



CEE PULSE 003

Making Central and Eastern Europe's Industry Fit for the Future

October 2026



CLEAN AIR
TASK FORCE

Foreword

Dear readers,

When we sent out our last edition in April, energy prices were climbing again, and there was a lot of talk in Brussels about competitiveness. Six months on, that conversation hasn't gone away. If anything, it has become more urgent, and it lands hardest in places like Silesia, Moravia, and the industrial towns along the Danube and the Baltic coast, where a steel or a cement plant is often the reason the town exists.

That's why this edition is about industry.

In our last CEEPulse edition, we argued for keeping several options open for decarbonising the power sector. The same logic applies to heavy industry, maybe even more so. Plants across our region emit around 90 million tonnes of CO₂ a year, and a good share of that comes from chemical processes. You can't electrify your way out of the CO₂ released when limestone becomes cement. For that, we'll need carbon capture and storage. Elsewhere, clean hydrogen will make sense. The CEE region already uses almost a quarter of the EU's hydrogen, so cleaning up what we produce today is an obvious first step. Reliable clean power and heat will matter everywhere.

What I hear most often from companies isn't doubt about the available technologies. It's doubt about whether anyone will finance it. A single pilot project can get built with enough goodwill. But a whole industry only moves when policy, finance, and infrastructure align. Our new report on creating conditions for systemic bankability of CCS in Poland looks at exactly this question, and our earlier analysis found that building storage here at home, instead of shipping CO₂ abroad, could roughly halve the cost.

This edition also brings spotlights on the work of our partner organisations in Poland, Romania and Bulgaria, as we believe that while issues are country-specific, often solutions can be found across the borders.

We have the workforce, the geology and the market. What we need now is the framework, regulatory certainty and deeper collaboration.

Hope you enjoy reading!



Tamara Lagurashvili
Acting Director, European Advocacy, CATF

CEE industry at a crossroads: competitiveness, decarbonisation and investment



Marianna Sobkiewicz
CATF CEE Fellowship 2025 Alumni

Few issues loom as large on the current EU agenda as competitiveness. The discursive shift brought on by Mario Draghi raised the bar of expectation regarding industrial policy but did little to resolve the trade-offs involved. Energy-intensive industry is as emissions-intensive as it is fundamental to the functioning of modern societies. There is now little contestation over the need for industrial decarbonization, but far less agreement on how to deliver it without hollowing out Europe's industrial base.

If anything, Central and Eastern Europe is no stranger to transformation. Over the past three decades, its industrial landscape has been reshaped by the transition from centrally planned economies, changing ownership structures and deepening integration into European markets and production networks. Industry carries particular economic weight in CEE countries, where manufacturing remains more deeply embedded in employment, exports, and regional development. Employment provides one of the clearest illustrations of this contrast: while industry accounted for 15.1% of total EU employment in 2025, its share was higher in every CEE member state.

While the energy transition provides an obvious reference point for what's ahead, industrial decarbonization will unfold under distinct circumstances. Energy transitions

primarily deal with modular, standardized technologies (such as wind turbines or solar panels) that benefit from rapid, mass-manufactured cost declines and decentralized adoption. Industrial systems, by contrast, are built around large, long-lived and site-specific assets, meaning that decarbonization will often depend on a relatively small number of major, capital-intensive investment decisions rather than the incremental diffusion of modular technologies. That also means the transition will depend heavily on incumbent firms: in heavy industry, the companies that own today's large, capital-intensive production assets are often the same actors with the scale, expertise and balance sheets needed to build their low-carbon replacements.

The stakes are not only economic. Industrial competitiveness is increasingly a matter of security: steel feeds defense and infrastructure, cement sustains the built environment, and fertilizers decide food security. For CEE, that raises the stakes further. The region is not only more industrially intensive than much of the EU, but also hosts production capacity that feeds into European supply chains. Preserving that capacity while decarbonizing it is therefore not just a regional competitiveness challenge, but part of a broader European resilience agenda.

Deep dive: Can Poland make CCS bankable?



Bartłomiej Kupiec
Policy Advisor, Central and Eastern Europe, CATF

Poland's industrial sector emitted roughly 60 million tonnes of CO₂ in 2024, close to one-fifth of the country's total CO₂ emissions. In several energy-intensive industries, including cement, lime, and chemicals, industrial processes themselves account for a significant share of emissions and cannot be eliminated through electrification alone. Carbon capture and storage (CCS) can therefore play an important role alongside other credible decarbonisation options. Despite more than a decade of discussion and project development, Poland still lacks an operational large-scale CCS value chain. Several projects are progressing, including the Go4ECOPlanet project at the Kujawy cement plant, but commercial-scale CCS deployment remains in the early stages. This raises a more important question: what conditions are needed to move from individual projects to a commercially viable and scalable CCS market in Poland?

The question above is becoming more urgent as a pipeline of Polish projects emerges, including capture projects, a planned CO₂ terminal in Gdańsk, and early efforts to develop domestic storage capacity. At the same time, Poland faces a binding obligation under the EU Net-Zero Industry Act: ORLEN has been allocated responsibility for developing [4.1 MtCO₂ per year](#) of injection capacity by 2030.

A recent CATF report, [Achieving Systemic Bankability of Carbon Capture and Storage in Poland: A Guide to Commercial Development Using the Systemic Bankability Framework](#), examines what it would take to turn this growing interest into a functioning commercial market.

The report applies the [systemic bankability framework](#) developed by Clean Air Task Force and Princeton University's Andlinger Centre for Energy and the Environment. The framework looks beyond whether an individual project can secure financing. Instead, it asks whether investment conditions are

sufficiently predictable and widespread for private capital to flow at scale across a technology or sector. The systemic bankability framework applied in this report assesses nine conditions: technology performance risk, construction-cost risk, revenue adequacy, regulatory certainty, access to enabling infrastructure, social acceptance, supply-chain robustness, the availability of commercial insurance, and the capacity of public and private institutions to deliver projects.

There have been important signs of progress in CCS development already. A positive regulatory milestone was the publication on 12 June 2026 of the [amended localisation regulation](#), which significantly expanded the areas in which CO₂ storage complexes may be developed and created more scope for the exploration and appraisal of potential domestic storage sites. In parallel, the Ministry of Climate and Environment is advancing work on a national CCS framework through dedicated working groups, [including groups](#) focused on strategy and regulation and financing, in which CATF participates. Work on the national CCS/ strategy is progressing, providing an important opportunity to address some of the remaining regulatory and coordination gaps.

Despite this progress, CCS still remains pre-commercial, despite Poland's large industrial base, substantial geological storage potential, and growing private-sector interest. Still unresolved barriers in the form of regulatory uncertainty, insufficient revenue visibility, and the absence of mature CO₂ transport and storage infrastructure continue to reinforce one another, making investment risks difficult to price and allocate. The most immediate constraints are regulatory uncertainty and insufficient revenue adequacy. Poland still lacks a holistic national CCS strategy and the secondary legislation needed to enable CO₂ infrastructure to develop at scale. Poland also lacks a dedicated national support mechanism for commercial-scale CCS deployment.

Under these still unpredictable policy conditions, developers cannot plan long-term infrastructure investment or build a business strategy. At the same time, lending institutions cannot rely on a stable, transparent allocation of risks across the CCS value chain. Furthermore, Poland currently has no dedicated CO₂ pipeline network, no permitted commercial-scale storage sites, and no large-scale specialised CO₂ export terminal in operation. [The localisation of Polish industry](#) also makes coordinated transport planning even more essential: more than half of Poland's industrial emissions are concentrated in the south, while identified storage formations are located elsewhere, including in northern and western Poland and potentially offshore.

This is why CCS cannot be approached as a group of isolated projects - a capture installation becomes economically viable only if the necessary CO₂ transport and storage infrastructure, regulatory certainty, and a credible revenue model are available at the right time. Not all barriers need to be addressed simultaneously. The systemic bankability approach recognises that the relative importance of different risks changes as a market develops.

CATF therefore proposes a three-phase pathway for commercial CCS deployment in Poland. The initial phase is to establish the regulatory, financing, and administrative foundations needed for projects to reach final investment decisions. The second phase is to coordinate and deliver the first integrated CCS value chains. Only once those early projects are operating should policy shift progressively toward commercial deployment.

Phase 1: Establish the foundations, 2026–2027

By the end of 2027, Poland should adopt a national CCS strategy, complete the legal framework for CO₂ transport and storage in accordance with EU law, and develop a revenue-support mechanism that reduces project exposure to future carbon-price uncertainty. The report proposes preparing a carbon contract for difference (CCfD) framework and strengthening administrative capacity through a specialised digital one-stop shop that can guide investors through the full permitting pathway.

Phase 2: Deliver the first integrated value chains, 2027–2030

Once the regulatory and financing architecture is in place, the emphasis should turn towards infrastructure delivery and project coordination. Deployment should be organised around industrial clusters and emitters with credible potential to move towards investment decisions. Public authorities can play an important coordinating role between capture projects, infrastructure developers, and the emerging national CCS framework. At the same time, the first CCS-focused CCfD auctions could target hard-to-abate sectors with significant process emissions.

Phase 3: Move from projects to a market, from 2030 onward

As the first integrated CCS value chains become operational, policy should increasingly focus on network expansion, predictable access rules, standardised CO₂ management services, and transparent and open infrastructure access for industrial users. Support mechanisms can then gradually shift from exceptional, project-by-project de-risking to a system in which CCS projects can rely on transparent infrastructure access, tested business models, and commercial financing. Systemic bankability offers a way to organise these decisions into a holistic enabling framework. Rather than supporting individual projects in isolation, it directs policy intervention towards the market and regulatory obstacles that prevent private capital from investing in climate technologies such as CCS at scale.

For Poland, the urgent task is therefore to create the conditions for the first projects to reach final investment decisions, while guaranteeing that enabling infrastructure develops alongside industrial demand. If these foundations are put in place now, the first CCS projects can become the basis for a wider, increasingly commercial market rather than remaining isolated demonstration projects.

LEARN MORE

CATF Spotlight: Overview of chemicals and fertilisers in Central and Eastern Europe



Ghassan Wakim
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The construction of the Litvínov industrial complex in northern Czechia commenced in 1939 to convert the lignite coal in Bohemia into liquid fuels to support the German war effort. Synthetic petrol was first produced at the facility in 1942 followed by synthetic diesel in 1943. Today, Litvínov no longer converts brown coal into synthetic fuels and has matured into an advanced refining and petrochemical complex producing transportation fuels, ammonia and numerous basic petrochemicals and polymers.

Litvínov's industrial story is not unique with many inland refineries and industrial sites in CEE such as Płock, Litvínov, Bratislava and Százhalombatta whose modern configuration was heavily shaped by the Soviet industrial system and by the integration into a common crude oil supply network centred on the Druzhba pipeline from the 1960s. After 1989, restructuring, mergers & acquisitions and a wave of privatization redefined the sector and created national champions.

Where the industrial weight sits

CEE's industrial importance to the EU differs sharply by sector. Nitrogen fertilizers stand out where the region accounts for roughly 45% of EU ammonia capacity and 42% of urea capacity with Poland as the clear leader accounting for approximately a fifth of EU ammonia and

urea production capacity. However, it's also important not to overstate this contribution as CEE's nitrogen capacity includes long-idled ammonia and urea production facilities such as Chemgas and SC Donau in Romania alongside significant spare production capacity at Romania's only operating fertilizer plant, Azomureş. As such CEE's contribution to the EU's production of ammonia and urea in 2024 only stood at 34% and 27%, respectively. Individual sites are large by EU standards: Grupa Azoty's Puławy complex in Poland and Achema's Jonava plant in Lithuania are among the biggest nitrogen facilities in the EU at around 1 million tonnes per year of ammonia capacity.

The region's contribution to refining stands at 1.6mbd or 14% of total EU capacity where Poland accounts for approximately one third of the CEE's refining capacity with Płock sitting as the largest refining facility in CEE. Slovakia, Hungary, Lithuania, Croatia and Bulgaria each have a single refinery. The region's contribution on the basic petrochemical front is more modest, accounting for 10% of the EU's total ethylene capacity. Olefin production is confined to four steam-cracker sites, all located in the Visegrád countries.

Interestingly, Estonia, Latvia and Slovenia all lack conventional crude-oil refining, ammonia, urea and steam-cracking capacity, although Estonia has a sizeable shale-oil industry.

Figure 1: Chemicals production in CEE



CEE's Refining and Chemical Giants

Two refining giants, MOL of Hungary and ORLEN of Poland control three-quarters of the CEE region's refining capacity. MOL owns and operates three refineries spread across Croatia, Hungary and Slovakia with a combined refining capacity of 380kbpd. ORLEN owns and operates 5 refineries spread across Poland, Czechia and Lithuania¹ with a combined refining capacity of 870kbpd, accounting for over half CEE's refining capacity on its own². MOL and ORLEN's dominance also extends into petrochemicals where they own all four steam-cracker sites in the region allowing feedstock, utilities and intermediate streams to be optimized across refining and petrochemical operations.

Though lacking a national champion, Romania retains one of CEE's more diversified refining

systems including three crude oil refineries with a combined refining capacity of 250kbpd alongside a specialty refinery in Ploiești producing bitumen, solvents and other industrial products.

The fertilizer landscape presents a different picture in CEE. Grupa Azoty is one of CEE's fertilizer giants with its production facilities concentrated across four sites in Poland. AGROFERT, a Czech conglomerate, owns and operates three integrated ammonia and urea production sites across the EU in Austria, Germany and Slovakia (AGROFERT's only facility in CEE) and two standalone ammonia facilities all located in France. Therefore, unlike Grupa Azoty's CEE-focused footprint, AGROFERT, has assembled a geographically dispersed Central and Western European nitrogen business, particularly following its 2023 acquisition of Borealis' nitrogen assets.

Integration with CEE characteristics

All four of CEE's steam-cracker sites are integrated with refining operations which make refining foundational to CEE's petrochemical capacity³. Refinery streams such as naphtha and LPG become cracker feedstocks while cracker co-products are processed within the integrated refining and aromatics system. The design of these facilities reflects the legacy of central planning including the reliance on Russian Urals crude delivered by the Druzhba pipeline.

CEE industry's future path

CEE inherited a small number of mostly large legacy refining and chemical complexes that lack the dense shared infrastructure ecosystem enjoyed by industrial clusters such as those in the Antwerp-Rotterdam-Rhine-Ruhr Area (ARRRA) in Northwestern Europe. This has

important consequences as Northwest European producers can potentially share hydrogen networks, CO₂ pipelines and storage infrastructure, import terminals and large electricity interconnections. Most CEE sites would have to build such infrastructure alone, and the spare capacity to attract third-party users is limited. On the other hand, single ownership may signal expedited investment decisions as opposed to multi-stakeholder engagement required when numerous operators share one site. The region has substantial prospective geologic CO₂ storage potential. In addition to the challenging economics of industrial decarbonization generally, CEE also faces constraints related to infrastructure availability, policy frameworks and the relatively early stage of many low-carbon industrial projects.

You can read more about this work [Building Blocks | EU Petrochemicals: Foundations and Pressures](#), [Building Blocks | EU Nitrogen Fertilisers: Foundations and Pressures](#), or watch our educational webinar [EU Chemicals in Transition: Structure, Trends, and Outlook for Europe's Basic Chemicals](#).

Figure 2: CEE-based firms are central to the EU's ammonia production landscape (ammonia production capacity in thousand tonnes per year)

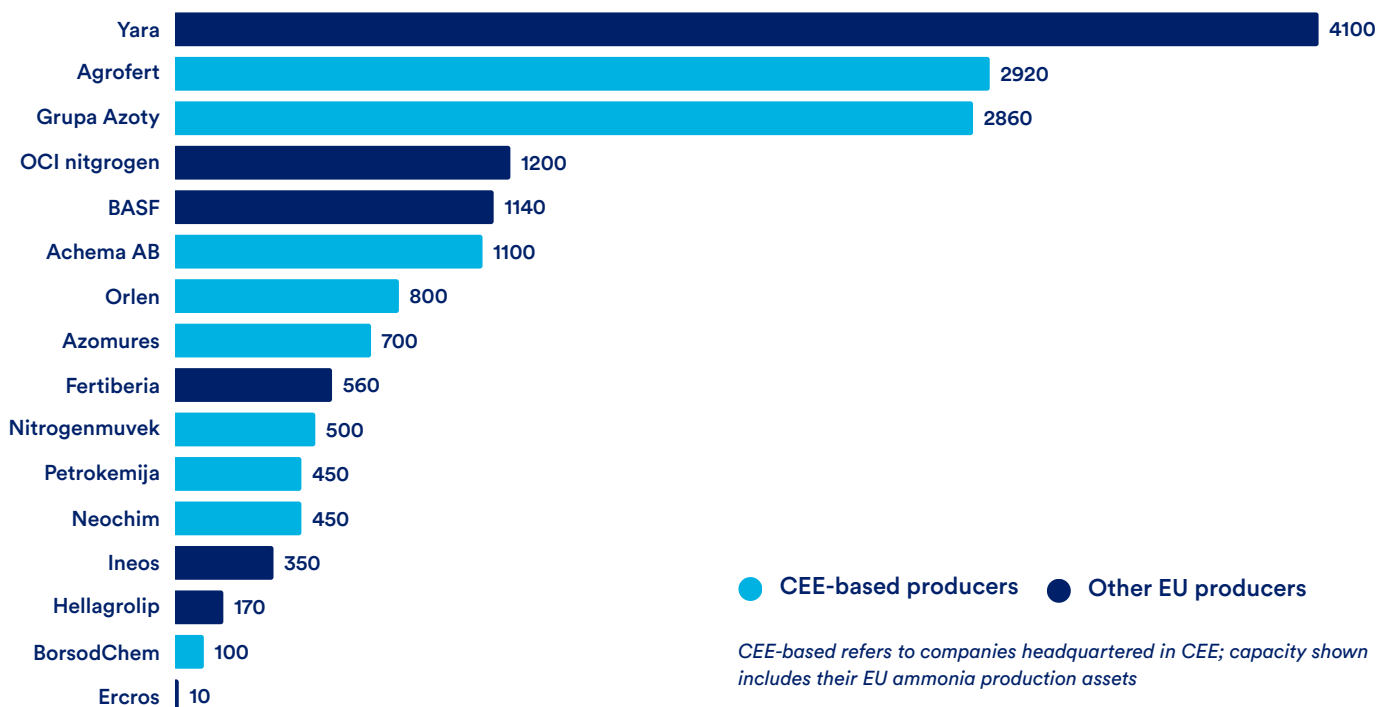


Figure 3: Ammonia and urea production capacity in CEE

(Source: CATF)

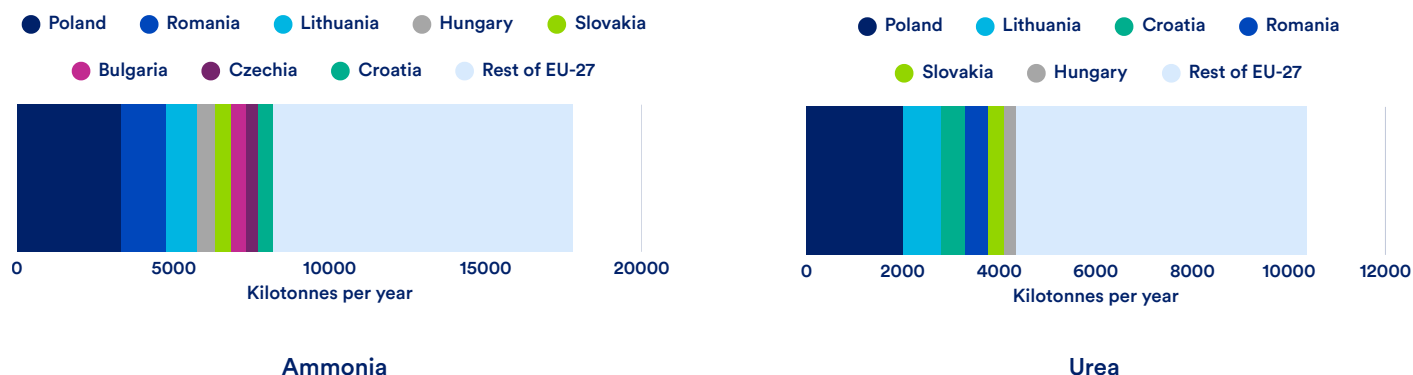
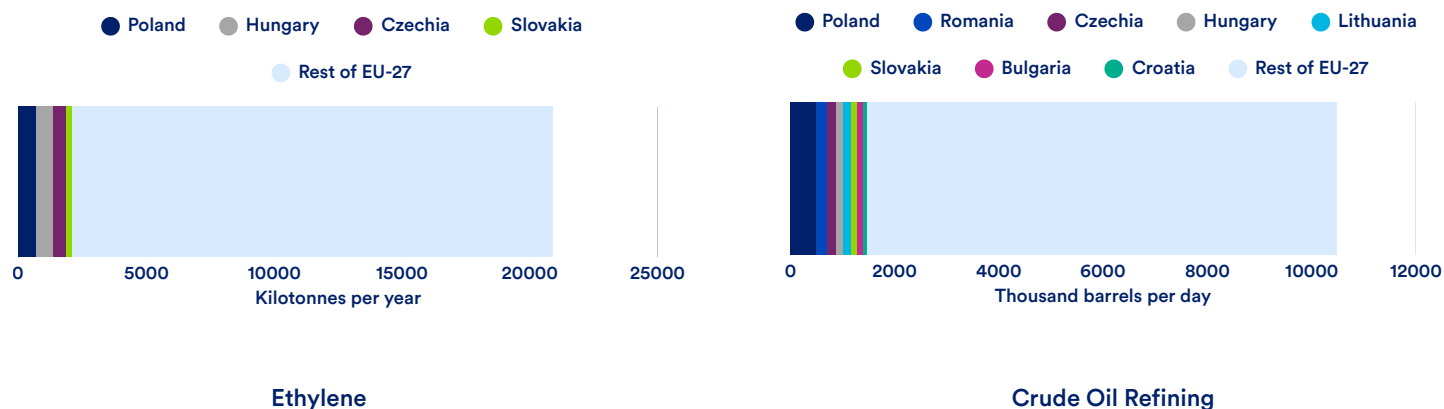


Figure 4: Refining and petrochemical capacity in CEE

(Source: [Petrochemicals Europe](#), [Concawe](#), CATF Analysis)



- 1 The Gdańsk refinery is jointly owned by ORLEN and Saudi Aramco, with ownership stakes of 70% and 30%, respectively.
- 2 ORLEN also operates two non-traditional refineries at Trzebinia and Jedlicze that don't refine crude oil but produce biofuels from waste oil and other industrial chemicals
- 3 MOL's Olefin 1 and Olefin 2 steam crackers at Tiszaújváros are not physically co-located with MOL's Danube refinery at Százhalombatta but connected via pipelines.

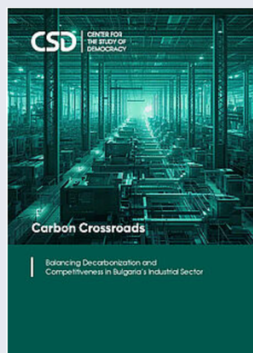
Find more of our CCS work:

- 1 [Europe CCS Cost Tool](#) – Clean Air Task Force
- 2 [Poland CCS Deployment Fact Sheet](#) – Clean Air Task Force
- 3 [Europe CCS Deployment Fact Sheets](#) – Clean Air Task Force

The wider CEE industrial conversation

Across Central and Eastern Europe, a growing body of research and policy thinking is emerging around the decarbonisation of industry. From different perspectives and with different priorities, regional researchers, analysts and institutions are examining the challenges and opportunities facing the CEE industry. We bring perspectives from Bulgaria, Poland and Romania.

Disclaimer: The views and analysis presented in this section are those of the organisations and sources cited and do not necessarily reflect the views or positions of Clean Air Task Force (CATF).



Spotlight on Bulgaria

[Carbon Crossroads: Balancing Decarbonization and Competitiveness in Bulgaria's Industrial Sector](#) - Center for the study of Democracy (CSD)

Industrial decarbonisation is becoming a defining factor for Europe's economic security and global competitiveness. As carbon pricing tightens, energy markets remain volatile, and clean technologies reshape industrial value chains, countries that can combine affordable low-carbon electricity, modern infrastructure, and advanced manufacturing will be best positioned to attract investment and sustain growth.

This report examines Bulgaria's pathways to industrial decarbonisation through five scenarios to 2050, showing that carbon pricing alone will not deliver industrial electrification. It argues that phasing out coal, modernising the power grid, expanding storage, and deploying hydrogen and other low-carbon technologies are essential to decouple industrial growth from emissions. The analysis also demonstrates how industrial decarbonisation can reinforce Bulgaria's ambition to become a regional hub for advanced manufacturing, AI infrastructure, and lowcarbon



Spotlight on Poland

[Will Poland join the race for green steel production?](#) - Instrat

In the Baltic Sea region, a new clean steel hub is emerging. Poland's energy transition provides an opportunity to produce steel based on homegrown low-emission electricity. Hence Poland could join Sweden in championing local clean steel production, especially since offshore wind projects in the Baltic and North Seas are hungry for steel supply. "Green steel made in Poland", a new report from Instrat, shows how to make this idea thrive.

How Can the Industrial Decarbonisation Bank Accelerate Industrial Transition in CEE?

Commentary, July 2023

The Industrial Decarbonisation Bank (IDB) will be introduced with the aim to help close the investment gap in energy-intensive industries, but its success is already threatened by ongoing dynamics of the ETS market and the broader negotiations of the EU's industrial financial framework. To ensure its success, the IDB should be designed to provide incentives rather than create costly distortions, including through carbon contracts for difference, and foster industrial decarbonisation by the use of the appropriate instruments. The IDB should be designed to be a catalyst for the industrial transition, not a competitor of CEE countries' higher capital costs, thinner project pipelines, weaker fiscal capacity and weak competitiveness. Investment in higher-income regions, not regional industrial decarbonisation, should be a priority. The IDB should be designed to be a catalyst for the industrial transition, not a competitor of CEE countries' higher capital costs, thinner project pipelines, weaker fiscal capacity and weak competitiveness. Investment in higher-income regions, not regional industrial decarbonisation, should be a priority.

The IDB in the broader EU Policy Architecture

The Industrial Decarbonisation Bank should become the EU's most significant industrial finance instrument for ETS-covered activities, and its design will be highly constrained by how industrial transition unfolds across Member States. Together with the revision of state aid rules through the Clean Transition State Aid Guidelines (CT-SAG), it represents the financing arm of the industrial transition plan.

These instruments come at a time when industrial output throughout the EU has been depressed, fuelled not only by a shortage of personnel, but also by high energy prices, increased competition, and weak demand, especially for steel-intensive products. As the EU's carbon budget is tightened, the IDB should be designed to be a catalyst for the industrial transition, not a competitor of CEE countries' higher capital costs, thinner project pipelines, weaker fiscal capacity and weak competitiveness. Investment in higher-income regions, not regional industrial decarbonisation, should be a priority.

Spotlight on Romania

How Can the Industrial Decarbonisation Bank Accelerate Industrial Transition in CEE? - Energy Policy Group

For Central and Eastern Europe, the success of the industrial transition may hinge on how the Industrial Decarbonisation Bank is being designed in the upcoming months. The IDB aims to mobilise up to €100 billion to decarbonise Europe's most carbon-intensive industries: steel, cement, chemicals and refineries. To maximise its impact, it shouldn't be designed as a mere subsidy for projects that would happen either way. It should de-risk investments which are strategically important for Europe's future competitiveness. Instruments such as CCfDs can help bring forward investments that would otherwise be delayed or not proceed at all.

Its design is being shaped amid a set of overlapping negotiations. The revision of the ETS Directive will affect EUA price dynamics, which the IDB's financing is directly linked to — and could endanger its overall funding if allowance prices weaken. Compounding this, the IDB draws on the same ETS allowance pool as the Modernisation Fund, the Innovation Fund, and the Social Climate Fund. If these competing priorities aren't managed properly, the result could be lower funding for lower-income Member States. The IDB also needs to account for the structurally different risk profiles across CEE countries: higher capital costs, thinner project pipelines, weaker fiscal capacity. Left unaddressed, this risks concentrating investment mostly in higher-income regions.

In case you've missed it

The [CATF CEE Fellowship 2026](#) is officially underway, with our second cohort bringing together 14 fellows from 10 countries across the region. The fellowship will take fellows on a seven-week exploration of the key issues shaping the region's energy and climate landscape; from geopolitics and energy planning to nuclear, methane, and everything in between.

We're looking forward to learning alongside this year's cohort and seeing the conversations, ideas, and connections that take shape throughout the program.

Meet them all [here](#).



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CATF in the News

We've also been featured in the news:

■ Zielona Gospodarka

Coverage of our CCS bankability report, focusing on regulatory and financial barriers to CCS deployment in Poland and its importance for industrial decarbonisation.

■ Magazyn Biomasa

Our op-ed on EU ETS reform and CCS in Poland, looking at how changes to the ETS framework could help unlock CCS investment.

■ XYZ

A broader piece on Poland's upcoming national CCS/CCUS strategy, with extensive CATF input and findings from our bankability report on the conditions needed to move projects towards investment.

■ Informat.ro

International coverage of our bankability report, highlighting the role of CCS in Polish heavy industry and the barriers preventing projects from attracting large-scale finance.

■ Carbon Pulse

Coverage of our bankability report focused on the regulatory and legal gaps Poland needs to address to unlock CCS investment. The full article is behind a paywall.

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Reach out to collaborate with us or sign up here to receive this bi-annual update and much more: <https://www.catf.us/europe/cee/>



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