IMP

Under Siege: The Chemical Industry at a Crossroads

Structural Pressures Reshaping Global Chemical Competitiveness

Industry Intelligence White Paper

Chemical Intelligence | Energy & Competitiveness | Regulation & Policy | AI & Industrial Strategy

€635B-800B	-17%	3×	248K
EU Chemical Turnover	German Output since 2021	EU vs. US Energy Cost	Industrial Jobs Lost Germany

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01 Executive Summary

The European chemical industry is the backbone of modern industrial civilisation. It supplies the materials that make pharmaceuticals, food packaging, construction, electronics, agriculture, automotive, and defence possible. With a turnover of €635-800B billion and 1.19-1.2 million direct employees, it sits at the top of European manufacturing value chains. And it is one of the most serious structural challenges in decades.

This is not a cyclical downturn. According to industry associations such as VCI and Cefic, chemical production in several European markets has declined sharply since 2021. European chemical production in the first nine months of 2025 was down around 2–3% — and remains 10% below pre-crisis levels of 2014–2019 (Cefic, 2025). Plants are closing at an unprecedented rate. Investment is leaving. China is dominant in: basic chemicals, intermediates materials but Europe still strong in: specialties, catalysts, high-value chemicals. The crisis has structural causes that no single subsidy or energy price cap can resolve.

€635B-800B

EU Chemical Industry Turnover (Cefic 2025)

Around €650–800B depending on the year

15–17%

German Chemical Output, 2021–2025 (VCI)

3×

EU vs. US Industrial Gas Prices (Cefic Q2 2025)

70-75%

EU Capacity Utilisation — Below Break-Even (Cefic)

The causes are multiple and interlocking: European industrial gas prices three times higher than the United States; a regulatory framework that has become an increasingly complex regulatory environment to production investment; slow and fragmented permitting processes that make Europe uncompetitive with markets that move in months not decades; the uncontrolled rise of Chinese chemical production capacity now accounting for 46% of global chemical sales; and an unpredictable geopolitical environment that has shattered the assumptions underpinning thirty years of European industrial strategy.

This paper does not diagnose doom. It diagnoses reality — and then points toward a credible way forward. The path requires political courage, industrial boldness, and a fundamental reform of how Europe thinks about competitiveness, regulation, and the relationship between environmental ambition and industrial survival. It also requires companies to communicate more boldly, adopt AI more decisively, and make their case to governments with the same clarity and evidence they apply to their technical processes.

02 State of the Industry: The Numbers Don't Lie

The European chemical industry's performance data paints a consistent and alarming picture. Since the Russian invasion of Ukraine triggered an energy crisis in March 2022, the EU27 chemical sector has been operating under conditions that would be structurally unsustainable for any energy-intensive manufacturing sector. The industry has not recovered. It has adapted by downsizing.

Production volumes in the EU27 chemical sector fell 2.5% in the first nine months of 2025 compared to the same period in 2024, reversing the modest 2.4% recovery seen the previous year. Germany — historically the sector's anchor — recorded the sharpest confidence decline of any EU economy: –8.5 points in the January-to-August 2025 period. France fell –7.7. The Netherlands, Europe's second-largest chemical hub, saw production decline 6.2% in the same period. Italy and Spain also contracted.

Capacity Utilisation: Below the Break-Even Threshold

The most telling operational indicator is capacity utilisation. At 70-75%, the EU27 chemical sector is operating below the 82% threshold that the VCI — Germany's chemical industry association — defines as the minimum for profitability in capital-intensive chemical production. Germany's chemical plants have been operating below this threshold for four consecutive years. That is not a crisis — that is structural impairment. Plants running at chronic loss drain capital, depress investment, and create the conditions for permanent closure rather than restart.

In the German chemical and pharmaceutical sector specifically, VCI's December 2024 assessment confirmed that output in 2024, despite a technical 2% rise, remained 17% below the 2021 baseline. Sales fell 2% to €221 billion, with domestic revenues declining 4%. Chemical prices averaged 2.5% lower than the previous year. The VCI's own president drew a frank conclusion: 'The only bright spot is that the rapid downturn of the last two years has not continued.' That is the definition of a sector holding a defensive line, not advancing.

The Trade Balance is Deteriorating

Europe's chemical trade surplus — the margin by which it exports more than it imports — fell to €20.1 billion in the first half of 2025, down 17% from €24.4 billion in the same period of 2024. The deterioration is driven by rising imports, not declining exports per se. Chemical imports into the EU27 rose by 3.4 million tonnes between January and August 2025. China's share of EU chemical imports has risen from under 1% in 2004 to 5.6% in 2024. The US remains Europe's largest export destination at €23.1 billion — a relationship now under pressure from unpredictable tariff policy.

The Investment Signal Is the Most Alarming Data Point

In 2022 and 2023, German domestic chemical investment fell to €9 billion while investments abroad rose by 25% to €12 billion — meaning that for every euro German chemical companies invested at home, they invested €1.33 elsewhere. A 2025 IHK survey found that 35% of German firms were investing abroad to cut costs — the highest level since 2008. (VCI, BCG analysis 2024)

03 The Energy Trap: Cost, Policy, and the Competitiveness Gap

Energy is not an input cost for the chemical industry. It is the industry. Chemical companies use natural gas as both a fuel — to generate heat and power for their plants — and as a feedstock: the raw material from which chemical products are synthesised. Ammonia, methanol, ethylene, propylene, chlorine — none of them can be produced at competitive cost without affordable and reliable energy. European industrial gas and electricity prices have diverged significantly from those in the United States and parts of Asia since the 2022 energy crisis, according to Cefic's Q2 2025 Chemical Trends Report. They are expected to remain at this differential through at least 2030.

This is not a temporary disruption. Russia's invasion of Ukraine in February 2022 destroyed the low-cost Russian gas supply that had underpinned European industrial competitiveness for thirty years. European industry paid approximately 40% more for gas in Q3 2023 than it paid on average between 2019 and 2021 (BASF CEO Martin Brudermüller, November 2023). The switch to LNG — from the United States, Norway, Qatar — has partly replaced Russian volumes but at a structural price premium that cannot be subsidised away.

3.3×
EU vs. US Gas Price Ratio, Q1 2025 (Cefic)

25%
EU Chemical Sector Gas-to-Production Ratio (Cefic)

€28B
German Energy Subsidy Package 2024–2028

0%
VCI: Package Does Not Restore Competitiveness

The Subsidy Response Is Insufficient

Germany's federal government announced a package of energy tax subsidies worth up to €28 billion through 2028, with €12 billion committed for 2024 and 2025. The VCI's response was unambiguous: 'The measures adopted only maintain the status quo. They do not bring any additional relief that would improve the international competitiveness of our companies.' Subsidies designed to keep existing operations viable are not the same as restoring the conditions that make new investment attractive. The chemical industry's primary need is not emergency support. It is structural restoration of cost competitiveness.

The Electricity Problem

Electricity costs compound the gas problem. Germany's Energiewende — the energy transition — has been the world's most ambitious renewable energy buildout. In 2024, renewables produced 57.6% of German electricity. But the transition has not produced cheap electricity. It has produced expensive electricity, because the costs of grid expansion, legacy capacity, and the financing structures for renewable investment have been passed through to industrial end-users via grid fees, levies, and tariffs. German industrial electricity prices — even with various relief mechanisms — remain significantly above those of key competitors. The IEA's 2025 Germany review noted that high electricity prices 'serve as a major obstacle for the electrification needed to realise energy transition goals.' The policy designed to decarbonise industry is, in its current form, preventing industry from affording the transition.

> *"The industry is energy-intensive — using 25 to 50% of the natural gas it purchases as raw material. What Europe has done is removed the feedstock cost advantage that made European chemical production globally competitive. That is not a temporary disadvantage. It is structural."*
>
> — Cefic, Facts and Figures 2025

The Upstream Dependency Risk

The loss of Russian gas has revealed a deeper vulnerability: Europe's industrial base has been built on the assumption of affordable external energy supply. The transition from Russian pipeline gas to global LNG has replaced one dependency with another, at higher cost. Germany now has LNG import capacity at Brunsbüttel (under development), Mukran (operational from 2024, capacity up to 13.5 bcm), and Wilhelmshaven. These provide volume but not the price advantage that pipeline gas from Russia provided. The IEA's 2025 Germany review stated that industry faces 'growing threats to competitiveness' and that 'the continued dependency on natural gas remains without a clear end in sight.'

04 The Regulatory Avalanche: When Green Becomes a Straitjacket

Energy costs are the headline. But across the VCI's own 2024 membership surveys, regulatory burden has overtaken energy as the most cited barrier to competitiveness — particularly for small and medium-sized enterprises. The European Green Deal, however worthy in its long-term ambitions, has generated a volume and complexity of regulation that is uniquely challenging for chemical producers. CBAM, CSDDD, REACH, CLP amendments, ESPR, the EU Battery Regulation, the Chemicals Strategy for Sustainability — these are not individual regulations. They are an interlocking system of obligations, reporting requirements, reclassification processes, and compliance timelines that collectively absorb an extraordinary share of company resources.

The Epicentre of Bureaucracy: VCI President's December 2024 Statement

'This is not only the German federal government's fault. The epicentre of bureaucracy is Brussels, where the Commission is regulating Europe into a standstill.' The VCI warned that German chemical companies need to increase productivity, efficiency, and effectiveness by 10 to 30% just to maintain their position — a BCG analysis mandated by VCI, published 2024.

Key Regulatory Burdens on the Chemical Sector

CBAM — Carbon Border Adjustment Mechanism	Replaces established carbon leakage protections with a complex, bureaucratic import tax that raises costs for chemical importers and reduces competitiveness for downstream sectors and exporters. VCI: 'highly bureaucratic, raises costs for importers.'
CSDDD — Corporate Sustainability Due Diligence Directive	Extends supply chain due diligence obligations deep into supplier networks. For chemical companies operating global supply chains, compliance requires substantial legal, audit, and reporting infrastructure.
Chemicals Strategy for Sustainability	Introduces stricter hazard-based restrictions on substances, with classification proposals that — according to VCI — weigh toxicological evidence differently from non-EU scientific authorities, industry, and academia.
EU Battery Regulation	Lifecycle tracking, recycled content mandates, carbon footprint declarations, and due diligence requirements across the battery material supply chain — directly affecting chemical companies supplying battery-grade materials.
ESPR — Ecodesign for Sustainable Products	Sets up a potential priority product group process for chemicals and polymers. VCI warns that including polymers as an intermediate product group is 'highly problematic' given the heterogeneity of chemical products.

The cumulative compliance burden is particularly acute for SMEs — which represent 97% of European chemical companies by number and 60% of sector employment. Large corporations have compliance departments, legal teams, and the capital to absorb regulatory costs. For a mid-sized chemical company with 200–2,000 employees, the same regulatory burden consumes a disproportionate share of management bandwidth and financial resource, directly crowding out innovation investment.

This paper does not argue against environmental regulation. It argues for regulation that is calibrated to industrial reality, implemented with sufficient transition timelines, and designed to achieve environmental objectives without destroying the industrial base that must implement the transition. The goal of a clean, competitive Europe is self-defeating if pursued through policies that close European plants and relocate production to jurisdictions with no equivalent environmental requirements.

05 Germany: The Epicentre of European Deindustrialisation

Germany is the largest chemical producer in Europe, the fourth-largest globally, and the country whose performance most directly determines the health of the European chemical sector. The diagnosis of Germany's chemical industry is inseparable from the broader story of German economic performance — and that broader story is alarming.

Germany's GDP grew by only 0.1% in real terms over the five years to 2024 — a period in which the global economy grew substantially. The German Council of Economic Experts (Sachverständigenrat) estimated in its 2024/25 Annual Report that Germany's potential output is more than 5% below what it was expected to be in 2024 at the time of the pre-crisis 2019 projections. Expected GDP growth for 2025 was just 0.4%. The IMD World Competitiveness Ranking placed Germany at 24th in 2024, down from 22nd in 2023. In the Stiftung Familienunternehmen Industrial Location Index, Germany has fallen from 9th to 17th place out of 22 industrial nations since Angela Merkel took office.

+0.1%
Germany Real GDP Growth, 5 Years to 2024 (GCEE)

360
Chemical/Pharma Company Closures in Germany, 2024 (Destatis)

–361K
Industrial Manufacturing Jobs Lost, May 2019–Feb 2025 (BA)

75%
German Chemical Plant Capacity — Below 82% Profitability Threshold

Wave of closures and capacity curtailments.

According to the Centre for European Economic Research (ZEW), Germany lost nearly 200,000 companies in 2024 alone — a 16% increase from 2023 and the highest number since 2011. In the chemical and pharmaceutical sectors specifically, 360 companies ceased operations — the highest in over two decades. Energy-intensive industries accounted for 1,050 plant closures in 2024, up 26% from the prior year. More than 200 German industrial plants — including chemical facilities — were identified by IG BCE (Germany's chemical and energy workers' union) as facing imminent closure or forced scale-back.

BASF — the world's largest chemical company, headquartered in Ludwigshafen — has closed 11 production facilities in Germany since 2022. It has cut 2,600 European jobs, the majority in Germany. It is simultaneously investing €10 billion to build its largest-ever production site in Zhanjiang, China — a facility that began core Verbund production in November 2025. Dow Chemical announced the closure of its naphtha steam cracker in Böhlen, Germany, affecting 550 jobs, with completion by end-2027. LANXESS closed its hexane oxidation facility at Krefeld-Uerdingen in Q2 2025, and announced the closure of its Widnes, UK aroma chemicals site.

> *"Chemical plants are up for sale and closing on an unprecedented scale in Europe. Non-European asset owners have little incentive to remain in Europe, where their oldest, smallest, highest-cost plants are located. They optimise their fleet and produce elsewhere."*
>
> — Richard John Carter, former BASF Senior Executive, Chemical & Engineering News, 2025

The Structural Causes: Not Just Energy

By November 2024, energy costs had actually fallen from their peak as the most-cited concern among VCI members. In their place: regulatory burden, high labour costs, high corporate taxes, and slow approval processes. The full cost-competitiveness gap is multifactorial. A BCG analysis commissioned by the VCI concluded that German chemical companies need to increase productivity, efficiency, and effectiveness by 10 to 30% simply to offset current structural disadvantages — with innovation and investment the only viable path.

But innovation requires investment, investment requires confidence, and confidence requires policy predictability — the one thing German industry has been denied most consistently.
A 2024 IHK survey found that one in four German industrial companies and one in two large corporations were actively planning to relocate production abroad. A 2025 IHK survey found that 35% of firms were already investing abroad to cut costs — the highest level since 2008. This is not a signal. It is a confirmed trend.

06 The Great Relocation: Who Gains When Europe Loses

Capital and production do not disappear when they leave Europe. They move to jurisdictions that offer lower energy costs, lower regulatory burden, larger domestic demand, or more direct government support for industrial investment. The three primary beneficiaries of European chemical industry contraction are China, the United States, and the Middle East — with China the dominant force.

EUROPE — Losing Ground	Competitors — Gaining Ground
• EU Gas Price: 3× US equivalent (Cefic 2025)	• China Chemical Growth H1 2025: +7.9% (vs EU –2.4%)
• EU Capacity Utilisation: 70-75% (below profitability)	• US Chemical Growth H1 2025: +2.6%
• Europe losing chemical market share since 2004	• China: 46% global chemical market share (Cefic 2025)
• EU chemical exports to US: down from 22% to 18% share since 2004	• US: Inflation Reduction Act, $369B industrial subsidy
• Germany: domestic investment €9B, foreign investment €12B (2023)	• Gulf States: ultra-cheap energy, accelerating chemical investment
• Chemical plant closures accelerating; 1,050 energy-intensive in 2024	• China chemical imports to EU rising — dumping overcapacity into Europe

The United States: A Direct Counter-Model

The US Inflation Reduction Act — passed in August 2022 — committed $369 billion to clean energy and industrial investment over ten years. It has triggered a US manufacturing investment boom. Between the IRA's passage and end 2024, more than $300 billion in manufacturing investment decisions were linked to IRA incentives. American chemical production grew 2.6% in H1 2025, while European production contracted. Gas prices in the United States — benefiting from abundant shale production — remain a third of European levels. The VCI has explicitly cited the IRA as 'heightening the transformation challenge' for European competitors, noting that European and national support programs are 'often too restrictive, complicated, and slow compared to US approaches.'

China: Chemical Overcapacity as a Competitive Weapon

China's chemical production grew at nearly 8% in the first half of 2025. China now accounts for 46% of global chemical sales — up from a fraction of that share twenty years ago. Chinese chemical companies have built enormous overcapacity in commodity products: ammonia, polyethylene, polypropylene, basic solvents, and precursor chemicals for battery production. With the US market increasingly closed to Chinese exports through tariffs, that overcapacity is being directed into European markets. LANXESS CEO Matthias Zachert stated explicitly in August 2025 that Chinese companies are 'dumping' products into Europe because the US has become inaccessible. European chemical producers face low-priced competition on their home market at exactly the moment their own production costs are at their highest structural disadvantage.

The geopolitical dimension compounds the economic one. China processes more than 60% of global lithium, more than 80% of global cobalt refining, and is deeply embedded in the supply chains for the chemicals required for the European Green Deal's own transition technologies. The EU is simultaneously attempting to reduce dependency on China while its industrial base — which would provide supply chain resilience — is being eroded by the policies meant to enable that transition.

07 The Social Contract: What Industry Holds Together

The economic argument for a competitive European chemical industry is well-documented. The social argument is less often articulated — but it may be the more important one. Industry is not merely an economic activity. It is the structural foundation of European societies: the source of wages, tax revenue, community identity, skilled labour pools, and the local economic multipliers that sustain schools, hospitals, and public services in industrial regions. When chemical plants close, the consequences cascade.

248K
Industrial Jobs Lost in Germany Dec 2019–Dec 2025 (Jacobin/EY)

1.2M
EU Chemical Sector Direct Employees (Cefic)

3.95M
Germany: Welfare Benefit Recipients Who Are Employable (BA 2025)

120K
German Industrial Jobs Destroyed in One Year to Sep 2025 (EY)

Up to and including December 2025, 248,000 jobs had been lost in Germany's key industrial sectors: motor vehicles, machinery, electrical equipment, electronics, fabricated metals, and chemicals. In the twelve months to September 2025 alone, more than 120,000 industrial jobs were destroyed, including 49,000 — 6.3% of the total — in automotive. The BDI's president described this as 'the deepest crisis in the history of the Federal Republic,' and was explicit: 'This is not a cyclical dip, but a structural decline.' In 2025, nearly 24,000 companies filed for insolvency in Germany — as many as at any point since 2014.

The Welfare System Under Strain

The social welfare system that absorbs the consequences of industrial contraction is itself funded by industrial tax revenues. As the number of employed industrial workers declines, the tax base that finances welfare payments contracts — while demand for those payments increases. Germany's Federal Employment Agency reported a rise in unemployment of around 160,000 in 2025 to just under 2.95 million. Of nearly 3 million registered unemployed, fewer than 1 million received unemployment insurance benefits. By contrast, the number of employable recipients of welfare payments — Bürgergeld — stood at 3.95 million, including many in work whose incomes were insufficient to live on. The system that holds European societies together depends on employment. Employment depends on industry. Industry depends on competitiveness.

Regional Concentration and Community Risk

Chemical industry employment is not uniformly distributed. It is concentrated in specific industrial regions — the Rhine-Main area, the Ruhr valley, the Rhine-Neckar region, Leuna in Saxony-Anhalt — where a single major employer may account for the employment base of an entire municipality. Plant closures in these regions do not merely reduce employment statistics. They remove the economic rationale for local infrastructure, local services, and local communities. The social cohesion risks of concentrated deindustrialisation are not hypothetical. They are visible in the political geography of regions that have experienced industrial contraction across Europe and the United States — where economic displacement and political extremism have moved in consistent and predictable correlation.

> *"The chemical industry, which employs 326,000 people in Germany, saw sales slump 10% in 2022 and 11% in 2023. Plants are now operating at 71% capacity — below the 82% profitability threshold. The steel industry faces complete liquidation, with 55,000 of 70,000 jobs under acute threat."*
>
> — Analysis, November 2025

08 What the Draghi Report Actually Said — and What Happened Next

In September 2024, former European Central Bank President and Italian Prime Minister Mario Draghi published what may be the most important economic document in European policy history since the Delors White Paper of 1985. At 400+ pages, 'The Future of European Competitiveness' identifies three structural threats to Europe's prosperity: a widening innovation gap with the United States and China; the failure to link decarbonisation with competitiveness policy; and growing strategic dependencies. Draghi described Europe's situation as an 'existential challenge.'

The scale of investment Draghi called for — an additional €750–800 billion per year — is more than double the Marshall Plan's proportion of GDP. The report contains 176 sector-specific measures and 383 reform proposals. One year on, Draghi himself noted at the September 2025 review conference that implementation had been limited. The diagnosis was accepted. The medicine remained largely unprescribed.

€800B
Additional Annual Investment Draghi Calls For (5% of EU GDP)

383
Reform Proposals in the Draghi Report

1 Year
Time Elapsed Before Draghi Himself Noted 'Limited' Implementation

€1.4T
Germany's Own Estimated Investment Need to 2030 (BDI/BCG)

What Draghi Said About Industry and Energy

Draghi's report was explicit on several points directly relevant to the chemical industry. First, that the decarbonisation agenda must not be pursued at the expense of competitiveness — the two must be treated as integrated, not competing objectives. Second, that Europe's open market has become a vulnerability rather than a strength, particularly where it enables the dumping of underpriced goods from markets with no equivalent regulatory burden. Third, that permitting and regulatory processes must be radically simplified. Fourth, that EU-wide industrial support mechanisms are structurally less competitive than the US IRA or Chinese government support programmes — being 'too restrictive, complicated, and slow.'

The German Infrastructure Package: A Turning Point?

On 18 March 2025, the German Bundestag passed a historic constitutional amendment creating a €500 billion special fund for infrastructure and defence. The debt brake — Schuldenbremse — was relaxed. Deutsche Bahn received €150 billion for infrastructure. Regional governments received expanded borrowing rights. Permitting reform was stated as a central legislative goal of the new CDU/CSU-SPD coalition. In May 2025, Germany passed a Renewables Acceleration Draft Law introducing streamlined electronic permitting, centralised approval authorities, and simplified land-use requirements.

These are meaningful steps. The critical question is whether the pace and ambition of reform matches the pace and scale of industrial contraction. Infrastructure investment takes years to deliver. Permitting reform takes time to prove. Investment decisions are being made now, in conditions of uncertainty, by companies that cannot wait for 2030 to see whether the reforms work. Political will that arrives late can still turn the tide — but only if it is sustained, specific, and immune to the reversal that has characterised too much of European industrial policy.

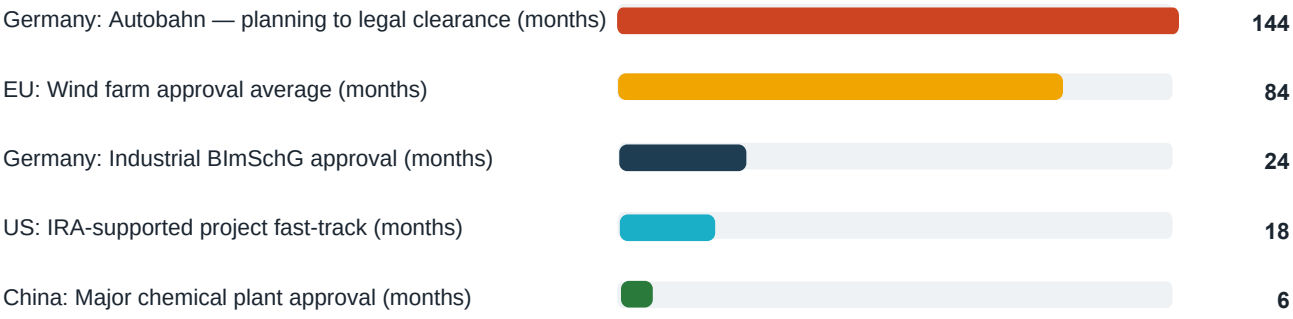
The Competitiveness Compass (January 2025): A Framework, Not Yet a Policy

The European Commission's Competitiveness Compass — the Commission's response to Draghi — commits to 'an unprecedented simplification effort,' a 28th regulatory regime for startups, capital markets union, and improved access to risk capital. Critics at Bruegel note that without specific enforcement mechanisms and financial commitments, the Compass risks being a roadmap without a vehicle.

09 Bureaucracy: The Invisible Tax on European Competitiveness

The approval timelines for industrial projects in Germany and across Europe have become a competitive liability of the first order. An autobahn planning process takes an average of twelve years from initiation to completion of legal proceedings in Germany — before construction begins. Wind farm approvals average four to nine years across EU member states. Industrial plant modifications require Federal Immission Control Act (BImSchG) approvals that take one to three years even for relatively straightforward adaptations.

These timelines are not merely inconvenient. They are competitively fatal. A company considering whether to invest €200 million in a new production unit in Germany or in the United States, China, or the Gulf States is comparing European approval timelines measured in years against Chinese timelines measured in months. The investment case for Europe includes the probability-weighted risk of delays, cost overruns, regulatory challenges, and legal objections that are largely absent in competing jurisdictions. The rational response — increasingly taken — is to invest elsewhere.



The German government's data centre permitting analysis published in 2025 captures the structural problem: 'The permitting process for data centres in Germany is still too complex, multi-layered and time-intensive, causing significant delays. A persisting challenge is the lack of coordination between permitting authorities, including environmental and water authorities, which often results in conflicting requirements.' Replace 'data centres' with 'chemical plants' and the diagnosis is identical. The system is not designed to say yes efficiently. It is designed to ensure no objection is missed — at any cost to timeliness.

What Reform Looks Like

Germany's May 2025 Renewables Acceleration Law provides a useful template for what fast-tracked permitting can look like: fully electronic application processes, centralised authorities to reduce multi-agency delays, and simplified land-use and zoning requirements. These reforms have begun improving renewable energy project timelines within months of enactment. The same principles — centralisation of authority, digitalisation of process, clear deadlines, and presumption of approval where environmental standards are met — need to be applied to the full range of industrial infrastructure. The legal framework exists. The political will to apply it to industry, not just to renewable energy, is what remains to be demonstrated.

Germany's March 2025 infrastructure package also eases the debt brake, allowing the 16 federal states to borrow up to 0.35% of their GDP annually — providing new capital for regional industrial support. The expectation is that this will improve the investment environment 'notably' for private capital in infrastructure, defence, and energy sectors. Whether that improvement extends meaningfully to industrial chemical production depends on whether the associated structural reforms are implemented with the same speed and ambition as the funding commitments.

> *"We are regulating Europe into a standstill. Our companies need to increase productivity by 10 to 30 percent just to hold their competitive position. That is not a reform agenda — that is a survival agenda."*
>
> — VCI President Markus Steilemann, December 2024 Annual Press Conference

10 AI as a Lifeline: Technology That Can Bridge the Gap

Artificial intelligence will not fix Europe's energy costs. It will not simplify regulatory frameworks or accelerate permitting processes. But for chemical companies operating in hostile structural conditions, AI offers something genuinely transformative: the ability to produce more output from less energy, to detect failure before it happens, to compress R&D; timelines, and to operate with a precision that meaningfully reduces waste, downtime, and input costs. In a sector where competitive disadvantage is measured in percentage points, AI's potential to restore 5–20% operational efficiency is not marginal. It is strategic.

39%
AI in Chemicals Market CAGR 2024–2029 (MarketsAndMarkets)

–40%
AI Can Cut Chemical R&D; Costs (McKinsey)

95%
AI Formulation R&D; Automation Adoption Projected by 2028 (IBM IBV)

76%
Chemical Execs: AI Will Deliver Measurable Competitive Advantage (IBM IBV)

Where AI Delivers the Highest Value in Chemicals

Process Optimisation
AI-driven real-time process control — managing temperature, pressure, flow rates, and reaction conditions — has demonstrated consistent yield improvements of 3–8% in continuous chemical production. For a plant operating at 74% capacity, even modest throughput gains can cross the profitability threshold.

Predictive Maintenance
AI predictive maintenance is expected to grow from 39% industry adoption in 2025 to 98% by 2028 (IBM IBV). Unplanned downtime in chemical production is extraordinarily expensive. Reducing it by 15–30% through AI-driven equipment monitoring and failure prediction directly improves the cost economics of European plants.

R&D; Acceleration
McKinsey estimates AI can reduce chemical R&D; costs by up to 40% and cut development time by as much as 50%. AI molecular modelling and screening tools allow researchers to evaluate thousands of compound variants computationally before conducting a single physical experiment — compressing years of traditional R&D; into months.

Energy Optimisation
Given that the energy-cost differential with the US is the primary structural disadvantage, AI's ability to optimise energy consumption in chemical processes — through intelligent scheduling, process parameter adjustment, and waste heat recovery — represents the highest-value single application for European chemical producers.

Supply Chain Intelligence
Dow Chemical's deployment of AI for real-time ethylene demand forecasting improved supply chain forecast accuracy and cut inventory by 15%. In a sector with volatile raw material markets and complex logistics, AI-driven supply chain optimisation reduces both working capital requirements and risk exposure.

Regulatory & Compliance AI
Automated documentation, regulatory change monitoring, and AI-driven compliance reporting reduce the administrative burden of Europe's regulatory framework. Agentic AI systems currently in early deployment in the chemical sector include automated regulatory documentation (33% adoption in 2025) and AI-driven reporting workflows.

The chemical industry remains one of the slowest adopters of AI — McKinsey estimates it has the lowest generative AI exposure of any major industrial sector at 14%, compared to a cross-industry average of 23%. This reflects a cultural caution that, in the current competitive environment, European chemical companies can no longer afford. IBM IBV projects that AI's contribution to chemical sector revenue will grow from 6% in 2025 to 14% by 2028. For a €635 billion sector, that gap is competitive destiny.

11 The Way Forward: A Competitive European Chemical Industry

This paper would be incomplete if it only described the crisis. The path forward exists. It requires action at multiple levels simultaneously — from Brussels, from Berlin, from company boardrooms, and from the communication professionals who shape how industry is perceived and how it advocates for itself. The following analysis presents what a recovery scenario requires across five dimensions.

1. Energy: Competitive Pricing, Not Subsidy Dependency

The primary requirement is affordable and reliable industrial energy — not temporary subsidies but structural pricing reform. This requires: accelerated renewable buildout with dedicated industrial supply agreements; grid fee reform to reduce the infrastructure cost burden on industrial consumers; and development of hydrogen infrastructure that can provide a long-term feedstock alternative for processes that currently require fossil gas. Germany's 2025 offshore wind capacity growth and the 115 GW onshore wind target for 2030 provide the supply side. The critical bottleneck is grid capacity and cost allocation. Germany's 2025 Renewable Energy Sources Act reforms, which allow renewable generators and co-located battery storage to share grid connections, are a meaningful structural improvement.

2. Regulation: Ambitious, Implementable, and Competitively Neutral

Environmental regulation must be designed to achieve its objectives without creating the conditions for carbon leakage — where European production moves to jurisdictions with no equivalent standards, increasing global emissions while eliminating European jobs. The CBAM is the right mechanism in principle; it must be extended in scope and simplified in implementation. Transition timelines for new chemical regulations must reflect the capital cycle of the industry — not the legislative calendar of the Commission. Regulatory impact assessments must explicitly model the investment and relocation responses of the companies being regulated, not only their technical compliance pathways.

3. Speed: Permitting Reform as an Industrial Strategy

Germany's March 2025 infrastructure package and the Renewables Acceleration Law demonstrate that fast permitting is achievable without lowering environmental standards. The same model — centralised authorities, digital processes, mandatory decision timelines — must be applied to industrial investment approvals across all EU member states. A chemical plant expansion that takes two years to permit in Germany and three months in China is not a story about the chemistry. It is a story about the governance system. Europe cannot afford to lose investment decisions to process delays that serve no genuine environmental or social purpose.

4. Tax and Investment: Reward for Risk-Taking

Germany's corporate tax burden is among the highest in the OECD for medium-to-large industrial companies. A company investing in a high-risk innovation project in Germany must generate sufficient pre-tax returns to justify the investment against alternatives in lower-tax jurisdictions. VCI's explicit demand for 'a company tax reform with a significant reduction of the tax burden' reflects a simple competitive reality: entrepreneurial risk requires entrepreneurial reward. Tax systems that heavily penalise success reduce the incentive to take the productive risks that generate that success. This is not ideological. It is arithmetic.

5. Innovation: AI and Digitalisation as Strategic Infrastructure

AI adoption in the European chemical sector must be treated as strategic infrastructure, not optional modernisation. Horizon Europe research funding should be explicitly directed to AI integration in chemical processes. Industrial data-sharing frameworks — allowing companies to share process optimisation insights without compromising commercial confidentiality — can accelerate collective learning. SME-focused AI adoption support, including training, integration consulting, and subsidised pilot programmes, must be part of any credible industrial policy response. The 10–30% productivity improvement that the VCI identifies as necessary to restore competitiveness cannot come only from process efficiency. It requires the intelligence layer that AI provides.

12 The Communication Deficit: How Chemical Companies Can Fight Back

The chemical industry is in a crisis of competitiveness. It is also in a crisis of communication. The public debate about European industrial policy rarely features the clear, evidence-based voice of chemical companies themselves. The industry that underpins the materials for every other sector — including the green transition itself — is poorly represented in the policy conversations that determine its future. This is not inevitable. It is a strategic choice, and it can be reversed.

Chemical companies communicating well in the current environment must do three things simultaneously: demonstrate their role in the economy and society with specific, verified data; make their case to policymakers with the same technical rigour they apply to their processes; and inform their B2B customers, partners, and suppliers of their competitive position, innovation pipeline, and strategic direction. None of these can be achieved through trade fair presence alone, or through corporate CSR reporting. They require sustained, technically credible, strategically targeted communication — beginning with industry intelligence.

What Bold B2B Communication Looks Like in Practice

Speak First, Speak Specifically

The companies that shape policy are those that enter the conversation early, with data. Not lobbying documents. Not press releases. Peer-level industry intelligence — white papers, regulatory impact analyses, market position papers — that establish the company as an authoritative voice before the political agenda is set.

Make the Economic Case Visible

The chemical sector employs 1.2 million Europeans and sits at the upstream of virtually every industrial value chain. Too few companies make this case specifically and publicly. Local economic impact data — jobs, tax contribution, innovation investment, downstream value created — should be standard communication currency, not buried in annual reports.

Use AI to Produce More, Not Less

AI does not replace communication strategy. It accelerates it. AI-assisted research, content generation, regulatory monitoring, and audience analysis allow smaller teams to produce the volume and variety of content needed for sustained authority. The companies that are ahead on AI in communication are already producing three times the content at half the cost.

Engage Policymakers Directly — With Evidence

The most effective industrial communication reaches decision-makers with specific, actionable intelligence: what a regulatory proposal will cost in investment terms, how a permitting timeline compares to competitors, what the employment consequence of a proposed standard will be. This is not lobbying. It is evidence-based dialogue that every democratic government should welcome and most currently receive too rarely.

Do Not Wait for the Crisis to Communicate

Companies that begin sustained B2B communication after they face a challenge start from a credibility deficit. Authority is built over time, through consistent output. The IMP Communication Gap Framework — published alongside this series — provides the structural model: Layer 1 industry intelligence, Layer 2 technical evidence, Layer 3 compliance transparency, Layer 4 market presence. Most chemical companies operate only at Layer 4. The authority gap is the consequence.

Make Your Supply Chain Partners Your Advocates

Tier-1 and tier-2 chemical suppliers who communicate their technical capabilities, regulatory compliance posture, and innovation investment to their B2B customers become harder to replace. Communication is a retention strategy as much as a growth strategy in an environment where supply chain consolidation is accelerating.

13 Two Futures for 2035: The Fork in the Road

The choice before European policymakers, company leaders, and the political systems that govern Europe's industrial base is not subtle. The current trajectory produces one outcome. A different set of decisions produces a different one. Both are described below — not as ideology, but as the logical consequence of observable trends.

SCENARIO A — The Continuation: Europe Proceeds on Current Course

- Industrial Gas prices remain 2.5–3× the US equivalent through 2030; no structural reform of industrial pricing
- Regulatory pace continues without recalibration for industrial competitiveness impact
- Permitting reform remains fragmented; major infrastructure projects continue to take 5–12 years
- Chinese chemical overcapacity continues to be dumped into the EU market
- Domestic investment in Germany and EU27 continues to lag foreign investment
- AI adoption in chemical sector remains below 20% in key operational applications
- SMEs — 97% of EU chemical companies — continue to face disproportionate compliance costs

→ Europe's share of global chemical production falls below 10% by 2030 (from 13% today). Germany's industrial workforce contracts by a further 200,000+. European dependency on Chinese-sourced chemicals for Green Deal transition materials deepens. Social cohesion in industrial regions deteriorates. Welfare system strain intensifies.

SCENARIO B — The Recovery: Decisive Policy and Corporate Action

- EU-wide industrial energy price reform delivers competitive parity with the US by 2027
- Permitting for industrial investment reduced to 12-month maximum through digital, centralised process
- CBAM extended and simplified; carbon leakage protection restored for chemical producers
- BCG-VCI recommended 10–30% productivity improvement achieved through AI and process innovation
- Corporate tax reform makes Germany and EU27 competitive for manufacturing investment
- AI adoption in chemical R&D; and operations reaches 60%+ by 2028
- Chemical companies invest in sustained B2B communication — becoming policy influencers, not bystanders

→ European chemical production stabilises by 2027 and returns to growth by 2029. Germany retains its industrial identity and the welfare system it funds. EU supply chain resilience for Green Deal materials is restored. European chemical innovation — in specialty chemicals, bio-based materials, and advanced polymers — establishes new competitive advantages.

Scenario B is not utopian. It does not assume that Europe will produce commodity chemicals at Chinese prices. It assumes that Europe's genuine competitive advantages — engineering excellence, specialty chemical innovation, regulatory credibility, and sustainability positioning — can be developed into a viable, high-value industrial model. This transition is achievable. It requires that the political and corporate conditions for it be created, simultaneously and at speed, by actors who understand that the window for action is measurable in years, not decades.

14 Recommendations

For European and National Policymakers	
1	Reform industrial energy pricing structurally — not through temporary subsidies but through grid fee reform, competitive industrial supply contracts from renewables, and hydrogen infrastructure investment.
2	Implement mandatory permitting timelines — a maximum of 12 months for standard industrial approvals and 6 months for modifications — with digital, centralised processes and automatic approval where deadlines are missed.
3	Recalibrate the regulatory burden on chemical SMEs: apply proportionality systematically, extend transition timelines to match capital investment cycles, and explicitly model investment and relocation impacts before regulation is enacted.
4	Implement meaningful corporate tax reduction: Germany's total tax burden on industrial companies must be competitive with the UK, Netherlands, and the United States, not merely below France.
5	Accelerate the EU Competitiveness Compass from framework to funded action: the Draghi investment gap requires specific financial commitments, not coordination exercises.
6	Extend CBAM scope and simplify its mechanics to provide genuine carbon leakage protection without creating disproportionate administrative costs for importers of chemical inputs.

For Chemical Company Leaders	
1	Treat AI adoption as a strategic priority, not a pilot programme: begin with the highest-value applications — energy optimisation, predictive maintenance, process control — and establish a company-wide AI roadmap with specific 2026 and 2028 implementation targets.
2	Quantify and communicate your economic footprint: jobs created, taxes paid, downstream value generated, innovation investment. This data is your most powerful policy tool and your most underused commercial asset.
3	Invest in senior-level government engagement with technical substance: bring your regulatory impact analysis to ministers, not just your trade association. Decision-makers respond to specific, verified data. Provide it.
4	Stop waiting for conditions to improve before investing in communication: companies that communicate through a crisis build authority that outlasts it. Those that go silent lose their seat at the table permanently.
5	Reassess your supply chain for resilience, not just cost: the geopolitical environment of 2025 makes single-source Chinese dependencies a strategic risk. Diversification has an insurance value that cost analysis alone does not capture.
6	Build and sustain the IMP Communication Gap Framework across all four layers: industry intelligence, technical evidence, regulatory transparency, and market presence.

For B2B Technology and Service Providers to the Chemical Sector	
1	Position AI solutions around the specific cost-reduction and energy-efficiency use cases that directly address the chemical industry's structural disadvantage — not generic digital transformation messaging.
2	Develop transparent, publicly available case study data on AI process optimisation outcomes in chemical production — with real energy savings, yield improvements, and ROI timelines. The sector's caution about AI partly reflects a shortage of credible evidence from trusted sources.
3	Support chemical industry communication efforts: provide the technical data and application evidence that allows your customers to make the industry intelligence arguments that governments and investors need to hear.

4	Engage with EU research and industrial policy programmes — Horizon Europe, the Clean Industrial Deal — to position AI-enabled chemical optimisation as a core element of European industrial resilience strategy.

15 Closing Argument: The Industry That Cannot Be Allowed to Fail

The chemical industry is not one sector among many. It is the enabling sector — the industry without which there is no pharmaceutical production, no agricultural productivity, no battery technology, no advanced materials for wind turbines and solar panels, no polymer packaging for food safety, no electronics, and no automotive industry. It is the backbone of the industrial stack that sustains European welfare, social stability, and geopolitical relevance.

The crisis described in this paper is real, structural, and urgent. It is not primarily the consequence of global market forces beyond Europe's control — though those exist. It is substantially the consequence of policy choices made in Brussels and in Berlin, over the course of a decade, that prioritised environmental ambition and regulatory completeness over industrial competitiveness and implementation realism. Those choices can be reversed. They are being reversed, slowly and partially, by the Draghi mandate, by Germany's March 2025 constitutional package, and by an emerging political consensus that the deindustrialisation of Europe is not a transition but a threat.

This paper does not ask for Europe to choose between the environment and the economy. That is a false choice, as Draghi correctly identified. It asks for Europe to design and implement its environmental ambitions with the same engineering precision it demands of the chemical processes that will deliver them. It asks for governments to make decisions at the speed that markets and competitors require. It asks for companies to communicate their indispensability with the same rigour they apply to their safety management systems.

And it asks, finally, for honesty: that the cost of losing the European chemical industry is not an accounting figure. It is the unravelling of the industrial web that holds together 1.2 million direct livelihoods and many times that number in dependent value chains — and with them, the material conditions for the European way of life that environmental policy is ultimately meant to protect.

> *While the pressures are significant, the European chemical industry retains deep technological capabilities, strong research institutions, and globally competitive companies.*
>
> — IMP InterMediaPartners — Industry Intelligence Series, Paper 7, March 2026

About IMP InterMediaPartners

IMP InterMediaPartners provides B2B communication strategy, content development, and industry intelligence services to companies operating in chemicals, automotive, packaging, petfood, and related sectors. The Industry Intelligence White Paper Series supports our clients in establishing market authority through evidence-based communication at the highest level of technical and commercial credibility. Contact: www.intermediapartners.de