International climate policies and status of carbon pricing implementation in the world

Training course on ETS and carbon markets using the CarbonSim simulation tool

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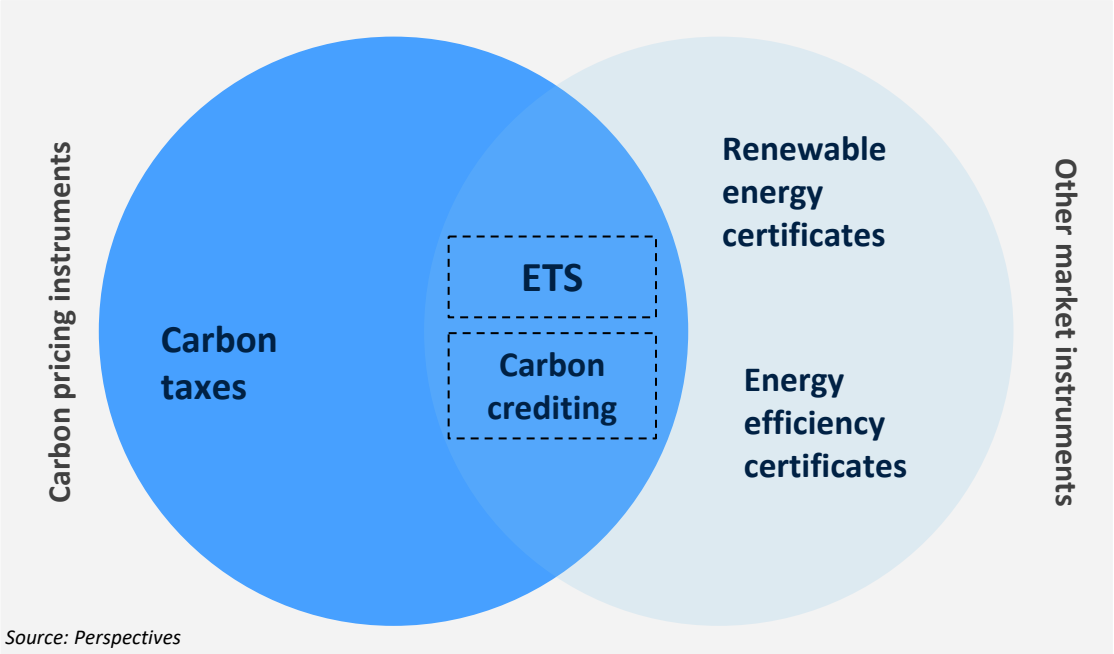
Content

Policy instruments for climate mitigation

Instruments to drive behavioral change

Addressing behavioral and non-market barriers:

- **Direct regulation - rules, bans, standards** (e.g. emission standards, fuel quality standards, building codes, minimum efficiency performance standards)
- **Education** (e.g. product labelling)



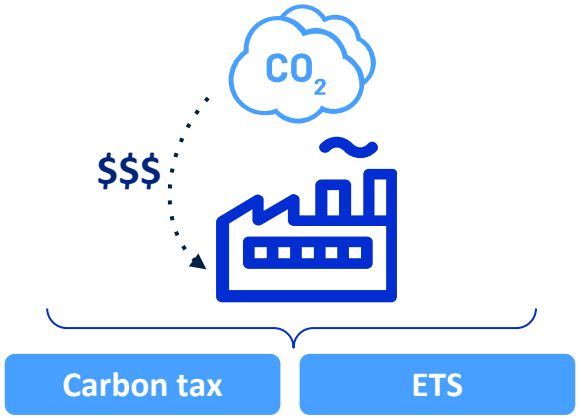
Source: Perspectives

Addressing innovation and system change for the long term:

- **Technological support** (e.g. innovation policies, R&D grants, feed-in tariffs)
- **Strategic investments** (e.g. investments in public infrastructure, urban planning)

Carbon pricing as an economic instrument

Market-based solution that internalizes the externalities



Source: South Pole

- By putting a price on carbon (economic signal), the economic burden associated with the damages derived from GHG emissions (**externality**) is transferred to emitters (**market actors**) who are responsible for it
- Emitters get the flexibility to decide how, where and when to reduce emissions, at the lowest overall cost

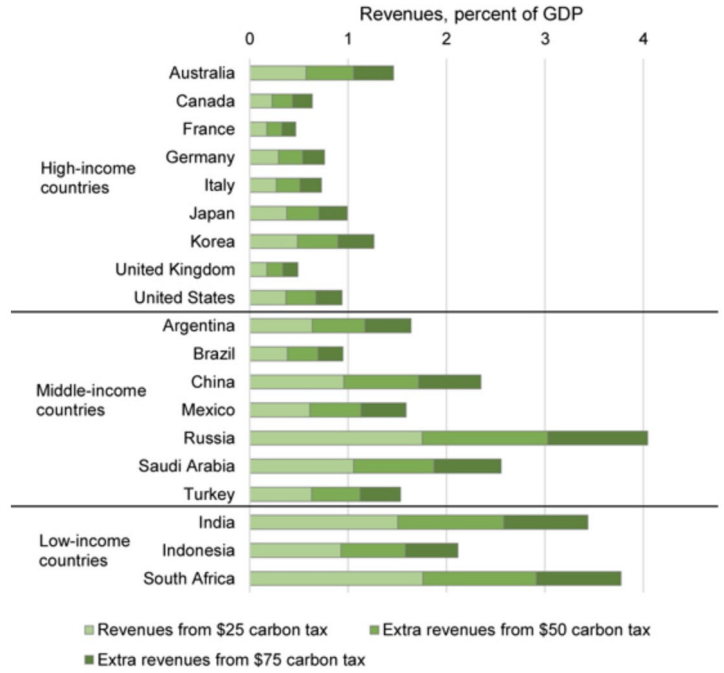
Benefits of economic instruments (such as carbon pricing):

- **Efficiency**: Reflecting the true social and environmental cost of emitting processes and activities (setting the level of emissions that is optimal for society)
- **Effectiveness**: Minimising the overall costs of achieving the emission reductions target

Why carbon pricing is now at the core of many countries' mitigation strategies

From effectiveness and efficiency perspectives, carbon pricing has many benefits:

1. **Emissions reductions**: Pricing is a powerful tool to drive a range of behavioural responses for reducing energy use and shifting to low-carbon fuels/processes
2. **Clean energy investment**: Expectation of rising prices incentivises innovation and deployment of low-carbon technologies
3. **Fiscal**: Pricing mobilizes revenue for the Treasury, which can be used for various socio-economic objectives.
4. **Co-benefits**: Improved air quality, reduced public health spending, avoided air pollution-related illnesses and hospitalisations, green jobs creation, reduced carbon border adjustment obligations (e.g. EU CBAM), better GHG data quality for policy making



Fiscal benefits from carbon pricing in year 2030

Source: IMF (2022). Carbon Taxes or Emissions Trading Systems?: Instrument Choice and Design. Available online at https://www.elibrary.imf.org/view/journals/066/2022/006/article-A001-en.xml?ArticleTabs=fulltext#RA001fig04

Sources: ICAP (2018). Benefits of Emissions Trading: Taking Stock of the Impacts of Emissions Trading Systems Worldwide. Available online at https://icapcarbonaction.com/system/files/document/benefits-of-ets_updated-august-2018.pdf; IMF (2022). Carbon Taxes or Emissions Trading Systems: Instrument choice and design. Available online at https://www.elibrary.imf.org/view/journals/066/2022/006/article-A001-en.xml

Carbon pricing helps drive emission reductions

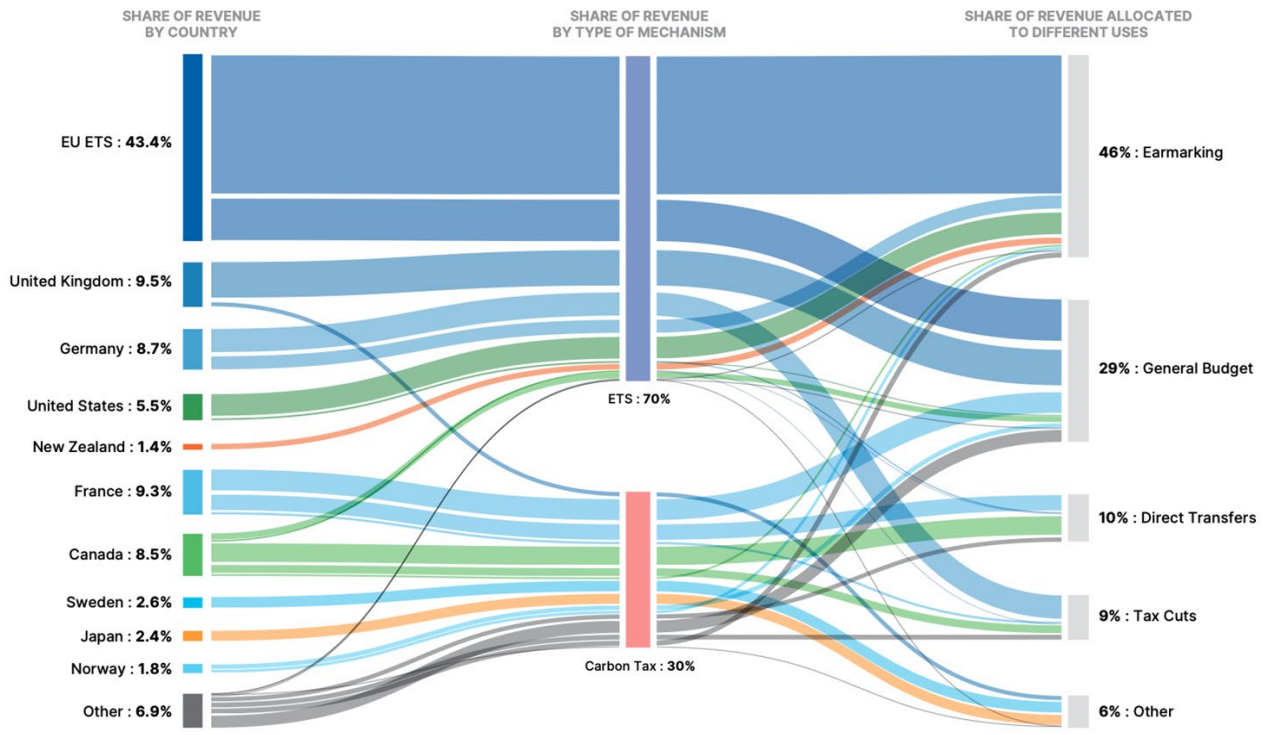
According to several studies conducted in different countries, **carbon pricing instruments especially ETS has been proven to be effective in reducing carbon emissions**.

1. **EU ETS:** EU ETS has helped bring down emissions from power and industry sectors to **37.3%** below 2005 levels.[1]
2. **China ETS:** Emissions reduction of **2.7%** compared to baseline was recorded in power plants covered in China's regional pilot ETS. Further, the pilots also resulted in a reduction of **6.7%** of PM 2.5 matters.[2]
3. **California ETS:** Between 2013 and 2019, a total **emissions reduction of 6.4%** was achieved as a result of California ETS.[3]

Nevertheless, **carbon pricing needs to be set at an appropriate level to have significant impact on emission reductions**. The higher the carbon price is, the higher the impact on emissions reduction will be.[4,5]

1. European Commission (2023). EU carbon market continues to deliver emission reductions.
2. Han Y, et. al (2022). Research on the emission reduction effects of carbon trading mechanism on power industry: plant-level evidence from China.
3. Kramer, N, Lessman, C. (2023). The Effects of Carbon Trading: Evidence from California's ETS.
4. Zhao, A. et.al. (2023). Effects of Carbon Tax on Urban Carbon Emission Reduction: Evidence in China Environmental Governance.
5. Pretis, F. (2022). Does a Carbon Tax Reduce CO_2 Emissions? Evidence from British Columbia.

Carbon pricing mobilises revenues that can fund socio-economic development



Government can collect additional revenues from carbon pricing implementation. In 2022, revenues from ETSs and carbon tax reached ~**USD 95 billion** globally, with revenue from ETS accounting for **69%** of total revenues.

The collected revenue from carbon pricing can be **earmarked for specific purposes** (e.g. green projects), **transferred directly to vulnerable households or businesses**, or used for **tax cuts** and the country's **general budget**.

Using carbon pricing revenues to support communities **helps increase support** for ETSs or carbon tax policies and **ease political tension**.

Source: World Bank (2023). State and Trends of Carbon Pricing 2023. Available online at http://hdl.handle.net/10986/39796

Carbon pricing as a response to mitigation carbon border adjustments obligations and policy reforms for achieving NDCs

One key concern with carbon pricing is the **impact on competitiveness** on energy-intensive, trade-exposed (EITE) industries.

The EU introduced the Carbon Border Adjustment Mechanism (CBAM) in 2023 to equalize the price of carbon paid for EU products operating under the EU ETS and the one for imported goods.

CBAM aims to mitigate the **risk of carbon leakage,** and the levy will also be crucial to mobilize resources for the EU budget.

For countries that export to the EU, CBAM has changed how carbon pricing is perceived: carbon price revenues go to the EU instead of the country's own government if there is no domestic carbon price in place.

Carbon pricing is implemented mainly in high-income countries but middle-income countries in all regions are increasingly showing interest, especially in countries that serve as the main exporters to the EU (e.g. Turkey).

Sources: Pleck, S. Mitchell, I. (2023). The EU's Carbon Border Tax: How Can Developing Countries Respond?. Center For Global Development.; World Bank (2023). State and Trends of Carbon Pricing 2023, Available online at http://hdl.handle.net/10986/39796

Carbon pricing schemes as a subset of global carbon markets

Voluntary carbon market

Compensation, mitigation contribution

Corporations, as well as individuals, voluntarily purchase and retire carbon credits for the purpose of:

- achieving their net-zero commitments and strategy; and/or
- supporting social responsibility efforts as response to demands from shareholders, consumers, and employees to compensate their carbon footprint; and/or
- preparing for an upcoming mandatory carbon price, by building internal capacity on procuring credits and accounting for the cost of emissions.

Compliance carbon markets

National/subnational carbon pricing schemes

With the aim of achieving GHG mitigation targets, governments regulate or tax large emitters to drive emission reductions in their operations.

Compliance markets can use different carbon pricing instruments, such as an ETS or a carbon tax. In various countries, surrendering carbon credits is allowed to comply with the regulation or reduce one's tax/compliance liability.

International sectoral targets (CORSIA)

CORSIA is a baseline-and-offset system that enforces carbon neutral growth for the international aviation sector from 2020.

Compliance actors (airlines) can implement efficiency improvements and use sustainable fuels to reduce their emissions, and surrender carbon credits to offset their unabated emissions above the baseline.

International cooperative approaches (Article 6)

Governments have agreed to international commitments under the Paris Agreement, which include market-based mechanisms through which they can cooperate.

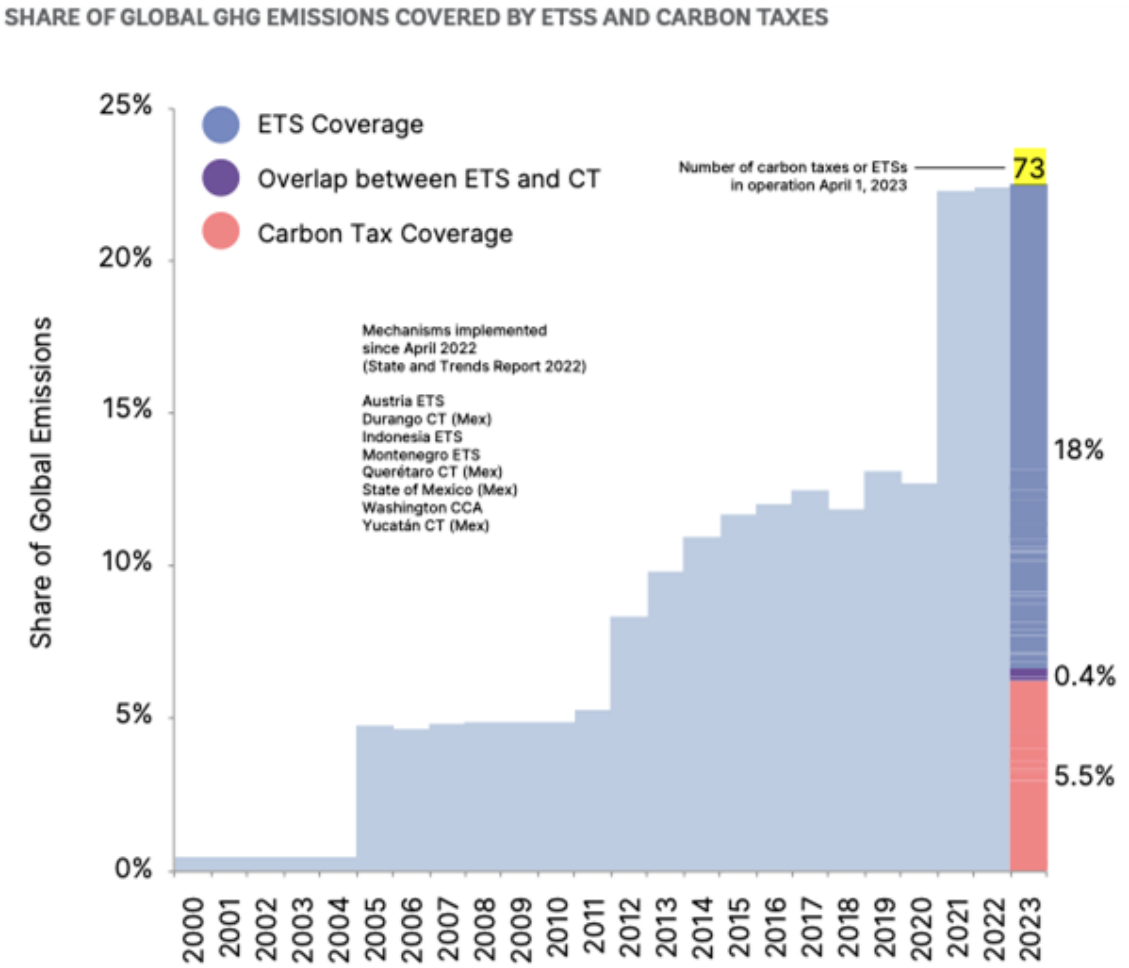
Carbon credits can be used to share the effort of achieving a common international goal.

Carbon credits, when authorised by the host country government, are known as **ITMOs**, where **corresponding adjustments** apply.

Adoption of carbon pricing schemes are increasing across the world

All Parties to the Paris Agreement have set climate targets in their NDCs under the Paris Agreement. Of these, 101 countries, covering 80.7% of global emissions so far have set net-zero targets.

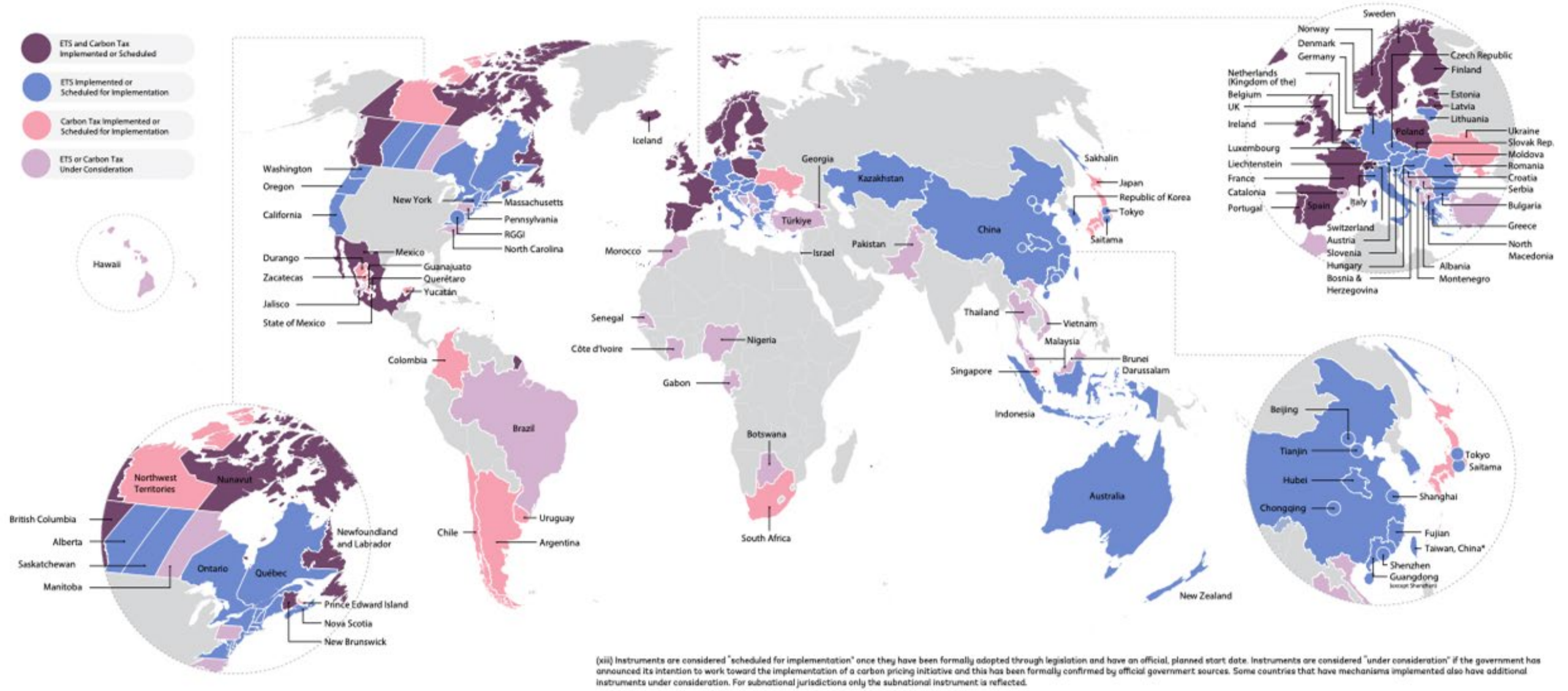
As of 2023, there are **73** carbon pricing schemes in operation, covering 11.66 GtCO2e or **23%** of global emissions.



Sources: Net-Zero Tracker (2024). Available online at https://www.climatewatchdata.org/net-zero-track https://carbonpricingdashboard.worldbank.org/map_data; World Bank (2023). State and Trends of Carb Synthesis Report 2023. Available online at https://unfccc.int/ndc-synthesis-report-2023

World Bank (2024). Carbon Pricing Dashboard. Available online at Pricing 2023. Available online at http://hdl.handle.net/10986/39796 (diagram); UNFCCC (2023), NDC

State of carbon pricing worldwide



(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.

Source: World Bank (2023). State and Trends of Carbon Pricing 2023

State of ETS in Asia

Select ETSs in Asia by coverage, prices and sectors

	China National ETS	China Pilots	Korea ETS	Tokyo & Saitama ETS	Indonesia ETS	New Zealand ETS	Australian Safeguard Mechanism
GHG coverage	44%	39%	74%	37%	26%	49%	28%
Average prices	USD 8.20	USD 4-17	USD 18	USD 1.06	No info	USD 48	USD 31
	Sectors covered						
Power		Fujian					
Industry		All pilots					
Buildings		Beijing, Shanghai					
Waste							
Transport		Beijing, Shanghai, Shenzhen					
Forestry							
Agriculture							
Domestic aviation		Fujian, Guangdong, Shanghai					

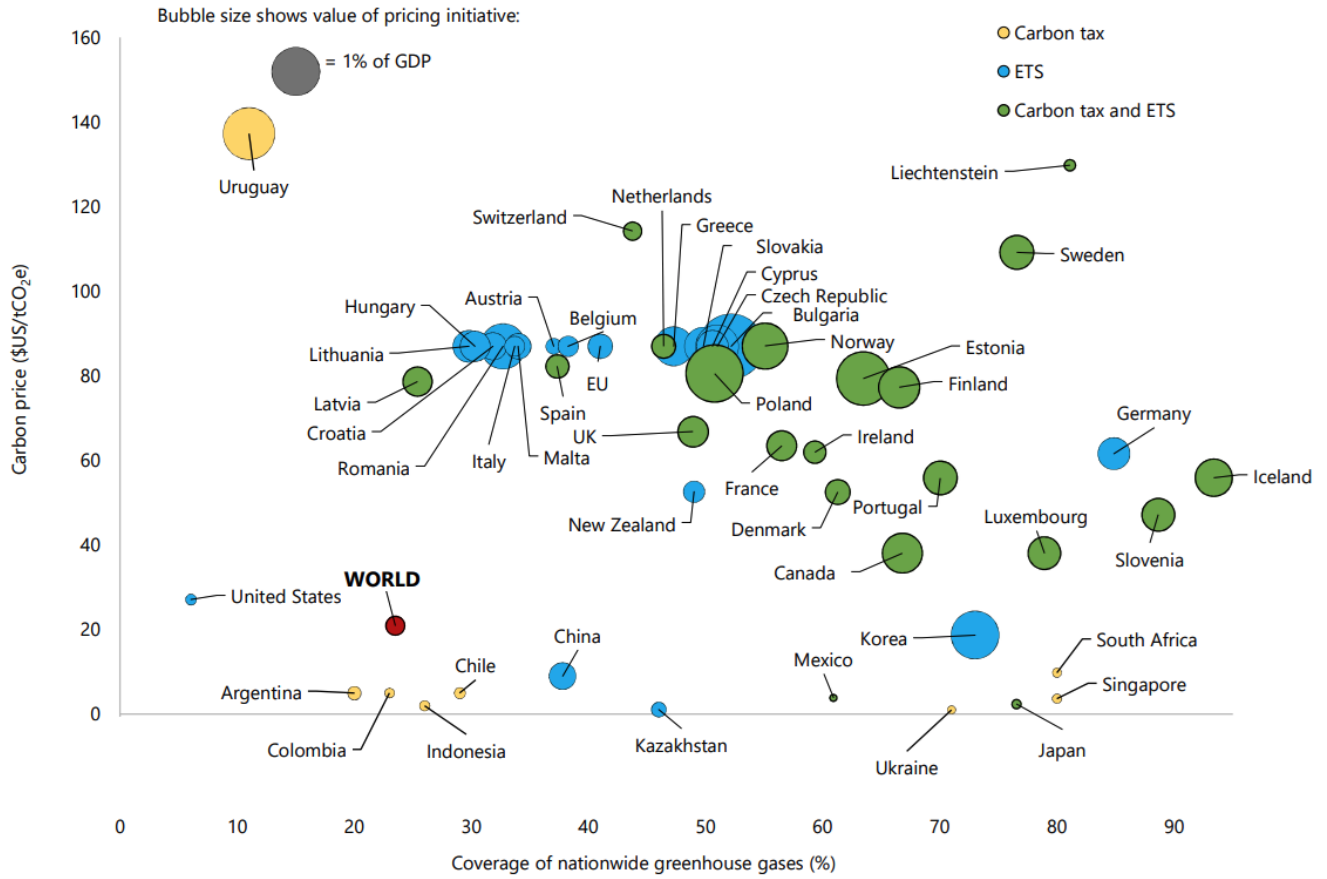
- Most systems cover emissions from **power and industry** sectors while only New Zealand covers the **forestry** sector.
- The **sectoral coverage of some ETS is expected to be expanded** as it evolves (e.g. China National ETS coverage is set to expand to seven other sectors)
- The share of emissions covered and the point of regulation (upstream vs downstream) varies across systems.

Source: ICAP, World Bank Carbon Pricing Dashboard (2024)

Higher carbon prices are needed to drive decarbonisation at the scale and pace for meeting 1.5-2°C-equivalent scenarios

Economy-wide average prices vary **from below USD 5 to over USD 100** per tCO2e in 2022.

Less than 5% of global emissions are covered by a direct carbon price at or above the recommended range by 2030 (**USD 61-122** in 2023 terms), in order to limit global warming to **below 2°C**, provided a supportive policy environment is in place.



Sources: IMF (2022). Carbon Taxes or Emissions Trading Systems?: Instrument Choice and sign. Available online at https://www.elibrary.imf.org/view/journals/066/2022/006/article-A001-en.xml?ArticleTab
World Bank (2023). State and Trends of Carbon Pricing 2023. Available online at http://hdl.handle.net/10986/39796

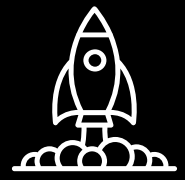
Conclusion

Putting price on carbon has been proven to be effective in reducing emissions and driving decarbonisation.

Carbon pricing has been widely adopted internationally, with more countries and jurisdictions considering its adoption, or planning to implement it.

Carbon pricing also offers many benefits and co-benefits: environmental effectiveness, innovation in decarbonisation, revenue generation.

Government revenues from carbon pricing schemes continued to grow and reached a new record high of USD 95 billion in 2022



Nonetheless, carbon prices need to rise much higher and faster to drive decarbonization at the scale and pace required by the Paris Agreement goals.

THANK YOU!

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