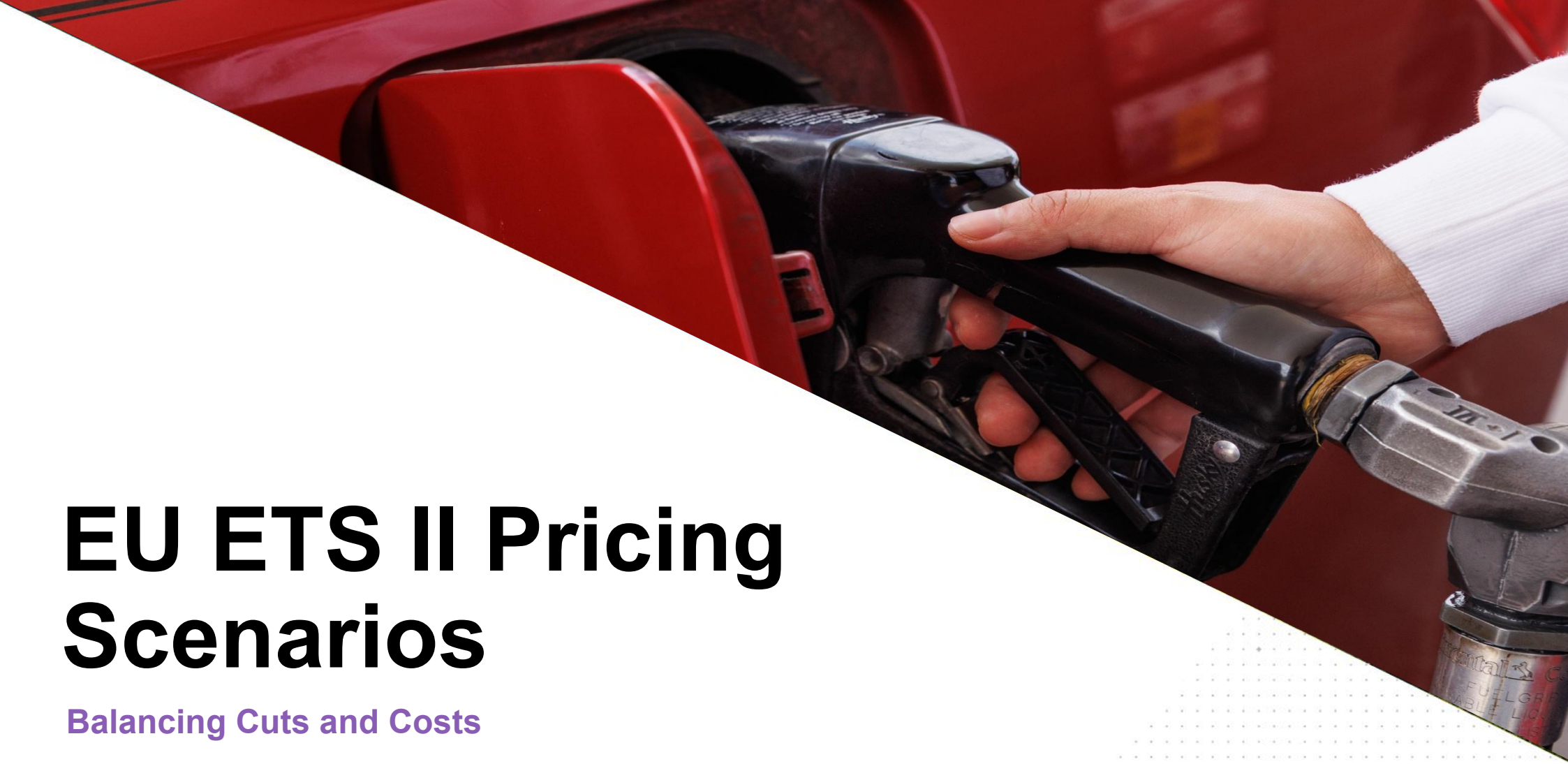


EU ETS II Pricing Scenarios

Balancing Cuts and Costs

BloombergNEF

Bloomberg Philanthropies

European Climate Foundation

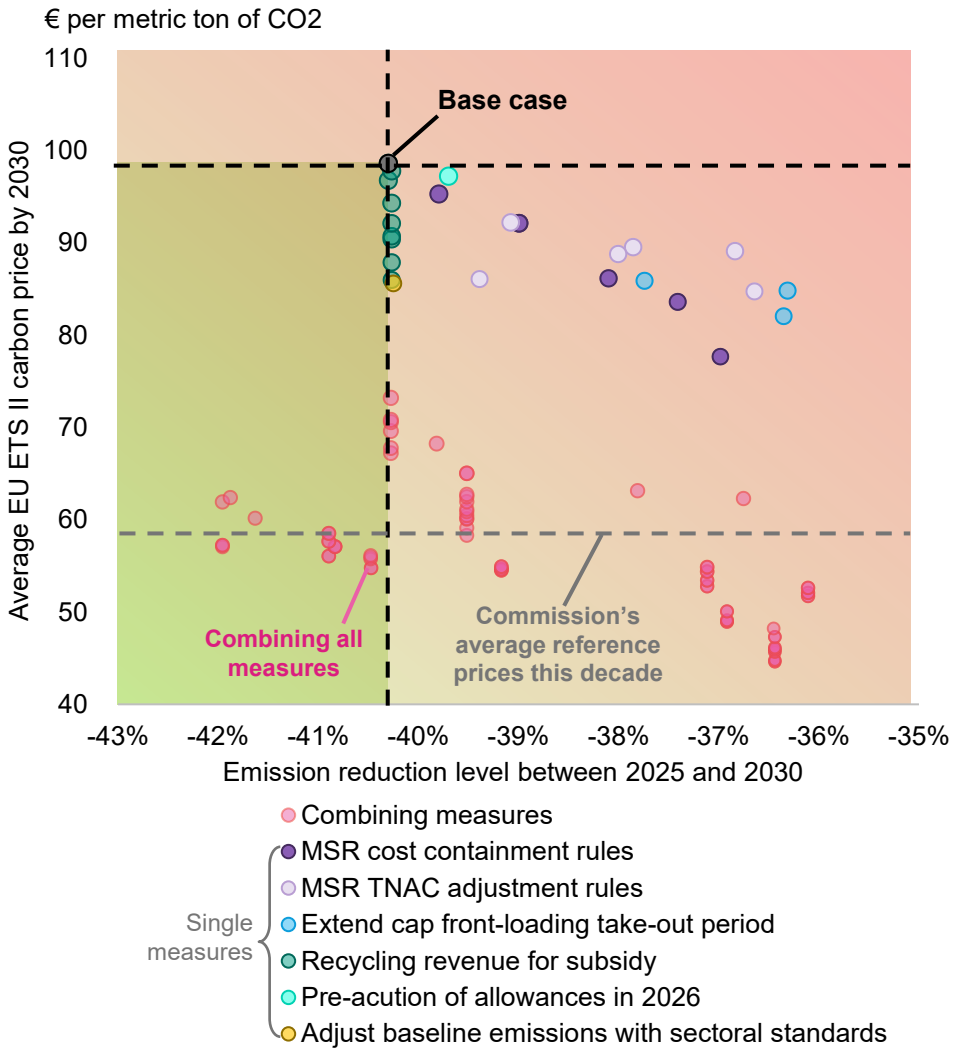
September 17, 2025

Key messages

In June 2025, 16 European Union member states issued a joint warning that despite their support for the bloc's climate policies, they were concerned that high carbon prices in the EU's forthcoming carbon market for road transport and buildings could impose heavy costs on communities and risk a public backlash. Finding a "sweet spot" that balances affordability for consumers with the need to advance climate action is therefore essential to this market's success as a cornerstone of Europe's climate infrastructure. That will require measures including more flexible supply-adjustment rules, subsidies and complementary policies such as sectoral standards.

- Under its current structure, the EU's new Emissions Trading System II could see carbon prices reach €122 per metric ton of CO2 ($144/tCO2) in 2030 and an average of €99/tCO2 between 2027 and 2030 – the highest of any carbon market globally. This would reduce emissions in the transport and buildings sectors by 40% in 2030, from 2005 levels, but increase average fuel prices in EU road transport and buildings by up to one-third. These higher prices are driven by 1) inflexible supply-adjustment mechanisms, 2) insufficient policy measures outside ETS II, and 3) costly emission-reduction options.
- BloombergNEF analysis explored three categories of potential measures to find this carbon price sweet spot, running scenarios involving nine sub-measures that focused on:
  1. **Amending market designs on supply:** Most policy levers, such as increasing the cost-containment frequency of the Market Stability Reserve, can lower prices in this decade to €78/tCO2 but also weaken emissions reductions. However, introducing a dynamic MSR supply adjustment reallocates supply rather than simply expanding it could alone lower average prices while reaching the same level of emission reductions as the base case.
  2. **Recycling revenue for subsidies:** While all ETS II revenue will be used for social climate investments, it is important to secure a proportion for subsidizing electrification options or rebalancing of electricity taxations This could deliver a rapid shift of consumer preferences. Utilising 50% for total revenue for such subsidy could reduce average carbon prices by 2030 to €67/tCO2.
  3. **Supporting EU ETS II with other EU policies:** Strengthening car and truck emissions standards and building energy performance targets would all ease pressure on EU ETS II to deliver the bulk of emission reductions, lowering carbon prices to €86/tCO2 on average in this decade . However, doubts remain about the achievability of these other targets, particularly as policymakers have already started loosening some regulations.
- **A combination of the above sub-measures** can bring carbon prices down to as low as €45/tCO2 on average in this decade – well below the European Commission's reference price of €58/tCO2 during the same period. These price levels can reduce social impacts on consumers by almost 55% compared to the base case, while maintaining similar emission reductions. Such a result requires between 24% and 36% of ETS II revenues to be use for subsidies, as well as dynamic MSR supply adjustments based on allowance surplus level, and expanding the MSR cost-containment rules on the soft price cap.

ETS II carbon price sub-measure summary



Source: BloombergNEF. Note: Assumes emissions align with other EU sectoral standards and increased hedging in near term. The term 'subsidy' in this report refers to lowering upfront costs and electricity prices, regardless of forms. Size of the dots reflect total revenue under the ETS II by 2030. MSR refers to Market Stability Reserve, TNAC refers to total number of allowances in circulation. For modeling assumptions see **Appendix.**

About this report

The European Union's Emissions Trading System has long been a central driver of emission reductions in the power and industrial sectors. Now, as the bloc sets its climate agenda for 2040, momentum is building and a new carbon market covering road transport and buildings – known as EU ETS II – is scheduled to launch in 2027.

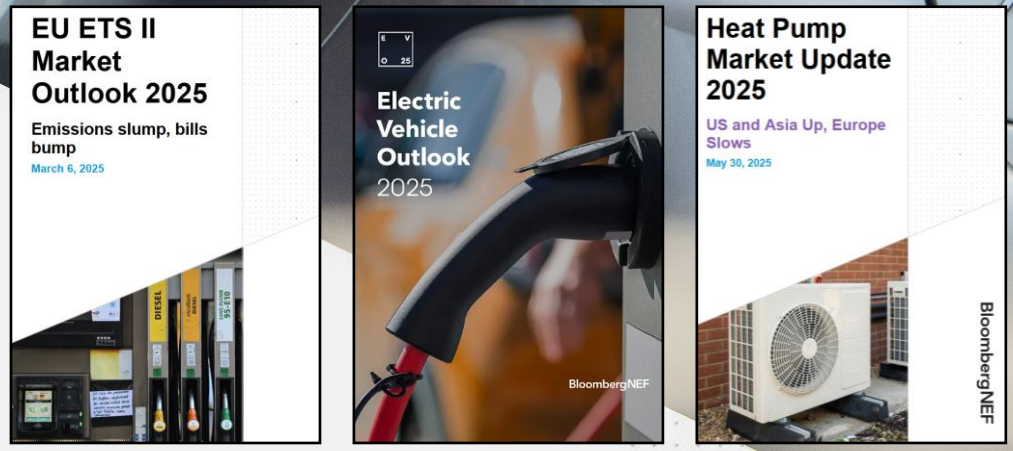
While ETS II is designed to accelerate decarbonization, it is also expected to be among the costliest carbon markets worldwide, raising uncertainty for European citizens. To address these challenges, change will be essential.

In collaboration with the European Climate Foundation and Bloomberg Philanthropies, BloombergNEF draws on its deep expertise in carbon markets, as well as the transport and buildings sectors, to explore potential pathways for ETS II. The goal: to find a delicate balance between affordability and effective climate action.

At the heart of this analysis is BNEF's ***EU ETS II Carbon Pricing Model*** (web | terminal). This tool enables us to generate hundreds of scenarios, assessing measures that could reshape the future of ETS II. Built using a bottom-up approach, the model provides quarterly carbon price forecasts based on supply-demand balances and marginal abatement cost curves (MACC). For a more detailed overview of our modeling methodology, see the Appendix.

Table of contents

Major BNEF publications relative to EU ETS II



In addition to our pricing model, the assumptions and technology projections in this report draw on several in-depth research efforts conducted by BloombergNEF.

BNEF's ***EU ETS II Market Outlook*** provides a comprehensive overview of the new carbon market, including supply-demand dynamics, abatement costs and our original carbon price forecast through 2035, alongside an analysis of potential social impacts.

BNEF's annual flagship publication ***Electric Vehicle Outlook*** examines how electrification and related trends are set to transform road transport in the years ahead.

BNEF's ***Heat Pump Market Update*** offers insights into policy developments, energy consumption patterns, market sales and cost trends for heat pumps.

In addition to the above reports, BNEF leverages technical and cost assumptions from BNEF's proprietary models, including the ***Heating Unit Economics Calculator*** (web | terminal) and the ***Vehicle Total Cost of Ownership Model*** (web | terminal).

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EU ETS II background

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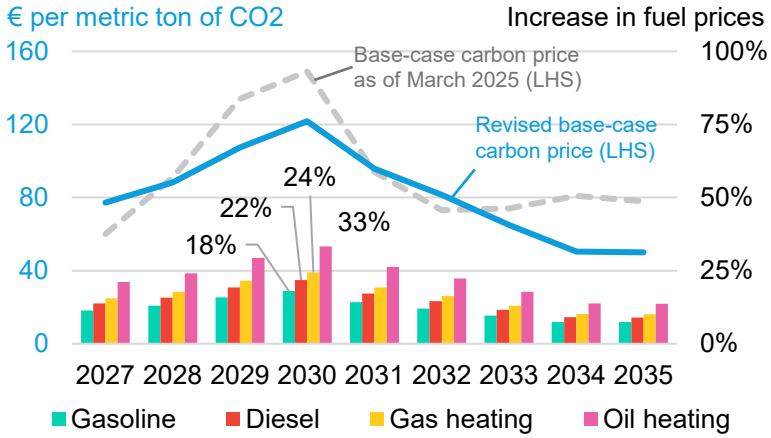
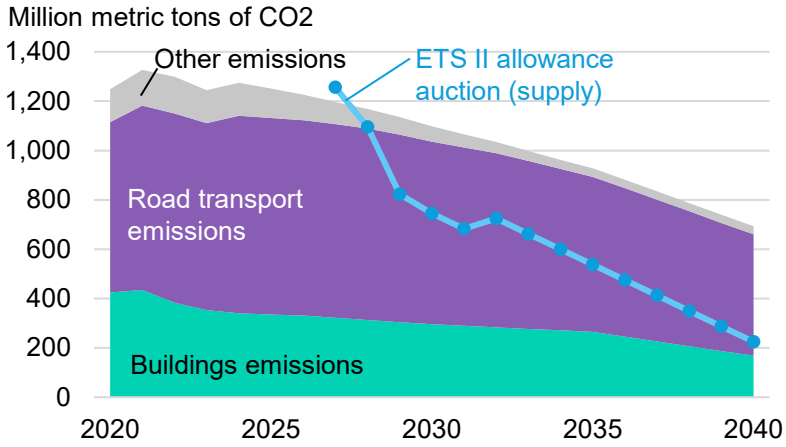
Member states petition for changes to ETS II, fearing surging carbon prices

EU ETS II carbon price forecast and % increase in fuel prices



ETS II mission allowance supply demand balance



Source: BloombergNEF's EU ETS II Market Outlook 2025 *(web | terminal). Note: Revised base case price forecast based on 2023 UNFCCC GHG inventory data and BNEF's EVO cost assumptions.*

The European Union's new emissions trading system (EU ETS II), starting in 2027, will impose a carbon price on fuel combustion emissions from road transport, buildings and small industries, with a goal of cutting emissions 43% by 2030 versus 2005 levels. According to the latest UNFCCC data as of 2023, the road transport and building sectors contribute to 1.24 gigatons of CO2, or 39% of total greenhouse gas emissions under the European economic area in 2023. Read more in BloombergNEF's ***EU ETS II Market Outlook 2025: Emissions Slump, Bills Bump*** (web | terminal).

- According to BNEF's revised base case forecast – which has been updated with latest emissions and cost data since initial publication of our Market Outlook in March 2025 – carbon prices under the EU ETS II could surge to a peak of €122 per metric ton ($143/t) in 2030. This reflects both shortages in emission allowances and limited heat pump and electric vehicle deployment, constrained by high costs. *All future references to this base case refer to the revised numbers above.*
- While such a price could drive noticeable decarbonization in the bloc, in 2030 diesel and gasoline prices could increase by 22% and 18%, respectively, as a result, impacting consumers. Natural gas and heating oil used in residential buildings could see prices rise by 24% and 33%, respectively.
- Such developments could impose significant cost-of-living burdens on vulnerable households and small businesses. As a result, member states have pushed back strongly on the current market design. As of June 2025, 16 EU countries have signed a "non-paper", which acknowledges the credibility of emissions trading as a decarbonization tool, but highlights concerns over high carbon social burdens it may impose on consumers, potentially leading to a backlash against climate policies. One of the earliest countries to feel voters' anger might be the Czech Republic, which faces a parliamentary election in October.
- **This research identifies the key drivers of price escalation and examines potential mitigation measures, particularly those outlined in the non-paper:**

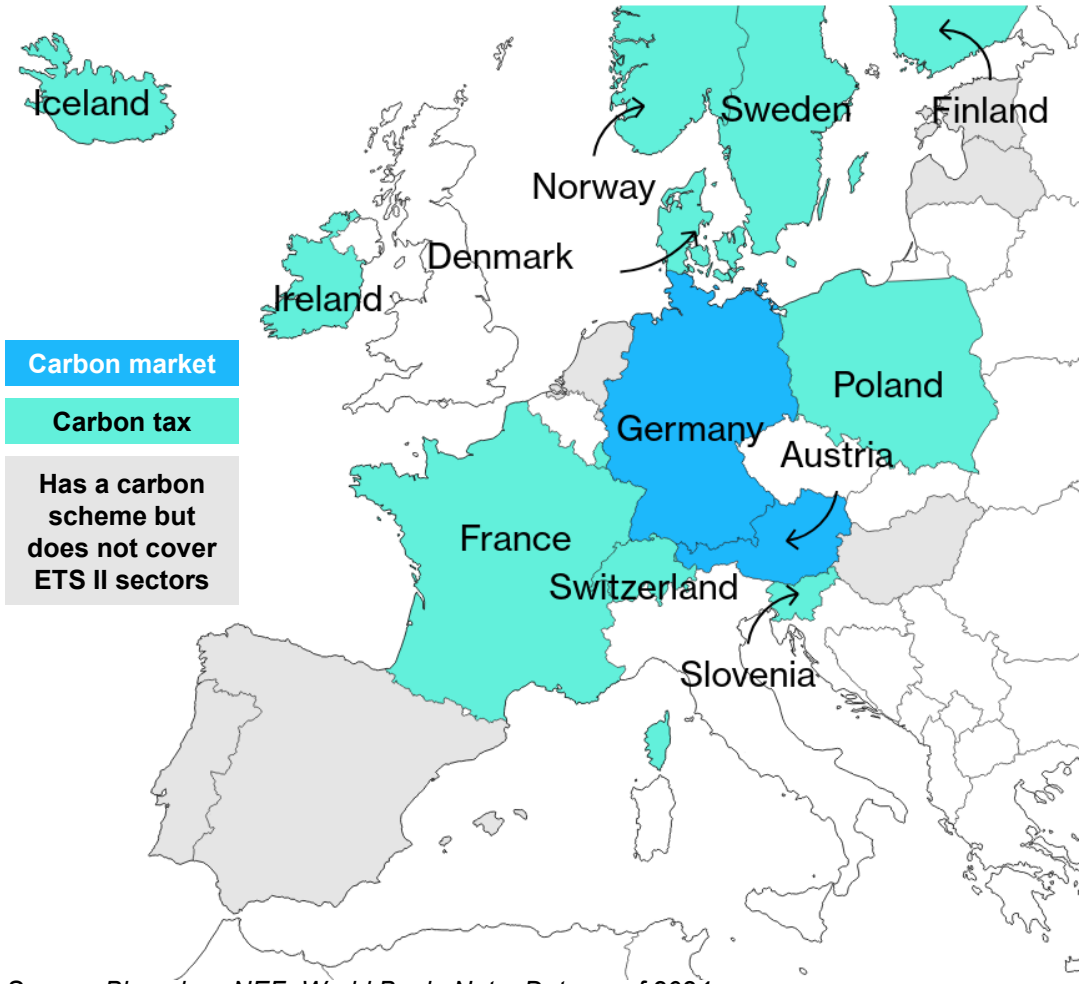
Proposals under the non-paper

Concerns	Proposed solutions under the non-paper
Uncertainty of price levels in 2027	Early auctions, data transparency for better price anticipation
High price volatility, especially in 2028 and 2029	Smoother supply adjustment rules and increase injection volume by the Market Stability Reserve (MSR)
High price levels, especially between 2030 and 2033	Extend the lifespan of MSR, make it more reactive and have higher injection volume for cost containment adjustments

Source: Joint non-paper on ETS2 price uncertainties and possible improvements

Not all regions are prepared for EU ETS II

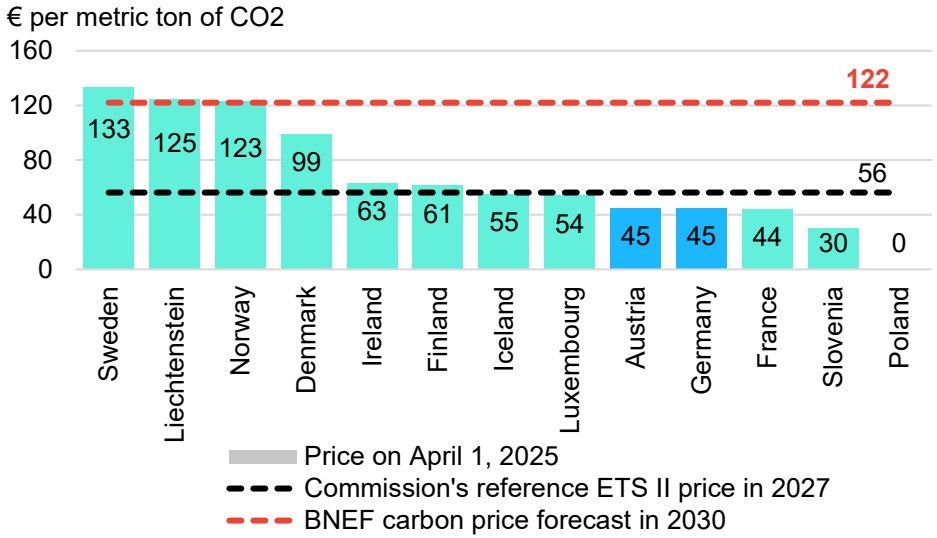
Carbon schemes covering roads and buildings in the European Economic Area and Switzerland



Source: BloombergNEF, World Bank. Note: Data as of 2024.
Switzerland only covers buildings sector.

- Carbon prices or taxation on road and buildings sectors exist in Europe today but are not prevalent. Among the 30 members of the European Economic Area and Switzerland, only 13 have carbon schemes that already impose a carbon cost on road transport and buildings.
- Four of these 13 countries operate on a carbon price higher than the reference ETS II carbon price in 2027 proposed by the European Commission of €56/t. Only three of them have a higher carbon price than the 2030 ETS II price forecast by BNEF of €122/t.
- This means that for most EU citizens, the new ETS II could increase consumers' annual costs for buildings and road transport fuels by a significant level, should the current trajectory of carbon prices forecasted by BNEF apply.

Countries that cover ETS II sectors under a carbon scheme



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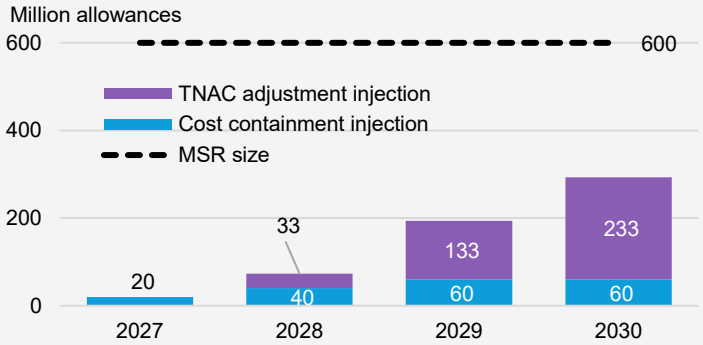
Three key issues drive up prices in EU ETS II

There are several drivers behind the forecasts for sharp increases in carbon prices under the EU ETS II and the concerns outlined in the non-paper. First, the supply of emission allowances is tightly capped to align with the EU's 2030 reduction target, while a frontloading mechanism adds to the supply shortage. Second, demand is expected to stay high as EU countries fall behind on other climate policies. The final reason is that electrification of road transport and buildings remains expensive compared with fossil-fuels, limiting consumers' willingness to switch.

Issue 1 – Unflexible supply adjustment

- The mechanism of frontloading allowances from 2029-2031 into 2027-2028 created a significant deficit later this decade. Currently, there is no flexibility to adjust the frontloading timeline.
- There is also limited flexibility on the use of the Market Stability Reserve (MSR) for (1) cost containment and (2) balance market supply based on the allowance surplus level (TNAC). Critics argue the current rules are insufficient to prevent price spikes.
- Under BNEF's base case, only 293 of the 600 million initial allowances in the MSR will be used to increase total supply by 2030. To address this, the non-paper proposes measures such as more frequent adjustment for cost containment or lowering the TNAC release threshold.

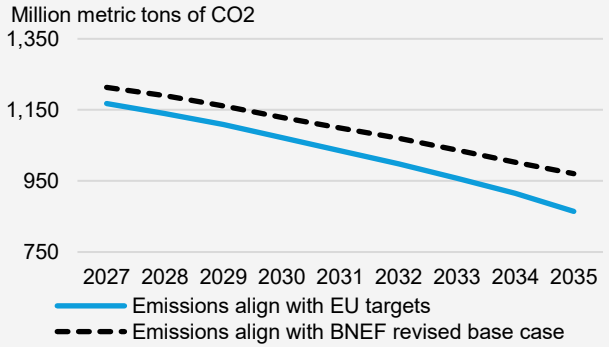
Cumulative allowance injections from the MSR



Issue 2 – Insufficient policy measures outside ETS II to drive down demand

- The EU ETS II was initially designed as a complementary policy to decarbonize buildings and road transport, alongside measures such as the Effort Sharing Regulation, as well as emission and energy performance standards.
- However, BNEF's base case assumes targets set under other EU policies will be difficult to reach, especially as the bloc is scaling back on these ambitions – for example, through the relaxation of car emission standards.
- Failing to cut emissions under other policies could place greater pressure on ETS II to deliver reductions, supporting higher carbon prices.

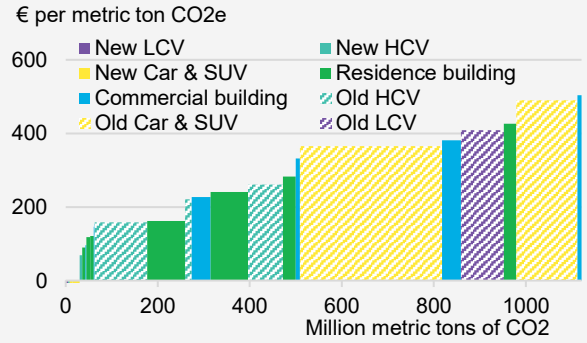
Baseline emission trajectories under ETS II



Issue 3 – Without subsidy, the cost to switch to electrification is still high

- Without subsidies, electrification in road transport and buildings remains a costly option for consumers to switch to due to upfront costs and high taxations on electricity. In 2027, without a subsidy, heat pump installations require an average carbon price of €118-332/tCO2 in Germany, France and Italy to be economically comparable to an operating gas boiler. More than half of the passenger vehicle fleet would need a carbon price of €490/tCO2 to incentivize switching to electric vehicles.
- Although most EU ETS II revenues are earmarked for decarbonization, there are growing calls for a larger share to be directed toward household support to ease the social impact.

ETS II carbon abatement cost curve, 2027



Source: BloombergNEF's EU ETS II Market Outlook 2025 (web | terminal), European Commission. Note: BNEF revised base case takes into account latest UNFCCC GHG emissions data as of 2023 and BNEF electric vehicle cost assumptions. LCV refers to light commercial vehicles, HCV refers to heavy commercial vehicles, SUV refers to sport utility vehicles. "New" abatement options refer to new vehicle sales and "Old" abatement refers to the replacement of in-service vehicles. Prices are nominal.

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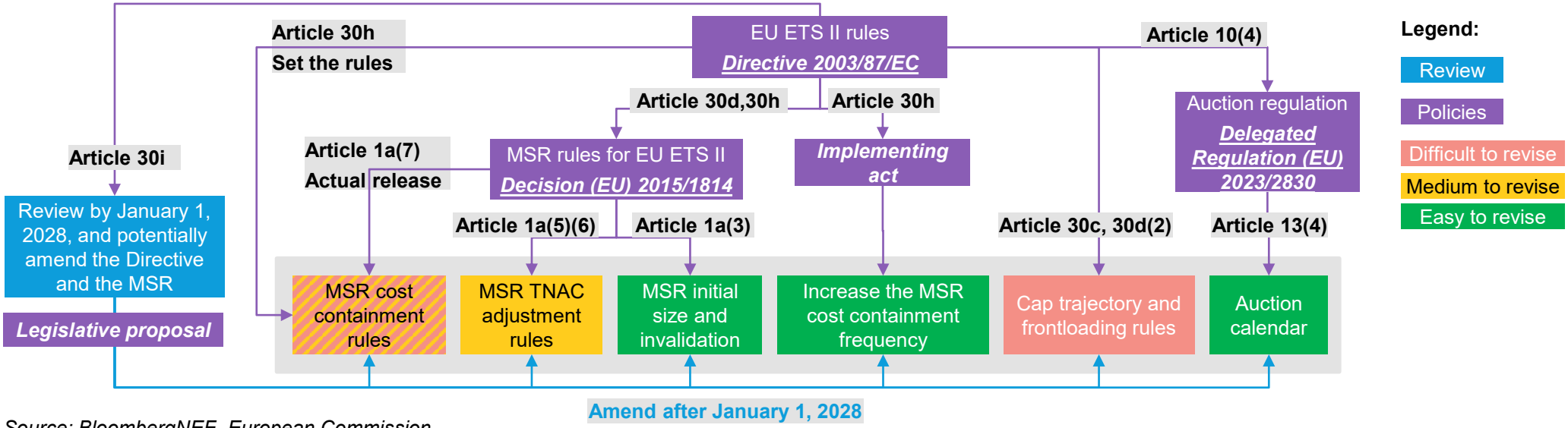
Not all EU ETS II rules can bend

Legislative framework of EU ETS II



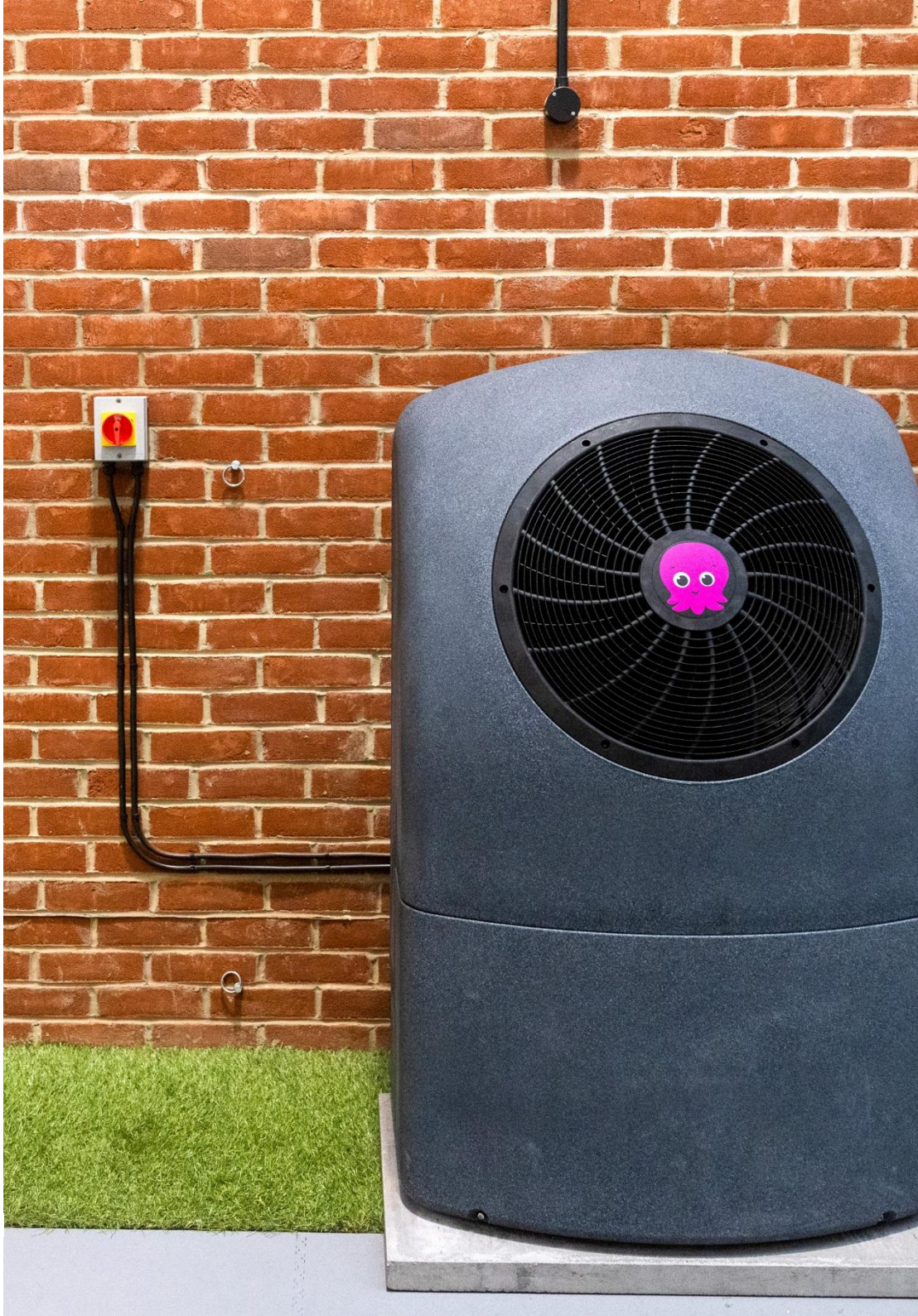
Source: BloombergNEF, European Commission.

- While policymakers could adjust elements of the EU ETS II – such as the Market Stability Reserve (MSR) or the allowance supply trajectory – revising these rules is challenging, as they are embedded in broader policy frameworks.
- The supply trajectory is set by Directive 2003/87/EC, which establishes the overall ETS II framework. Amending a Directive involves a complex legislative process and is therefore difficult.
- The cost-containment provisions are governed both by Directive 2003/87/EC and the MSR Decision, while the supply adjustment provisions are set in the MSR Decision. While amending a Decision also involves a complex legislative process, it is different from amending a Directive.
- The only flexibility currently allowed is the option to increase the frequency of MSR cost containment measures via an implementing act. The auction calendar timeline is defined under delegated regulation, which is also easier to amend compared to a Directive or Decision. A formal review of the Directive is scheduled before January 1, 2028, which may allow revisions through a legislative proposal.

Legislative difficulty for different types of policies

Type of policy		Revision process	Difficulty	
Directive	A framework instruction that member states must achieve but needs transposition into national law	European Commission proposes a revision. The European Parliament and the Council of the EU must agree and adopt.	**Hard**	Needs transposition into national law
Legislative decision	Fully binding rules apply to those involved		**Medium**	Applies immediately
Delegated Regulation	Supplement non-essential elements of a law (Regulating or Directive). Fully binding and apply to everyone	European Commission revises, subject to Parliament and Council oversight.	**Easy**	
Implementing Act	Ensuring uniform application of rules under a law. Fully binding and apply to member states	European Commission revises, subject to oversight from member states' committees.	**Easy**	

Key takeaways



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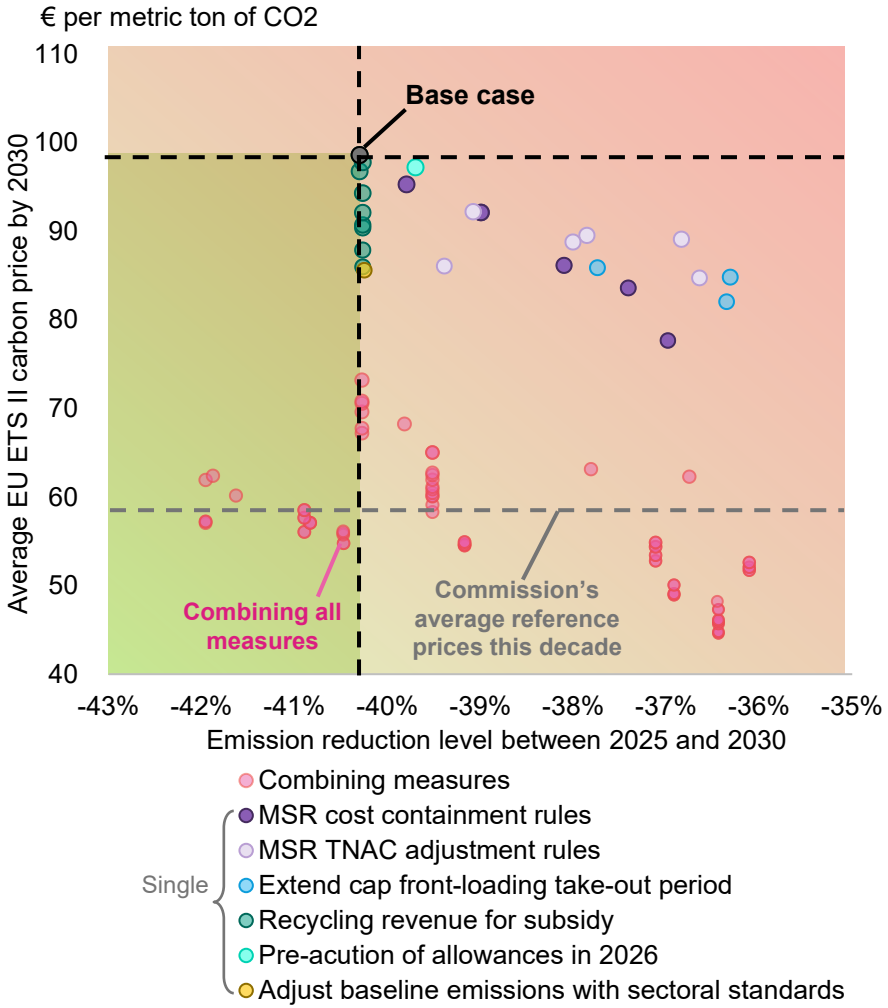
Balancing ETS II costs and benefits requires synergy between policies

ETS II carbon price sub-measure summary



Source: BloombergNEF. Note: Assumes emissions align with other EU sectoral standards, increased hedging in the near term. Subsidy refers to lowering upfront costs and electricity prices, regardless of forms. Size of the dots reflect total revenue under the ETS II by 2030. MSR refers to Market Stability Reserve, TNAC refers to total number of allowances in circulation. For modeling assumptions see ***Appendix.***

This report aims to explore how to mitigate ETS II social impacts by lowering carbon prices through three measures – 1) **increase allowance supply,** 2) recycle carbon market revenue for **subsidies on electrification options and rebalancing of electricity taxations** and 3) **reduce demand** with support of other EU policies that impose emission standards on road and buildings sectors.

Key criteria when accessing impacts include **average carbon prices, peak carbon price in this decade, emission reduction levels by 2030** and **the achievability of adopting such amendments**. Nine sub-measures are developed under the three main measures, with several scenarios under each sub-measure.

Measures and sub-measures explored under this report

Measure	Sub-measure	Scenario
Increase supply	Expand MSR size and lifespan	4 scenarios
	Increase MSR cost containment frequency	3 scenarios
	Increase MSR cost containment volume	3 scenarios
	Increase MSR TNAC adjustment volume	3 scenarios
	Dynamic MSR TNAC adjustment	3 scenarios
	Extend cap frontloading take-out period	3 scenarios
Subsidies	Recycling revenue for cost subsidies	Multiple scenarios
	Allowance pre-auctioning in 2026	Multiple scenarios
Reduce demand	Adjusting baseline emissions with sectoral standards	1 scenario
Combining measures		Multiple scenarios

Adding supply will reduce average carbon price in this decade by 21% from the base case, to €78/tCO2, but risks higher emissions.

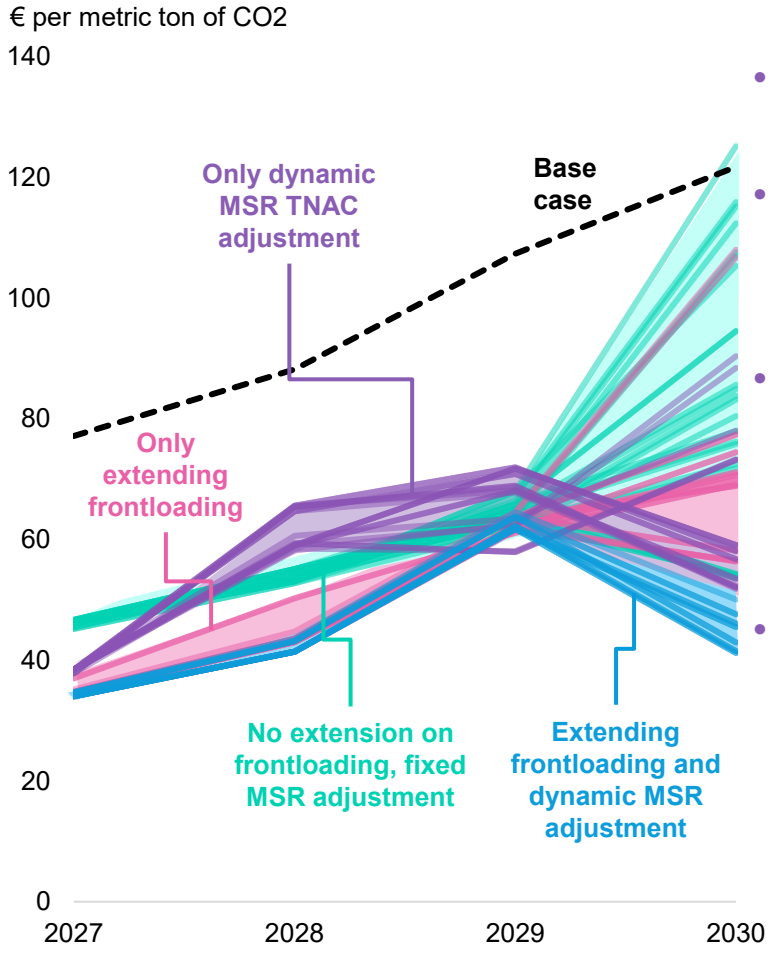
Subsidies on electrification options and reducing electricity costs are critical to accelerate consumer adoption, boost supply and lower costs. This could reduce average carbon prices in this decade to €88/t in 2030. However, a large share of ETS II revenues are expected to go toward social support.

Other climate policies – such as emission standards and energy performance targets – could drive extra emission reductions under the ETS II and lower average carbon prices in this decade to €86/t. However, this depends on the continuity of these policies and firm implementation by member states.

A combination of the above sub-measures can bring carbon prices down to as low as €45/t in this decade. This is lower than the European Commission's reference level of €58/tCO2 this decade. This price levels can reduce social impacts by almost 55% compared to the base case while maintaining decarbonization progress. It requires between 24% to 36% of ETS II revenues to be recycled for subsidies, dynamic MSR TNAC adjustments, and extending and expanding MSR cost containment rules on the soft price cap.

ETS II prices are heavily shaped by supply adjustments

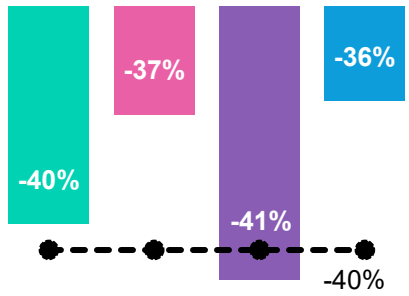
ETS II carbon price levels under different combinations of policy measures



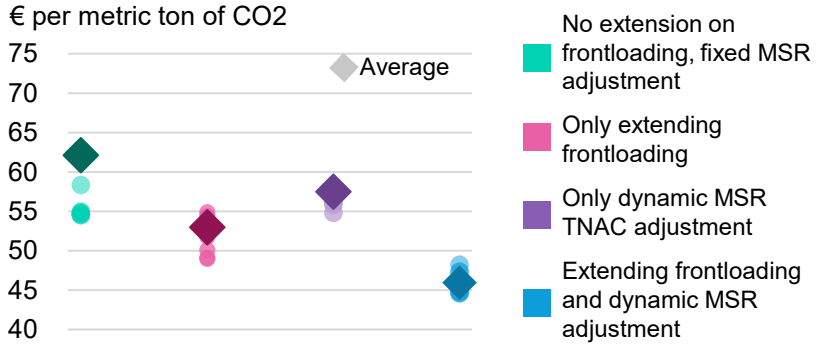
Source: BloombergNEF. Note: Above forecasts assume baseline emissions align with other EU targets. Only showing results with emission reduction levels lower or equal to 36% by 2030 compared to 2005 levels Other sub-measures applied including MSR cost containment and subsidy.

- BloombergNEF explored potential ETS II price trajectories by adjusting a combination of three policy measures: increasing supply of allowances, recycling revenue for subsidies and reducing demand. The analysis shows that, even applying all measures, price developments follow some distinct trajectories. **This split is due to different supply measures applied**.
- Extending the cap frontloading take-out period to five or seven years, compared with the three-year base case (2029–2031), generally results in the lowest carbon price levels in 2027 and 2028 (shown as the **pink lines** in the lefthand chart). In this case, carbon prices in 2027 average €35/tCO2 and €44/t in 2028.
- Since the market is assumed to be forward-looking, participants price in expected future balances. The extension reduces the number of allowances withdrawn annually between 2029 and 2031, compared with the base case. This eases expectations of a market shortage later in the decade, leading to lower near-term emission reductions and carbon prices. However, the lower initial prices undermine ETS II's decarbonization goals. Combined with shrinking supply toward the end of the decade, this could ultimately drive prices back up.
- The treatment of the Market Stability Reserve (MSR) also has a big impact on price in combined scenarios. Under current rules, 100 million allowances are released if the total number of allowances in circulation (TNAC) falls below 210 million. By contrast, dynamic adjustment mechanisms – represented with **purple lines** on the left chart – can prevent price spikes led by high market deficits as more allowances are released when circulation is low and vice versa. Importantly, because this mechanism reallocates MSR release volumes rather than simply expanding them, emission reduction outcomes remain broadly consistent with BNEF's base case forecast.
- Combining the frontloading extension with a dynamic MSR adjustment for the TNAC would result in the lowest average prices in this decade, at €46/tCO2, 54% lower than the base case of €99/tCO2. However, this comes at the expense of emission reduction levels, which decline by just 36%.

Average emission reduction level by 2030 vs 2005



Average carbon price in this decade



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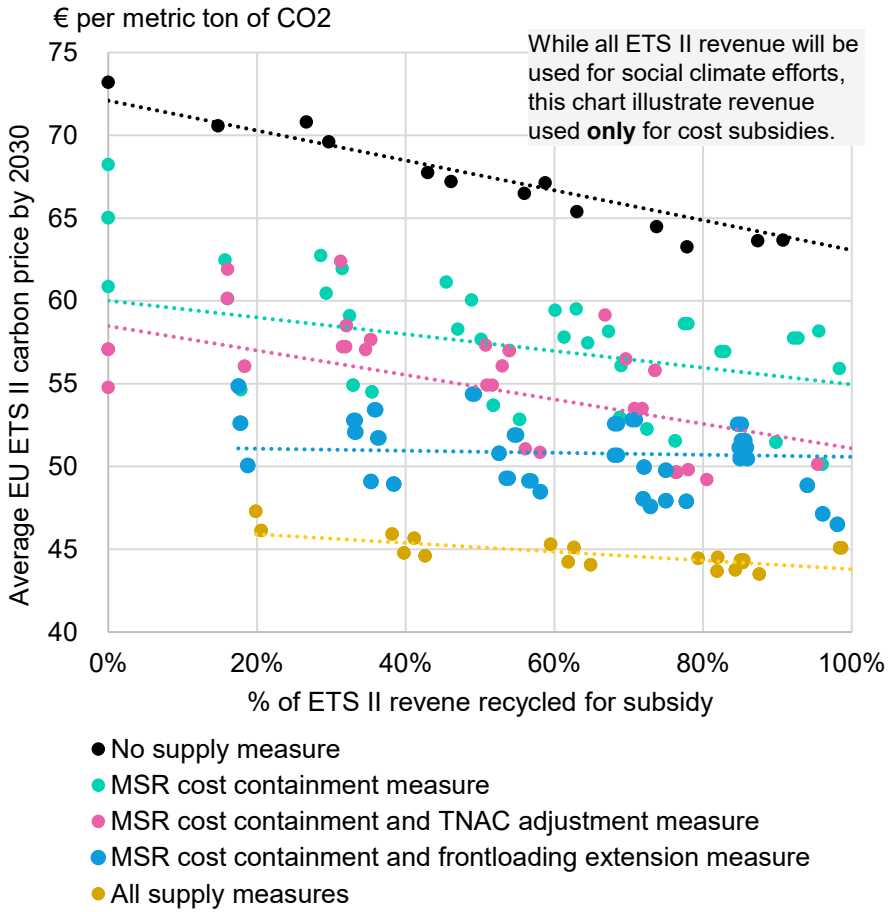
Revenue recycling for subsidies cuts carbon prices, but is less effective with other measures

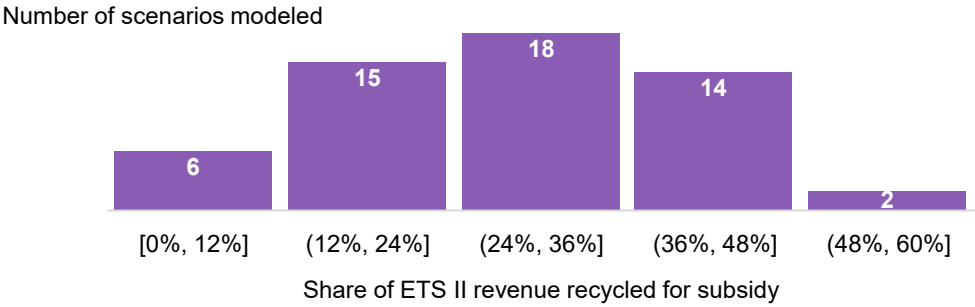
ETS II carbon price levels under combination of measures



Source: BloombergNEF. Note: Above forecasts assume baseline emissions align with other EU targets. The term 'subsidy' in this report refers to lowering upfront costs and electricity prices, regardless of forms. Only showing results with emission reduction levels lower or equal to 36% by 2030 compared to 2005 levels. The chart on the bottom right represent change in average carbon price in this decade for every other 20% of ETS II revenue recycled for subsidy

- Today, switching to electric vehicles and heat pumps remains costly for EU citizens, as the upfront expenses of electrification options are still less favourable than those of fossil-fuel alternatives, and electricity continues to be heavily taxed in many regions.
- Subsidies under EU ETS II have the potential to significantly lower the cost of electrification options, or help reducing levies on electricity, and therefore lower carbon prices. Although such subsidy schemes may not be permanent, they can bring rapid change on consumer preferences to shift towards low-carbon technologies and driving down costs through economies of scale.
- If baseline emissions under ETS II are in line with targets set under other policies – and without any supply-side measures – allocating half of ETS II revenues to subsidies on upfront costs and lowering electricity prices could lower the average carbon price this decade to €67/tCO2, while achieving a similar level of emission reduction – 40% by 2030, relative to 2005. *This assumes an increase in the near-term hedging horizon compared to the base case as a result of lower price expectations as well as potential pre-auctioning of allowances in 2026.*
- Higher levels of subsidies will result in lower carbon prices. Every additional 20% of revenues recycled into subsidies would lower the average carbon price in this decade by €1.8/tCO2, provided no supply-side measures are adopted. However, when all sub-measures under the supply mechanism are applied – including MSR cost containment, TNAC adjustments and smoothed frontloading – the sensitivity of carbon prices to subsidies falls. In this scenario, an extra 20% of revenues allocated to subsidies would reduce average carbon prices by only €0.5/tCO2.
- Generally, to ensure average carbon prices in this decade are lower than Commission's reference level of €58/tCO2, while reserving enough revenue for social support and achieving effective emission reduction levels, around 24% to 36% of ETS II revenue is needed for subsidy.

Distribution of subsidy levels to ensure average carbon prices in the decade lower than commission's reference level



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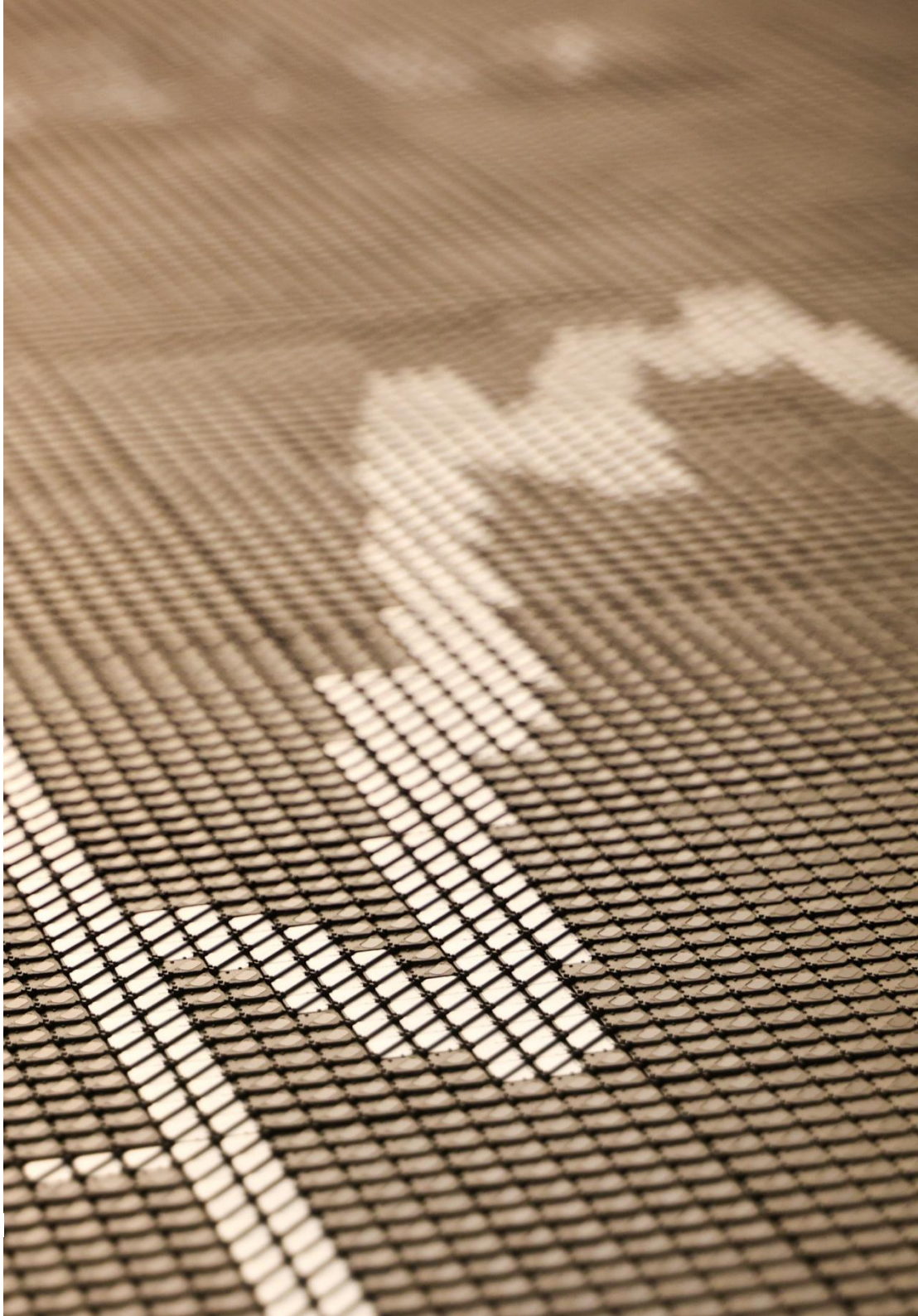
Measure deep dive



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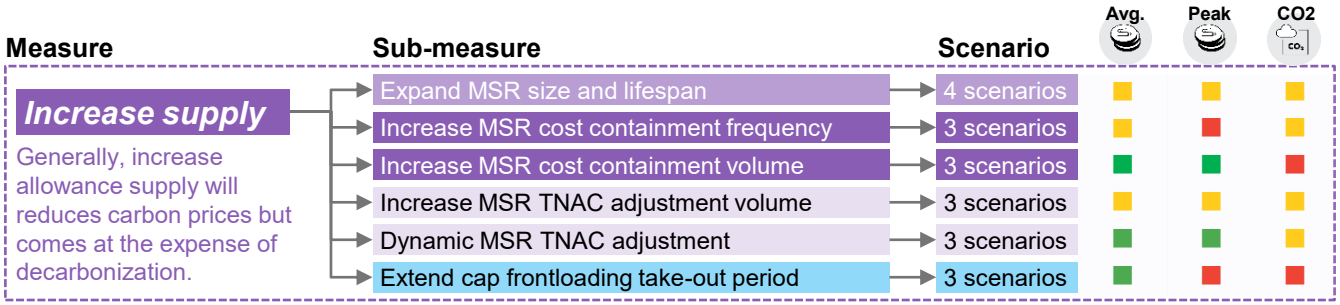
Measure 1: Increase supply

Adjusting MSR and frontloading rules



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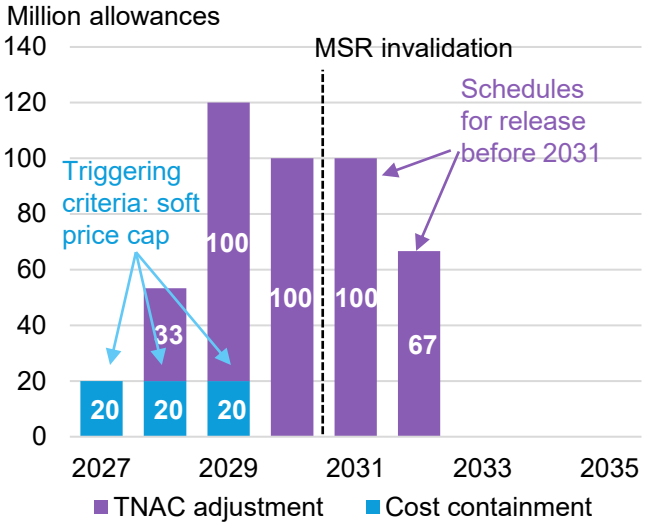
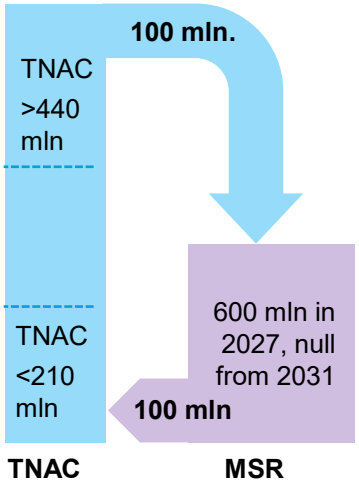
How does the Market Stability Reserve work?

Annual MSR release volume under base case



MSR supply adjustment mechanism



MSR cost containment machoism

Period	Volume	Release criteria
Until 2029	20 mln.	€45/tCO2 for two consecutive months *If other conditions are met this will not be triggered*
2027-28	50 mln.	3-month avg. price > 1.5x avg. price of six preceding months
From 2029	50 mln.	3-month avg. price > 2x avg. price of six preceding months
All time	150 mln.	3-month avg. price > 3x avg. price of six preceding months

Source: BloombergNEF, European Commission. Note: mln refers to million.

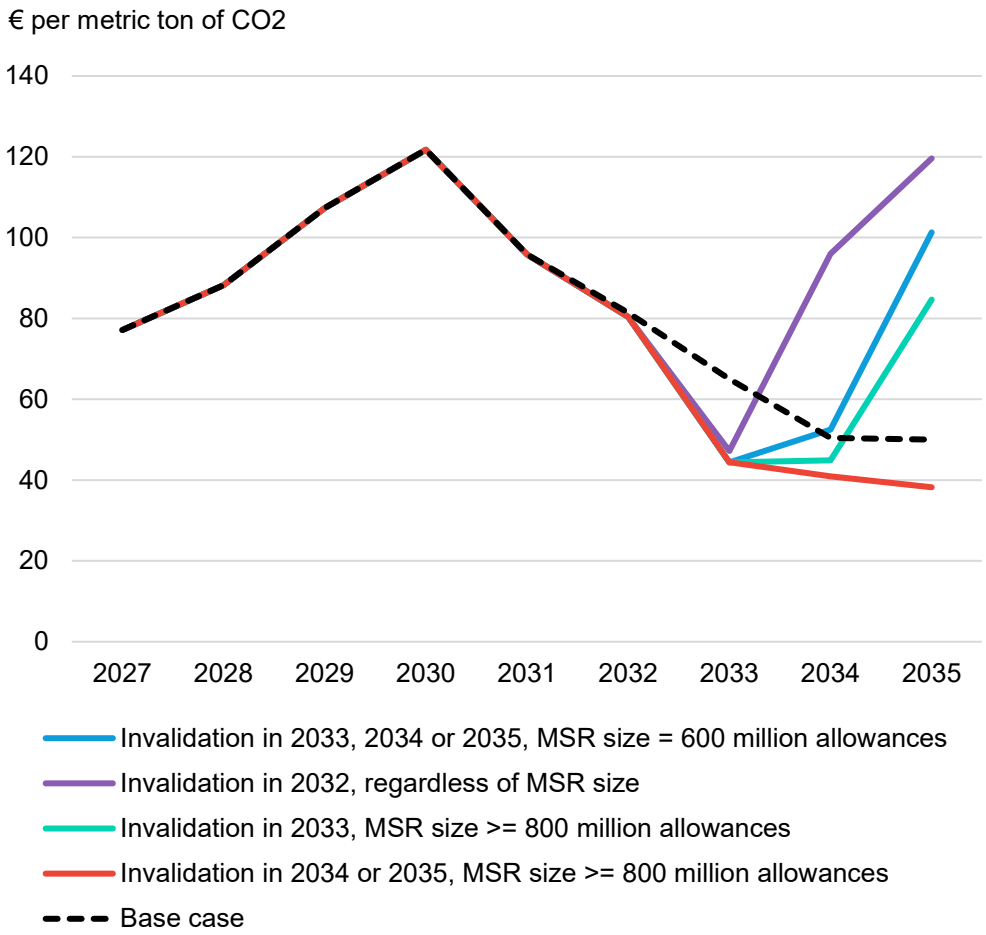
- The Market Stability Reserve (MSR) acts as a buffer to balance allowances in the ETS and prevent excessive price fluctuations. The MSR was first introduced to the current EU ETS to remove excessive allowance supply in the market. Since its introduction in 2019, 2.3 billion allowances have been put into the reserve. As a result, carbon prices under the EU ETS rose more than three-fold by 2022. For ETS II, the MSR will be established in 2027 with an initial 600 million allowances created on top of the legislated cap. It will be invalidated from 2031, and work as follows:
  1. **MSR TNAC adjustment mechanism (under MSR Decision):** Each year, if the total number of allowances in circulation (TNAC) in ETS II exceeds 440 million, 100 million allowances will be placed into the MSR over 12 months, rather than auctioned. Conversely, if TNAC falls below 210 million, 100 million allowances will be auctioned over a year. This rule is not defined in the Directive and could be amended from 2027.
  2. **MSR cost containment mechanism (under EU ETS II Directive):** Allowances will also be released in the event of price spikes to re-balance supply and demand. While there are different cost containment rules, the most relaxed one is the 'soft price cap' that runs from 2027 to 2029. If two-month average carbon prices rise above €45/tCO2 (real 2020), 20 million allowances will be released immediately. The standard adjustment is once per year, though the Directive allows up to twice-yearly releases during this period. Other cost-containment rules can only be revised following the 2028 market review.
- BloombergNEF's base case price forecast assumes a once-a-year cost containment adjustment frequency. It is estimated that a total of 460 million allowances will be released for both the TNAC adjustment and cost containment by 2032. Although the MSR will become invalid from January 2031, it continues to increase allowance supply until 2032 due to the delayed release schedule
- In their non-paper, member states urged policymakers to make the MSR more reactive – allowing more frequent and larger cost containment releases and smoother TNAC adjustments. However, these changes risk weakening emission reduction efforts by increasing allowance supply in the market.

Sub-measure 1: Expand MSR size and lifespan

Policy timeline:
From 2031

- Good
- No or minor impact
- Bad

Price forecasts under different scenarios



Source: BloombergNEF

Current assumption

- The MSR will be made invalid from January 1, 2031.
- The MSR is set at 600 million allowances, created on top of the legislated cap.

Proposed changes

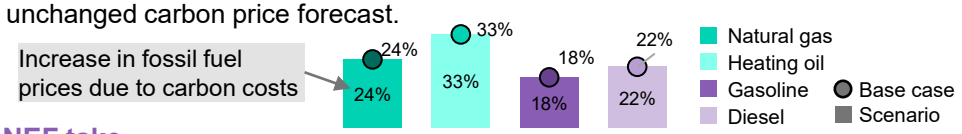
- BNEF assumes the market review in 2028 extends the MSR to beyond 2030. It also increases the initial size of the MSR beyond 600 million allowances.

Price impact and emission reductions

- Extending the lifetime of the MSR, as well as increasing the size of the reserve, does not materially affect carbon prices in this decade. Under BNEF's base case, although the MSR will become invalid from January 2031, it continues to increase allowance supply until 2032 due to the delayed release schedule. As a result, extending the MSR's lifespan would only affect prices from 2033 onwards.
- The extension and expansion of the MSR would push carbon prices down in 2033 to around €44/tCO2, compared with €65/t under the base case, as more allowances enter the market. However, prices are expected to rebound in subsequent years in nearly all scenarios, as the MSR becomes exhausted and decarbonization pressure intensifies to compensate for weaker emission cuts earlier in the decade.

Social impact with peak carbon price

- No social impact is expected in the near term compared to base case, due to the unchanged carbon price forecast.



BNEF take

Extending the size and lifespan of the MSR will not bring significant change to the carbon price levels under the ETS II until 2033.

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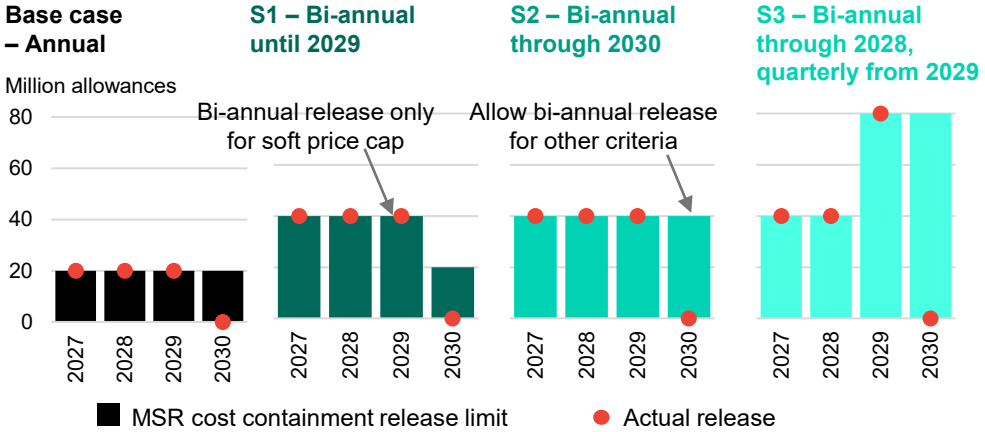
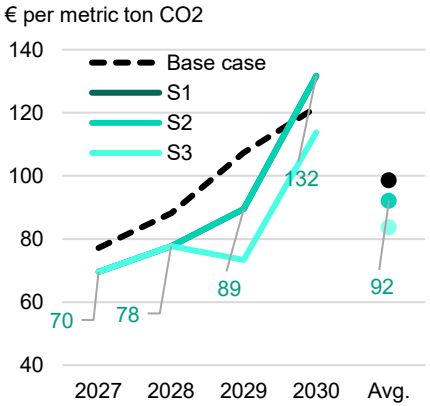
Sub-measure 2: Increase MSR cost containment frequency

Policy timeline:
From 2027

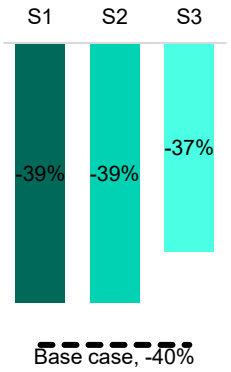
MSR cost containment release limit and actual release for all criteria



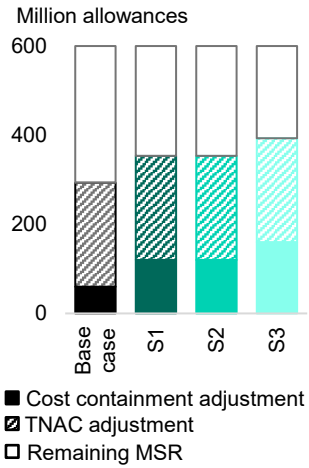
Price forecasts under different scenarios



Emission reductions 2030 vs 2005



Cumulative MSR used by 2030



Source: BloombergNEF. Note: Avg. means average prices in this decade.

Current assumption

- Between 2027 and 2029, 20 million allowances will be released from the MSR annually once the soft price cap criteria is met.

Proposed changes

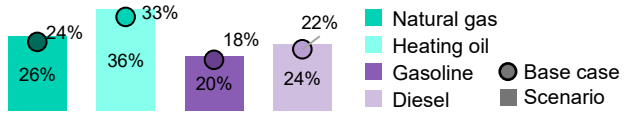
- **Scenario 1:** BNEF assumes the adjustment frequency is increased to twice a year from 2027 to 2029 – meaning 40 million allowances can be added to the market a year.
- **Scenario 2:** Assumes the market review in 2028 allows bi-annual adjustment beyond 2029, applying to all cost containment criteria.
- **Scenario 3:** Assumes the market review in 2028 allows quarterly adjustment beyond 2029, applying to all cost containment criteria. Bi-annual adjustments prior to 2029.

Price impact and emission reductions

- Under Scenarios 1 and 2, the average carbon price in this decade would be lowered to €92/tCO2, around 7% below the base case of €99/t. Under these scenarios, the MSR would release a total of 120 million allowances for cost containment by 2029, compared with 60 million under the base case. However, carbon prices in 2030 are expected to rise sharply in 2030, to €132/t. This is because no MSR allowances will be released in 2030 for cost containment purposes, as the soft price-cap criterion becomes invalid and no other cost-containment triggers are met in that year.
- Under Scenario 3, the average carbon price this decade falls further to €84/t. However, this comes at the expense of weaker emissions reductions – 37% between 2005 and 2030, compared with 40% in the base case.

Social impact with peak carbon price

- **Chosen scenario:** S1



BNEF take

- **Compared to the base case, this measure lowers projected carbon prices at the cost of less emission reductions in the early years, but results in a sharp price surge in 2030.**
- **To mitigate this spike, more relaxed cost-containment criteria would need to be introduced. For example, extending the soft price-cap mechanism beyond 2029 could help ease the supply shortage in 2030. This will be examined in the next sub-measure.**

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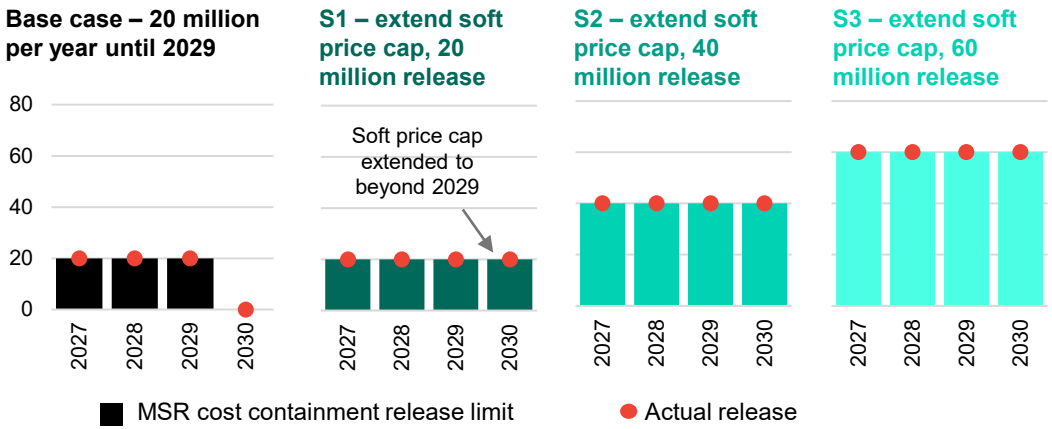
Sub-measure 3: Increase MSR cost containment volume

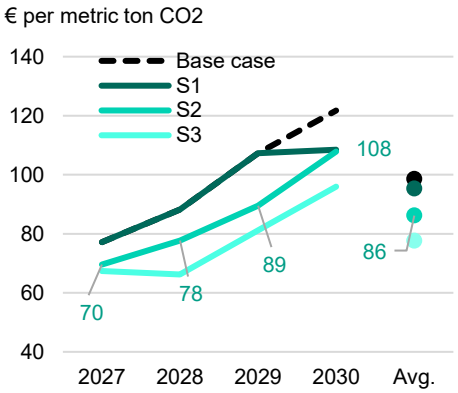
Avg. Peak
S2

Policy timeline:
From 2029

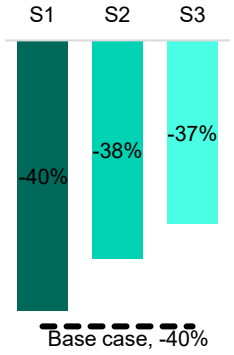
MSR soft price cap cost containment release limit and actual release



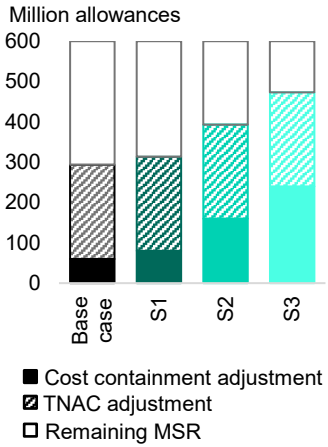
Price forecasts under different scenarios



Emission reductions 2030 vs 2005



Cumulative MSR used by 2030



Source: BloombergNEF. Note: Avg. means average prices in this decade.

Current assumption

- Between 2027 and 2029, 20 million allowances will be released from the MSR annually once the soft price cap criteria is met.

Proposed changes

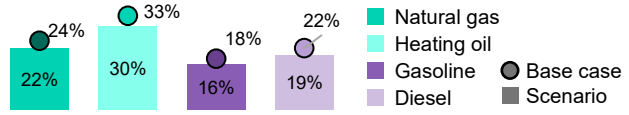
- BNEF assumes the market review in 2028 extends the soft price cap criteria beyond 2029 (**Scenario 1**) and increases the release amount from 20 million to 40 million (**Scenario 2**) and 60 million (**Scenario 3**).

Price impact and emission reductions

- Under Scenario 1 – where the soft price cap mechanism is extended beyond 2029 while the release volume remains at 20 million – carbon prices in 2030 fall by 11%, to €108/tCO2, compared with €122/t in the base case. This is because extending the mechanism triggers the release of 20 million additional allowances in 2030, versus none under the base case.
- In alternative scenarios where the release volume increases from 2027 onwards, carbon price forecasts in this decade are reduced further. For instance, if 40 million allowances are released each year when the soft price cap is met, the average carbon price this decade declines to €86/t – around 13% lower than the €99/t in the base case. However, this comes at the expense of weaker emissions reductions, at 38% compared with 40% under the base case.

Social impact with peak carbon price

- **Chosen scenario:** S2



BNEF take

Unlike the previous sub-measure, extending the soft price cap can prevent price spikes in 2030. Further increasing the MSR release volume for cost containment acts to suppress price levels in affected years with more allowance supply. However, the higher the release volume, the lower the emission reduction levels.

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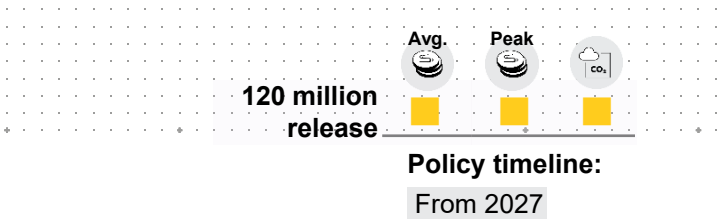
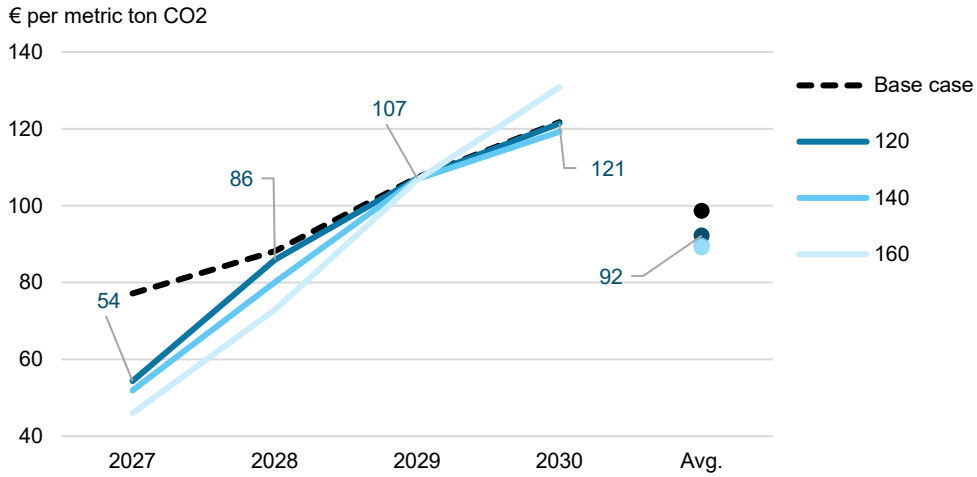
Sub-measure 4: Increase MSR TNAC adjustment volume

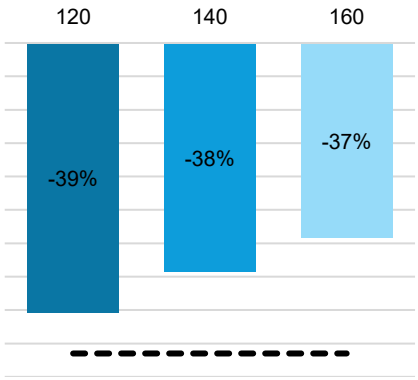


Policy timeline:
From 2027

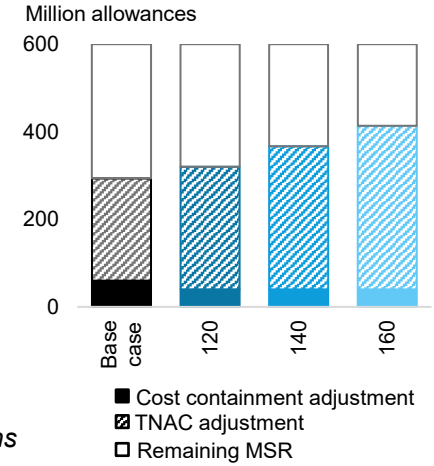
Price forecasts under different scenarios



Emission reductions 2030 vs 2005



Cumulative MSR used by 2030



Source: BloombergNEF. Note: Avg. means average prices in this decade.

Current assumption

- The MSR releases 100 million allowances across 12 months if the TNAC is below 210 million.

Proposed changes

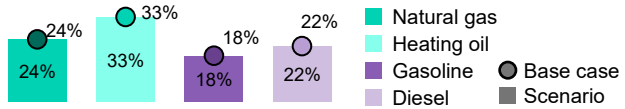
- BNEF explores three scenarios where, should the TNAC be below 210 million, it releases 120, 140 and 160 million allowances.

Price impact and emission reductions

- Increasing the MSR TNAC release volume does not significantly lower carbon price forecasts u the decade, unlike adjustments to the MSR cost-containment rules. This is largely due to the delayed TNAC release schedule: under the current market design, the first release begins in September 2028, whereas cost-containment measures take effect immediately.
- Raising the release volume to 120 million allowances per year reduces the average carbon price this decade by about 10% compared with the base case – €92/tCO2 versus €99/t – with slightly lower levels of emissions reductions compared to the base case, at 39% between 2005 and 2030.
- A higher release volume would alter the price trajectory more sharply. For example, if the release volume were increased to 160 million, prices would initially fall to €46/tCO2 but then climb to €131/t in 2030 – close to the base case – while emissions reductions over 2005–2030 would weaken to 37%.

Social impact with peak carbon price

- **Chosen scenario:** 120 million release volume



BNEF take

Increasing the MSR TNAC adjustment volume will have a limited effect in lowering ETS II price forecasts. It also risks hurting emission reduction efforts in the market, making it one of the weakest standalone policy sub-measures.

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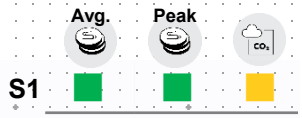
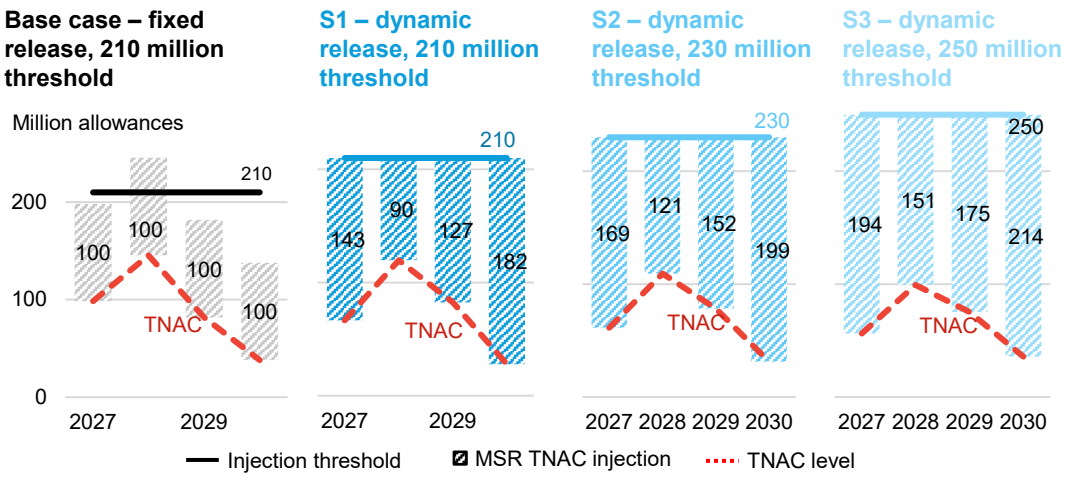
Sub-measure 5: Dynamic MSR TNAC adjustment

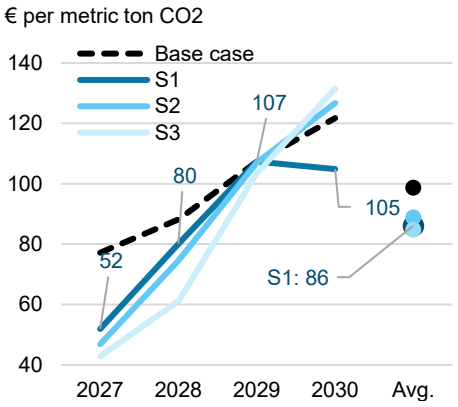


Policy timeline:
From 2027

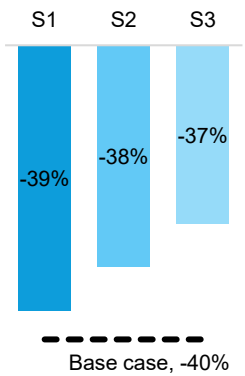
MSR injection volume, TNAC and injection threshold



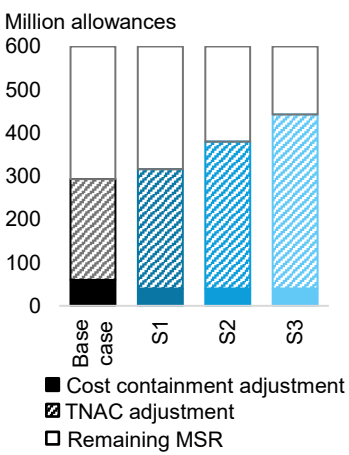
Price forecasts under different scenarios



Emission reductions 2030 vs 2005



Cumulative MSR used by 2030



Source: BloombergNEF. Note: Avg. means average prices in this decade.

Current assumption

- The MSR releases 100 million allowances across 12 months if the TNAC is below 210 million allowances.

Proposed changes

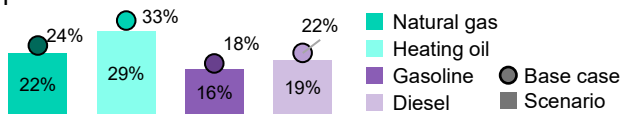
- BNEF adds a dynamic TNAC adjustment that takes the difference between the ejection threshold and actual TNAC (**Scenario 1**). BNEF also explores scenarios with dynamic adjustment but changes the threshold to 230 million (**Scenario 2**) and 250 million (**Scenario 3**).

Price impact and emission reductions

- Under this measure, more allowances are supplied to the market when the surplus is low and fewer when it is high. This keeps the total number of allowances released by the MSR over the decade broadly in line with the base case, thereby maintaining the same level of emissions reductions.
- In Scenario 1, where the release threshold is set at 210 million allowances – the same as in the base case – the average carbon price this decade falls by 13% to €86/tCO2, while emissions reductions average 39%. Dynamic releases linked to surplus levels also help prevent price spikes: in 2030, the carbon price under Scenario 1 is €105/t, about 14% lower than in the base case.
- As with other TNAC adjustment scenarios, however, raising the release threshold reduces prices in the near term but leads to a sharp rebound by 2030.

Social impact with peak carbon price

- **Chosen scenario:** S1



BNEF take

- **Dynamic allowance releases for TNAC adjustment under the same ejection threshold can help ease average carbon prices and prevent price spikes, while maintaining emissions reduction levels.**
- **This works by reallocating allowances released by the MSR, rather than simply adding to overall supply, as in the previous sub-measure.**

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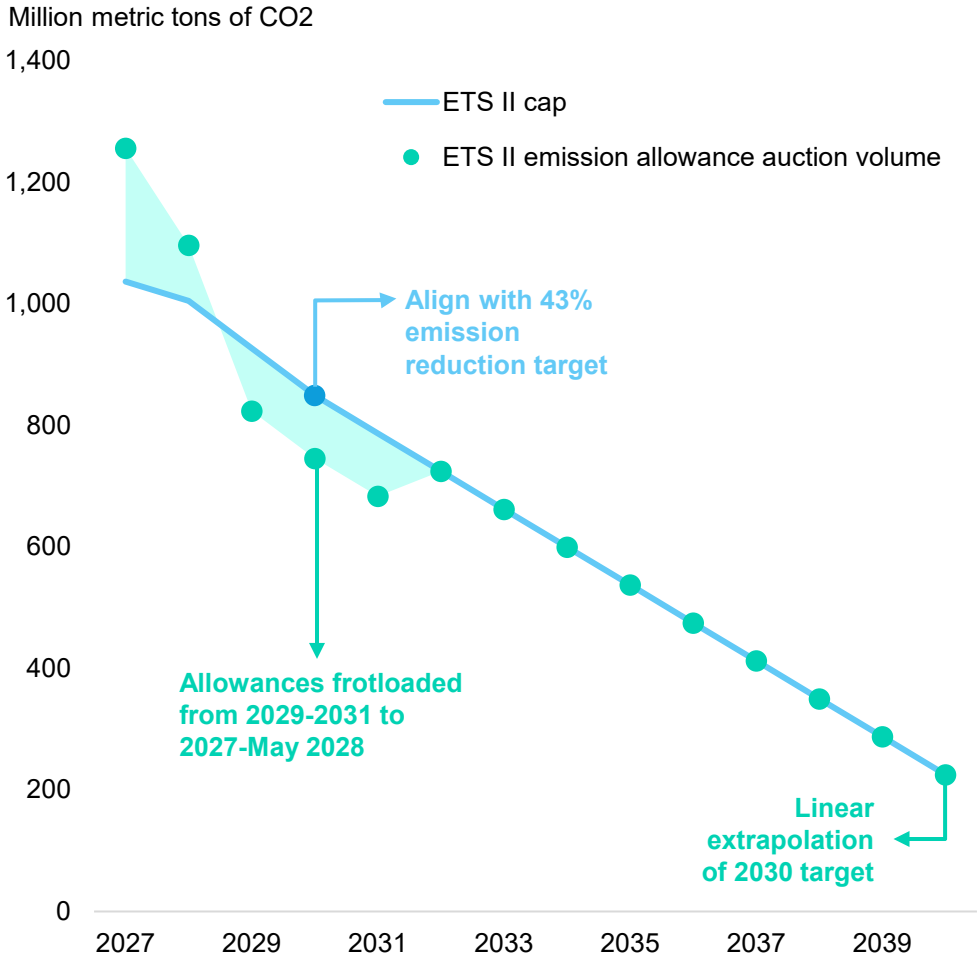
What are emission allowance caps and frontloading?

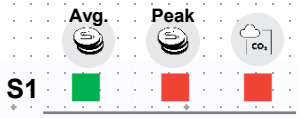
ETS II emission allowance cap and annual supply post frontloading adjustment



Source: BloombergNEF, European Commission.

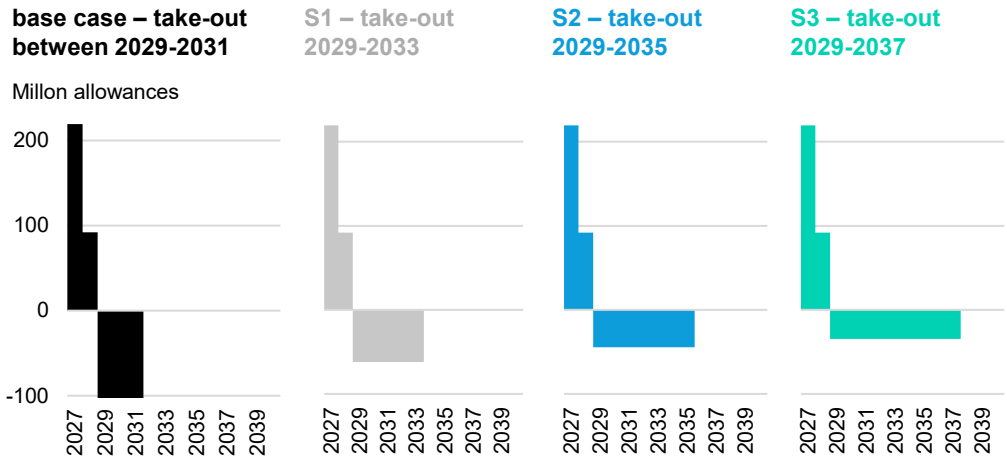
- Emission allowances under the EU ETS II will be supplied to the market via auctions. Supply will decline annually in line with the target for 43% emission reductions by 2030, compared with 2005 levels. In December 2024, the European Commission confirmed that total allowance supply in 2027 will be 1,036 million. Following the reduction trajectory, supply falls to 849 million allowances in 2030.
- To ensure sufficient liquidity and hedging at market launch, some allowances will be "borrowed" from later years and auctioned earlier – a process known as *frontloading*. Auction volumes in 2027 will rise by 30% (311 million allowances), with volumes brought forward equally from 2029-2031. The additional 2027 volume may be auctioned until May 2028.
- While frontloading creates an allowance surplus in the early years, it is likely to result in a market deficit later. Annual supply will drop by 273 million allowances in 2029 versus 2028, increasing pressure on decarbonization.
- Between 2027 and 2030, ETS II is expected to deliver 239 million metric tons of emission reductions in road transport and buildings, to 889MtCO2, or 40% emission reduction compared to 2005 levels. This, however, comes at the cost of high carbon prices, forecasted at €122/tCO2.
- **Although the frontloading plan is embedded in the Directive, it could still be adjusted during the 2028 review.** For example, spreading the withdrawal of allowances over five years (2029-2033), rather than three, would smooth the expected deficit in 2029-2031 and help ease carbon price pressures.

Sub-measure 6: Cap frontloading smoothing

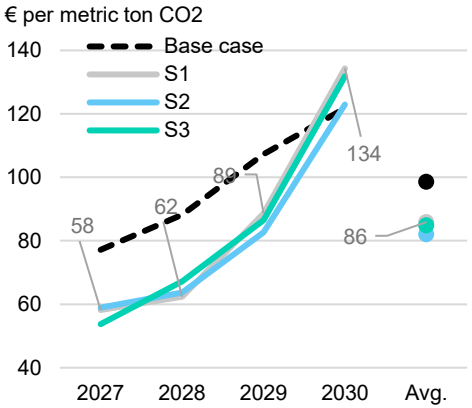


Policy timeline:
From 2029

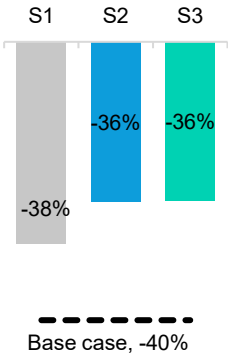
Annual supply adjustment due to frontloading



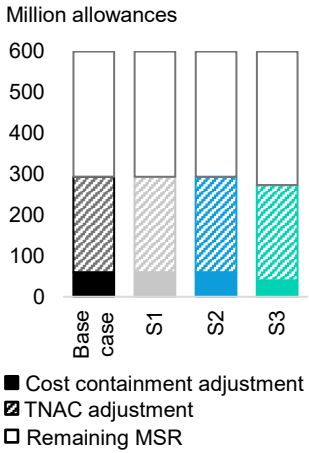
Price forecasts under different scenarios



Emission reductions 2030 vs 2005



Cumulative MSR used by 2030



Source: BloombergNEF. Note: Avg. means average prices in this decade.

Current assumption

- Auction volumes between January 2027 and May 2028 will be increased by a total of 311 million allowances, taking volumes equally from 2029 to 2031.

Proposed changes

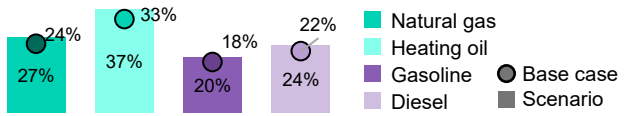
- BNEF assumes a market review in 2028 revises the years when allowances are brought forward. These scenarios assume allowances will be taken out equally across five (**Scenario 1**), seven (**Scenario 2**) and nine years (**Scenario 3**).

Price impact and emission reductions

- Extending the take-out period increases allowance supply between 2029 and 2031 compared to the base case. Because the market has a forward-looking horizon – tending to price in future market balances and adjust emissions in advance – increasing allowance supply later this decade lowers both carbon prices and emissions reductions in the near term.
- Extending the allowance take-out period from three years to five years reduces the average carbon price this decade to €86/tCO2, about 13% below the base case. However, emissions reductions would also fall to 38% between 2005 and 2030, compared with the base case of 40%. Further increase the take-out period will not significantly lower carbon prices in the near term.
- Nonetheless, across all scenarios under this measure, carbon prices converge to high levels of around €134/tCO2 in 2030 – higher than the base case – as the market must catch up on emission reductions to compensate for the slower start.

Social impact with peak carbon price

- **Chosen scenario:** S1



BNEF take

Altering the frontloading timeline lowers carbon prices forecast in the near term compared to the base case. However, prices tend to surge at the end of the decade while emission reduction levels weaken relative to the base case.

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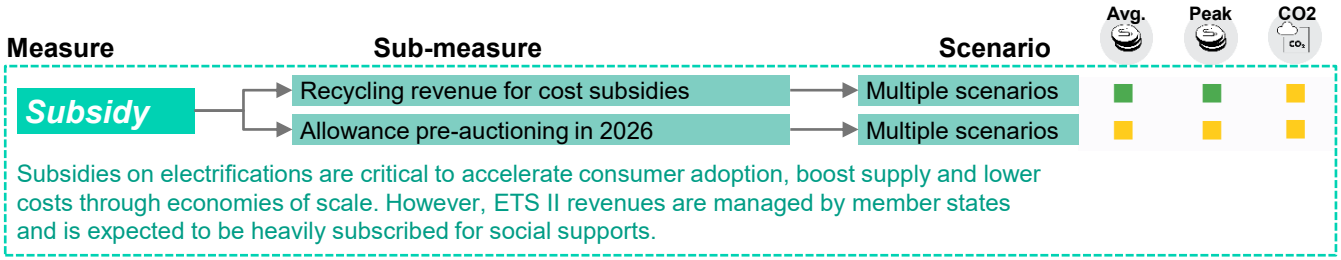
Measure 2: Subsidy

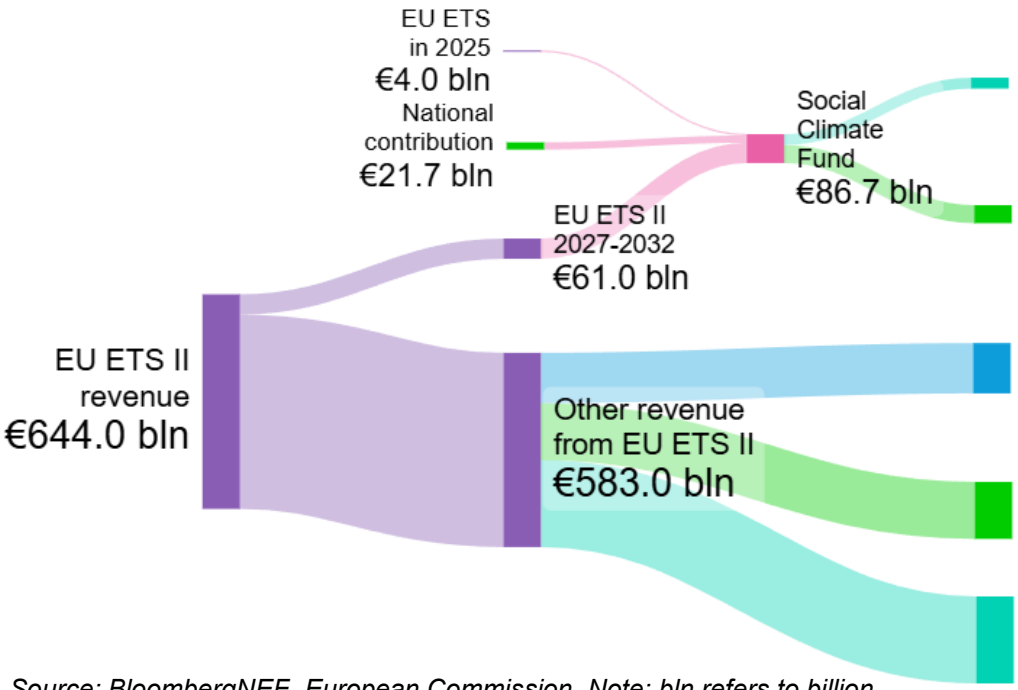
Financing and subsidize ETS II sectors



Subsidies on electrifications are critical to accelerate consumer adoption, boost supply and lower costs through economies of scale. However, ETS II revenues are managed by member states and is expected to be heavily subscribed for social supports.

Social support will take a large share of ETS II revenue

Financial supports and investments for ETS II sectors



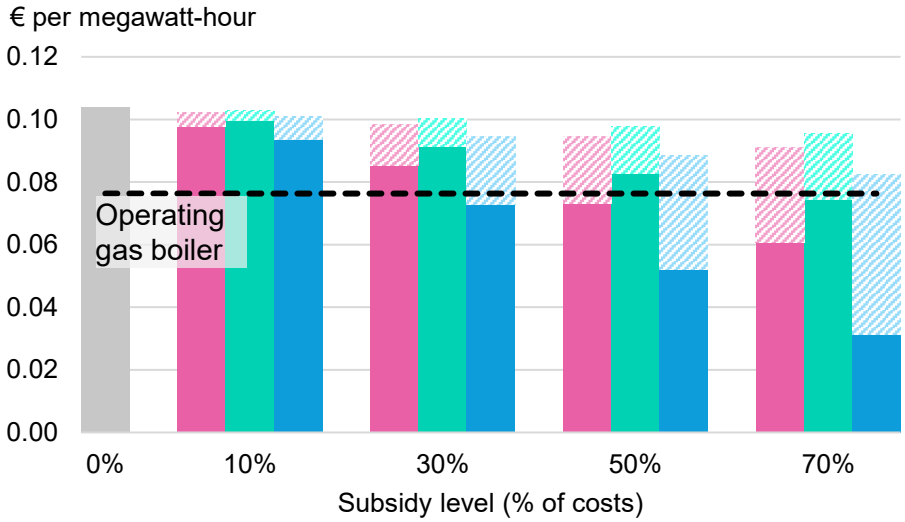
Action	Description	Impact on near term carbon price modeling
Direct income support €32.5 bln	Between 2026 and 2032. Aims to resolve social impacts brought by the EU ETS II.	**Limited** as social impacts such as demand destruction and inflation were not considered under the base case price forecast.
Investment for vulnerable groups €54.1 bln	Invest with lasting impacts on reducing the cost of the green transition for vulnerable groups. With milestones by July 2032.	**Limited** due to the long-term effect of such investments.
Cost subsidy	Subsidy on upfront costs (capex) and/or operational costs like electricity (opex).	**Bearish** as subsidies can shift consumers' preferences quickly.
Decarbonization investment	Invest in tech like charging, energy storage, grid upgrades, energy efficiency in buildings, public transport and mobility.	**Limited** due to the long-term effect of such investments.
Income support	Social support and a just transition.	**Limited** as social impacts such as demand destruction and inflation were not considered under the base case price forecast.

Source: BloombergNEF, European Commission. Note: bln refers to billion.

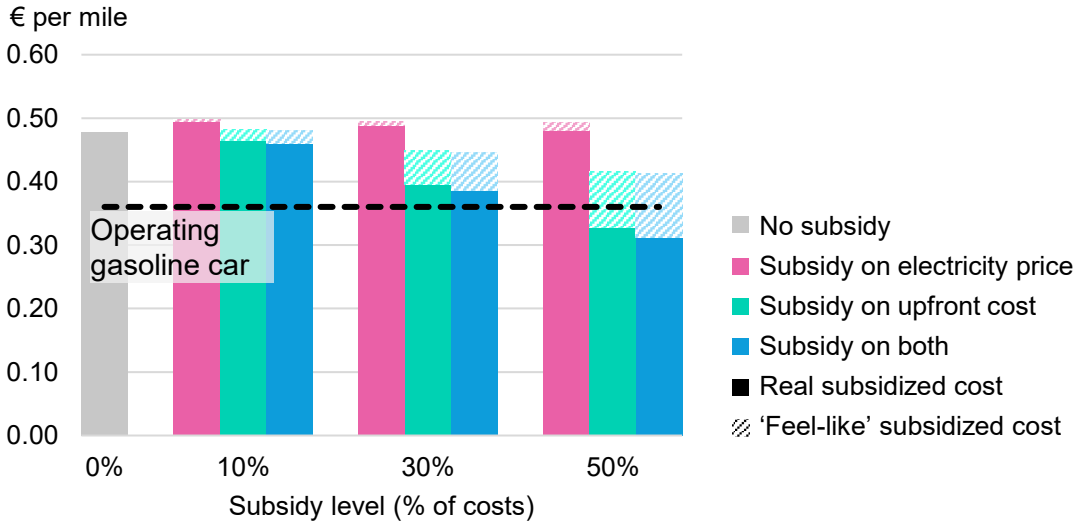
- According to BNEF's revised base case forecast, auctioning allowances under the EU ETS II will generate €644 billion in revenue for member states between 2027 and 2035. Consistent with the current EU Emissions Trading System (EU ETS), 100% of the revenue are legally mandated to support decarbonization efforts. The ETS II will prioritize cutting emissions in road transport and buildings. A dedicated portion of these revenues will also fund the newly established Social Climate Fund alleviating the social and economic impacts from the new market.
- Some €61 billion, or 9%, of EU ETS II revenue, is allocated to the Social Climate Fund, which will run from 2026 to 2032. Together with other funding sources from the EU ETS (€4 billion) and national contributions (€21.7 billion), the Social Climate Fund will total €86.7 billion to finance National Social Climate Plans, providing direct income support and long-term investments to ease the cost of the green transition for vulnerable groups. The Social Climate Fund aims to prevent energy poverty and inflationary pressures, though milestones for investment are set for 2032, limiting the near-term impact on emissions.
- Member states are legally required to use all remaining ETS II revenue (estimated at €583 billion) for decarbonization, with priority given to social measures. A recent study by T&E recommends that at least 50% of total ETS II revenues be returned as financial compensation to low- and lower-middle-income households.
- Apart from long-term investment such as infrastructure, public transport and mobility, a timely subsidy on purchasing costs or electricity costs on consumers could see a rapid change on consumer choices and accelerate the uptake of electric vehicles and heat pumps in the near term. Such measures are also likely to deliver broader benefits, including shifting consumer preferences toward low-carbon technologies and lowering costs through economies of scale.

Subsidies on electrification options will alter consumer choices, but not fully

Levelized cost of home heat pump in 2027, with and without subsidies



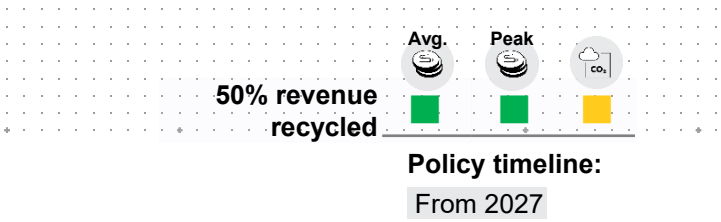
Total cost of ownership of passenger EVs in 2027, with and without subsidies



Source: BloombergNEF's Heating Unit Economy Calculator (web | terminal) and Vehicle Total Cost of Ownership Model (web | terminal). Note: EV refers to electric vehicles. Total cost of ownership for an operating large gasoline passenger vehicle assumed with 50% residual value.

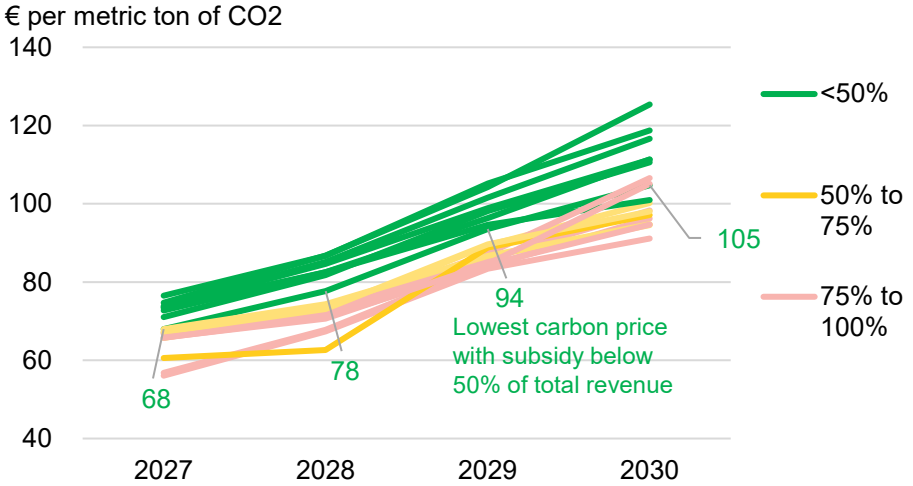
- Subsidies on the cost of buying and using electric vehicles and heat pumps can take various forms, including reducing prices or taxes, offering cashbacks, or providing government loans to consumers and manufacturers. Subsidies may target **upfront costs (capex)** at purchase or **recurring costs (opex)**, such as electricity or fuel use.
- Subsidies are not always fully felt by the market, limiting their effectiveness in scaling adoption of low-carbon technology. The extent to which consumers respond to price changes is known as *price elasticity of demand* and ranges from -1 to 1.
- In Europe, research on elasticities for EVs and heat pumps remains limited. Existing surveys from Europe and the US suggest an elasticity of around -0.3 for both the capex and opex of home heat pumps. This means a 100% cost increase reduces consumer adoption by 30%. For passenger EVs, elasticity is higher for capex: a 100% increase in upfront costs would reduce demand by 50%, while opex elasticity is similar to heat pumps.
- A 50% subsidy on the upfront cost of a medium-size passenger EV could lower the total cost of ownership (TCO) to €0.33/mile in 2027, compared with €0.48/mile without subsidies. Yet, when applying these same elasticity coefficients, the cost "felt" by consumers would be closer to €0.42/mile.
- For EVs, subsidies on upfront costs are more impactful than those on electricity, given higher capex elasticity. For heat pumps, however, subsidizing electricity is more effective than lowering upfront costs, since electricity accounts for ~55% of their levelized cost, versus a smaller share for capex.
- **In the following two sub-measures, BNEF analyses how recycling ETS II revenues into direct subsidies for EVs and heat pumps – both upfront costs and electricity – could influence carbon prices.**

Sub-measure 7: Recycling revenue for cost subsidies

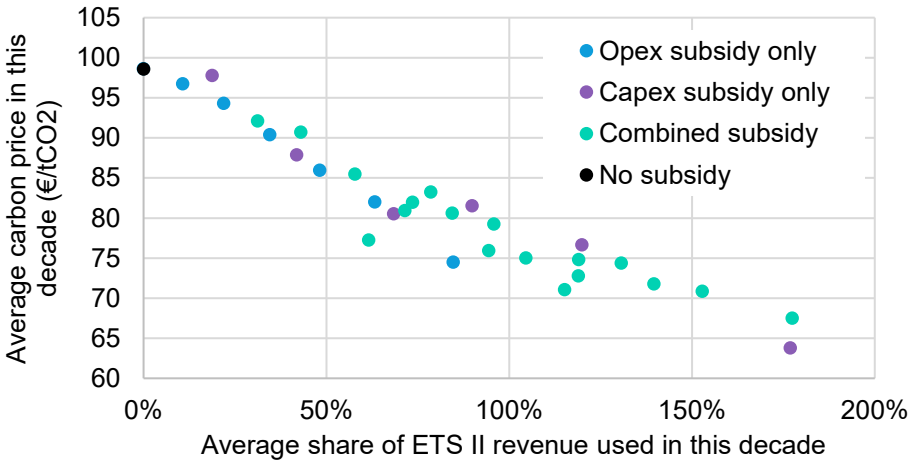


Policy timeline:
From 2027

Price forecasts by % of total revenue recycled in this decade



Average carbon prices in this decade with different levels of subsidies



Source: BloombergNEF

Current assumption

- The base case forecast does not account for the short-term impact on carbon prices if ETS II revenues are recycled to directly subsidize low-carbon technologies in the road transport and buildings sectors.

Proposed changes

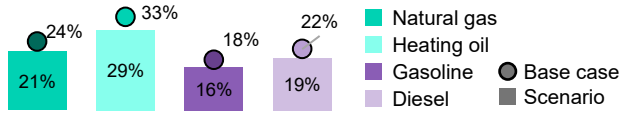
- A proportion of ETS II revenues is recycled to directly subsidize the upfront costs and reducing cost of electricity use of EVs and heat pumps. In the model, this is reflected through lower abatement costs, adjusted by consumers' willingness to pay.

Price impact and emission reductions

- Subsidies directly reduce the levelized cost, or total cost of ownership, of electrification options, thereby lowering the carbon price needed to incentivize a shift toward such technologies. Across all subsidy scenarios, emissions reductions between 2005 and 2030 remain at 40%, broadly in line with the base case.
- However, subsidies can only ease carbon prices to a limited extent, given the low price-elasticity of consumer preferences. Recycling 50% of ETS II revenues this decade into EVs and heat pumps reduces the average carbon price to €86/tCO2, compared with €99/t in the base case. In 2030, the carbon price falls to €105/t, from €122/t in the base case.
- Overall, subsidizing electricity costs delivers a larger price reduction than targeting upfront costs alone. This is because subsidizing operating expenses lowers the marginal abatement costs that determine the ETS II carbon price. For example, with heat pumps electricity accounts for a large share of lifetime costs. Consumers feel the impact of heat pump subsidies more due to higher price elasticity compared to EVs.

Social impact with peak carbon price

- **Chosen scenario:** 50% revenue recycled for cost subsidies



BNEF take

Subsidies for electrification costs are critical to accelerating the shift in consumer preferences toward low-carbon options, thereby reducing carbon prices under ETS II and easing social impacts. More broadly, they also help catalyse supply and lower costs through economies of scale.

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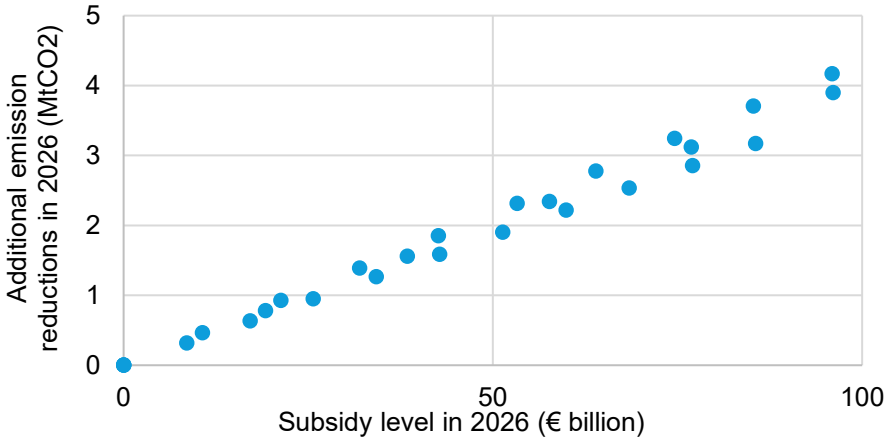
Sub-measure 8: Allowance pre-auctioning in 2026

Pre-auctioning

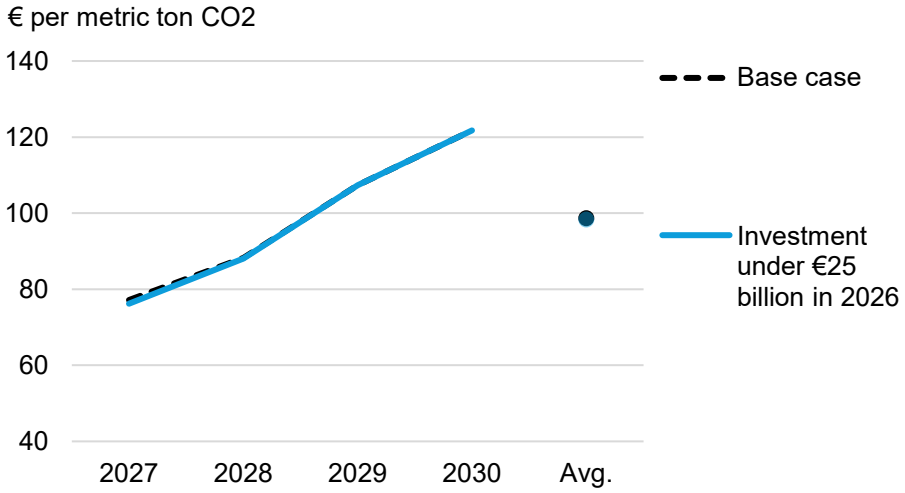
Avg. Peak

Policy timeline:
In 2026

Emission reductions in 2026 under different levels of subsidies



Price forecasts under different scenarios



Source: BloombergNEF. Note: Avg. means average prices in this decade.

Current assumption

- There is no pre-auction of ETS II allowances in 2026.

Proposed changes

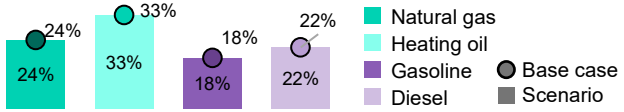
- A proportion of allowances are auctioned in 2026 and provide subsidization for the upfront costs and electricity for EVs and heat pumps in that year. It is assumed that this will incentivise consumers to shift away from fossil fuels, subject to their elasticity.

Price impact and emission reductions

- Subsidies in 2026 can only deliver limited impacts on emissions under the EU ETS II as one year is too short to see meaningful consumer shifts to electrical options. Regardless of the source of the subsidy, if €25 billion were mobilised in 2026, it would deliver only 1MtCO2 of additional emission reductions that year, compared with BNEF's base-scenario projections. This will only lower carbon price in 2027 marginally by €1/tCO2.
- However, this does not mean no action should be taken. Pre-auctioning ETS II allowances in 2026 could give market participants a clearer price signal and encourage hedging. Higher hedging activities could incentivize more emission reductions in the near term and prevent price hikes in later years.

Social impact with peak carbon price

- **Chosen scenario:** €25 billion used for subsidy in 2026



BNEF take

- **Investment in 2026 will not contribute meaningfully to lower emissions and therefore carbon prices. However, pre-auctioning of allowances in 2026 could change market behaviour in terms of hedging, which reduces future price levels by encouraging emission reductions in advance.**
- **Non-financial measures – such as raising consumer awareness of upcoming ETS II costs – could also encourage earlier shifts to technologies like electric vehicles. This would help reduce social impacts from 2027 onward, while also lowering emissions.**

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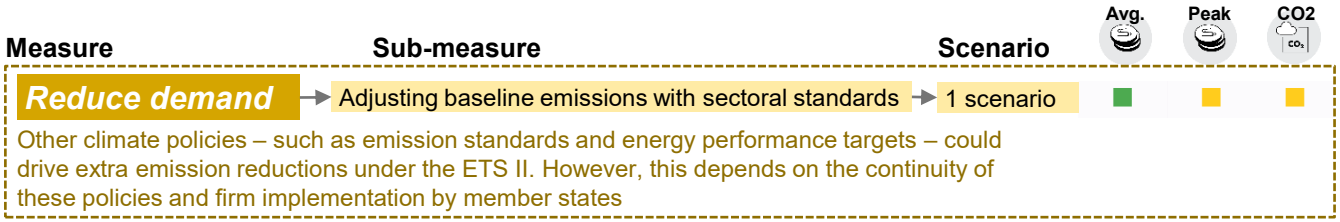
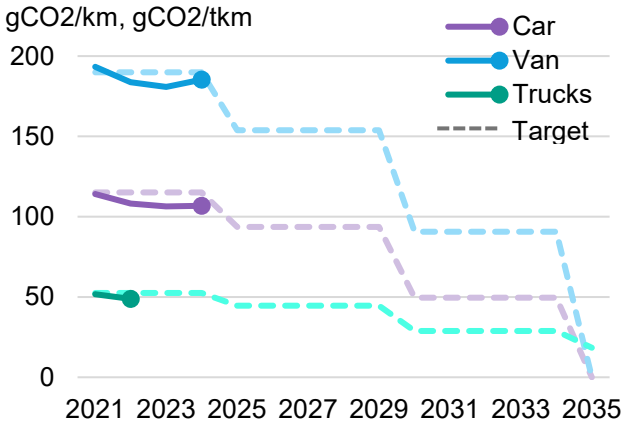
Measure 3: Reduce demand

Meeting other policy targets

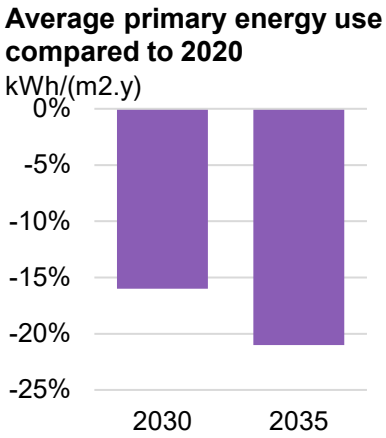


How EU sectoral emission standards compare to ETS II targets

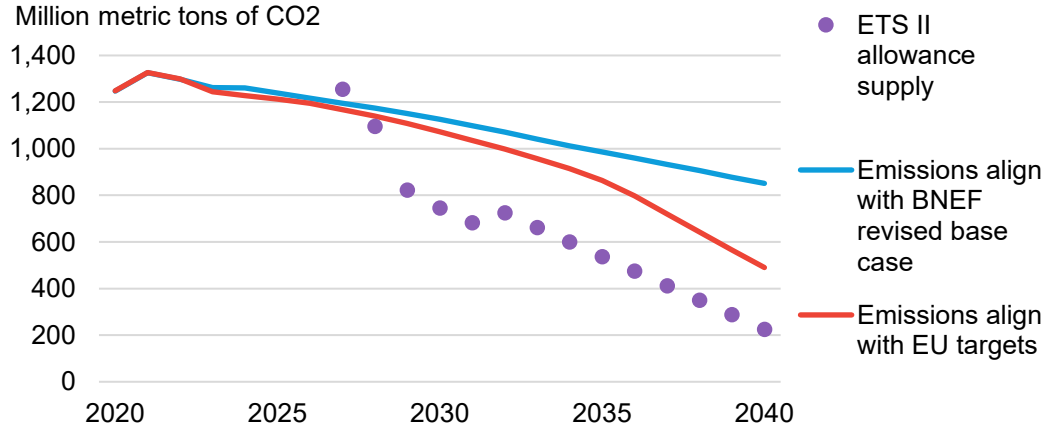
Real-world emission intensity and standards for EU road transport sector



EU building energy performance target



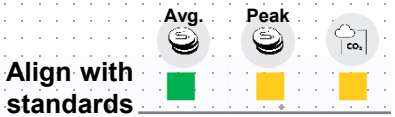
ETS II allowance supply compared to BNEF base-case emission trajectories and sectoral emission standards



Source: BloombergNEF, European Commission. Note: Emission targets for cars and vans are in gCO2/km (WLTP) and for trucks are in gCO2/tkm (WLTP).

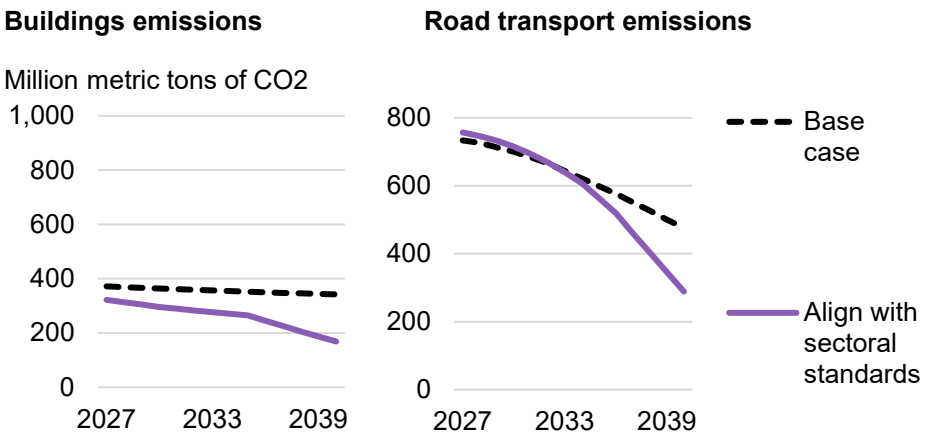
- The EU ETS II is not the only policy tool aimed at reducing emissions in the road transport and buildings sectors. Both are also covered by the Effort Sharing Regulation (ESR), which requires member states to collaborate and cut the bloc's total emissions from domestic transport (excluding aviation), buildings, agriculture, small industry and waste by 40% by 2030, compared with 2005 levels. In addition, sector-specific targets are in place.
- For transport, EU regulations on vehicle emissions set fleet-wide standards. New cars and vans must be zero-emission by 2035 across the EU, while the emission intensity of new trucks must fall 65% by 2035 compared with 2019 levels.
- For buildings, the Energy Performance of Buildings Directive requires residential building energy performance improve by 16% by 2030 and 21% by 2035, relative to 2020 levels. It also bans subsidies for fossil-fuel boilers from 2025.
- Other policies also target emission cuts in the building and transport sectors. This includes biofuel mandates under the Renewable Energy Directive and the REPowerEU goal to install 60 million heat pumps in the EU by 2030.
- Taken together, these standards and energy targets reduce BNEF's expected baseline emissions. Without the application of a carbon price, emissions from ETS II sectors will total 1,072 MtCO2 in 2030, compared with 1,129 MtCO2 under BNEF's base case estimation. This will reduce allowance demand in the new carbon market and lower projected carbon price levels.
- However, this is still far from the emission reduction target set under the ETS II in 2030 at 849 MtCO2 (before frontloading adjustments). This means that the carbon market will be the main driver of emission reductions for road and buildings in this decade.
- Achieving these targets ultimately hinges on consistent policymaking, yet recent developments suggest lawmakers may be softening the rules. In May 2025, EU policymakers granted carmakers a two-year extension to comply with their emissions standards. Even so, BNEF examines how additional policy support could influence carbon prices under ETS II, assuming all sectoral goals are achieved.

Sub-measure 9: Aligning baseline emissions with sectoral standards

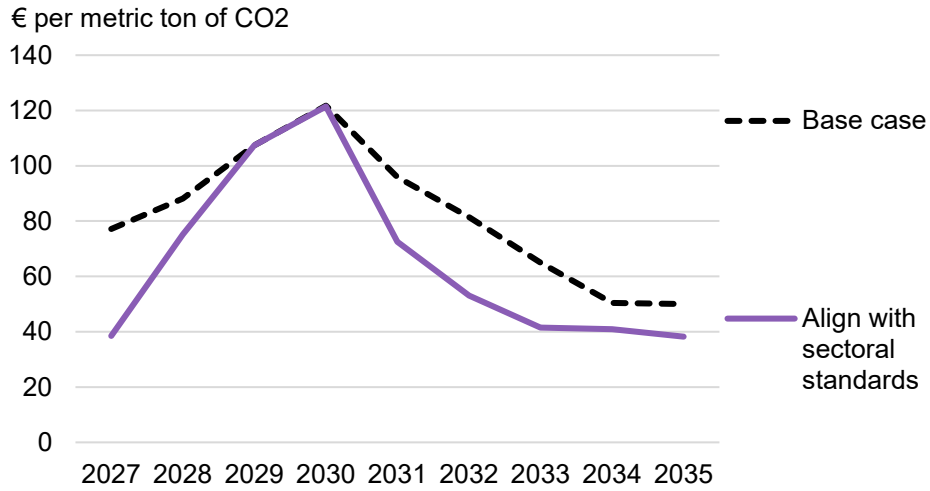


Policy timeline:
From 2027

Emission trajectories under different scenarios



Price forecasts under different scenarios



Source: BloombergNEF New Energy Outlook 2025 (web | terminal), UNFCCC.

Current assumption

- Base emissions revises baseline emissions with the latest 2023 greenhouse gas inventory data from UNFCCC, as well as emission reduction trajectories modeled by BNEF in its 2025 *New Energy Outlook*.
- Assumes not all EU emission standards will be met by 2030.

Proposed changes

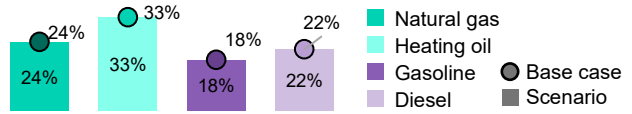
- **Scenario 1:** Alternatively, it is assumed all sectoral standards could be reached by 2030 and baseline emissions are revised to align with those targets.

Price impact and emission reductions

- Aligning baseline emissions with sectoral standards further reduces carbon price forecasts. Average prices out to 2030 fall to €86/t – 13% below the €99/t base case. However, the peak carbon price in 2030 will reach €121/tCO2, a similar level compared €122/t in the base case.
- In this scenario, final emissions in 2030 are 40% lower than in 2005, the same reduction as in the base case.

Social impact with peak carbon price

- **Chosen scenario:**
  Align with sectoral standards



BNEF take

Achieving the targets set by EU emissions and performance standards would reduce the pressure on ETS II to deliver emission cuts. However, doubts remain over the likelihood of meeting these goals, particularly as policymakers have already begun to relax certain regulations.

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Conclusion

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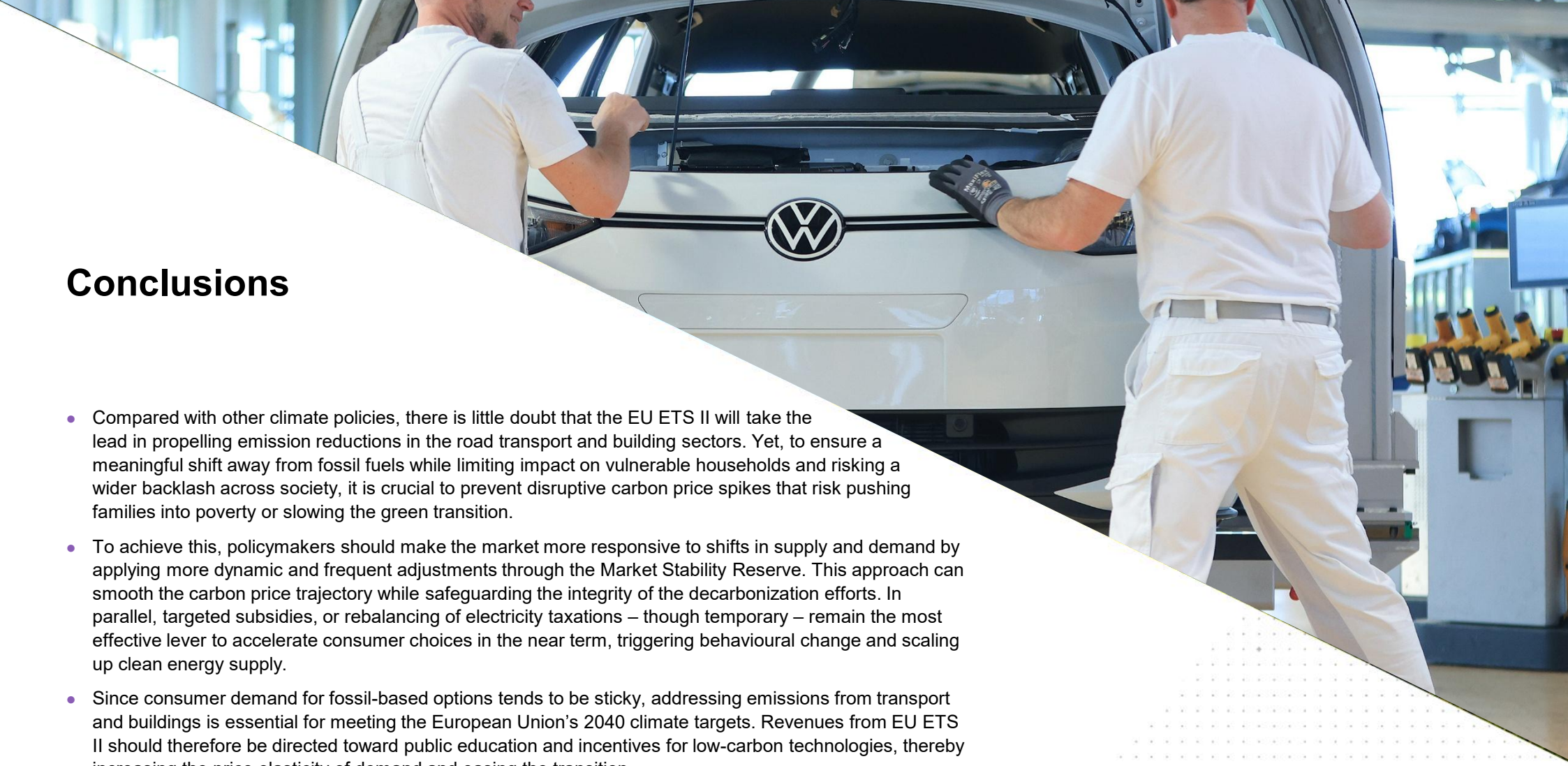

Conclusions

- Compared with other climate policies, there is little doubt that the EU ETS II will take the lead in propelling emission reductions in the road transport and building sectors. Yet, to ensure a meaningful shift away from fossil fuels while limiting impact on vulnerable households and risking a wider backlash across society, it is crucial to prevent disruptive carbon price spikes that risk pushing families into poverty or slowing the green transition.
- To achieve this, policymakers should make the market more responsive to shifts in supply and demand by applying more dynamic and frequent adjustments through the Market Stability Reserve. This approach can smooth the carbon price trajectory while safeguarding the integrity of the decarbonization efforts. In parallel, targeted subsidies, or rebalancing of electricity taxations – though temporary – remain the most effective lever to accelerate consumer choices in the near term, triggering behavioural change and scaling up clean energy supply.
- Since consumer demand for fossil-based options tends to be sticky, addressing emissions from transport and buildings is essential for meeting the European Union's 2040 climate targets. Revenues from EU ETS II should therefore be directed toward public education and incentives for low-carbon technologies, thereby increasing the price elasticity of demand and easing the transition.
- At the same time, lawmakers can amplify the impact of the EU ETS II by aligning it with complementary initiatives, such as emission-intensity standards for new cars, vans, and trucks, as well as energy-performance targets for buildings across the bloc.
- Taken together, these measures would enable the EU ETS II to sustain carbon prices at around €45 per ton of CO_2 – below the European Commission's reference level – while still driving significant decarbonization in both sectors and delivering a 40% emissions reduction by 2030 compared to 2005 levels.

Appendix

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EU ETS II measures in three priority areas

Measure and sub-measure		Base case	New scenario	Average carbon price by 2030	Peak carbon price	Emission reductions
Supply measure	**MSR invalidation**	By 2030	Beyond 2030			
	MSR cost containment frequency	Once per year for soft price cap until 2029	Twice per year for soft price cap until 2029			
	MSR cost containment volume	20 million per year for soft price cap until 2029	40 million per year for soft price cap extended to 2030			
	MSR TNAC adjustment volume	100 mln if TNAC <210 mln	120 mln if TNAC <210 mln			
	Dynamic MSR TNAC adjustment	100 mln if TNAC <210 mln	Dynamic: 210 mln - TNAC			
	Cap front-loading take-out period	2029-2031	2029-2033			
Recycling revenue for subsidy		No subsidy	50% recycled for subsidy			
		No pre-auction of allowances	Pre-auction of allowances in 2026			
Baseline emissions		BNEF base case (revised with latest emissions and cost data as of 2025)	Align with sectoral standards			

Good No or minor impact Bad

Source: BloombergNEF. Note: mln refers to million. TNAC refers to total number of allowances in circulation. MSR refers to Market Stability Reserve. Table does not include scenarios that combine measures.

ETS II carbon price and emission reduction levels under combination of measures

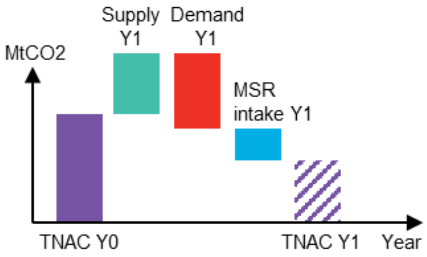
More feasible ▶
More desirable ▶

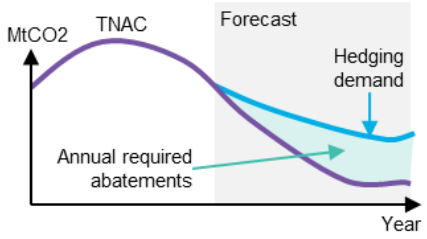
	Measures					Results			
	MSR TNAC adjustment	MSR 'soft price cap' triggering frequency	MSR 'soft price cap' release volume	Supply front-loading take-out period	Revenue recycled for subsidy in addition to 50% social support	Avg. carbon price 2027-2030 (€/tCO2)	Max carbon price 2027-2030 (€/tCO2)	Total revenue 2027-2030 (€ billion)	Emission reduction 2030 vs 2005
	Dynamic	Twice per year	20 million	5-year	41%	44.7	62.0	190	-36%
	Dynamic	Twice per year	20 million	5-year	41%	44.7	62.0	190	-36%
	Dynamic	Twice per year	40 million	5-year	40%	45.8	62.0	196	-36%
	Dynamic	Twice per year	40 million	5-year	40%	45.8	62.0	196	-36%
	Dynamic	Twice per year	20 million	5-year	21%	46.1	63.8	196	-36%
	Dynamic	Twice per year	20 million	5-year	21%	46.1	63.8	196	-36%
	Dynamic	Twice per year	40 million	5-year	20%	47.3	63.8	202	-36%
	Dynamic	Twice per year	40 million	5-year	20%	47.3	63.8	202	-36%
	Dynamic	Once per year	20 million by 2029	5-year	0%	48.2	64.5	203	-36%
	Fixed	Twice per year	40 million	5-year	37%	49.0	61.9	207	-37%
	Fixed	Twice per year	40 million	5-year	37%	49.0	61.9	207	-37%
	Fixed	Twice per year	40 million	5-year	19%	50.1	63.8	211	-37%
	Fixed	Twice per year	40 million	5-year	19%	50.1	63.8	211	-37%
	Fixed	Twice per year	20 million	7-year	35%	51.9	70.4	218	-36%
	Fixed	Twice per year	20 million	7-year	35%	51.9	70.4	219	-36%
	Fixed	Twice per year	20 million	7-year	18%	52.6	68.9	221	-36%
	Fixed	Twice per year	20 million	7-year	18%	52.6	68.9	223	-36%
	Fixed	Twice per year	20 million	5-year	39%	53.5	71.6	223	-37%
	Fixed	Twice per year	20 million	5-year	39%	53.5	71.6	224	-37%
	Fixed	Twice per year	40 million	3-year	34%	54.7	63.5	230	-39%
	Fixed	Twice per year	40 million	3-year	34%	54.7	63.5	230	-39%
	Fixed	Twice per year	40 million	3-year	18%	54.7	65.1	229	-39%
	Fixed	Twice per year	40 million	3-year	18%	54.7	65.1	229	-39%
	Dynamic	Once per year	20 million by 2029	3-year	0%	54.8	68.1	225	-40%
	Dynamic	Once per year	20 million	3-year	0%	54.8	68.1	225	-40%
	Fixed	Twice per year	20 million	5-year	18%	54.9	77.4	227	-37%
	Fixed	Twice per year	20 million	5-year	17%	54.9	77.4	229	-37%
	Dynamic	Once per year	20 million by 2029	3-year	35%	55.9	68.0	231	-40%
	Dynamic	Once per year	20 million by 2029	3-year	18%	55.9	68.7	230	-40%
	Dynamic	Twice per year	20 million	3-year	18%	56.1	68.9	232	-41%
	Dynamic	Twice per year	20 million	3-year	18%	56.1	68.9	232	-41%
	Dynamic	Twice per year	40 million	3-year	33%	57.1	73.3	236	-42%
	Dynamic	Twice per year	20 million by 2029	3-year	0%	57.1	71.8	234	-41%
	Dynamic	Twice per year	20 million by 2029	3-year	0%	57.1	71.8	234	-41%
	Dynamic	Once per year	40 million	3-year	0%	57.1	71.8	234	-41%
	Dynamic	Twice per year	40 million	3-year	32%	57.2	73.2	233	-42%
	Dynamic	Twice per year	20 million	3-year	35%	57.7	70.9	237	-41%
	Dynamic	Twice per year	20 million	3-year	35%	57.7	70.9	237	-41%
	Fixed	Twice per year	20 million	3-year	47%	58.3	71.8	241	-40%
Base case	Fixed	Once per year	20 million by 2029	3-year	0%	98.6	121.7	404	-40%

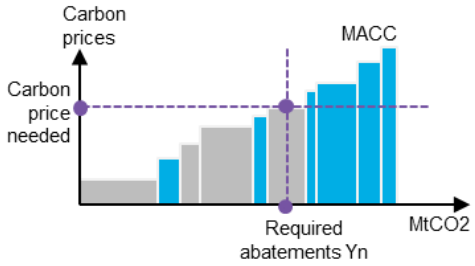
*Source: BloombergNEF. Note: BNEF's base case revised based on latest 2023 UNFCCC GHG inventory data and BNEF's EVO cost assumptions. Above forecasts assume baseline emissions align with other EU targets. Only showing results with emission reduction levels lower or equal to 36% by 2030 compared to 2005 levels and results lower than Commission's reference price level. The bottom row in this table, in **bold**, is BNEF's revised base case scenario.*

Carbon price forecast methodology

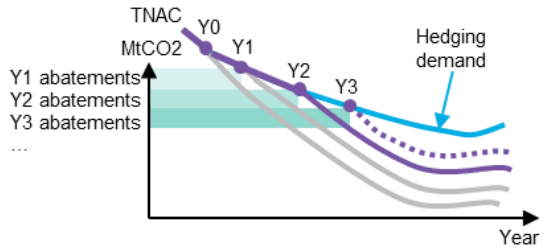
Methodology overview

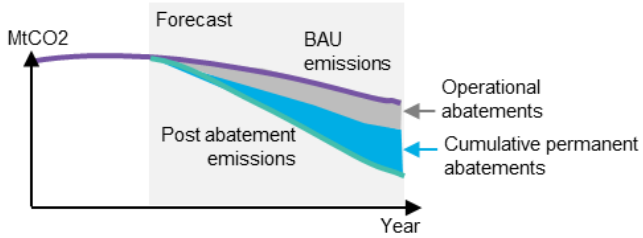






1. TNAC is calculated based on the cumulative supply minus the cumulative demand for allowances, taking into account the adjustment by the MSR.
2. **Annual EUA shortage** that requires abatement is calculated by comparing the TNAC against total hedging demand on that year
3. Required annual abatement, which is the annual EUA shortage adjusted by the market horizon, is met when the **carbon price** is equivalent to the minimum marginal abatement cost on the MACC*.





4. Each year, emission abatement lowers future emissions trajectory and therefore revises allowances demand, TNAC and MSR adjustments in the future.
5. Emission trajectories are thus updated through the price solving process with historical accumulated abatements and each year's operational abatements

Source: BloombergNEF. Note: TNAC refers to the total number of allowances in circulation; MSR is the Market Stability Reserve; MACC is the marginal abatement cost curve.

Pricing methodology

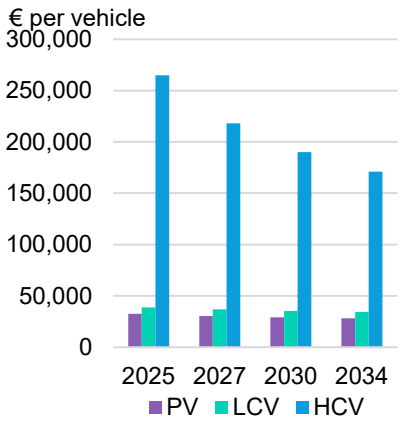
- Generally, carbon prices reflect the interaction between supply and demand. The equilibrium price in a market is achieved when supply equals demand.
- In the EU ETS II, supply refers to emission allowances provided by European lawmakers. Demand comes from a combination of compliance obligations, related hedging activities and speculative activities in the form of direct auctioning and trading in secondary markets.
- When supply does not equal demand, BNEF forecasts allowance prices by plugging the gap with emissions abatement. The price is then determined by the marginal cost of the final abatement technology that is required, using a marginal abatement cost curve (MACC).
- See our *EU ETS Carbon Pricing Model* for more (web | terminal).

Sources of data

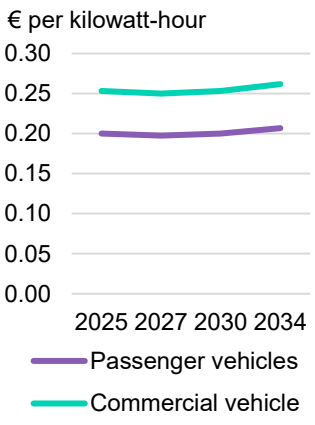
Supply	European Commission, UNFCCC GHG inventory data
Demand	UNFCCC GHG inventory data New Energy Outlook (web | terminal). Electric Vehicle Outlook (web | terminal)
MACC	Heating Unit Economics Calculator (web | terminal) Vehicle Total Cost of Ownership Model (web | terminal).
ETS II carbon pricing model	EU ETS II Carbon Pricing Model (web | terminal)
ETS II outlook	EU ETS II Market Outlook 2025 (web | terminal)

Additional model assumptions

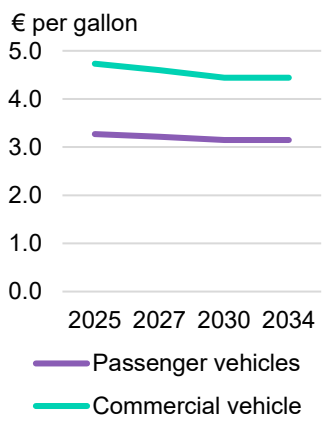
Upfront cost of road vehicles



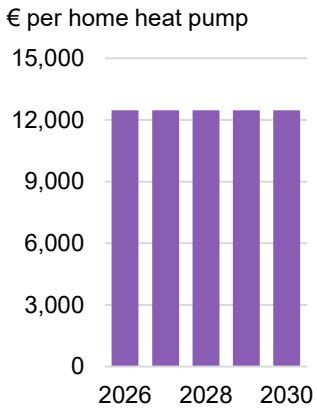
Electricity price in road transport



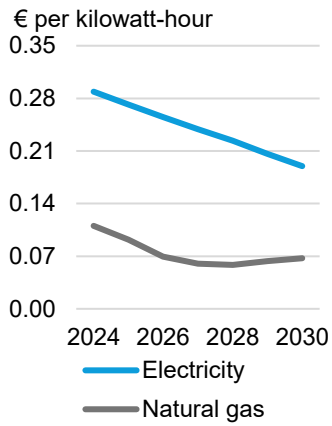
Diesel price in road transport



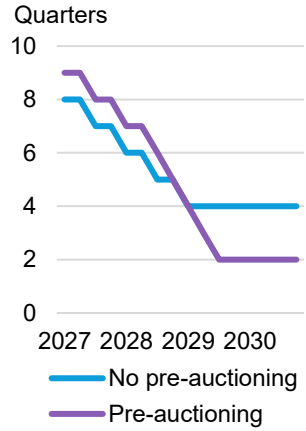
Upfront cost of home heat pumps



Natural gas and electricity price for heat pumps



Market horizon assumptions in carbon pricing model



Price elasticity of consumers' willingness to pay in ETS II sectors

		Existing studies	Elasticity assumption in report
EV	**Upfront cost**	• One survey found that a 20% increase in EV upfront costs in Europe would see 10% fewer consumers willing to pay. • A 2019 stated preference survey in select European countries found that government financial incentives on Evs' upfront costs are "fundamental" for consumers to consider an electric vehicle.	**-0.46 to -0.5**
	Electricity price	• According to research in 2022, there is almost a linear negative link between EV annual running costs and consumer willingness to pay. A 100% increase in EV annual running costs would result in 25% reduction in consumers' willingness to pay.	**-0.25**
Heat pumps	**Electricity price**	• Heat pump sales in Europe have a clear negative correlation with electricity prices, relative to gas prices. However, it is difficult to quantify the relationship given subsidy changes in the past four years. • In the US, one study estimated that a 10% increase in electricity prices leads to a 2 percentage-point drop in heat pump adoption rates. Another study in the US shows a strong negative correlation (–0.41) between electricity prices and heat pump adoption rates.	**-0.3**
	Upfront cost	• One survey shows that on average, every 17% drop in the upfront cost of a heat pump will increase UK homeowners' willingness to pay by 5%. • A broader review in selected European countries showed consumers' willingness to stick to high-carbon fuels in home heating, despite technology availability of heat pumps, reflecting an inelastic willingness to switch to electricity.	**-0.29**

Source: BloombergNEF, public sources. Note: Heat pump assumptions uses average of Germany, France, Italy. Road transport assumptions uses Germany. Prices are in real 2024. PV costs approximated by medium size passenger vehicle in Germany. PV refers to passenger vehicle, LCV refers to light-duty commercial vehicle, HCV refers to heavy-duty commercial vehicle.

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