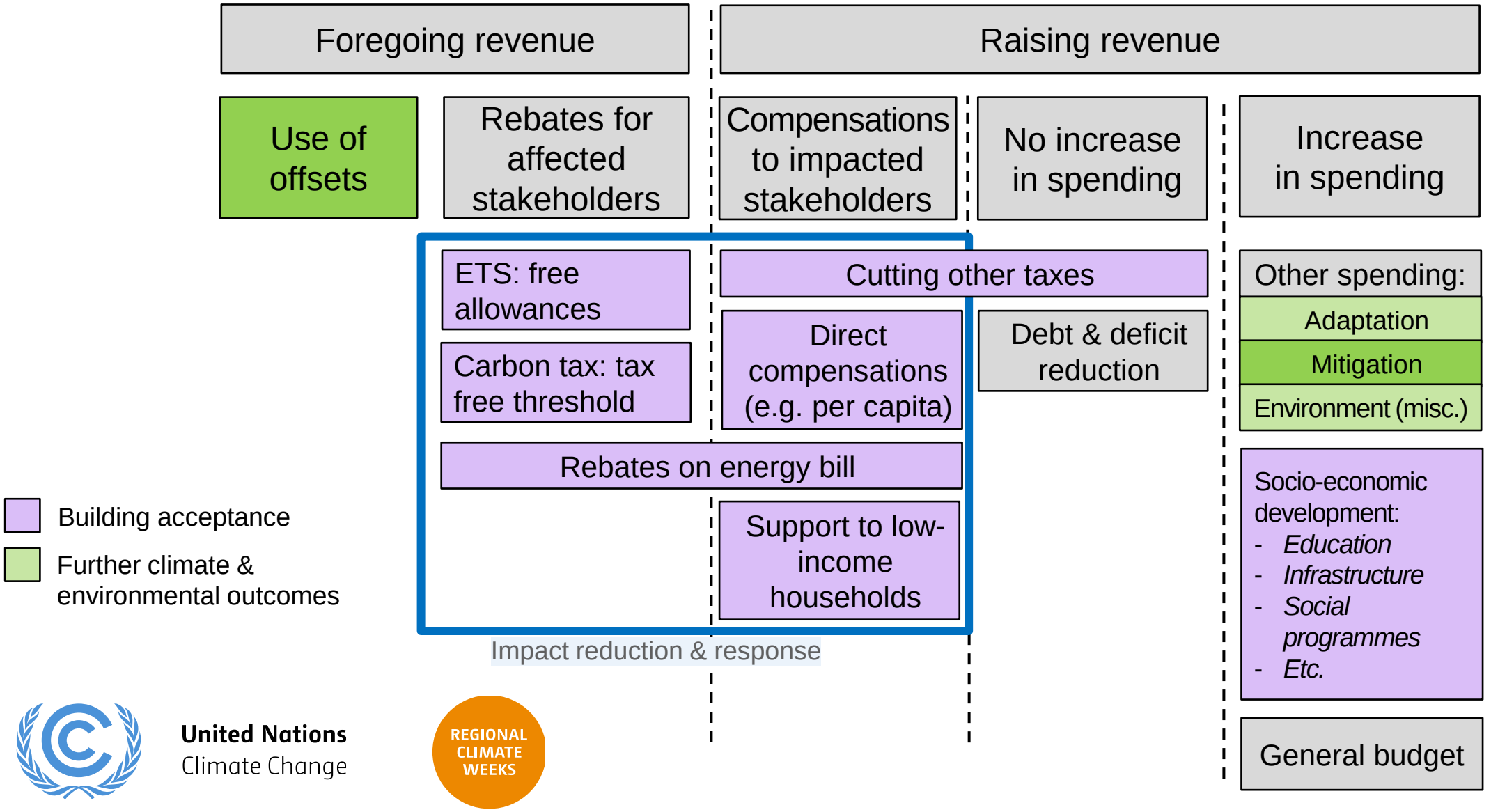
Achieving national priorities

Objective / priority	Solution
Trigger investments	Revenues from carbon pricing to give loan guarantees for investors (e.g. in sustainable energy projects)
Limit trade exposure from pricing carbon	Provide large discounts and compensations to entities covered (e.g. free allowances under ETS)
Reduce poverty	Focus reinvestments in job creation
Increase energy access	Reuse income to fund/support sustainable decentralized energy access
Increase income equality	Redistribute the proceeds on a per capita basis
Improve business climate/competitiveness	Use revenues to cut taxes which hinder wealth creation (income tax / capital gain tax)
Ensure adaptation	Investments in adaptation measures
Increase energy independence	Reinvest in measures which reduce energy imports

Carbon revenues



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Carbon Pricing Impacts and Revenue Recycling

Design of a tax system, to reorienting the tax base away from revenue from carbon-based fuels.

Revenue recycling

Significant revenue raising for governments

Revenue recycling

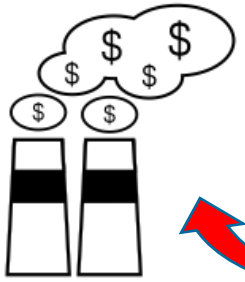
To compensate **poorer households** facing increasing energy costs

generates

Carbon Pricing

Revenue recycling

To compensate **industrial** emitters



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Benefits of Carbon Pricing

Help	• Facilitate emission pathways compatible with keeping global temperature rise to well below 2ºC above pre-industrial levels and pursuing efforts to hold the increase to 1.5ºC as per Paris Agreement
Spur	• Investment and innovation in clean technology by increasing the relative cost of using carbon-intensive technology. • Business and individuals seeking cost-effective ways to lower their GHG emission will be encouraged into green financing and clean tech.
Promote	• The achievement of SDGs by channeling financing to SD projects.
Generate	• Revenue which can be recycled into green economy through government spending for R&D • Revenue to help vulnerable communities adapt to the effects of climate change
Create	• Environmental, health, economic, and social co-benefits

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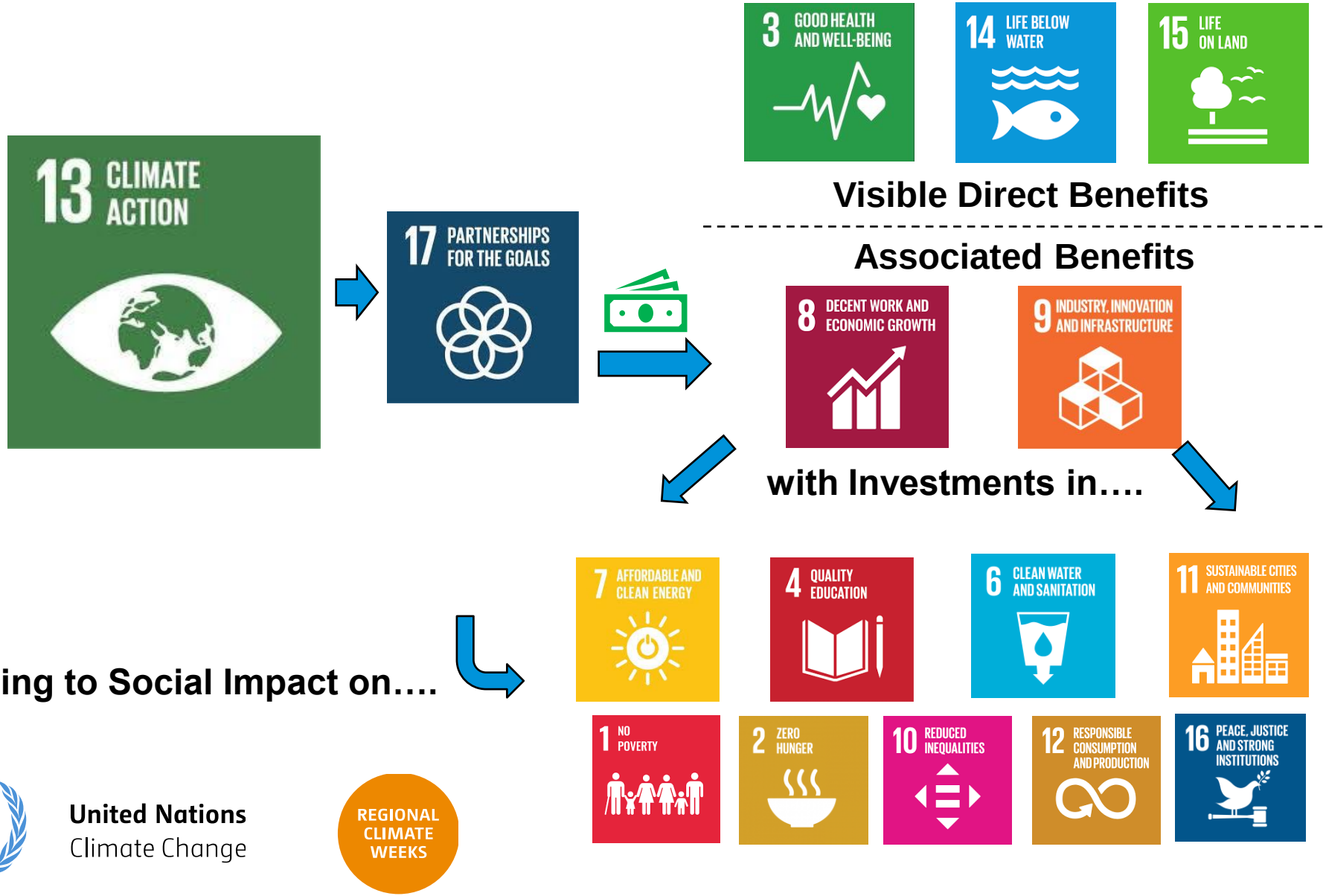
Carbon Pricing Co-Benefits against UN's SDGs



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Actual Co-Benefits derived from Carbon Revenues

Programs		Examples
Action	Energy Efficiency Programs	• Home retrofitting, less CO2 over lifetime of installations, generated jobs • Bulgaria finances energy savings of public buildings • California created 60,000 energy efficiency projects for households and to coordinate energy efficiency with water efficiency
	Sectoral transformation	• Promotion of low/zero emission vehicles in road, transit, rail, maritime • Expand and improve public transport • Sustainable transport with electric vehicle incentives, sustainable mobility, consumer rebates for vehicles
R&D /Innovation		• Re-invested to advancing low-carbon technologies or building resilience • EU commercial scale demonstration of carbon capture and sequestration • Innovative mitigation technology, intelligent logistics in Quebec • Advanced mitigation technology for heavy duty vehicles, freight equipment • Healthy soils and manure management in agriculture, farm-waste-to-fuel
Compensating Households or businesses		• Direct bill assistance to lower income households • Re-invest in disadvantaged and low-income communities • Returned to consumers and businesses in the form of a dividend • Use revenues to reduce existing taxes on labor and capital (tax swap) to minimize economic costs, and result in net economic benefits • Wealth transfer to even out regional disparities • Support electro-intensive industries through transition phase

Types of carbon pricing

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Carbon Pricing Instruments – What types

Characteristics	Carbon Tax	Emission Trading Scheme
Certainty of Prices	Price is set = certain	Price determined by supply/demand
Level of Emissions	Level of emission achieved uncertain	Level of emission is defined by system
Mode of Control	Tax rate on annual emissions	Setting allowed level of GHG emissions

- Both, Carbon Tax and Emission Trading Schemes, require
  - **Measurement methodology for estimate emissions**
  - **Regular Reporting to regulatory body to verify emissions**

Carbon Tax and Emission Trading: Communalities 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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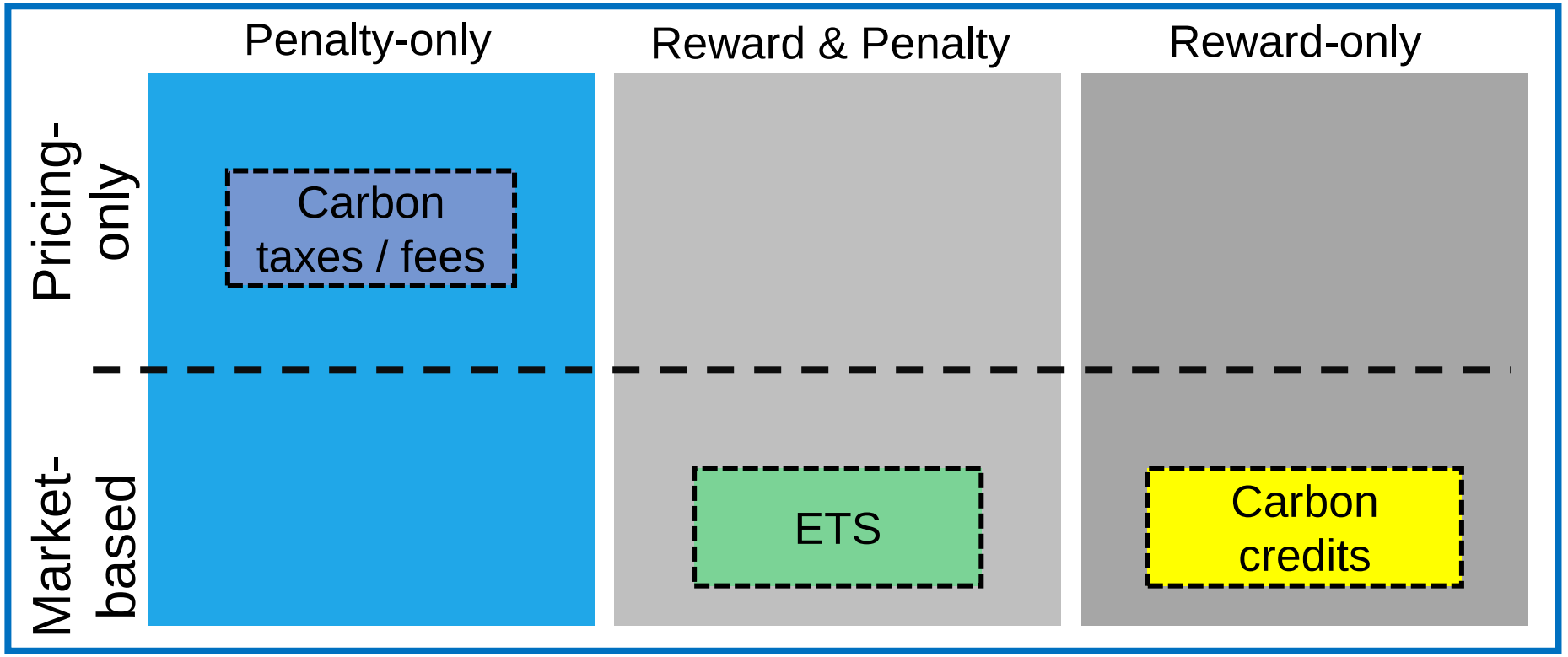
Different instruments

Carbon pricing



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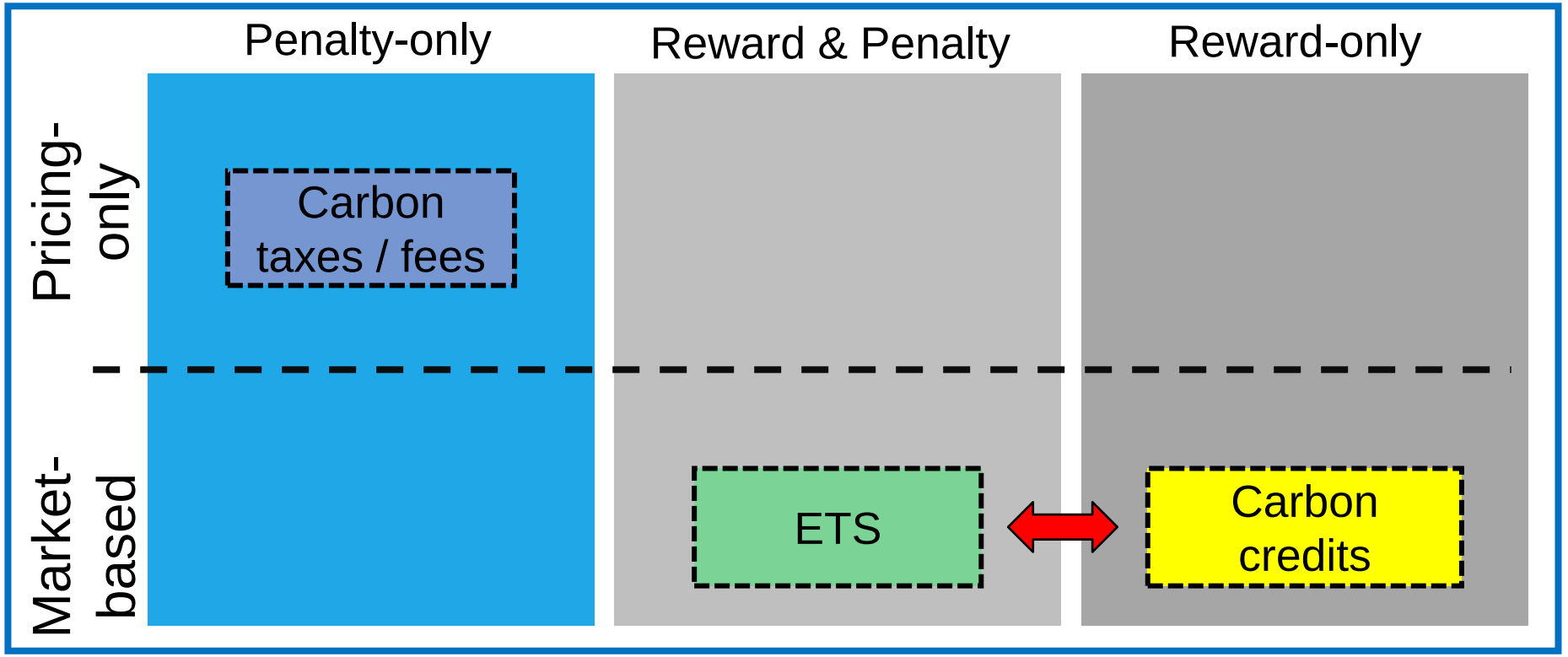
Different instruments

Carbon pricing



ETS allowing the use of carbon credits for compliance

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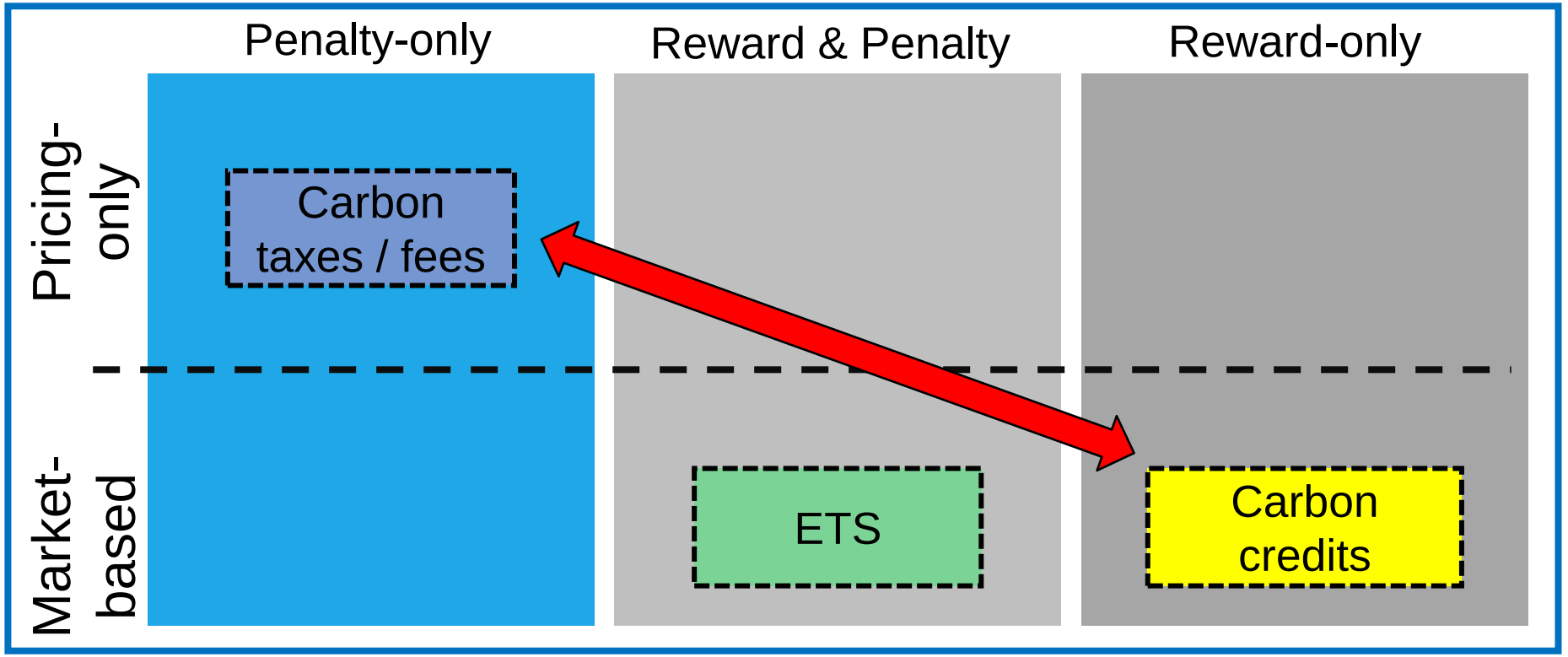
Different instruments

Carbon pricing



Carbon tax allowing carbon credits:

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

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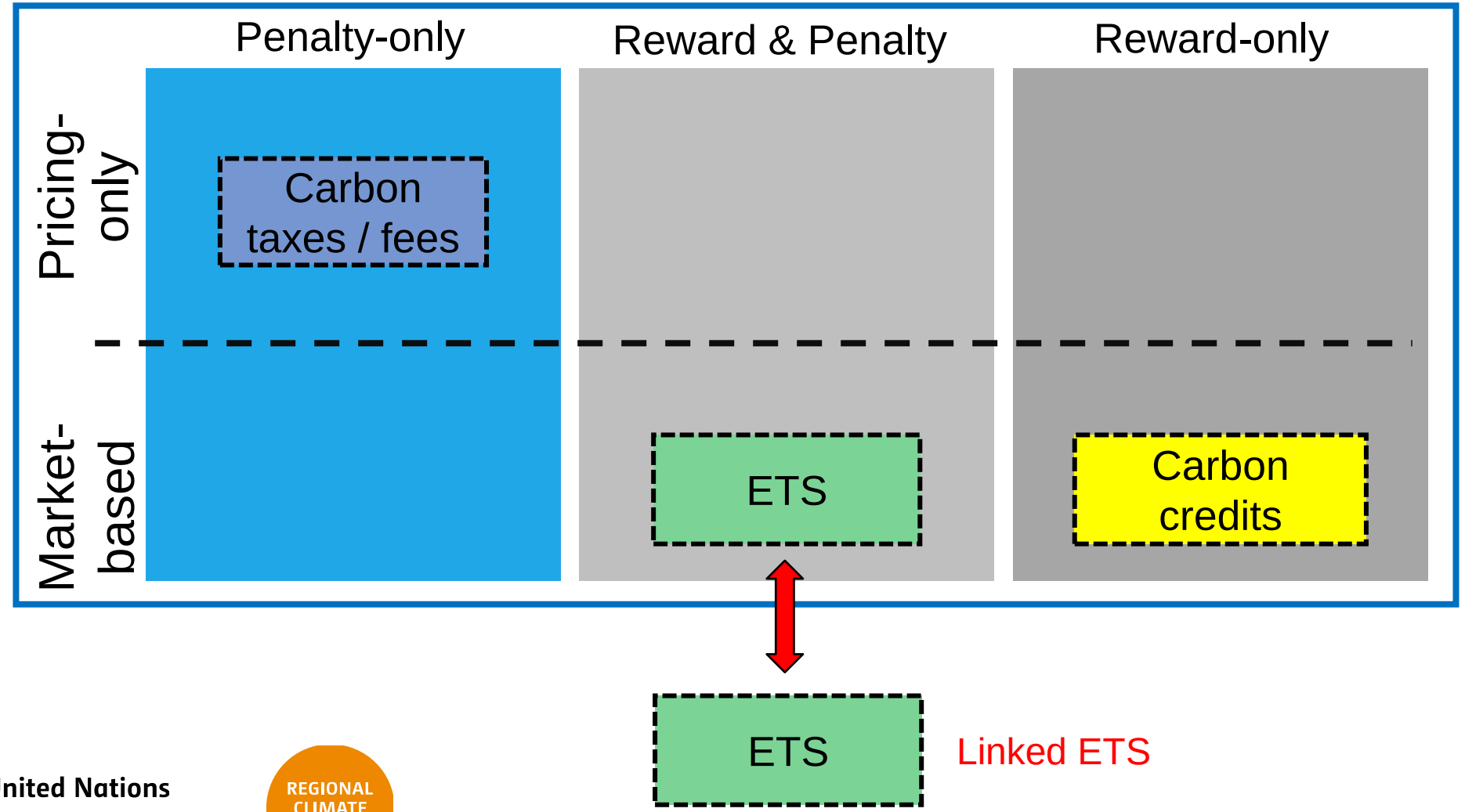
Different instruments

Carbon pricing



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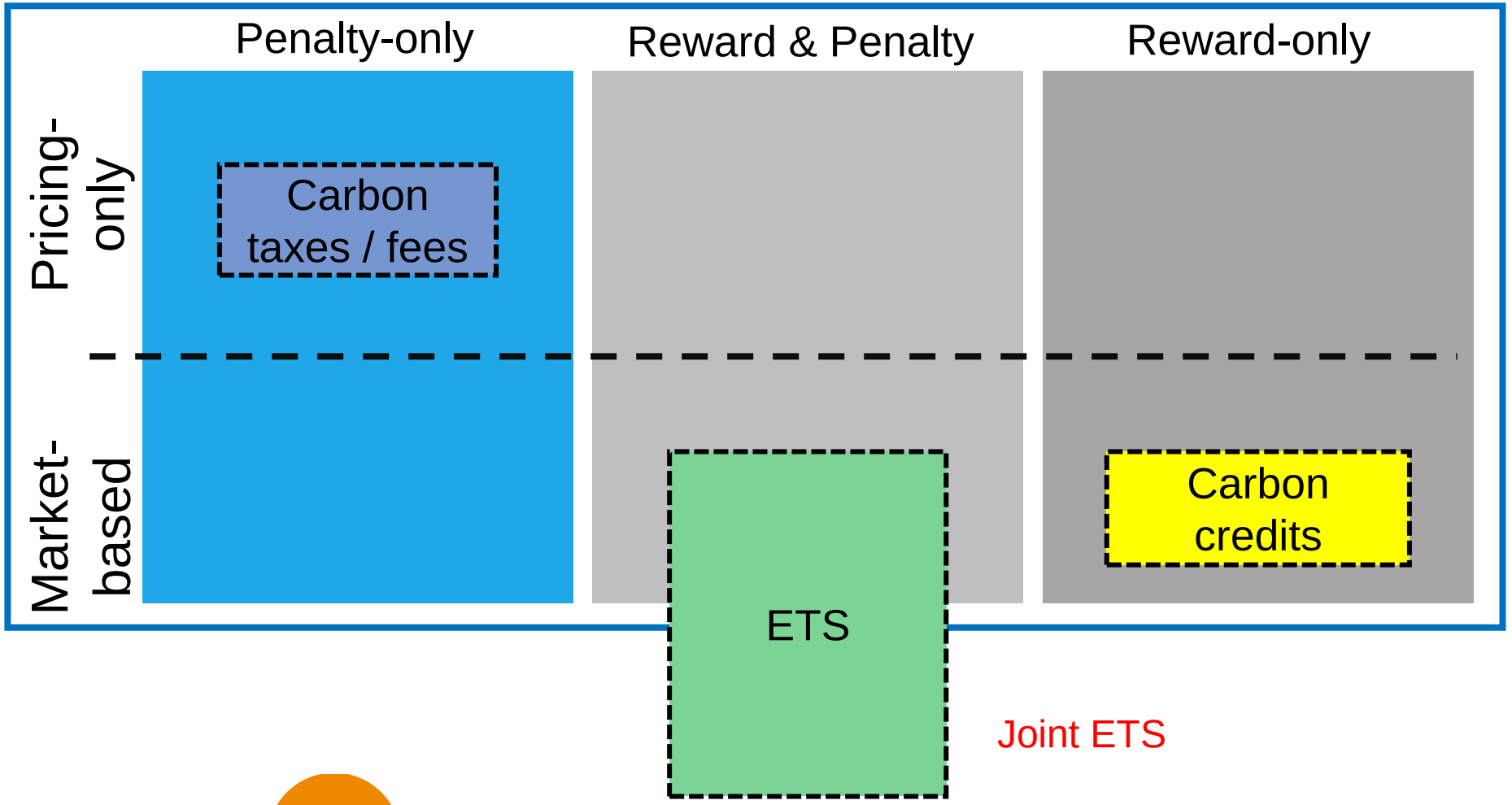
Different instruments

Carbon pricing



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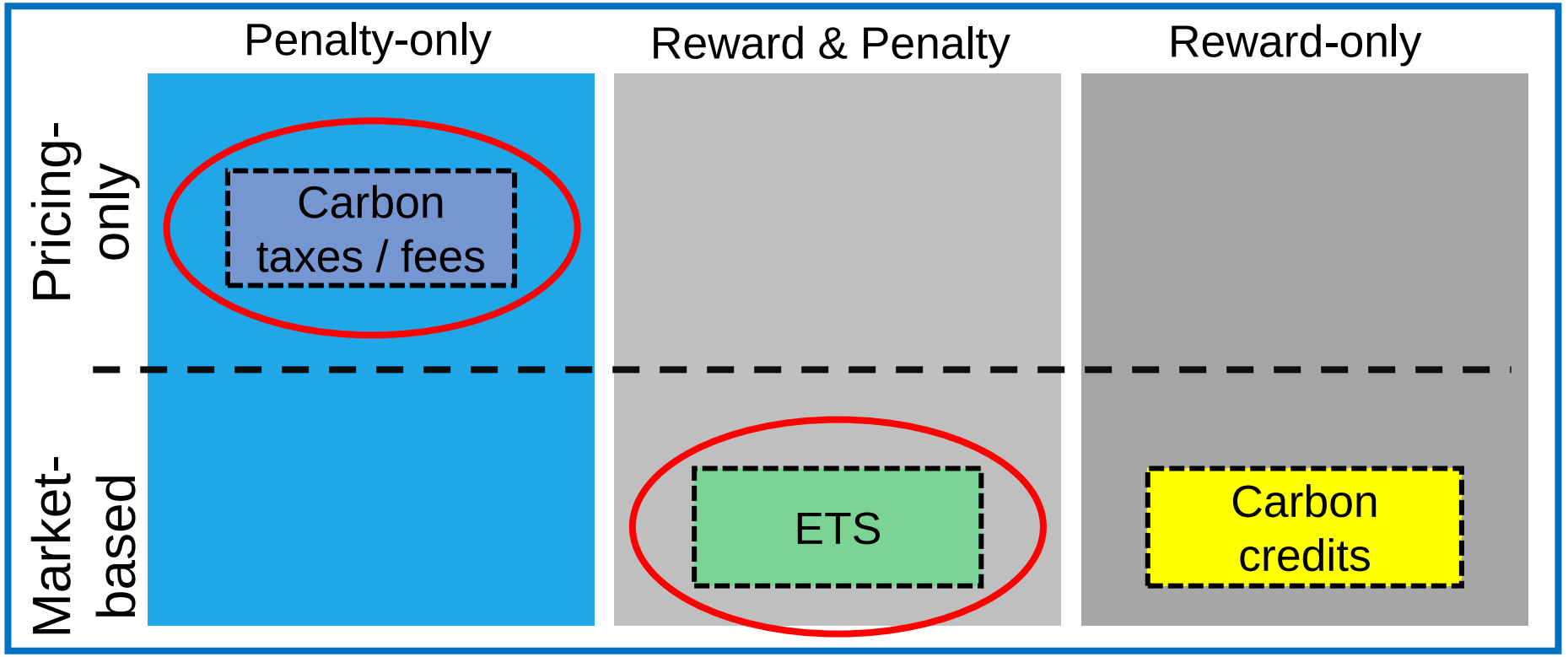
Different instruments

Carbon pricing



Carbon tax and ETS in different sectors

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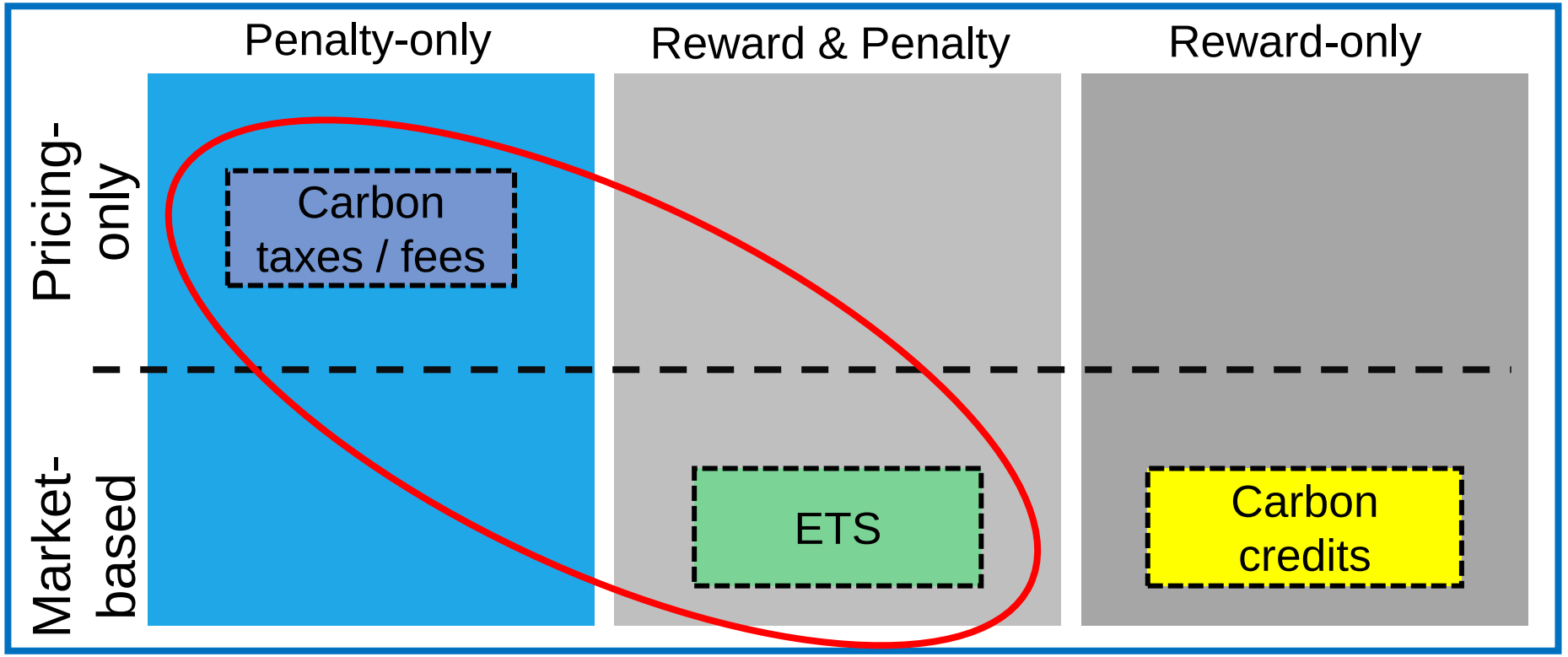
Different instruments

Carbon pricing



Carbon tax and ETS in the same sectors

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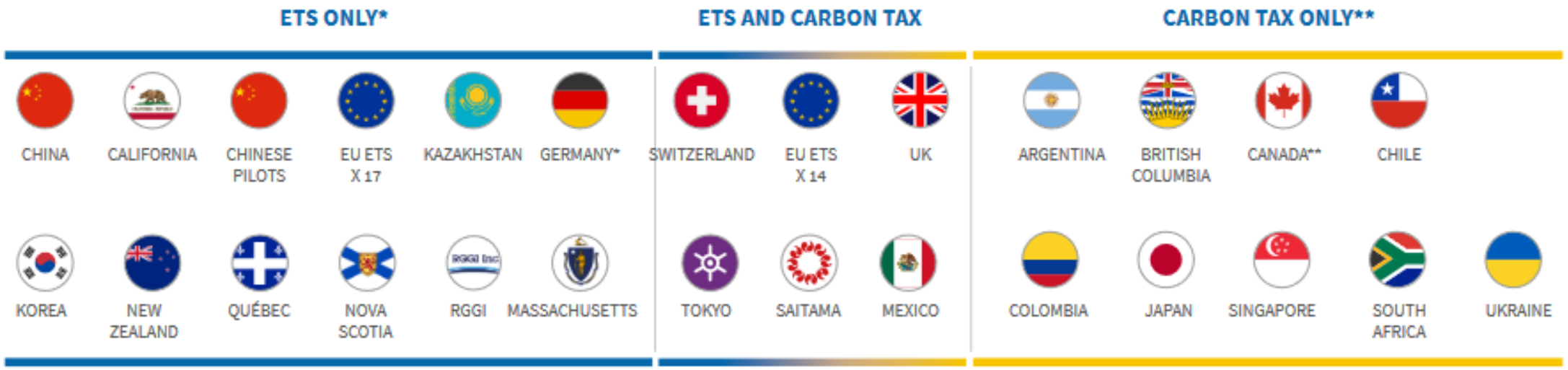
Carbon pricing in practice



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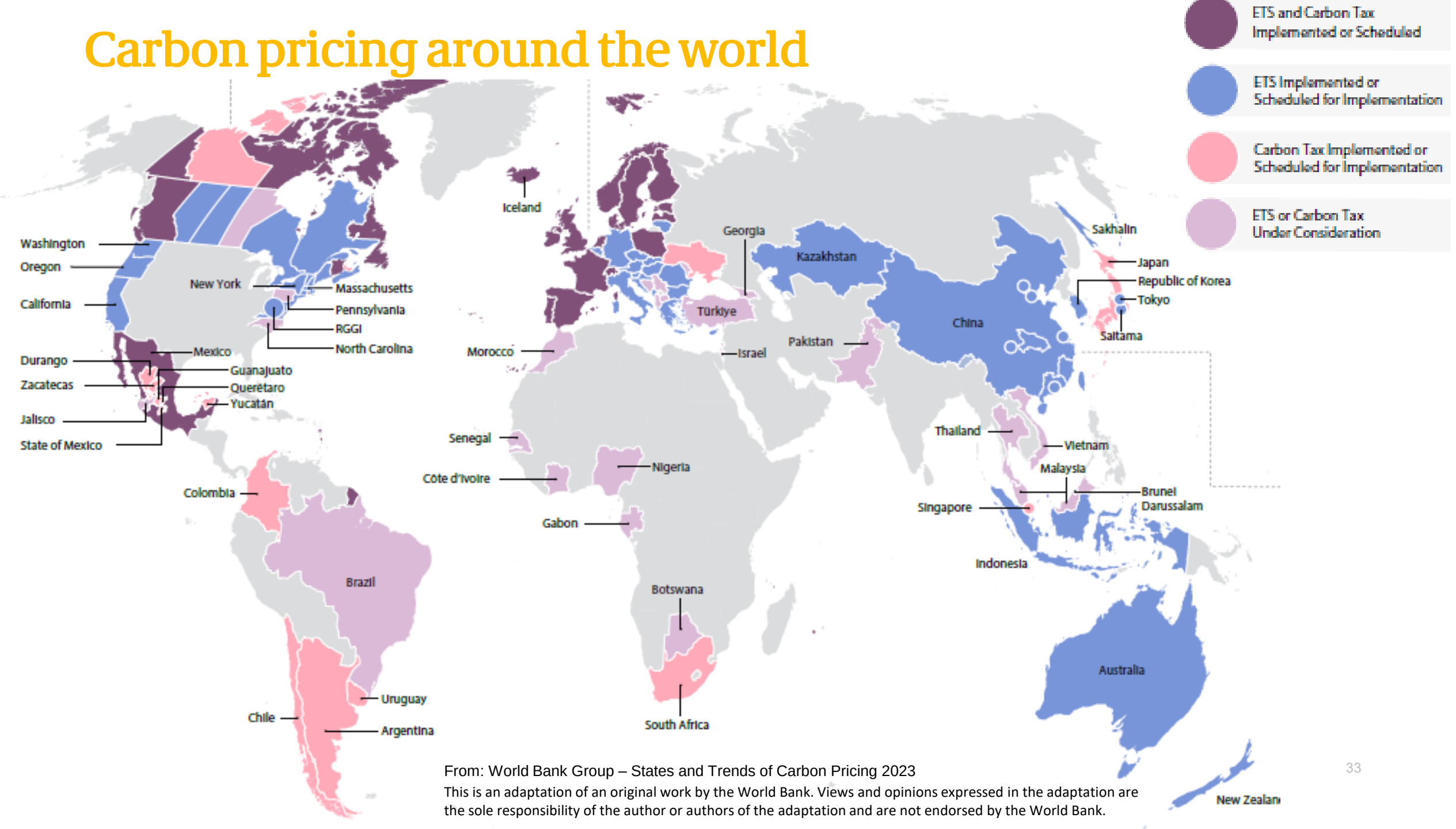
From: INTERNATIONAL CARBON ACTION PARTNERSHIP
ETS BRIEF #8 Emissions Trading and Carbon Tax: Two Instruments, One Goal

Carbon pricing around the world



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

Mitigation purchase programs

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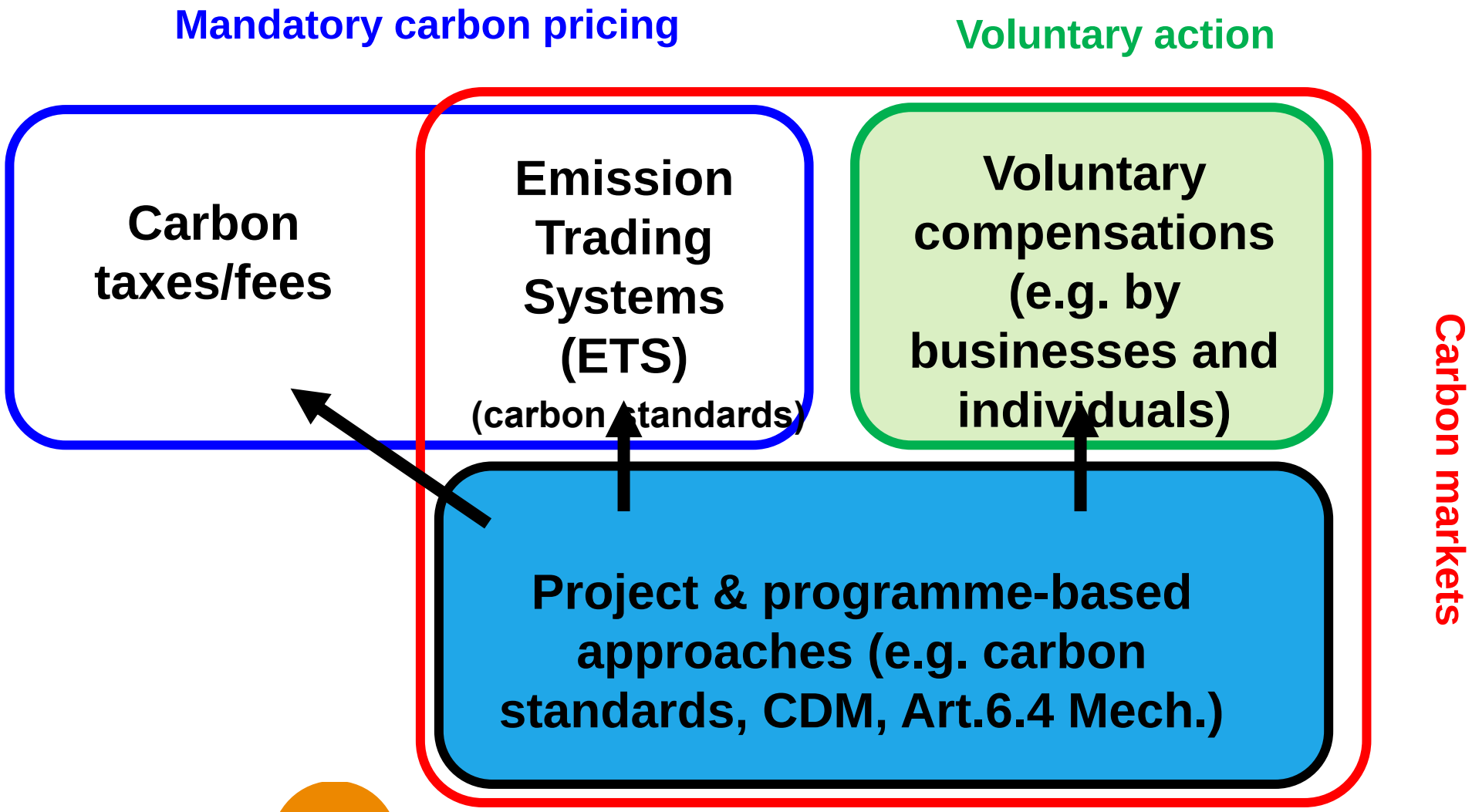
About carbon pricing and carbon markets



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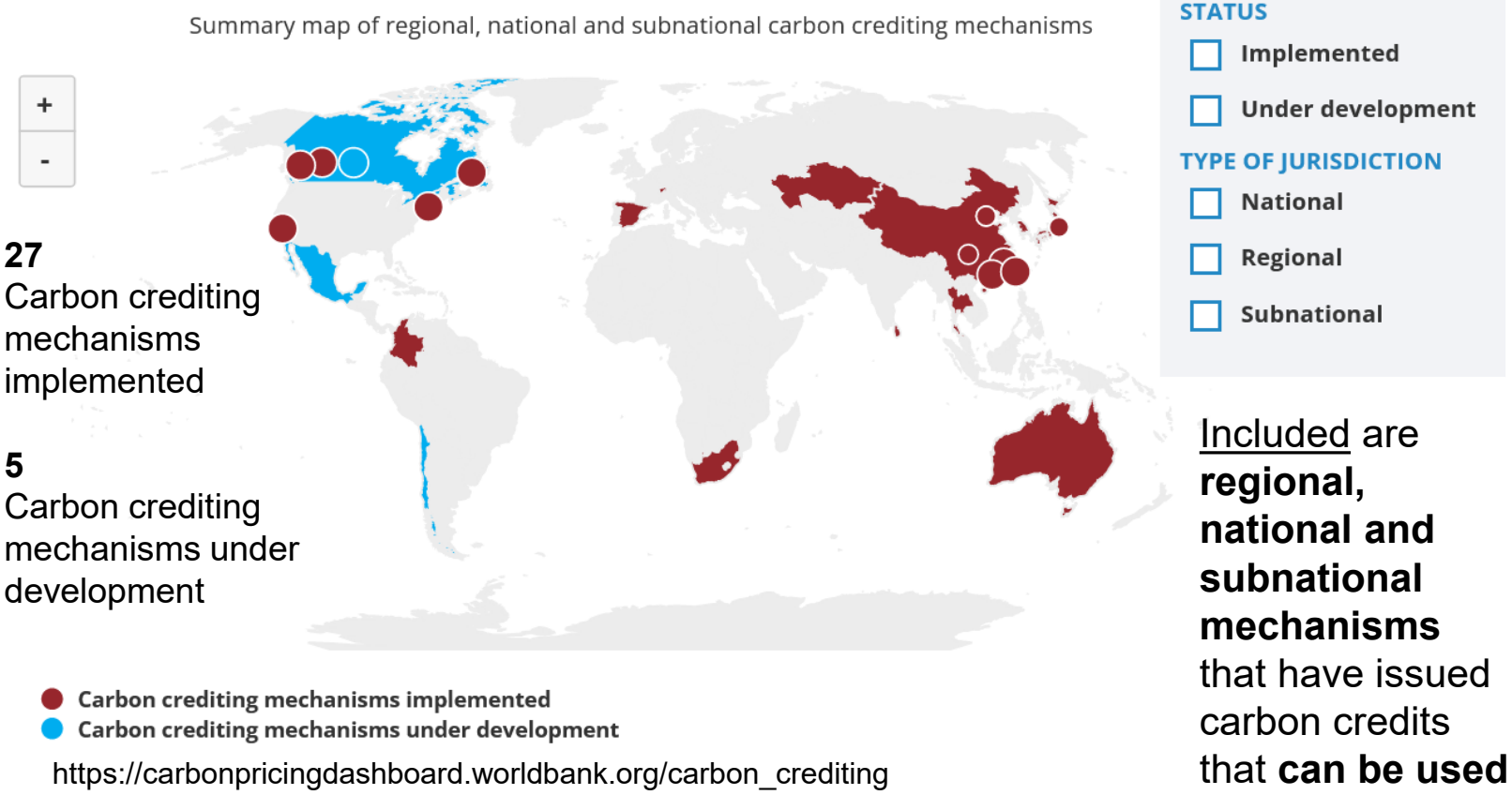
Crediting mechanisms

- A **crediting mechanism** (a baseline and credit system) enables remuneration of achieved emission reductions; tradable certificates are issued for actual emission reductions achieved
- Participation in a crediting mechanism is voluntary
- Demand for generated certificates can be created, for example, by allowing the certificates generated under the crediting mechanism to be traded in an emissions trading scheme or used against a carbon tax.
- In addition to the compliance market (with binding emission reduction targets), a market for voluntary use of greenhouse gas emissions has also developed in recent years, creating demand for carbon credits

Carbon crediting mechanisms

Data last updated March, 31 2023



27
Carbon crediting mechanisms implemented

5
Carbon crediting mechanisms under development

https://carbonpricingdashboard.worldbank.org/carbon_crediting

Included are **regional, national and subnational mechanisms** that have issued carbon credits that **can be used under mandatory** carbon pricing initiatives

Not included:

- **International crediting mechanisms**, i.e. CDM and JI, and
- **Independent crediting mechanisms** (ACR, CAR, Gold Standard, VCR)

International crediting mechanisms are those governed by international climate treaties and are usually administered by international institutions.

Independent crediting mechanisms are mechanisms not governed by any national regulation or international treaties. They are administered by private and independent third-party organizations, which are often nongovernmental organizations.

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Domestic Carbon Markets for NDC achievment

Compliance market	Example
For achieving **NDCs domestically** Motivation = compliance with mandated pricing instrument (carbon tax, ETS, etc.) Buyers = compliance entities (corporates) Units: emission allowances & offset credits Domestic or sectoral regulations	Company A participates in an ETS. It has emitted 5600 tCO2e more than it currently has allowances. To ensure compliance, it will purchase 5600 units in allowances or offsets so that it can surrender 1 compliance unit for each tonne emitted to the regulator Company B is liable to a carbon tax. It can offset up to 10% of its emissions to reduce its tax liability an choses to buy and cancel emission credits accordingly

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Carbon crediting mechanisms

Examples for use of carbon credits under compliance systems:

- **International credits:**
  - The **Republic of Korea offset credit mechanism** was implemented to provide the offset credits for use within the Korea ETS; allows for CERs from Korean CDM projects to be reissued as KOCs
  - The **Colombia Carbon Tax Offset System** was established to allow companies to offset emissions liable to carbon taxation. Voluntary cancellation of CERs against Colombia's carbon tax is possible.
- **Domestic Credits:**
  - The **California Compliance Offset Program** is the mechanism that supplies carbon offset credits within California's cap-and-trade program (*ARBOCs accepted by California ETS, Quebec ETS*).
  - The Kazakhstan ETS sets out the option for compliance entities to utilize domestic offset credits to help meet compliance obligations; non-ETS sectors can seek to implement offset credit projects under a **Kazakhstan domestic crediting mechanism**.
- **Independent Credits**
  - The **South African Carbon Tax Act** allows companies to reduce their carbon tax liabilities by up to 10, whereby projects in South Africa developed under the CDM, VCS and the Gold Standard are potentially eligible.

2) Carbon pricing and the NDC achievement

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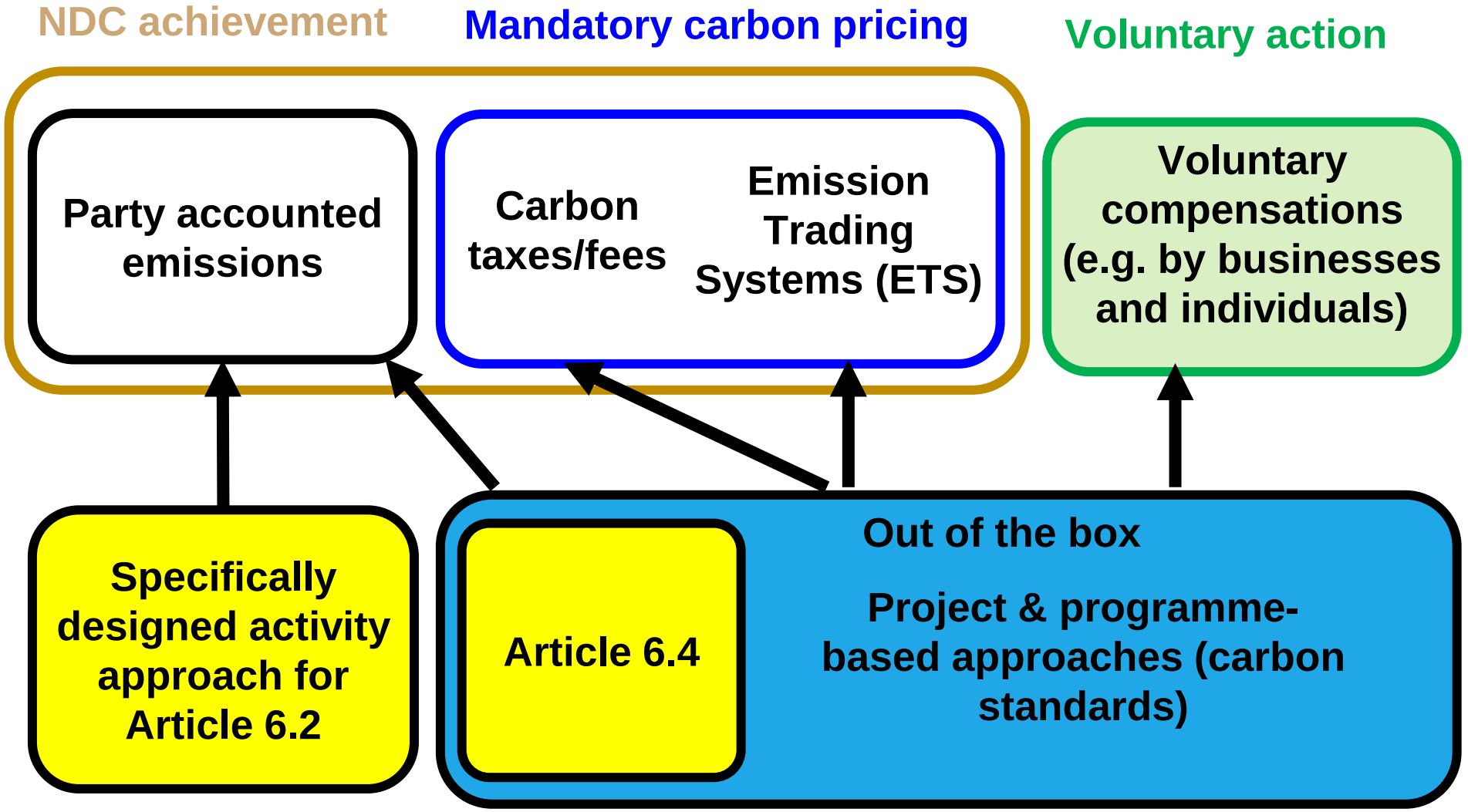
About carbon pricing and carbon markets



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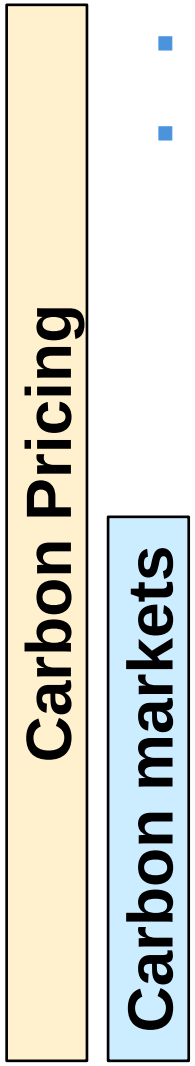
Carbon pricing/markets to achieve NDC pledges



- Consensus: needed for cost-effective mitigation
- Increasingly supported by countries(~100 countries): *members of V-20 forum, Coalition of finance ministers for climate action, 73 carbon pricing initiatives*
  - Both carbon pricing and markets are increasingly considered in country pledges: the Nationally Determined Contributions (NDC) under the Paris Agreement.
    eg. New Suriname NDC
  - According to the World Bank, using carbon pricing approaches on a large scale to meet the emission reduction targets set in NDCs could reduce the cost of climate change mitigation by 32% by 2030.
    - Enabled under Art. 6 of the Paris Agreement
    - Rationale: worldwide uneven technical/economic potential for mitigation action

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Relation to the Paris Agreement

Potential roles for carbon pricing

- For achieving successive NDCs (adjustable policy which can be revised over time)
- For LT-LEDS (long-term economic signal)
- Also potentially for cooperative mitigation action under Art. 6

- Carbon pricing can play an important role in realizing the ambitions of the Paris Agreement and implement the Nationally Determined Contributions (NDCs).
- Article 6.2: Establishes the potential of trading emission reduction credits across borders, between nations or jurisdictions. This can encourage the linking of carbon pricing approaches across countries and jurisdictions resulting in the reduction of emissions by a magnitude greater than what is possible solely domestically or nationally.
- Para. 136 of the first COP 21 Decision (1/CP.21 Adoption of the Paris Agreement): recognizes the important role of providing incentives for emission reduction activities, including tools such as domestic policies and carbon pricing.
- Two-thirds of all submitted Nationally Determined Contributions (NDCs) under the Paris Agreement consider the use of carbon pricing and carbon markets to achieve their emission reduction targets

Case Study Carbon Pricing Country 1 (tbc)

Nigeria (tbc)

Potential Speaker (tbc)

1. …

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Case Study Carbon Pricing Country 2 (tbc)

Senegal

→ Potential Speaker

1.

2.

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