

Wednesday April 26th, 2023

2023 State of the EU ETS Report

Launch Event

ERCST

Roundtable on
Climate Change and
Sustainable Transition

BloombergNEF

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an atos company



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1. Background

State of the EU ETS Report is meant to be a “**snapshot**”

- Provides **policymakers** and **stakeholders** with an overview of how the EU ETS is doing by April of each year, based on **previous year data**.
- **2023 Context:**
 - Fit for 55 package
 - Increased energy prices
 - War in Ukraine
 - Global stocktake in 2023

2. An EU ETS “fit for purpose”

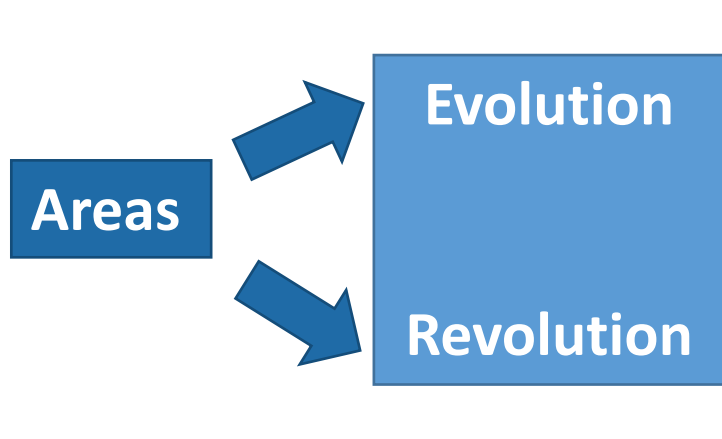
What do we expect the EU ETS to deliver?

3 key deliveries:

1. **Environmental delivery.** Does it deliver against absolute **environmental targets**?
2. **Socio-economic delivery.** **Macro-economic efficiency** and cost **effectiveness** for compliance. Does it provide effective, and proportional, protection against the **risk of carbon leakage**? Is it a **driver for change**? Does the EU ETS ensure a **just transition**?
3. **Market functioning.** It is always important to remember that it is **worth having a market** only if it **functions well** and **leads to good price discovery**.

3.1. EU ETS review

Evolution vs revolution



- Ambition, LRF, MSR, international developments, removals .
- CBAM, free allocation, energy audits, revenues, innovation, ETS2, maritime, interaction with Fit for 55.

Main revolution buckets

- From power decarbonisation to industrial decarbonisation.
- Phasing out free allocation.
- EU ETS as a revenue source.
- Extended scope.
- ETS/ Electricity Market Design.
- Compliance vs non-compliance entities.

3. Regulatory developments

3.2 International carbon price developments

Linkage with Swiss ETS

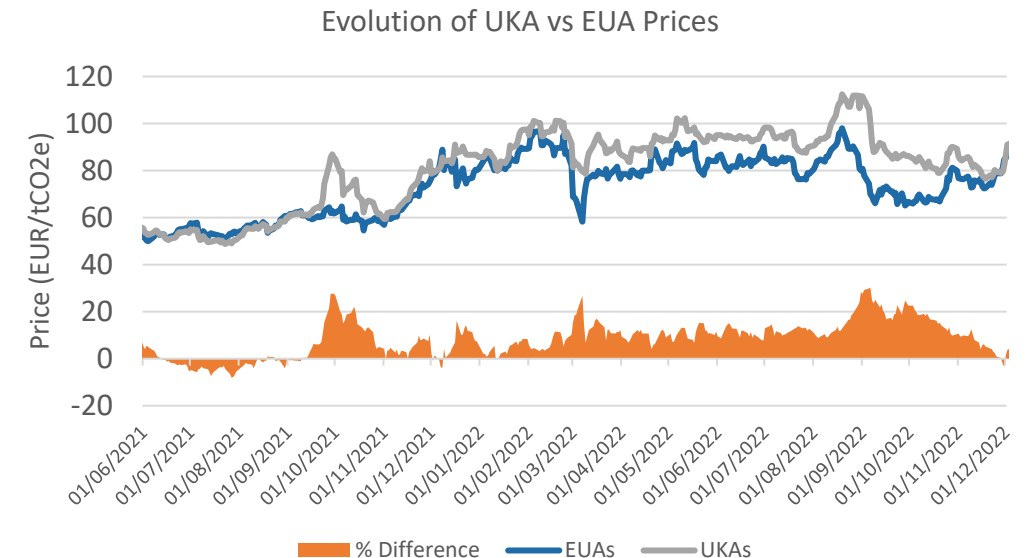
- Given the size of the Swiss ETS, it is not surprising to see that **trade is one-way** (from EU to Switzerland)
- **Linking is operational**, as Swiss installations have been using EU ETS allowances for 2021 compliance, up to
 - 8% for stationary installations;
 - 37% for aviation operators.
- **Aviation operators still use linking flexibility to much greater extent** than stationary installations, which may reflect a greater familiarity with carbon trading facilities.

Source: [EC report on the functioning of the EU ETS in 2021](#)

UK ETS

- **The proposed developments of the UK ETS follow those of the EU ETS.**
- The Department for Energy Security and Net Zero (ESNZ) is consulting on:
 - Post-2030 emissions cap trajectory (there is currently no legislation).
 - Adjusting free allocation to target sectors at risk of carbon leakage.
 - Extension to new sectors, including:
 - Domestic maritime (from mid-2020s)
 - Waste (before 2030).
- Government has promised to launch a public consultation on carbon leakage options soon.

Source : [UK Environmental Audit Committee](#)



3. Regulatory developments

3.2.3 Article 6 of the Paris Agreement

Article 6 is moving towards implementation but the **progress is slow**. **Global Stocktake in 2023** may stimulate further discussion to promote ambition.

- EU got what it wanted from Article 6.
- EU refuses to Article 6. Why?
 - The **EU** has a domestic reduction target and **does not currently envisage international credits** for compliance, still efforts worldwide.

Why does it matter for the EU ETS?

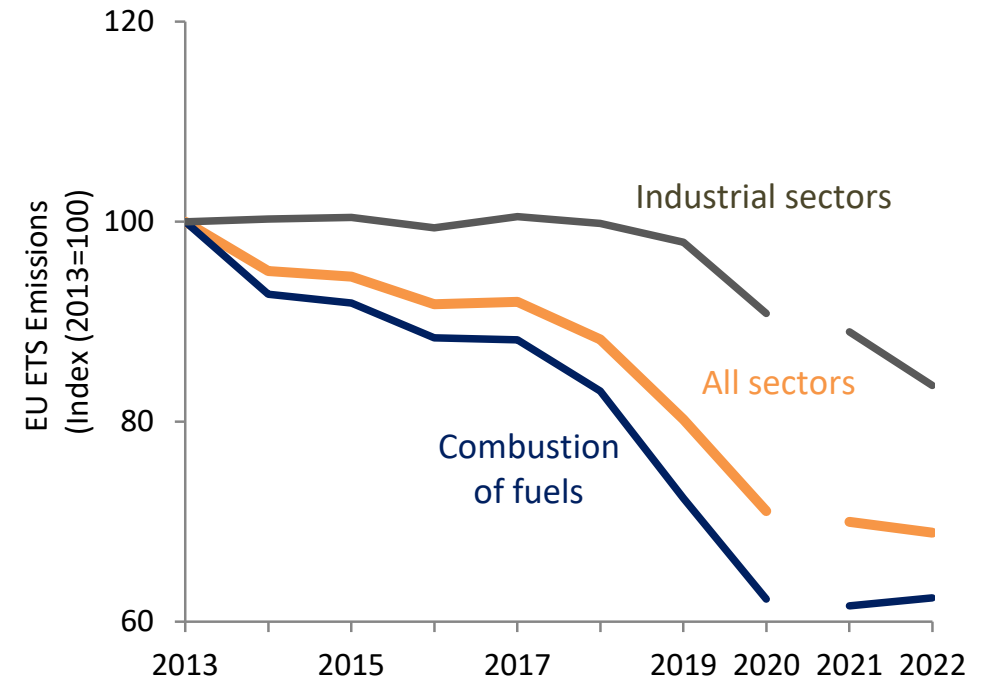
- **Debate** about if the **EU ETS should also recognise** international credits:
 - **Compliance** towards international mechanisms.
 - Promoting emission **reductions worldwide**.
 - Promoting deployment of **negative emissions**.

4.1. Delivery against Phase 4 target

Delivery against the targets in phase 4

Increasing need for abatements

- In 2022, the EU ETS total verified emissions increased slightly by 0.3 %, but stationary installations' ones decreased by 1.3%.
- This results from an increase of 1.3% in emissions from combustion and a 5.6% decrease from industry.
- The decline in industrial emissions was largely due to reduced industrial production caused by high energy costs.
- Ensuring effective implementation of the new EU ETS is central to getting industry and the power sector on the right track

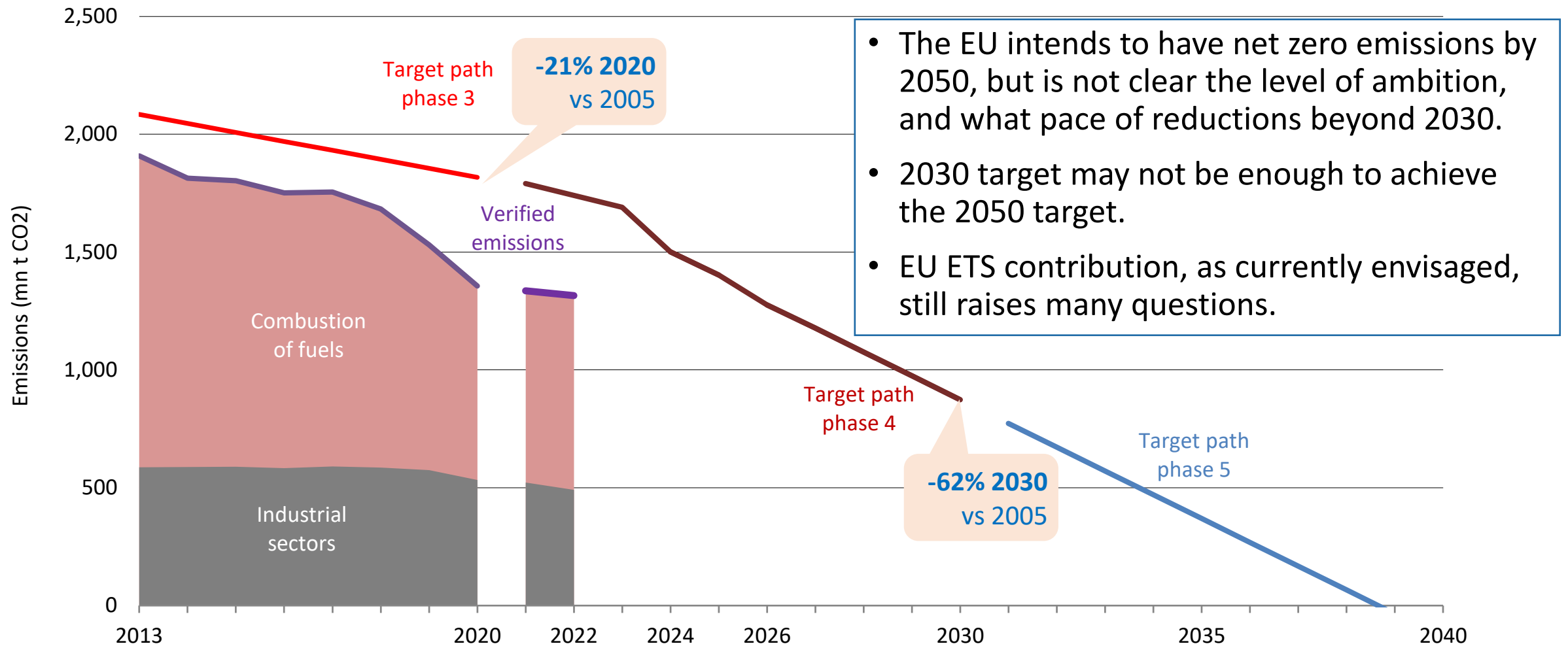


Note: **Combustion of fuels** is the labeling of activity 20 in the EUTL. it might not capture all energy production related to industrial activities

Source: Wegener Center based on EUTL (2023), EEA (2022)

4.2. Delivery against EU long-term (LT) domestic environmental commitments

Does the target contribute to the EU's achievement of its LT goals?



Note: **Combustion of fuels** is the labeling of activity 20 in the EUTL. it might not capture all energy production related to industrial activities

5. Socio-economic delivery

5.1. Is the EU-ETS a driver for change?

- Annual emissions in the power sector fell by around 280 MtCO₂e between 2013 and 2021.
- The increased share of renewables in the power generation mix was responsible for almost 80% of this change.
- The change in the fossil fuel mix – mainly fuel switching from coal to gas – was responsible for around 20%.
- The share of nuclear decreased over the studied period, this change contributed to an increase in emissions (+35 MtCO₂). However, this increase was far outweighed by the other factors.

Figure 5.1: Drivers of variation in EU power sector GHG emissions (2013-2021)

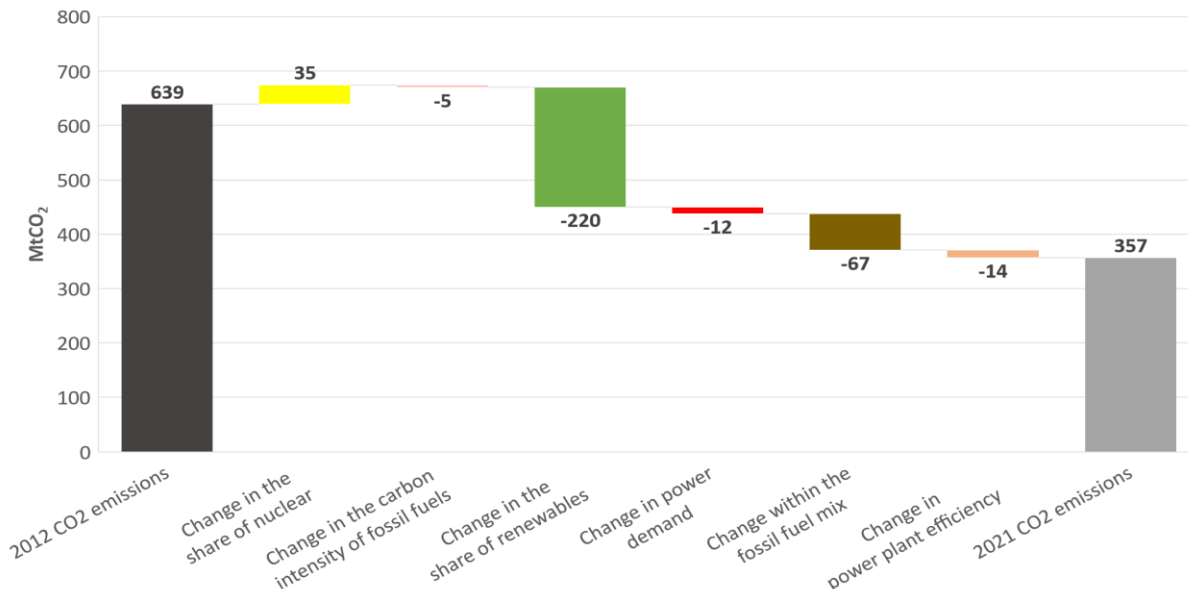
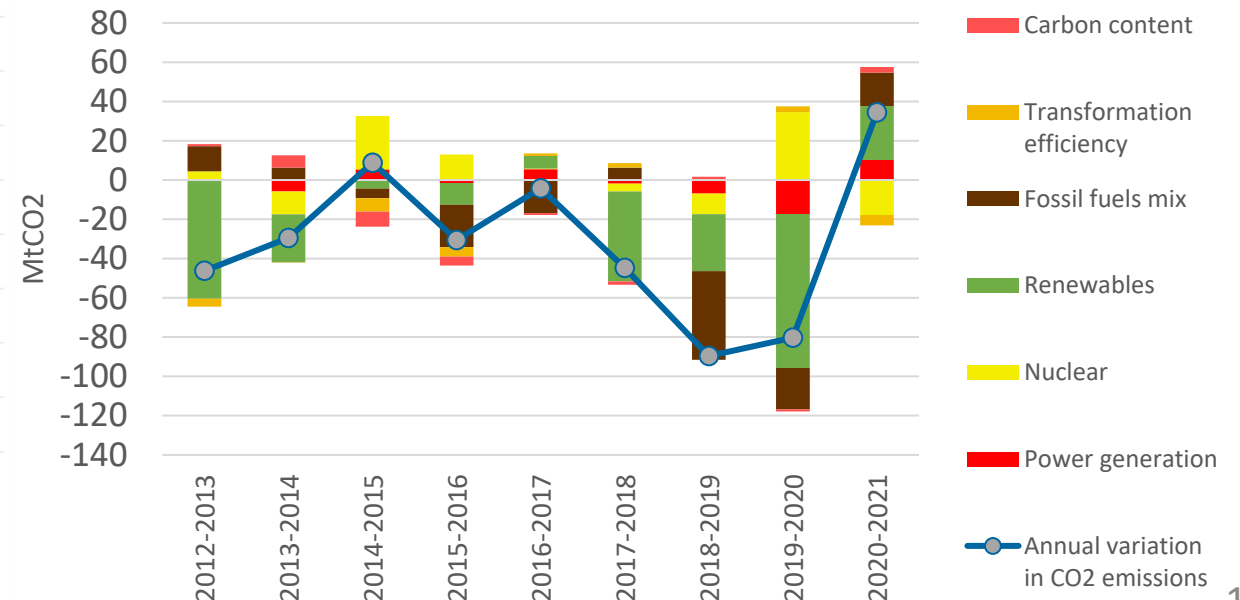


Figure 5.2: Annual drivers of variation in EU power sector GHG emissions (2013-2021)



Sources: Eurostat energy balance data, IPCC 2006 guidelines emissions factors, methodology I4CE

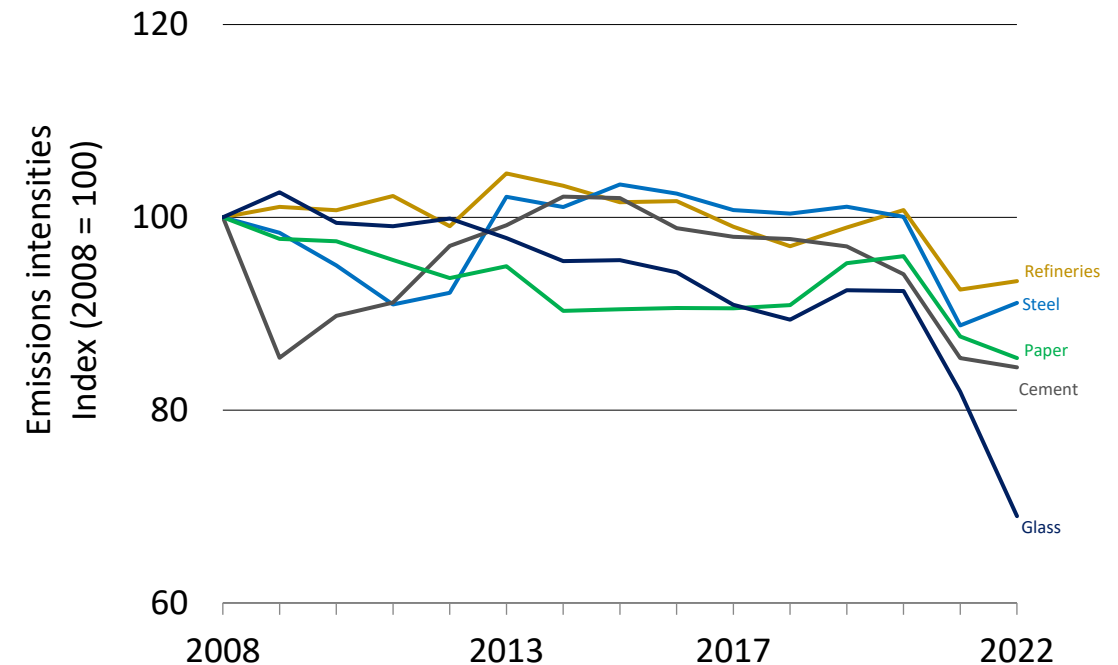
5. Socio-economic delivery

5.3. Industrial decarbonisation

- The EU ETS has entered a new phase with a focus on industrial decarbonisation.
- The decline in emissions intensities* continued in 2022, following the energy market turmoil.
- As a whole, sectors' investment contributed to reduce the carbon footprint, thus reducing emission intensities.
- Other, were impacted by the decrease of total production and closure of industrial activities due to the energy crisis.
- Compared to 2008, the biggest improvement in emissions intensity was achieved by the glass sector, followed by cement, paper, steel, and refineries.

*Emissions intensities, meaning the volume of emissions per unit of production.

Figure 5.6: Emissions intensities in selected industry sectors



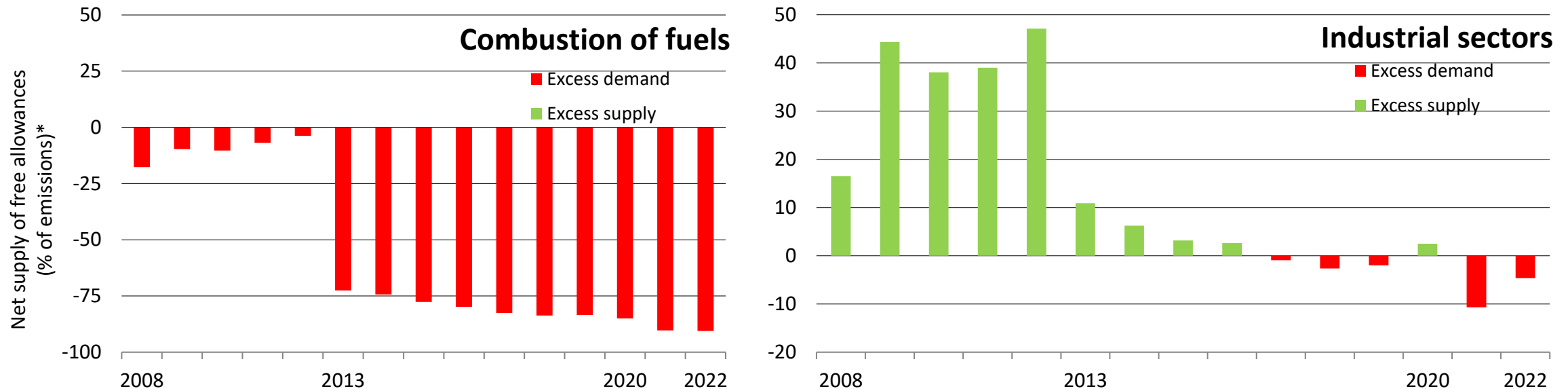
Source: Wegener Center based on EUROSTAT STS and EUTL

5.3. Industrial decarbonisation

Economic impacts of freely allocated allowances

Combustion versus industry

Figure 5.7: Net supply of free allowances



*Net supply of free allowances = (free allowances minus verified emissions) / (verified emissions) * 100

Source: Wegener Center based on EUTL (2023)

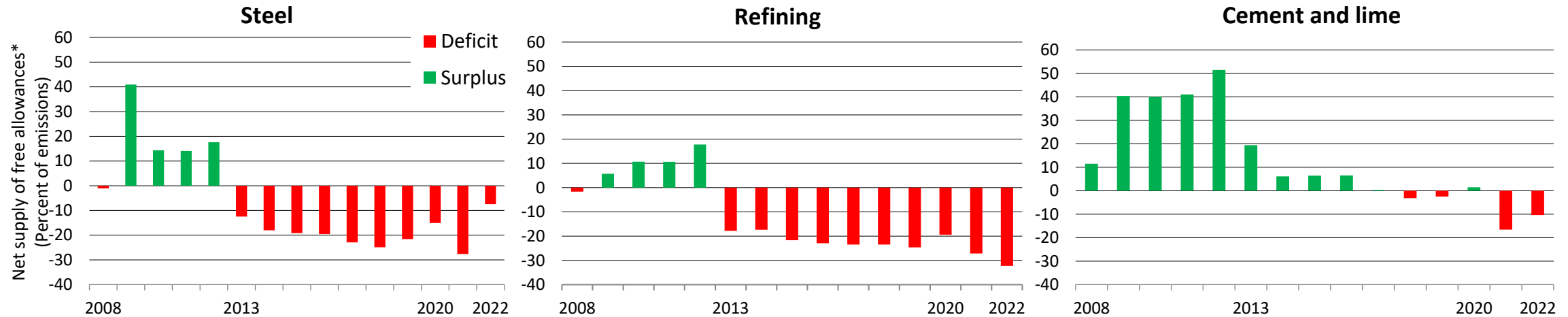
Combustion of fuels' has activity type code 20 in the EUTL. The remaining activities correspond to 21-99 'All industrial installations'

The combustion sector obtained free allowances for only about one-fifth of its emissions since Phase 3. The industrial sector, on the other hand, received more free allowances than their actual emissions until 2016, with a deficit, thereafter, continuing in 2022.

5.3. Industrial decarbonisation

Annual surpluses of allowances in key industries

Figure 5.8: Net supply of free allowances



Net supply of free allowances = (free allowances minus verified emissions) / (verified emissions) * 100

Source: Wegener Center based on EUTL (2023)

- The refining industry started Phase 2 with a slight surplus of EUAs turned into a deficit remaining until 2022.
- The surplus by the steel industry in Phase 2 shows a substantial decrease in Phases 3 and 4.
- Likewise, the cement and lime industry started to reduce in 2017.

* Refineries data are calculated from installations with EUTL activity types 21..

* Steel data are calculated from installations with EUTL activity types 20, 22-25. Steel installations receive free allocation for their waste gases that are transferred to power plants. These figures consider an annual adjustment of -20 MtCO₂e annually to better reflect this phenomenon.

* Cement and lime data are calculated from installations with EUTL activity types 29 and 30.

5.3. Industrial decarbonisation

Sub-sectoral free allocation

Table 5.1: Annual allowance need (share of emissions) - assuming full banking, and no banking

Sub-sector (based on 4-digit NACE codes)	Full banking			No banking		
	2019	2020	2021	2019	2020	2021
Manufacture of basic metals (includes steel, iron, and aluminium)*	0%	0%	0%	0%	0%	0%
Manufacture of basic pharmaceutical products and pharmaceutical preparations	0%	0%	0%	14%	16%	48%
Manufacture of chemicals and chemical products	0%	0%	0%	7%	6%	13%
Manufacture of coke and refined petroleum products	30%	26%	27%	30%	26%	27%
Manufacture of machinery and equipment n.e.c.	0%	0%	0%	21%	2%	56%
Manufacture of other non-metallic mineral products (includes cement)	0%	0%	0%	7%	3%	19%
Manufacture of paper and paper products	0%	0%	0%	0%	0%	2%
Manufacture of rubber and plastic products	0%	20%	81%	32%	28%	81%
Manufacture of textiles	0%	0%	0%	0%	0%	22%
Electricity generation	97%	97%	98%	97%	97%	98%
Construction and services	69%	71%	72%	69%	71%	72%
Agriculture and mining	44%	40%	55%	44%	40%	55%
Aviation	56%	0%	11%	56%	0%	14%

Source: EcoAct based on EUETS.info data

- Table 5.1 (full banking column) assumes that installations have banked all of their excess free allowances since 2008. The share of emissions not covered by free or banked allowances drops to zero for most sectors. These results suggest that these sub-sectors may still be relying on allowances banked during earlier ETS phases.
- However, the full banking assumption cannot be verified, as excess allowances may also have been traded with other ETS participants (e.g. other industrial sectors and financial actors).

*Waste gases related emissions of steel are not considered in these calculations

5.3. Industrial decarbonisation

Indirect compensation

- In 2021, around 3% of auction revenues financed indirect cost compensation schemes to address carbon costs passed through by electricity producers.
- Schemes were available in 14 Member States.
- Total indirect cost compensation paid out amounted to €2.38 billion. This is almost €1 billion more than in 2020.
- Indirect cost compensation mechanisms also covered the EU's economy up to €2.4 billion in 2020.

Table 5.2: Indirect cost compensation schemes

Member State	Compensation paid for indirect costs in 2020 (m €)	% of 2020 auction revenues spent on indirect cost
Germany	833	32%
France	391	55%
Poland	183.3	6%
Spain	179	15%
Netherlands	172.2	39%
Belgium	157.1	45%
Romania	131.8	16%
Finland	106.3	49%
Italy	90	7%
Greece	68.3	14%
Czech Republic	41.5	6%
Luxembourg	15.9	95%
Slovakia	11	5%
Lithuania	1	1%

Source: Functioning of the Carbon Market in 2021

Note : 2020 may be an outlier year due to Covid, both in terms of activity and ETS price level.

6. Market functioning

Weaker, yet resilient market functioning in 2022

6.1 Market functioning trackers

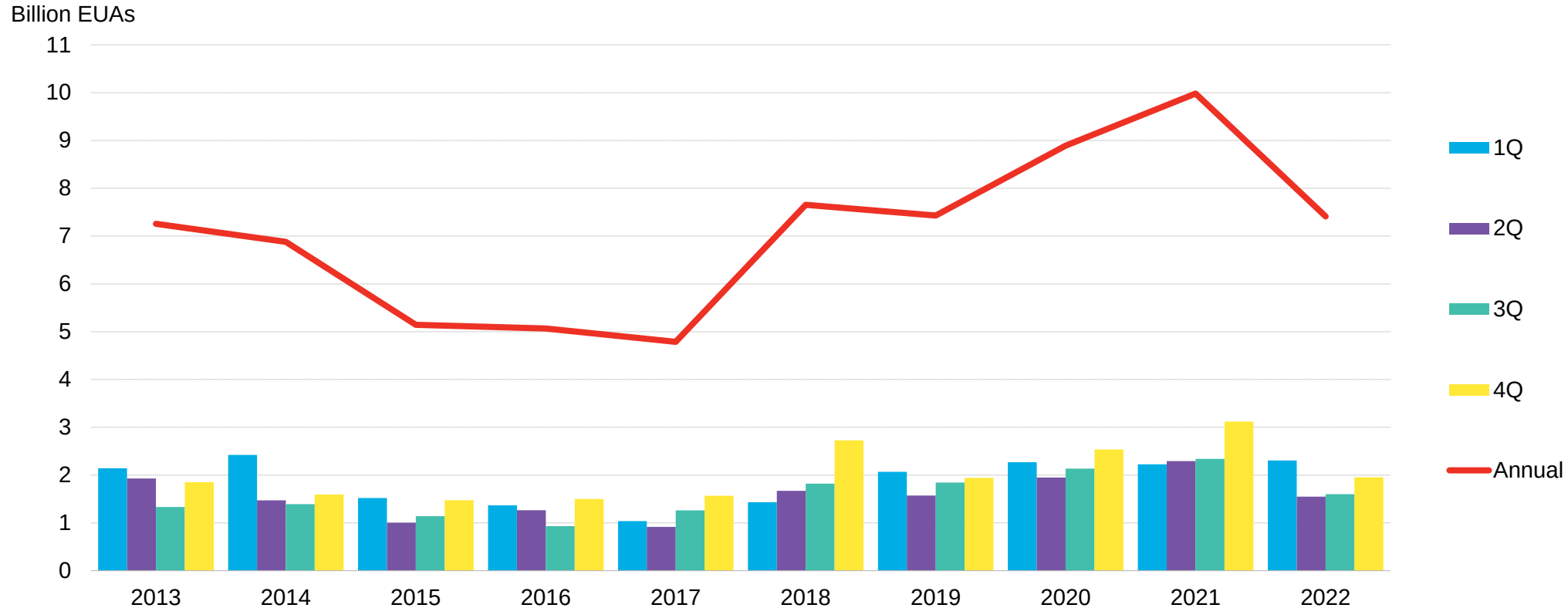
Indicator	2020/21	2021/22
Volume	Green	Red
Open interest	Green	Yellow
Auction participation	Yellow	Yellow
Auction coverage	Red	Green
Auction-spot differential	Red	Red
Cost of carry	Yellow	Green
Ask-bid spread	Red	Red
Volatility	Yellow	Red

Source: BloombergNEF. Note: **Green** indicates improvement, **red** worsening, **amber** stable.

6. Market functioning

Volumes dropped 26% to 7.4 billion EUAs in 2022

6.1.1 Traded volume

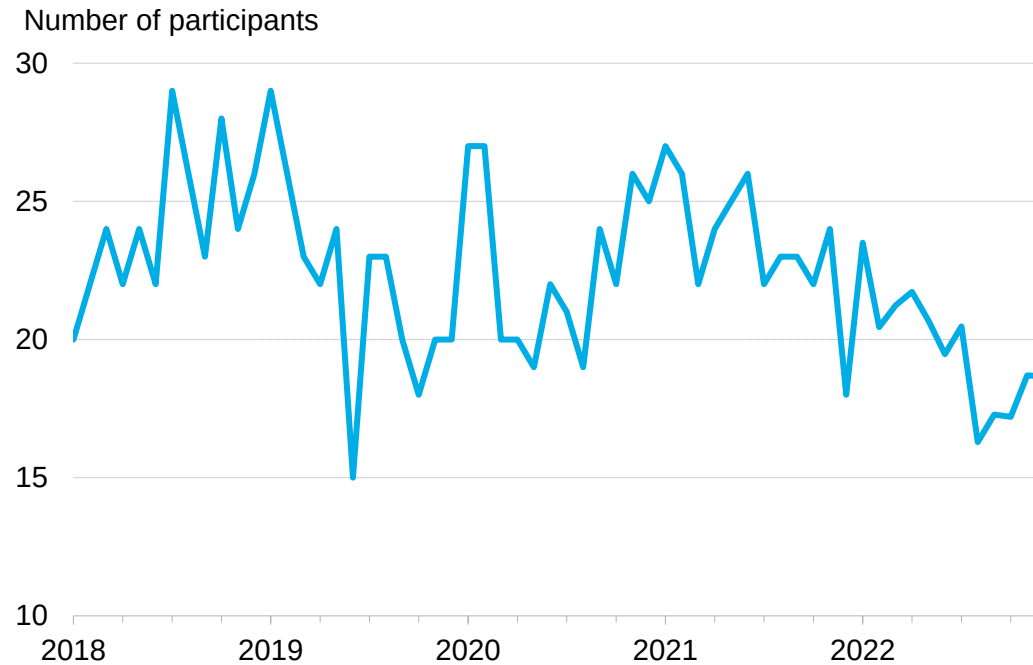


Source: ICE, EEX, BloombergNEF.

6. Market functioning

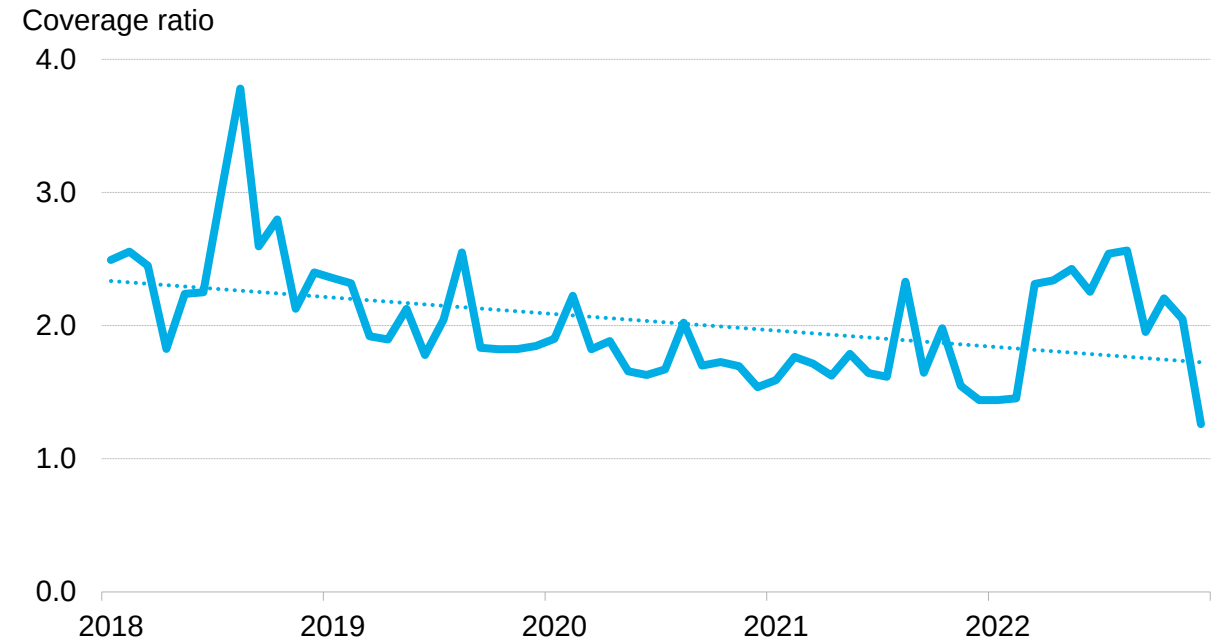
Slightly dampened interest in primary supply

6.1.3 Monthly average auction participation



Auction coverage was on the rise in 2022

6.1.4 Auction coverage

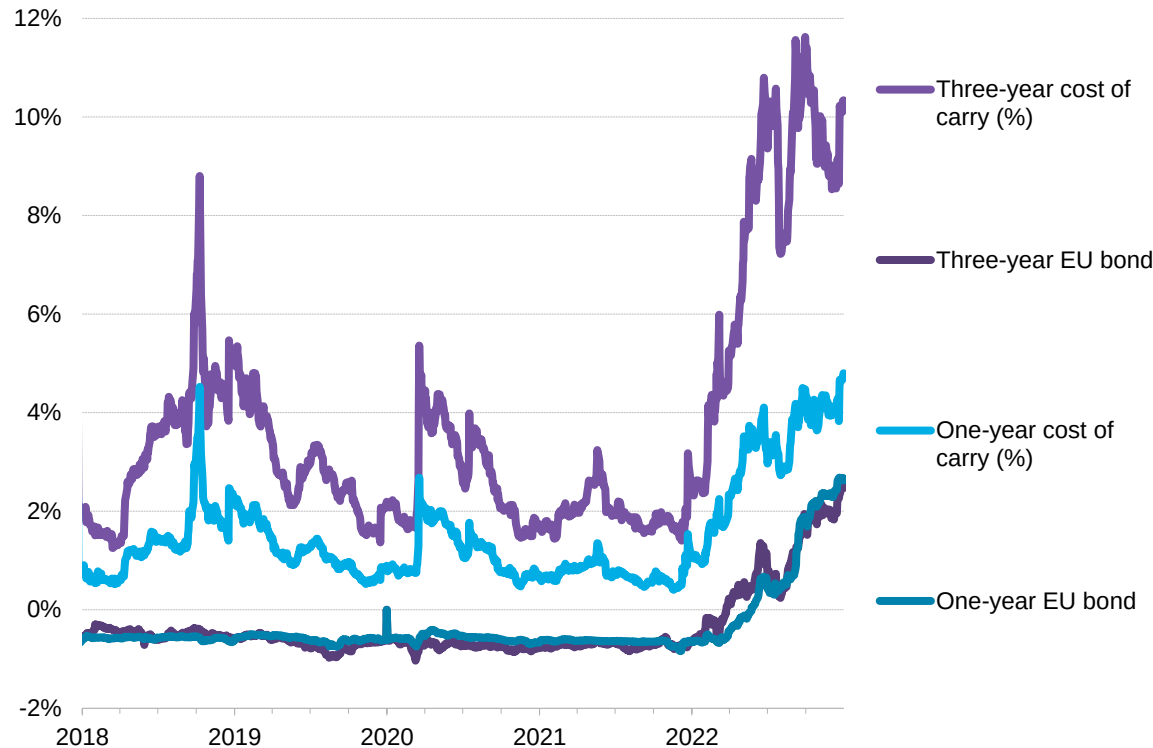


Source: EEX, BloombergNEF. Note: Coverage ratio is the total number of bids in an auction divided by the number of available EUAs.

6. Market functioning

Cost of carry surge shows growing premium on futures contracts

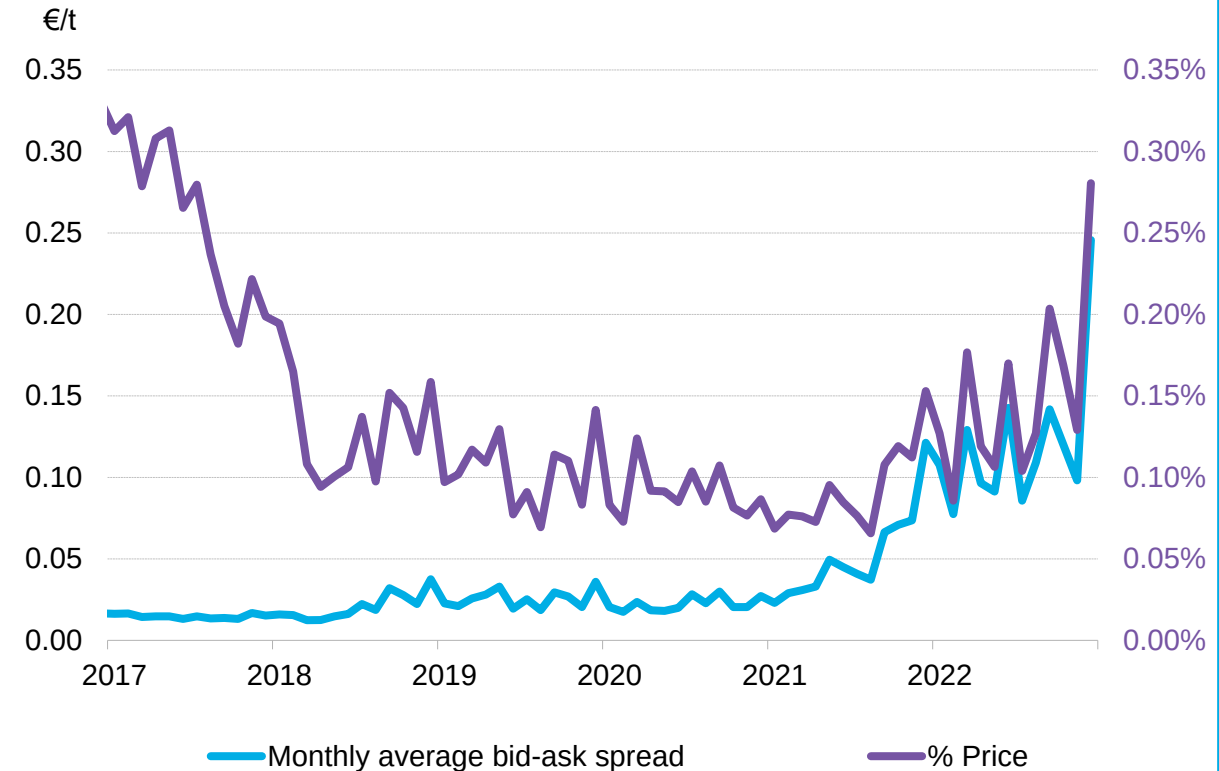
6.1.6 Cost of carry: EUA versus EU bonds



Note: Cost of carry here shows the difference between the one and three-years ahead December futures contracts and the front-year December futures contract.

Widening ask-bid spread signals higher volatility

6.1.7 Monthly average ask-bid spread on ICE



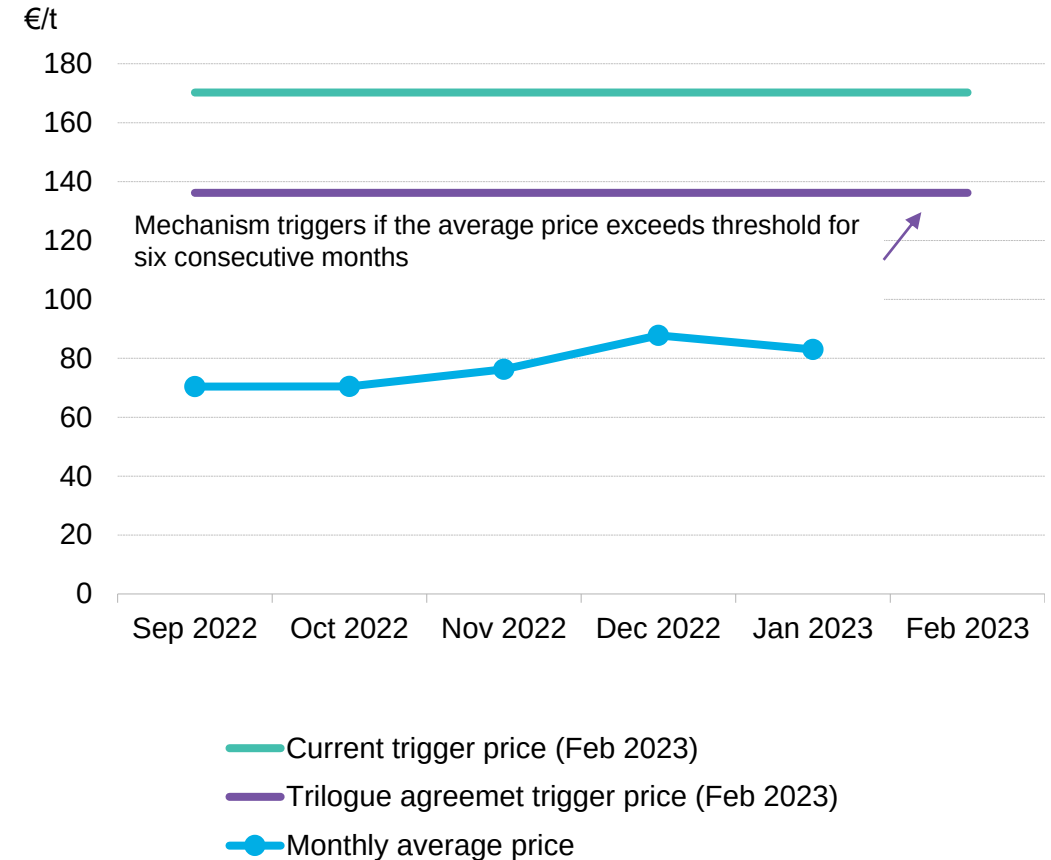
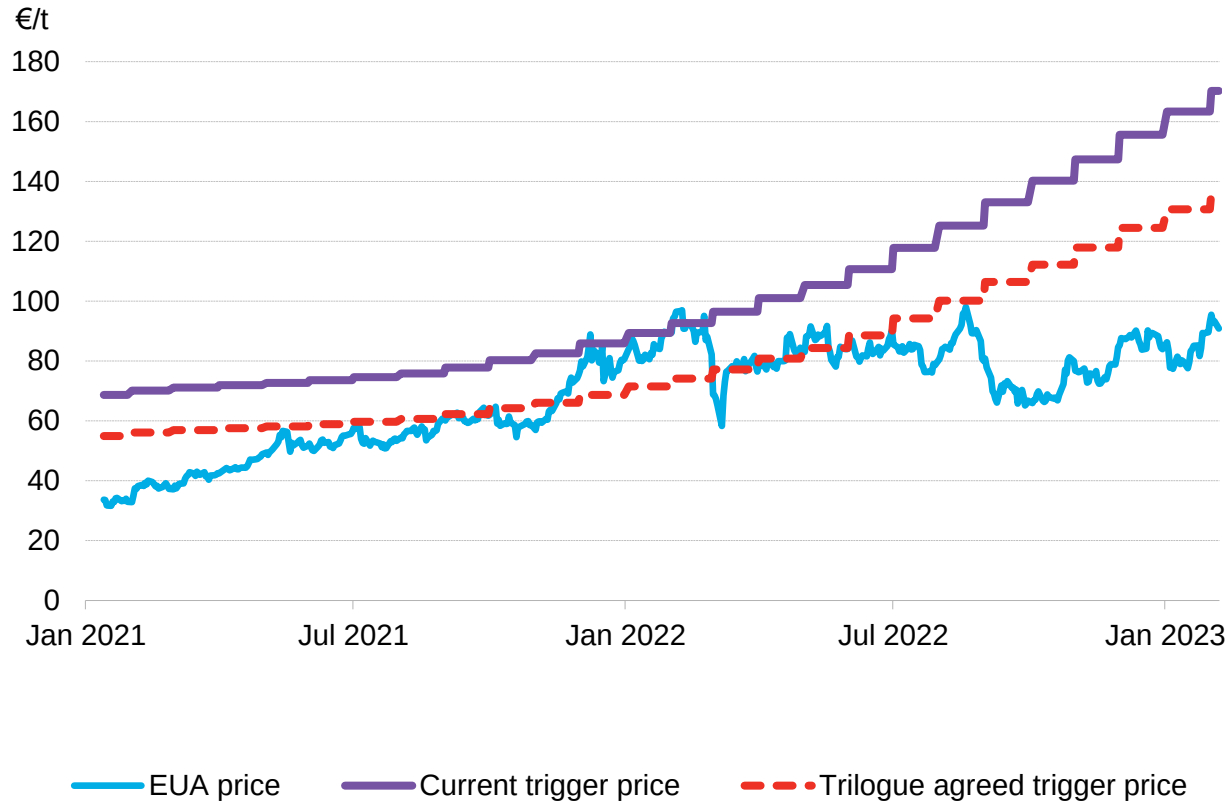
Note: ask-bid spread shows the difference between the lowest ask price and the highest bid price in the market at market close, in €/t and as a percentage of the closing price.

Source: ICE, BloombergNEF.

6. Market functioning

Tightened cost containment mechanism won't trigger anytime soon

6.1.9 Cost containment mechanism (Article 29a)



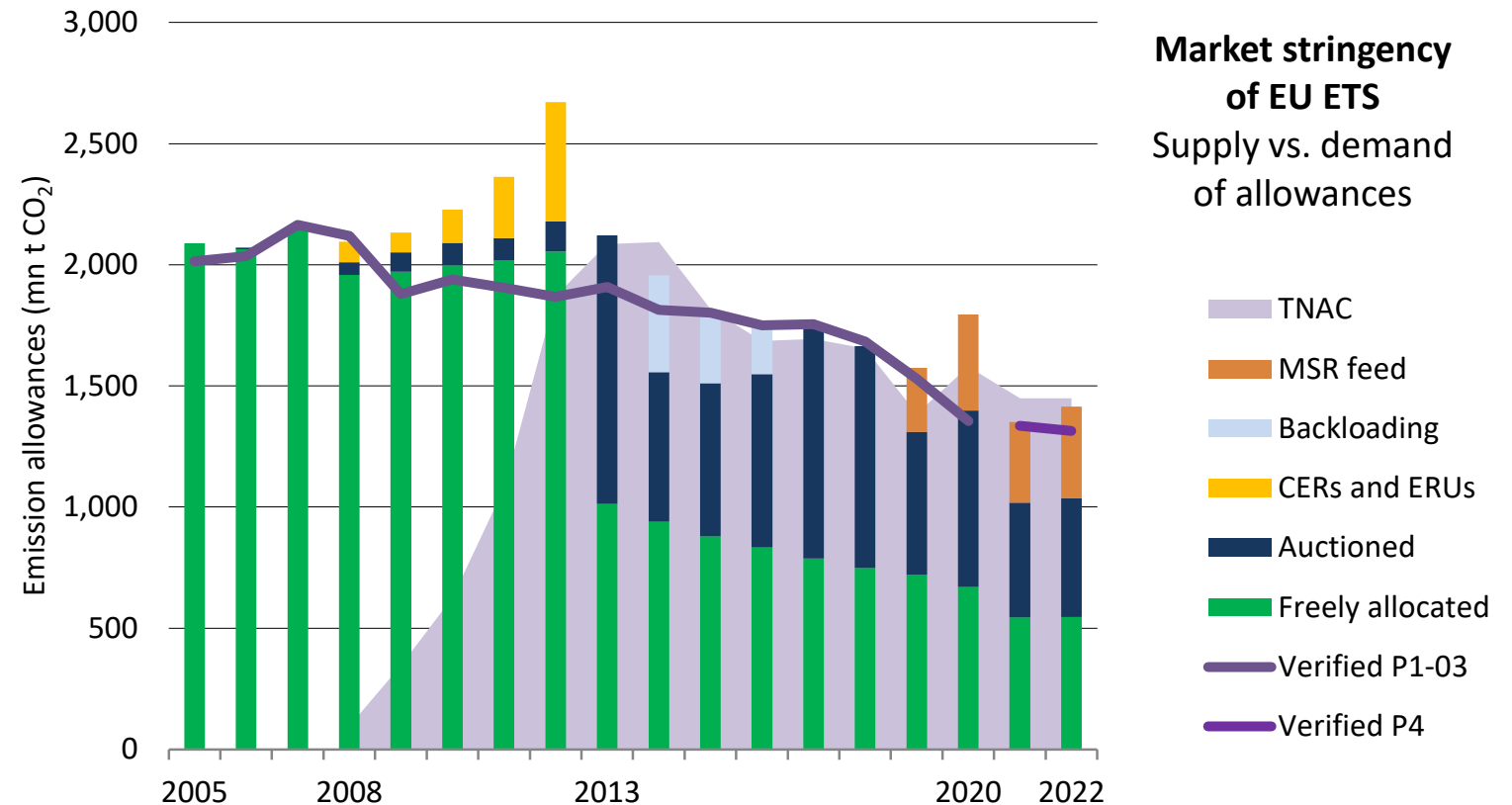
Source: BloombergNEF

6. Market functioning

6.2 Supply-demand balance and evolution of TNAC

- The Total Number of Allowances in Circulation (TNAC) is an indicator of the surplus of allowances in the system.
- The value of TNACs currently amounts to one year's emissions. In May 2022, TNAC was 1,449 GtCO₂.
- Given the updated parameters of the Market Stability Reserve, this surplus will be lowered within a few years.

Figure 6.11: Supply and demand of EUAs and TNAC

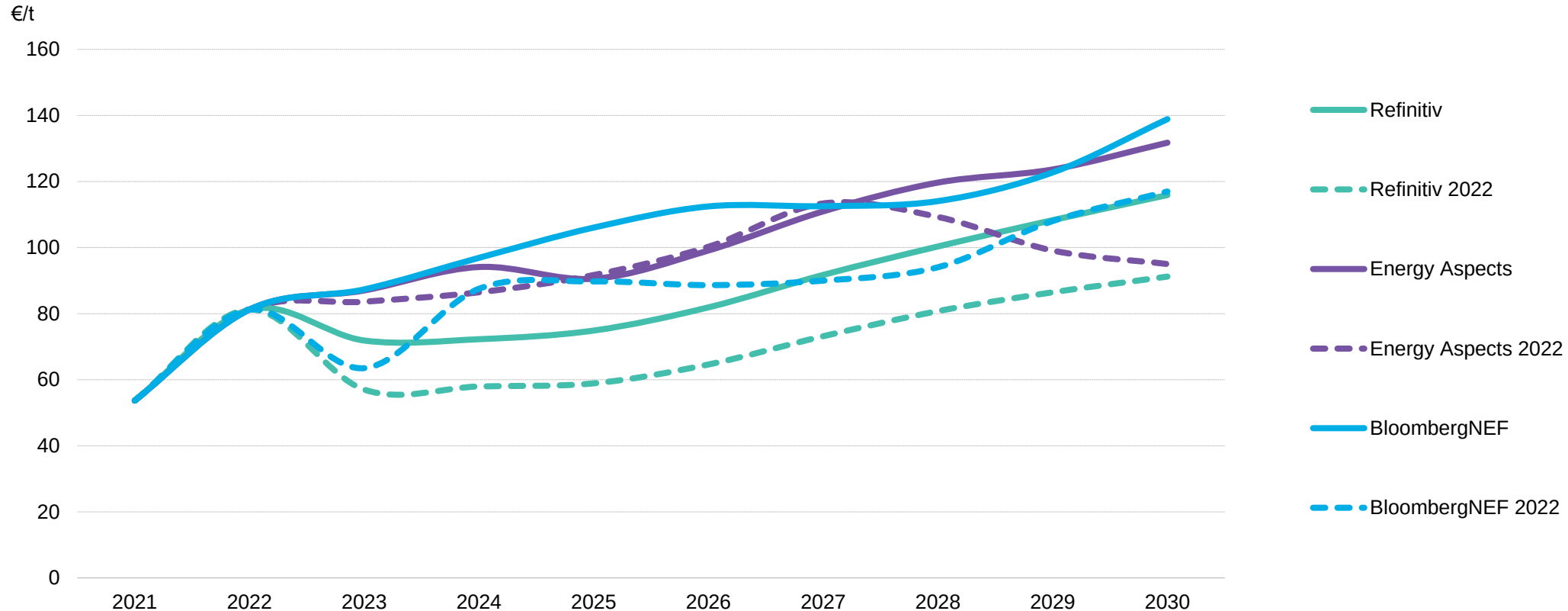


Source: Wegener Center based on EUTL (2023), EEA (2023), European Commission (2022).

TNAC expected value in August, once the transfer to the MSR will be made. The threshold could be reached in the middle of 2024.

6. Market functioning

6.3 Price forecasts

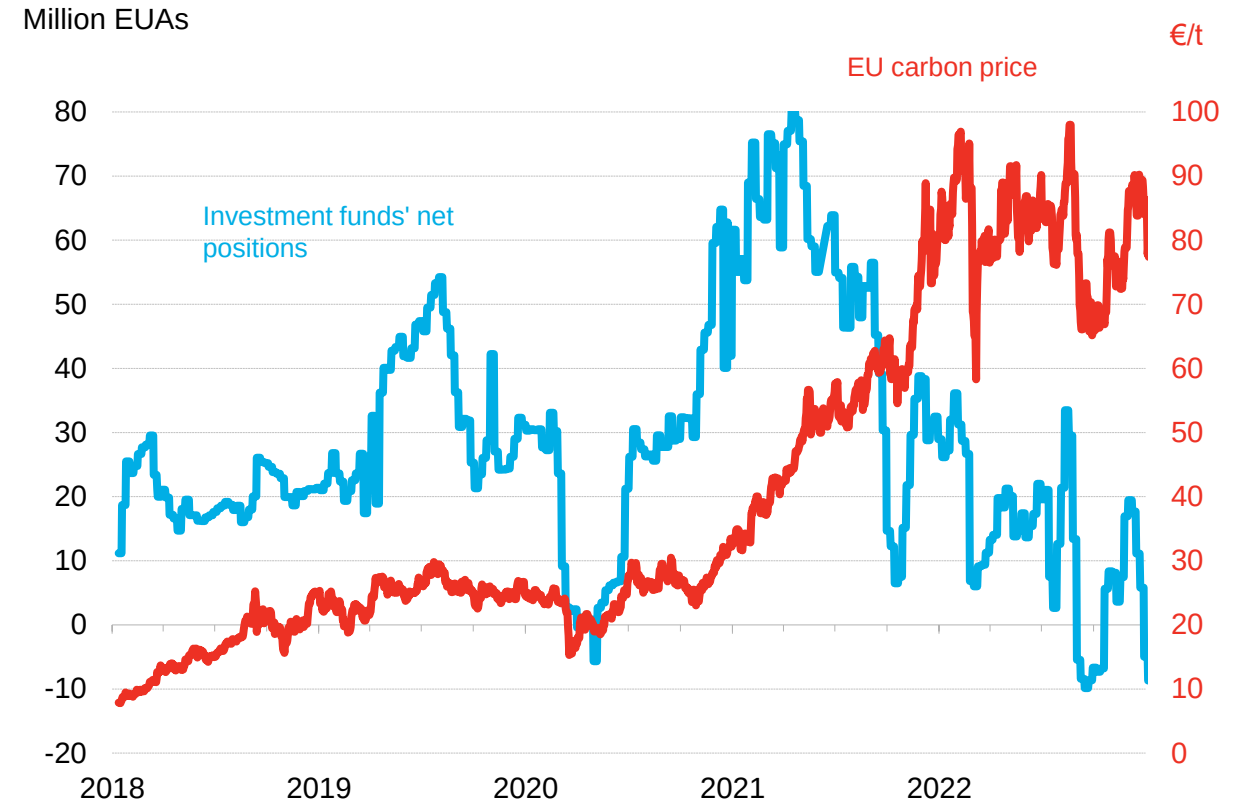
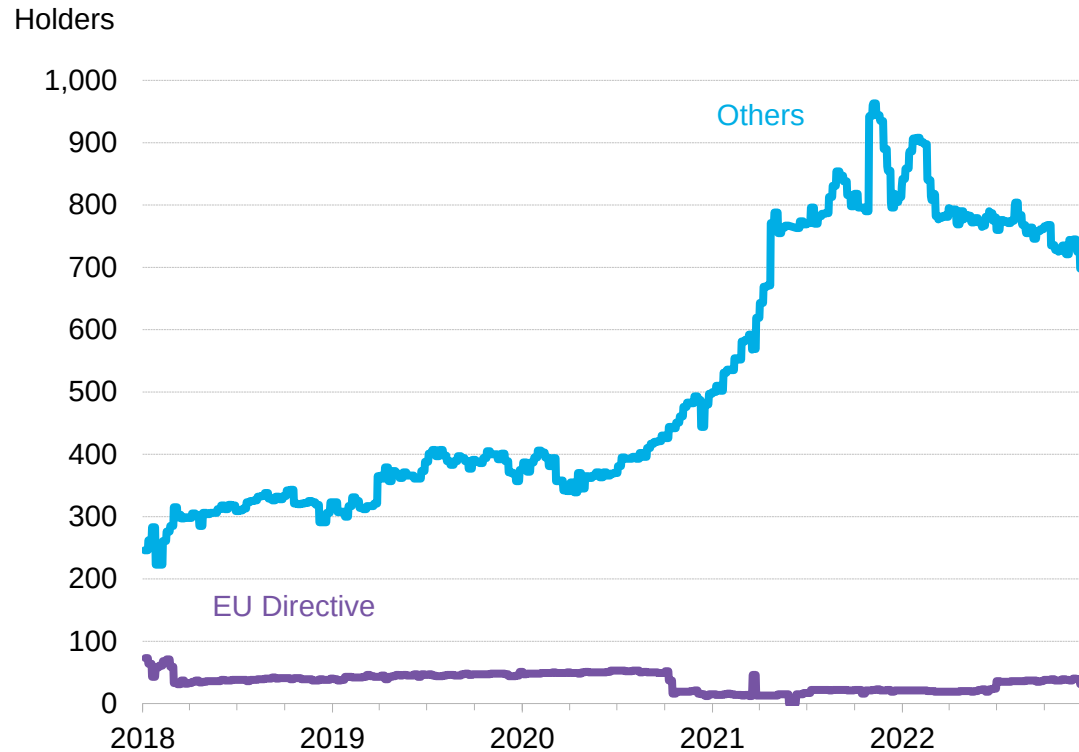


Source: BloombergNEF, Energy Aspects, Refinitiv. Note: Prices are in real 2022 € per metric ton.

6. Market functioning

Dip in non-Directive market participants since 2021 highs

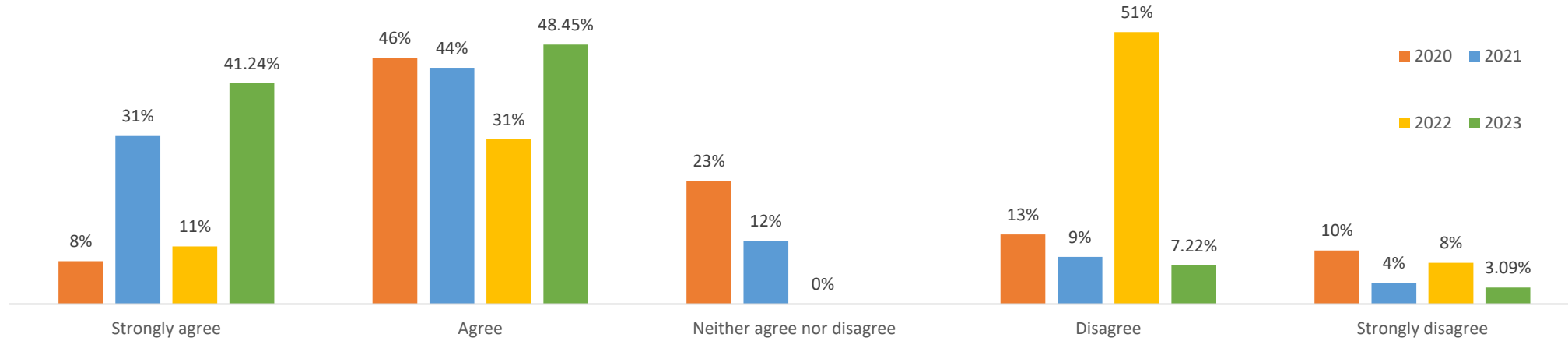
6.4 Market participation



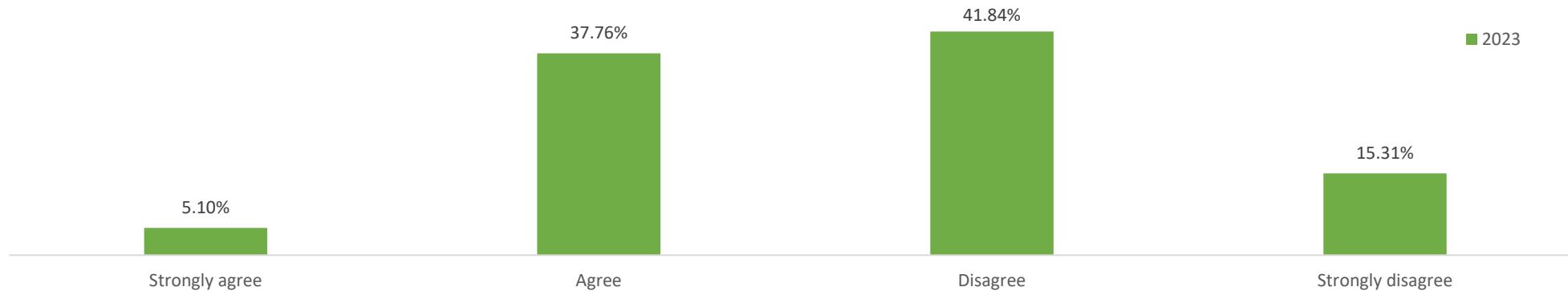
Source: BloombergNEF

7. Market Sentiment Survey

7.1 The EU ETS in its current form is providing signals for decarbonisation.

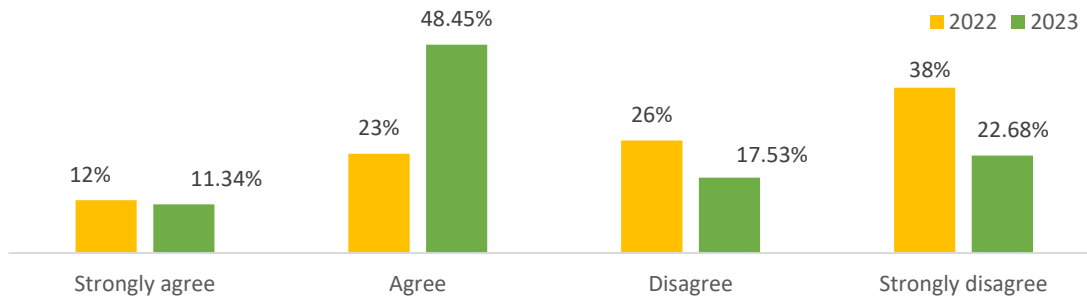


7.2 The current emergency measures in the energy market work in synergy with the EU ETS to reach EU Climate Law objectives.

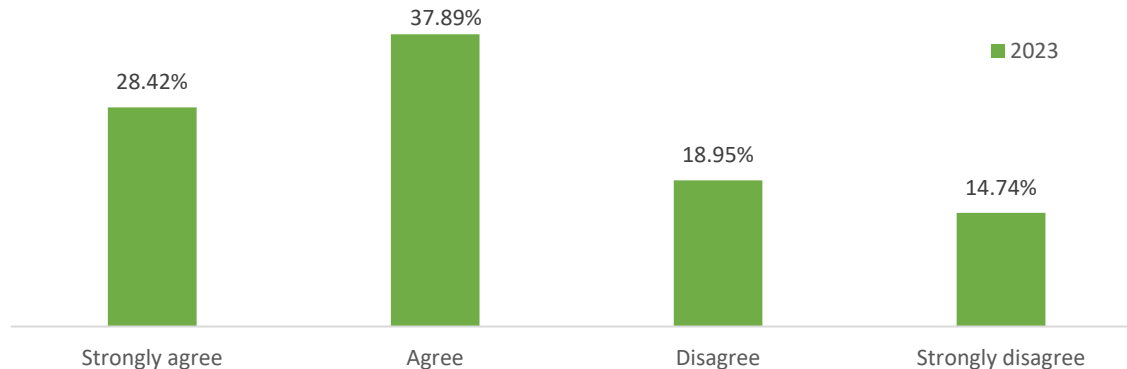


7. Market Sentiment Survey

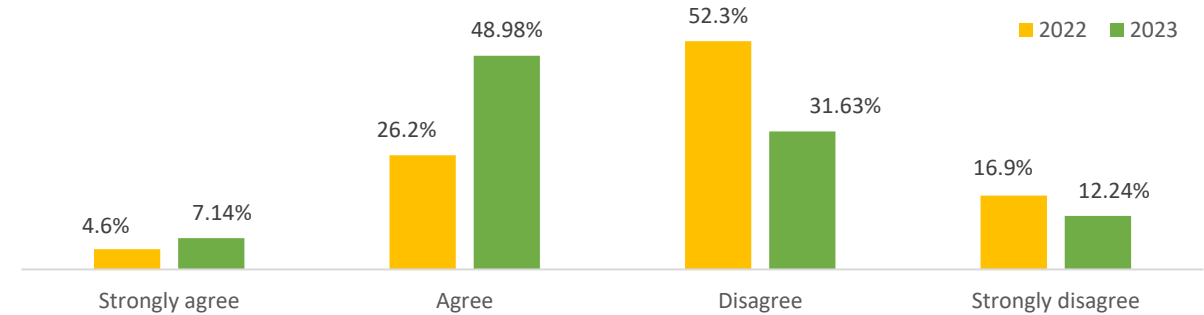
7.3. The combination of EU ETS and current CBAM for the EU will address competitiveness and carbon leakage concerns for the EU industry.



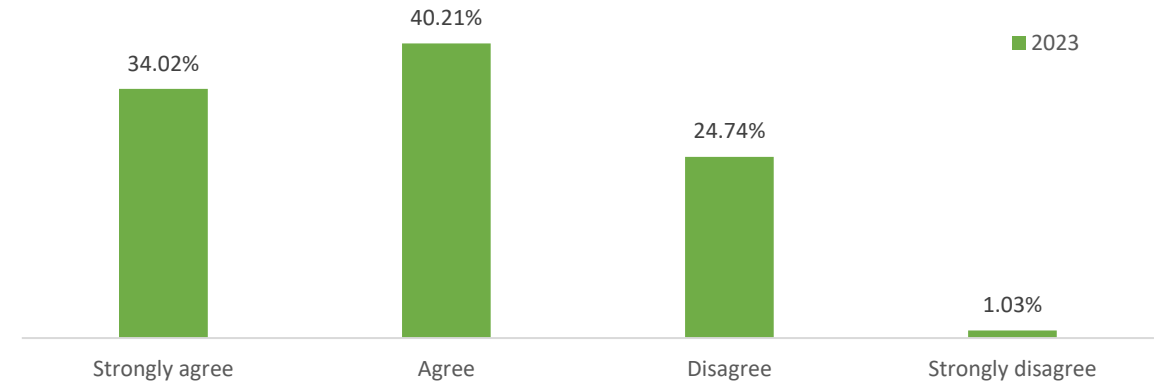
7.5. To reach the goals of the Climate Law, an international link through international credits, including removals, is important.



7.4. The current EU ETS provisions post the Fit for 55 review, address the main concerns raised by stakeholders during the review.



7.6. Early integration of removals in EU regulation, including in the EU ETS, is critical to reach EU climate objectives.



8. Competitiveness

8.1. Free allocation

- Total manufacturing sector emissions could temporarily be matched by sectoral free allocations from 2025-2028 (Figure 8.1).
- However, far more investment in industrial decarbonisation is needed for this ambitious trajectory to be achieved.
- The manufacturing sector would reach costs of over €8.5 billion, while chemicals and refining will face the greatest impact. Electricity producing installations will generate the majority of EU ETS revenue.

Data Sources & Assumptions

- Emissions (until 2021) and free allocations (until 2025) sourced from [EUETS.info](#).
- Emissions (after 2021) decline in line with Fit for 55 target.
- Sectoral distribution of emissions remains the same from 2021 to 2030.
- Carbon leakage status determined by NACE code and [EU Carbon Leakage List](#). This will underestimate the number of carbon leakage installations.
- Historical activity level baselines for 2021–2025 and 2026–2030 periods are the same. This likely leads to an overestimate of the number of free allocations.
- Product benchmarks decrease by average of 5% from 2021–2025 to 2026–2030 period (i.e. annual increase of 1%).
- Free allocation phaseout rate for carbon leakage installation sourced from [Parliament](#).
- Free allocation phaseout rate for non-carbon leakage installations sourced from [Commission](#).
- Waste gases related emissions and free allocation for the manufacturing sector, are not considered in these calculations

Figure 8.1: Projected free allocations and emissions (manufacturing installations only)

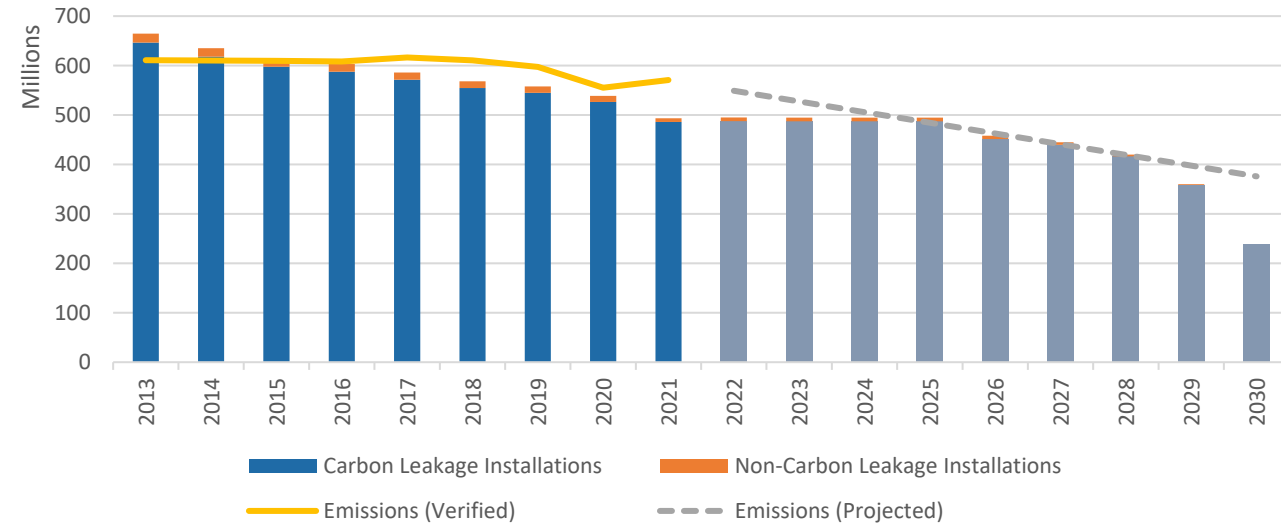
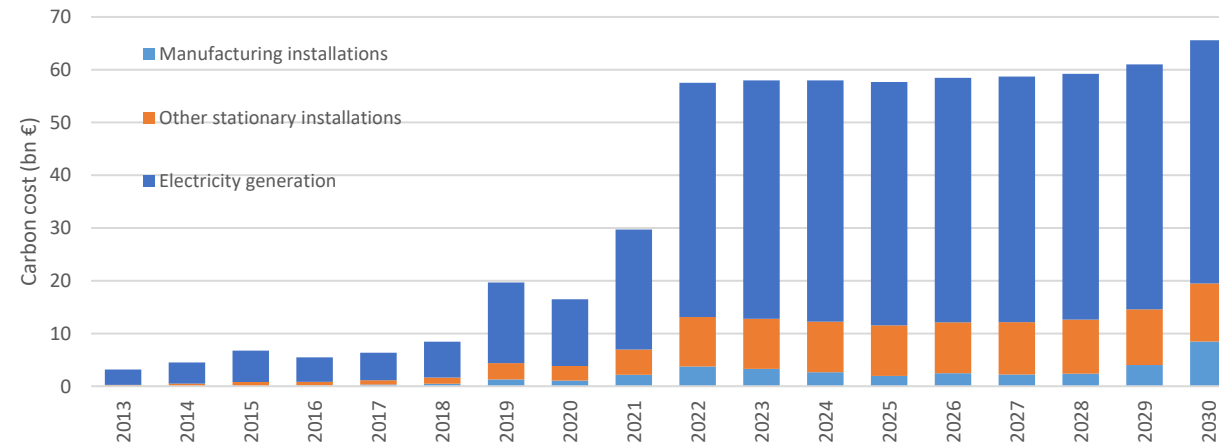


Figure 8.2: Estimated direct carbon cost (stationary installations only)



8. Competitiveness

8.2. CBAM

- The CBAM might lower the EU's trade balance. EU industries would face higher production costs, and the CBAM would not compensate for the loss of domestic competitiveness.
- Ending free allocation would lead to increased EU commodity prices and cause a slight contraction in EU production. At a carbon price of 80 €/tCO₂e, the price increase could reach 37% for primary aluminium under CBAM.
- The current design of CBAM could not be suited to address the competitiveness of exporters, who could lose market shares in the absence of complementary measures.
- The cement and steel sectors recognise the importance of implementing an effective CBAM to slow down the decreasing trade balance from recent years (+300% in the cement sector). Other sectors are less supportive of CBAM.
- Design elements to be reviewed: (i) extending CBAM to additional EU ETS sectors; (ii) including indirect emissions, especially in the aluminium, chemicals, and fertiliser sectors, (iii) considering complex value chains by extending CBAM to downstream products, to avoid circumvention and indirect carbon leakage, (iv) EU industry exports.
- The Green Deal Industrial Plan and the Net-Zero Industry Act is a response to USA' Inflation Reduction Act of 2022 (IRA) and China's five-year plan on green subsidies. These mainly concentrate on permit issuance, skills, and target-oriented aspects, and do not compete with the funding opportunities available.

9. Conclusions

- Adoption: The EU ETS Directive has been adopted in April. It contains significant changes that can be considered “revolutionary”.
- Focus: This revised EU ETS manifests a switch from power to industrial decarbonisation.
- Revenues: The phasing out of free allocation will increase revenues, auctions, and prices of EUAs.
- Innovation Fund: CCS-CCU and electrolysis, the instruments most successful in getting funding.
- International concerns: Despite the CBAM, IRA raised the need for new support to EU industry.
- Survey results: Respondents do not see the EU ETS in synergy with the energy crisis. Still, they agree it is providing signals for decarbonisation. The CBAM may address competitiveness, but exports are missing.
- Emissions: 2023 Report estimates a 1.3% decrease of emissions from stationary installations in 2022 (vs 2021) resulting from a 1.3% emissions growth from combustion and a 5.6% decrease from industry.