

The EU energy and climate policy context

Online training as part of the EU Support for Sustainable Energy Connectivity in Central Asia

Alberto Pototschnig & Albert Ferrari

27 January 2025



www.eui.eu



How much do you know about the European Green Deal?

- a. Nothing, never heard before
- b. I have heard about it, but I do not know the details
- c. I am quite familiar with its content
- d. Prefer not to say

Как много Вы знаете о Европейском зеленом курсе?

- a. Ничего, никогда о нём не слышал(а)
- b. Я слышал(а) о нём, но не знаю деталей
- c. Я довольно хорошо ознакомлен(а) с его содержанием
- d. Предпочитаю не отвечать

How much do you know about the EU Emissions Trading System?

- a. Nothing, never heard before
- b. I have heard about it, but I do not know the details
- c. I am quite familiar with it
- d. Prefer not to say

Как много Вы знаете о Европейской системе торговли квотами на выбросы?

- a. Ничего, никогда о ней не слышал(а)
- b. Я слышал(а) о ней, но не знаю деталей
- c. Я довольно хорошо с ней ознакомлен(а)
- d. Предпочитаю не отвечать

- Background
- The European Green Deal
- The European Emissions Trading System

- **Background**
- The European Green Deal
- The European Emissions Trading System

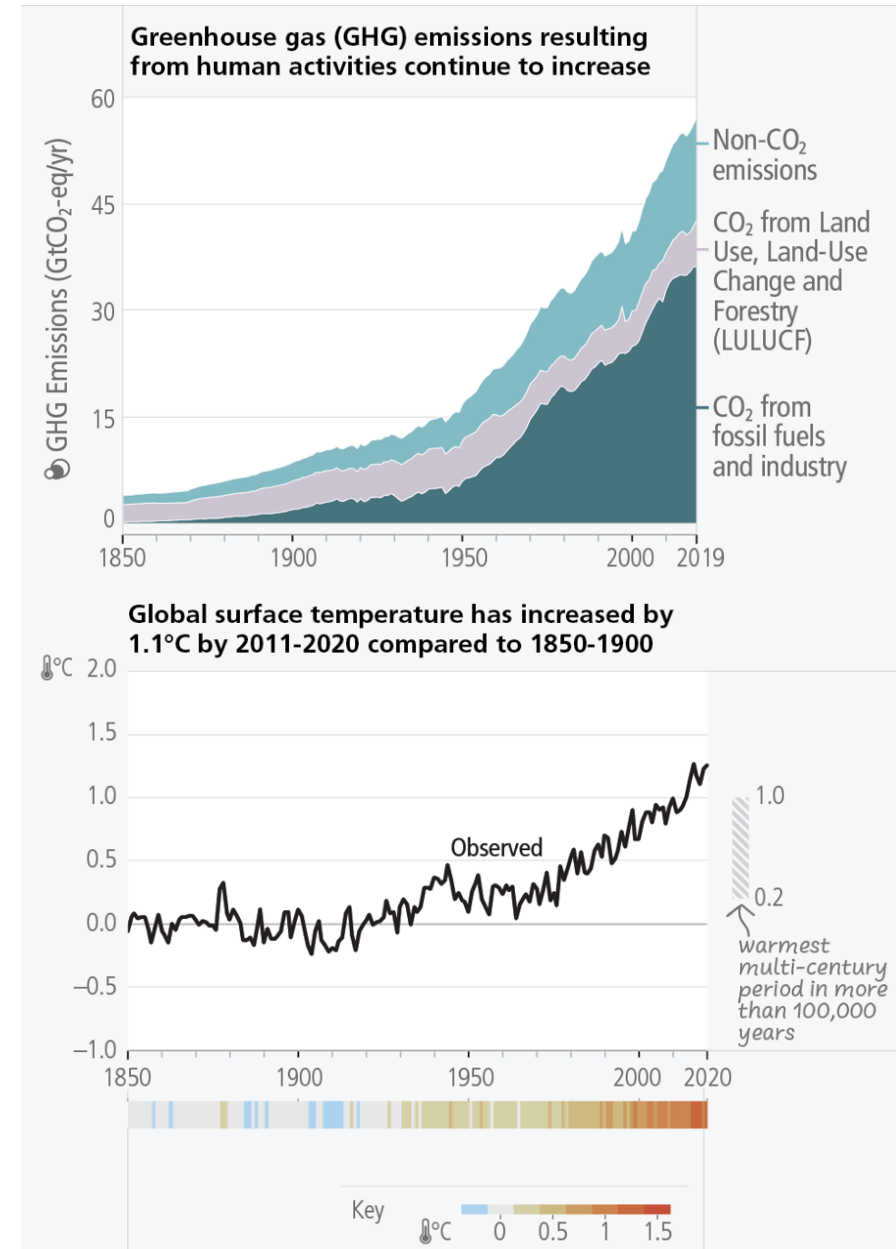
Climate change and policies

Climate change: “*A **change of climate** which is attributed **directly or indirectly to human activity** that alters the composition of the **global atmosphere**, and which is in addition to natural climate variability observed **over comparable time periods**”*”

Source: Article 1 of the UNFCCC

Climate policies: “***Actions taken by governments at various levels - local, regional, national, and international - to mitigate or adapt to climate change**”*”

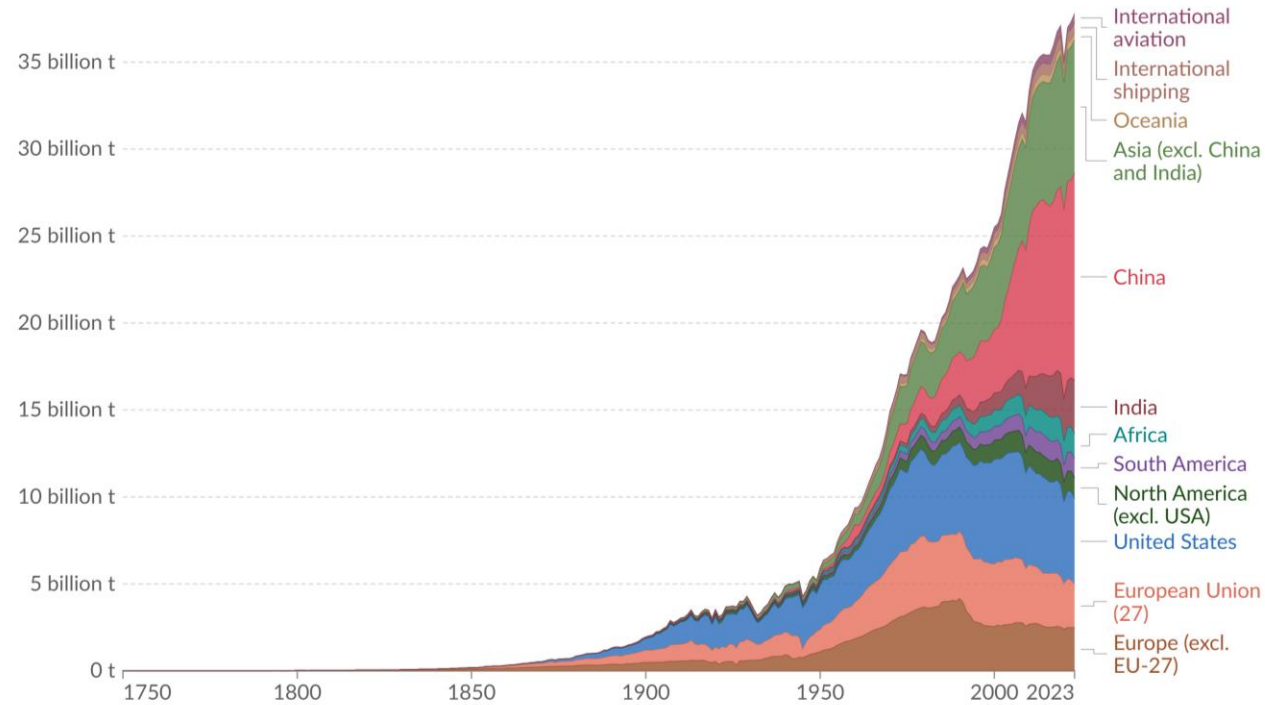
Source: Contribution of WGIII to the IPCC AR5 Report (2014)



Source: IPCC AR6 Synthesis Report

Annual CO2 emissions by world region between 1750 and 2023

Emissions from fossil fuels and industry¹ are included, but not land-use change emissions. International aviation and shipping are included as separate entities, as they are not included in any country's emissions.



Source: Our World in Data (2025)

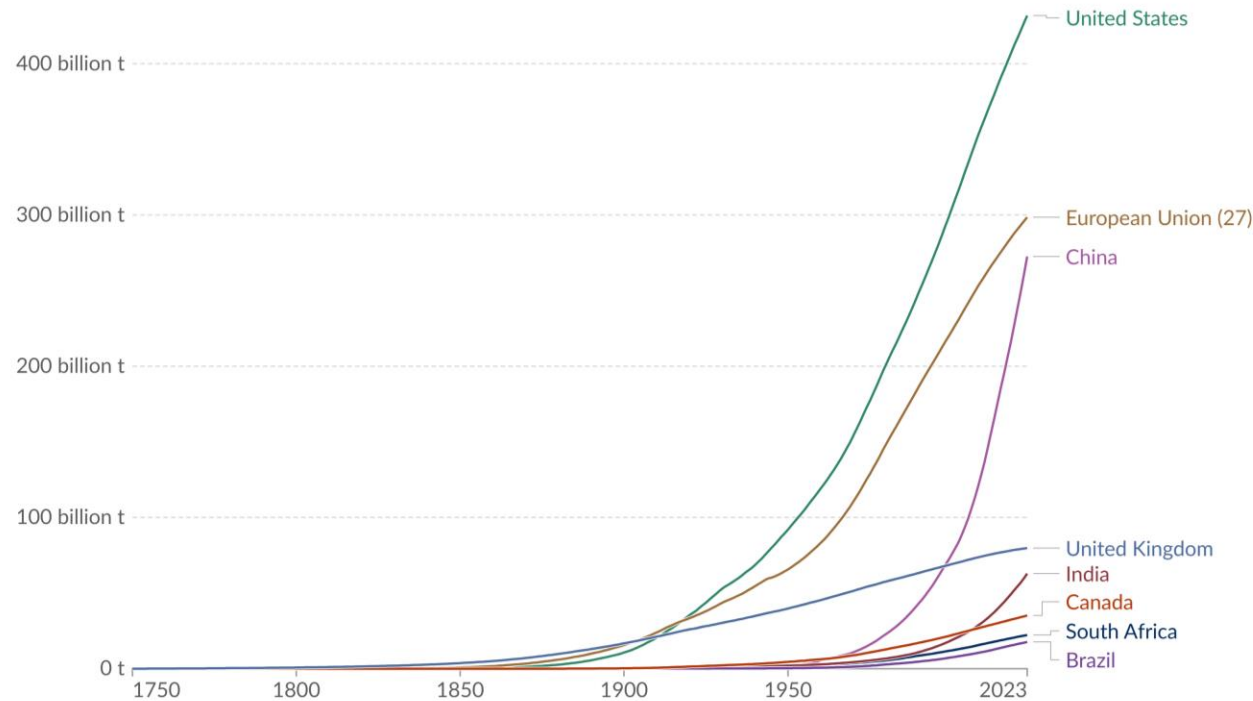
Data source: Global Carbon Budget (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

1. Fossil emissions: Fossil emissions measure the quantity of carbon dioxide (CO₂) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO₂ includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

Cumulative CO2 emissions by world region between 1750 and 2023

Running sum of CO₂ emissions produced from fossil fuels and industry¹ since the first year of recording, measured in tonnes. Land-use change is not included.



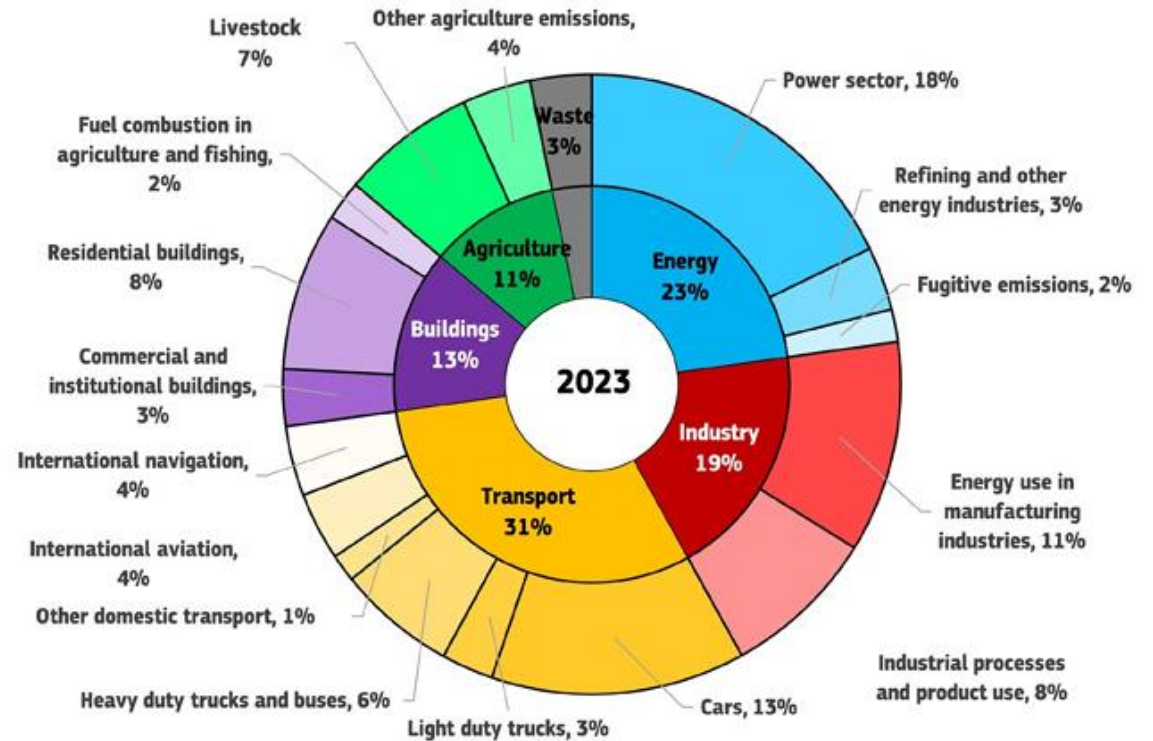
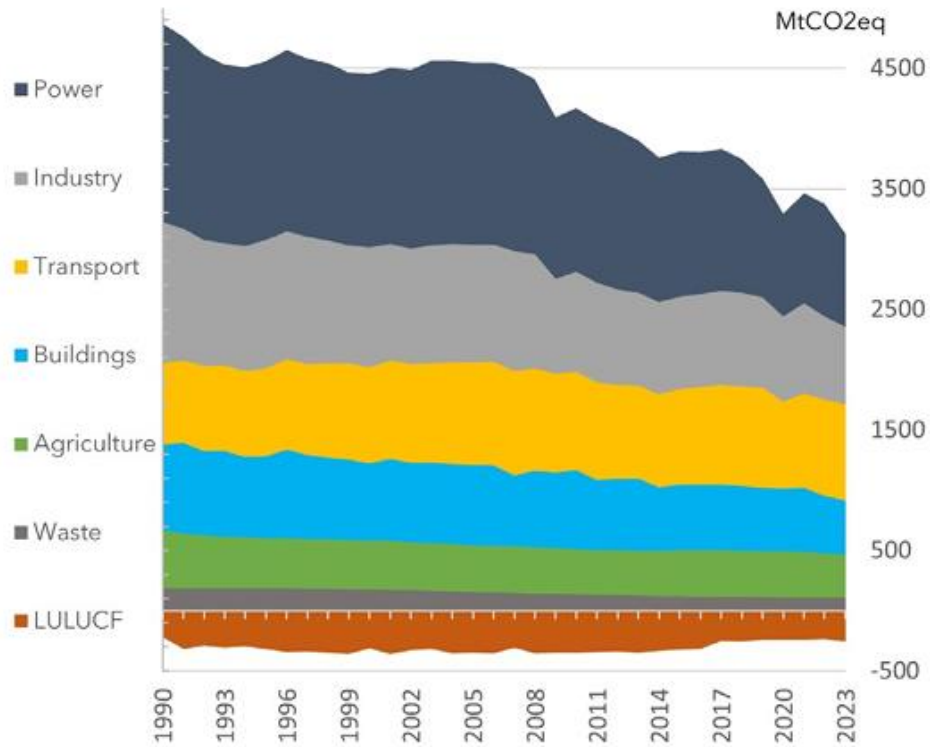
Source: Our World in Data (2025)

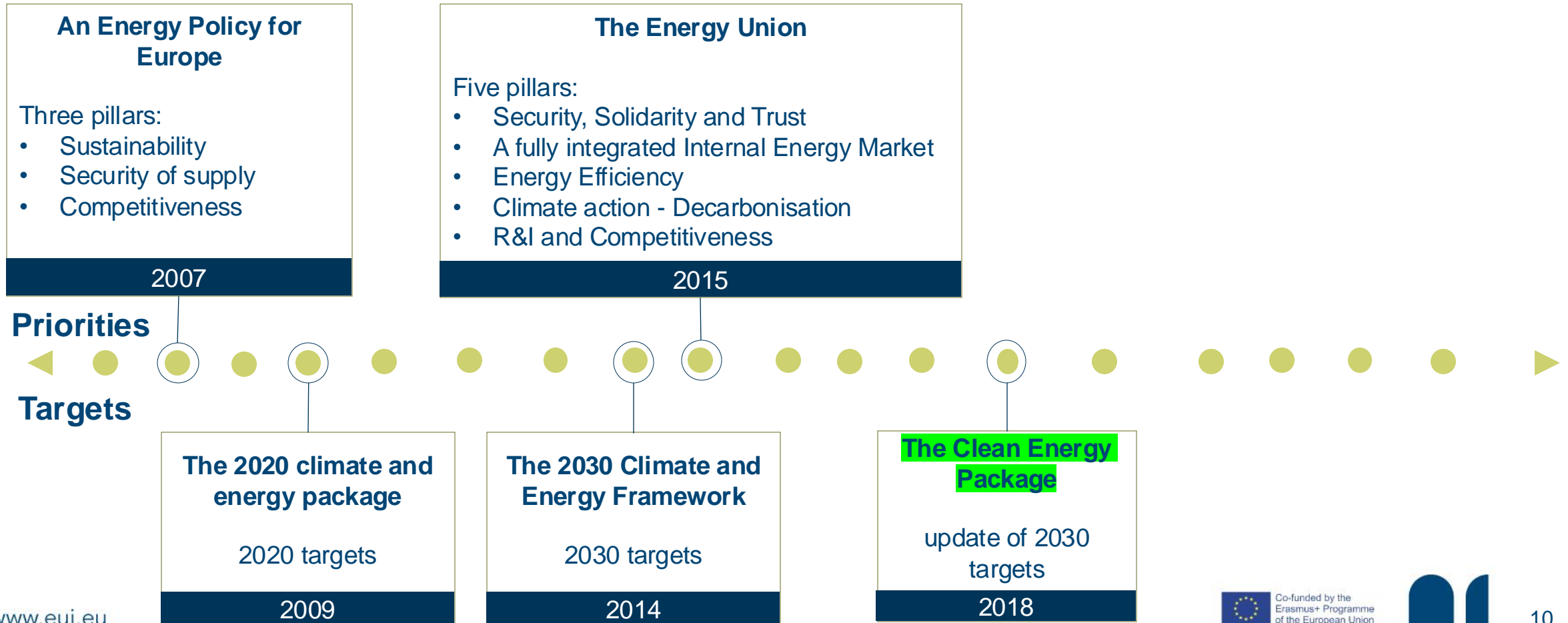
Data source: Global Carbon Budget (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions | CC BY

1. Fossil emissions: Fossil emissions measure the quantity of carbon dioxide (CO₂) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO₂ includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

EU-27 GHG emissions by sector (1990-2023) and in % of total emissions (2023)





The 2020 sustainability policy targets and instruments

Targets

- **20% GHG emissions reduction**
- **20% share of RES**
(differentiated binding targets at national level)
- **20% energy efficiency improvement wrt BAU**

Policy Instruments

- The EU Emission Trading System and the Effort Sharing Decision
- Renewable Energy Directive
- Energy Efficiency Directive
- Infrastructure investments through the TEN-E Regulation
- The Energy Performance of Buildings Directive.

The Paris Agreement

- ***The Paris Agreement*** was the first-ever universal, legally binding global climate change agreement, adopted at the Paris Climate Conference (COP21) in December 2015 to avoid dangerous climate change by ***limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C***
- **A bottom-up approach:** a 5-year cycle of increasingly ambitious climate plans by countries or “nationally determined contributions” (NDCs)
- **Means:** domestic actions, cooperation and support through finance, technology transfer and capacity building



The Paris Agreement and the EU

- The ***EU and its Member States*** are among the 190+ Parties to the Paris Agreement.
- The EU formally ratified the agreement on 5 October 2016, thus enabling its entry into force on 4 November 2016
- The ***2015 initial Nationally Determined Contribution (NDC)*** for the EU and its Member States under the Paris Agreement indicated the commitment to ***reduce GHG emissions by at least 40% by 2030*** compared to 1990

the 2030 sustainability policy targets and instruments

Targets

- at least 40% GHG emissions reduction
- 32% share of RES (binding at Union level)
- 32.5% energy efficiency improvement wrt BAU

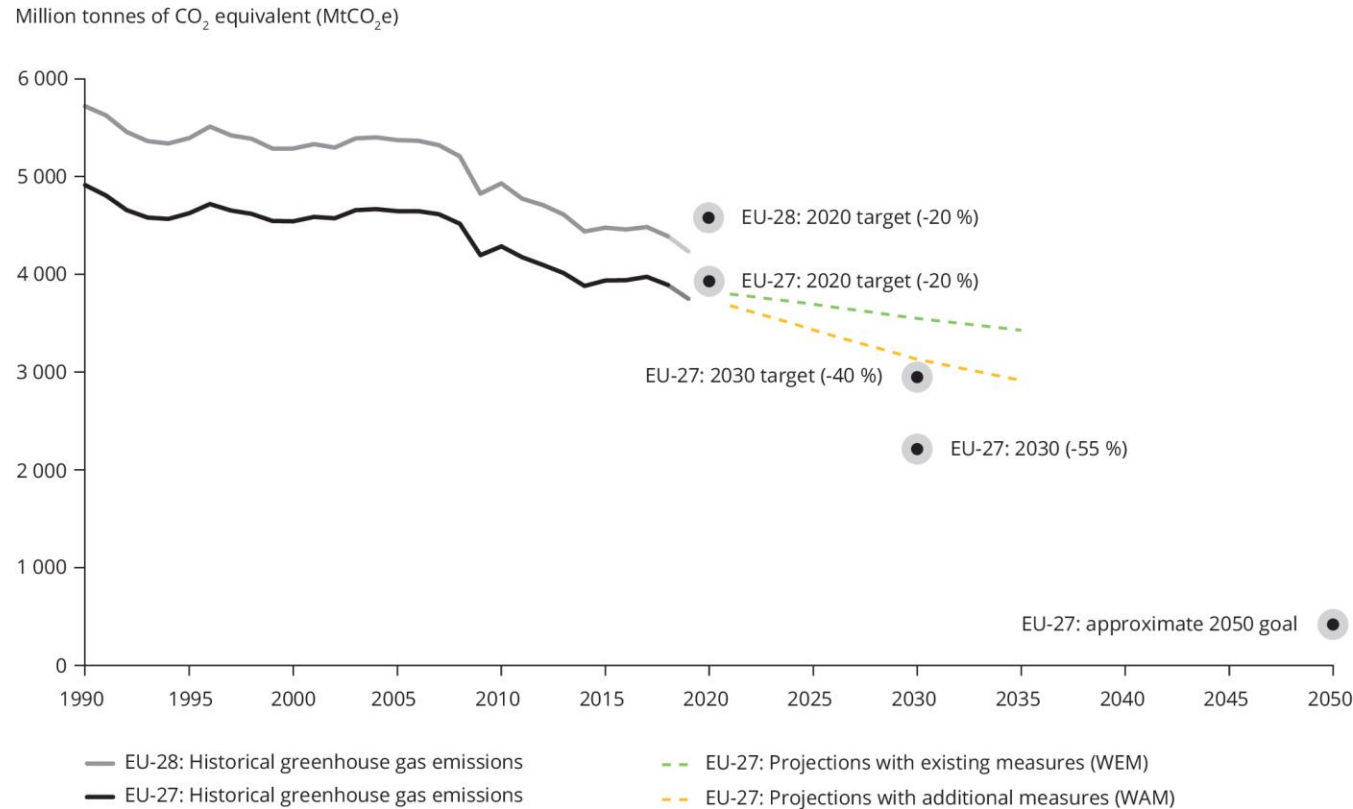
Policy Instruments

- The revised EU Emission Trading System and the Effort Sharing Regulation
- The Governance Mechanism
- Revised Renewable Energy Directive
- Amended Energy Performance of Buildings Directive and Energy Efficiency Directive
- The recast Electricity Directive and Regulation
- The Risk Preparedness Regulation
- The recast ACER Regulation

The Paris Agreement and the EU

- *The Paris Agreement* was the first-ever universal, legally binding global climate change agreement, adopted at the Paris climate conference (COP21) in December 2015 to avoid dangerous climate change by **limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C**
- The *EU and its Member States* are among the close to 190 Parties to the Paris Agreement.
- The EU formally ratified the agreement on 5 October 2016, thus enabling its entry into force on 4 November 2016
- The *2015 initial Nationally Determined Contribution (NDC)* for the EU and its Member States under the Paris Agreement indicated the commitment to **reduce GHG emissions by at least 40% by 2030** compared to 1990
- The **2020 updated and enhanced EU's NDC** set the more ambitious **55% GHG emission reduction target for 2030**
- This target was made binding through the 2021 Climate Law

The 2020 and 2030 Energy and Climate Targets



- The EU achieved its **2020 20% GHG** emission reduction target
- However, current measures will not deliver the **55% GHG** emission reduction target by 2030
- A new **EU Green Deal** was therefore necessary

- Background
- **The European Green Deal**
- The European Emissions Trading System

The European Green Deal



To help us achieve our ambition, **I will propose a European Green Deal in my first 100 days in office.**

This will include the **first European Climate Law to enshrine the 2050 climate-neutrality target into law.**



The EU Green Deal targets

- **55% GHG emissions reduction by 2030**
- **Climate neutrality by 2050**

- **40% share of RES (proposed)**

- **36-39% energy efficiency improvement for final and primary energy consumption wrt Business as Usual (proposed)**
 - Corresponding to a 9% reduction in energy consumption in 2030 compared to the projections of the 2020 Reference Scenario

Revision of existing policy instruments

- Revision of the EU Emissions Trading System
- Revision of the Energy Taxation Directive
- Revision of the Renewable Energy Directive
- Revision of the Energy Performance of Building Dir.
- Revision of the Energy Efficiency Directive
- Revision of the TEN-E Regulation

New policy Instruments

- First European ‘Climate Law’
- Strategy on Energy System Integration
- Renovation Wave
- EU Strategy on Offshore Renewable Energy
- The Methane Strategy

The European Green Deal: beyond energy and climate



Fresh air, clear water, healthy soil and biodiversity



Renovated, energy efficient buildings



Healthy and affordable food



More public transport



Cleaner energy and cutting-edge clean technological innovation



Longer lasting products that can be repaired, recycled and re-used



Future-proof jobs and skills training for the transition



Globally competitive and resilient industry

The European Climate Law

Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving **climate neutrality** and amending Regulations (EC) No 401/2009 and (EU) 2018/1999

- Sets into legislation the political ambition of being the world's first climate neutral continent by 2050
- Sets the intermediate target of reducing net greenhouse gas (GHG) emissions by at least **55%** by 2030

The Fit for 55 Package

- Presented by the Commission on 14 July 2021
- Implements the Climate Law
- Includes a set of legislative proposals to ensure the EU is on track to meet the 55% target by 2030
- Is set against the backdrop of the Green Deal.



The Fit for 55 Package

- Revision of the ***EU Emission Trading System*** (ETS)
- ***Carbon Border Adjustment Mechanism*** (CBAM)
- ***Effort Sharing*** Regulation (ESR)
- Amendment of the ***Renewable Energy*** Directive
- Amendment of ***the Energy Efficiency*** Directive
- Reducing ***methane emissions*** in the energy sector
- Revision of the ***Land use, land-use change, and forestry*** Regulation
- Revision of the Directive on deployment of ***alternative fuels infrastructure***
- Revision of the Regulation setting ***CO₂ emission performance standards for cars***

The Fit for 55 Package

Other legislative initiatives published in December 2021

- Revision of the ***Energy Performance of Buildings*** Directive (EPBD)
- Revision of the ***Third Energy Package for gas***
- New Regulation on ***methane emissions reduction*** in the energy sector

The REPowerEU Plan (1)

- Presented by the Commission on 18 May 2022 following the unprovoked and unlawful Russian war of aggression against Ukraine
- A plan rapidly to reduce dependence on Russian fossil fuels and to accelerate the green transition through
 - energy savings
 - diversification of energy supplies
 - accelerated roll-out of renewable energy

The REPowerEU Plan (2)

- Energy savings
 - Binding 2030 **Energy Efficiency Target** increased from 9% to 13%
 - '**EU Save Energy Communication**' with short-term behavioural changes to cut gas and oil demand by 5%
- Diversification of energy supplies
 - Increased levels **of LNG imports** and higher **pipeline gas deliveries from alternative suppliers**
 - Development of a '**joint purchasing mechanism**' which will negotiate and contract gas purchases on behalf of participating Member States
- Accelerated roll-out of renewable energy
 - Headline 2030 target for **renewables** increased from 40% to 45%

The main EU Energy and Climate targets: a summary

- Climate neutrality to be achieved by 2050 (2021 Climate Law)
- The current EU energy and climate targets for 2030:
 - Reduction of greenhouse gas emission wrt 1990: 55% (2021 Climate Law)
 - Improvements in energy efficiency:
 - 32,5% (Clean Energy Package)
 - 36-39% (Green Deal proposal)
 - +4% (REPowerEU proposal)
 - +2.7% co-legislators' agreement
 - Renewables penetration in Final Energy Consumption:
 - 32% (Clean Energy Package)
 - 40% (Green Deal proposal)
 - 45% (REPowerEU proposal)
 - 42.5% co-legislators' agreement
 - The electricity sector is expected to contribute more than proportionally ($\approx 70\%$) to the achievement of the renewable penetration target

The EU 2040 targets

In February 2024, the Commission:

- charted the ***path*** to reach the ***2050 EU climate neutrality goal***
- recommended a ***90% net greenhouse gas emissions reduction by 2040***

Actions needed:

- **fully implement existing EU laws** to reduce emissions by at least 55% by 2030
- **decarbonise industry** by relying on existing strengths like wind power, hydropower, and electrolysers (for renewable hydrogen)
- **increase domestic manufacturing** in growth sectors like batteries, electric vehicles, heat pumps, solar cells and others
- keep **fairness, solidarity and social policies** at the core of the transition.
- have an **open dialogue** with all concerned, including farmers, businesses, social partners and citizens

The EU action in a multi-level governance

5	International	UNFCCC Secretariat & COP Presidency	Ensure the sum of all Nationally Determined Contributions (NDCs) are aligned with the objectives of the Paris Agreement
1	4	European	The European Commission, with the Council and Parliament
Define EU targets	Review NECPs	Consolidate NECPs into one EU NDC	
2	National	The Member States	Translate the EU targets in national objectives
Prepare NECPs and eventual national energy & climate strategies			
3	Local	Regions and local authorities	Set up energy & climate planning in line with the national objectives and rules (in most cases)

- Background
- The European Green Deal
- **The European Emissions Trading System**

Quiz 1: match the definitions with the concepts

Тест 1: сопоставьте определения с понятиями

1. Carbon price

1. Цена на углерод

2. Carbon tax

2. Налог на углерод

3. Carbon market

3. Углеродный рынок

4. Emissions trading system (ETS)

4. Система торговли квотами на выбросы

A. a market that facilitates the exchange of carbon credits among actors to buy and sell credits representing the right to emit a specific unit.

A. рынок, который способствует обмену углеродными кредитами между субъектами для покупки и продажи кредитов, представляющих право на выброс определенной единицы.

B. a monetary cost applied to GHG emissions to encourage polluters to reduce their emissions.

B. денежная стоимость, применяемая к выбросам парниковых газов, чтобы побудить загрязнителей сократить свои выбросы.

C. a regulated carbon market that sets a declining emissions cap and allows actors to trade emission units.

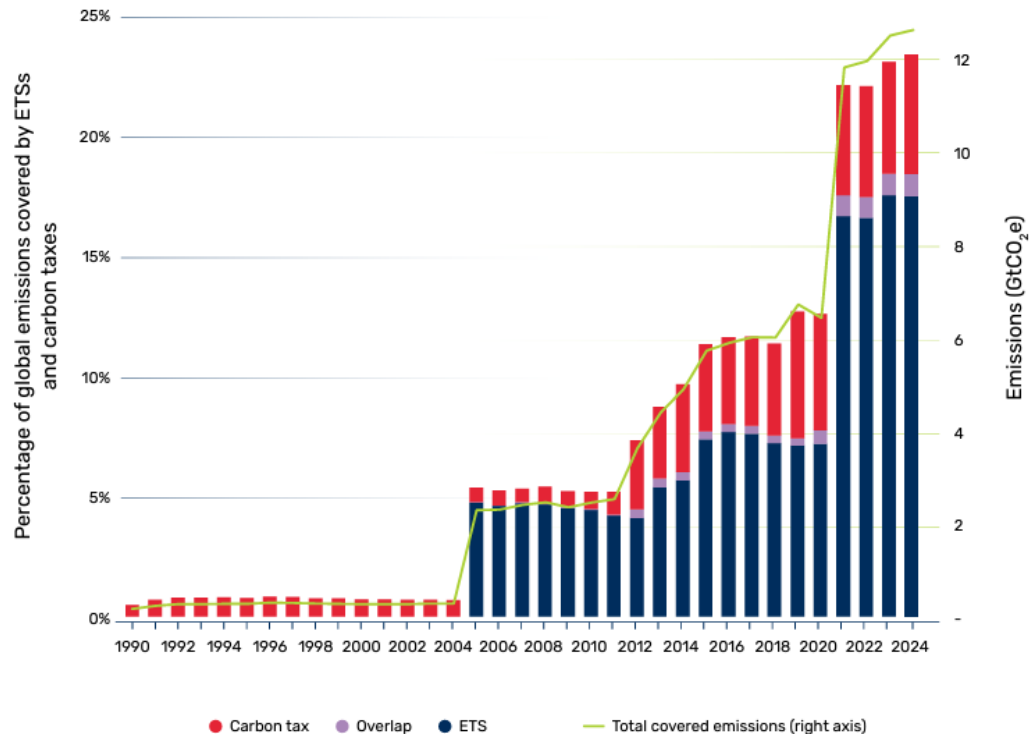
C. регулируемый углеродный рынок, который устанавливает снижающийся предел выбросов и позволяет субъектам торговать единицами выбросов.

D. a tax on GHG emissions emitted, incentivising actors to reduce emissions to avoid paying it.

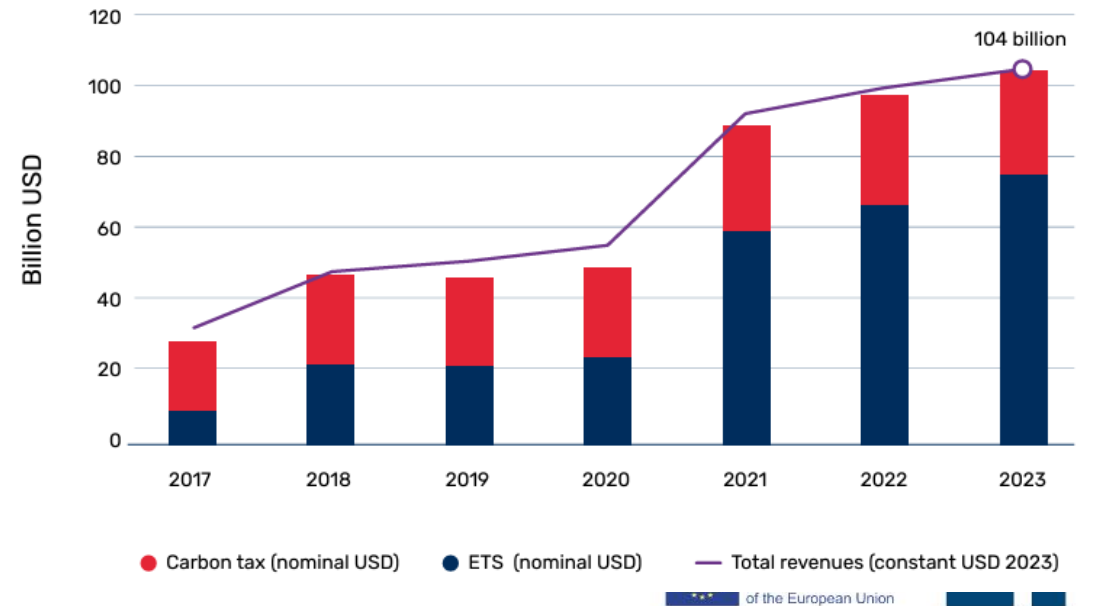
D. налог на выбросы парниковых газов, стимулирующий субъектов сокращать выбросы, чтобы не платить его.

- Direct carbon pricing instruments: **75 emissions trading systems (ETs) or taxes in operation**

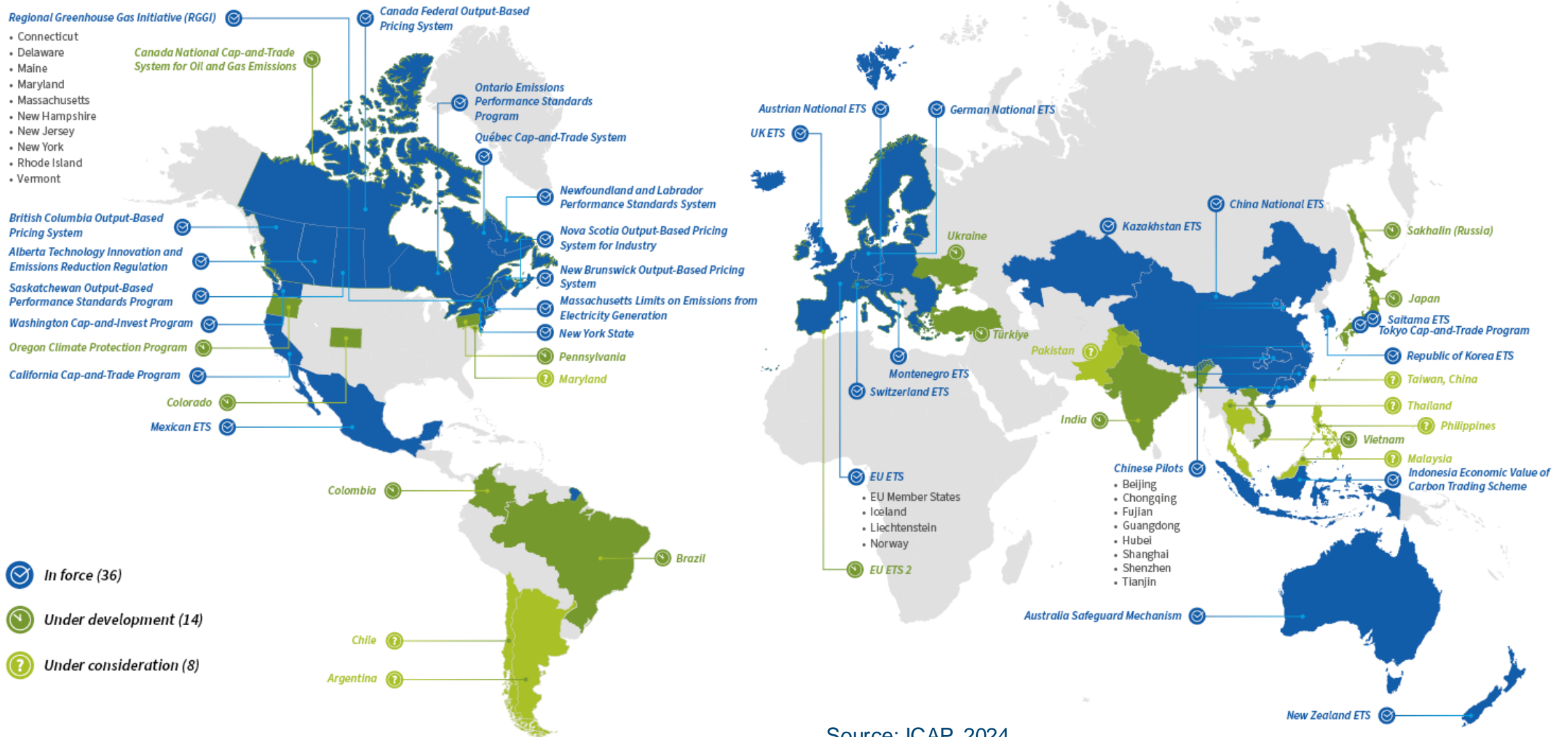
Global GHG emissions covered by ETs and carbon taxes



Evolution of global revenues over time

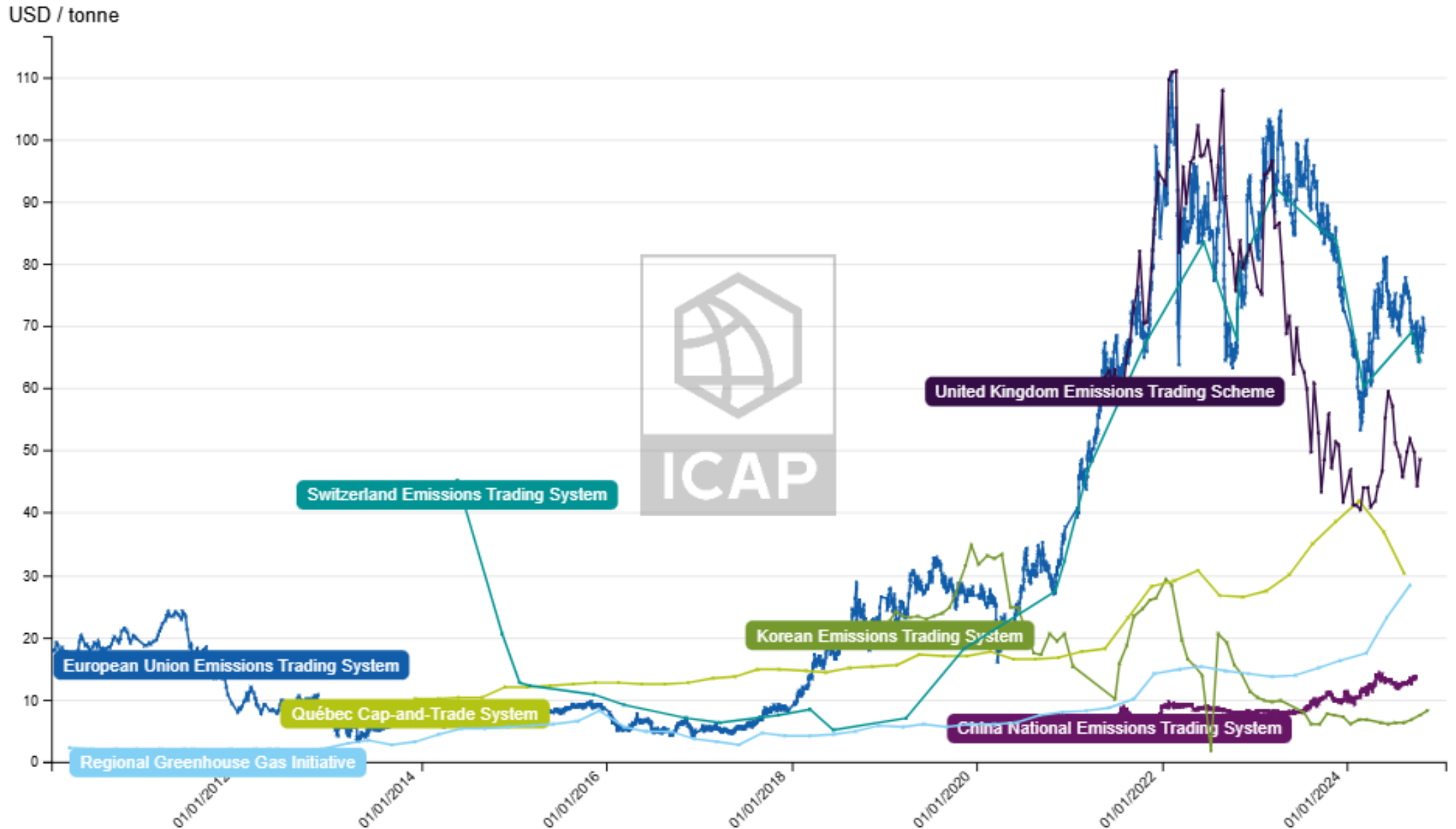


Emission trading systems across the world



Source: ICAP, 2024

ETS price evolution



The EU ETS until 2023

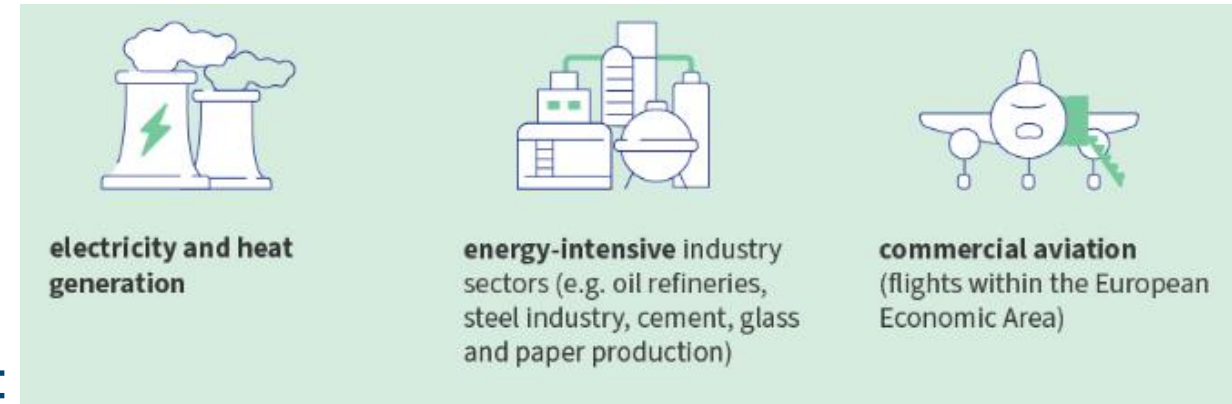
Objective: to reduce GHG emissions cost-effectively across the economy

A cap-and-trade system created in 2005 covering:

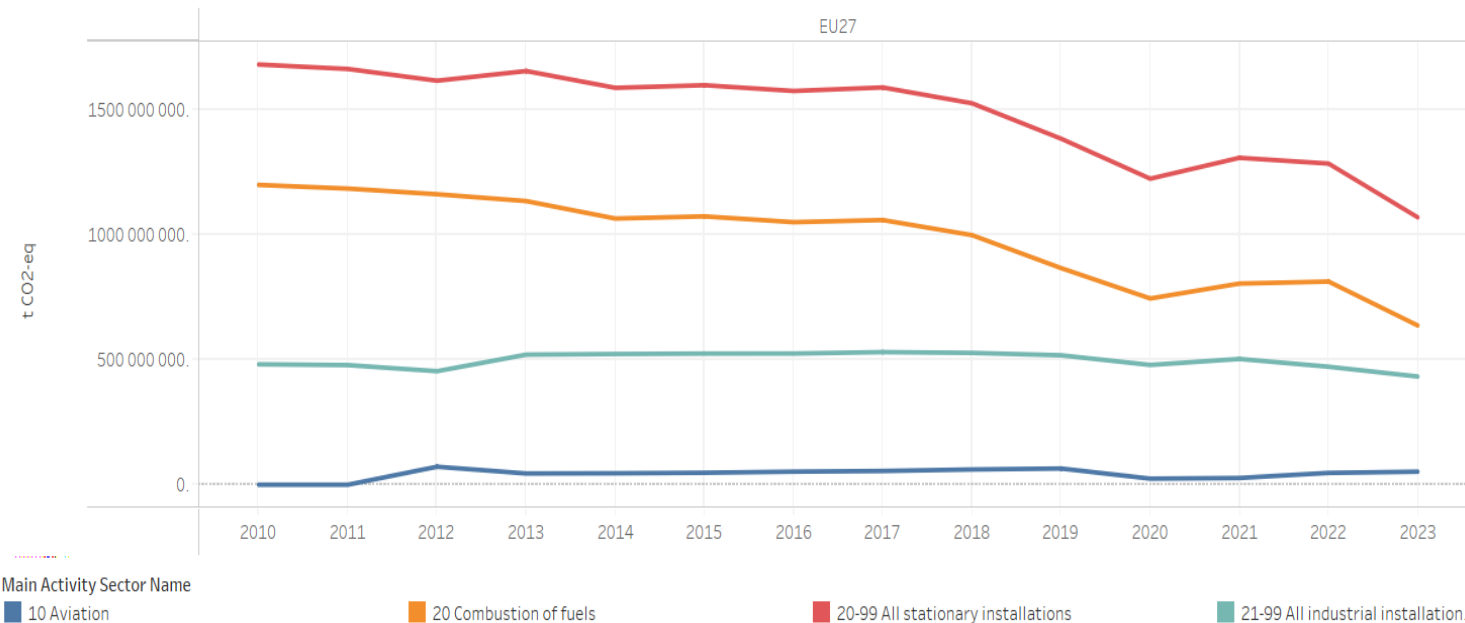
- **27 EU Member States, Iceland, Liechtenstein and Norway**
- **~ 10 000 regulated sites**
- **CO₂, N₂O, PFCs**
- **34% of total EU Emissions (2023)**

Results:

- **47.6% reduction since 2005**
 - **2023: record decrease of 16.5%**
- www.eui.eu

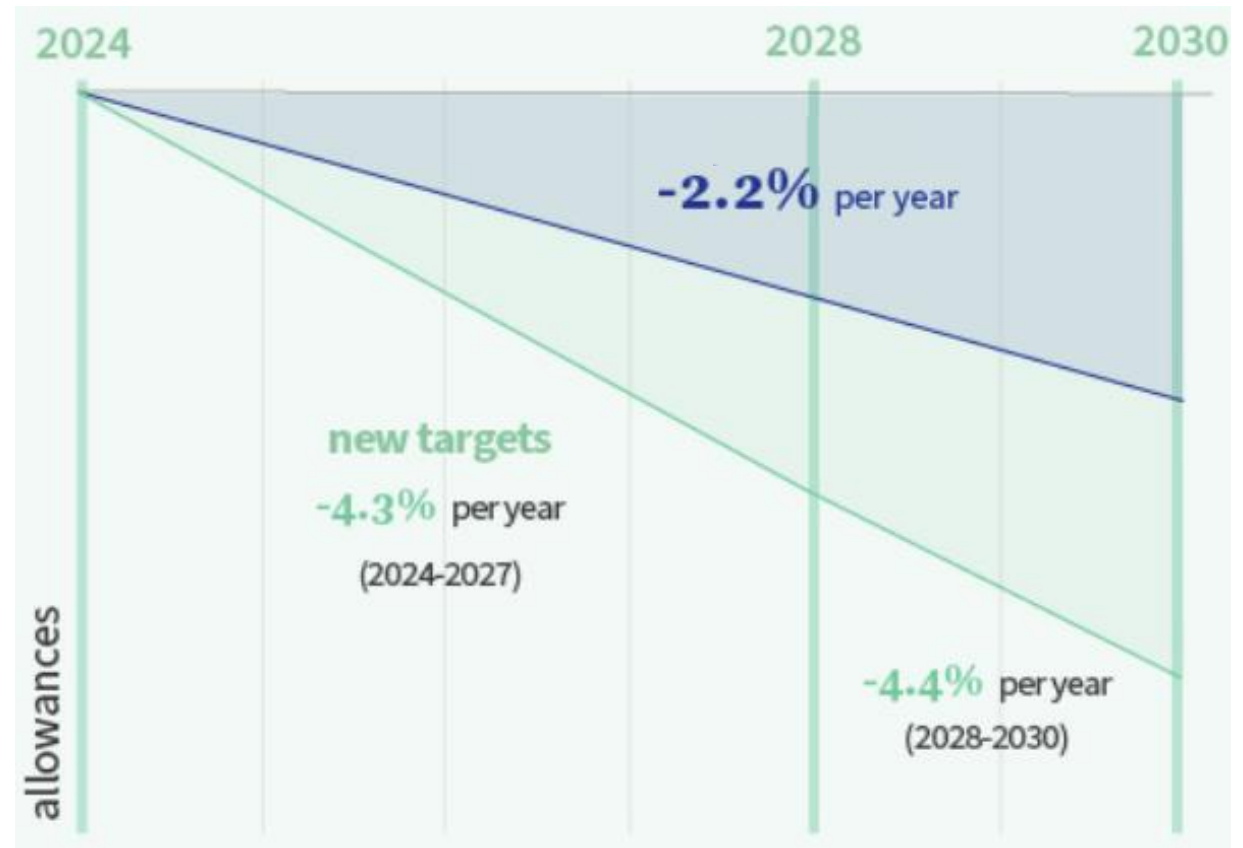


Emissions by sector



Updated objectives and main changes with the European Green Deal:

- Emission reduction target: 62% by 2030 compared to 2005
- Scope extension to maritime
- EU ETS 2



- A cap-and-trade currently under development covering:
 - **Buildings, road transport and small industry** emitters
 - 27 EU Member States, Iceland, Liechtenstein and Norway
 - CO2
- Start in 2027
 - **Cap reduction of 42% by 2030 compared to 2005**
 - Cover entities: fuel distributors
 - Fully auctioned

- **Social Climate Fund 86.7 bln EUR (94.2 bln USD) from 2026 to 2032**



Objectives:

- importers pay the same carbon price as domestic producers, thus avoiding **carbon leakage**
- non-EU countries may implement stricter climate policies

EU CBAM requires EU importers of certain carbon-intensive products to pay a fee equivalent to the carbon price differential between the EU ETS and that of exporters.

Transitional period from 2023, gradual phase-in until 2034

- Mixed projected impacts
- And many challenges ahead: WTO compatibility, trade wars, MRV, Common but differentiated responsibilities

www.eui.eu



iron and steel



cement



fertilisers



aluminium



hydrogen production



electricity

Challenges of the EU ETS



Extend coverage



Address social acceptability



Preserve competitiveness



Anticipate the after-life of the EU ETS



The EU ETS: a living creature

Birth: First transboundary cap-and-trade system

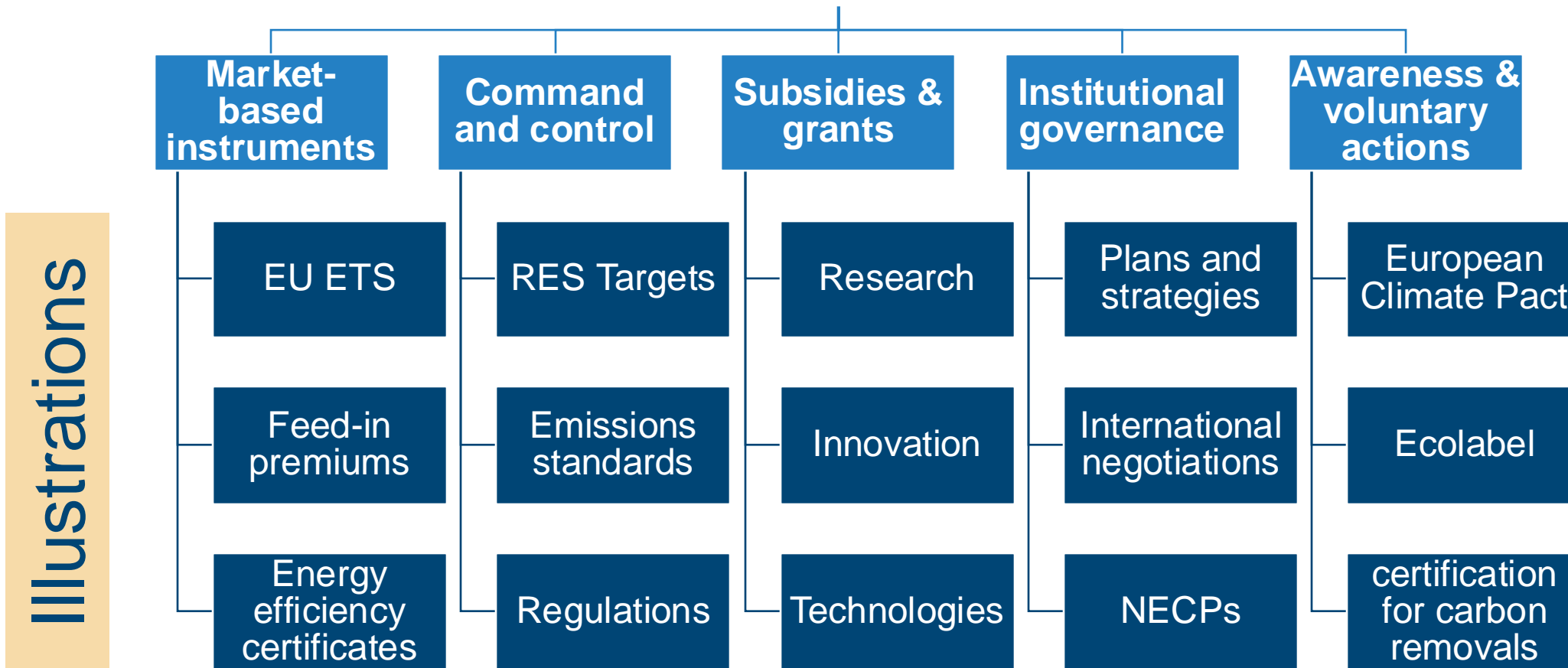
Growth: Additional sectors (aviation, maritime) and gases (methane) under the EU ETS

Teaching: A prototype for all its followers

Learning: Reforms as a continuous learning process, also inspired by its fellow schemes.



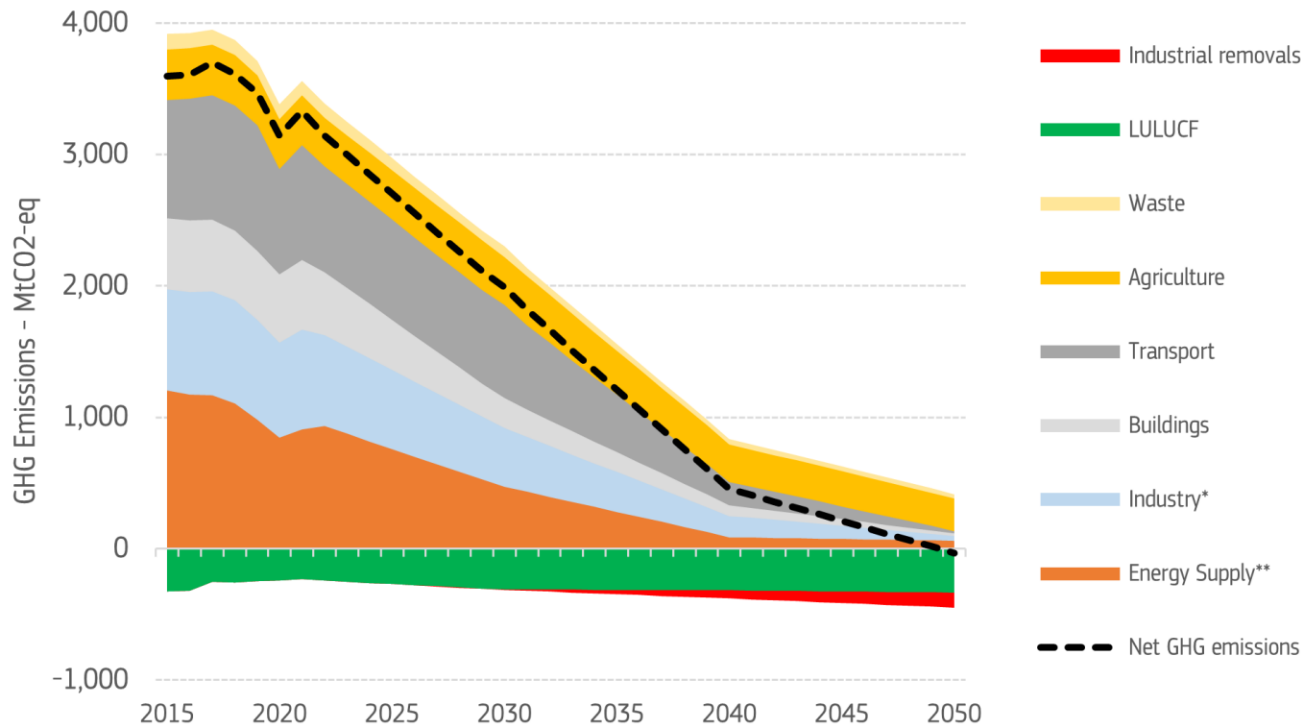
The EU climate policy toolbox



- **One objective:**
net-zero emissions by 2050

- Main ingredients of its approach

Historical and projected sectoral greenhouse gas emissions in the period 2015-2050



*Excluding non-BECCS industrial removals

**Including bioenergy with carbon capture and storage (BECCS)

1. Gradual tightening of the policies
2. A coordinated vision at all levels
3. Carbon price at the core
4. No one left behind
5. Investments to roll out innovation

Source: 2040 Climate Target, European Commission (2024)

The EU energy and climate policy context

That's all!

Thanks for your attention!

