STRATEGIC PERSPECTIVES

Keeping the signal: building Europe's industrial investment case

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Introduction

The European Commission put forward its reform proposal for the EU Emissions Trading System (ETS)[i] in July. Historically, the EU ETS has incentivised companies across the continent to upgrade their production practices in anticipation of growing global demand for clean products. It also helped to decouple emissions from economic growth, particularly by reducing coal use[1] in the power sector. Hence, **the new ETS reform is crucial to securing growing investments in clean manufacturing and phasing out fossil fuels**. It comes as European industry faces significant pressure on its competitiveness, following tariffs imposed by the United States, the growing presence of Chinese producers in the EU market, and rising energy prices. In this context, the ETS can either accelerate the transformation so that EU companies can secure a larger share of global clean technology[2] markets currently dominated by China, or signal a slowdown. Weakening the EU ETS now would incentivise companies to delay investments and penalise those that moved early, anticipating an increase in global demand for clean products and technologies.

An effective, fair ETS[3] rewards companies that have invested under the existing rules. Fearing that the system could be weakened, European industry has already raised the alarm. Six leading steelmakers, Outokumpu, SSAB, Salzgitter AG, Saarstahl, Dillinger, and Stahl-Holding-Saar (SHS), have committed more than €10 billion[4] to low-emission production, but only under a predictable framework for the EU ETS and the Carbon Border Adjustment Mechanism (CBAM). They are not the only ones. A further 102 companies and investors[5] called for a stable framework to protect their strategic investments.

The analysis of the proposal's implications is mixed. The European Climate Law sets a net emissions reduction target of 90% by 2040, with at least 85% of that reduction achieved within the EU. The Commission's July proposal lowers the decarbonisation trajectory (called the Linear Reduction Factor (LRF)), thereby risking investment delays or deferrals of returns. For installations with ten-year investment cycles, uncertainty is the cost that matters most. However, stronger conditionality for free allocation is welcome as it ensures investments stay in Europe. Better use of ETS revenues would further strengthen the reform. Although Member States have been required to spend the equivalent of 100% of their auction revenues on climate and energy purposes since 2023, several governments are not using these funds as required[6]. **Enforcing the existing rule matters as much as adding new ones**. Regarding the international projects regulated under Article 6 of the Paris Agreement, the proposal's requirement that the Commission itself purchase international credits aligns with Strategic Perspectives' own call[7] for joint purchasing to ensure quality and avoid double-counting. The Commission's approach risks incentivising companies that have not invested in the past to continue hedging rather than committing capital, in anticipation of a further political reversal. As a result, they might fall further behind their EU and international competitors.

The political window for a reform that prioritises the competitiveness of European industry is narrow. The Irish Presidency of the Council of the EU is working towards a political agreement in December, with the three institutions aiming to conclude negotiations in the first quarter of 2027. Election calendars in Spain, Italy, France, Greece, Estonia, Finland, Slovakia, and Poland could shift the Council's majorities.

i. Throughout this report, 'ETS' refers specifically to EU ETS1, the EU's established cap-and-trade market covering heavy industry, power generation, aviation, and maritime transport.

Methodology

Strategic Perspectives commissioned Veyt to run its EU ETS industry investment model for three carbon-price scenarios; Veyt supplied the model results quoted in this report. The results come from Veyt's EU ETS industry investment model, which covers 17 industrial sectors, 81 technology routes and 30 countries (the EU 27, Iceland, Liechtenstein and Norway). Each year, the model rebuilds plants that reach the end of their life on the route that is cheapest once the carbon price is included, within limits on how fast new routes can grow, and production responds to the carbon cost producers cannot avoid; investment is the new capacity built times each route's investment cost. The carbon prices for the current law and the Commission proposal come from Veyt's long-term EU ETS model, which finds the price path at which allowance supply under each policy, including the Market Stability Reserve (MSR), matches the emissions of the sectors the system covers; the third scenario uses a fixed €75 per tonne.

The investment and emissions figures are outputs of Veyt's EU ETS industry investment model under Veyt's carbon-price outlooks. They are model results do not represent individual company projects. Investment is new capacity multiplied by the investment cost of a mature plant, in 2025 euros, counted in the year the plant starts operating; it includes the ordinary rebuilding of retiring plants and excludes maintenance, power generation and grids. The current-law scenario assumes the enacted cap is kept with no policy response, which takes the carbon price to €477 per tonne in 2040 in 2025 euros. In this version of the results, the current-law scenario keeps production at the level of the proposal scenario, so it shows how the higher carbon price changes which technologies are built, not how it changes output or imports. 'Low-carbon' steel, cement and hydrogen follow a narrow definition: hydrogen-based or capture-equipped routes; natural-gas direct reduced iron (DRI), cement on alternative fuels and blue hydrogen are not counted. Under the proposal, industry still invests €239 billion in decarbonisation technologies, and 59% of primary steel and 69% of clinker are produced on decarbonisation routes in 2040, against 63% and 69% under the current law. The model represents the carbon-price level, not investor uncertainty.

The Öko-Institut's calculations of the impacts of the Commission's July proposal on the availability of allowances, overall emissions under the ETS, and on the sectors not covered by the ETS. Calculation is based on the MSR Tool used by Öko-Institut to demonstrate the impact of policy decisions on the supply of allowances, taking into account the specific features and regulations in detail. These results are compared with an Öko-Institut assessment for the overall emission system, based on 2040 Impact Assessment Results (COM 2024). Scope changes of international transport emissions and waste, as proposed by the Commission, are taken into account.

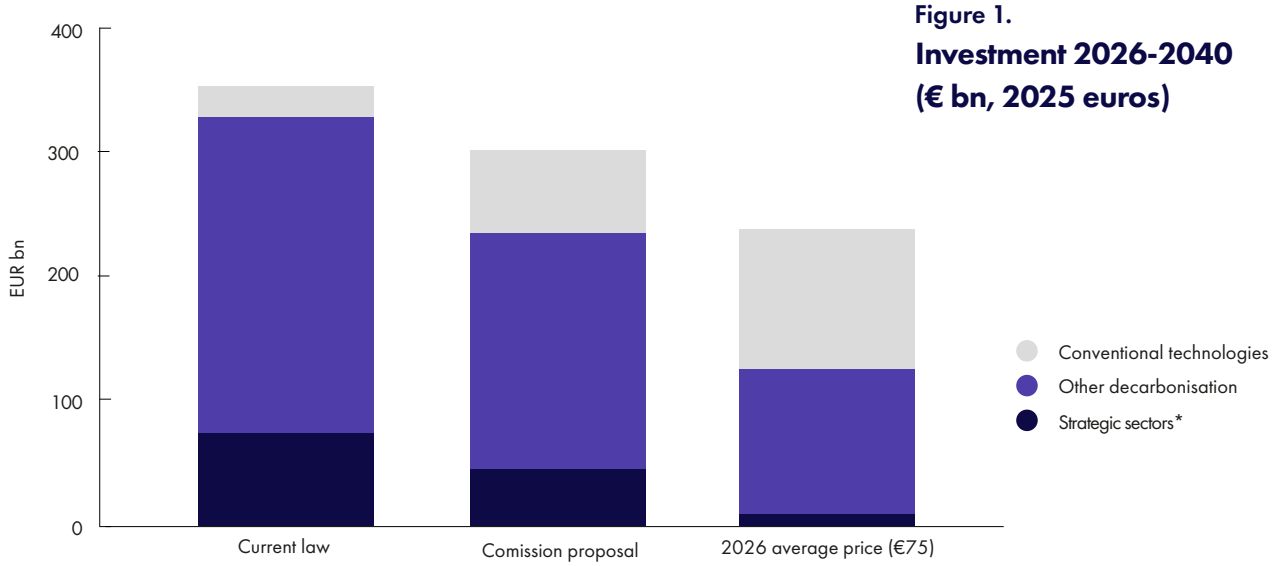
Strategic Perspectives researched publicly available decarbonisation projects listed in the Annex, covering 21 integrated blast-furnace steel plants in the EU.

Executive Summary

The EU ETS can either accelerate Europe's industrial transformation or weaken the investment signal at a time Europe can least afford it. The Commission's July proposal would lower the linear reduction factor (LRF) from 4.4% to 3.7% in 2031-2035 and to 1.7% in 2036-2040, delaying the point at which no new allowances would enter the market from 2039 to 2048. For industries making investment decisions over ten-year horizons, this shift could lead to delayed capital allocation, deferred returns on investment, and greater uncertainty.

Compared to the current law, **the Commission's July proposal would cut the ETS industry's decarbonisation investment by more than a quarter** across all 30 countries covered by the ETS[ii]. **Under the proposal, €90 billion less is invested in decarbonisation technologies by 2040 than under current law, and about €200 billion less at a constant carbon price of €75**. In the details, under the current law on the EU ETS, industry would invest €354 billion in 2026-2040, €329 billion of it in decarbonisation technologies. Under the proposal, total investment falls to €302 billion and decarbonisation investment to €239 billion. At a carbon price of €75 (close to the average 2026 carbon price so far, which is around €78), these fall to €238 billion and €127 billion.

Figure 1.
Investment 2026-2040 (€ bn, 2025 euros)



*Strategic sectors refer to low-carbon steel, low-carbon cement, low-carbon aluminium, and green hydrogen from electrolysis outside steel.

Source: Veyt EU ETS industry investment model, 30 September 2026

ii. EU-27, Iceland, Liechtenstein and Norway.

The following technologies are most exposed to a lower carbon price resulting from the Commission's July proposal[iii]:

- **Carbon capture accounts for about half of the shortfall,** with investment, including transport and storage, falling by €44.8 billion;
- **Hydrogen fares worse in relative terms:** green hydrogen outside steel all but disappears from the €10.5 billion the model builds under current law;
- **Low-carbon steel,** which depends on it, loses three-quarters of its investment, a gap of €13.4 billion, and would drop in production in 2040 from 10.3 million tons (Mt) to 6.1 Mt, out of about 50 Mt of primary steel;
- **Cement and aluminium hold up better:** low-carbon cement loses a fifth, a gap of €7.4 billion, while low-carbon aluminium investment is unchanged at €10.1 billion.

If the price were to stay at the 2026 average of €75, investment in hydrogen-based steel, cement with carbon capture and carbon capture falls to zero. In addition, all hydrogen investment would go to unabated fossil production. Only aluminium keeps a similar level of investment, at €9.4 billion.

Weakening the ETS now offers temporary relief, but by delaying or even cancelling the necessary investments, it simply risks shifting the advantage to competitors outside the EU. China rolls out renewable[8] energy and clean technology at a rapid pace and is more and more ready to compete on low-carbon materials. The precedent of electric vehicles, where a hesitant signal ceded market share to Asian manufacturers, illustrates the risk facing heavy industry and the power sector.

Europe cannot afford to weaken the signal that drives investment away from fossil fuels. The Commission's July proposal delays the EU-level fossil fuel phase-out signal for power and industry by almost a decade, from 2039 to 2048. When looking at the power sector specifically, the proposal is thus at odds with the EU's economic and security interests. It risks pushing investment decisions further into the future, thereby unnecessarily prolonging dependence on and exposure to fossil fuel imports. Since the start of the war in the Middle East, the EU has paid an additional €100 billion for oil and gas imports[9]. Delaying investment in these sectors also means postponing investment in homegrown electricity, European grids, and clean technologies, which have negative impacts on competitiveness.

A weaker ETS does not eliminate the cost of decarbonisation — it risks moving it to more expensive parts of the economy. The Öko-Institut's analysis finds that the Commission's July proposal could increase gross emissions by more than 200 million tonnes of CO_2 compared with the Commission's earlier cost-efficient scenarios for 2040. Reductions would then have to come increasingly from sectors where alternatives are more expensive or less mature, particularly agriculture. Öko-Institut's findings highlight that if the Commission proposal is adopted and the second Emissions Trading Scheme for heating and transport (ETS2) remains unchanged, **agriculture could need to reduce emissions three to five times faster by 2040** than under the cost-efficient pathway.

This is the central economic risk of weakening the ETS: Europe moves reductions away from sectors where they can be delivered relatively quickly and competitively, towards sectors where they are harder and more costly. At the same time, a weaker fossil-fuel signal risks prolonging Europe's exposure to volatile global energy markets.

iii. In the Veyt model, the current ETS law sees the price of an allowance rise to €600 per tonne by 2039 (the year in which the last allowance would have entered the market in nominal terms). The estimates for the Commission's July proposal see the price peak at about €280 in 2036 and fall to about €200 in 2040, also in nominal terms. Projections beyond 2040 are not yet available in the Veyt model.

Strategic Perspectives recommends:

- **A comprehensive approach to the 'end game':** Keep the 4.4% LRF until 2036, then gradually lower it until the system reaches a "net-zero" balance in 2045. If majorities in the Council and European Parliament decide to weaken the LRF as early as 2031, it should be strengthened from 2036 again. In addition, a credible long-term pathway for fossil fuel use can steer capital towards technologies and infrastructure that improve Europe's energy security and competitiveness, while reducing the risk of stranded investments in fossil-fuel assets.
- **Maximum revenue use for industry:** Make better use of available funds, especially EU ETS revenues, by linking them to an electrification-first principle, using them on grid infrastructure, creating an Industrial Electrification Bank (instead of the Industrial Decarbonisation Bank) where applicable, and tying support for companies to a Made-in-Europe policy.
- **Supporting household electrification and decarbonisation:** In countries with a small industrial base, the 50% share of revenues allocated to ETS sectors can also be used to support households, particularly through electrification schemes, while helping to soften the potential impacts of ETS2.
- **Encouraging national fossil fuel phase-out plans to give investors greater certainty.** Member States can set out clear pathways for reducing fossil fuel demand in their National Energy and Climate Plans (NECPs) or follow the French, Dutch and German examples by developing a Transition Away from Fossil Fuels (TAFF) Roadmap. This would help companies anticipate future energy demand, infrastructure needs and investment opportunities, while reducing the risk of fragmented national approaches.
- **Returning to cost-efficiency:** The EU can achieve greater cost-efficiency by preserving strong incentives in sectors where fossil fuels can be quickly and competitively replaced. A stronger ETS signal can help direct private investment towards the most cost-effective opportunities, reducing the pressure for more expensive interventions elsewhere.
- **Using Article 6 strategically and setting clear quality guidance within the ETS:** Policymakers have the opportunity to provide top-line quality guidance for international projects, focusing EU engagement on projects that deliver genuine additional reductions and support strategic priorities. Prioritising the fossil-fuel phase-out and clean electrification in partner countries would enable Article 6 projects to complement domestic investment and strengthen the EU's international energy partnerships.

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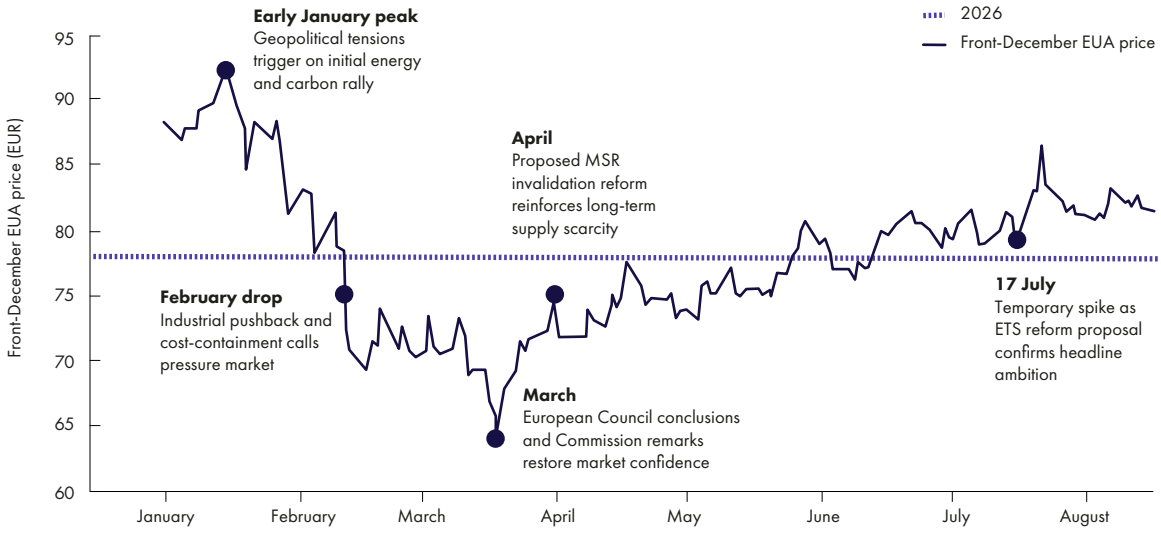
CHAPTER I

ETS as driver for innovation and investments in industrial decarbonisation

The Commission's July proposal lowers the LRF to 3.7% per year for 2031-2035 and to 1.7% per year as of 2036, down from 4.3% per year until 2027 and 4.4% per year as of 2028. Under this proposal, no new allowances would enter the market after 2048 (instead of 2039). Veyt's price outlook shows the impact this would have on the carbon price. Under the current ETS law, the price of an allowance rises above €600 per tonne by 2039 (the year in which the last allowance would have entered the market), under nominal terms. Under the Commission's July proposal, it peaks at about €280 in 2036 and falls to about €200 in 2040[iv]. The price, therefore, retreats under the Commission proposal until 2040, whereas under current law it continues to climb. Projections beyond 2040 are not yet available in the Veyt model. **The signal weakens exactly when industrial electrification could accelerate, and when certainty matters most**. Veyt has also developed a 'low CO_2 price scenario' with a fixed CO_2 price of €75, based on the average price over recent months, which have been affected by political rhetoric.

Figure 2.

EU carbon prices and key market events in 2026



iv. In 2025 euros, the 2040 prices are €477 under current law and €148 under the Commission's July proposal.

Timing shapes these results. Investors weigh the years up to 2035 more heavily than what comes after. When the cap tightens earlier rather than later, it pulls investment forward into 2031-2035 instead of delaying it. A scenario with an early, credible price rise produces faster capacity growth in these years, and slower paths only catch up much later.

International competition and trade tensions, among other factors, have put pressure on much of European industry, yet some companies, often those that lag furthest behind, blame the ETS for undermining their competitiveness. The claim does not withstand scrutiny. By setting a predictable, rising price for each tonne of CO_2, **the system channels capital towards plant modernisation, generates revenues for national governments to finance that shift, and protects exposed sectors from competitors** that produce without paying for their emissions.

This logic has underpinned investment by companies that moved early. The push to loosen the rules now comes from companies that did the opposite: they delayed their own transformation when they had the opportunity to act, or shifted production outside the EU to countries with cheaper labour and lighter environmental rules. BASF's new Verbund site[10] in Zhanjiang, China, which opened in March 2026, is one example. Weakening the ETS would reward the companies that delayed their investments, encourage continued hedging and penalise those who acted on time.

Impact of different CO_2 price trajectories on investments based on VEYT findings

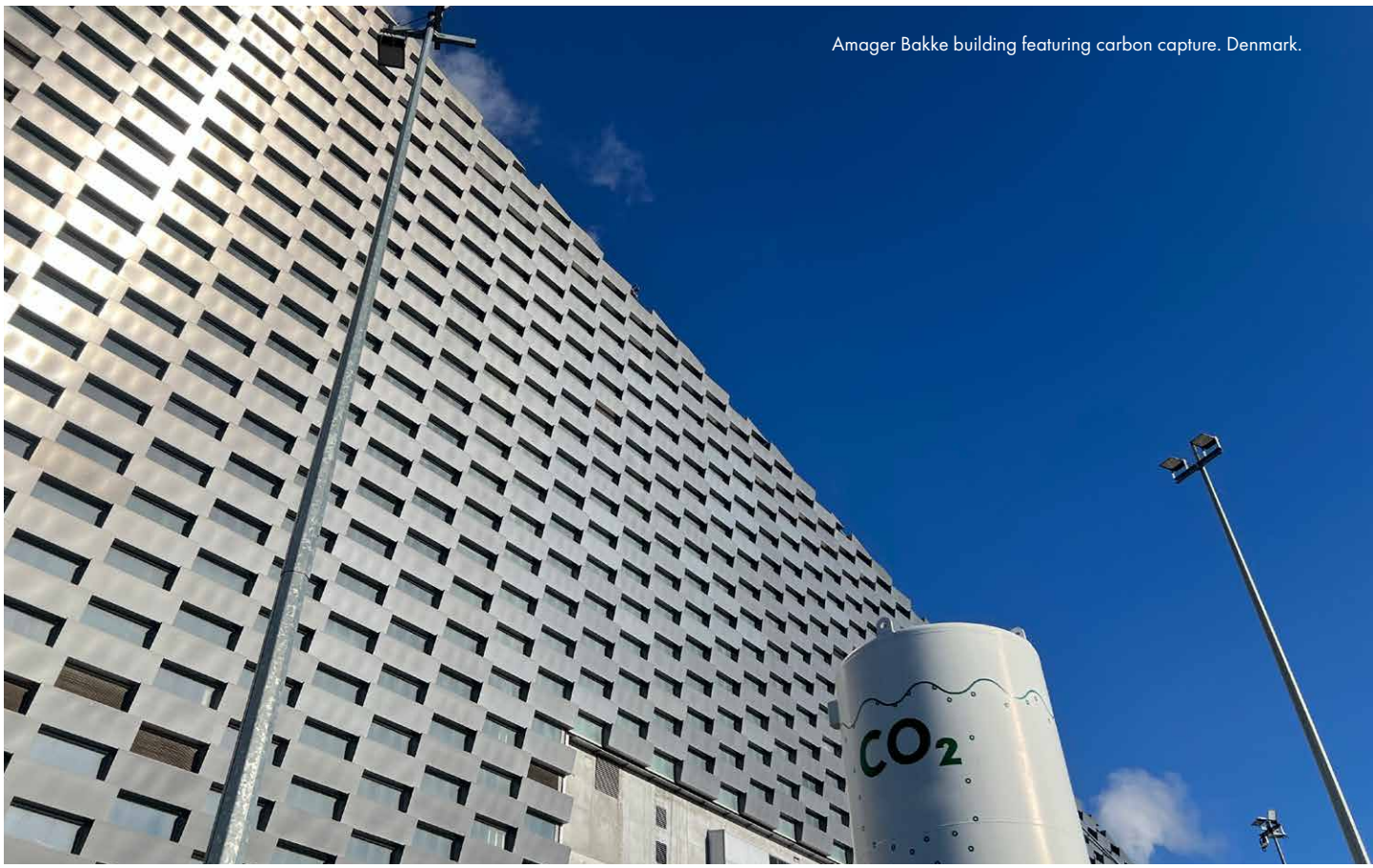
To measure what the price signals mean for investment, Strategic Perspectives commissioned Veyt to model industry investment under the three scenarios. The Commission's July proposal would cut the ETS industry's decarbonisation investment by more than a quarter compared to the current law. According to the Veyt model, industry investments are projected to be €354 billion in 2026-2040 under current law, of which €329 billion is for decarbonisation technologies. Under the Commission's July proposal, total investment falls to €302 billion and decarbonisation investment to €239 billion. At a carbon price of €75 these fall to €238 billion and €127 billion respectively.

If the price were to stay at the 2026 average of €75, investment in low-carbon steel, low-carbon cement and carbon capture would fall to zero, and all hydrogen investment would go to unabated fossil production. Only aluminium keeps a similar level of investment, at €9.4 bn.

These potential cuts in decarbonisation investments are also reflected at the national level. Strategic Perspectives chose the most significant variations across the 27 EU countries in the following section; a complete overview can be found in Annex, Table 1.

Overall decarbonisation investments:

- **Czechia's** overall decarbonisation investments would drop sharply by 54%, from €10,049 million to €4,617 million;
- **France's** overall decarbonisation investments would drop by 25%, from €30,348 million to €22,735 million;
- **Germany's** overall decarbonisation investments would drop by 22%, from €67,894 million to €52,763 million;
- **Italy's** overall decarbonisation investments would drop by around 37%, from €34,345 million to €21,812 million;
- **The Netherlands'** overall decarbonisation investments would drop by 50%, from €38,704 million to €19,195 million;
- **Poland's** overall decarbonisation investments would drop by 17%, from €19,999 million to €16,529 million;
- **Slovakia's** overall decarbonisation investments would drop by around 33%, from €6,692 million to €4,514 million;
- **Spain's** overall decarbonisation investments would drop by around 23%, from €29,503 million to €22,853 million.



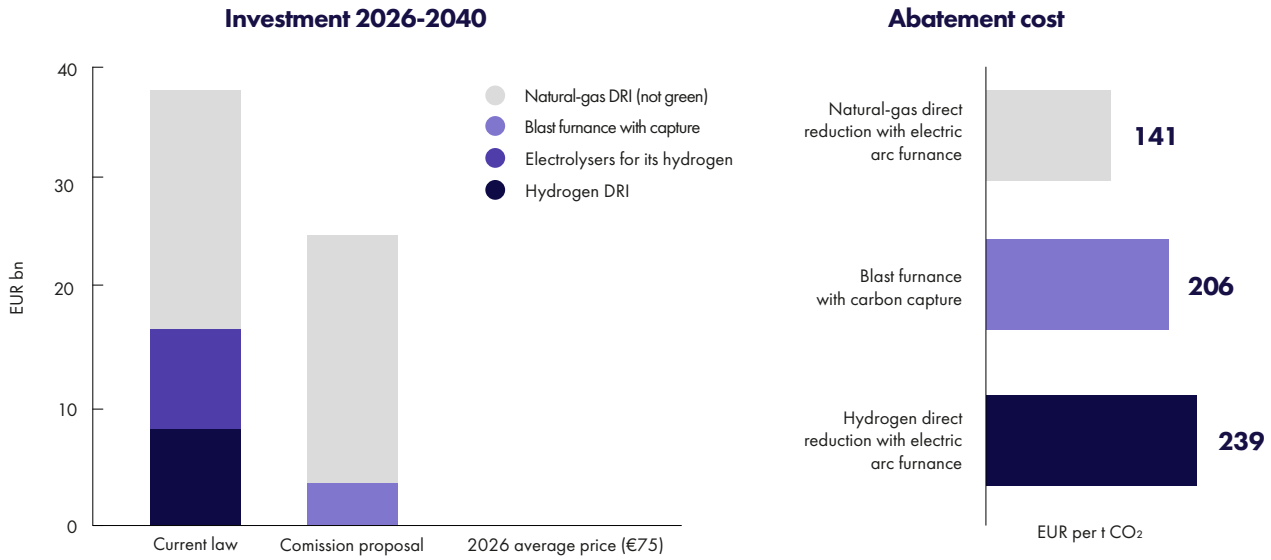
Amager Bakke building featuring carbon capture. Denmark.

Low-carbon steel

Low-carbon steel risks losing three-quarters of its investment under the Commission proposal and would receive no investments if the carbon price were to stay at €75.

Figure 3.

Low-carbon steel investment falls from €17.5bn to €4.1bn under the proposal, as natural-gas DRI takes the place of hydrogen



Source: Veyt EU ETS industry investment model, 30 September 2026

The following national investments in low-carbon steel[v] are at risk:

- **Austria:** Low-carbon steel investments drop from €1,312 million to €306 million over 2026-2040, thus reducing by almost 77%;
- **Belgium:** Low-carbon steel, including its hydrogen capacity, drops from €1,193 million to €347 million over 2026-2040, thus reducing by almost a 71%;
- **Czechia:** Low-carbon steel investments drop from €292 million to €33 million over 2026-2040, thus reducing by almost 89%;
- **Finland:** Low-carbon steel investments drop from €1,044 million to €195 million over 2026-2040, thus reducing by 81%;
- **France:** Low-carbon steel investments drop from €1,516 million to €438 million over 2026-2040, thus reducing by almost 71%;

v. The model counts as low-carbon steel only hydrogen-based routes and blast furnaces with carbon capture, together with their electrolysers. Natural-gas DRI, which the model builds under both scenarios (about €21 billion), is not counted, and the model does not represent individual projects.

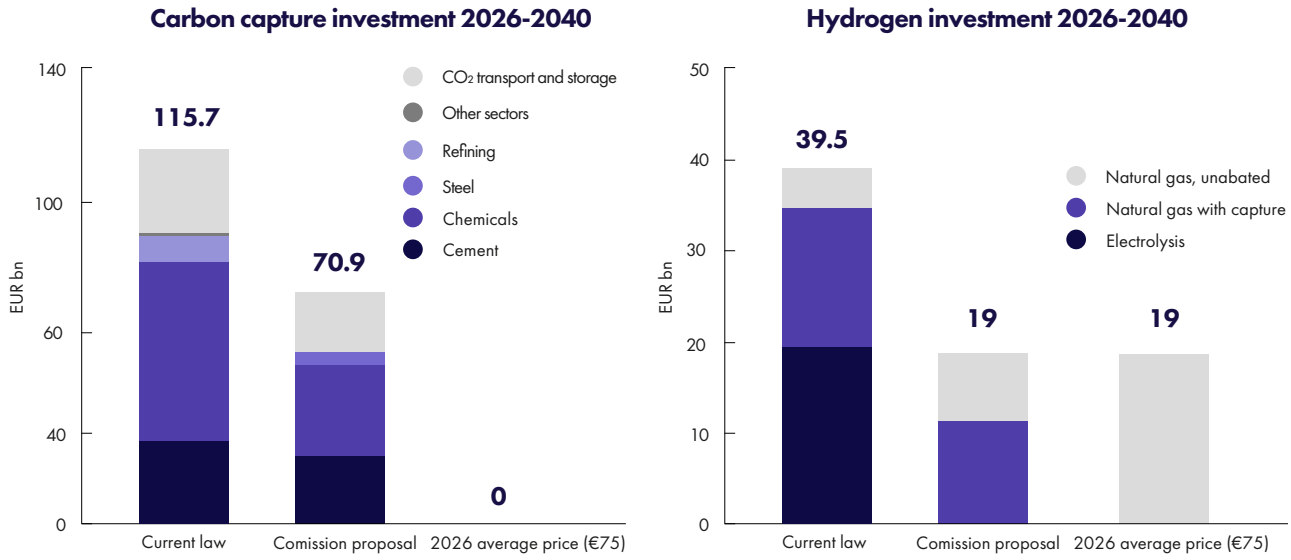
- **Germany:** Low-carbon steel investments drop from €5,762 million to €1,547 million over 2026-2040, thus reducing by 73%;
- **Italy:** Low-carbon steel investments drop from €421 million to €62 million over 2026-2040, thus reducing by 85%;
- **The Netherlands:** Low-carbon steel investments drop from €2,392 million to €412 million over 2026-2040, thus reducing by almost 83%
- **Poland:** Low-carbon steel investments drop from €1,434 million to €184 million over 2026-2040, thus reducing by 87%;
- **Romania:** Low-carbon steel investments drop from €56 million to €7 million over 2026-2040, thus reducing by almost 87%;
- **Slovakia:** Low-carbon steel investments drop from €763 million to €124 million over 2026-2040, thus reducing by almost 84%;
- **Spain:** Low-carbon steel investments drop from €668 million to €136 million over 2026-2040, thus reducing by almost 80%;
- **Sweden:** Low-carbon steel investments drop from €691 million to €310 million over 2026-2040, thus reducing by 55%.

Steel plant. The Netherlands.

Carbon capture and storage

Figure 4.

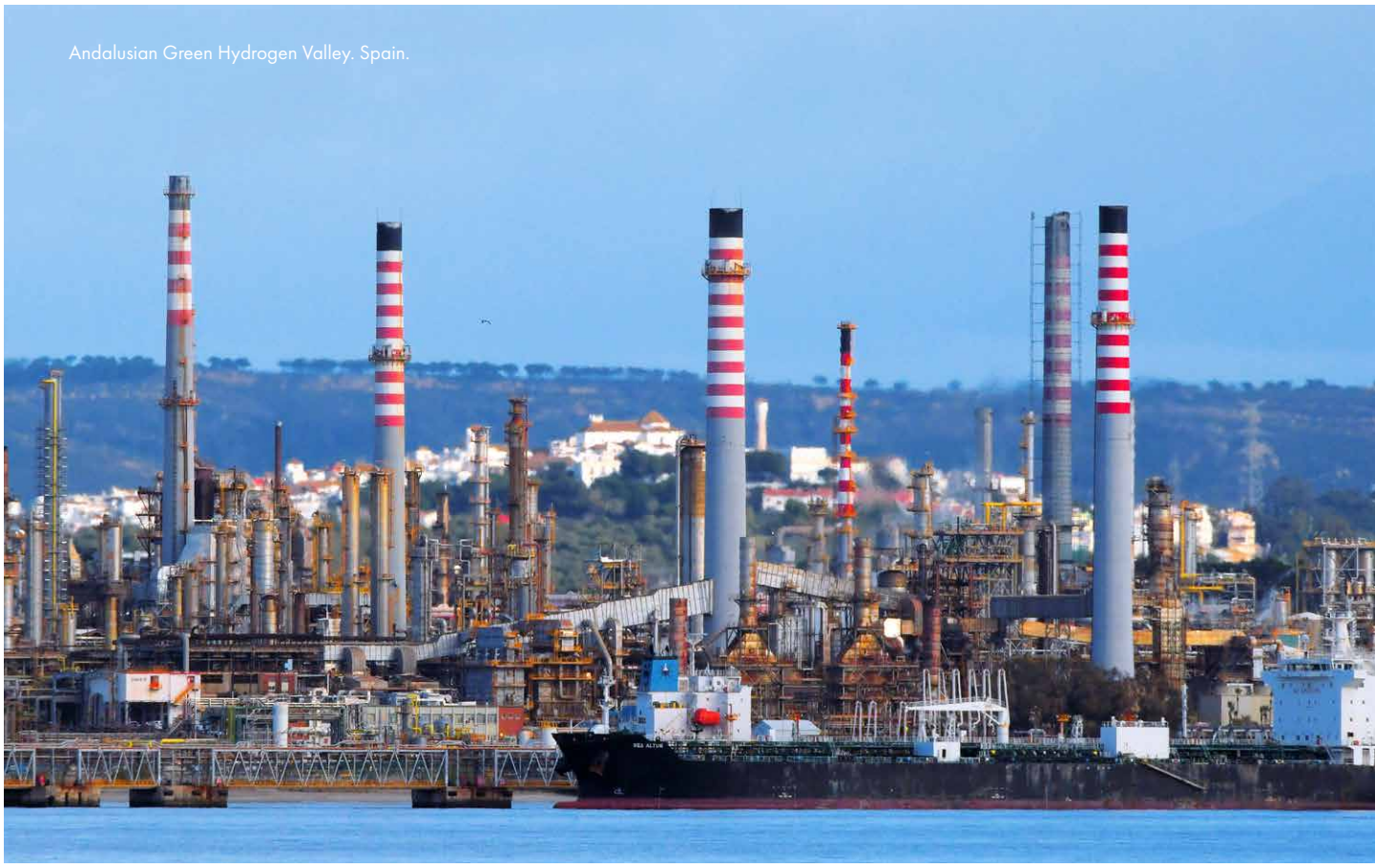
Carbon capture falls by €45bn under the proposal, €28bn of it in chemicals; hydrogen moves from green to fossil-based



Source: Veyt EU ETS industry investment model, 30 September 2026

Carbon capture accounts for about half of the shortfall of investments, with investment, including transport and storage, falling by €44.8 billion to €70.9 billion. This has implications for the national level:

- **Denmark:** Carbon capture investment falls by 20.0%, from €562 million to €449 million;
- **Estonia**: Carbon capture investment falls by 99.8%, from €146 million to €0.3 million;
- **France:** Carbon capture investment falls by 43.9%, from €11,601 million to €6,507 million;
- **Germany:** Carbon capture investment falls by 32.4%, from €23,900 million to €16,159 million;
- **Greece:** Carbon capture investment falls by 40.7%, from €2,485 million to €1,474 million;
- **Italy:** Carbon capture investment falls by 59.6%, from €9,570 million to €3,869 million;
- **The Netherlands:** Carbon capture investment falls by 39.9%, from €18,865 million to €11,346 million;
- **Poland:** Carbon capture investment falls by 30.1%, from €6,089 million to €4,255 million;
- **Portugal:** Carbon capture investment falls by 27.9%, from €1,536 million to €1,108 million;
- **Spain:** Carbon capture investment falls by 44.8%, from €10,967 million to €6,055 million.



Andalusian Green Hydrogen Valley. Spain.

Hydrogen

The carbon price narrows the cost gap between the different routes of producing hydrogen. In the Veyt model, the Commission proposal shifts all investments from green hydrogen to grey hydrogen. On this path, Europe would then build more of the fossil-fueled technologies, the ones the ETS is meant to displace, with significant implications for assumed investments in:

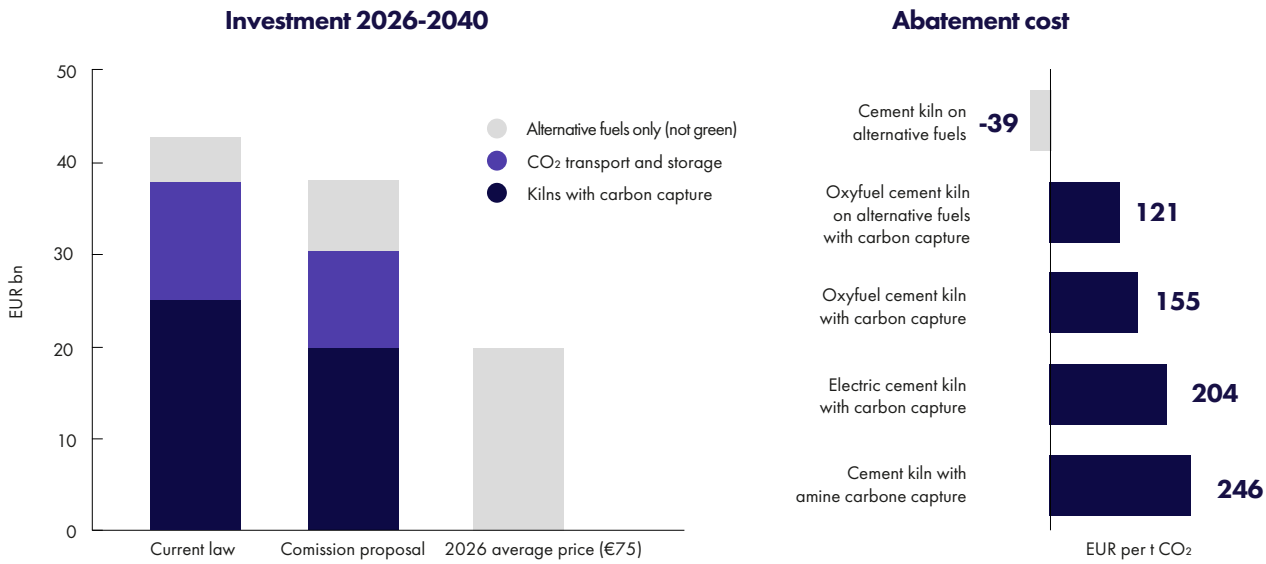
- **Denmark:** Green hydrogen investment outside steel falls by more than 99.9%, from €39 million to practically zero;
- **Greece:** Green hydrogen investment outside steel falls by more than 99.9%, from €399 million to practically zero;
- **Lithuania:** Green hydrogen investment outside steel falls by 97.4%, from €2,374 million to €60 million;
- **Portugal:** Green hydrogen investment outside steel falls by more than 99.9%, from €150 million to practically zero;
- **Romania:** Green hydrogen investment outside steel falls by more than 99.9%, from €187 million to practically zero;
- **Sweden:** Green hydrogen investment outside steel falls by more than 99.9%, from €172 million to practically zero.

Cement

Investments in low-carbon cement decrease by a fifth, falling to €30.6 billion.

Figure 5.

Low-carbon cement falls by 19% under the proposal and to zero at €75



Source: Veyt EU ETS industry investment model, 30 September 2026

National investments would thus be reduced in:

- **Bulgaria:** Low-carbon cement, including CO_2 transport and storage, falls from €581 million to €469 million over 2026-2040, thus reducing by 19%;
- **Croatia:** Low-carbon cement, including CO_2 transport and storage, falls from €568 million to €420 million, thus reducing by 26%;
- **Ireland:** Low-carbon cement, including CO_2 transport and storage, falls from €848 million to €728 million, thus reducing by 14%;
- **Romania:** Low-carbon cement, including CO_2 transport and storage, falls from €1,863 million to €1,503 million, thus reducing by 19%;
- **Slovenia:** Low-carbon cement, including CO_2 transport and storage, falls from €227 million to €167 million, thus reducing by 26%.

Lower investment also means higher emissions. Industry emits 6,021 Mt CO_2 over the period under the proposal, 235 Mt more than the 5,786 Mt under current law. The gap widens after 2030 as the carbon prices in the two scenarios diverge. The proposal's Investment Booster and Industrial Decarbonisation Bank, modelled as €75 bn of support over 2028-2040, closes part of this gap. Unless policymakers preserve a strong price signal, investments in key clean technologies (low-carbon steel, low-carbon cement, CCS and green hydrogen) are significantly at risk.

Concrete project examples

The findings above have a counterpart in the plans of Europe's steelmakers. Strategic Perspectives mapped the conversion projects announced for the EU's 21 integrated blast furnace plants (see Annex, Table 2). The analysis relies only on publicly available information: company announcements, European Commission state aid decisions and trade media articles. Part of the sector's investment is in internal business plans and is not public, so the figures reflect only disclosed projects.

The overview in the Annex includes 11 projects with a company behind them that remain active, totalling €22.7–26.0 billion in capital expenditure (capex). Nine of them, representing €17.7-18.5 billion, have reached a final investment decision or are under construction, and two more are waiting for a final decision. Most of that capital was committed before the Commission tabled its proposal in July. At that point, the current law set the ETS cap to reach zero in 2039, implying a steadily rising carbon price.

Among the advanced projects are Thyssenkrupp's direct reduction plant[11] in Duisburg (€2.9-3.0 billion[12]) and phase 1 of Salzgitter's SALCOS project (€2.3-2.7 billion), both of which are already under construction. Stahl-Holding-Saar (SHS)[13] closed the financing for its Power4Steel project in October 2025 for €3.5-3.8 billion. ArcelorMittal[14] made the final investment decision on its €1.3 billion Dunkirk electric arc furnace in February 2026, with start-up in 2029. **The Commission's July proposal lowers the projected payback periods for the investments, which may delay achieving a return on investment.**

Projects still waiting for a decision face a different risk. Tata Steel's phase 1 in IJmuiden[15], valued at €4.0-6.5 billion, has yet to reach a final investment decision, and Salzgitter has postponed[16] phases 2 and 3 of the SALCOS project to 2028/29. For them, the lesson is that the rules can change after the investment. **That uncertainty gives them one more reason to delay.**

The opportunity for an Industrial Electrification Bank

Price certainty is only half of the answer. Where the CO_2 price is not sufficient to incentivise investment, public money can come in and also leverage additional private finance. Electrification is a prime example where public support – also through grid and other infrastructure deployment – can help accelerate. In the 2040 scenario of our report, Boosting electrification in Europe[17], **industry could electrify 49% of its energy use by 2040** and cut coal, oil and gas from 60% to under 20%. Industrial heat pumps alone would deliver net savings of about €9 billion a year, from €6.9 billion in avoided carbon costs and €4.8 billion in fossil imports, against €2.7 billion of investment. In steel, electrifying production would save €1.3 billion a year in avoided fossil imports and carbon costs..

The alternative is costly, according to our findings: the steel and low-temperature process-heat industries could incur an additional €7.5 billion in carbon costs per year by 2040 if electrification continues on its current trend. Getting there still needs support for upfront costs and a carbon price above €140 per tonne.

That is the job of the Commission's proposed Industrial Decarbonisation Bank, which could become an Industrial Electrification Bank. Direct electrification and indirect electrification via hydrogen would be its default routes wherever technically feasible, thus maximising the industrial sector's potential to reduce fossil dependence and increase energy security. **Creating an Industrial Electrification Bank that guarantees private investments and offers subsidies to cover the capital cost is key. It can capture the urgency and political priority given to electrification**, not least through repeated European Council calls[18] for 'ambitious electrification'.

Maximising the use of ETS revenues for the transition

The EU ETS generates revenues for national governments that should be used entirely to support the transition, and they can also be used to modernise European manufacturing. The governments now questioning the system include those that have not directed EU ETS revenue toward the transition. They are also often the governments most exposed to fossil fuel dependency, which pushes up energy bills already vulnerable to international price shocks[19].

Only 5% of current EU ETS revenues[20] are allocated to industrial decarbonisation. A large share of the rest is still reported as spent on other climate and energy purposes, but transparency and enforcement remain uneven across Member States. Italy illustrates how far that gap can go: national rules there channel half of ETS auction[21] revenue into the fund that amortises government bonds, rather than into decarbonisation. The proposal does not invent revenue earmarking. Member States have already been required to spend 100% of ETS revenue on climate and energy purposes since June 2023.

What changes is the target within that obligation: at least 50% of national revenue must now go specifically to investments that decarbonise the sectors the ETS covers, industry and power. A few countries with smaller industrial bases also raised concerns that redirecting half of the revenues to ETS sectors might be challenging; they could instead be allowed to invest these revenues to support household electrification (electric vehicles, heat pumps, etc.) and grid expansion. Whether that narrower, more traceable earmarking works better than the existing rule will largely depend on enforcement, an area where progress has been limited so far. Keeping that rule in place, together with applying an electrification-first principle[18] where applicable and using the Industrial Electrification Bank, preserves a shared purpose without penalising less industrialised economies.

Free allocation, which protects sectors exposed to international competition, is the second financing lever. The reform turns it into a reward system: it allocates 80% upfront to companies with decarbonisation investment plans in Europe and releases the remaining 20% only once those investments materialise. Paired with lead markets for low-carbon materials and EU-made technologies under the Industrial Accelerator Act, **free allocation becomes a lever for reindustrialisation.**

Strategic Perspectives recommends:

- **A comprehensive approach to the 'end game':** Keep the 4.4% LRF until 2036, then gradually lower it until the system reaches a "net-zero" balance in 2045. If majorities in the Council and European Parliament decide to weaken the LRF as early as 2031, it should be strengthened from 2036 again. In addition, a credible long-term pathway for fossil fuel use can steer capital towards technologies and infrastructure that improve Europe's energy security and competitiveness, while reducing the risk of stranded investments in fossil-fuel assets.
- **Maximum revenue use for industry:** Make better use of available funds, especially EU ETS revenues, by linking them to an electrification-first principle, using them on grid infrastructure, creating an Industrial Electrification Bank (instead of the Industrial Decarbonisation Bank) where applicable, and tying support for companies to a Made-in-Europe policy.
- **Supporting household electrification and decarbonisation:** In countries with a small industrial base, the 50% share of revenues allocated to ETS sectors can also be used to support households, particularly through electrification schemes, while helping to soften the potential impacts of ETS2.

CHAPTER II

Phasing out fossil fuels through the ETS

Phasing out fossil fuels has become imperative to lower the EU's exposure to high and volatile oil and gas prices and to increasingly unreliable partners. Every euro spent on imported oil and gas leaves Europe's economy, while investment in renewable energy, grids, storage and electrification creates value-add domestically and reduces exposure to volatile global energy prices. Doubling the electrification rate by 2040, as suggested by the European Commission, would **cut the fossil fuel import bill by €260 billion yearly**[22]. A faster transition away from fossil fuels can therefore deliver both greater energy security and lower costs, while creating the investment conditions for European companies to compete in the growing global clean-technology market, which the International Energy Agency expects to be $2 trillion[2] by 2035.

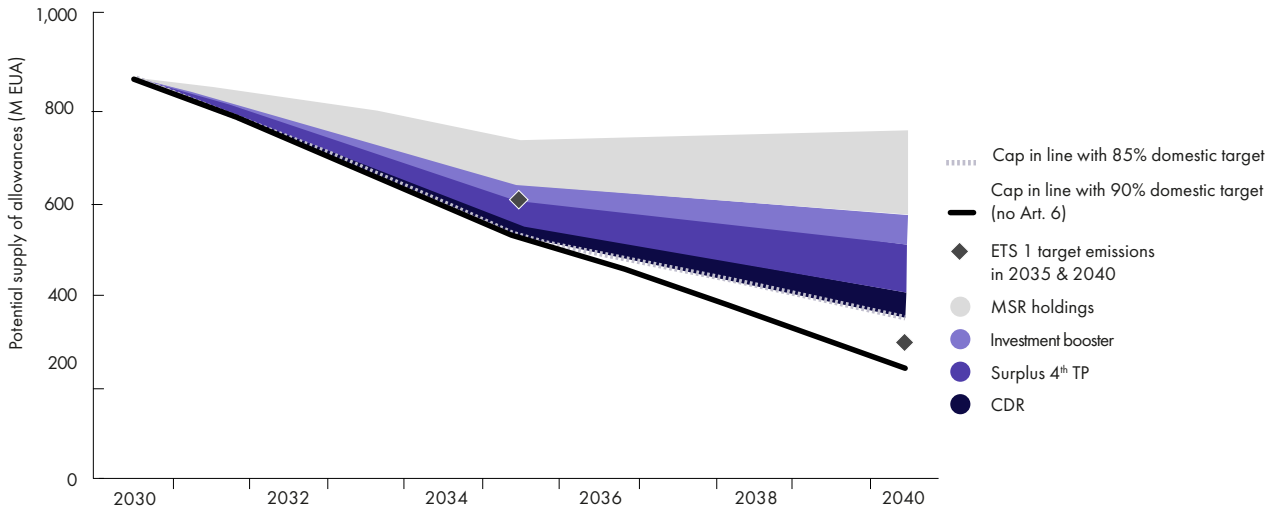
The ETS is meant to provide an important investment signal for this shift. In fact, the CO_2 price has made coal increasingly unprofitable in many countries, contributing to a 50% reduction in coal use in Poland[23] over the last few years. **A clear and predictable pathway for reducing fossil fuel use gives companies greater certainty** that investments in electrification, renewable generation and supporting infrastructure will remain competitive over time. It thus reduces the risk of continued investment in fossil-fuel assets that could become increasingly costly or economically unviable, turning into stranded assets. At the same time, this predictability is essential to plan a just transition for the workforce to preserve prosperity in the regions. The Commission's July proposal substantially increases the potential supply of allowances. While the proposed LRF is in line with cost-efficient scenarios for a

Hydrogen test centre. Germany.

85% and 90% reduction in 2040, additional allowances above the cap can increase future ETS emissions: If allowances from the Investment Booster, the Carbon Dioxide Removals (CDR) and the surplus from the 4th trading period[vi] would enter the market, more than 500 million tonnes CO_2 equivalent could be emitted according to Öko Institute analysis. If new installations enter the market ('New Entrance Reserve'), the amount would be even higher. The potential supply of allowances under the Commission's July scenario is more than double what is envisaged under a 90% domestic target and 60% higher than the 85% domestic target. Looking at 2040, emissions could thus be twice as high as the cap:

Figure 6.

Potential emissions in the ETS 1 under the reform proposal



Source: Öko-Institut 2026: Out of balance (slightly revised)

vi. The surplus is the amount which is already in the market – it belongs to operators, banks, private persons and they can decide when and if they will use them. If and when the full surplus of the 4th trading period will be used, is unclear – it could be saved for after 2040 or used in one year. The Öko-Institut hence decided to show a linear use until 2040 as an example.

According to our analysis[24], **the EU's power sector can be largely fossil-free by 2037**, which is an essential precondition to ensure that higher demand from electrification does not delay the phase-down of oil and gas. The current trajectory of the linear reduction factor would have delivered this for the power sector, given that no new certificates will have entered the market as of 2039, whilst it would certainly be a stretch for most industrial sectors. The Commission's July proposal, though, delays the EU-level phase-out signal by a decade to 2048. In the power sector, the proposal is thus at odds with the EU's economic and security interests. It risks delaying investment decisions in the power sector, thereby unnecessarily **prolonging dependence and exposure to gas imports, and risks leading to high electricity prices** in the next decade.

This also affects industrial projects that are already committing capital to hydrogen-based production. They are the most exposed, since their business case rests on a carbon price path that justifies the premium over fossil-based production and the necessary infrastructure is not built on time. This matters beyond the balance sheet of individual companies. Primary steel and chemicals are the clearest examples of industries planning to decarbonise indirectly, through hydrogen, rather than through direct electrification. If they rely on fossil-based hydrogen, their decarbonisation trajectory gets jeopardised.

Two concrete examples from the steel sector illustrate the economic exposure. Stegra's €6.5 billion[25] low-carbon-steel project in Sweden relies on a 690 MW electrolyser to replace coal with green hydrogen; the project has received €250 million from the EU Innovation Fund, but its competitiveness depends on the cost gap between hydrogen-based steel and conventional, ETS-exposed production. Thyssenkrupp provides an even clearer indication of the carbon-price assumption behind investment decisions: its Duisburg hydrogen-capable direct-reduction plant is a key investment whose economic efficiency was assessed using an internal carbon price[26] rising to around €150 per tonne (t) of CO_2 by 2035 and €250/tCO_2 by 2045. The company is already investing billions in the transition, while its CEO has warned[27] that the Duisburg plant cannot currently be guaranteed to operate economically because affordable green hydrogen is not yet available in sufficient quantities.

There is no easy way out of this - unless the linear reduction factor gets strengthened again - and all options are suboptimal. Member States are introducing strong national measures to reduce fossil fuel use faster than the ETS trajectory, driven by energy security concerns, e.g., through national targets or plans to phase out coal, gas, and oil. It also brings greater clarity for just transition plans in the coal regions, given that the ETS does not set a clear coal phase-out date. However, this leads to a more fragmented policy landscape across the EU and less predictable investment conditions across the Single Market. **A clear EU-wide direction offers a more efficient alternative: it allows companies and investors to anticipate the transition and allocate capital accordingly**.

The worst outcome would be the absence of both. Without a stronger EU signal or national measures to drive investment, the savings from reduced fossil fuel imports won't materialise. Also, the EU will remain exposed to international energy shocks, and spending will fail to reach domestic electricity generation, infrastructure and technologies that can strengthen Europe's industrial base.

Strategic Perspectives recommends:

- **Strengthen the linear reduction factor *(as described above)***. A credible long-term pathway for fossil fuel use can steer capital towards technologies and infrastructure that improve Europe's energy security and competitiveness, while reducing the risk of stranded investment in fossil-fuel assets.
- **Encouraging national fossil fuel phase-out plans to give investors greater certainty.** Member States can set out clear pathways for reducing fossil fuel demand in their National Energy and Climate Plans (NECPs) or follow the French[28], Dutch[29] and German[30] examples by developing a Transition Away from Fossil Fuels (TAFF) Roadmap. This would help companies anticipate future energy demand, infrastructure needs and investment opportunities, while reducing the risk of fragmented national approaches.

Industrial area high-voltage electricity substation, Belgium.

CHAPTER III

Cost-efficiency as the primary principle for achieving the 2040 target

Cost-efficiency is central to maximise the economic opportunities of reaching the 2040 target whilst respecting the challenges and opportunities that every sectoral transition entails on the path to EU climate neutrality by 2050 at the latest. The EU is entering a period of exceptionally high investment needs: modernising its industrial base, reducing dependence on imported energy, expanding electricity infrastructure and strengthening its competitiveness in the $2 trillion[2] global clean-technology market. Achieving emissions reductions where they are fastest and cheapest can help make these investments most efficient for the European economy.

This is even more relevant for the countries planning to reach climate neutrality before 2050:

- **2035:** Finland[31];
- **2040:** Austria[32];
- **2045:** Denmark[33], Germany[34], Portugal[35], Sweden[36].

These countries would benefit from other EU countries moving at the same pace, but also have a substantial competitive advantage as their companies have stronger incentives to become frontrunners in clean technologies and products. **Convergence on pathways whilst respecting national circumstances and capacities is key to avoiding a two-speed Europe.**

A strong ETS is an important part of this approach, as it covers sectors in which alternatives are technically and economically feasible. It allows investment and innovation to flow towards sectors where fossil fuels can be replaced most efficiently, while creating a common signal across the Single Market. Weakening that signal, as the Commission's July proposal entails, does not remove the cost of the transition. Instead, it risks shifting investment and emissions reductions towards more expensive parts of the economy, notably agriculture.

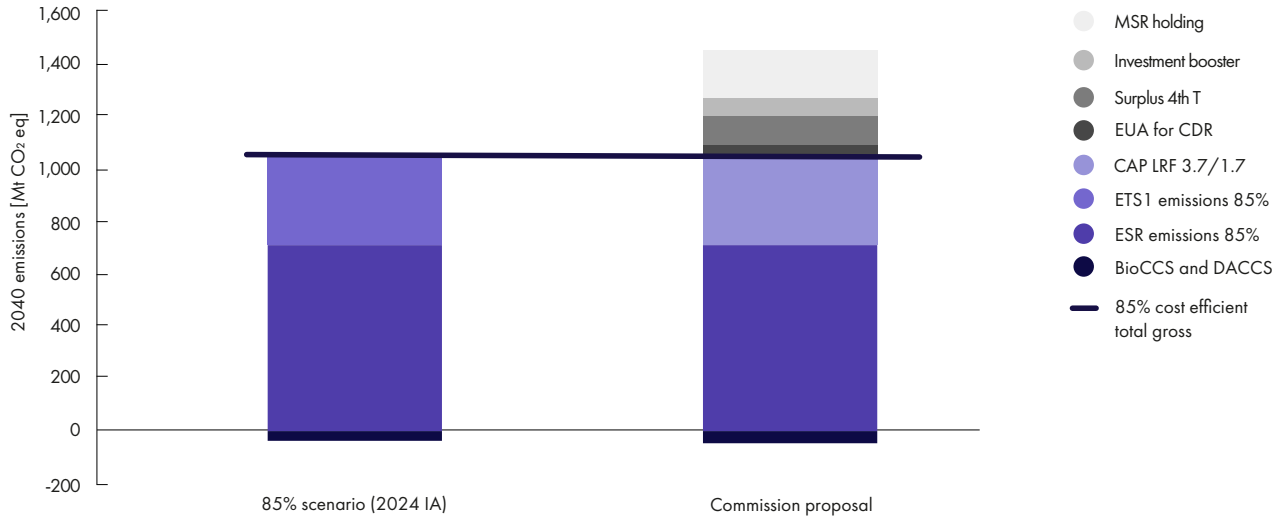
A weak ETS1 risks increasing costs elsewhere

Power generation and road transport offer the most rapid and relatively cheapest fossil fuel substitutions. Renewable electricity is increasingly competitive, while electrification offers a way to reduce both fossil fuel consumption and exposure to volatile international energy prices. Electric vehicle sales are constantly on the rise[37], not least as consumers enjoy the comfort and want to shield themselves from ever-increasing fuel prices, not only due to the war in the Middle East. These sectors can therefore deliver significant energy security and competitiveness gains for frontrunner companies, alongside cost benefits and emissions reductions. The political decision to delay the transition to e-mobility might cause the EU automotive sector to fall further behind China. A weaker ETS signal would risk slowing investment in power and industry.

The Commission's July proposal departs from its initial cost-efficient scenario for reaching net 85% domestically by 2040, as gross emissions would be higher by more than 200 million tonnes CO_2 (even without the Market Stability Reserve holding) according to the Öko-Institut[vii]:

Figure 7.

2040 emissions: Commission proposal vs. 85% cost-efficient scenario



Source: Öko-Institut 2026

vii. The assumption is a share of 71% of ESR and 29% of ETS1 emissions on gross emissions in the 85% scenario.

The greenhouse gas emission reductions would not disappear; they would increasingly need to come from sectors where alternatives are more expensive, less mature or harder to deploy, such as the agriculture sector. This would raise the overall cost of achieving the 2040 target and could increase the need for public support or additional regulation elsewhere.

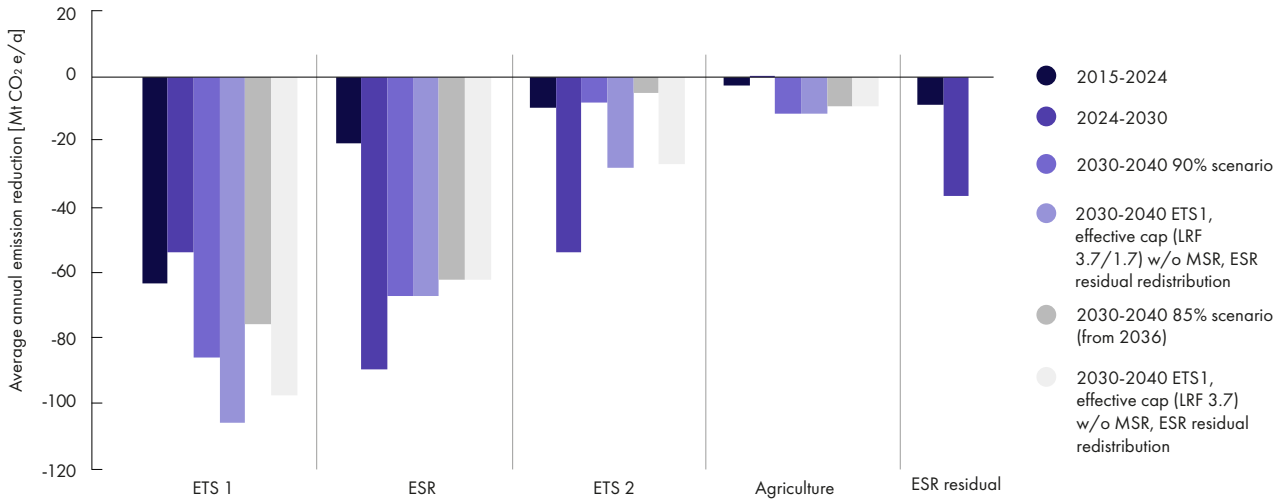
The findings of the Öko-Institut are eye-opening: If it is assumed that ETS2 emission reductions remain unchanged, the additional pressure to reduce emissions falls on the agricultural sector or on other emissions outside the ETS (mainly agricultural energy, fugitive emissions, and f-gases). **While the speed of agricultural emission reductions needs to increase, it would need to accelerate three to five fold by 2040 if ETS emissions would be higher than in the cost efficient scenario and ETS2 emissions remain unchanged.** This is based on the calculation that emissions in the agricultural sector would decrease by:

- 5 Mt CO_2 equivalent per year in the period 2030-2040 in a 85% scenario, and by
- 8 MtCO_2 equivalent per year in a 90% scenario.
- With ETS emissions including the additional allowances from CDR, investment booster and surplus of the 4th trading period, the reduction of the agricultural sector would need to be -27 or -28 Mt CO_2 equivalent per year.

This is also relevant for Member States pursuing more ambitious national targets. Where the EU-level framework does not sufficiently capture the cheapest opportunities, countries that continue to pursue higher ambition could face higher marginal costs. **A strong common ETS can help prevent this by ensuring that investment flows towards the most efficient opportunities across the Single Market.**

Figure 8.

Annual average emission reductions by sector



Own calculation.
ESR emissions = total gross minus ETS1.
ETS2 emissions calculated from sectoral emissions of cost-efficiency scenarios, applying sectoral ETS 2 shares.
ESR Residual = waste, industry & energy outside of ETS1 (mainly agriculture energy, fugitive emissions, F-gases). In scenarios with effective cap emissions, same amounts are estimated in 2040 as in cost-efficient scenarios.
Agriculture = ESR minus ETS2 minus ESR residual.

Source: Öko-Institut 2026

Cost-efficiency is increasingly linked to competitiveness

The EU's competitiveness challenge makes the efficient allocation of investment particularly important. European companies are competing with businesses in the United States, China, and elsewhere for access to capital, energy, and rapidly growing global clean-technology markets. Policies that unnecessarily increase the cost of decarbonisation could weaken that competitive position.

Conversely, **accelerating the most cost-effective forms of fossil-fuel substitution can improve the business case for investment in Europe**. Electrification, renewable power, grids and related technologies can reduce exposure to imported energy while creating demand for European manufacturing and infrastructure. A strong ETS can help direct private capital towards these opportunities rather than relying primarily on public funding. At the same time, progress on the Grids Package[38] and the upcoming post-2030 climate and energy framework is essential to ensure that all key enablers are in place to boost competitiveness and achieve the 2040 climate target cost-efficiently.

Article 6 can complement cost-effective domestic action

International cooperation under Article 6 can provide an additional source of cost-effective emissions reductions if high-quality projects meet strong quality criteria and are available at reasonable prices. This can be an opportunity for EU companies operating abroad to strengthen partnerships with countries seeking to reduce their dependence on fossil fuels. An initial set of indicators[viii] for Article 6 projects has already been included in the European Climate Law[39], and providing further guidance to the upcoming Commission proposal is hence essential, given a pilot phase is already anticipated for 2031. Some indicators might require further interpretation, as 'permanence' could limit projects to permanent carbon dioxide removals only, and 'additionality' requires a baseline for its definition. On the latter, the rating of Nationally Determined Contributions (NDC) could serve as input to the definition, or the International Energy Agency's 1.5°C scenario[40] could establish a baseline, if investments at the global level should also be targeted towards accelerating the energy transition to increase energy security.

viii. The amended Climate Law reads: 'From 2036, an adequate contribution towards the 2040 climate target of high-quality international credits under Article 6 of the Paris Agreement of up to 5% of 1990 Union net emissions, corresponding to a domestic reduction of net greenhouse gas emissions by 85% compared to 1990 levels by 2040, in a way that is both ambitious and cost-efficient, supporting the Union and third countries in achieving net greenhouse gas reduction trajectories compatible with the Paris Agreement objective to hold the increase in the global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1,5°C above pre-industrial levels, ensuring the environmental integrity of those credits, while promoting the Union's technological leadership; a pilot period from 2031 to 2035 to initiate a high-quality and high-integrity international credit market may be considered; the origin, quality criteria and other conditions concerning the acquisition and use of any such credits shall be regulated in Union law to ensure that they are based on credible and transformative activities in partner countries with the aim of achieving climate targets and policies compatible with the long-term temperature goal laid down in the Paris Agreement, that they are subject to robust safeguards, including ensuring integrity, avoidance of double counting, additionality, permanence, transparent governance, strong monitoring, reporting and verification methodologies, that they ensure economic, social and environmental co-benefits and human rights safeguards, and have a high ambition for the share of proceeds for adaptation and the sharing of mitigation benefits with countries concerned; when establishing the quality criteria, the Commission shall consider, where appropriate, complementing the criteria laid down under Article 6(4) of the Paris Agreement to ensure the respect of those safeguards and the highest quality of international credits, in particular with regard to permanence and human rights.

High-quality projects will likely come at a higher cost, but they can also **deliver more credible and durable reductions and support the transformation of industry and energy systems** in partner countries. The EU can maximise the strategic value of Article 6 by focusing on projects that align with its wider interests: accelerating the global shift away from fossil fuels, expanding zero-emission electricity and electrification, and building stronger clean-energy partnerships.

At the same time, efficient procedures are important. High-quality projects need a sufficiently rapid route from approval to implementation if Article 6 is to make a meaningful contribution to the 2040 transition after 2035. Aligned with many of the recommendations from Concito[41] and Clean Air Task Force, **such quality criteria could include:**

- **High environmental integrity:** credits should represent genuine mitigation, with robust methodologies, monitoring, reporting and verification, and safeguards against over-crediting and other integrity risks.
- **High ambition in partner countries:** projects should be consistent with and contribute to more ambitious national climate pathways, rather than allowing countries to transfer reductions needed to meet their own climate objectives.
- **Additionality and credible baselines:** credits should support mitigation that would not otherwise occur and be measured against credible baselines, such as NDC ratings or the IEA's 1.5°C scenario.
- **Strategic alignment:** purchasing can prioritise projects and partnerships that contribute to systemic transformation, particularly the phase-out of fossil fuels, clean electricity and electrification, rather than simply seeking the lowest-cost tonnes.

Strategic Perspectives recommends:

- **Returning to cost-efficiency:** The EU can achieve greater cost-efficiency by preserving strong incentives in sectors where fossil fuels can be quickly and competitively replaced. A stronger ETS signal can help direct private investment towards the most cost-effective opportunities, reducing the pressure for more expensive interventions elsewhere.
- **Using Article 6 strategically and setting clear quality guidance within the ETS:** Policymakers have the opportunity to provide top-line quality guidance for international projects, focusing EU engagement on projects that deliver genuine additional reductions and support strategic priorities. Prioritising the fossil-fuel phase-out and clean electrification in partner countries would enable Article 6 to complement domestic investment and strengthen the EU's international energy partnerships.

Conclusion

Cost-efficiency is ultimately about making the most of the investment Europe will need to undertake. The fastest and least-cost emissions reductions can also deliver some of the greatest economic benefits: lower exposure to imported fossil fuels, strengthening energy security, stronger demand for European clean technologies and a more competitive industrial base. A strong ETS can help steer investment towards these opportunities, while strategic use of international projects can extend their benefits beyond Europe. Approached this way, **the 2040 transition can become an investment strategy for a more secure and competitive European economy, rather than simply an additional cost.**

Annex

Table 1.

National investment overview (€ million, 2025 prices, cumulative 2026-2040)

Country	Total investment: Current law	Total investment: Commission proposal	Total investment: 2026 average price (€75/t)	Current law minus Commission proposal	Strategic sectors: Current law	Strategic sectors: Commission proposal	Low-carbon sectors: Current law minus Commission proposal
EU ETS area (EU 27, Iceland, Liechtenstein, Norway)	353,803	301,763	237,648	52,040	76,187	44,898	31,289
Germany	72,505	63,373	46,647	9,132	15,318	8,545	6,774
Netherlands	44,111	36,241	31,641	7,870	3,161	462	2,699
Italy	36,842	28,527	24,978	8,316	6,048	2,896	3,152
France	32,748	29,032	21,672	3,716	6,499	4,263	2,237
Spain	31,162	27,210	20,993	3,952	6,827	4,535	2,292
Poland	20,495	17,374	11,817	3,121	5,905	3,259	2,646
Norway	15,167	14,625	13,789	542	4,138	3,963	175
Belgium	14,310	12,301	8,751	2,009	3,195	1,724	1,471
Austria	11,197	9,523	6,709	1,673	2,420	1,030	1,390
Czechia	11,161	9,017	7,932	2,144	1,356	655	702
Sweden	7,925	7,076	5,449	850	1,850	1,253	597
Finland	7,745	6,718	5,547	1,026	1,530	487	1,043
Slovakia	7,265	5,768	4,113	1,497	1,787	799	988
Greece	6,297	5,172	4,239	1,125	3,759	3,053	705
Hungary	5,835	4,984	4,524	852	354	188	166
Portugal	5,253	4,766	3,441	487	1,440	1,084	356
Romania	4,272	3,527	2,330	744	2,202	1,605	597
Bulgaria	3,454	2,844	2,029	610	698	469	229
Lithuania	3,421	2,304	1,999	1,117	2,591	262	2,330
Croatia	2,775	2,231	1,776	545	630	420	210
Iceland	2,476	2,474	2,395	1	1,826	1,824	1
Denmark	1,952	1,835	1,388	118	545	450	95
Ireland	1,788	1,671	981	117	867	728	139
Slovenia	1,314	1,197	1,058	117	288	228	60
Luxembourg	774	750	592	24	158	136	22
Estonia	531	321	320	210	102	0	102
Cyprus	513	477	249	36	395	340	54
Latvia	418	407	268	11	259	242	17
Malta	97	20	20	77	38	0	38
Liechtenstein	0	0	0	0	0	0	0

Differences are computed on unrounded figures.

Table 2.

Plant universe: EU integrated blast furnace-basic oxygen furnace (BF-BOF) steel plants (21 plants, 94.5 Mt/y nominal capacity)

Plant	MS	Estimated conversion deadline under CE proposal
Thyssenkrupp Duisburg	DE	Phase 1 2040; rest 2050
Adl Taranto	IT	2040
Tata Steel IJmuiden	NL	2040
AM Dunkirk	FR	Phase 1 2040; rest 2050
voestalpine Linz	AT	Phase 1 2040; rest 2050
SHS Dillingen + Völklingen	DE	Phase 1 2040; rest 2050
AM Asturias (Gijón) + Avilés	ES	2040 (BF A relined 2006)
Salzgitter	DE	2040
AM Ghent	BE	2040 (BF B relined 2021)
AM Dąbrowa Górnicza	PL	2050 (BF2 relined 2023)
U.S. Steel Košice	SK	Phase 1 2040; rest 2050
HKM Duisburg	DE	2040 (GEM retirement 2028)
AM Bremen	DE	2050 (relined 2023)
Liberty Galați	RO	2050 (BF5 relined 2023)
SSAB Raahe	FI	2040 (GEM retirement 2030/2040)
Třinec	CZ	Phase 1 2040; rest 2050
AM Fos-sur-Mer	FR	2040 (BF2 relined 2011)
AM Eisenhüttenstadt	DE	2040 (relined 2022)
SSAB Luleå	SE	2040
voestalpine Donawitz	AT	2040 (BF1 relined 2018)
SSAB Oxelösund	SE	2040

Capacities are nominal basic oxygen furnace (BOF) capacities from Global Energy Monitor's Global Steel Plant Tracker (June 2026): the maximum annual output at full utilisation, not actual production.

Table 3.

Capex per project

Project	Announced	Capex (€bn)
AM Dunkirk, EAF	Feb 2026 (1.2 in May 2025)	1.3
tkH2Steel, Duisburg	Jul 2023; Aug 2026	2.9–3.0
SALCOS phase 1	2.3 in Feb 2025; 2.7 in 2026	2.3–2.7
SHS Power4Steel	3.5 in Dec 2022; 3.8 per GEM	3.5–3.8
voestalpine greentec	Mar 2023	1.5 (Linz 1.05; Donawitz 0.45)
SSAB Oxelösund	Jun 2023	SEK 6.2bn, about 0.54
U.S. Steel Košice	16 Sep 2026	0.9
Třinec	Apr 2025	CZK 25bn, about 1.0 (full programme)
Tata IJmuiden phase 1	Sep 2025	4.0–6.5
SSAB Luleå	Apr 2024	4.5
AM Gijón, EAF	May 2024	0.213
Total in the paper (11 projects)		**22.7–26.0**

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