

Abstract

The EU's Regulatory Approach to Advancing Net-Zero Technology Manufacturing as a Sustainable Emerging Sector [†]

Raquel Carvalho 

Law Faculty, Universidade Católica Portuguesa, 4169-005 Porto, Portugal; rmcvalho@ucp.pt

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In June 2024, the Regulation (EU) 2024/1735 was adopted [1], establishing a regulatory framework to promote the development and deployment of net-zero technologies. This legislative act plays a pivotal role in advancing the European Union's transition and is intended to implement measures that facilitate supply chain decarbonization, reduce CO₂ emissions, promote the use of renewable energy, and integrate sustainability considerations into public procurement procedures.

Regulation (EU) 2024/1735 aligns with the European Green Deal, the Green Deal Industrial Plan, and the 2021 update to the EU Industrial Strategy [2]. These initiatives collectively aim to transform the EU into a climate-neutral economy by 2050, focusing on decarbonization, clean technologies, and sustainable industrial practices. The Regulation supports these goals by promoting net-zero technologies and fostering a circular economy. It also contributes to achieving Sustainable Development Goal 11, which targets sustainable cities and communities, by encouraging urban sustainability and resilience, particularly in the context of climate change mitigation, adaptation, and prevention. Notably, the Regulation emphasizes multi-level governance and stakeholder collaboration, including the active involvement of urban communities, to ensure a just and inclusive transition.

The objective of this study is to critically examine this multi-layered regulatory architecture.

Special attention is paid to the industrial sector due to its strategic position in both economic and geopolitical dimensions. Industry can function not only as an economic driver but also as an instrument for fostering environmental and social sustainability. Given the spatial concentration of industrial activities in urban settings, it is relevant to assess whether urban planning promotes sustainability, resilience, and quality of life in cities and surrounding communities.

Ultimately, this research aims to determine whether the current policy trajectory meaningfully aligns with the EU's climate and SDG and offers actionable insights into how regulatory frameworks can support systemic transformation.

Preliminary analysis suggests that the existing hard and soft laws are moderately to highly coherent in advancing decarbonization, clean technologies, and stakeholder engagement. While these frameworks contribute to achieving key SGD, targeted interventions are needed to address climate adaptation and social equity issues. The industrial sector is poised to drive sustainability transitions. Urban areas, as hubs of industrial activity, play a central role in implementation, with multi-level governance and community engagement. This study aims to provide policy recommendations to enhance regulatory integration, strengthen institutional coordination, and improve the monitoring of net-zero technologies across the EU.



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