



BOOK OF PROCEEDINGS

INTERNATIONAL CONFERENCE SUSTAINABLE MOBILITY

5-6 MARCH

2026

The INTEC International Conference brings together academics, researchers, policymakers and industry experts to discuss innovative approaches and collaborative solutions for a sustainable future in engineering and mobility. The conference will be hosted by POLIS University in Tirana, Albania, and co-organized by partners from across the EU as part of the Erasmus+ CBHE Project 101081873-ERASMUS-EDU-2022-CBHE-STRAND-2.



INTEC International Engineering Competence Centres to push sustainable mobility development in Albania and Montenegro
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REVIEWING THE EUROPEAN GREEN DEAL IN ENERGY, MOBILITY AND INDUSTRY

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Abstract

The European Green Deal (EGD) is the European Union's central strategy for achieving climate neutrality by 2050. It outlines a far-reaching agenda aimed at transforming key sectors, particularly mobility, energy and industry toward sustainability, while promoting economic growth and social fairness. This framework integrates regulatory reforms, financial instruments and technological innovation to drive emission reductions and improve resources efficiency. Turning these long-term goals into concrete national actions remains a complex challenge. Variations in infrastructure, regulatory alignment and funding capacities across EU member states continue to influence the pace and effectiveness of implementation. This review paper examines the critical factors shaping the Green Deal's rollout in the fields of mobility, energy and industry emphasizing common barriers, enabling conditions, and examples of effective practices. Sources for this review paper were collected through searches of academic databases (Google Scholar, Scopus) and official EU sources (European Commission, European Environment Agency). The focus was on publications from 2019 to 2025 that address the implementation of the European Green Deal in the fields of mobility, energy, and industry. Only relevant and methodologically comparable works such as literature reviews, policy analyses, and case studies available in English were included. Analysis of the available literature shows that the success of the European Green Deal depends on aligning its high ambitions with real-world capacities. Innovation, investment and public support are key drivers across sectors. In energy, progress is slowed by underdeveloped hydrogen infrastructure and uneven national efforts. In industry, deep decarbonization and circular economy shifts demand significant financial and technological input. Common barriers include regulatory uncertainty, infrastructure gaps, and limited funding. An integrated policy mix, along with fairness and citizen participation, is essential for effective and socially sustainable implementation. These findings suggest that while

the European Green Deal offers a comprehensive and ambitious roadmap for decarbonization, its success will depend on addressing persistent gaps between policy goals and implementation capacity. Strengthening cross-sector coordination, accelerating infrastructure development and ensuring stable regulatory frameworks will be key. Aligning climate action with social equity through inclusive governance and regional support mechanisms can foster broader public acceptance and political legitimacy. Future research and policy evaluation should focus on monitoring progress, sharing best practices, and adjusting strategies to achieve concrete results across key sectors.

Keywords: Green Deal, mobility, energy, industry, policy

I. INTRODUCTION

The European Green Deal (EGD), presented in late 2019, represents the central strategic framework of the European Union aimed at achieving climate neutrality by 2050. (European Commission, 2019). As a comprehensive development strategy, the EGD aims to transform the European economy towards a sustainable, low-carbon and resource-efficient model, while simultaneously preserving competitiveness, economic growth and social fairness. This framework integrates climate policy with the energy transition, sustainable mobility, industrial decarbonization and the principles of the circular economy, making it one of the most ambitious political projects of the European Union to date.

Earlier analyses of the energy transition in the EU had already pointed to the complexity of moving from sector-based climate and energy packages toward the more integrated framework of the European Green Deal, highlighting challenges related to infrastructure, investment, and institutional coordination (Hafner & Raimondi, 2021). Within the EGD framework, the energy, mobility and industrial sectors are identified as key drivers of the transition, given their dominant contribution to total greenhouse gas emissions in the EU. The energy sector is undergoing an accelerated transformation based on increasing the share of renewable energy sources, improving energy efficiency, and developing new technologies such as green hydrogen (European Commission, 2020a). At the same time, the mobility sector is faced with the need for deep structural change, including the electrification of road transport, the development of alternative fuels, the improvement of public transport, and the promotion of sustainable forms of urban mobility (European Commission, 2020b). The industrial sector, particularly energy-intensive industries, is faced with the challenge of decarbonizing production processes and transitioning toward circular models of production and consumption (European Commission, 2020c).

Although the European Green Deal provides a clear and ambitious normative and strategic framework, its implementation in practice represents a complex and multidimensional process.

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Numerous studies point to the existence of a significant gap between established policy objectives and the actual capacities for their implementation at the national and regional levels (Szpilko & Ejdys, 2022; Hereu-Morales et al., 2024). Differences in institutional readiness, regulatory frameworks, infrastructure development, and financial capacities among Member States significantly affect the pace and effectiveness of the implementation of measures envisaged under the EGD (IEEP, 2021; IEEP, 2024).

Particular challenges have been identified in the field of energy infrastructure, including the slow development of hydrogen infrastructure and limited electricity grid integration. Similar issues exist in the mobility sector, where insufficient alternative fuel infrastructure and uneven regulatory implementation slow down the transition (European Commission, 2023; European Court of Auditors, 2024). In industry, the transition toward deep decarbonization requires significant investments, technological innovation, and stable long-term regulatory signals in order to reduce investment risk and enable the wider deployment of low-carbon technologies (European Commission, 2024a). The energy transition envisaged by the European Green Deal builds upon broader international decarbonization scenarios. In particular, the International Energy Agency's pathway toward climate neutrality by 2050 emphasizes rapid deployment of renewable energy sources, improved energy efficiency, and the adoption of low-carbon technologies (IEA, 2021).

The literature increasingly emphasizes that the success of the European Green Deal depends not only on technological solutions and financial instruments. It also relies on strong governance mechanisms, effective policy coordination across sectors and levels of government, and active involvement of citizens and relevant stakeholders in decision-making processes (Szpilko & Ejdys, 2022; IEEP, 2024). The concept of a just transition is gaining increasing importance, as the social acceptability and political legitimacy of climate policy measures represent key prerequisites for their long-term sustainability.

Building on the above, this paper aims to analyse the key factors shaping the implementation of the European Green Deal in the fields of energy, mobility, and industry, through a review of contemporary academic literature, EU institutional reports, and selected examples of good practice. Particular emphasis is placed on identifying common barriers, enabling conditions, and integrated approaches that can contribute to a more effective and socially sustainable implementation of the EGD objectives at the European Union level.

II. METHODS

The sources used in this review paper were collected by combining searches of relevant academic databases (Google Scholar and Scopus) with official European Union sources, including publications of the European Commission and the European Environment Agency. The review covered studies

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and documents published between 2019 and 2025, i.e. since the adoption of the European Green Deal, with a focus on its implementation in the fields of energy, mobility, and industry. Source selection was guided by their relevance for analysing policy implementation, regulatory frameworks, infrastructure requirements, investment mechanisms, and governance challenges associated with the European Green Deal.

The analysis included methodologically comparable sources, such as review and analytical scientific papers, policy analyses, institutional reports, and selected case studies of good practice, available in English. Sources that addressed exclusively normative objectives without considering implementation aspects, as well as studies outside the geographical scope of the European Union, were excluded. The collected literature was analysed using a qualitative approach, with the aim of identifying recurring patterns and key themes related to common implementation barriers, enabling conditions, factors of successful implementation, and examples of effective practices across different sectors.

III. RESULTS

The analysis of the available literature indicates that the successful implementation of the European Green Deal largely depends on aligning its ambitious strategic objectives with the actual institutional, infrastructural, and financial capacities of the Member States. Review studies suggest that this challenge can be explained by the multi-sectoral and multi-level nature of the European Green Deal, the implementation of which goes beyond traditional sectoral policies and requires integrated approaches to governance, innovation, and investment (Szpilko & Ejdyś, 2022; Hereu-Morales et al., 2024). The findings of the European Court of Auditors further confirm that technological progress alone is not sufficient, pointing to shortcomings in institutional readiness, regulatory stability, policy coordination, and the realism of established targets, particularly in the area of developing markets for renewable and low carbon hydrogen (European Court of Auditors, 2024).

In the energy sector, institutional reports of the European Union confirm the findings of the academic literature regarding uneven progress among Member States. Although a significant increase in energy production from renewable sources has been recorded, the development of key supporting infrastructure, particularly in the areas of green hydrogen and electricity grids, remains slow and fragmented (European Commission, 2023; European Court of Auditors, 2024). Differences in national strategies, investment priorities, and administrative capacities further slow down the process, confirming the existence of a gap between common EU objectives and their implementation at the national level.

Similar patterns have also been identified in the industrial sector. The literature indicates that deep industrial decarbonization and the transition toward circular production models require substantial financial investments, technological innovation, and long-term regulatory signals in order to reduce investment risk (Szpilko & Ejdys, 2022; European Commission, 2024a). Policy reports simultaneously emphasize that examples of successful measure implementation, such as projects supported through EU innovation funds, remain limited and concentrated in a small number of Member States, indicating an uneven territorial distribution of the impacts of the European Green Deal.

In the mobility sector, although a comprehensive regulatory framework for transport decarbonization has been established, practical implementation depends on the availability of alternative fuel infrastructure, the capacities of local authorities, and the level of public acceptance. Reports by the European Commission and independent research organizations indicate that infrastructural shortcomings and fragmented implementation of measures continue to represent significant barriers to achieving sustainable mobility objectives. (European Commission, 2020b; IEEP, 2024).

The common findings of all analysed sources indicate that regulatory uncertainty, infrastructure gaps, and limited financial capacities represent the dominant barriers to the implementation of the European Green Deal across all three sectors. At the same time, the literature shows a high degree of consensus regarding the role of innovation, public and private investment, and societal support as key drivers of the transition. Particular importance in the analysed literature is attributed to the need for an integrated policy mix and the concept of a just transition, which includes the participation of citizens and relevant stakeholders as a key prerequisite for the long-term sustainable and socially acceptable implementation of measures. However, research indicates that both academic and practical elaboration of public participation within the European Green Deal framework remains limited, particularly in Central and Eastern European countries (IEEP, 2024; Nagy et al., 2025).

The key findings of the literature review are summarized in Table 1, with an emphasis on sector-specific challenges and common implementation patterns.

Table 1. Key findings on European Green Deal implementation.

Sector	Key challenges	Main barriers	Enabling factors
Energy	Uneven transition progress	Hydrogen infrastructure gaps; grid constraints	Renewable energy growth; EU funding instruments

Industry	Limited deep decarbonisation	High costs; technological uncertainty	Innovation Fund; low carbon technologies
Mobility	Uneven practical implementation	Alternative fuels infrastructure gaps; local capacity limits	EU regulatory framework; charging infrastructure
Cross-sectoral	Ambition–capacity mismatch	Regulatory uncertainty; funding gaps	Integrated policy mix; policy coordination
Social dimension	Limited public participation	Weak operationalisation; regional disparities	Public support; just transition principles

Data from survey-based studies indicate a relatively high level of public support for climate measures and the energy transition in EU Member States, with pronounced differences at the national level, confirming the importance of social acceptability for successful policy implementation (Clean Energy Wire, 2024).

IV. CONCLUSION

This review paper demonstrates that, although the European Green Deal represents an ambitious and comprehensive strategic framework for achieving climate neutrality in the European Union, its successful implementation largely depends on the ability to align high level policy objectives with the actual institutional, infrastructural, and financial capacities of the Member States. The analysis of contemporary academic literature and institutional reports confirms that the multi-sectoral and multi-level nature of the EGD requires integrated governance approaches, effective policy coordination, and long-term investment signals, which are often not equally developed across all Member States.

The results indicate common patterns of challenges across the energy, mobility, and industrial sectors. In the energy and industrial sectors, inadequate infrastructure, regulatory uncertainty, and high investment costs limit the pace of the transition. In the mobility sector, uneven implementation of measures and infrastructure gaps emerge as key barriers. These findings confirm the existence of a significant gap between common EU objectives and their practical realization at the national and regional levels.

At the same time, the literature shows a high degree of consensus regarding key enabling factors for implementation, including innovation, public and private investment, stable regulatory

frameworks, and effective policy coordination across sectors and levels of governance. The social dimension of the transition is of particular importance. Although survey data indicate a relatively high level of public support for climate measures and the energy transition, public participation is often not sufficiently developed in practice. This is especially evident in Central and Eastern European countries and may pose a risk to the long-term social acceptability and political legitimacy of European Green Deal measures.

In conclusion, the results of this paper indicate that the success of the European Green Deal cannot be viewed solely through the lens of technological solutions or financial instruments, but rather as a complex process that requires strengthening institutional capacities, integrating policies, and actively involving societal actors. These findings provide a basis for further research focused on analysing concrete governance mechanisms and the application of integrated approaches that could contribute to a more effective and socially sustainable implementation of the objectives of the European Green Deal.

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International conference on sustainable mobility

Agenda

Project title: International Engineering Competence Centres to push Sustainable Mobility Development in Albania and Montenegro
Acronym: INTEC

Work package	
WP11	International conference
TASK	
11.4	Community Building Events

Dates	05.03.-06.03.2026
City	Tirana
Meeting venue	POLIS University Entrance Hall
Address	Rr. Bylis 12, Kodi Postar 1051, Kutia Postare 2995, Tirana, Albania

05.03.2026	
Entrance Hall, POLIS University	
8:30 - 9:00	Registration
9:00 - 9:30	Opening Performance
Welcome session - Auditorium A5 (Ground floor)	
9:30 - 10:00	Opening Remarks Dr. Elona Karafili (Vice Rector, POLIS University) Dr. Flora Krasniqi (Head of Office of Projects and Internationalization, POLIS University) DI Daniela Wenzl (INTEC Project Coordinator)
Auditorium A5 (Ground floor)	
10:00 - 11:00	Keynote speakers DI Horst Pflügl AVL Collaborative Research for sustainable Mobility DPSHTRR Representative - (General Directorate of Road Transport Services in Albania)
11:15 - 11:30	Coffee break (Moving into parallel sessions)

11:30	SESSION 1: POLITICAL AND REGULATORY FRAMEWORK AULA B1	SESSION 2: TECHNOLOGICAL INNOVATION AULA B4
11:30 - 11:45	Opening Session: Prof. Emeritus dr Nataša Gospić (FSKL)	Opening Session: Associate Prof. Ivan Tolj (US)
11:45 - 12:00	Integrating Event Data Recorder (EDR) Technology into Sustainable Road Safety Frameworks within the European Green Deal Eriselda Alimeti, Parid Milo, Mentor Çejku, Anis Sulejmani, Odhisea Koça	Empirical Comparative Study of Structural CFRP Sandwich Structure Inserts for Out-of-Plane loads Imre Kovács
12:00 - 12:15	Infrastructure Readiness for Sustainable Mobility: EU Frameworks and the Case of Albania Ervin Kalemaj, Parid Milo, Mentor Çejku, Anis Sulejmani, Odhisea Koça	The Role of Intermodal Transportation for the Sustainable Mobility Márton Kovács
12:15 - 12:30	Review of the Evolution of International Ship Energy Efficiency Regulations and the Albanian context Dr. Blenard Xhaferaj, Doklejda Hodaj	Impact of Heat Pump Systems on Winter Energy Use and Driving Range in Battery Electric Vehicles Luis Henrique Pereira Martins
12:30 - 12:45	Renewable Energy Procurement (CPPA) and Transport Electrification: European Perspectives and Albanian Challenge Antonio Ndoci, Anis Sulejmani, Odhisea Koça, Mentor Çejku, Parid Milo	Liquid Cooling Systems for Electric Vehicle Batteries: Improving Safety, Performance and Sustainability João Miguel de Almeida Ribeiro Silva
12:45 - 13:00	The Current Status of Autonomous Vehicle	Analysis of Battery Charging and Discharging Behavior for Electric Vehicle Applications Leona Markic, Luka Filipović

	Technology Adoption in the Balkan Region Darjana Lopičić, Oliver Popović, Miloš Ilić, Bojan Kocić	
13:00 - 14:00	Lunch	
14:00 - 14:15	Reviewing the European Green Deal in Energy, Mobility and Industry Veselinka Calasan, Ivana Ognjanović	Automotive Cooling Systems Sustainability: A Focus on the Expansion Tank Ana Inês Barbeiro Casimiro
14:15 - 14:30	The European Green Deal and its National Implementation: From Strategy to Practice Blerina Bektashi, Andi Bektashi	Design and Development of a Constant-Volume Combustion Chamber for Optical Investigation of Hydrogen and Water Injection Under Engine-like Conditions Julius Hollerith, Prof. Dr. Bhavin Kapadia
14:30 - 14:45	From Prediction to Regulation: Evidence Production Approaches in Autonomous Mobility Research and Their Policy Implications Sadmira Malaj	Emission Reduction of Marine Propulsion Systems in SECA Zones Through the Integration of Hydrogen Technologies Motaleb Miri, Ivan Radaš, Marija Mandić, Ivan Tolj
14:45 - 15:00	Questions and Discussion	A Comprehensive Analysis of Ventilation System for Enhanced Energy Efficiency in Marine Propulsion Applications Sara Blašković, Gojmir Radica, Jakov Šimunović

15:00 - 15:15		<p>Design and Topology Optimization of a Lightweight Chain Sprocket for Electric Motorcycle Applications</p> <p>Teo Čolović, Ivo Marinić-Kragić</p>
15:15 - 15:30	<p>SESSION 3: ECONOMIC AND BUSINESS PRESPECTIVES + CASE STUDIES AND GOOD PRACTICES</p> <p>Aula B1</p> <p>Opening Session: Dr. Anis Sulejmani (PUT)</p>	<p>Questions and Discussion</p>
15:30 - 15:45	<p>Managing Renewable Energy Resources as a Foundation for Sustainable Mobility Transitions</p> <p>Deivi Sinanaliaj, Martin Bektashi</p>	
15:45 - 16:00	<p>Feasibility of Electric Bus deployment in Montenegro: A Case Study of Budva (Erasmus+ INTEC / IECC Context)</p> <p>Anastasija Mrkajic, Vinko Nikic.</p>	
16:00 -16:15	<p>Children Paths as an Urban Regeneration Strategy: Naim Frasheri Study Case</p> <p>Dejvi Dauti</p>	
16:15 - 16:45	<p>Questions and Discussion</p>	

International conference on sustainable mobility

Agenda

Project title: International Engineering Competence Centres to push Sustainable Mobility Development in Albania and Montenegro
Acronym: INTEC

Work package	
WP11	International conference
TASK	
11.4	Community Building Events

Dates	05.03.-06.03.2026
City	Tirana
Meeting venue	POLIS University Entrance Hall
Address	Rr. Bylis 12, Kodi Postar 1051, Kutia Postare 2995, Tirana, Albania

06.03.2026		
First Floor Hall, POLIS University		
8:30 – 9:00	Registration	
9:00– 9:15	SESSION 4: SOCIAL AND ENVIRONMENTAL IMPACT AULA B1	SESSION 5: FUTURE SCENARIOS AULA B4
9:00 – 9:15	Opening Session: Prof. Dr. Bhavin Kapadia (FHF)	Opening Session: MA Adrian Millward-Sadler (FHJ)
9:15 – 9:30	Comparison of Lifecycle Emissions of a SUV with Fuel Cell and Battery Electric Powertrains - Bhavin Kapadia, Alper Sayin, Sandra Eisenträger	GENAI Literacy as a Transversal Skill for Emerging Professionals: Implications for Sustainability- Critical Knowledge Work - Adrian Millward-Sadler
9:30 – 9:45	Smart Mobility Technologies and their Impact on Urban Sustainability: Insights from	Effects of Technical Traffic Calming Measures – Filip Perović

	European and Western Balkan Cities – Alma Gjonaj, Vjola Ziu	
9:45 – 10:00	The Disappearing Squares: Social and Environmental Impacts of Urban Mobility Planning in Durres – Arjola Sava	Cybersecurity Vulnerabilities in Electric Vehicle Operating Systems: A Global Awareness Analysis – Aleksa Radević
10:00 – 10:15	The City that Demands Continuous Movement: The Disappearance of the Right not to Move within the Framework of Sustainable Mobility – Avrili Meshi	Development of a risk assessment model for the transport of hazardous materials using ALOHA and GIS software tools – Marko Radetić
10:15 – 10:30	Between Rhetoric and Reality: Discursive Framings, Greenwashing and Outcomes in Sustainable Mobility – Kejsi Veselagu	Mapping Distance and Time Leveraging Isochrone Intelligence in Emerging Cities – Andia Vllamasi, Erjon Cobani
10:30 – 10:45	Reimagining the City Through Green Mobility Strategies: The Case of Tirana – Vjola Ziu, Alma Gjonaj	Can AI develop its Own “Taste” Automotive Design? – Gregor Andoni, Kristjana Meço
Coffee Break		
11:00 – 11:15	Linking Morphology, Perceived Safety, and Sustainable Mobility in Post-Socialist Urban Contexts– Sindi Doce	Optimizing Public Transport Corridors Using AI-Based Scenario Modelling: A case Study on Tirana’s Ring Road – Erjon Çobani, Julian Beqiri, Merita Guri
11:15 – 11:30	Towards Sustainable Transport: A Comparative Analysis of Electric Vehicle Adoption in Montenegro and Albania – Radmila Milić	Threat Landscape and Multi-Layered Protection Mechanisms for Autonomous and Electric Vehicle Systems – Marko Asanovic, Oliver Popović, Zoran Avramović, Nataša Gospić

11:30 - 11:45	Questions and Discussion	Cybersecurity Challenges in Modern Vehicular Communication Networks - Aleksandar Grgurević, Nataša Gospić, Oliver Popović
11:45 - 12:00		Green Transition in Albania: Challenges and Future Actions - Erik Kushta, Andi Hyka, Enea Nasto
12:00 - 12:15	SESSION 6: CONTROVERSIES AND CHALLENGES Aula B1	Use of AI in the Process of Green Transformation and Impact on Public Health - Esmeralda Hamiti, Federika Alliaj, Kristi Metushi
	Opening Session: Prof. Kristofor Lapa (UV)	
12:15-12:30	The Adoption of Electric Vehicles in Albania: A Comparative Study with Other Western Balkan Countries - Doklejšda Hodaj, Andrea Lapa	Development of an Automatic Traffic Sign Detection System Using YOLOv8 - Valentina Vojinović, Luka Filipović
12:30-12:45	Application of Quality Tools in the Analysis of Factors Influencing the Development of Electromobility in Montenegro - Jelena Šaković Jovanović, Draško Jovanović, Mirjana Grdinić Rakonjac, Marko Lučić, Miloš Perović, Aleksandar Vujović, Gordana Radulović	The Historical Development of Artificial Intelligence and Its Influence on the job market in Automotive Engineering - David Josef Pilgram
12:45 - 13:45	Questions and Discussion	Questions and Discussion
13:45	Lunch	