



## “Fit for 55”

### A sustainable approach to European climate policy?

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Dec 20, 2021



Source: [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en)

### The Hakubi Project

The goal of The Hakubi Project is to foster and support young researchers who will pioneer new paths in their respective academic fields, by appointing them as program-specific faculty members (five-year term associate professor/assistant professor under the annual salary system) and by supporting their research activities on themes of their own choices.



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Assoc. Prof. Dr. Sven Rudolph

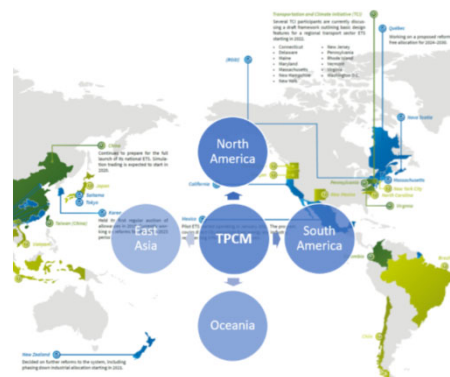
#### Toward a Trans-Pacific Carbon Market: Politically Feasible and Sustainable

Research steps:

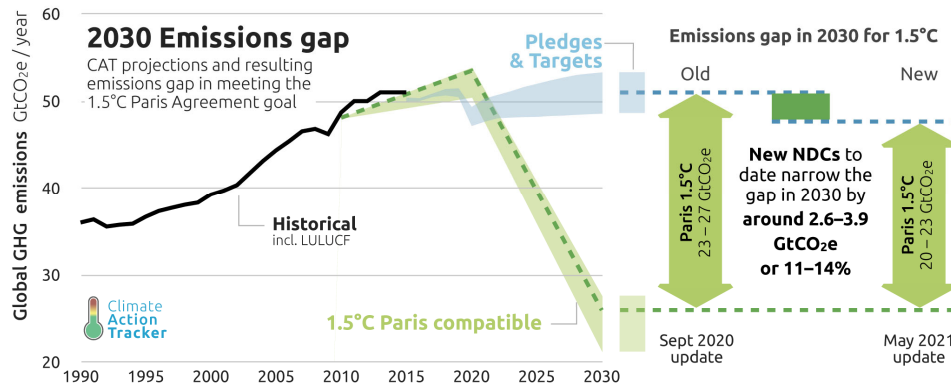
- (1) Define sustainability criteria for carbon markets, apply them to carbon market design, and evaluate domestic schemes in the Pacific region.
- (2) Identify prerequisites for sustainable linking and check existing and upcoming domestic carbon markets for necessary adjustments.
- (3) Analyze political chances and obstacles in the respective jurisdictions and identify strategies to utilize the former and overcome the latter.

Methodological approaches:

- Sustainability Economics, New Political Economy
- Case studies (qualitative, quantitative)

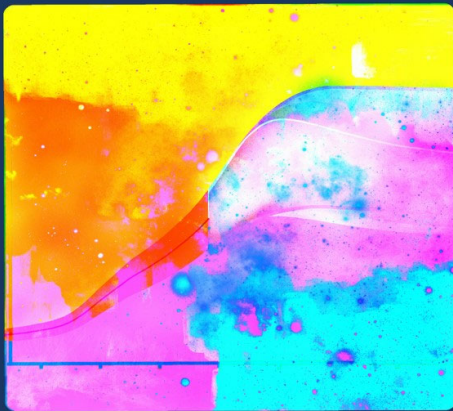


# The climate emergency



## Global Warming of 1.5°C

An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.



## Challenge and solution

- C2. Pathways limiting global warming to 1.5°C** with no or limited overshoot would **require rapid and far-reaching transitions** in energy, land, urban and infrastructure (including transport and buildings), and industrial systems (*high confidence*).
- D1. Estimates of the global emissions outcome of current nationally stated mitigation ambitions ... would not limit global warming to 1.5°C**, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030 (*high confidence*).
- D6. Sustainable development supports, and often enables**, the fundamental societal and systems **transitions** and transformations that help limit global warming to 1.5°C.

# Part of the solution

Source: <https://www.e-elgar.com/shop/gbp/carbon-markets-around-the-globe-9781839109089.html>

Sven Rudolph  
Elena Aydos



## CARBON MARKETS AROUND THE GLOBE

Sustainability and Political Feasibility



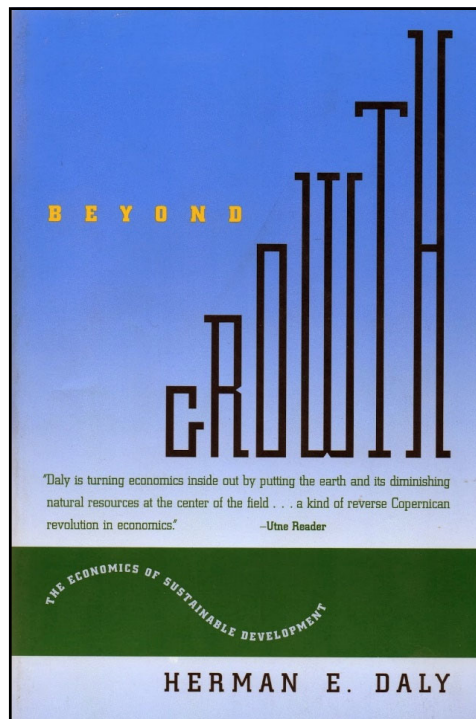
# Effective, efficient, just

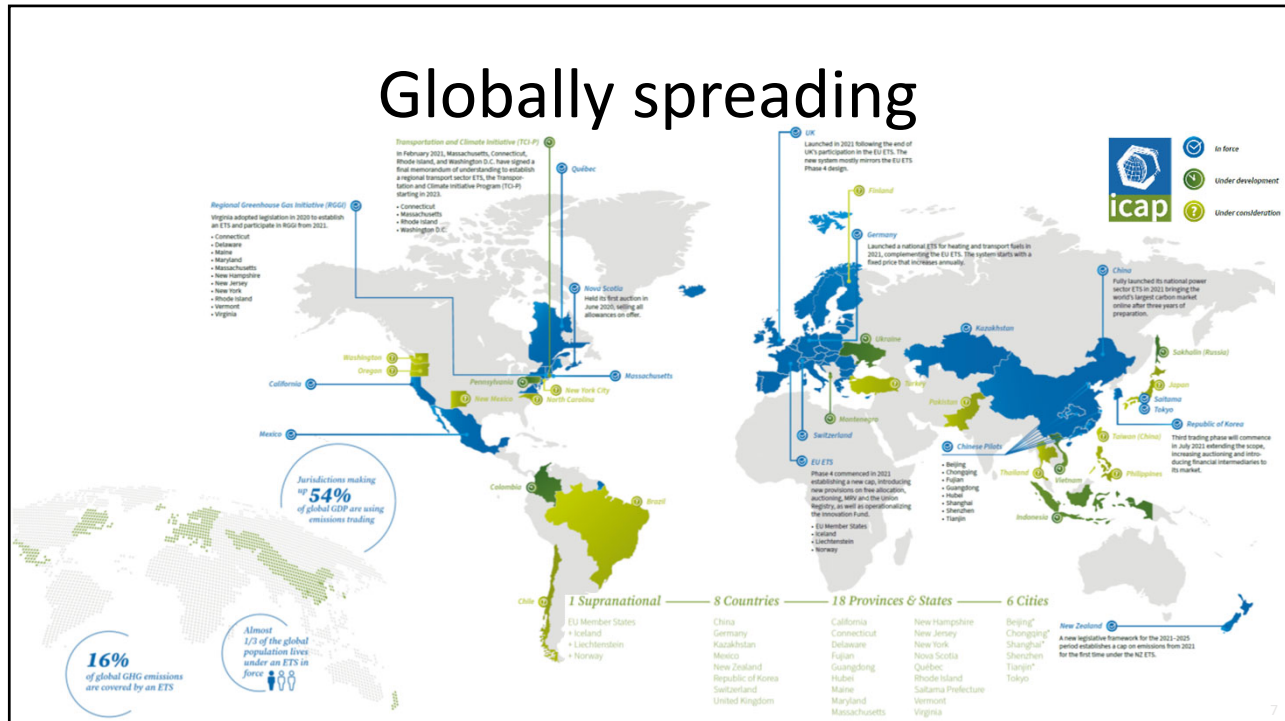
## Top 10 Policies for a Steady-State Economy

A steady-state economy is one that develops qualitatively  
... without growing quantitatively

### No 1. Cap-and-auction systems for basic resources.

“Caps limit biophysical scale by quotas on ... pollution ...  
Auctioning quotas captures scarcity rents for equitable  
redistribution. Trade allows efficient allocation  
to highest use.” (Herman Daly 2021)





## Allowed under Paris Agreement



### Article 6

- Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.
- Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development ...
- The use of internationally transferred mitigation outcomes to achieve nationally determined contributions under this Agreement shall be voluntary and authorized by participating Parties.

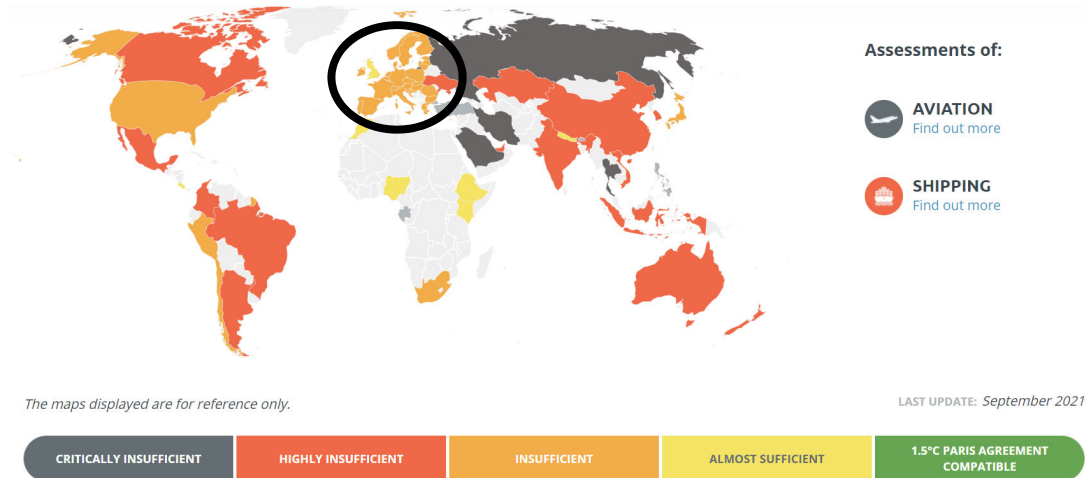
## Sustainable Model Rule (SMR) and real-life CaT

	Sustainable Model Rule (SMR)	EU	RGGI	CaI	NZ ETS	CPM	ERF/SM	TMG	SK	CN
Coverage	mandatory participation	●	●	●	●	●	●	●	●	●
	all GHG (based on CO <sub>2</sub> e)	●	●	●	●	●	●	●	●	●
	all polluters	●	●	●	●	●	●	●	●	●
Cap	≥ -25-40% by 2020, -50-65% by 2030 (base 1990)	●	●	●	●	●	●	●	●	●
	absolute volume cap (Budget Approach)	●	●	●	●	●	●	●	●	●
	gradual cap reduction (Contraction & Convergence)	●	●	●	●	●	●	●	●	●
Allocation	initial allocation by 100% auctioning	●	●	●	●	●	●	●	●	●
	markets equally accessible to all parties	●	●	●	●	●	●	●	●	●
	frequent auctions, established secondary market	●	●	●	●	●	●	●	●	●
Revenue Use	100% revenue recycling	●	●	●	●	●	●	●	●	●
	support for poorest plus climate dividend (Sky Trust)	●	●	●	●	●	●	●	●	●
Flexibility Mechanisms	banking permitted (unlimited)	●	●	●	●	●	●	●	●	●
	borrowing prohibited	●	●	●	●	●	N/A	●	●	●
	sustainable offset projects only (Gold Standard)	●	●	●	●	●	●	●	●	●
Price Management	auction price floor (≥SC-CO <sub>2</sub> ; 50/60 US\$/t 2020/30)	●	●	●	●	●	●	●	●	●
	price ceiling (≥PA-CP, 80/100 US\$/t 2020/2030)	●	●	●	●	●	●	●	●	●
Compliance	control periods not longer than three years	●	●	●	●	●	●	●	●	●
	continuous MRT or verified reporting	●	●	●	●	●	●	●	●	●
	discouraging fines for non-compliance (>p)	●	●	●	●	●	●	●	●	●
	full compensation of excess emissions	●	●	●	●	●	●	●	●	●
Linking	multilateral direct linking (MoU)	●	●	●	●	●	●	●	●	●

## In sum: climate change and cap-and-trade

- 1) We are in a climate emergency with only 10 years left to solve the problem.
- 2) Carbon pricing, and particularly cap-and-trade, is a valuable policy tool for achieving the necessary emission reductions at low cost.
- 3) In order to be effective and acceptable, cap-and-trade has to be designed in a sustainable way, which can be achieved by applying our SMR!

## EU insufficiency

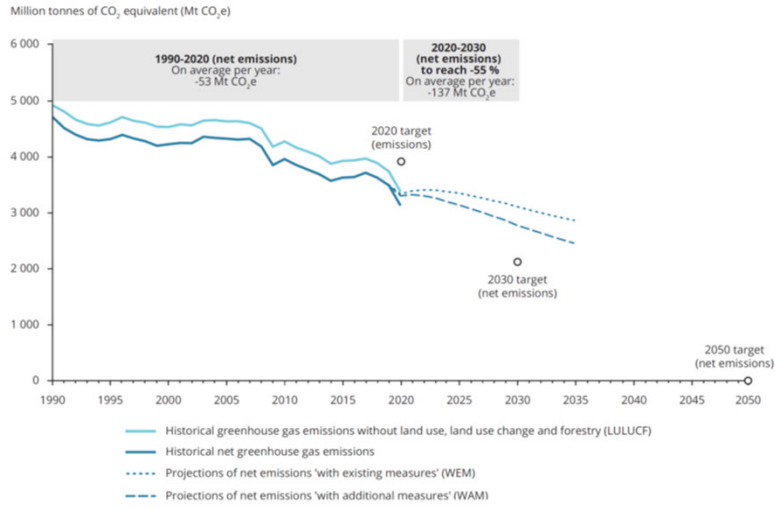


Source: <https://climateactiontracker.org/countries/>

## International climate policy history

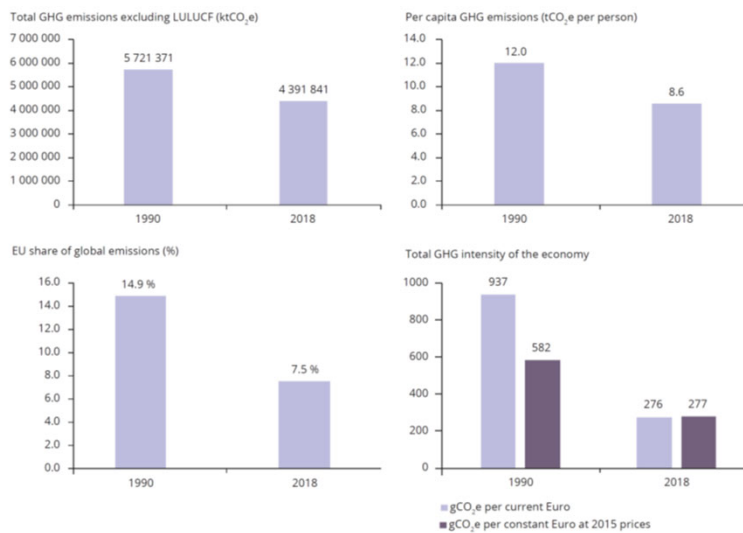
International climate policy	EU
United Nations Framework Convention on Climate Change (1992)	signed and ratified
Kyoto Protocol I (1997) 1 <sup>st</sup> commitment period 2008-12	signed and ratified –8% target (base 1990); achieved
Kyoto Protocol II/Doha Amendment (2012) 2 <sup>nd</sup> commitment period 2013-20	signed and ratified –20% target (base 1990); achieved
Paris Agreement (2015) NDC 1 (2016) commitment 2030 NDC 2 (2020) commitment 2030	signed and ratified –40% target (base 1990) –55% target (base 1990) net-zero by 2050

# EU GHG emission trends



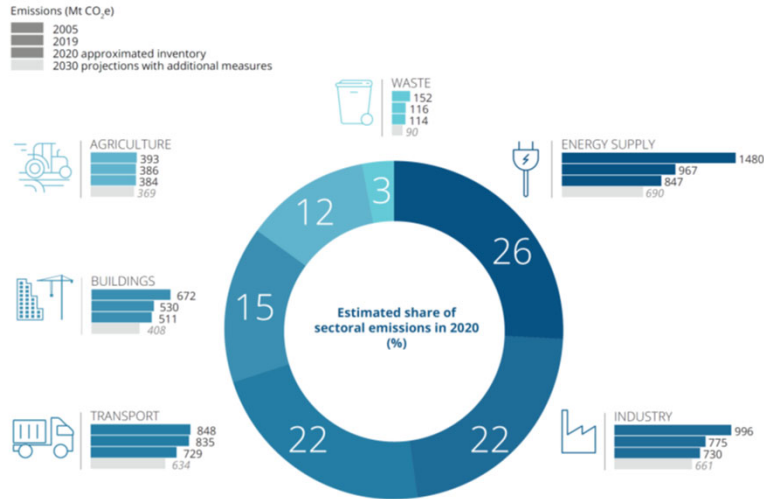
Source: EEA (2021): Trends and projections in Europe 2021. EEA: Copenhagen

# EU emission trends in the EU



Source: EEA (2020): Trends and drivers of EU greenhouse gas emissions. EEA: Copenhagen

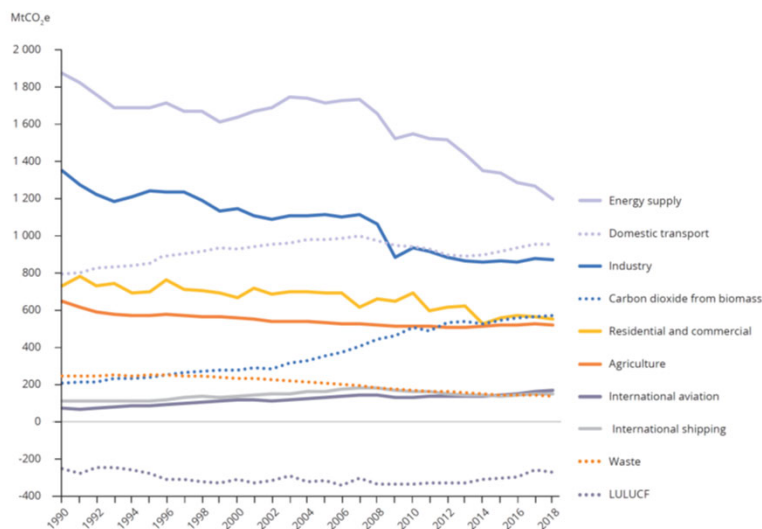
# EU GHG emissions sector share



Source: EEA (2021): Trends and projections in Europe 2021. EEA: Copenhagen

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# EU GHG emissions sector trends

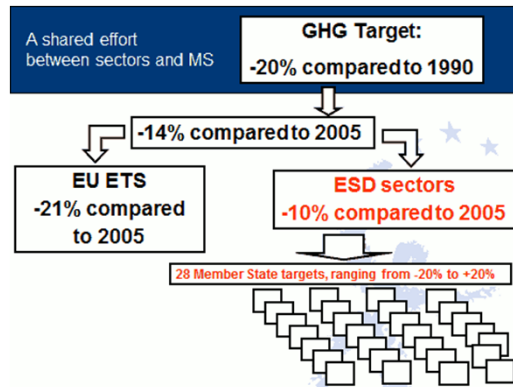


Source: EEA (2020): Trends and drivers of EU greenhouse gas emissions. EEA: Copenhagen

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# EU ETS and Effort Sharing (Decision)

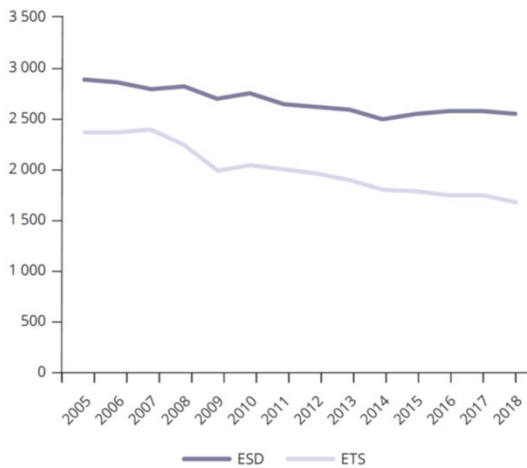


Source: [https://ec.europa.eu/clima/eu-action/effort-sharing-member-states-emission-targets\\_de](https://ec.europa.eu/clima/eu-action/effort-sharing-member-states-emission-targets_de)

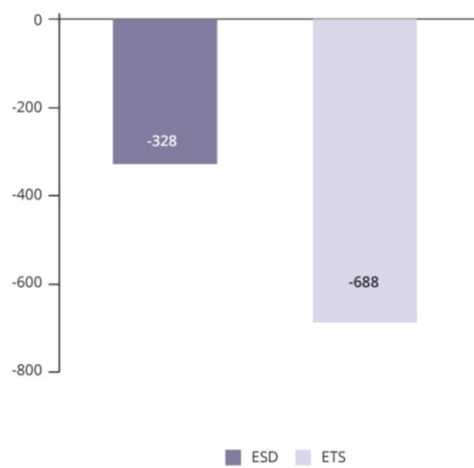
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# EU GHG emission ETS vs ESD

Trends in emissions, 2005-2018 (MtCO<sub>2</sub>e)

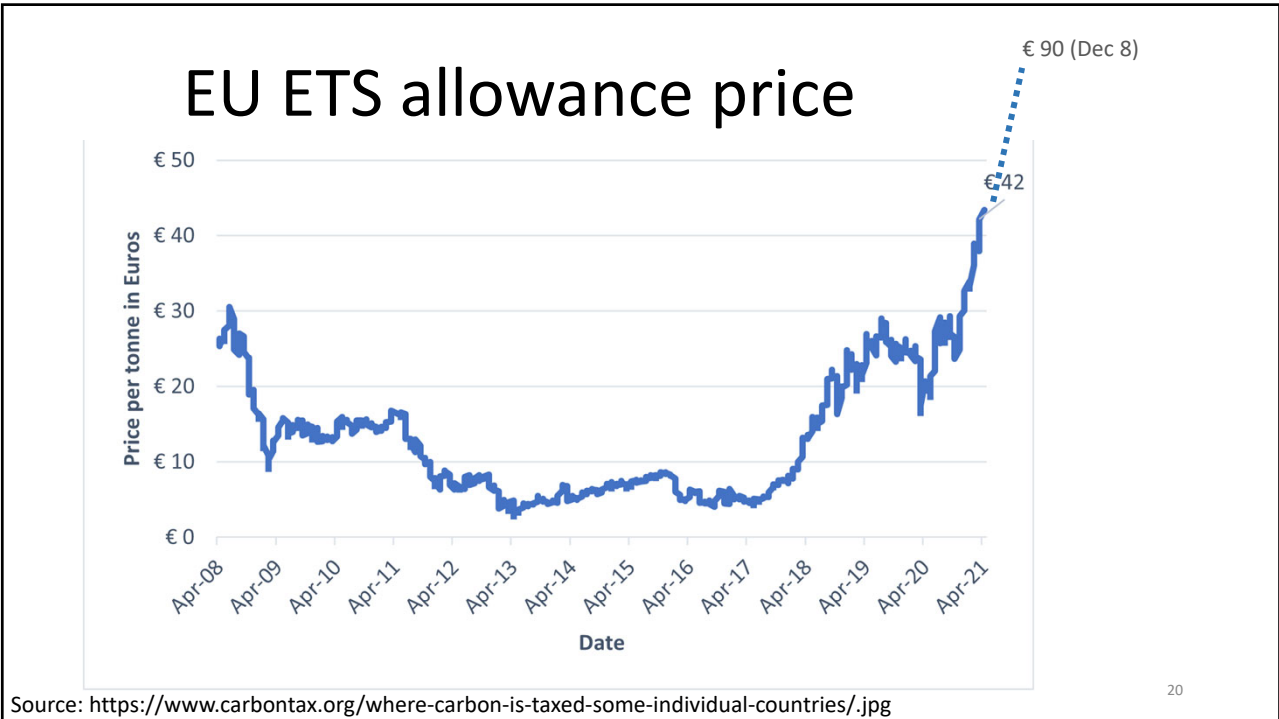
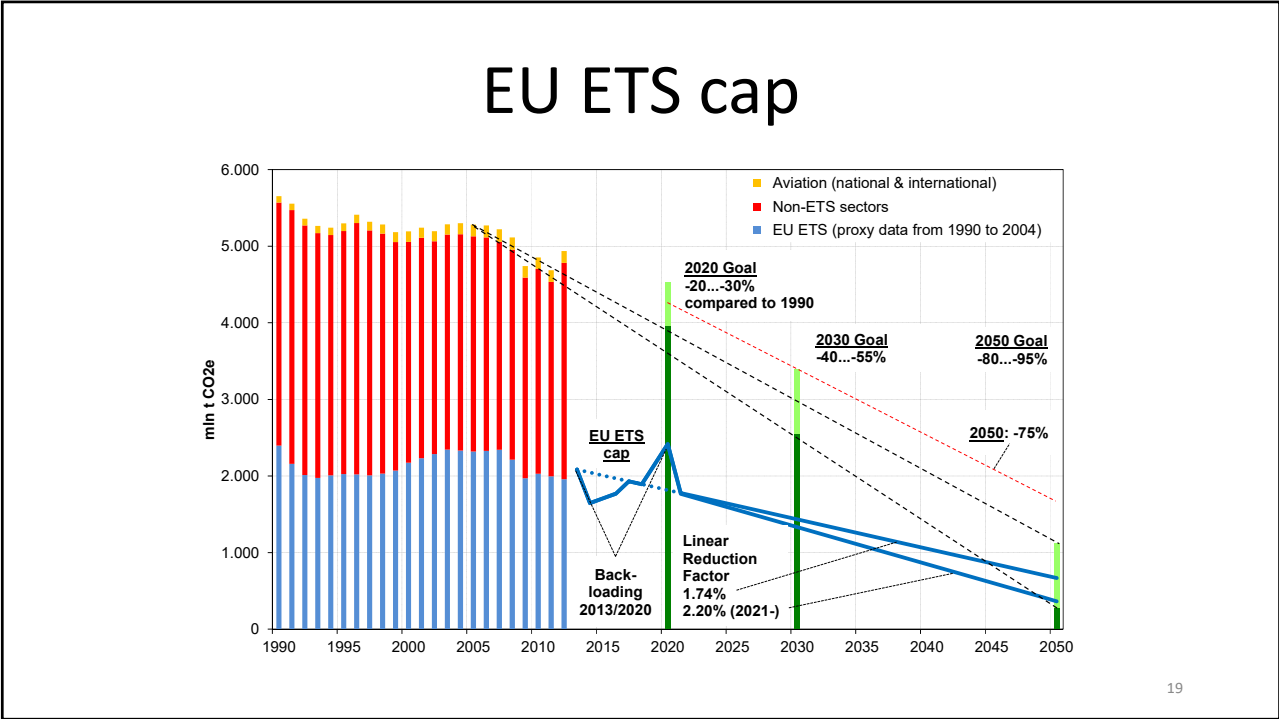


Emission reductions, 2018-2005 (MtCO<sub>2</sub>e)



Source: EEA (2020): Trends and drivers of EU greenhouse gas emissions. EEA: Copenhagen

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Source: <https://www.carbontax.org/where-carbon-is-taxed-some-individual-countries/.jpg>

## In sum: EU climate policy so far

- 1) The EU has achieved significant emission reductions and has set comparatively ambitious mid- and long-term targets.
- 2) The transport sector remains the Achilles Heel of EU climate action.
- 3) Despite all criticism, the EU ETS has proven itself to be an effective climate policy instrument.

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## The EU Green Deal (Dec 2019)

### Goals

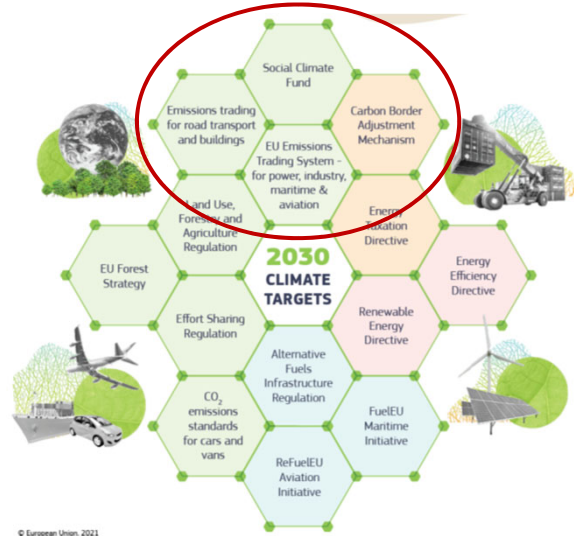
- to become climate-neutral by 2050
- to protect human life, animals and plants, by cutting pollution
- to help companies become world leaders in clean products and technologies
- to ensure a just and inclusive transition

### Climate action initiatives

- European Climate Law: to enshrine the 2050 climate-neutrality objective into EU law
- European Climate Pact: to engage citizens and all parts of society in climate action
- 2030 Climate Target Plan: to further reduce net greenhouse gas emissions by at least 55% by 2030
- New EU Strategy on Climate Adaptation: to make Europe a climate-resilient society by 2050, fully adapted to the unavoidable impacts of climate change.

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## Fit for 55 (Jul 2021)



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Source: EU (2021): Factsheet - Delivering the Green Deal. Brussels: EU

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## EU ETS reform

### Goal ETS reform

- current EU ETS cap still based on 40% reduction target and limited coverage
- ⇒ to adjust cap trajectory to 55% target and increase coverage beyond 50%



### Approach ETS reform

- increase of the linear reduction factor from 2.2% to 4.2%
- expansion of the EU ETS to cover maritime transport and international aviation
- introduction of separate ETS for household heating and road transport (possibly modelled after German fuels ETS)

Source: [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en)

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# Carbon Border Adjustment Mechanism

## Goal CBAM

- high carbon price and free-allocation phase out by 2030 may lead to competitive disadvantages for industry and carbon leakage
- ⇒ to protect EU industry from competitive disadvantages and to prevent carbon leakage



## Approach CBAM

- fully operational by 2026 for selected products
- importers have to buy CBAM certificates at current EU ETS price
- annual declaration of quantity and carbon content of goods imported and surrender of respective quantity of CBAM certificates
- price reduction in case that carbon price has already (partial) been paid

Source: [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en)

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# Social Climate Fund

## Goal SCF

- 1 million jobs in 2030, 2 million jobs in 2050, but unequal distribution (countries, sectors)
- ⇒ to mitigate burden of high carbon price for those in need



## Approach CBAM

- mobilization of 72.2 billion Euro 2025-2032 for supporting
  - households and micro-enterprises affected by new fuels ETS
  - investment in energy efficiency and renewable energy in buildings
  - direct income for vulnerable households
  - zero- and low-emission mobility

Source: [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en)

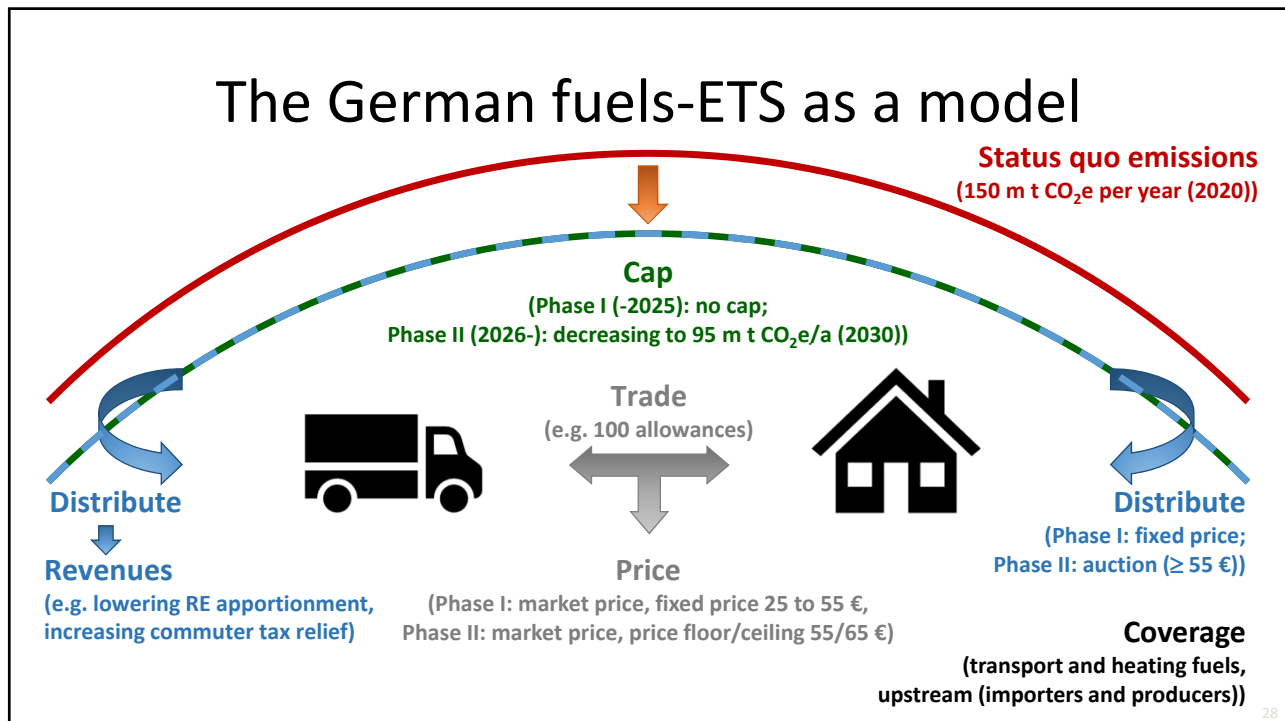
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## Sustainable “Fit for 55” ETS?

	Sustainable Model Rule (SMR)	EU ETS pre „Fit“	EU ETS post „Fit“
Coverage	mandatory participation	●	●
	all GHG (based on CO <sub>2</sub> e)	●	●
	all polluters	●	●
Cap	≥ -25-40% by 2020, -50-65% by 2030 (base 1990)	●	●
	absolute volume cap (Budget Approach)	●	●
	gradual cap reduction (Contraction & Convergence)	●	●
Allocation	initial allocation by 100% auctioning	●	●
	markets equally accessible to all parties	●	●
	frequent auctions, established secondary market	●	●
Revenue Use	100% revenue recycling	●	●
Flexibility Mechanisms	support for poorest plus climate dividend (Sky Trust)	●	●
	banking permitted	●	●
	borrowing prohibited	●	●
Price Management	sustainable offset projects only (Gold Standard)	●	●
	auction price floor (≥SC-CO <sub>2</sub> ; 50/60 US\$/t 2020/30)	●	●
	price ceiling (≥PA-CP, 80/100 US\$/t 2020/2030)	●	●
Compliance	control periods not longer than three years	●	●
	continuous MRT or verified reporting	●	●
	discouraging fines for non-compliance (>p)	●	●
	full compensation of excess emissions	●	●
	Linking	multilateral direct linking (MoU)	●

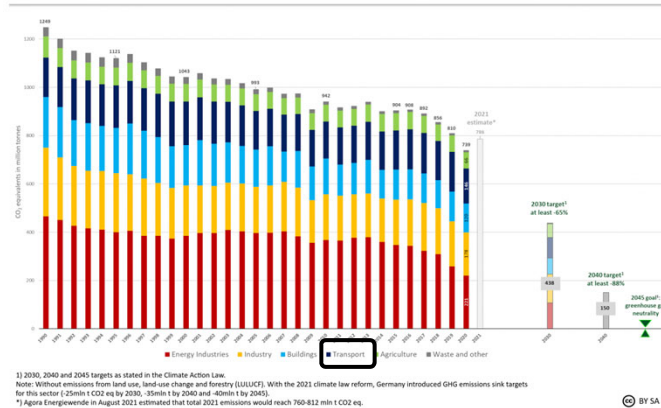
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## The German fuels-ETS as a model



# Transport sector

Greenhouse gas emission trends in Germany by sector 1990-2020  
Data: UBA 2021 (2020 data preliminary), Agora Energiewende 2021.



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source: www.wikipedia.org

## German Supreme Court

### Complaint (2020)

- lodge by Fridays for Future, Germanwatch, and Greenpeace: 2019 Climate Action Law “irreversibly offloads major emission reduction burdens onto periods after 2030.”

### Ruling (2021)

- “The challenged provisions do violate the freedoms of the complainants, some of whom are still very young. ... These future obligations to reduce emissions have an impact on practically every type of freedom because virtually all aspects of human life still involve the emission of greenhouse gases and are thus potentially threatened by drastic restrictions after 2030.”
- ⇒ To reach the Paris targets, the post-2030 goals has to be achieved faster and more urgently.

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# Targets

## Germany's 2030 sector targets for greenhouse gas emission reduction and 2020 status

Data: UBA (2021) / Climate Action Law.



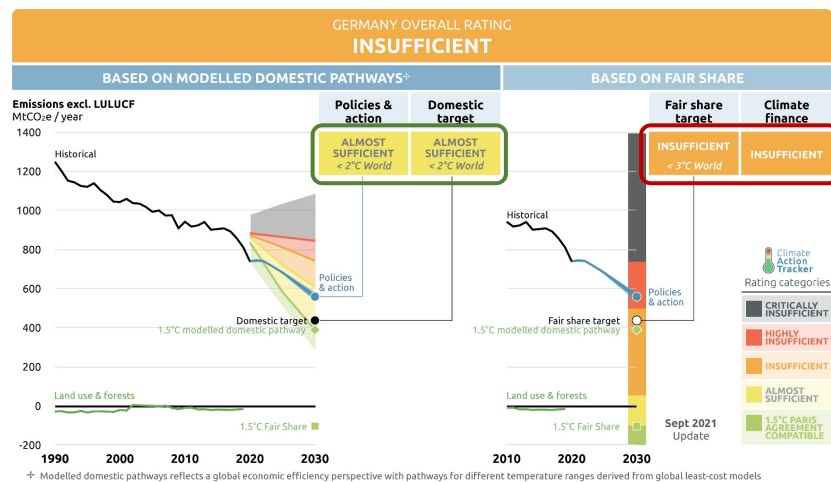
Sector	2020 status (cut from 1990 levels)	2030 target (cut from 1990 levels)
Energy	52.7 %	76.8 %
Buildings	42.8 %	68.1 %
Transport	11.1 %	48.1 %
Industry	37.2 %	58.4 %
Agriculture	23.7 %	35.6 %
Other	76.7 %	89.5 %
<b>Total</b>	<b>40.8 %</b>	<b>65 %</b>

⇒ long-term:  
88% by 2040  
**net-zero by 2045**

Note: Without emissions from land use, land use change and forestry (LULUCF), 2020 data preliminary.

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# Insufficiency, still!





# The new German coalition government



Source: <https://www.zdf.de/nachrichten/heute-journal/heute-journal-vom-24-11-2021-100.html>

## The new Coalition Agreement

- + coal phase-out by 2030
- + renewable energy 80% by 2030
- transport sector
  - subsidies aviation
  - commuter allowance
  - nETS design



Source: <https://www.zdf.de/nachrichten/heute-journal/heute-journal-vom-24-11-2021-100.html>

## Sustainable “Fit for 55” ETS and German nETS?

	Sustainable Model Rule (SMR)	EU ETS pre „Fit“	EU ETS post „Fit“	German nETS
Coverage	mandatory participation	●	●	●
	all GHG (based on CO <sub>2</sub> e)	●	●	●
	all polluters	●	●	●
Cap	≥ -25-40% by 2020, -50-65% by 2030 (base 1990)	●	●	●
	absolute volume cap (Budget Approach)	●	●	●
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Compliance	control periods not longer than three years	●	●	●
	continuous MRT or verified reporting	●	●	●
	discouraging fines for non-compliance (>p)	●	●	●
	full compensation of excess emissions	●	●	●
Linking	multilateral direct linking (MoU)	●	●	●

# Conclusions

The EU has achieved significant emissions reductions, but greater ambition, transport sector emissions, carbon leakage, and detrimental distributional effect are major challenges.

The European Commission's "Fit for 55" package has the potential to make EU climate policy more sustainable, particularly its flagship instrument, the EU ETS.

Germany has significantly stepped up its climate ambitions and is close to "almost sufficient", but detrimental social impacts have not been sufficiently targeted.



Source: [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en)

# Recent publications



Rudolph, S./Lerch, A. (2021): Transport Sector Emissions Trading in Europe: Do It, But Do It Right! Carbon & Climate Law Review 15(3), 253 - 256

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