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GIZ – Carbon Pricing Training for Members of the Energy Community

Carbon tax vs. ETS

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25 February 2022

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Outline

1. Recap: Functioning of carbon tax and ETS
2. Similarities of carbon tax and ETS in design, functioning, and effects
3. Differences carbon tax vs ETS in design, functioning, and effects
4. ETS vs. carbon tax
5. Hybrid systems
6. CBAM

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The voting code **3403 9219**

ETS and carbon taxes have in common that...

- A. They require robust MRV
- B. They rely on the principle of supply and demand in the carbon market
- C. They guarantee a certain emissions outcome

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Mentimeter The voting code **3403 9219**

ETS and carbon taxes differ in that...

- A. ETSs do not always generate government revenue
- B. ETS is always popular with stakeholders
- C. Only carbon taxes require an emissions registry

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Recap: Functioning of carbon tax and ETS

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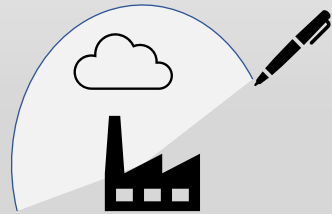
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How do emissions trading system (ETS) and a carbon tax work



ETS

- Government imposes a **limit on total emissions** in one or more sectors
- Regulated companies need to submit **one permit for every ton of emissions**
- Government allocates or auctions permits to companies,
- Regulated companies **can trade** permits with one another



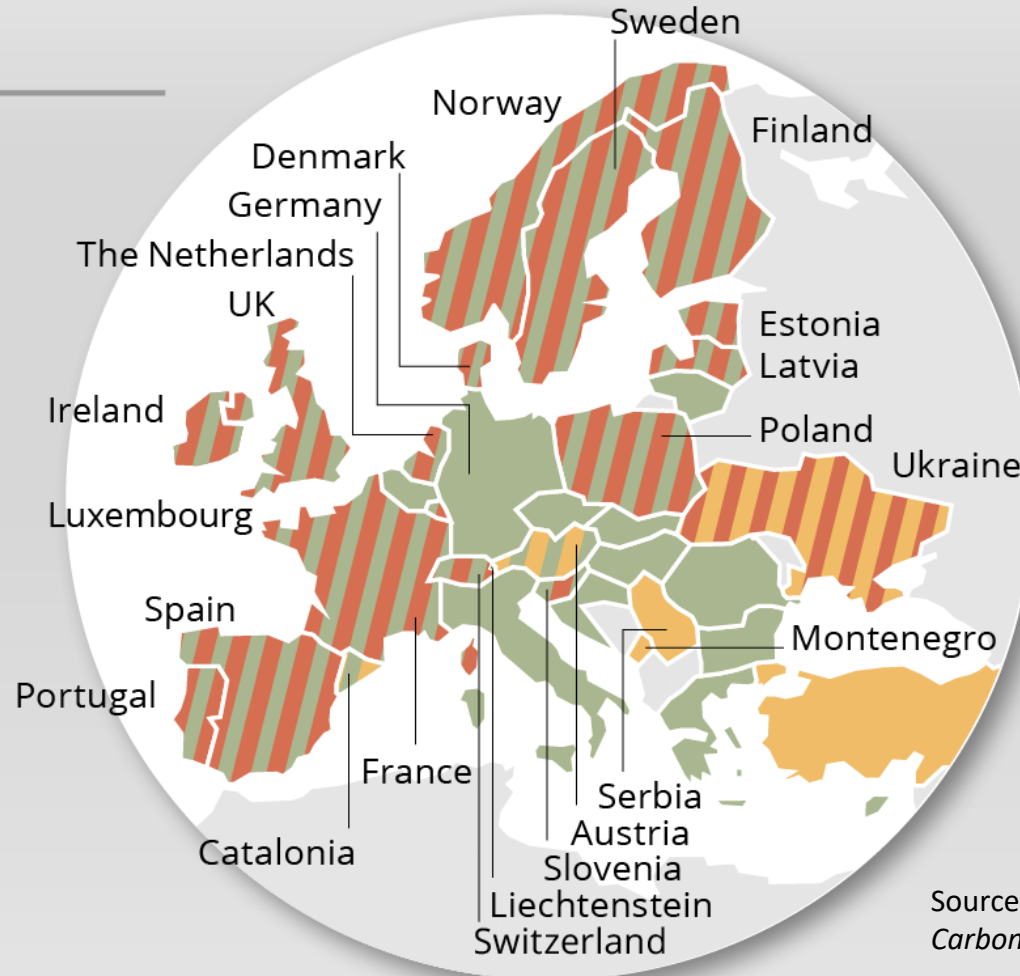
Carbon tax

- Government sets a **tax rate for every ton of CO₂ emitted** in one or more sectors
- Regulated companies are **obliged to pay the carbon tax associated with their annual CO₂ emissions**

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ETS and Carbon Tax in Europe



- ETS implemented or scheduled for implementation
- Carbon tax implemented or scheduled for implementation
- ETS or carbon tax under consideration
- ▨ ETS and carbon tax implemented or scheduled
- ▨ Carbon tax implemented or scheduled, ETS under consideration
- ▨ ETS implemented or scheduled, ETS or carbon tax under consideration
- ▨ ETS and carbon tax implemented or scheduled, ETS or carbon tax

Source: World Bank,
Carbon Pricing 2021

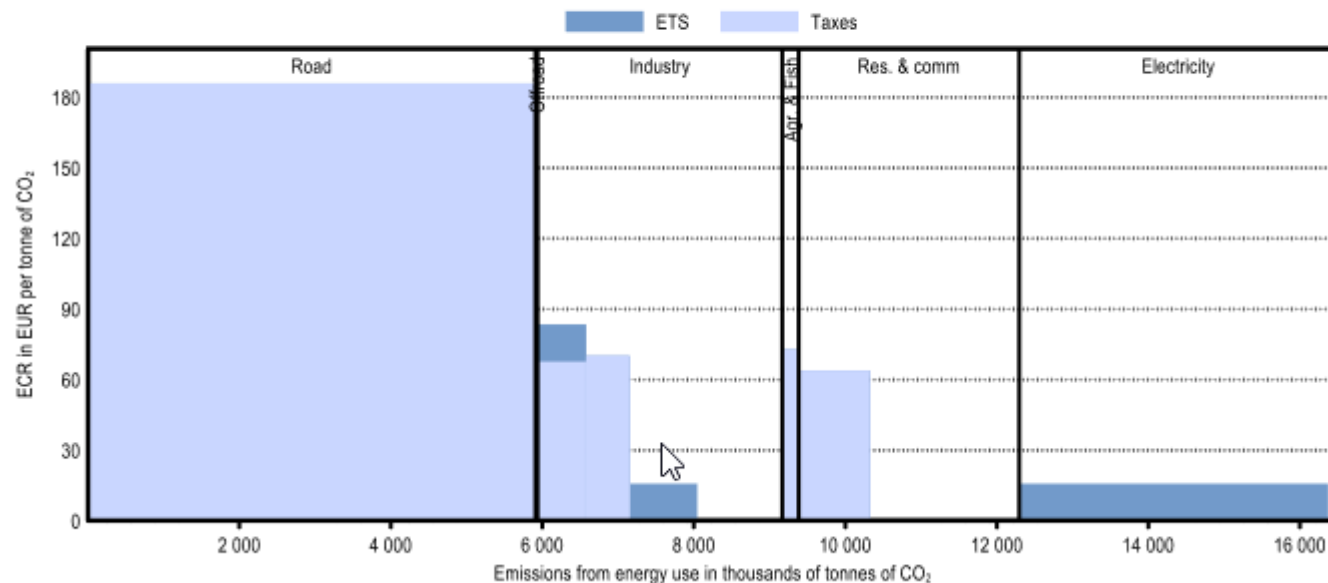


Case study: EU ETS and Slovenian carbon tax

INSTRUMENTS – Slovenia has applied a **carbon tax (transport and buildings primarily)** since 1996 and joined the **EU ETS (energy, industry)** upon accession to the EU in 2004.

PRICE – Price in EU ETS: now **>80EUR/ton** ; average price of carbon tax: **17,3 euro/ton**. *Earlier declarations have indicated that CO2 tax should increase (at least 5% per year) to approach the ETS price by 2030.*

Figure 2. Average effective carbon rates in Slovenia by sector and component in 2018



Source:
OECD,
*Effective
Carbon
Rates, 2021*
(data used
from 2012)

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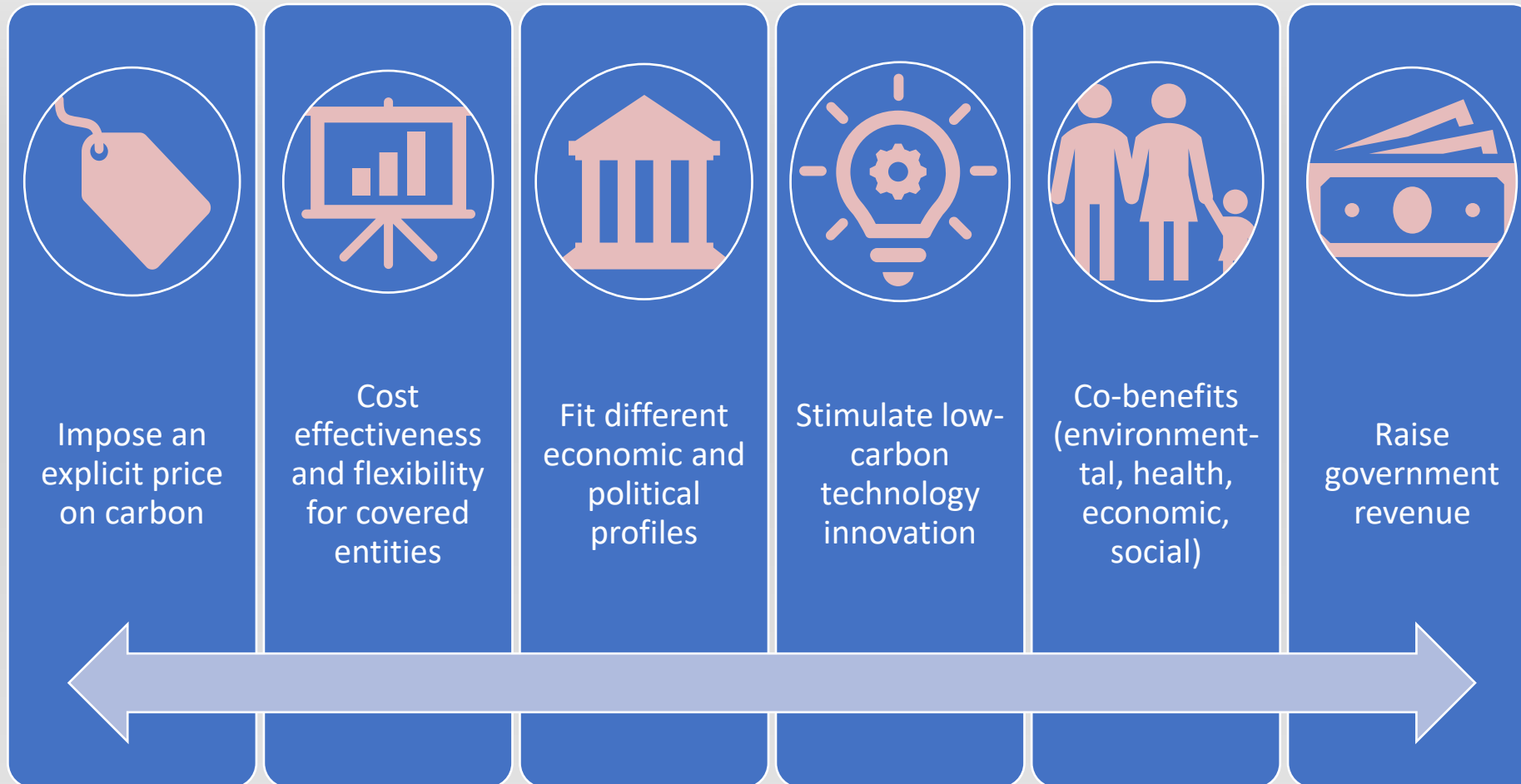
Similarities of carbon tax and ETS

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Similarities between carbon tax and ETS – function and effects



Similarities of carbon tax and ETS - design

Many of the building blocks for tax and ETS are the same:

Sector coverage:
Cover specific sectors
and greenhouse gases

Cover entities at a point
along the production
chain (downstream vs.
upstream)

Exclude small entities via
thresholds

Monitoring, reporting
and verification (MRV)
of emissions, and
enforcement

Enable offsets to replace
some of the compliance
obligations

Provisions to prevent
unwanted impacts for
the economy and
consumers (leakage)



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Differences of carbon tax and ETS

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After having learned about the similarities of carbon taxes and ETS, what **differences** between both instruments can you think of?



Differences of carbon tax and ETS – function and effects

Carbon tax

- Government sets the price of emissions by setting a tax rate
- Provides a predictable carbon price, but less certainty about the overall emissions

ETS

- Government sets the quantity of emissions by setting the cap
- Provides certainty to meet a mitigation target, but less certainty about the price



Differences of carbon tax and ETS – objectives

Objectives for introducing a carbon tax or an ETS can be many and diverse, there are some typical differences:

Carbon tax

- Internalizing the externality (social cost of carbon)
- Making the tax system more efficient and effective
- Generating tax revenue

ETS

- Achieving a set pathway for future emission levels
- Introduction of an “economically friendlier” climate mitigation instrument than a carbon tax
- Opportunity to cooperate in a global carbon market through linking or aligning carbon markets



Differences of carbon tax and ETS - design

Carbon tax

- **Scope and coverage:**
 - Fossil fuels or sector-specific emissions
 - Reporting at company level
- Setting the **tax rate**
- **Flexibility provisions:** Only offsets
- **Competitiveness:** Exemptions, reduced rates, rebates, revenue recycling
- **MRV:** When covering upstream fuels, MRV framework often already in place

ETS

- **Scope and coverage:**
 - Sector-specific emissions are covered
 - Reporting at company or installation level
- Setting the **cap**
- **Flexibility provisions:** Offsets, banking and borrowing of allowances, multi year compliance periods
- **Competitiveness:** Free allowance allocation, revenue recycling
- **MRV:** Robust MRV always needed to ensure compliance



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ETS vs carbon tax

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ETS versus carbon tax

Carbon tax

Stable price - uncertainty about of emissions reductions

Limited flexibility for regulated entities

More **difficult to adjust** for economic and external conditions since tax rate has to be changed

International cooperation difficult – linking carbon taxes not yet an option

vs.

ETS

Certainty of reaching emissions targets - fluctuating price

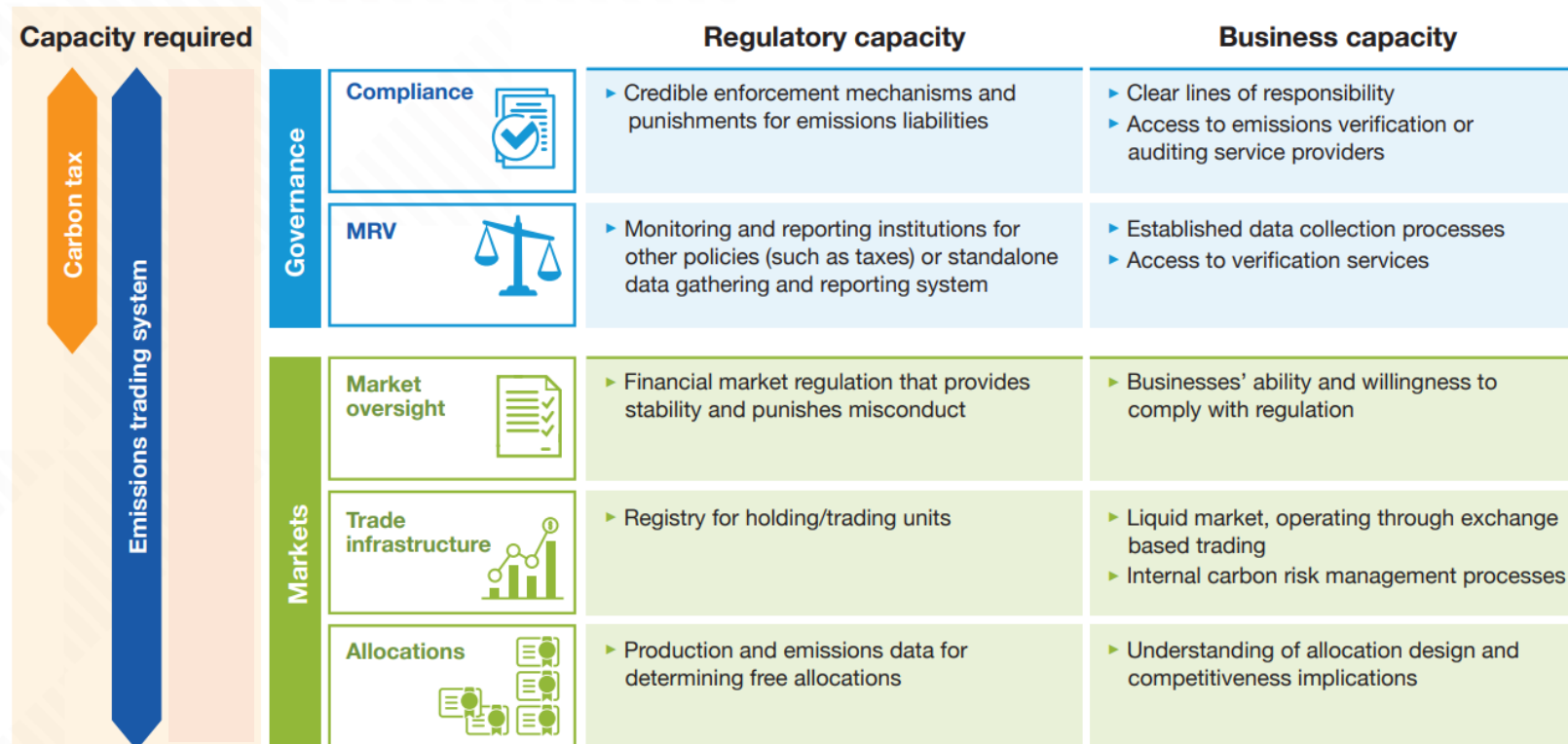
Greater **flexibility** in reducing emissions (offsets, banking, borrowing)

Carbon price adjusts automatically for economic and external conditions, but might lead to **price volatility**

ETSs can be **linked** enabling international cooperation through larger markets

ETS vs. Carbon tax – capacity requirements

Figure 8 Capacity requirements may differ for different CPIs



Source: adapted from Worldbank, *Carbon Pricing Assessment and Decision-Making: A Guide to Adopting a Carbon Price*, 2021

Transitioning from the tax to the ETS

Introducing a carbon tax can provide a strong contribution to the preconditions of an ETS:

Contributions of a carbon price to the preconditions of an ETS	Options to increase contribution
Capacity to involve stakeholders	The stakeholder involvement processes can be used to gather views on ETS and gain insights into existing trading capacities.
Institutional capacities	When establishing new institutions and delegating authority to existing ones, functions and tasks that are relevant in the ETS context could be taken into account. Ensure tax rates properly reflect carbon content and that that is also monitored accordingly
Sectoral data and processing capacities	Contribution can be strengthened if the tax processes high resolution data which can be translated into emissions data
MRV capacities/experience	Ensure tax rates reflect actual carbon content (with sufficient fuel diversification) and that MRV requirements allow for tracking the actual carbon content of fuels.
Trading capabilities	Consider introduction of tradable tax credits. Introduction of such credits would allow development of trading capacities.
IT infrastructure and capacities	Record MRV data in database. Ensure database can technically be used as a basis for a registry at a later point in time by adding additional features.

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Exercise: carbon tax or ETS - which instrument would you consider (more) suitable for your home country and why?

	Assessment	... reinforces tendency for tax or ETS?
Economic profile, sector structure - potential number of entities		
Institutional capacity and readiness		
Political feasibility of introducing carbon pricing		
Sectors suitable for carbon pricing and possible market size – considering international cooperation		
Prior domestic experience with market-based instruments		
Recommendation on instrument:		

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Hybrid systems

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Trend toward hybrid systems

ETS bears problem of **price uncertainty**

- the price of allowances is determined by market

- “Price containment” and “market stability” measures as hybrid solution



Growing trend toward hybrid systems with ETS and carbon tax design elements

Tax bears problem of **emissions uncertainty**

- the amount of emissions depends on how companies react to the fixed price

- “Emissions assurance” such as targets as a hybrid solution



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Key take-aways

- There are many **similarities** and differences in carbon tax and ETS function, effects, objectives, and design
- Each instrument has its benefits and drawbacks, but both are **mandatory market-based mitigation policies** that impose an explicit price on carbon
- The choice of the policy and design options depends on circumstances, e.g. emissions profile, climate ambition, legal framework, and political considerations/objectives.
- There is a growing trend toward hybrid systems that aim to manage price uncertainty in ETS and emissions uncertainty in carbon tax design

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CBAM

The Fit for 55 Package and where CBAM fits

PRICING

Stronger ETS including aviation

Extending emissions trading to maritime, road transport, and buildings

Updated Energy Taxation Directive

New Carbon Border Adjustment Mechanism

TARGETS

Updated Effort-Sharing Regulation

Updated Land Use Land Use Change and Forestry Regulation

Updated Renewable Energy Directive

Updated Energy Efficiency Directive

RULES

Stricter CO₂ performance for cars and vans

New infrastructure for alternative fuels

ReFuelEU: More sustainable aviation fuels

Fuel EU: Cleaner maritime fuels

SUPPORT MEASURES

Using revenues and regulations to promote innovation, build solidarity and mitigate impacts for the vulnerable, notably through the new Social Climate Fund and enhanced Modernisation and Innovation Funds

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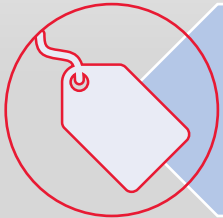
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Rationale for CBAM



AVOID CARBON LEAKAGE

- Greater emission reductions increase risk of carbon leakage and loss of competitiveness for the EU



CURRENT LEAKAGE PROTECTION

- Free allocation and indirect cost compensation
- Incompatible with long-term deep decarbonization



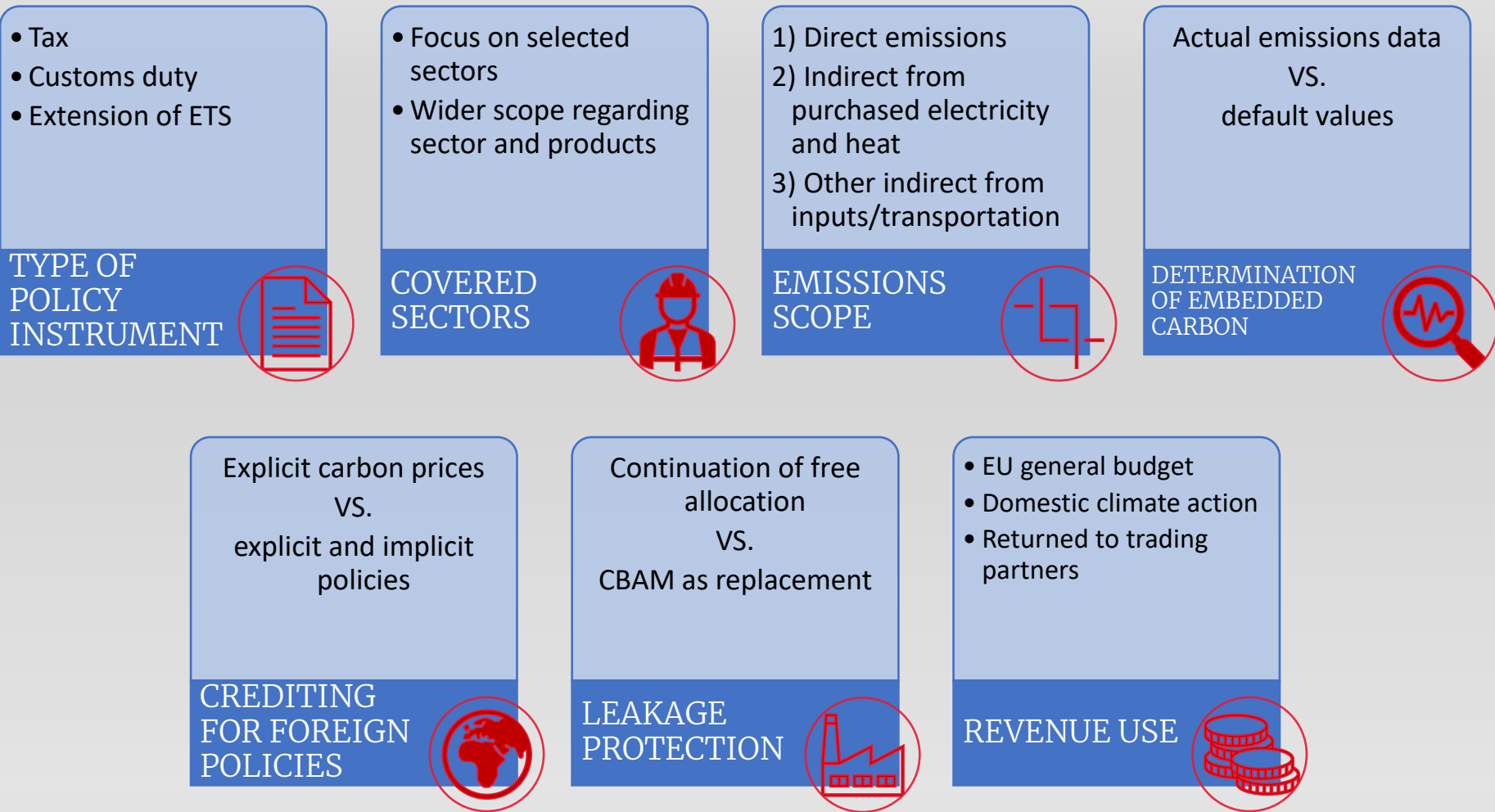
ROLE FOR CBAM

- Level playing field between EU and foreign producers
- Ensure effectiveness of EU's decarbonization
- Incentivize trading partners to increase domestic emissions reductions

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CBAM design features



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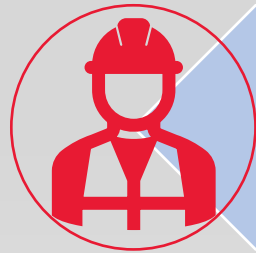


EU CBAM: design features based on the EC proposal



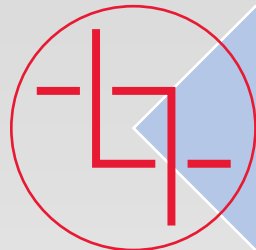
TYPE OF POLICY INSTRUMENT

- Extension of ETS but with parallel pool of allowances ('CBAM certificates') fixed to recent price of an EUA and no cap
- Coverage of trade flows: imports only



COVERED SECTORS

- Products from the cement, iron and steel, fertilizer, electricity and aluminium sectors (47 % of direct industrial emissions)



EMISSIONS SCOPE

- Direct emissions (Scope 1)
- To some extent, Scope 3-“complex” goods

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EU CBAM: design features based on the EC proposal

DETERMINATION OF EMBEDDED CARBON AND ADJUSTMENT LEVEL



For goods:

- Based on actual emissions of the producer
- Fallbacks: default values based on average emissions intensity of exporting country-or 10% worst performing EU installations

For electricity:

- Based on the average emissions factor in each exporting country, group of countries, or region within a third country of the price-setting sources (fossil fuels)
- Actual emissions could be used under narrow circumstances (e.g. a power purchase agreement or where flows are clearly identified/nominated along all points in the interconnection)

Defining the adjustment level:

- the embedded emissions would be multiplied by a price that aligns with the value of an EU ETS allowance and **would deduct the costs of carbon pricing in the country of origin**
- The price would reflect the average closing price of EU ETS allowances during auctions for each calendar week

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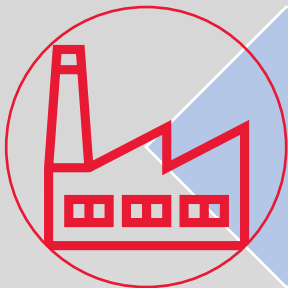
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EU CBAM: design features based on the EC proposal



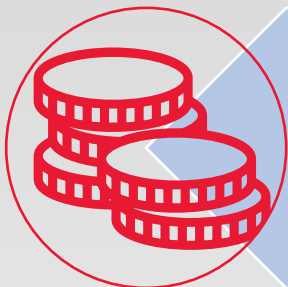
CREDITING FOR FOREIGN POLICIES

- Explicit carbon prices only
- *Effective* rather than *nominal* carbon prices because importers must demonstrate the carbon costs actually paid



STATUS OF EXISTING LEAKAGE PROTECTION

- Clear pathway to phase out free allocation in the EU ETS – phasedown free allocation for the covered sectors by 10% per year starting 2026 (50% reduction in free allocation by 2030 and the elimination of free allocation around 2035)



REVENUE USE

- Legal text does not designate how revenue will be used, but introductory text states that “most” revenues will go to the EU budget

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EU CBAM: design features based on the EC proposal

EXEMPTIONS



- Countries that have joined the EU ETS: Iceland, Norway, Liechtenstein
- Countries that have linked with EU ETS: Switzerland
- EU territories (e.g., Ceuta)
- Limited exemptions on electricity imports from non-EU countries integrated with the EU's internal electricity market where technical barriers to CBAM exist (no countries currently listed)
- No special treatment for any other countries, including least developed countries

Legislative process – past steps

Preparatory work by the Commission

- Adoption of a communication on the EU Green Deal (2019)
- Impact assessment (March 2020)
- Public consultation (July 2020 to October 2020)

16 September 2020

- Commission President Ursula von der Leyen announced a legislative proposal on the CBAM among the key new initiatives for 2021

5 February 2021

- Report from the EU Parliament *“Towards a WTO-compatible EU carbon border adjustment mechanism”* calling for the introduction of CBAM

10 March 2021

- Parliament adopted the resolution on a WTO-compatible CBAM

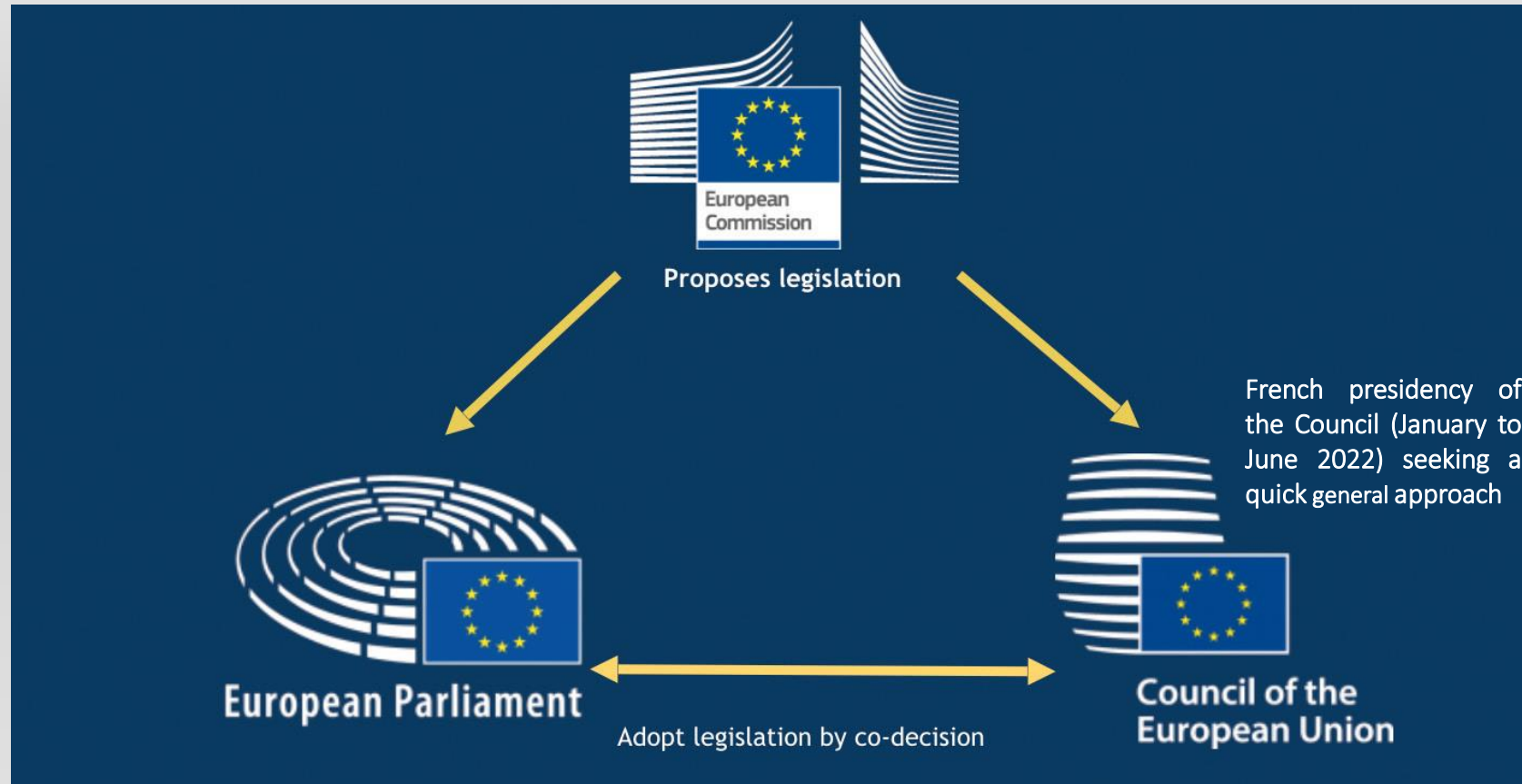
14 July 2021

- Proposal of the CBAM by the Commission
- Public feedback open from 15 July until 18 November 2021

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A legislative process that is ongoing



In addition, series of implementing acts and dedicated acts to be set up to specify the operationalisation of the CBAM



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Indicative timeline as proposed

2023-2025

- **Transition phase**
- Importers will have to **report emissions** embedded in their goods without paying a financial adjustment

2026-2035

- System is **fully operational, with gradual phasing out of free allocation**
- EU importers will have to **declare annually** the quantity of goods and the amount of embedded emissions in the total goods in the preceding year and **surrender the corresponding amount of CBAM certificates.**

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