ZERO EMISSIONS PLATFORM

Recommendations for the Industrial Decarbonisation Accelerator Act

Response to Call for Evidence

08 July 2025

Key recommendations

Establish comprehensive plans for lead markets	Lead markets are essential to ensure industries can decarbonise in Europe. However, each sector is different, with specific value chains. Therefore, sector-specific plans that consider the specificities of upstream production and downstream demand are needed to ensure such markets are effective. Public and private initiatives are required to enhance market transparency and impact.
Set clear standards for defining low-carbon products	Lead markets require clear EU low-carbon product standards, harmonised GHG accounting, progressive thresholds, performance-based approaches, and updated, interoperable systems to drive decarbonization and market transparency.
Advancing government-led procurement and policy	For clean industrial production in Europe to succeed, governments must lead by example. Mandatory green criteria, climate-aligned contracts, and quotas for low-carbon materials need to be established alongside financial sector-specific supports to kickstart lead markets.
Driving downstream demand-side obligations	In some sectors, demand-side obligations may be needed to drive low-carbon product markets by setting quantitative targets for public and private buyers. These can offer a cost-effective path to driving demand while remaining consistent with existing EU regulatory precedent and existing frameworks.
Accelerating and aligning industrial decarbonisation timelines	Industrial production needs CO_2 infrastructures to meet the necessary demand. The IDAA should prioritise key projects/clusters, streamline permitting, and explore risk-sharing mechanisms to accelerate deployment and meet climate goals.

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Introduction

As Mario Draghi's report on the future of European Competitiveness[1] notes, decarbonising Europe's heavy industries is imperative for achieving the EU's climate neutrality target by 2050, but can also offer opportunities for sustainable growth. The Clean Industrial Deal (CID)[2] provides an ambitious agenda to support an industrial transition and shows that industrial decarbonisation and reindustrialisation in Europe can be compatible objectives. In addition, the forthcoming Industrial Decarbonisation Accelerator Act (IDAA) offers a clear opportunity to provide more specific measures to achieve the objectives of the CID and ensure that European industrial producers can decarbonise in Europe.

The framework for the IDAA is set to enable several important initiatives, especially mechanisms to drive demand for low-carbon products in Europe through the establishment of lead markets. The IDAA is therefore a welcome development in a time when Europe has experienced a decline in energy-intensive manufacturing over the past years.[3,4,5]

Ahead of the Industrial Carbon Management Strategy (ICMS) publication in February 2024, the Zero Emissions Platform had already joined industries and civil society in calling on the European Commission to include policy initiatives to foster a market for low-carbon products.[6] Now, with the upcoming Industrial Decarbonisation Accelerator Act[7] announced in the Clean Industrial Deal, the Commission has an opportunity to create this market. This will be key to support decarbonisation efforts, including CCS and CCU projects with robust emissions reductions across the full lifecycle, by helping to provide a revenue premium for products that have lower embedded emissions. Furthermore, ensuring sufficient demand for these products and improving the economic viability of CCS and CCU projects, which provide clear emissions

[1] Commission, 'The Draghi report on EU competitiveness' (2024) <https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en >
[2] Commission, 'Communication on the Clean Industrial Deal: A joint roadmap for competitiveness and decarbonisation' COM (2025) 85 final. <https://commission.europa.eu/topics/eu-competitiveness/clean-industrial-deal_en>
[3] Eurostat, 'Industrial Production down by 3.2% in the Euro Area and by 2.1% in the EU', (2024), <https://ec.europa.eu/eurostat/web/products-euro-indicators/w/4-13032024-ap .>
[4] Eurostat 'Industrial production down by 0.3% in the euro area and by 0.2% in the EU' (2024) < https://ec.europa.eu/eurostat/web/products-euro-indicators/w/4-15012024-ap >.
[5] European Trade Union Confederation, 'EU Loses Almost a Million Manufacturing Jobs in Just 4 Years', (2024), <https://www.etuc.org/en/pressrelease/eu-loses-almost-million-manufacturing-jobs-just-4-years>.
[6] https://zeroemissionsplatform.eu/publication/open-letter-industry-and-civil-society-calls-on-european-commission-to-develop-strategy-for-low-carbon-products/
[7] https://www.europarl.europa.eu/legislative-train/theme-a-new-plan-for-europe-s-sustainable-prosperity-and-competitiveness/file-industrial-decarbonisation-accelerator-act

reductions, is also necessary to help ensure that the EU meets its annual CO_2 injection capacity objective of 50 Mtpa by 2030 as set out in the Net Zero Industry Act.[8]

Advancing lead markets to commercialise new technologies is not a new development. Indeed, the Commission first proposed such an initiative in 2008.[9] CCS and CCU technologies are technically proven at large scale but have not yet fully commercialised, in part because the low-carbon products which result from their production processes suffer from a market failure which prevents their uptake. The IDAA can help to advance lead markets for low carbon industrial production in Europe in the coming years by:

- Outlining sector-specific plans for establishing lead markets in key sectors, particularly those which are strategically important to Europe's economy (cement, steel, fertilisers, chemicals, lime and aluminium).
- Advancing and support private and public-private initiatives to drive demand.
- Drafting and harmonising EU standards to establish clear labels for low carbon products
- Adapting and leverage existing demand in public procurement to mandate demand for low carbon products
- Proposing mechanisms to drive demand among key stakeholders in industrial value chains, especially where public procurement plays less of a role
- Simplifying and, where possible, accelerating and aligning project timelines to ensure supply can meet market demand.

We welcome the opportunity to provide recommendations on how the IDAA can help to achieve these objectives.

[8] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401735
[9] https://ec.europa.eu/commission/presscorner/detail/en/ip_08_12

I. Addressing the market failure: Lagging demand for low-carbon products

Developing a robust market for low-carbon products and bulk materials is an essential step to keep Europe's industries competitive and to accelerating the reduction of net GHG emissions. Industrial carbon management applied to heavy industry can substantially contribute to the production of low-carbon products, such as cement, fertilisers, aluminium, and steel, with minimal additional cost to the end user.

Among the pathways to decarbonise industrial processes, the International Energy Agency (IEA) has outlined that those which use CCS to produce low-carbon industrial products are among the most cost-effective.[10] For example, if using carbon capture and storage to produce low-emissions cement and steel, the cost of a bridge construction would increase by just 1%, while more than halving its emissions (see Figure 1).[11] Similar results can be seen with analyses of other value chains. A recent study from SINTEF also outlined that significant emission reductions (beyond 50%) could be achieved with marginal additional costs for end-users in other sectors such as electricity from wind power, transport by ship, food and drink production and waste treatment.[12]

[10] International Energy Agency, 'Special report on carbon capture utilisation and storage: CCUS in clean energy transitions' (2020), page 174
<*https://www.iea.org/reports/ccus-in-clean-energy-transitions*>
[11] Subraveti, S., 'Is Carbon Capture and Storage (CCS) Really So Expensive? An Analysis of Cascading Costs and CO2 Em
issions Reduction of Industrial CCS Implementation on the Construction of a Bridge' Environmental Science & Technology 2023 57 (6), 2595-2601 < https://pubs.acs.org/doi/full/10.1021/acs.est.2c05724>
[12] Roussanaly, Gundersen and Ramirez, 'Putting the costs and benefits of Carbon Capture and Storage into perspective: A multi-sector to multi-product analysis' (2025), *Prog. Energy* **7** 013002 < https://iopscience.iop.org/article/10.1088/2516-1083/ad9075>

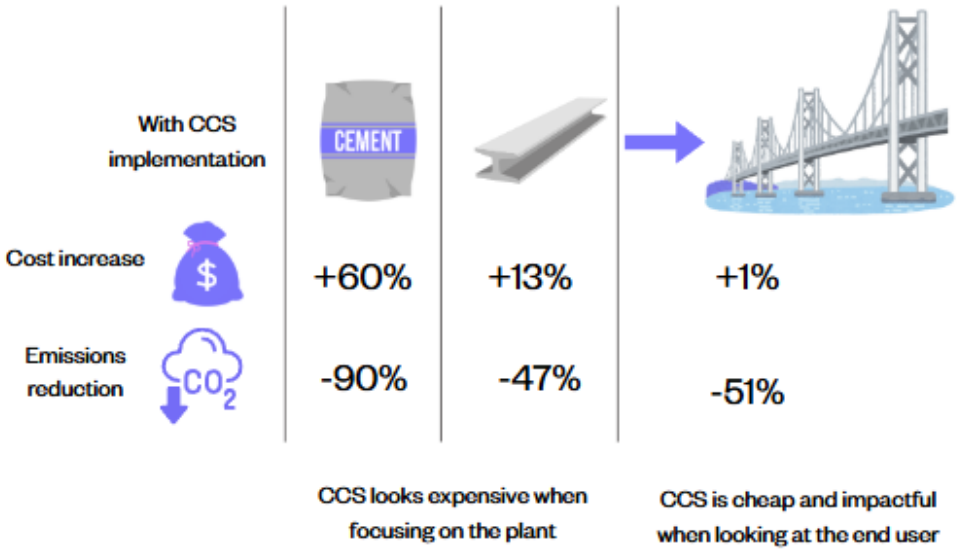

Figure 1: The costs and emission reduction of adding carbon capture and storage to the cost of constructing a bridge.[13]

While industrial carbon management can be an affordable and cost-effective lever to cut emissions in certain sectors, there are few full-scale operating plants anywhere in the world.[14] First-of-a-kind (FOAK) projects like Breivik CCS [15] are now in operation and have started producing low-carbon cement, which is marketed and sold as a zero-emissions product, evoZero™.[16] However, given the absence of demand-side policies, products such as evoZero™ require the voluntary uptake of such products from buyers who, in most cases, have no obligations or incentives to purchase them. To ensure environmental integrity and build trust in such products, robust and transparent carbon accounting systems are essential to verify the low-carbon content of the cement. Ensuring mechanisms such as 'book and claim' are well designed is essential to mitigate potential risks.

[13] Subraveti, S., 'Is Carbon Capture and Storage (CCS) Really So Expensive? An Analysis of Cascading Costs and CO2 Emissions Reduction of Industrial CCS Implementation on the Construction of a Bridge' Environmental Science & Technology 2023 57 (6), 2595-2601 < https://pubs.acs.org/doi/full/10.1021/acs.est.2c05724>
[14] Bataille, 'Triggering Investment in First-of-a-Kind and Early Near-Zero Emissions Industrial Facilities' (2024) <https://www.energypolicy.columbia.edu/publications/triggering-investment-in-first-of-a-kind-and-early-near-zero-emissions-industrial-facilities/>
[15] Breivik CCS Project <https://www.brevikccs.com/en>
[16] EvoZero Cement < https://www.evozero.com/>

Another large-scale CCS project[17] in the Netherlands, led by Yara international, plans to store up to 800,000 tonnes of CO_2 per year from hydrogen and ammonia production used in the production of fertiliser, starting in 2026. This project faces the same hurdles to market a premium product with the current lack of willingness to pay in agri-food value chain, apart from voluntary initiatives with some partners[18][19].

Furthermore, market appetite for low-carbon products is uncertain. In the past year, even in the face of industry-wide mandates such as the FuelEU Maritime Regulation,[20] FOAK projects have been cancelled on the basis of insufficient demand.[21] As first-of-a-kind projects like Breivik CCS, Yara Sluiskil CCS and Longship enter operation, ensuring sufficient demand for low-carbon materials is essential to make future projects viable in the EU.

Financing large-scale projects such as capture plants is typically typically a high CAPEX and OPEX investment. an investment that requires billions of euros. For industrial producers, having access to the transport and storage infrastructure required to abate captured CO_2 emissions will usually also require tariffs to be paid as well as long term contracts with strict terms and conditions. For many industries, margins are thin and the ability to finance large capital expenditure is limited, making the switch to low-carbon production processes high risk.

This is compounded by the fact that investment in low-carbon production is made as a hedge against the price of EUAs in the ETS which does not create additional revenue but rather serves as a shield against prices in the future. While mechanisms like CCfDs can help with hedging against the carbon price – an essential component to de-risking these investments – they still do not promise future cash flows necessary to stimulate such investments.

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[17] Yara, 'Yara invests in CCS in Sluiskil and signs binding CO2 transport and storage agreement with Northern Lights – the world's first cross-border CCS-agreement in operation' (2023) <https://www.yara.com/corporate-releases/yara-invests-in-ccs-in-sluiskil-and-signs-binding-co2-transport-and-storage-agreement-with-northern-lights--the-worlds-first-cross-border-ccs-agreement-in-operation2/ >

[18] Yara, 'Yara and Lantmännen sign first commercial agreement for fossil free fertilizers' (2022) <https://www.yara.com/corporate-releases/yara-and-lantmannen-sign-first-commercial-agreement-for-fossil-free-fertilizers/ >

[19] Yara, 'PepsiCo Europe and Yara partner to decarbonize crop production' (2024) <https://www.yara.com/corporate-releases/pepsico-europe-and-yara-partner-to-decarbonize-crop-production/ >

[20] Article 5 of Regulation (EU) 2023/1805 requires ships above 5,000 gross tonnage to gradually reduce the carbon intensity of their fuel, with a 2% reduction in 2025, increasing to 80% by 2050.

[21] S&P Global, 'Orsted scraps Swedish FlagshipONE emethanol project under development' (2024) < https://www.spglobal.com/commodity-insights/en/news-research/latest-news/energy-transition/081524-orsted-scraps-swedish-flagshipone-e-methanol-project-under-development>. Industry Decarbonization, 'Why no one wanted to buy the Green Shipping Fuel' (2024)< https://industrydecarbonization.com/news/why-no-one-wanted-to-buy-the-green-shipping-fuel.html >

Low-carbon product premiums: An essential pillar for stimulating investment

Figures 2a and 2b provides an illustrative example of the challenges industrial producers developing carbon management and other large capital projects currently face.[22] In this example, an industrial emitter takes a final investment decision in 2030, commencing operation in 2033. In both cases, the producer is able to avoid having to purchase EUAs as the production process generates near-zero emissions.

In Figure 3a an industrial producer is able to sell their product at a price premium to competitors on the basis that their product is low-carbon relative to conventional products on the market, commonly referred to as a "green premium".

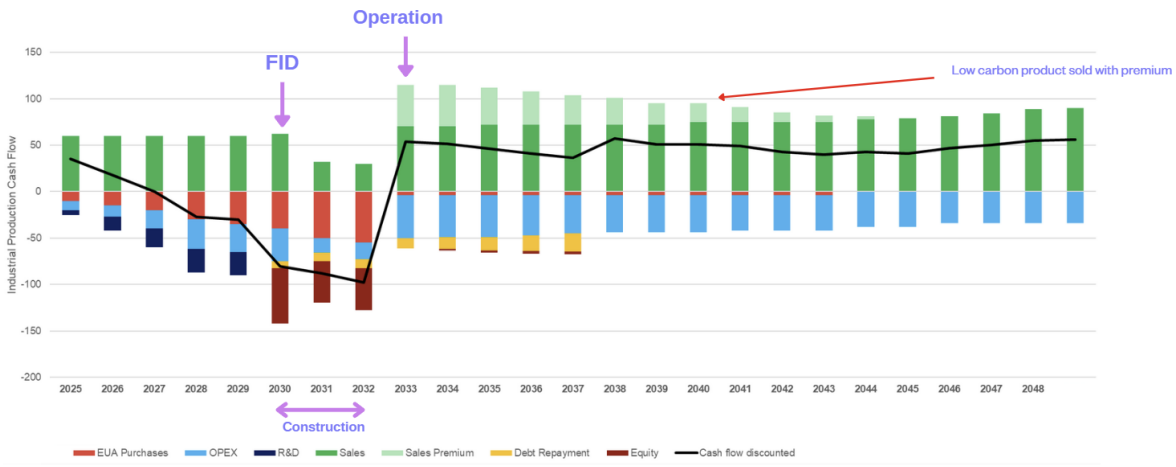

Figure 2a: Industrial producer is able to sell low-carbon products at a premium

In this example, despite enduring negative cash flow in the years preceding operation, the producer is able to secure additional revenues from the "green premium", meaning the investment ultimately proves to have a positive net present value. In Figure 2b however, the producer is unable to secure a "green premium" for their product meaning the additional

[22] Figure 2a and 2b provide an illustrative example of an emitter pursuing a capture project to be connected to a third-party transport and storage provider. Purchases of EU Allowances increase by virtue of the increase in prices projected with the free allocation phase out in 2034, which are assumed to virtually cease upon operation of the capture and storage project. To finance the investment, the emitter provides equity investment of 2.5x annual revenue with the additional costs financed with debt at 1.5:1 equity to debt ratio. During the construction phase, production continues but at a rate of 50% reduced output. Upon entering operation OPEX increases for the project due to higher energy costs and T&S tariffs. In 3a, the emitter charges a premium on the price of 60% in year 1 of operation, reducing over time as other low carbon products enter the market and conventional products are phased out.

revenues received in 2a are not received, meaning the investment ultimately has a negative NPV and is therefore not a worthwhile investment.

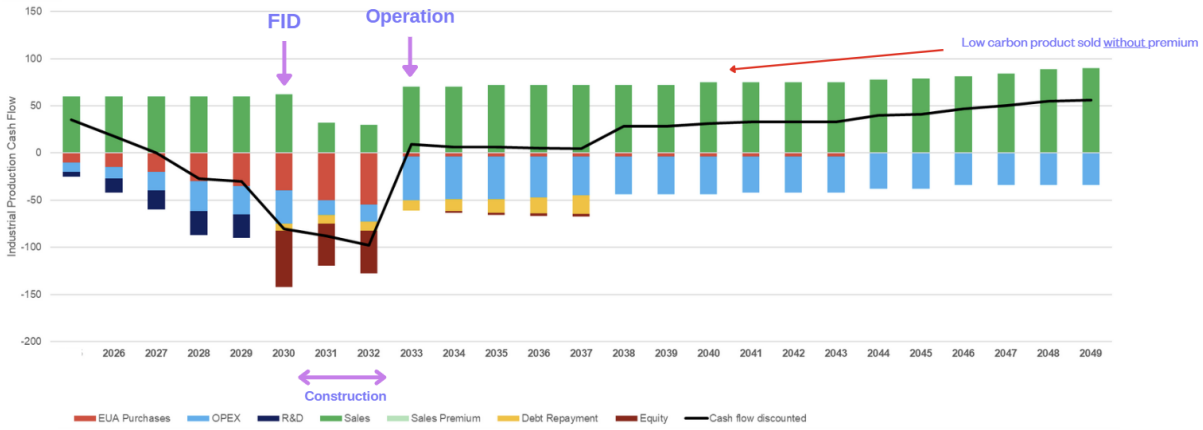

Figure 2b: Industrial producer is unable to sell low-carbon products at a premium

Hence, Figure 2 shows the importance of the guarantee of future revenue to come from the sale of low-carbon products which has a significant impact on producers' willingness to make investments in major decarbonisation projects, such as industrial carbon management, as well as their ability to obtain financing

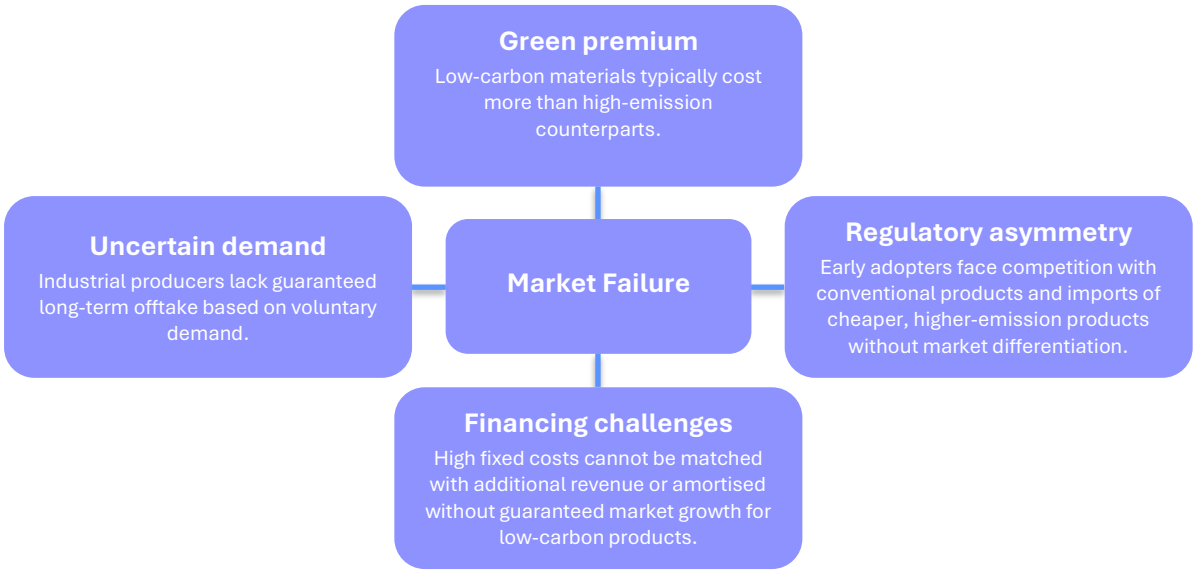

Figure 3: The current market failure in advancing low-carbon products

Hence, mechanisms to enable future additional cash flow from the sale of products which are substantially lower in their carbon footprint are essential to advance CO_2 infrastructure projects.

More broadly, EU and national policymakers have the potential to accelerate the adoption of low-carbon products and position the EU as a leader in net-zero industrial production. This presents various opportunities given that Europe already has a competitive edge in certain sectors[23]. In addition, recent changes to policy in the US,[24] for example, mean that Europe could gain a strategic advantage in advancing early-mover low carbon industrial production projects. European industrial producers have an opportunity to gain experience in producing and trading low-carbon materials of the future, but only if the conditions necessary to operate during the transition to climate neutrality can be met. Furthermore, given the traded nature of emission-intensive basic materials and products, lead markets that promote demand not just for climate-friendly materials and products produced locally but also for – at least a share of – imported products can have positive spillover effects for decarbonisation at the global level.

The development of markets for low- or zero-carbon end products can support the development of viable business cases that support investment. To achieve this, companies need support to enable the market uptake of products with low embodied emissions and drive CO_2 infrastructure deployment at the same time.

As identified by the Commission's Industrial Carbon Management Strategy (ICMS), there is currently insufficient public and private investment into industrial carbon management due to uncertainties around the business case for CCS.[25] The ICMS further highlighted the importance of matching supply and demand for low-carbon products. Today, industrial companies throughout the EU are reviewing strategic options to transform their production processes order to lower costs and offer low- or zero-carbon end products.[26]

[23] Commission, 'The 2024 EU Industrial R&D Investment Scoreboard' (2024) < https://publications.jrc.ec.europa.eu/repository/handle/JRC140129>
[24] For example, in May 2025 the U.S. Department of Energy announced the cancellation of up to $3 billion USD in funding for various first-of-a-kind electrification and CCS projects, see: U.S. Department of Energy, 'Secretary Wright Announces Termination of 24 Projects, Generating Over $3 Billion in Taxpayer Savings' (2025) <https://www.energy.gov/articles/secretary-wright-announces-termination-24-projects-generating-over-3-billion-taxpayer>
[25] Ibid.
[26] European Commission. (2024). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Towards an ambitious Industrial Carbon Management for the EU.

II. Advancing clean industrial production in Europe: Recommendations for the IDAA

To overcome the market failure, several actions can be taken to support the decarbonisation of heavy industries and foster lead markets for low-carbon products in Europe. These actions are designed to reinforce industrial transformation not only through technology and policy, but also by cultivating an informed and supportive marketplace.

A. Establish comprehensive plans to create lead markets for low carbon products

Providing clear signals to the market that lead markets are a cornerstone of the Clean Industrial Deal, the Commission can set the right framework to reward first-movers and innovators among European industrial producers. Clear plans which take into account the specificities of upstream production and downstream buyers are needed to create lead markets by 2030. The IDAA must focus on enabling strategic industrial sectors, particularly chemicals, steel, pulp and paper, refineries, cement, non-ferrous metals, glass, and ceramics and take into account possible synergies and differences.

Lead markets plans should define specific ambitions, targets for end-users of industrial materials and market uptake goals, setting the direction for sectoral transformation. It should actively encourage private sector leadership through both private buyer initiatives and green procurement commitments, creating strong demand-side signals and allow early movers to scale.

1. Set clear sectoral pathways for clean industrial lead markets in Europe

Given the heterogeneity of industrial value chains, sector specific roadmaps tailored to major industrial value chains (both upstream and downstream) are essential. These should be co-created with industry, academia, and civil society to ensure they are credible, technically grounded, and aligned with broader policy objectives, including EU climate targets, and should articulate clear timelines and expectations around decarbonisation milestones, provide supports to de-risk investments and align efforts across the value chain, while considering the different specificities of actors along the value chain for each sector.

2. *Advance public-private partnerships to drive demand*

Private buyer initiatives such as the First Movers Coalition[27] and Frontier Climate[28] have helped to increase and consolidate demand among major corporate buyers which has helped to facilitate FOAK projects. In this regard, a cornerstone of an EU strategy should be to build public-private partnerships to help drive demand, particularly in the coming years as FOAK decarbonisation projects enter operation and low-carbon products are produced. In some cases, existing voluntary initiatives already exist between producers and consumers, such as Yara and Lantmännen to produce and procure fertiliser produced with renewable energy,[29] which the IDAA could look to capitalise on.

As part of the strategy, coordinated efforts to heighten consumer awareness of low-carbon and near-zero carbon products across both business-to-business (B2B) and business-to-consumer (B2C) markets is important enhance information transparency. These efforts could inform necessary stakeholders about the environmental impacts of materials, promote recognisable labelling for low-carbon products, and highlight the necessity of choosing climate-friendly options.

B. Setting clear standards: Defining low-carbon products

At the core of any product standard lies a credible, harmonised GHG accounting methodology. Life-cycle assessments (LCAs), Environmental Product Declarations (EPDs), and carbon intensity (CI) metrics should be standardised across sectors and aligned with international best practices. These methodologies must also account for upstream and downstream emissions to accurately reflect product-level footprints. Where possible, standards could also incorporate circularity metrics – e.g. recycled content, design for reuse – for sectors like construction and metals. This would avoid carbon leakage into upstream/downstream processes and promote systems-level sustainability.

[27] https://initiatives.weforum.org/first-movers-coalition/home. For an overview of the First Movers Coalition's impact, see: https://instituteofsustainabilitystudies.com/insights/lexicon/what-has-the-first-movers-coalition-achieved-so-far/
[28] https://frontierclimate.com/
[29] http://yara.com/corporate-releases/yara-and-lantmannen-sign-first-commercial-agreement-for-fossil-free-fertilizers/

3. *Establish clear thresholds for performance*

EU product standards must establish clear thresholds for "low-carbon" and "near-zero-carbon" performance, taking into account existing sector-specific mechanisms. These thresholds should tighten progressively over time, providing long-term visibility to industry and aligning with the EU's climate neutrality targets. The European Commission and EU Member States may also wish to consider additional incentives for the commercialisation of products with carbon intensities below these thresholds. Tradability and mutual recognition of certified low-carbon products across the single market should be core features. It is therefore key to ensure that these standards are accompanied by transparent and trusted certification processes to maintain policy coherence for industry and create markets of scale.

4. *Set performance-based standards*

Standards should be performance-based rather than prescriptive, enabling innovation while ensuring robust environmental outcomes and adaptability to local specificities. This approach allows industry to choose the most efficient decarbonisation pathway (e.g. electrification, CCS/U, circularity) and accelerate the adoption of new technologies for low-carbon materials. Furthermore, standards may function as an additional filter or benchmark for access to innovation funding both at EU and national level.

5. *Harmonise existing standards*

Existing technical standards – especially for construction materials – must evolve to reflect the best available low-carbon innovations. Performance-based metrics should be embedded in the revised sectoral legislation such as Construction Products Regulation (CPR)[30] and the Fertilising Products Regulation (FPR)[31]. Updated standards should integrate CCS/U pathways, alternative binders, and other emerging technologies. Ensuring standards are agile and technology-neutral will accelerate the shift to sustainable materials.

Common definitions for low-carbon products and clear voluntary labelling schemes are also essential for market transparency. These must be sector-specific, science-based, and compatible with existing systems (e.g. product passports). Therefore, they should disclose product carbon footprints, using harmonised, third-party verified methodologies such as life-

[30] Regulation (EU) No 305/2011, (CPR).
[31] Regulation (EU) 2019/1009 (FPR).

cycle assessments or used in Environmental Product Declarations (EPDs). To facilitate accurate tracking and accountability, the Commission could develop of interoperable digital infrastructure that record, verify, and share data while protecting commercial confidentiality. Consistent labelling supports informed decision-making and empowers buyers – both public and private – to favour climate-friendly products.

Furthermore, as standards are implemented, the EU must consider how they affect both imports and exports. For imports, compatibility with the Carbon Border Adjustment Mechanism (CBAM) is essential to ensure a level playing field. For exports, measures to balance CBAM's influence on export dependent industries should be considered in a transitional period to ensure EU CBAM exporters' competitiveness in global markets. As highlighted in Mario Draghi's report, flexibility and arrangements with regards to the EU ETS Free Allowances may be required to avoid penalising EU exporters.

C. 'Made Clean in Europe': Advancing government-driven demand procurement and policy in the EU and EEA

The ambition to create lead markets for low-carbon products in the IDAA is a welcome development. It should be noted the Commission has advanced such initiatives in the past, notably the EU Lead Market Initiative, established in 2008, which aimed to leverage standards and public procurement for sustainable construction and other areas.[32]

The need to advance government leadership in promoting lead markets is clear. In some industrial sectors, particularly materials such as cement, steel and aluminium, governments are significant source of demand. Indeed, public infrastructure accounts for almost 60% of all global cement and concrete demand.[33] Given the large role governments play in market for some industrial materials, it is essential that the IDAA provide a clear pathway for governments to take the lead in establishing markets for low-carbon industrial materials.

[32] Commission, 'Lead market initiative to unlock innovative markets' (2008) <https://ec.europa.eu/commission/presscorner/detail/en/ip_08_12>;
Commission, 'Coordinated action to accelerate the development of innovative markets of high value for Europe – the Lead Markets Initiative' (2008) < https://ec.europa.eu/commission/presscorner/detail/en/memo_08_5>

[33] Global Cement and Concrete Association, 'Global Cement and Concrete industry announces roadmap to achieve groundbreaking 'Net Zero' CO2 Emissions by 2050' (2021) < https://gccassociation.org/news/global-cement-and-concrete-industry-announces-roadmap-to-achieve-groundbreaking-net-zero-co2-emissions-by-2050/>

While public procurement rules in the EU include processes for enabling procurement of low-carbon products, commonly referred to as 'green public procurement' (GPP), in 2021 the Commission already highlighted the key issues with the uptake of GPP reported by Member States, namely:

- *"the difficulty to foster GPP practices due to the lack of legal obligation for contracting authorities to use environmental criteria in tendering procedures;*
- *the lack of legal certainty on the correct interpretation of the requirement for 'link to the subject matter of the contract' and the general fear of litigation;*
- *the lack of data on the effectiveness and economic benefits of applying GPP criteria and the difficulty to monitor their application;*
- *the lack of specific knowledge and skills of the public servants engaged in tendering procedures, the fact that GPP may be perceived as an obstacle to competition, specifically restricting SME participation in public tendering."*[34]

Furthermore, just one third of the Member States have introduced a legal obligation for specific sectors, product groups, or if the value of the contract is above specified thresholds, with the remainder providing only voluntary inclusion of GPP criteria.[35]

6. *Set an ambitious government-led approach to low-carbon procurement*

In setting a vision for government-driven demand for clean industrial production in Europe, the IDAA must advance a more ambitious agenda for EU Member States to lead the way. As the Commission highlighted, key examples of best practice in GPP include:

- *"including mandatory GPP criteria or targets in national sectorial legislation;*
- *create a library with GPP criteria for different products and services, which is freely available and includes different criteria in terms of degree of environmental focus;*
- *impose mandatory annual reporting on the environmental aspects in procurement procedures to ensure transparency and enable easy data collection;*
- *provide training on GPP to both contracting authorities and businesses;*

[34] Commission, 'Implementation and best practices of national procurement policies in the Internal Market' COM(2021) 245 final, page 8 < https://op.europa.eu/en/publication-detail/-/publication/26d28258-b959-11eb-8aca-01aa75ed71a1/language-en>.
[35] Ibid page 8.

- *engage the environmental protection agencies (or another body performing similar activities) in the implementation of GPP."*[36]

By driving mandatory GPP criteria, based on transparent life-cycle carbon metrics and verified low-carbon labels, the Commission can ensure a harmonised government-led 'Made Clean in Europe' initiative can be advanced across Member States and applied at all governance levels (EU, national, regional and local). Efforts should also be made to consolidate existing initiatives such as the Clean Energy Ministerial Industrial Deep Decarbonisation Initiative.[37]

7. Guide EU public procurement towards climate neutrality

Public procurement law and "green" public procurement criteria have offered the possibility of taking environmental and social criteria into account already for decades. However, as evidenced above, the current uptake of sustainability criteria remains limited among the Member States due to weak enforcement, low capacity, and inconsistent guidance.

The IDAA should bridge this gap by prioritising low-carbon products in public procurement and be ensure alignment with other EU legislative initiatives such as the upcoming revision of the Public Procurement Directive[38]and the implementation of the Construction Products Regulation (CPR), which must be leveraged to prioritise low-carbon products. Examples of key components which could prove effective include:

- Ensuring contracts are awarded based on a balanced evaluation of sustainability, technical performance, and cost – rather on price alone.
- Flexibility thresholds in procurement criteria (e.g. 10% cost ceilings) are revisited to prioritise long-term climate goals over short-term cost concerns.
- Phasing in restrictions on high-carbon conventional materials in public tenders, ensuring a greater preference for low-carbon materials, which could also help to shift demand and establish lead markets.

[36] Ibid page 9.
[37] Clean Energy Ministerial. (n.d.). Industrial deep decarbonisation initiative.
[38] Directive 2014/24/EU on public procurement

8. *Establish mandatory minimum content quotas for low-carbon materials*

Additionally, mandating minimum content quotas for low-carbon materials in public procurement and specific product categories (e.g. steel, cement, plastics), which takes into account the specificities of the national context, could provide an effective segmentation of industrial materials, particularly at an early stage. Quotas are a strong market intervention and therefore need to be carefully thought through and designed and should be grounded in material availability and sectoral readiness.

For instance, Ireland has recently introduced a minimum 30% clinker replacement requirement for concrete products procured by public bodies or used in publicly produced construction projects.[39] This represents a replicable precedent and could help to not only stimulate market growth but also promote consumer confidence, standardisation, scalability, and environmental sustainability. Quotas could also increase over time, aligned with 2030 and 2040 milestones under the EU's climate objectives. Furthermore, minimum local content requirements for products produced in the EU and EEA could help to ensure European industrial producers are provided with greater incentives to advance decarbonisation projects in Europe.

Furthermore, one of the biggest barriers to guiding public procurement practices is the lack of capacity and training of procurement offices.[40] Given that a large share of public procurement occurs at the local and regional levels which usually have higher constraints than national governments, enhanced supports such as training and information on green public procurement and standards could enhance collaboration between procurement officers at the national level across the EU.

9. *Kickstart lead markets with sector-specific supports*

To address the cost premium of low-carbon products, the IDAA could also enable the implementation of support measures for specific sectors, to be designed and outlined in their respective lead-market plan.

Tools such as Carbon Contracts for Difference (CCfDs) could be used not only for producers, but also for downstream buyers, particularly those with reduced ability to pay. CCfDs for buyers

[39] gov - Government approves public procurement guidance to promote the reduction of embodied carbon in construction (www.gov.ie)
[40] Stockholm Environment Institute, ' Green Public Procurement: a key to decarbonizing construction and road transport in the EU' (2023) < https://www.sei.org/publications/green-public-procurement-eu/>

could reduce exposure to price differentials between conventional and sustainable products, enhancing demand. To complement CCfDs – or as an alternative – the Commission and the Member States could use EU funding from the announced Industrial Decarbonisation Bank as well as national funding either in the form of "grants-a-service" in the next Innovation Fund call or as state aid approved under the revised framework (CISAF).[41] Furthermore, lead markets for low carbon product markets offer the potential for financial institutions not only to finance projects seeking to produce such products but also to offer more favourable corporate debt terms to leading companies in the purchase of them, particularly through improved environmental, social and governance (ESG) ratings.

Sector-specific measures, outlined in their respective lead-market plan, could also be taken such as in the case of agrifood, where incentives could be provided via existing frameworks such as the Common Agricultural Policy or regulatory incentives to encourage the uptake of low carbon fertilisers in the near-term.

D. Driving downstream demand-side obligations

As outlined above, in some sectors (e.g. construction) public procurement could play a significant role in advancing demand for low-carbon products. However, in other key sectors such as agrifood, the potential impact is significantly lower given the reduced role government can play. Moreover, in some key sectors such as agrifood, downstream actors, not immediate buyers, have greater ability to pay, meaning sector-specific tools are needed to ensure the greatest impact.

In this regard, demand-side obligations (DSOs) could offer a complementary approach to supply-side policies by directly creating or shaping markets for low-carbon materials.[42] By mandating that specific actors purchase or use minimum shares of verified low-carbon products, DSOs help de-risk investments, create scale effects, and accelerate innovation adoption. They are designed to create guaranteed markets and long-term demand for climate-aligned industrial inputs.

[41] Commission, 'Framework for State Aid measures to support the Clean Industrial Deal (Clean Industrial Deal State Aid Framework)' C2025 7600 final.
[42] For a full overview of how demand side obligations could be successful in mobilising demand, see: Deloitte, 'Mobilizing consumer demand for green hydrogen-based products' (2025) < https://www.deloitte.com/nl/en/Industries/energy/perspectives/mobilizing-demand-for-green-hydrogen.html>

DSOs differ from voluntary initiatives or general green public procurement in that they:

1. include clear and quantified targets,
2. apply to both public and private actors, and;
3. rely on certification and compliance mechanisms.

DSOs can be implemented as quotas, contractual clauses in public tenders, eligibility criteria for subsidies, or through sectoral agreements backed by legislation. Depending on the sector and policy design, they may be placed on public authorities, large private buyers, or large consortia.

In this case, DSOs for low-carbon industrial production could be enacted at European Union level and embedded in the upcoming Industrial Decarbonisation Accelerator Act. The Commission may also want to consider introducing or linking these same DSOs in other pieces of relevant EU legislation, such as the Construction Products Regulation (CPR) and the revision of the Public Procurement Directive.

In practice, the mechanisms for implementing these DSOs should include:

1. Quantitative targets per sector
2. Material certification (EU-wide standards)
3. Compliance monitoring (annual reporting, third-party audits, performance benchmarks)
4. Incentive structures (financial incentives, e.g. tax credits, coupled with penalties for non-compliance)
5. Trading flexibility (allowing obligated entities to trade credits and/or pool obligations)

The introduction of demand-side obligations for some low-carbon industrial can offer a low-cost, high-leverage tool to accelerate industrial decarbonisation while ensuring policy coherence across the energy, industry, and climate domains. As the EU moves to implement a more strategic, targeted approach towards climate policy, DSOs provide a pragmatic, targeted, and scalable instrument to drive the uptake of clean industrial production—and ensure that the EU remains globally competitive in a net-zero economy.

10. Advance DSOs which can offer high impact at low additional cost

A centre rationale for DSOs is their cost-effectiveness relative to other policy instruments. While low-carbon variants of cement, steel, and fertilisers may carry a production cost premium, the

pass-through cost to end users or final products is minimal. For instance, in construction, the embodied carbon of cement or steel represents a small fraction of the total project cost (often <2%), making it possible to absorb higher material prices without affecting overall project feasibility.

By introducing DSOs , policymakers can thus stimulate demand without resorting to high levels of public subsidy, while allowing market actors to absorb incremental costs gradually as technologies scale. Moreover, DSOs leverage existing procurement and supply chain systems, avoiding the need to build entirely new market structures.

11. Ensure alignment with existing EU precedent in obligating demand

DSOs are not a novel or untested concept in European legislation. They build on a growing body of legal and regulatory precedent, particularly in sectors undergoing rapid energy and climate transition.

For example, the Renewable Energy Directive (RED)[43] sets renewable targets for fuel suppliers, while the FuelEU Maritime Regulation[44] complements this by driving demand for low-emission fuels in shipping. Although the targets are modest relative to total maritime fuel use, the FuelEU Maritime Regulation is an example of one such market-pull mechanism. The Regulation, in force since January 2025, mandates a gradual reduction in the greenhouse gas intensity of ship fuels based on a technology neutral approach and focuses on a GHG emissions reduction pathway—from 2% in 2025 to 80% by 2050—and is currently one of the EU's key tools to decarbonize maritime transport and demand drivers for clean fuel producers in the EU.

This serves as precedent to target downstream value chain actors, aimed at boosting the uptake of low-carbon products with significant impact but minimal implementation complexity and without undermining industry competitiveness. While the production of low carbon maritime fuels has not yet seen a significant rise in bankability,[45] this approach could be a useful example

[43] Directive 2009/28/EC
[44] Article 5 of Regulation (EU) 2023/1805 requires ships above 5,000 gross tonnage to gradually reduce the carbon intensity of their fuel, with a 2% reduction in 2025, increasing to 80% by 2050.
[45] S&P Global, 'Orsted scraps Swedish FlagshipONE emethanol project under development' (2024) < https://www.spglobal.com/commodity-insights/en/news-research/latest-news/energy-transition/081524-orsted-scraps-swedish-flagshipone-e-methanol-project-under-development>. Industry Decarbonization, 'Why no one wanted to buy the Green Shipping Fuel' (2024)< https://industrydecarbonization.com/news/why-no-one-wanted-to-buy-the-green-shipping-fuel.html >

of a demand-side obligation for other strategic industrial value chains in Europe, such as the agri-food.

Net-Zero Industry Act (NZIA)

The recently adopted NZIA introduced provisions (Articles 25 and 26) on public procurement for clean technologies and auctions to deploy renewable energy sources, mandating that public authorities include sustainability and resilience criteria in tenders for clean tech deployment. This is a significant shift toward embedding climate goals into market-shaping policy tools—precisely the rationale behind industrial DSOs.

Crucially, Article 23 ("Contribution of authorised oil and gas producers") also sets an obligation for certain oil and gas companies to contribute to the EU annual CO2 injection capacity objective. These obligated entities correspond to authorisation holders whose combined production of crude oil and natural gas in the Union amounted to 95 % of the volume of crude oil and natural gas produced in the Union in the period from 1 January 2020 to 31 December 2023. The NZIA requires that they each contribute to the development of operational geological CO_2 storage sites in the EU in proportion to the volumes of oil and gas they produced during the period 2020-2023, and the European Commission recently published the list of their respective contribution obligations.

Construction Product Regulation (CPR)

The recently revised Construction Product Regulation (CPR) [46] introduces mandatory minimum environmental sustainability requirements for construction products used in public procurement (art 83). These will be defined via delegated acts by the European Commission. Public contracts subject to EU procurement directives must apply these minimum environmental requirements when specifying construction products. Contracting authorities can set more ambitious or additional criteria, if desired. These green requirements can be used as technical specifications, selection criteria, contract performance conditions or award criteria. When defining these requirements, the Commission must perform impact assessments, and consider factors like market availability and competition, cost and feasibility, environmental impact, national circumstances. The first impact assessment must be launched by 31 December 2026. National authorities can, however, opt out of applying the requirements in specific cases,

[46] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202403110

for example where only one supplier is available, previous procurement failed, application would cause disproportionate cost (e.g. >10% increase).

Fertilising Products Regulation (FPR)

The uptake of EU low-carbon fertilizers and the roll out of a harmonized carbon footprint labels for fertilizers can be accelerated by establishing a new category for CE marked lower-carbon fertilizers in the Regulation text, which already regulates the making available on the market of EU fertilizing products. In June 2025, the Regulation began a review process in to assess and potentially update the regulation to reflect new scientific knowledge, technological developments, and policy priorities—particularly in areas like sustainability. Expanding the scope of the Regulation to include such a category could therefore be effectively integrated into the ongoing review process.

12. Ensure policy coherence across sectors

The European Green Deal, the Climate Law, and the Clean Industrial Deal have laid out a hole-economy transformation. To maintain credibility and effectiveness, policy instruments must be applied consistently across sectors. Yet while sectors like energy, transport, and clean tech are now subject to targeted demand-side rules, basic materials remain dependent primarily on indirect price signals and voluntary commitments.

Introducing DSOs for low-carbon industrial product offtake would align policy coherence across sectors, avoid carbon lock-in by signalling future demand certainty to producers, and support emerging industrial ecosystems that are embedded in material supply chains.

Moreover, applying DSOs to end-users or downstream consumers of industrial materials would support the internal market, ensuring that decarbonised products manufactured in Europe are not undercut by higher-emission imports or by consumer inertia. By creating clear and fair demand signals for low-carbon production, DSOs can incentivise European producers to invest in cleaner processes, prevent carbon leakage in hard-to-abate sectors, and complement the EU ETS and Carbon Border Adjustment Mechanism (CBAM) to ensure that European manufacturers have a level playing field in the EU for their low-carbon products.

Without a guaranteed demand signal, many industrial decarbonisation technologies remain stuck in demonstration or pilot phase, unable to secure the offtake agreements or revenue

visibility needed to attract capital. DSOs can change this by de-risking first-mover investments, providing bankable offtake arrangements that can support project finance and green bonds, and creating a market-driven pathway to scale, reducing long-term reliance on subsidies.

E. Accelerating and aligning industrial decarbonisation timelines

The IDAA should recognise that demand support must be coupled with supply side action to be effective. Among the various issues impeding the production of low-carbon products using industrial carbon management projects is the availability of CO_2 infrastructure. On a macro level, the Commission has identified there is a clear shortfall on the availability of CO_2 storage capacity in the EU relative to demand from projects within the Innovation Fund.[47]

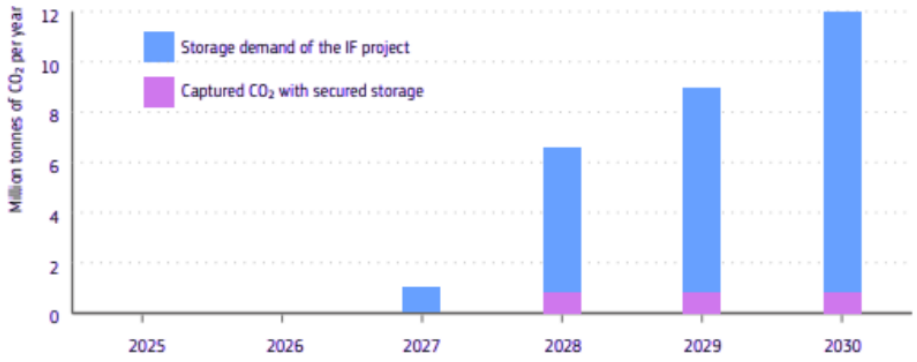

Figure 4: The annual carbon capture rate and storage needs of IF projects based on the GHG absolute emission avoidance

However, on a micro level, aligning the timelines other projects is essential to making projects operational. Figure 5 outlines an illustrative example of many industrial carbon management projects in Europe currently, which involve multiple industrial emitters feeding into large transport infrastructure connected to storage sites.

[47] Commission, 'Annual knowledge sharing report of the Innovation Fund - De-risking innovative low-carbon technologies' (2024) page 32<https://op.europa.eu/en/publication-detail/-/publication/56611073-3f2b-11ef-bf41-01aa75ed71a1/language-en>.

As shown in Figure 5, these industrial carbon management projects are dependent on each other projects being operational at the time of operation. This is essential because industrial emitters are exposed to the EU ETS and will be required to purchase EUAs if the necessary parts of the value chain are not ready. On the other hand, transport and storage infrastructure projects require significant investment and debt and therefore rely on emitters being available on time.

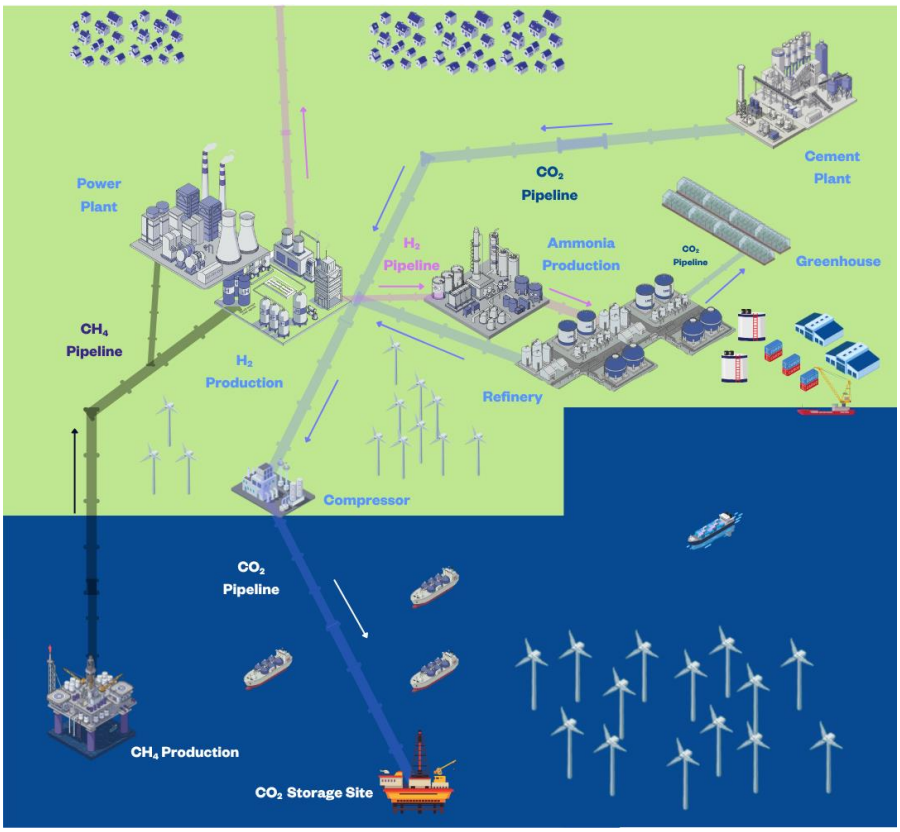

Figure 5: Illustrative example of an industrial carbon management value chain[48]

While EU funding mechanisms such as the Innovation Fund have been instrumental in advancing many FOAK industrial carbon management projects,[49] its limits fall short in pooling demand for CO_2 infrastructure, which will require multiple emitters located close by to be ready to operate

[48] Figure 5 outlines an illustrative example of an industrial carbon management value chain featuring multiple industrial producers (hydrogen and ammonia production, refining and cement) with various connecting infrastructure required to provide feedstock, energy and byproducts (CH_4, H_2 and CO_2). CO_2 is separated from the production processes of these industries with some provided to greenhouses as a necessary input while the majority is transported for storage in geological formations offshore.
[49] Over 40 industrial carbon management projects have been selected in the Innovation Fund since its inception.

on a similar timeframe. This has proven essential to advance major projects such as the first full-chain CCS project in the EU, the Porthos project,[50] as well as other major projects which have taken FID in 2024 and 2025.[51]

As outlined above, several key barriers exist which limit the advancement of large-scale industrial carbon management efforts in Europe. The IDAA offers a significant opportunity to enhance priority projects and regions of industrial production to ensure accelerated efforts to decarbonise.

13. Accelerate the deployment of high priority projects and clusters

A key priority of the IDAA should be to promote high priority projects and industrial clusters across Europe. Several initiatives already exist at EU level which has helped to identify and support first-mover industrial carbon management projects. These include:

- **The Strategic Technologies for Europe Platform (STEP) Seal**[52] which recognises and promotes projects that have successfully navigated the European Commission's rigorous evaluation process under programmes such as Horizon Europe and the Innovation Fund.
- **Net Zero Strategic Projects,** which can be net-zero technology manufacturing projects as well as CO_2 capture, storage or transport infrastructure projects located in the EU. Following their recognition by Member States, these projects enjoy national "priority status", rapid administrative treatment and faster permit-granting process.[53]
- **Net Zero Industrial Valleys,** which are areas designated by Member States to cluster net-zero industrial activities together in order to accelerate their activities and the implementation of net-zero technology manufacturing projects, including "Net-Zero Strategic Projects".[54]
- **Projects of Common Interest (PCI) and Projects of Mutual Interest (PMI)** which are key cross-border infrastructure projects, including CO2 infrastructure projects, that link the

[50] Porthos Project, https://www.porthosco2.nl/en/. For insights on how the Porthos project advanced to final investment decision, see: van de Sande and others, 'The Road to Porthos: Enabling Factors' (2024) GHGT-17 < https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5034355>.
[51] Key examples include: Northern Endurance Partnership and Net Zero Teesside (UK), Hynet (UK), Greensand (Denmark), Longship/Northern Lights Phase 2 (Norway)
[52] Commission, 'Strategic Technologies for Europe Platform', <https://strategic-technologies.europa.eu/investors_en>
[53] NZIA, articles 3(18) and 13- 16. See also: https://single-market-economy.ec.europa.eu/industry/sustainability/net-zero-industry-act/strategic-projects-under-nzia_en
[54] NZIA, article 17.

energy systems of EU countries, as well as with countries outside the EU, in the case of PMI specifically.

Given the various ongoing initiatives aimed at identifying and promoting priority projects and infrastructure clusters, there is a clear risk of overlap among these initiatives particularly within the private sector and at the Member State level.

The IDAA should seek to work with EU Member States to identify and harmonise the existing framework for high priority industrial clusters and projects which can leverage economies of scale to reduce overall costs for industrial producers. In particular, given the disparate nature of permitting large-scale infrastructure projects across the Member States, which typically involves the input and approval of various government agencies, the Commission could look to ensure that Member States advance task forces at national, regional and local levels with stakeholders necessary to ultimately permit such projects. In the case of CCS, such initiatives have been taken by the Danish government and have proven effective at securing broad alignment across agencies and regions on the issue of CO_2 infrastructure permitting.

In this regard, the IDAA could leverage the emerging insights from the NZIA reporting obligations. Obligated entities contributing to the Union-wide CO_2annual injection capacity objective will have to submit annual progress reports, and EU Member States are required to report on CO_2 demand and supply trends by publishing data for CO_2 capture, CO_2 transport, and CO_2 storage – including geological data for all future potential storage reservoirs and decommissioned oil and gas production sites on their territory.[55] This information will allow the Commission and the Member States to identify priority regions for CO_2 transport and storage infrastructure, while also encouraging broad intra-, and inter-governmental alignment to facilitate and accelerate project deployment across the EU.

14. Ensure development timelines are accelerated and aligned

As outlined above, the alignment of project timelines for co-dependent projects and clusters is essential to reaching operation. For many projects, the Commission plays both a direct and indirect role in the permitting and delivery timeline of many infrastructure projects. For example, in the case of storage sites, the Commission plays a direct role in the permitting of CO_2 storage

[55] NZIA, article 21.

sites under the CO_2 Storage Directive.[56] The IDAA should therefore seek to ensure timelines for development of key priority projects and clusters are as best aligned especially at the interface between the EU and Member States.

Furthermore, given that many industrial carbon management projects currently operate[57] and plan to operate cross-border, there is a clear role for the Commission to ensure that permitting procedures are adequately aligned, particularly where the permitting process in one Member State directly affects the permitting of a project in another.

Moreover, it is essential that sufficient support is provided by the Commission to ensure transport and storage sites are permitted in a safe and timely manner. It is critical that the Commission staff are adequately supported with this undertaking, particularly given the rapid expansion of Europe's carbon storage industry and the target of 50 million tonnes of annual operational injection capacity by 2030 as mandated by the NZIA.

15. Identify potential risk-sharing mechanisms

The Commission has already identified that "for carbon capture and storage (CCS) projects, risk-sharing and risk-management mechanisms must be addressed across a value-chain consisting of different industrial players."[58] While ensuring capture, transport and storage projects are as best aligned with each other is essential, providing risk sharing mechanisms is critical to ensuring projects can successfully enter operation.

The United Kingdom (UK) has already provided one set of mechanisms which have successfully led to major project financing of CO_2 infrastructure projects in 2024 and 2025.[59] While the UK is one such model of successful risk sharing mechanisms, the Commission should seek to identify potential other mechanisms in the IDAA which could prove instrumental in accelerating industrial decarbonisation in the EU.

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[56] Article 10 of Directive 2009/31 EC requires Member States to submit draft permits for geological storage sites to the Commission who may choose to issue a non-binding opinion on the permit within 4 months of receipt.
[57] Northern Lights JV's Longship project has commenced operation in June 2025, connecting emitters in Norway and the Netherlands. See: Northern Lights, 'About the Longship project' < https://norlights.com/about-the-longship-project/>
[58] Commission, 'Annual knowledge sharing report of the Innovation Fund - De-risking innovative low-carbon technologies' (2024) page 5< https://op.europa.eu/en/publication-detail/-/publication/56611073-3f2b-11ef-bf41-01aa75ed71a1/language-en>.
[59] NEP and Hynet. For an overview of these mechanisms, see: Clean Air Task Force, 'Risk Allocation and Regulation for CO2 Infrastructure - A UK case study' (2024) https://www.catf.us/resource/risk-allocation-regulation-co2-infrastructure/.

Conclusions

The transformation of Europe's industrial base toward climate neutrality will require more than technological solutions. It demands a deeply coordinated and multi-dimensional policy framework that mobilises markets, infrastructure, finance, regulation, and societal engagement. More specifically, decarbonising heavy industries such as cement, lime, steel, aluminium, fertilisers and chemicals requires significant investments that can only occur with a solid business case, clear policy signals, and stable regulatory frameworks.

The recommendations outlined in this paper underscore the need for a comprehensive EU strategy that integrates robust product standards, clear market signals and mechanism to accelerate lead markets for low carbon industrial products. By combining mandatory low-carbon product standards, public procurement reform and, in some sectors, targeted mandates, the EU can lay the foundation for a competitive, clean industrial economy that sets the global benchmark.

At the same time, success depends on enabling conditions that extend beyond industry itself. Market awareness, consumer trust, and accessible product information must become central pillars of the transition. Ensuring transparency through harmonised carbon footprint labelling, empowering public and private buyers, and building digital systems for traceability will all help close the gap between supply and demand for low-carbon goods. Crucially, this shift must be underpinned by skills development, cross-border cooperation, and a just distribution of both costs and opportunities. With these measures in place, the EU has the tools to not only decarbonise its industrial landscape, but to lead a new generation of clean, circular, and resilient industrial value chains globally.

About the Zero Emissions Platform

Established in 2005, Zero Emissions Platform (ZEP) is the official advisor to the European Union on industrial carbon management. We work on developing and accelerating the commercial deployment of these climate technologies:

- *Carbon Capture and Storage (CCS)*
- *Carbon Capture and Utilisation (where CO_2 is stored in a manner intended to be permanent)*
- *Bio-Carbon Capture and Storage (BioCCS)*
- *Direct Air Capture with Carbon Storage*

ZEP supports the ETIP-ZEP under the European SET-Plan funded by the European Framework Programme and collaborates closely with various services of the European Commission on several common deliverables.

Our comprehensive technical work and policy advice builds on a broad, diverse member base, ranging from energy and industrial companies to infrastructure and technology developers, financial and research institutions and civil society organisations. Supporting the ETIP-ZEP under the SET-Plan, we ensure industry, research, and civil society contribute to EU industrial carbon management policies.

Our mission is to accelerate its deployment and the buildout of CO_2 infrastructure in line with Europe's climate ambition.