



International Carbon  
Action Partnership

The background of the slide is a photograph of several wind turbines silhouetted against a bright, orange and yellow sunset sky. The sun is positioned centrally behind one of the turbines, creating a lens flare effect. The foreground shows a misty or hazy landscape with trees and rolling hills.

# ICAP-PMI Asia Pacific ETS Training Course: Introduction to carbon markets

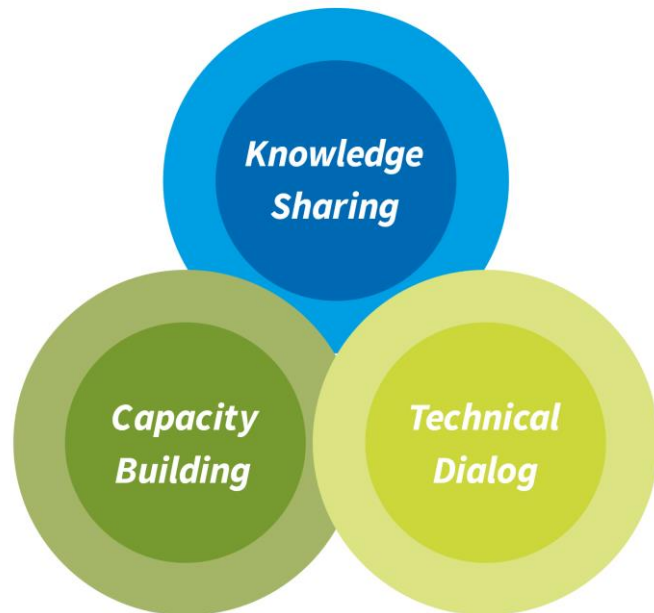
**Stefano De Clara & David Hynes**  
*International Carbon Action Partnership (ICAP)*

**11 October 2023**

# About the International Carbon Action Partnership

An international **forum** of **41 national & subnational** governments to **exchange** knowledge and experiences on emissions trading systems (**ETS**)

- Share **best practice** & learn from each others' experiences
- Facilitate **development and improvement** of carbon markets
- Explore the **role** of emissions trading in decarbonization





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# 1. Why Carbon Pricing?

## Why price carbon?

- **GHG emissions are a side-effect of economic activities.**  
**They generate:**
  - A “good” (e.g. cement)
  - A “bad” (e.g. GHG emissions, which cause climate change)
- **Greenhouse gas externality:** Those who cause climate change through GHG emissions are not the same who will suffer its consequences
- The costs of the “bad” are not incorporated in the price of products and services
  - **economic inefficiency at societal level**
  - **emissions increase**



*Image source: The Red & Black*

# Price carbon!

- Solution: “**internalize the climate change externality**” by charging for carbon pollution
- **Price per tonne of CO<sub>2</sub>e emitted**
- **Polluter pays** principle
- **Economic efficiency** at societal level

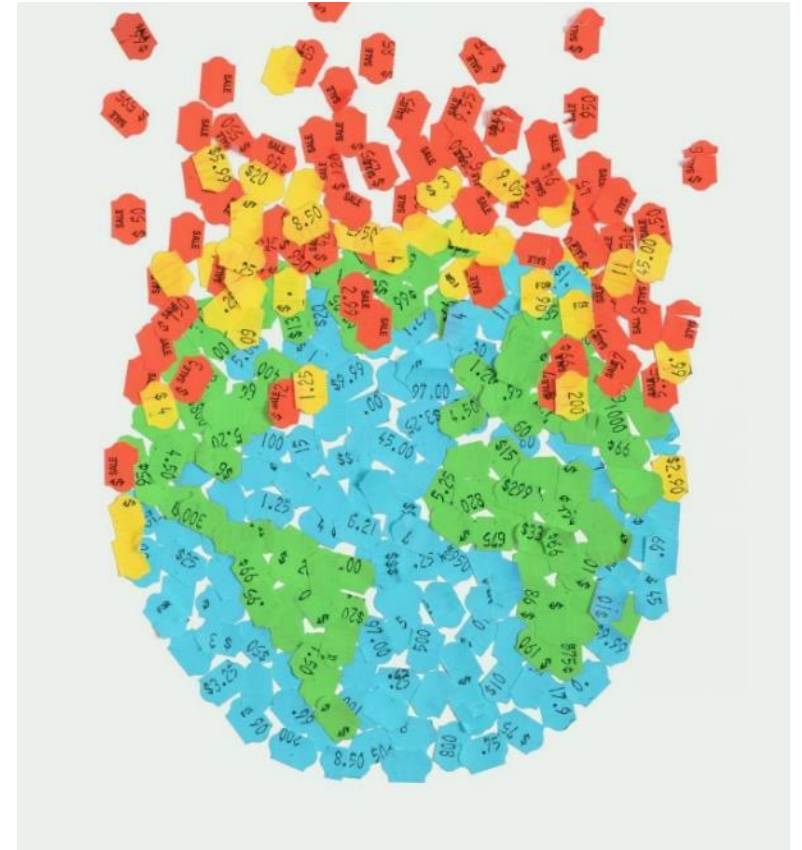
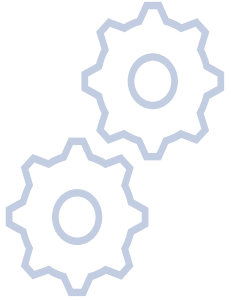


Image source: New York Times

## Carbon pricing can deliver an economy-wide signal:



**Production** – producers have an incentive to use less carbon-intensive materials



**Consumption** – consumers have an incentive to consume less carbon-intensive goods and services



**Investment** - investors are encouraged to invest in less carbon-intensive activities, as the value from doing so is diminished.



**Innovation** – provides a financial incentive to develop new low-carbon new products, processes and technologies

## Question

- **What forms of carbon pricing can you think of?**

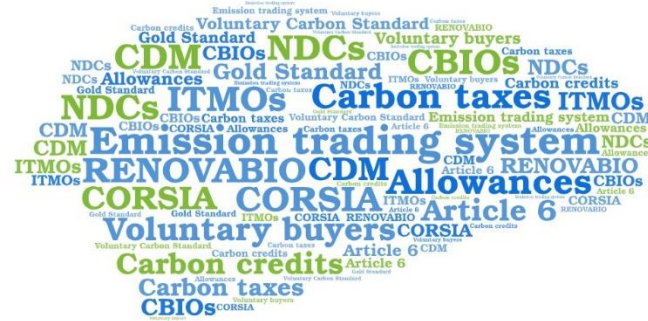


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## **2. Let's untangle the concepts**



# A jungle of concepts...



Emissions trading systems

Carbon taxes

CORSIA

Demand by countries for mitigation targets (e.g., NDCs)

Voluntary buyers

Other carbon-related obligations (e.g., RENOVIABIO)

Allowances

Carbon credits

ITMOs

Other related certificates (e.g., CBIOs)

Clean Development Mechanism

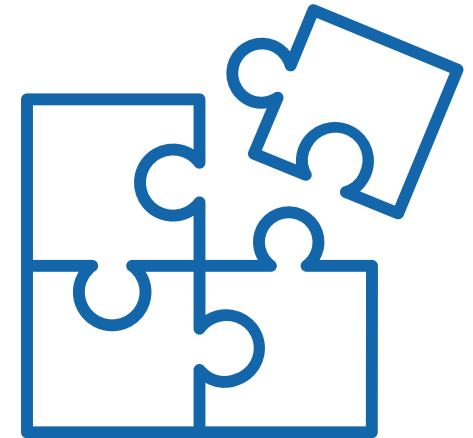
Voluntary Carbon Standard

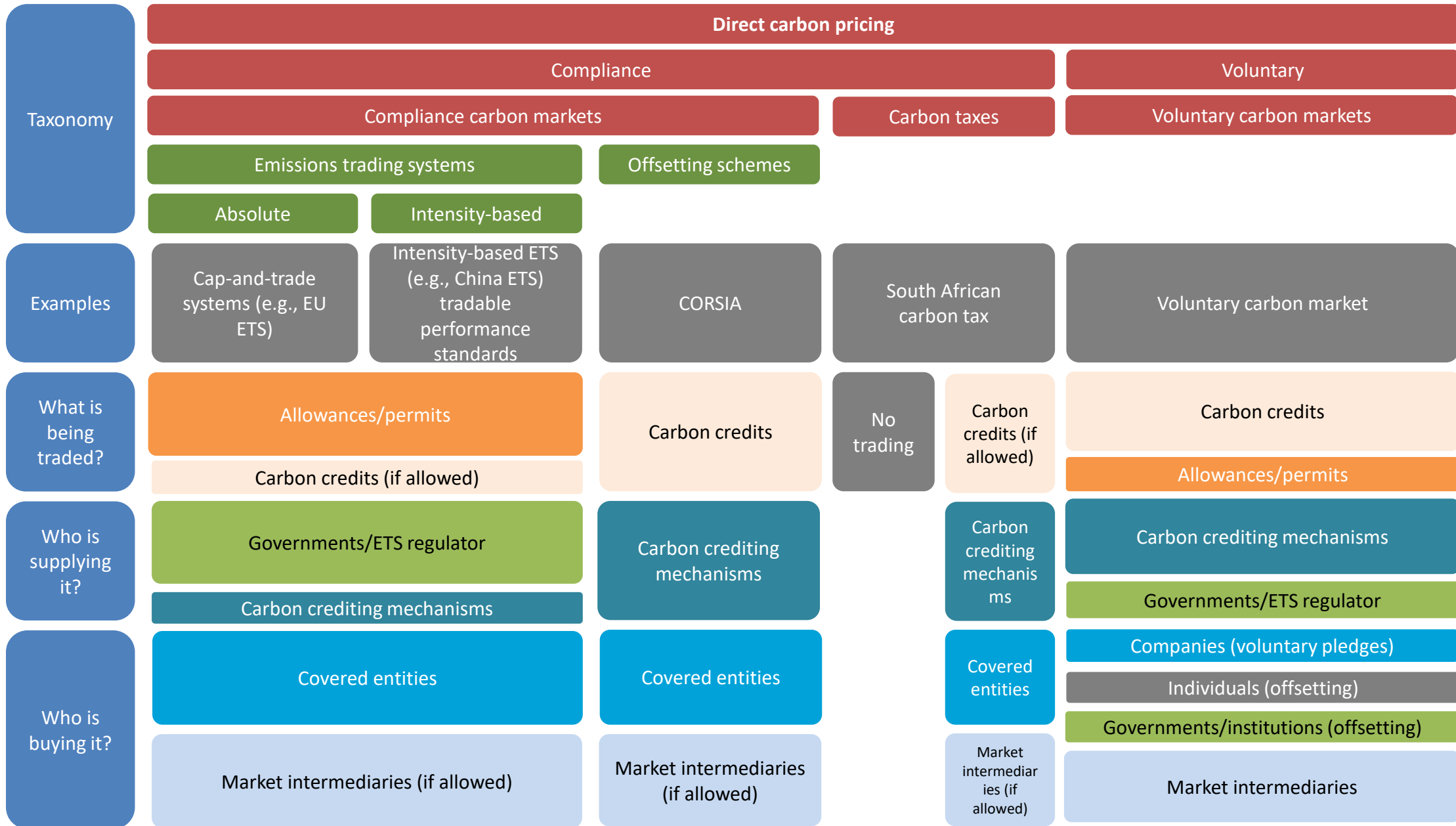
Article 6 of the Paris Agreement

Gold Standard

## ... let's untangle them:

- **Where does the “price signal” come from?**
  - Compliance or voluntary?
  - What type of instrument?
  - Who is regulated?
  
- Is anything bought and sold? **What types of units?**
  
- Where do the units come from? **How are they certified?**





**Allowances/permits** represent the right to emit one tCO<sub>2</sub>e.

**Carbon Credits** represent guarantee that one tCO<sub>2</sub>e has been reduced or removed from the atmosphere

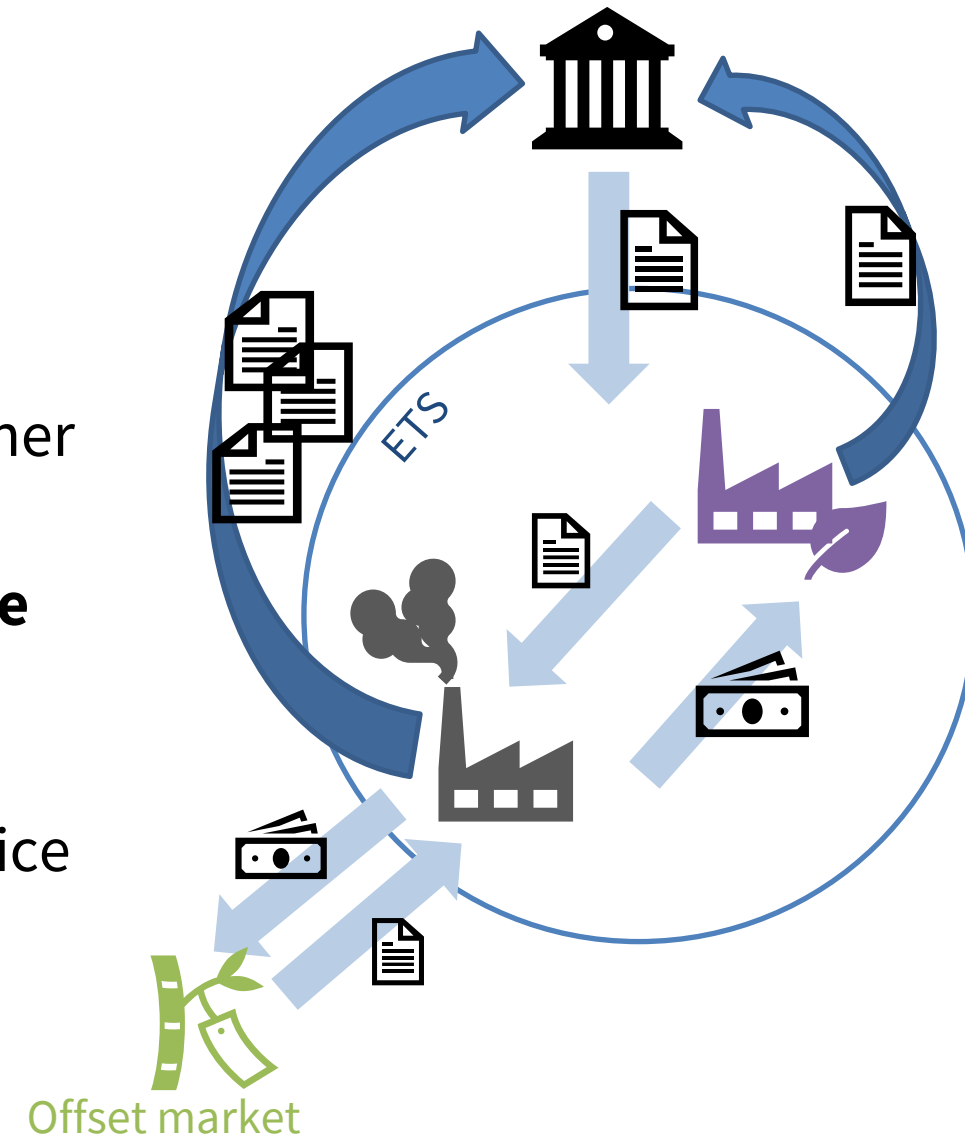


## **3. 5 different approaches to carbon pricing**

# Approaches to carbon pricing:

## *Emissions Trading Systems*

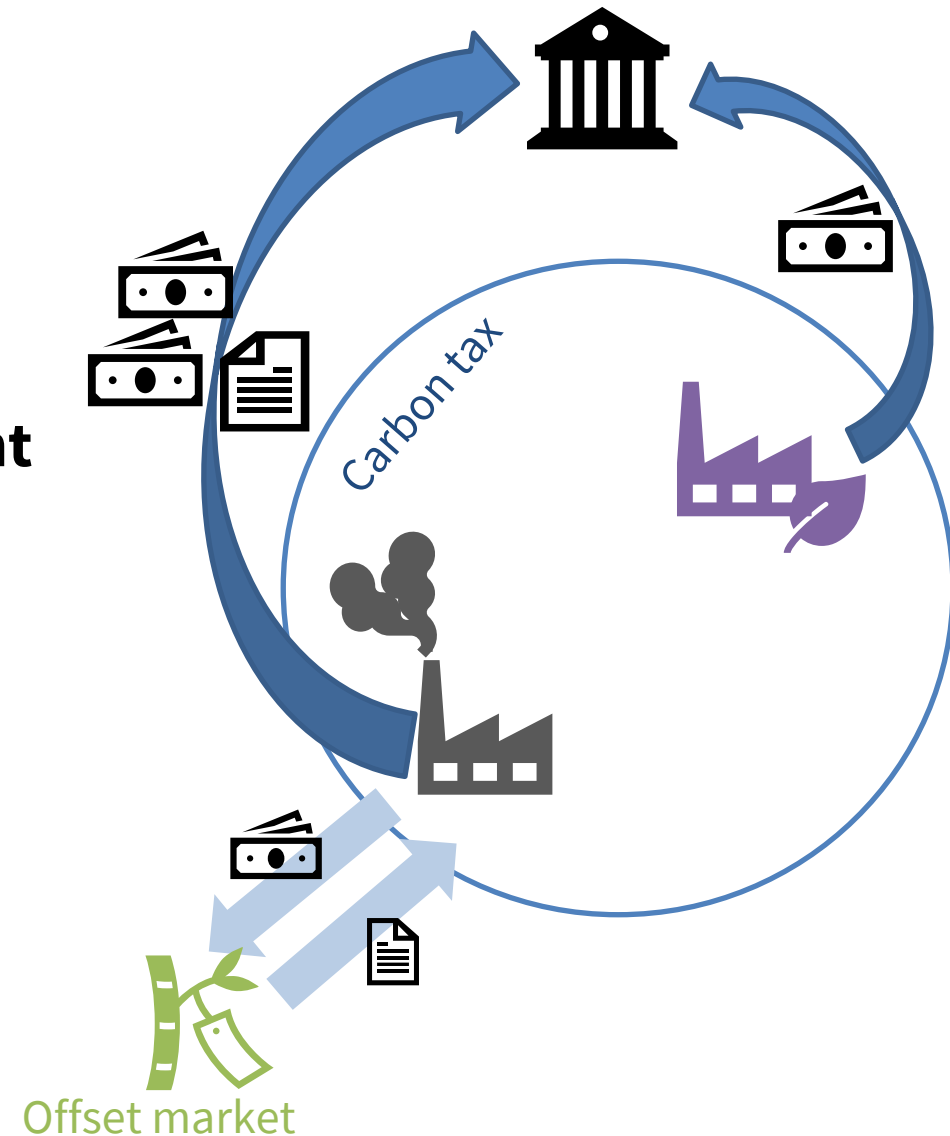
- Government imposes a **limit on total emissions** in specific sectors
  - Regulated companies receive (or need to buy) emissions **allowances**, which they can trade with other companies
  - Regulated companies need to **deliver one allowance for each tonne they emitted**
- **Certainty on emissions outcome**, but not on the price
- **Examples:** EU ETS, China, California, Mexico



# Approaches to carbon pricing:

## Carbon taxes

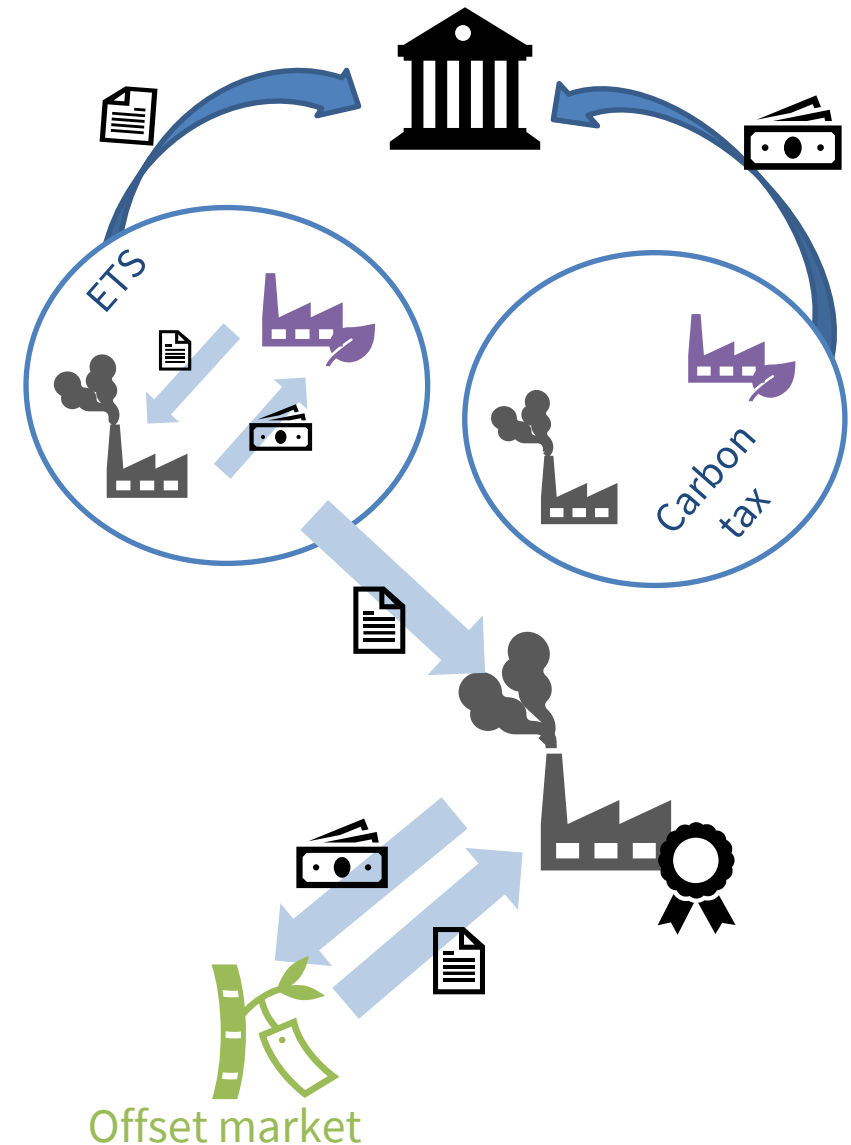
- Government sets a **tax rate** in one or more sectors
- Regulated companies are obliged to **pay this amount for every tonne of emissions released**
- **Certainty on price**, but not on emissions outcome
- **Examples:** EU countries, Colombia, Canadian provinces, Chile



# Approaches to carbon pricing:

## *Voluntary Market*

- Businesses and individuals **voluntarily purchase units**, often to claim “carbon neutrality”
- Units are usually **carbon credits**, but could also be allowances from ETSs
- Can often be a good way to disseminate an initial price signal...
- ...but **prices are usually too low to incentivize deep decarbonization** and technological development



# Approaches to carbon pricing:

## CORSIA

- Target: **carbon neutral growth in international aviation from 2020**
- **Airlines purchase credits above 2019 baseline**
- **Eligible credits:**
  - Several standards, including: CDM, VCS, Gold Standard, China GHG Voluntary Emission Reduction Program (CCER)
  - Projects that started their first crediting period from 1 January 2016
- **No double counting**



- **Country participation in pilot phase**
  - In: 88 states, ~80% of traffic (eg Europe, US)
  - Out: China (10%), India (4%), Brazil (3%), Russia (3%)



## ... and what's “Article 6”?

### ➤ **Article 6.2 – Cooperative approaches**

- Allows countries to use “Internationally transferred mitigation outcomes” (ITMOs) towards NDCs
- Mostly “bottom up”, under authority of Parties

### ➤ **Article 6.4 – Mechanism**

- Crediting mechanism, under authority of UNFCCC

### ➤ **Article 6.8 – Non-market approaches**

- To promote mitigation and adaptation
- Scope unclear; possibly information exchange



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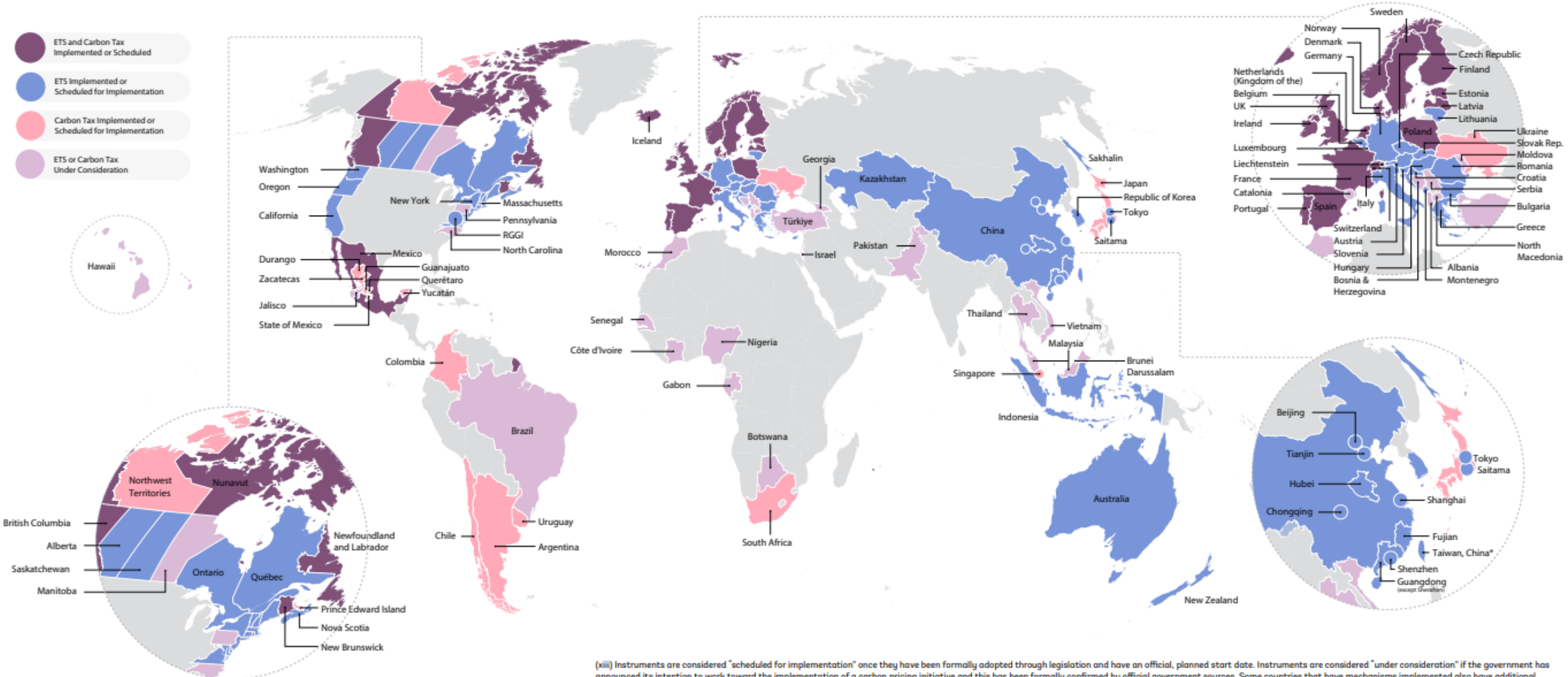
## **4. Compliance carbon pricing around the world**

# MENTIMETER

- **How many carbon pricing systems are there worldwide?**
  - 73
  - 112
  - 37
  - 179

# Compliance carbon pricing worldwide

- ETS and Carbon Tax Implemented or Scheduled
- ETS Implemented or Scheduled for Implementation
- Carbon Tax Implemented or Scheduled for Implementation
- ETS or Carbon Tax Under Consideration



Source: World Bank S&T of Carbon Pricing (2023)

(xiii) Instruments are considered "scheduled for implementation" once they have been formally adopted through legislation and have an official, planned start date. Instruments are considered "under consideration" if the government has announced its intention to work toward the implementation of a carbon pricing initiative and this has been formally confirmed by official government sources. Some countries that have mechanisms implemented also have additional instruments under consideration. For subnational jurisdictions only the subnational instrument is reflected.



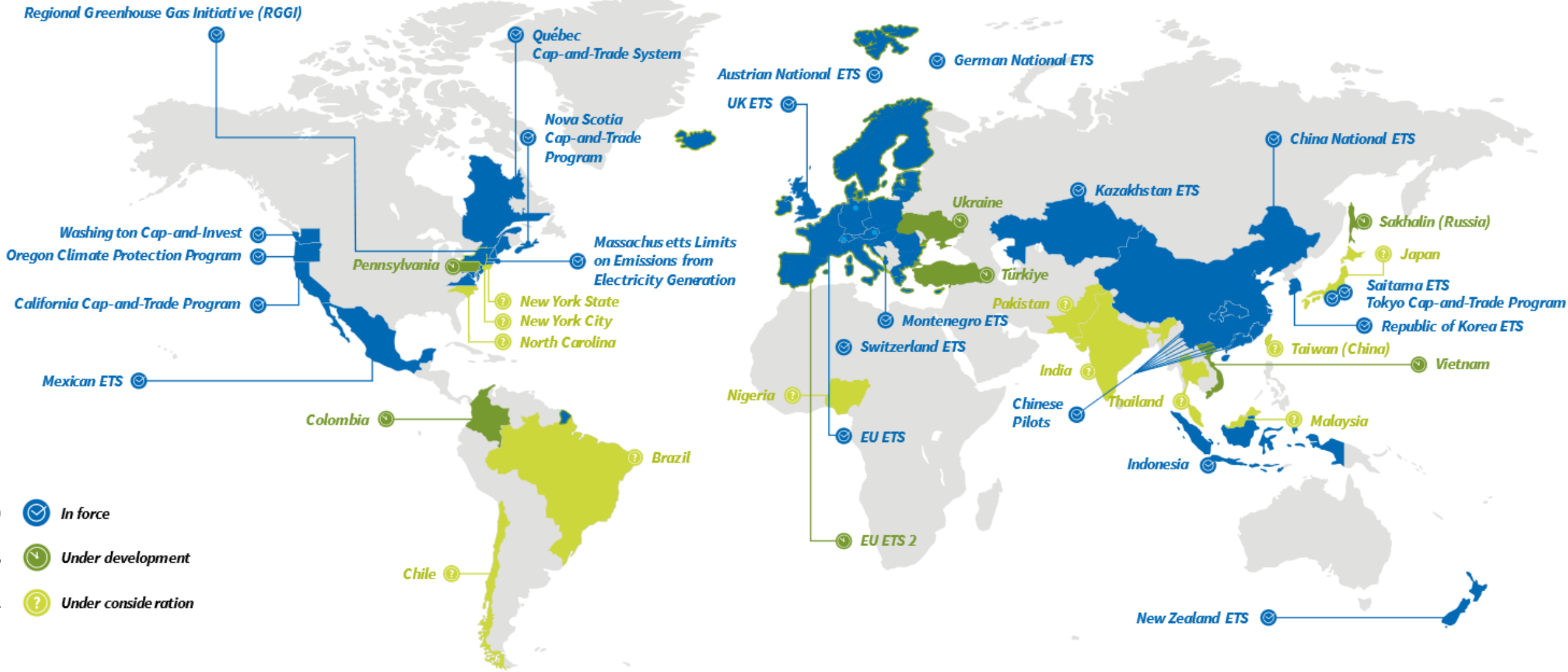
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## **5. Focus on key trends of ETSs**

# ETS worldwide

The number of ETS systems in force grew from 25 to 29

17% of global GHG emissions are under and ETS cap



# Different levels of governance



## 6 Cities

Beijing\*  
 Chongqing\*  
 Shanghai\*  
 Shenzhen  
 Tianjin\*  
 Tokyo

## 20 Provinces & States

California	New Jersey
Connecticut	New York
Delaware	Nova Scotia
Fujian	Oregon
Guangdong	Québec
Hubei	Rhode Island
Maine	Saitama Prefecture
Maryland	Vermont
Massachusetts	Virginia
New Hampshire	Washington

## 10 Countries

Austria  
 China  
 Germany  
 Kazakhstan  
 Mexico  
 Montenegro  
 New Zealand  
 Republic of Korea  
 Switzerland  
 United Kingdom

## 1 Supranational

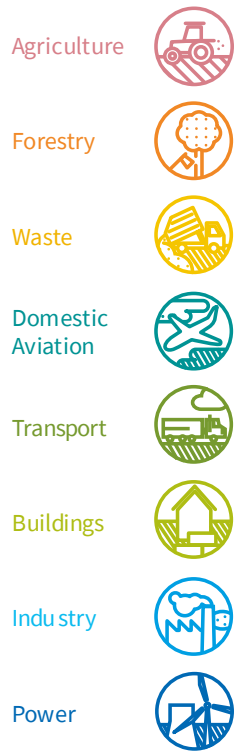
EU Member States  
 + Iceland  
 + Liechtenstein  
 + Norway

# MENTIMETER

- **Which sectors do most ETSs cover?**
  - Agriculture and Forestry
  - Transport and Building
  - Domestic Aviation and Shipping
  - Power and Industry

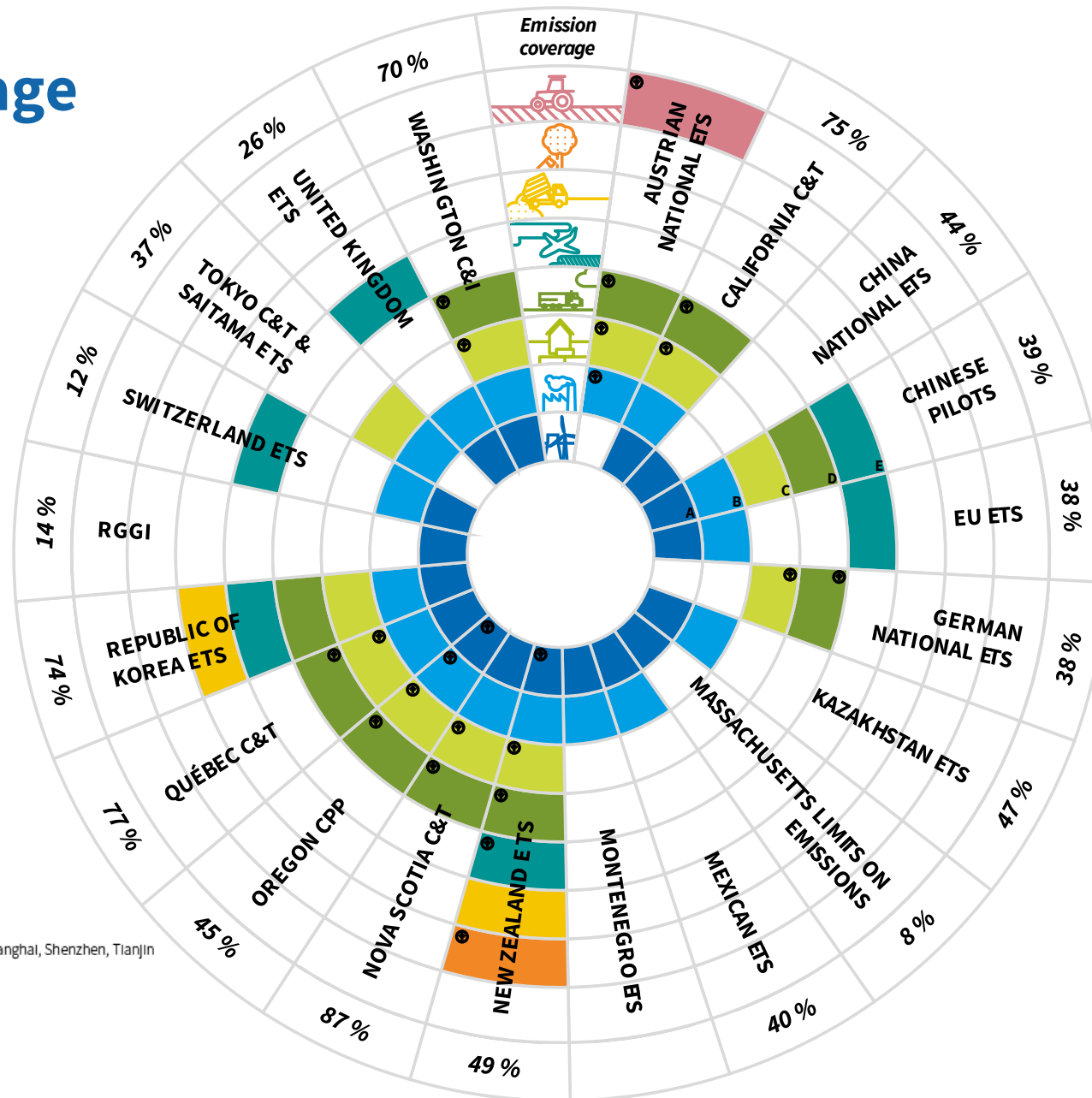


# Sectoral coverage



- A** The Fujian ETS covers the electricity grid
- B** Beijing, Chongqing, Fujian, Guangdong, Hubei, Shanghai, Shenzhen, Tianjin
- C** Beijing, Shanghai
- D** Beijing, Shanghai, Shenzhen
- E** Fujian, Guangdong, Shanghai

↑ Indicates which sector is covered upstream



*Most systems cover emissions from power and industry*

*The sectoral coverage of several ETSs expands to other sectors as well*

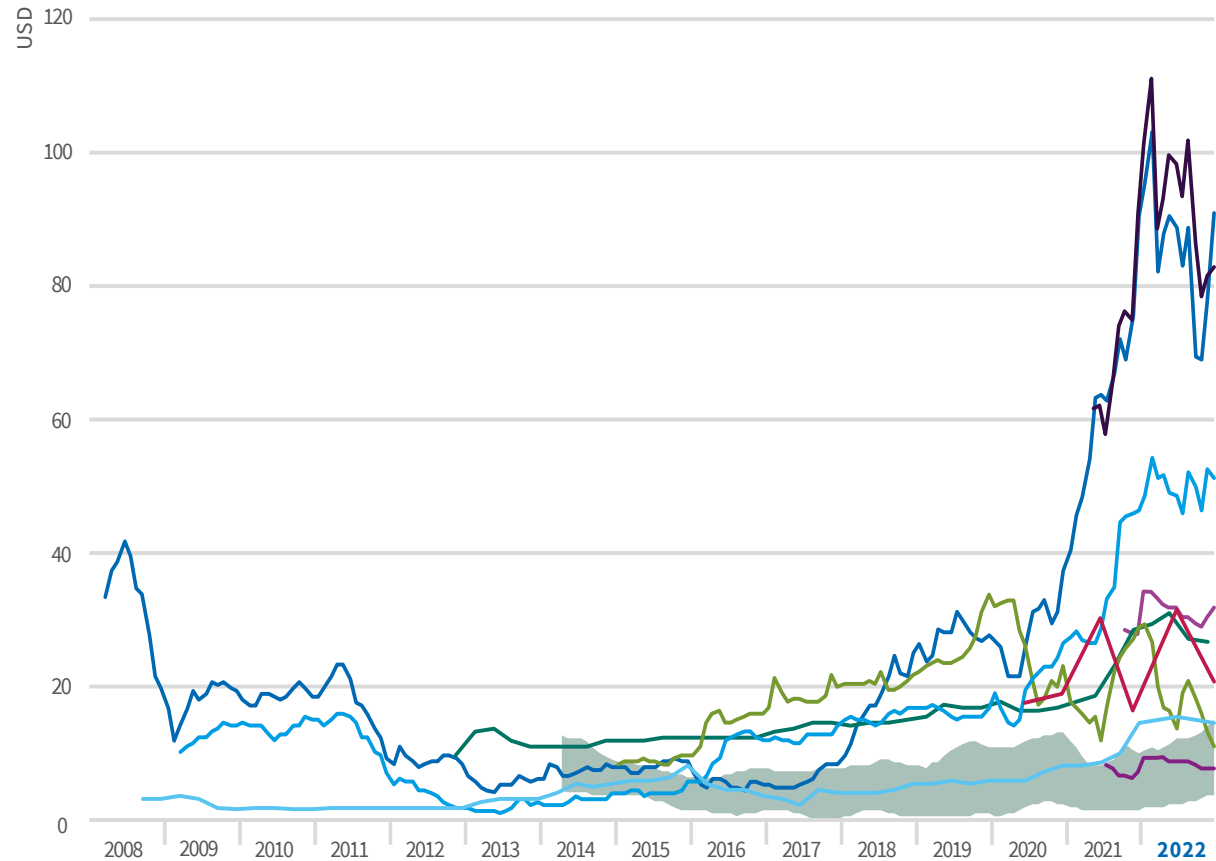
*The share of emissions covered and the point of regulation (upstream vs downstream) varies across systems*

# Allowance price developments

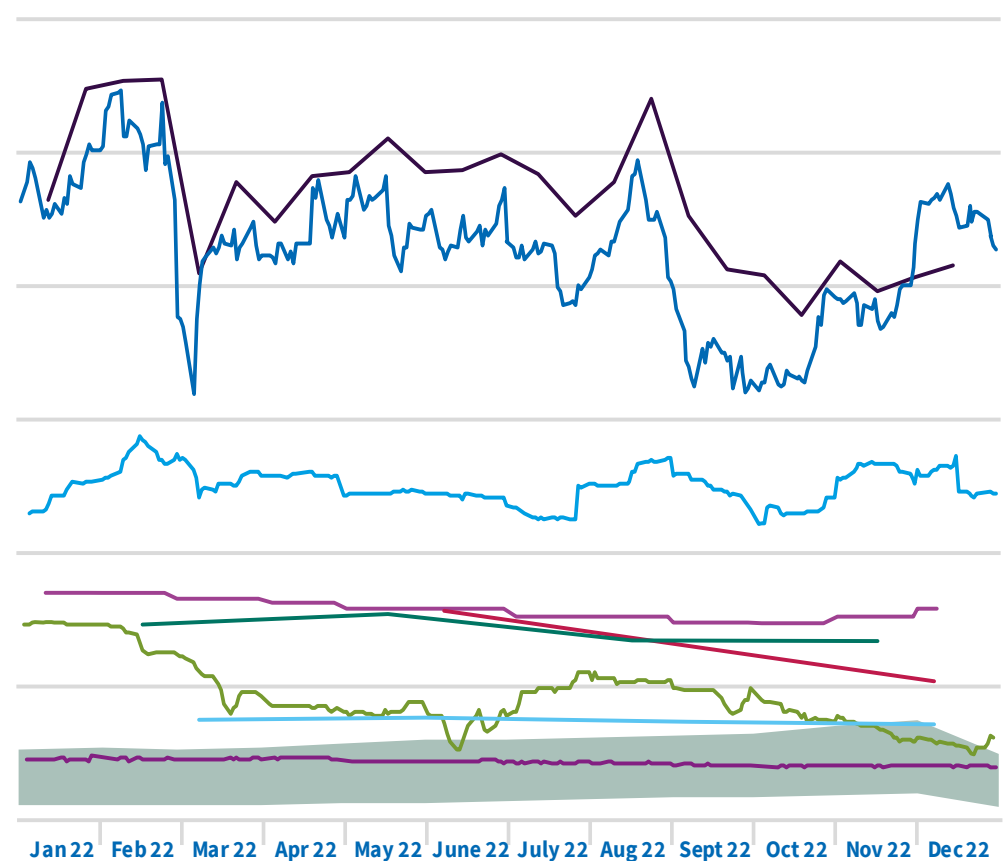
*Allowances prices in most systems ended 2022 largely unchanged*

*This follows significant price gains and record levels over the last 3+ years*

2008-2022



2022



EU ETS  
UK\*

New Zealand

Germany\*  
California /Québec\*

Nova Scotia\*

RGGI\*

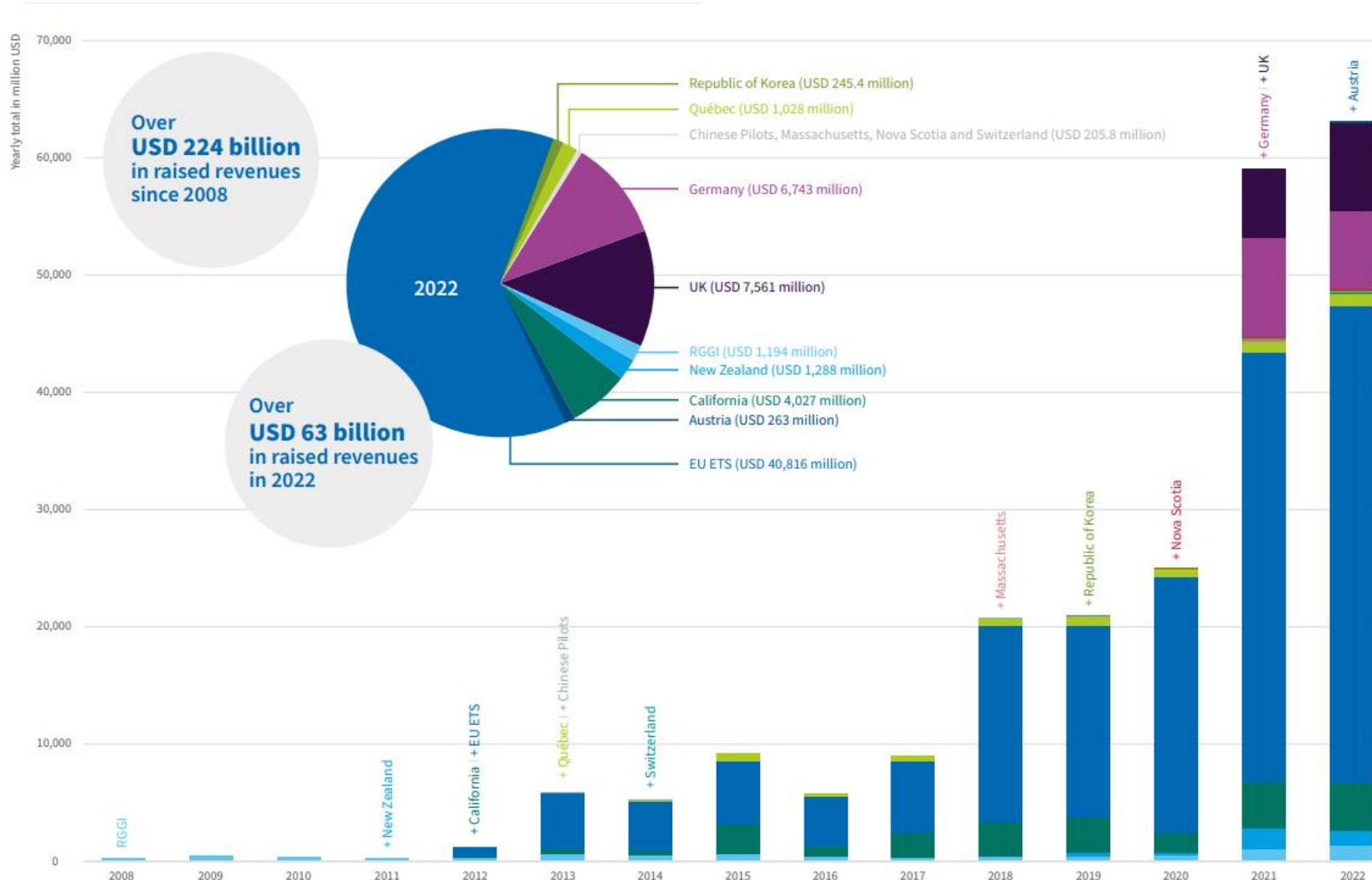
Republic of Korea

China

Chinese Pilots

\* Primary market data

# Auctioning revenues



*High carbon prices and new revenue streams raised a record \$63 billion globally in 2022. The EU ETS represents 2/3 of the total.*

*More than half of the total revenues raised by ETSs since 2008 was collected in 2021 and 2022 alone*

*Revenues are being reinvested to further climate action or assist industry and consumers*

## ETS worldwide: trends and developments

- **Existing systems are maturing and new ones are being developed**
  - Existing systems around the world are being reformed and aligned with net-zero targets
  - Recent developments focused on emerging economies, Asia-Pacific is key
- **No ‘one size fits all’**
  - Systems designed to reflect local conditions/priorities
- **Trend towards hybrid and intensity-based instruments**
  - Developing countries are looking at flexible caps and tax-ETS integration
- **Prospects for regional cooperation**
  - ETS developments in the region and Article 6 implementation open the door to regional cooperation

# Thank you



@ICAPSecretariat



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[www.icapcarbonaction.com](http://www.icapcarbonaction.com)