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Polluter pays or taxpayer pays?

Weaker EU carbon prices widen the carbon capture funding gap

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Key findings

Concerns over industrial competitiveness are reshaping the EU's Emissions Trading System (ETS). Political pressure in 2026 has already contributed to lower carbon prices. European Commission proposals would increase the number of allowances in the market, bringing prices down further.

Long-term EU carbon price expectations have fallen sharply, with Dutch bank ABN AMRO cutting its 2030 forecast by 37% in under a year. This weakens the market incentive for expensive industrial decarbonisation.

This is particularly problematic for carbon capture and storage (CCS) projects. IEEFA estimates that a CCS portfolio equal to the EU's 2030 target would cost €351 billion over 25 years. Lower forecast carbon prices mean the ETS would cover less of these costs, widening the funding gap by 38%, from €103 billion to €142 billion.

Europe risks replacing the polluter pays principle with a taxpayer pays model. Lower carbon prices, extended free allowances and much larger public decarbonisation funds protect industry. But they weaken the ETS's incentive to cut emissions and shift technical and economic risk to the public.



Executive summary

The EU is weakening its carbon price, which will require more public money to support industrial decarbonisation. Proposed EU Emissions Trading System (ETS) changes respond to real concerns about industrial competitiveness, but they would also slow the reduction in the supply of EU allowances (permits to emit one tonne of carbon dioxide) and extend free allocation. The effect would be to reduce the cost of emitting and weaken the carbon price signal on which investment in lower-carbon technologies depends.

That matters particularly for carbon capture and storage (CCS), where costs remain high. Dutch bank ABN AMRO's 2030 forecast for the price of an EU allowance fell from €145 per tonne of carbon dioxide (tCO_2) in September 2025 to €91/tCO_2 in its August 2026 reform scenario. Against estimated full-chain CCS costs (capture, transport and storage) of €191–265/tCO_2, the carbon price leaves project owners a substantial gap to meet through lower costs, higher prices for industrial products, lower returns to companies or public support.

The scale of that gap is significant. In an illustrative CCS portfolio storing 50 million tonnes of CO_2 a year, annual costs reach €11 billion in 2030, compared with €3.8 billion of eligible ETS value. Over 2030–2054, the modelled funding gap rises from €103 billion under ABN AMRO's May 2026 price assumptions to €142 billion under its August reform scenario. These estimates are illustrative, and actual costs will vary by sector, technology, location, utilisation and transport route. They nevertheless show how much CCS depends on the carbon price and continued public support.

The European Commission's proposed Industrial Decarbonisation Bank and the recycling of ETS revenues may help projects proceed. But this changes who pays. If industry faces a lower carbon cost, keeps free allowances for longer and then receives public support to decarbonise, more of the financial burden shifts to taxpayers or levy payers. Using auction revenues also leaves less funding available for other public priorities.

The economics are not the only constraint. The EU's 2030 CCS ambition is 50 million tonnes of CO_2 of annual injection capacity, yet projects face long development times, permitting delays and technology risks. IEEFA previously found that 66% of proposed European capture volumes were in applications at technology readiness level seven (pre-commercial demonstration) or below and that more proposed capacity was cancelled in 2025 than reached final investment decision.

Europe may still build successful CCS projects, but lower EU allowance price expectations make an already difficult investment case harder. The emerging approach risks making pollution less expensive for emissions-intensive industries while relying on public money to pay for the technologies intended to reduce it. In effect, the EU could be replacing the polluter pays principle with a taxpayer pays model.

The EU carbon market

The EU launched its Emissions Trading System (ETS) in 2005 around a simple premise: make carbon dioxide and other greenhouse gases expensive and companies will have an economic incentive to emit less. The system requires owners of high-emission installations to surrender an EU allowance (EUA) for every tonne of carbon dioxide equivalent (tCO_2e) they emit.

The number of allowances is reduced over time in line with the EU's emissions targets, in theory making carbon increasingly expensive. This in turn incentivises emitters to reduce emissions and invest in lower-carbon technologies, while governments can use the revenues raised through the auctioning of allowances to further support lower-carbon investment.[1]

The EU ETS currently covers around 10,000 power plants and industrial installations, as well as aviation and maritime transport. It covers electricity and heat generation and major industrial sectors including oil refining, iron and steel, aluminium, cement, lime, glass, ceramics, pulp and paper, chemicals, hydrogen and ammonia. Maritime transport entered the system in 2024, and aviation coverage has progressively tightened.[2]

Industrial competitiveness concerns hit the carbon price

For much of the ETS's early life, carbon was cheap. EUA prices averaged just €4.33/tCO_2e in 2013 and €5.76/tCO_2e in 2017 as the market struggled with a large allowance surplus.[3] Prices subsequently rose rapidly as the system was tightened, reaching an average of €83.60/tCO2e in 2023 before falling to €64.76/tCO_2e in 2024.[4]

EUAs entered 2026 with expectations of further gains but fell heavily in the opening weeks of the year. In mid-February, the December 2026 contract had fallen almost €20/tCO_2e from its mid-January level and was trading close to €73/tCO_2e. This decrease continued, and by 26 February prices briefly fell below €70/tCO_2e. The decline was in part due to several EU Member States calling for the ETS to be watered down to boost the bloc's industrial competitiveness.[5] European manufacturers continue to face high energy costs, weak industrial demand and growing competition from the US and China. Against that backdrop, the additional cost imposed by the ETS became increasingly politically contentious.[6]

[1] European Commission. About the EU ETS. 13 May 2026.
[2] European Commission. Scope of the EU ETS. 17 October 2024.
[3] European Topic Centre on Climate Change Mitigation. Trends and Projections in the EU-ETS in 2025. December 2025.
[4] Ibid.
[5] S&P Global. European Carbon Prices Slide as Germany's Merz Says EU ETS May Need Revamping. 12 February 2026.
[6] ABN AMRO. Carbon Market Strategist - revised outlook amid anticipated structural shifts. 13 May 2026.

German Chancellor Friedrich Merz said in February 2026 that the ETS might need to be revised or postponed if it undermined European industry.[7] Italy called for the system to be suspended pending its review.[8] Poland and Czechia also pushed for stronger intervention, while Slovakia proposed a multi-year suspension.[9,10] A group of Central and Eastern European states sought changes to the planned withdrawal of free allowances. France supported retaining the ETS but argued for measures to manage excessive prices and volatility.[11]

At the EU Competitiveness Council on 26 February 2026, a large majority of ministers supported some form of review of the ETS and the Carbon Border Adjustment Mechanism,[12] albeit with very different views on how far reform should go.[13] Markets understood the message: Governments still wanted decarbonisation, but there was diminishing appetite for achieving it through ever-increasing carbon costs imposed on European industry.

Brussels responds with an ETS revision

The major legislative response came on 17 July 2026, when the European Commission published its targeted EU ETS review. The Commission framed the proposal around strengthening European industrial competitiveness while still delivering its target of reducing greenhouse gas emissions by 90% by 2040 compared to 1990.[14] Despite this, the underlying impact would be to water down the cost impact of the ETS by slowing the reduction of allowances, injecting more allowances into the system and extending free allowance allocations.

The proposal would reduce the rate at which allowance supply declines (the linear reduction factor) to 3.7% between 2031 and 2035, and potentially as low as 1.7% thereafter, compared with 4.4% under the current system. The Market Stability Reserve would also remove fewer surplus allowances from circulation, while free allowances would remain available for longer, conditional on investment in European decarbonisation. The proposal would also slow the planned phase-out of free allocation for sectors covered by the Carbon Border Adjustment Mechanism.[15] The net effect would be more allowances in the market, weighing on future carbon prices.

[7] Bloomberg News. Merz Says Europe Should Be Open to Revising Carbon Market. 11 February 2026.
[8] Politico. Italy calls for suspension of carbon price in major attack on EU climate policy. 26 February 2026.
[9] S&P Global. EU Carbon Prices Tumble as Major States Add to ETS Reform Calls. 26 February 2026.
[10] Bloomberg News. Slovakia's Fico Calls to Suspend Europe's Flagship Carbon Market. 20 January 2026.
[11] S&P Global. EU carbon prices tumble as major states add to ETS reform calls. 26 February 2026.
[12] The EU's Carbon Border Adjustment Mechanism aims to address carbon leakage by ensuring that the price of imports reflects their embedded carbon emissions. The mechanism encourages cleaner industrial production in non-EU countries.
[13] Council of the European Union. Competitiveness Council (Internal market and Industry), 26 February 2026.
[14] Council of the European Union. Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2003/87/EC and Decision (EU) 2015/1814 as regards driving competitiveness and cost-effective decarbonisation. 20 July 2026.
[15] ABN AMRO. Carbon Market Strategist - EU ETS review signals less scarcity and more industrial policy. 24 August 2026.

The Commission simultaneously proposed a €100 billion Industrial Decarbonisation Bank, including an Investment Booster funded by revenues from 400 million ETS allowances.[16] EU Member States would be required to direct at least 50% of relevant national ETS revenues towards industrial decarbonisation and other specified transition priorities.[17]

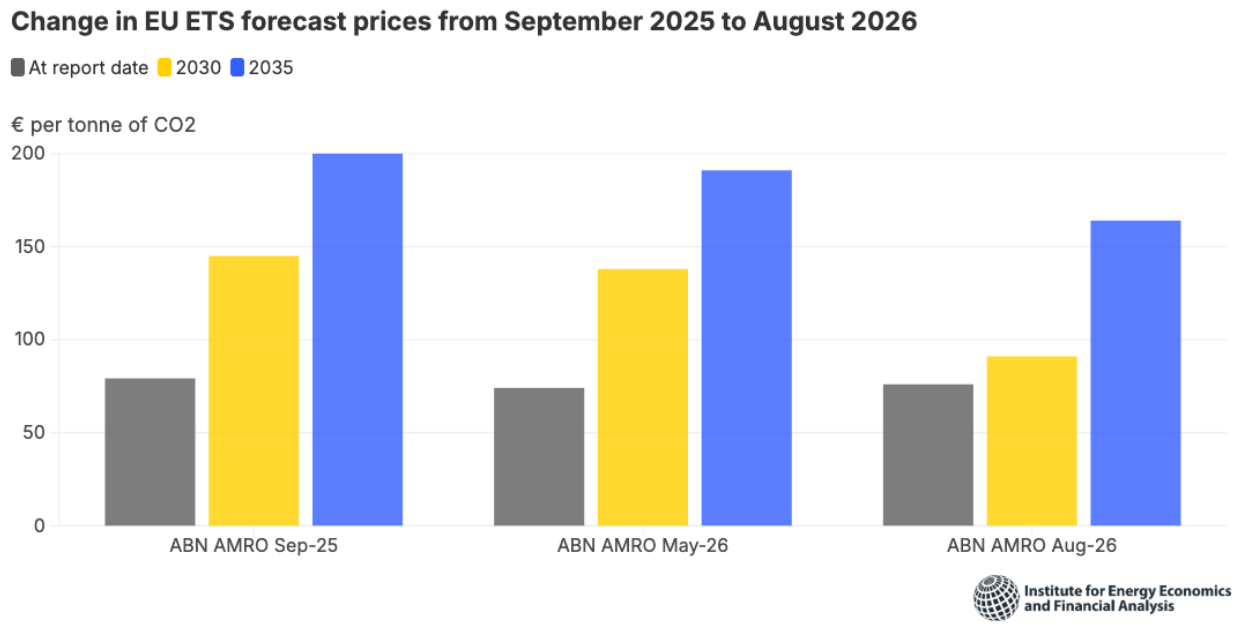
The direction is increasingly clear. The EU is moving away from relying primarily on ever-scarcer, more expensive carbon allowances to force industrial change. Instead, the emerging model combines a lower carbon price with significantly greater government-backed financial support. Dutch bank ABN AMRO describes this as a shift from a carbon price-led model towards a hybrid of carbon pricing, industrial policy and direct public support.[18]

Forecast carbon prices have fallen sharply

In September 2025, before the proposed changes to the ETS, ABN AMRO expected EUA prices to reach around €145/tCO_2 in 2030 and €200/tCO_2 in 2035.[19] Its May 2026 forecast reduced those figures slightly to €138/tCO_2 and €191/tCO_2.[20] In its August 2026 scenario, which assumes full adoption of the Commission's proposals, ABN AMRO expects prices to fall much further, to €91/tCO_2 in 2030 and €164/tCO_2 in 2035.[21] The bank noted that the proposed changes to allowance supply and the Market Stability Reserve could add almost 2 billion allowances to the market by 2040, relative to the current framework.[22] The revisions represent a 37% reduction in the 2030 ETS price forecast in less than a year.

[16] European Commission. Driving the EU's clean transition and competitiveness with a strong EU Emissions Trading System. July 2026.
[17] Ibid.
[18] ABN AMRO. Carbon Market Strategist - EU ETS review signals less scarcity and more industrial policy. 24 August 2026.
[19] ABN AMRO. ESG Economist - Scenarios shaping EU ETS prices. 16 September 2025.
[20] ABN AMRO. Carbon Market Strategist - Revised outlook amid anticipated structural shifts. 13 May 2026.
[21] ABN AMRO. Carbon Market Strategist - EU ETS review signals less scarcity and more industrial policy. 24 August 2026.
[22] Ibid.

Figure 1: Europe's long-term carbon price expectations have fallen



Source: ABN AMRO, Trading Economics.

ABN AMRO is not alone. S&P Global's price forecasts have moved in a similar direction: It reduced its 2050 EUA price assumption by about USD50/tCO_2.[23] Its latest planning case reaches around USD173/tCO_2 in 2040 and USD179/tCO_2 in 2050 in constant 2024 dollars.[24]

Lower carbon prices also mean less money for decarbonisation

The EU ETS has become an increasingly important source of government climate funding. Allowance auctions generated more than €258 billion between 2013 and 2025.[25] ETS revenues exceeded €43 billion in 2025 alone. The revenues flow to Member States and EU programmes such as the Innovation Fund and Modernisation Fund, supporting renewable energy, industrial decarbonisation, and carbon capture and storage (CCS), among other technologies.[26]

As auction revenue broadly depends on the number of allowances sold multiplied by their price, additional allowances can increase revenues, but only if prices do not fall by proportionally more than volumes rise. Lower prices due to increased supply can have a larger impact on overall revenue, the effect of which was apparent in 2024. Despite 15% more allowances auctioned than in

[23] S&P Global. sustained margins and gasoline strength: a temporary halt to refinery closures? December 2025.
[24] Ibid.
[25] European Commission. What are ETS revenues used for? 4 May 2026.
[26] Ibid.

2023, lower carbon prices contributed to weaker revenues. The average EUA price fell from €83.60/tCO_2e in 2023 to €64.76/tCO_2e in 2024 and revenues fell from €33 billion to €24.4 billion, a 26% drop.[27]

Reducing EUA scarcity can protect industrial companies from higher costs, but a lower carbon price also reduces the value of the allowances governments sell to finance the investments needed to decarbonise those same industries. The Commission is partly addressing this by auctioning additional allowances to finance new support programmes. But increasing allowance supply reduces scarcity and potentially places further downward pressure on prices.[28] The EU is therefore increasingly relying on recycled ETS revenues and direct support, rather than the carbon price itself, to make low-carbon investment economic.

Lower EUA prices weaken an already difficult CCS investment case

For an ETS-covered facility, permanently storing captured carbon can remove the obligation to surrender an EUA for each tonne of emissions.[29] IEEFA's 2024 analysis found that the full cost of capturing, transporting and storing carbon across planned European projects averaged USD198/tCO_2.[30] The costs vary substantially by industrial sector. The research also found that more than 90% of planned European capture capacity was associated with technologies at prototype or demonstration stages.[31] CCS technology risks accentuate the economic risks. While these cost estimates are highly uncertain, actual costs are likely to be higher.

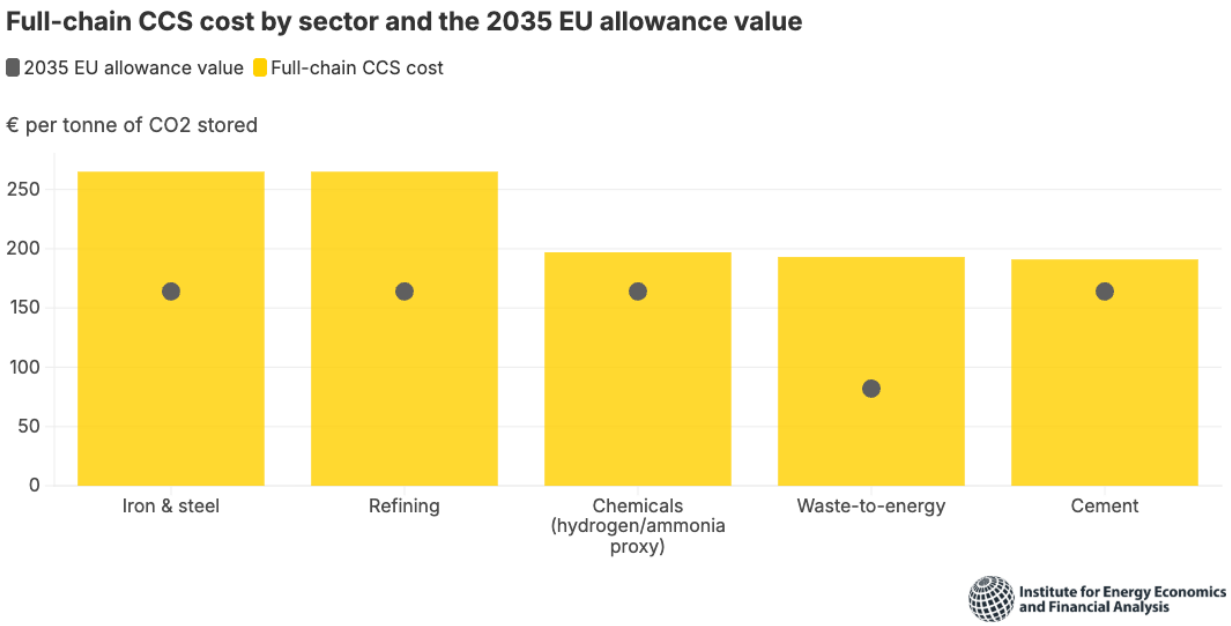
Higher-concentration CO_2 streams, such as those from ammonia and hydrogen production, can be cheaper to capture. Dilute exhaust streams from cement, refining and power generation are substantially harder and costlier to capture. Offshore transport and storage then add further costs.[32]

For this update, we use more recent research from the European Commission's Joint Research Centre (JRC) for carbon capture costs, and from Agora Industry and Öko-Institut for offshore transport and storage costs. The JRC estimates average carbon capture costs of €66/t for cement, €68/t for waste-to-energy, €72/t for chemicals and €140/t for steel and refining, excluding transport and storage.[33] To these we add €125/t for offshore transport and storage, the midpoint of Agora and

[27] European Environment Agency. Use of auctioning revenues generated under the EU Emissions Trading System. 17 December 2025.
[28] Council of the European Union. Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2003/87/EC and Decision (EU) 2015/1814 as regards driving competitiveness and cost-effective decarbonisation. 20 July 2026.
[29] EUR-Lex. Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC. 1 March 2024.
[30] IEEFA. Carbon capture and storage: Europe's climate gamble. 10 October 2024.
[31] Ibid.
[32] European Commission's Joint Research Centre. Bottom-up modeling of CO_2 capture availability and feasibility across EU industrial sectors. 24 July 2026.
[33] Ibid.

Öko-Institut's estimated medium-term range of €100–150/t.[34] This puts full-chain CCS costs at €191–265/tCO_2 across the selected sectors, with a weighted average of €219/tCO_2.

Figure 2: The carbon price still falls short of full-chain CCS costs



Source: European Commission's Joint Research Centre, Agora Industry, IEEFA analysis.

Note: Full-chain costs combine capture, transport and storage costs. Costs comprise JRC capture costs plus €125/t for offshore transport and storage. Markers show eligible EUA value. Waste-to-energy has no 2030 EUA saving in this case. Additional inland logistics excluded.

Applying those costs to an illustrative portfolio storing 50MtCO_2 a year, in line with the EU's 2030 ambitions,[35] highlights the enormous amount of capital required to support CCS. Annual full-chain costs reach €10.97 billion in 2030, against just €3.81 billion of eligible ETS value. That leaves a €7.16 billion funding gap, up from €5.20 billion under May 2026 price assumptions.[36] Given the lack of transparency of CCS-related costs and the small number of active plants in operation, the actual costs will vary materially by plant, capture technology, location, utilisation and transport route. It is often argued that the cost of CCS will decline over time as learning and efficiencies are gained. However, in the shorter term, operational or under-construction CCS projects have demonstrated the opposite direction of travel, suffering start-up delays and rising costs.[37]

For simplicity, if an industrial CCS project costs €150/tCO_2 and its owner previously expected EUA prices to reach €145/tCO_2 by 2030, the carbon market could almost close the economic gap. If the

[34] Agora Industry. Deploying carbon capture and storage (CCS) for climate neutrality. 22 April 2026.
[35] The illustrative 50MtCO_2-per-year (Mtpa) portfolio comprises 10Mtpa for cement, 9Mtpa for iron and steel, 14Mtpa for chemicals, 8.17Mtpa for waste-to-energy and 8.83Mtpa for refining. The first three reflect the JRC's Average 2030 Capture Projections, while the last two are IEEFA assumptions.
[36] IEEFA analysis.
[37] IEEFA. Europe's potential carbon capture and storage project pipeline is losing steam. 11 June 2026.

EUA price is instead €91/tCO_2, the shortfall becomes almost €60/tCO_2. For every 1MtCO_2 captured annually, that represents around €60 million a year that must be found elsewhere. This may come from lower CCS costs, industrial customers paying more, companies accepting lower returns or government intervention. Increasingly, the EU appears to be choosing government intervention.

CCS for waste-to-energy adds a further complication, as its emissions are partly biogenic and partly fossil. Its biogenic CO_2 can generate a payment for verified net removals, but not an avoided fossil EUA. IEEFA's model of the 50MtCO_2-a-year portfolio assumes no removal income and phases in ETS coverage of the fossil share from 2031 to 2034. Stored tonnes are not automatically avoided allowances.[38]

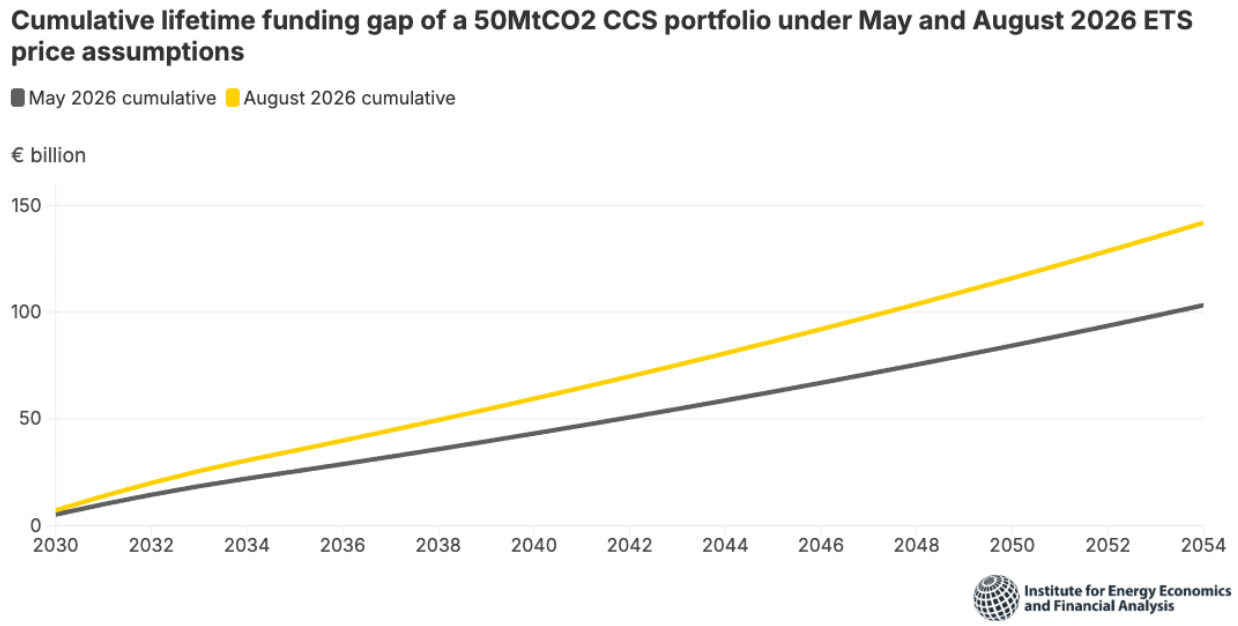
Taxpayers are replacing the carbon price

The primary mechanism supporting EU CCS projects is the Innovation Fund. National governments have added grants, contracts for difference and other initiatives to help fund CCS projects. To date, the Innovation Fund has committed around €5.3 billion to 43 projects across capture, transport and storage applications.[39] The European Commission now proposes a €100 billion Industrial Decarbonisation Bank and greater recycling of ETS revenues into ETS-covered industry.[40] While this may help projects get built, it calls into question the polluter-pays principle. If governments weaken the carbon price, extend industry's free allowances and then subsidise its decarbonisation, the financial burden shifts increasingly from polluters to the public.

IEEFA's illustrative analysis of a CCS portfolio capturing 50MtCO_2 a year puts full-chain costs at €351 billion between 2030 and 2054.[41] Under ABN AMRO's May 2026 ETS price assumptions, the modelled funding gap is €103 billion. Under its revised August forecast, and with the same projects and costs, the gap widens by €39 billion (38%) to €142 billion.

[38] European Commission. EU sets world's first voluntary standard for permanent carbon removals. 3 February 2026.
[39] European Commission. 2026 annual knowledge sharing report of the Innovation Fund. July 2026.
[40] Council of the European Union. Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2003/87/EC and Decision (EU) 2015/1814 as regards driving competitiveness and cost-effective decarbonisation. 20 July 2026.
[41] Assumes 25-year project life from 2030 to 2054 with 2% annual cost rises.

Figure 3: Lower EU ETS prices add €39 billion to the lifetime funding gap for the EU's 2030 CCS target



Source: IEEFA analysis.

Note: Cumulative nominal € billion. 50MtCO_2 a year over 2030–2054. Same costs and sector mix in both cases. ABN AMRO ETS forecast ends at 2035; IEEFA assumes 2% annual growth thereafter.

CCS already needed substantial support before the forecast changed. Lower EUA prices make an expensive problem materially worse. If long-term EUA price expectations fall further while CCS costs remain stubbornly high, subsidy requirements will keep rising. Subsidies close projects' funding gaps by transferring the cost to allowance purchasers, taxpayers or levy payers, depending on the mechanism. Funding from ETS auction revenues redirects money already collected rather than imposing an additional charge, but it leaves less for other public priorities.

Europe is running out of time

The EU's Industrial Carbon Management Strategy indicates that the bloc targets at least 50MtCO_2 of annual injection capacity by 2030, and estimates that it may need to store around 250MtCO_2 annually by 2040.[42] The European Commission said in May 2026 that the 2030 storage target remains achievable, but it also concluded that more projects, faster permitting and greater effort from obligated oil and gas companies are required.[43] The capture side looks even more challenging.

IEEFA's June 2026 review found that new European CCS project announcements peaked in 2021 and have fallen since.[44] More proposed annual capture capacity was cancelled in 2025 than reached final investment decision. While the theoretical project pipeline remains large enough to meet targets, projects are taking many years to progress from announcement to operation.[45]

Many of the technologies Europe expects to deploy at scale remain at the prototype or demonstration stage. Previous IEEFA analysis found that 66% of proposed European capture volumes were in applications with a technology readiness level of seven (pre-commercial demonstration) or below.[46] The same study found that shipping CO_2 and storing it in depleted oil and gas fields, the foundation of several proposed European clusters, remained below full maturity.

The EU is therefore proposing to commit ever-larger amounts of public money to compensate for a carbon price it is simultaneously trying to restrain, all to support technologies whose costs remain high and whose large-scale deployment is uncertain. This is a costly gamble.

The ETS was designed to make the polluter pay and allow the market to find the cheapest route to lower emissions. The emerging framework risks becoming something rather different: one that makes pollution cheaper to protect industry, then uses public money to subsidise the technologies required to clean it up. For CCS in particular, lower long-term EUA prices make an already difficult investment case even harder. Greater government support may keep individual projects moving, but it does not resolve the underlying technical or economic weaknesses.

Nor does it solve the biggest problem facing Europe's CCS ambitions: time. With just over three years until 2030, an increasingly weak project pipeline, long development timelines and growing dependence on subsidies suggest that the EU's carbon capture ambitions are once again running ahead of what the technology and economics can realistically deliver.[47]

[42] EUR-Lex. Towards an ambitious Industrial Carbon Management for the EU. 6 February 2024.
[43] European Commission. The EU makes good progress towards its 2030 CO_2 injection target. 28 May 2026.
[44] IEEFA. Europe's potential carbon capture and storage project pipeline is losing steam. 11 June 2026.
[45] Ibid.
[46] IEEFA. Carbon capture and storage: Europe's climate gamble. 10 October 2024.
[47] IEEFA. Europe's potential carbon capture and storage project pipeline is losing steam. 11 June 2026.

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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