

From Laggards to Leaders

Green Innovation and CEE's Climate Opportunity



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Turning Lag into Leadership

Amidst the aspirations of the European Green Deal (EGD), Central and Eastern European (CEE) countries struggle with relatively low performance compared to their Western counterparts. Concurrently, innovation rankings paint a sobering picture of the region's modest progress. Yet, what if within these challenges lies a hidden opportunity? The potential for CEE countries to spearhead a green technology revolution, propelling them towards achieving EGD goals and fostering sustainable growth.

The European Union marked a major milestone in its climate efforts with the *EU Climate Action Progress Report 2024*, documenting the largest annual drop in greenhouse gas emissions in decades. Emissions fell by 8,3 % in 2023 compared to the previous year, bringing total reductions to 37 % below 1990 levels ([European Commission, 2024](#)). Much of this progress was driven by cleaner electricity production, thanks to a rapid scale-up of renewables and continued improvements in energy efficiency.

But while the EU as a whole is moving in the right direction, a different story is unfolding in parts of Central and Eastern Europe. Countries like Slovakia, Poland, Romania, Hungary, Bulgaria, and Croatia are still grappling with deep-rooted structural and economic challenges that make the path to climate neutrality much steeper. According to the European Environment Agency, several of these countries are on track to miss their 2030 climate targets by a wide margin, unless decisive action is taken soon ([EEA, 2023](#)).

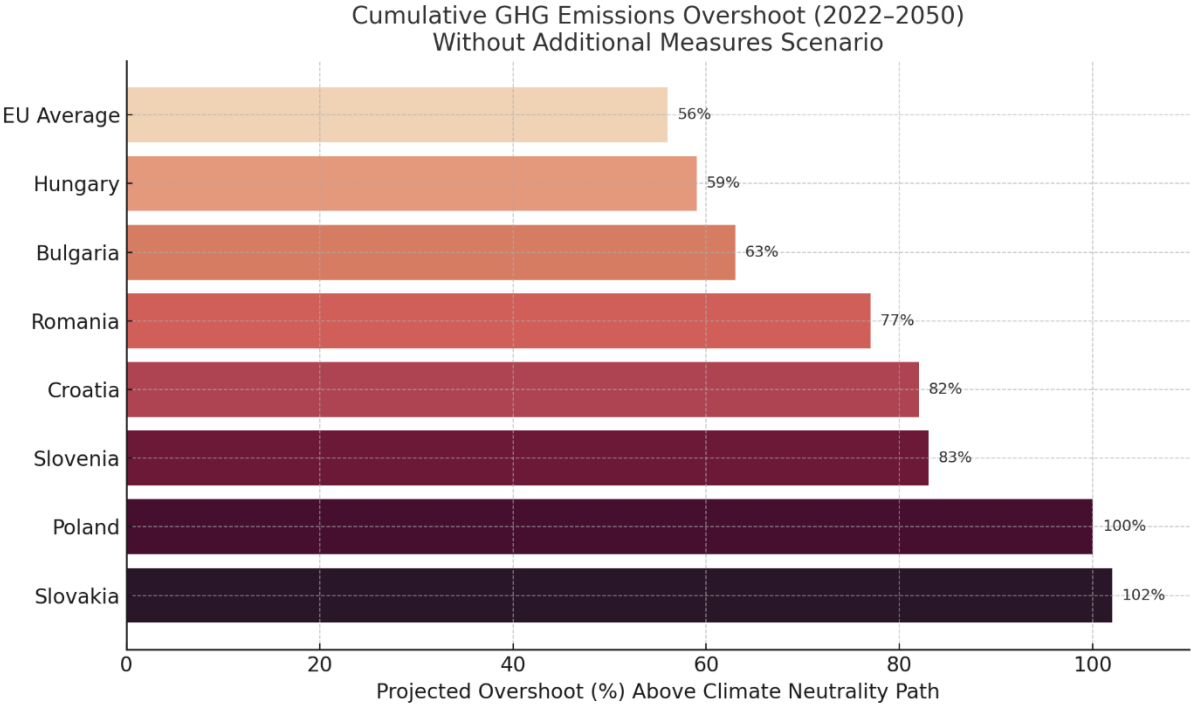


Fig. 1: Cumulative Projected GHG Emissions Overshoot. Source: EEA (2023). Trends and projections in Europe 2023.

This gap between EU ambition and national implementation raises a critical question: can the region turn its current disadvantages into an opportunity and become a driver of Europe’s green transformation rather than a drag on its progress?

Beyond the climate challenge, many Central and Eastern European countries also struggle to keep pace on innovation. According to the *European Innovation Scoreboard 2025*, most countries in the region remain in the “Emerging Innovators” category, with overall performance well below the EU average ([European Commission, 2025](#)).

Poland, for example, scores just 65,9 % of the EU average on innovation performance, while Slovakia follows at 62,6 %. Even the Czech Republic, which ranks among the region’s stronger performers, only reaches 80,6 %, placing it in the “Moderate Innovator” group. These scores reflect persistent weaknesses in areas such as R&D investment, public-private collaboration, environment-related technologies, and patent activity.

Despite notable progress in some education and digital infrastructure indicators, the region still faces a critical need to strengthen its innovation ecosystems – particularly when it comes to turning research into market-ready solutions and fostering collaboration between academia and industry.

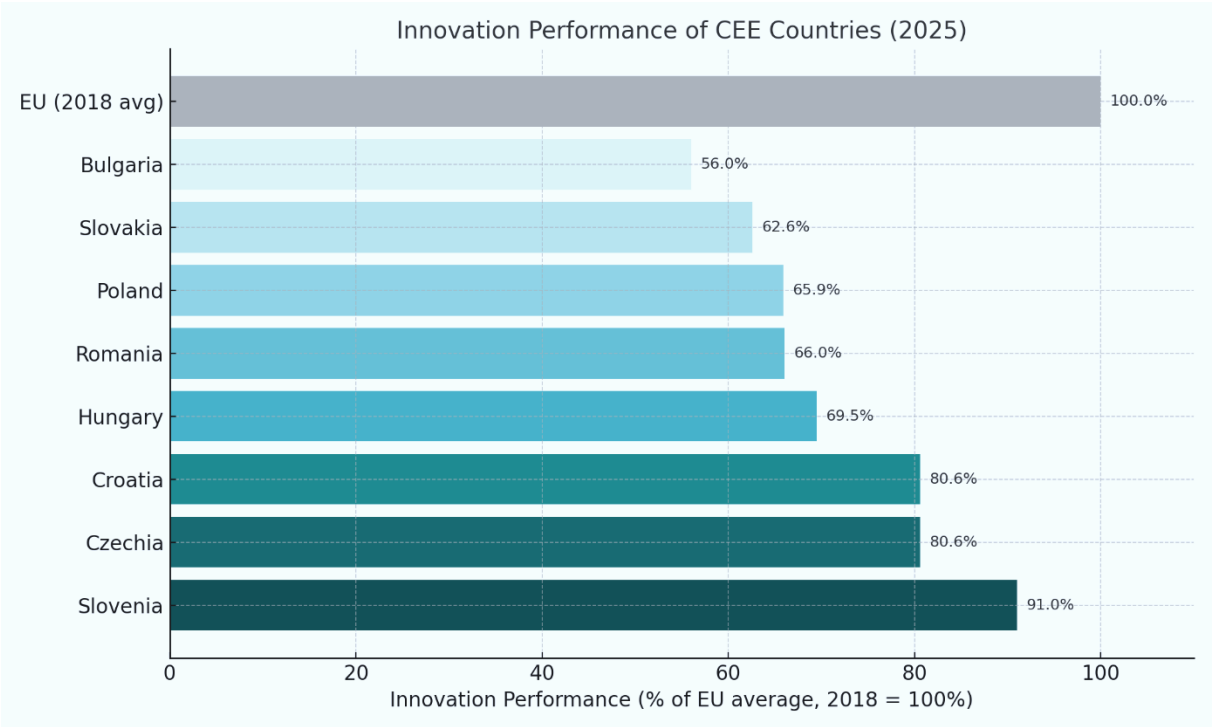


Fig. 2: Innovation Performance in CEE Countries. Source: European innovation scoreboard 2025.

The Green Innovation Opportunity

Yet within these structural gaps lies a powerful opportunity for transformation. Despite lagging behind in innovation rankings, Central and Eastern European countries possess tangible strengths in sectors critical to decarbonization – especially transport, manufacturing, and energy.

Slovakia is home to one of the highest per capita automotive production rates in the world, hosting major manufacturers like Volkswagen, Stellantis, Kia, Jaguar Land Rover, and soon Volvo. Hungary has attracted global players in automotive and battery manufacturing, while Romania and Bulgaria offer diverse industrial bases that include metallurgy, energy, and transport equipment. These sectors, often seen as emissions-heavy, could also serve as springboards for green innovation.

Importantly, this potential is beginning to materialize. In 2023, renewable energy surpassed coal in electricity generation for the first time across several Three Seas Initiative countries, accounting for 39 % of the region’s electricity mix ([European Commission, 2024](#)). Falling costs of wind and solar are reshaping national energy landscapes, making renewables the most cost-effective source of new capacity in much of the region.

This green momentum extends to startups as well. While early-stage investment in CEE remains below Western European levels, ventures in climate and mobility are gaining ground—supported by EU funding and growing investor interest. One notable example is **Rimac Automobili**, the Croatian startup that evolved into a global leader in high-performance electric vehicles and battery systems. In Slovakia, **Voltia** is helping to decarbonise urban logistics with electric delivery vans used by companies like DHL, IKEA, and GLS. These firms demonstrate how even smaller CEE markets can carve out competitive niches in the climate economy. With a strong industrial backbone and a rising pool of technical talent, the region has a real chance to leap into the next generation of clean technologies—if the right enabling conditions are in place.

Seizing the green innovation opportunity will require more than industrial capacity; it demands bold, coordinated policy action from national governments. While CEE countries benefit from geographic proximity to Western markets, a competitive cost base, and growing investment interest, several systemic barriers continue to hold them back.

Access to capital remains a persistent challenge for early-stage green ventures, especially in smaller domestic markets. Public R&D investment is often fragmented or insufficient, and venture capital ecosystems are still developing compared to Western Europe. Education systems, too, struggle to keep pace with 21st-century innovation demands. Curricula across the region remain heavily geared toward traditional manufacturing, often neglecting the soft skills, such as creativity, leadership, and interdisciplinary thinking, that are essential for today’s innovation-driven economy.

Compounding these issues is the ongoing **brain drain** of high-skilled talent, particularly in STEM fields. Many of the region’s most capable young professionals continue to seek career opportunities abroad, depriving domestic ecosystems of the very expertise needed to drive transformation. Limited technology transfer between academia and industry only deepens this gap, with promising research rarely making its way into commercial application.

Reframing the Transition

Achieving the goals of the European Green Deal is not only a technical and economic challenge. It is also a political and social one. In many Central and Eastern European countries, public opinion remains wary of climate ambition, often viewing it as a threat to jobs, competitiveness, or living standards. This scepticism is rooted in both recent history and present realities. Countries still navigating the post-socialist transition are now being asked to transform their economies once again – this time in the name of sustainability.

According to the [EIB Climate Survey 2021–2022](#), **a majority of respondents in CEE believe that the green transition will lead to job losses**. This contrasts sharply with more optimistic views in Western Europe. The [Eurobarometer Climate Survey \(2023\)](#) similarly found that while 75% of Europeans overall believe climate action will foster innovation, support for this view is significantly lower in parts of the CEE region. In countries like Czechia, Latvia, and Estonia, levels of uncertainty are noticeably higher than the EU average. This reflects not only a perception gap, but also a deeper trust and information gap.

Yet here lies an opportunity. Policies framed around innovation, competitiveness and technological leadership tend to gain broader support than those focused on restriction or sacrifice. In this context, the European Commission’s shift toward a more industry-oriented climate narrative, seen in the [Clean Transition Dialogues](#) and the [Clean Industrial Deal](#), is particularly relevant.

This new framing resonates strongly with CEE economies, where manufacturing remains a cornerstone of GDP and employment. By positioning green innovation as a growth strategy rather than a compliance burden, policymakers can build broader coalitions of support across society, from industry leaders and researchers to municipal governments and younger generations.

As long as decarbonisation is seen as externally imposed or economically punitive, resistance will persist. But when climate policy is linked to tangible benefits – such as jobs, resilience, and competitiveness – the political economy of the transition begins to shift in favour of action.



Turning Potential into Policy

To turn momentum into transformation, Central and Eastern Europe must go beyond diagnosing challenges and begin acting on strategic priorities. The following seven recommendations outline a policy blueprint to unlock the region’s green innovation potential. They reflect not only the need for structural reforms, but also the urgency of narrative change, cross-border collaboration, and smarter deployment of EU tools. By aligning these levers, CEE countries can reposition themselves as frontrunners in Europe’s climate and industrial transition.

1. Reframe climate policy as industrial and innovation strategy

National governments should integrate green innovation into industrial policy frameworks, emphasizing job creation, technological leadership, and global competitiveness. Climate neutrality must be framed as an economic opportunity, particularly in traditional sectors like automotive and energy.

2. Strengthen domestic innovation ecosystems

Increase public investment in R&D and reform education systems to support cross-disciplinary innovation. Encourage tech transfer through dedicated programmes connecting universities with SMEs, startups, and industrial clusters.

3. Deploy EU instruments strategically

Improve national administrative capacity to absorb and align funding from the Modernisation Fund, Innovation Fund, Horizon Europe, and the Technical Support Instrument. Focus funding on projects that link decarbonization with industrial renewal and regional cohesion.

4. Foster regional cooperation on innovation and infrastructure

Leverage regional frameworks such as Interreg, the Three Seas Initiative, and the Visegrád Group to enable joint clean tech projects, cross-border infrastructure investments, and coordinated R&D that overcomes market fragmentation.

5. Address public scepticism through inclusive communication

Engage businesses, municipalities, and civil society to promote green innovation as a source of prosperity. Use locally relevant success stories and credible messengers to shift narratives from restriction to opportunity.

6. Invest in applied research and demonstration projects

Bridge the gap between early-stage innovation and market adoption by supporting pilot projects, living labs, and technology demonstration sites in key sectors like transport, construction, and manufacturing.

7. Create regional innovation hubs focused on green tech

Establish place-based or virtual innovation clusters that bring together academia, startups, corporates, and public institutions around mission-driven decarbonization goals. These hubs can serve as engines of green transformation and regional competitiveness.

To support effective implementation, each recommendation must be aligned with the appropriate governance level, institutional responsibility, and policy horizon. The table below provides a structured overview of the actors involved, enabling policymakers to prioritise and sequence actions according to national and regional contexts.

Recommendation	Key Instruments	Level	Key stakeholders	Timeframe
Reframe climate policy as industrial strategy	<ul style="list-style-type: none"> • Modernisation Fund • Technical Support Instrument 	National	<ul style="list-style-type: none"> • Governments • Industry associations • Media 	Short - Medium
Strengthen innovation ecosystems	<ul style="list-style-type: none"> • Horizon Europe • Cohesion Policy 	National	<ul style="list-style-type: none"> • Ministries of Education & Economy • Universities 	Medium - Long
Deploy EU instruments strategically	<ul style="list-style-type: none"> • All major EU climate & RI tools 	National EU	<ul style="list-style-type: none"> • National agencies • Governments • EC (DG CLIMA, REGIO, RTD) 	Short - Medium
Foster regional cooperation	<ul style="list-style-type: none"> • Interreg 	Regional EU	<ul style="list-style-type: none"> • Regional groups (V4, 3SI) • National ministries 	Medium - Long
Communicate inclusively to shift public perception	<ul style="list-style-type: none"> • TSI • Local cohesion funding 	All levels	<ul style="list-style-type: none"> • Municipalities • NGOs • Business leaders • Media 	Short - Ongoing
Invest in applied research and demonstration projects	<ul style="list-style-type: none"> • Innovation Fund • Horizon Europe 	National EU	<ul style="list-style-type: none"> • Ministries of Economy • Research institutes • EC (REA) • EIT 	Medium - Long
Create regional innovation hubs focused on green tech	<ul style="list-style-type: none"> • Cohesion Policy • Interreg 	Regional National	<ul style="list-style-type: none"> • Regional governments • Universities • Industry clusters 	Medium

Fig.4: Policy Recommendations Summary Table

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