

ERCST Reflection Note

Road transport decarbonization: innovative policy approaches for competitiveness and investment

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With Competitiveness of European Industries now a priority, Europe's Road Transport CO₂ policy deserves a ground-up rethink, where a wider portfolio of compliance options could serve a wider set of industrial and energy transition objectives.

1. The signals of decline in strategic European industries

Since before the inception of the European Green Deal, and with commendable ethics, Europe has prioritized climate action, aspiring to climate leadership. It has sought to demonstrate to the world that an energy and industrial transition can effectively enable a net-zero economy, while maintaining a prosperous economy.

However, after two decades of the EU Emissions Trading System (ETS) and fifteen years of automotive CO₂ standards, there are indications that these approaches may not be delivering as intended. Evidence suggests that de-industrialization has emerged as an unintended consequence, with economic and social implications, in an era where geopolitical tensions are increasingly prominent¹. New initiatives such as the Strategic Dialogue, Competitive Compass etc. only recently appear to have started to acknowledge the implications of the current trajectory but, in our view, the root causes do not get full acknowledgement at this stage.

The outcome is that European industrial competitiveness is suffering. There are many forces that impact EU competitiveness and they will include energy costs, labor costs, a move from markets to regulation and over regulation, as well as EU governance issues. However, climate change policies, which have become somewhat divorced from market forces and are not technologically neutral, are having a significant impact on the competitiveness and viability of EU industry, and will increasingly do so. These effects are visible through:

- The lack of significant advances in the financially sustainable decarbonization of the transport industry, with visible and increasingly severe crisis in the EU auto industry;
- The slow progress in creating a market for low carbon products across multiple industries.

Globally, sectors such as automotive, steel, metals, and fuels/refining are recognized as pivotal for industrial, economic, and military security. All these sectors are facing serious challenges in the EU with plant closures, layoffs and lack of investment.

The primary policy influencing the European automotive sector's strategy is the EU's CO₂ emissions regulation for cars and heavy-duty (HD) vehicles, which sets stringent targets for reducing carbon emissions. While the regulation is presented as technologically neutral, it is effectively not allowing any other solution than electrification. While this is likely to be the long-term solution for some segments of

¹ Bersani A., Falbo P. & Mastroeni L. (2022). Is the ETS an effective environmental policy? Undesired interaction between energy-mix, fuel-switch and electricity prices. Energy Economics, 110, 105981. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S0140988322001554>

transportation, focusing on one solution only in the medium to short term may not provide good outcomes from both an environmental as well as economic point of view for the EU auto industry.

In the auto industry the car and truck manufacturers are increasingly forming joint ventures with China, with manufacturing operations shifting there.² The EV transition has slowed, with muted customer acceptance. The need for substantial tax breaks and incentives remains evident as seen with France reducing its EV subsidy budget for 2025, and Germany ending its incentive program in 2023. This has led to a significant decrease in EV sales in key markets like Germany, where sales dropped by 37% after subsidies were removed³. In 2024, automotive suppliers announced 54,000 job cuts, indicating a severe impact on employment within the sector⁴.

From an economic point of view, we are witnessing absurd situation in 2025, whereby EU carmakers are facing significant compliance costs due to the EU's CO₂ emission standards for vehicles, will result in European manufacturers are expected to purchase billions of euros worth of carbon credits from U.S. and Chinese companies, particularly those with large fleets of electric vehicles (EVs) like Tesla and BYD. The penalty for non-compliance is set at an effective carbon price €500 per tonne of CO₂, which is approximately six times the price of carbon under the EU Emissions Trading System (ETS)⁵. This disparity has led to EU carmakers seeking credits from overseas manufacturers to avoid these hefty fines.

Investment in green steel in Europe remains uncertain, especially for securing enough low CO₂ primary iron feedstock material that can be produced in Europe at affordable prices. The European steel industry is in a precarious position due to a combination of factors including low demand, high energy costs, and competition from imports, particularly from China. EUROFER has warned of an "irreversible decline" unless decisive actions are taken, highlighting that without intervention, the industry could face further plant closures and job losses⁶. ArcelorMittal has expressed concerns about the viability of all its European sites by 2025 due to rising energy costs, CO₂ taxes, and cheap Chinese steel import⁷.

The ambition for transition investment in Europe's non-ferrous metals sector is limited due to perceived non-competitiveness in energy and regulatory costs. High energy prices and stringent regulations make

² Greeven, M., & Liu, S. (2024, January 26). China's automotive odyssey: From joint ventures to global EV dominance. I by IMD. Retrieved from <https://www.imd.org/ibyimd/innovation/chinas-automotive-odyssey-from-joint-ventures-to-global-ev-dominance/>

³ MIT Technology Review. (2024, September 23). Some countries are ending support for EVs. Is it too soon? MIT Technology Review. Retrieved from <https://www.technologyreview.com/2024/09/23/1104247/ending-ev-subsidies/>

⁴ Automotive Manufacturing Solutions. (2025, January 23). *European auto suppliers keep slashing jobs amid EV slump*. <https://www.automotivemanufacturingsolutions.com/europe/european-auto-suppliers-keep-slashing-jobs-amid-ev-slump/46664.article>

⁵ Financial Times. (2025, January 16). Europe's carmakers risk hefty bill for carbon credits from Chinese rivals. Financial Times. Retrieved from <https://www.ft.com/content/677190d1-7d34-4506-a037-418baab67237>

⁶ EUROFER. (2024, November 27). *European steel industry on the brink: The EU must act now or risk losing manufacturing, warns EUROFER*. <https://www.eurofer.eu/press-releases/european-steel-industry-on-the-brink-the-eu-must-act-now-or-risk-losing-manufacturing-warns-eurofer>

⁷ GMK Center. (2025, January 15). *ArcelorMittal raises prices for long products in Europe by €25/t*. <https://gmk.center/en/news/arcelormittal-raises-prices-for-long-products-in-europe-by-e25-t/>

Europe less attractive for investment in primary production, with the industry turning to secondary recycling⁸. The metals industry, particularly in energy-intensive sectors like aluminum production, has been hit hard by escalating energy prices following geopolitical tensions. Companies like Slovalco in Slovakia announced significant layoffs due to unprofitable production costs fueled by high electricity prices⁹. The end of gas imports from Russia through Ukraine has further strained operations, leading to warnings about potential capacity curtailments and closures across the EU's metals smelters and refineries¹⁰.

The fuels industry has shown limited progress in transitioning to renewable and low-carbon investments. Large projects have been shelved due to economic viability concerns, particularly considering current policy settings and market demand. Refineries in Europe are facing a challenging landscape with several closures announced or in process. Shell, for example, plans to end crude processing at the Wesseling site in 2025¹¹. The International Energy Agency (IEA) notes that oil and gas companies' capital spending on low-emissions alternatives was less than 5% of their upstream spending in 2022¹². Moreover, with the transition to cleaner energy sources, site closures are predicted, especially for facilities not adaptable to new technologies like biofuels or hydrogen.

We highlighted above some of the issues (or crisis) facing different sectors of industry. To reiterate the current policies have resulted in:

- the lack of progress in decarbonizing transportation, in which the lack of flexibility in meeting standards plays a significant role, which is not in itself a desirable environmental outcome;
- the inability to create a market for low carbon products. While the industry can produce green products, the cost is higher than its more carbon intensive competition resulting in a lack of market for low carbon products.

As it stands today, this current policy looks like large missed-opportunity, and in some respects a European “own goal”.

⁸ Blenkinsop, P. (2023, December 18). EU sets critical mineral goals, but faces struggle to hit them. Reuters. Retrieved from <https://www.reuters.com/markets/commodities/eu-sets-critical-mineral-goals-faces-struggle-hit-them-2023-12-18/>

⁹ GMK Center. (2025, January 31). *Norsk Hydro is closing a plant in Slovakia due to high electricity prices.* <https://gmk.center/en/news/norsk-hydro-is-closing-a-plant-in-slovakia-due-to-high-electricity-prices/>

¹⁰ S&P Global Commodity Insights. (2023, December 29). No recovery in sight in 2024 for Europe's crisis-ridden chemical industry. *S&P Global Commodity Insights.* <https://www.spglobal.com/commodity-insights/en/news-research/latest-news/chemicals/122923-no-recovery-in-sight-in-2024-for-europes-crisis-ridden-chemical-industry>

¹¹ Offshore Technology. (2025, January 30). *Shell to close Wesseling refinery in Germany by 2025.* <https://www.offshore-technology.com/news/shell-wesseling-germany/>

¹² International Energy Agency. (2023). World Energy Investment 2023: Overview and key findings. IEA. Retrieved from <https://www.iea.org/reports/world-energy-investment-2023/overview-and-key-findings>

2. More decarbonization options: innovative approaches for competitive and investment

The EU CO₂ emission performance standards primarily target tailpipe emissions, not the manufacturing process emissions directly controlled by manufacturers¹³, be it for fuels or for the products that go in the manufacturing of cars.

ERCST has investigated broadening CO₂ reduction strategies and would like to put forward alternative approaches that would create a badly needed demand for low carbon elements, with the positive impact of affected industries, ensuring their continued viability in the EU. At the same, it proposes going beyond just tailpipe emissions and including the carbon intensity of material production but not adopting a complete Life Cycle Assessment (LCA) approach. This could potentially allow the auto industry manufacturers more flexibility in achieving CO₂ targets, as per below.

1. We could start with Green Steel. A typical car uses around 900 kg of steel, generating about 1.4 tonnes of CO₂ in its production¹⁴. The EU ETS prices carbon at around €90 per tonne, which is considered insufficient to cover the additional costs of green steel production¹⁵. If carmakers were credited for reducing this CO₂ under car policy, it could be more cost-effective than penalties and yield real environmental benefits. With traditional steelmaking facilities like blast furnaces closing and still high uncertainty for the business case of EU investment in green iron and steel, there's a clear need for further decarbonization support in the steel sector. This could be a valuable step.
2. A similar facility could also work for lower carbon production of other metals, plastics, battery materials and assemblies. Given the well-defined supply chains, robust verification of actual carbon intensity should be possible.
3. The uptake of low carbon fuels is another element to be considered. The current automotive CO₂ policy does not incentivize the use of low-carbon fuels or electricity beyond offering manufacturers a choice between liquid fuels treated as at 2005 carbon intensity or electricity at projected 2050 levels, inconsistent in several ways with the newer aviation and maritime policies which align with Renewable Energy Directive (RED) goals and make users obligated parties for seeking out lower carbon energy options.

¹³ European Commission. CO₂ emission performance standards for cars and vans. Retrieved from https://climate.ec.europa.eu/eu-action/transport/road-transport-reducing-co2-emissions-vehicles/co2-emission-performance-standards-cars-and-vans_en

¹⁴ Negri, M., Bui, A., Ordonez, Y., Bieker, G., & Isenstadt, A. (2024, September 18). Which automakers are shifting to green steel? An analysis of steel supply chains and future commitments to fossil-free steel. International Council on Clean Transportation. Retrieved from <https://theicct.org/major-automakers-in-the-red-when-it-comes-to-using-green-steel/>

¹⁵ GMK Center. (2023, September 26). “Green steel” premium: to pay or not to pay. GMK Center. Retrieved from <https://gmk.center/en/posts/green-steel-premium-to-pay-or-not-to-pay/>

There's an increasing recognition of the need for renewable fuels in the road sector, particularly for heavy-duty (HD) vehicles. However, the lack of long-term commitment to renewable fuels in road transport policy discourages investment in renewable fuel production within the EU due to regulatory constraints.

For decades, road, aviation and maritime fuels have been produced together, along with feedstocks for chemicals and plastics. Under the current vehicle policy, road liquids fuels will trend eventually to zero, taking many valuable industrial sites to closure¹⁶. No one wants to invest in a dying market. Producing a single fuel such as SAF alone is technically less efficient, and with more market risk, discouraging investment.

3. Conclusion

Considering how the automotive sector, together with supply chain for automobile materials and components and energy / fuel suppliers are at an epicenter for European industry, the current narrow and unusual road vehicles CO₂ policy has underperformed as a transition driver, also from an environmental point of view, creating costs and serious risks of deindustrialization with consequent and ongoing political pushback. While, as mentioned, there are other factors contributing to the current trends in deindustrialization; if not checked these combined factors will only aggravate outcomes.

Options to evolve the policy are increasingly well developed, and these could enable valuable changes for many critical industries, as well as their final customers, the citizens of the EU. With a more inclusive and investor-friendly policy, this may also make the leadership model of the EU stronger and more appealing in the eyes of the rest of the world.

¹⁶ Wood Mackenzie. Assessing the Refineries at Risk of Closure. Wood Mackenzie. Retrieved from <https://www.woodmac.com/news/opinion/assessing-the-refineries-at-risk-of-closure/>