



RuralMED Mobility

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RuralMED Mobility

Adopting electric mobility in underserved rural and remote MED areas

<https://ruralmedmobility.interreg-euro-med.eu/>

D1.2.1 JOINT SELF-ASSESSMENT STUDY ON SUSTAINABLE MOBILITY IN THE REGIONS RURALMED MOBILITY



MAY 2024.

CONTENT

Project identification	1
1 List of abbreviations.....	3
2 Background.....	5
3 Status on sustainable mobility development.....	7
3.1 Sustainable mobility in Extremadura & Spain.....	7
3.2 Sustainable mobility in Croatia	10
3.3 Sustainable mobility in Alto Alentejo Region & Portugal.....	15
3.4 Sustainable mobility in Slovenia	16
3.5 Sustainable mobility in Bulgaria.....	21
3.6 Sustainable mobility in Bosnia and Herzegovina	22
3.7 Sustainable mobility in Italy.....	24
3.8 Sustainable mobility in Greece	27
4 EU legal framework on sustainable mobility	30
5 Legal framework on sustainable mobility	34
5.1 Legal framework in Extremadura and in Spain	34
5.2 Legal framework in Croatia.....	39
5.3 Legal framework Alto Alentejo in Portugal.....	42
5.4 Legal framework in Slovenia	45
5.5 Legal framework in Bulgaria	49
5.6 Legal framework in Bosnia and Herzegovina	51
5.7 Legal framework in Italy.....	52
5.8 Legal framework in Greece.....	57
6 Financing instruments for sustainable mobility solutions	62
6.1 General possible funding sources in EU.....	62
6.2 Funding sources in Extremadura and in Spain.....	68
6.3 Funding sources in Croatia	69
6.4 Funding sources in Portugal	71
6.5 Funding sources in Slovenia.....	73
D1.2.1 Joint self-assessment study on sustainable mobility in the regions RuralMED Mobility – Internal - Adopting electric mobility in underserved rural and remote MED areas	



6.6	Funding sources in Bulgaria	74
6.7	Funding sources in Bosnia and Herzegovina.....	76
6.8	Funding sources in Italy	77
6.9	Funding sources in Greece.....	80
7	SWOT analysis on sustainable mobility.....	85
7.1	SWOT analysis Extremadura in Spain	85
7.2	SWOT analysis in KCKZ County in Croatia	87
7.3	SWOT analysis in Portugal	88
7.4	SWOT analysis in Slovenia.....	90
7.5	SWOT analysis in Bulgaria	92
7.6	SWOT analysis in Bosnia and Herzegovina	95
7.7	SWOT analysis in Italy	97
7.8	SWOT analysis in Greece	99
8	Conclusion	102



Project identification

<i>Project full title</i>	Adopting electric mobility in underserved rural and remote MED areas
<i>Mission</i>	Promoting green living areas
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Previous steps/deliverables	Reported deliverable	Further steps/deliverables
D1.1.1: MED guide of good practices on sustainable mobility	D1.2.1 Joint self-assessment study on sustainable mobility in the regions RuralMED Mobility	D1.6.1 Project video
D.1.3.1 Stakeholders and local actors database		
D.1.4.1 Transnational Cooperation Strategy		
D.1.5.1 Communication and Dissemination Strategy		



1 List of abbreviations

ADRs - Agreements for the Development of Regions

AFIR - Alternative Fuels Infrastructure Regulation

AGENEX - Consortium Extremadura Energy Agency

ANFAC - Spanish Car Industry Association

AREANATEjo - Regional Energy and Environment Agency from North Alentejo

BSC KRANJ - Business support centre L.t.d., Kranj

CERTH - Centre for Research and Technology Hellas

CIMAA - Intermunicipal Community of Alto Alentejo

CIMNE - International Centre for Numerical Methods in Engineering

CO₂ - Carbon Dioxide

COM - Consortium Oltrepò Mantovano

EED - Energy Efficiency Directive

EEMS - Spanish Strategy for Sustainable Mobility

EPBIH - Public Enterprise Electric Utility of Bosnia and Herzegovina

EPEEF - Environmental Protection and Energy Efficiency Fund

ERDF - European Regional Development Fund

EU - European Union

EV - Electric Vehicle

HEV - Hybrid Electric Vehicle

ISV - Vehicle Tax

IUC – Vehicle Circulation Tax

JUNTAEX - Directorate-General for Transport of the Government of Extremadura

KCKZ – Koprivnica-Krizevci County

MaaS - Mobility as a Service

MITE - Ministry for Ecological Transition

MOBI.E - Portugal's National Electric Mobility System

MOVEM - Electric Vehicle Mobility Plan in Municipalities

NAP - National Action Plan

PACES - Action Plan for Sustainable Energy and Climate

PAMUS-AA - Action Plan for Sustainable Urban Mobility in Alto Alentejo



PHEV - Plug-in Hybrid Electric Vehicle

PNRR - National Recovery and Resilience Plan

POSEUR - Operational Programme for Sustainability and Efficiency in the Use of Resources

PRMT - Regional Mobility and Transport Programme

PRR - Recovery and Resilience Plan

PTE - Plan for the Ecological Transition

RAUSK - Development Agency of Una-Sana Canton

RDFWM - Regional Development Fund of Western Macedonia

REAN - Regional Energy Agency North

RED - Renewable Energy Directive

RES - Renewable Energy Sources

SECAP - Sustainable Energy and Climate Action Plan

SNSvS - National Strategy for Sustainable Development

SUMP - Sustainable Urban Mobility Plan

SZ REDA - Stara Zagora Regional Economic Development Agency

TEN-T - Trans-European Transport Network

VEA - Alternative Energy Vehicle Promotion Strategy (Spain)



2 Background

The RuralMED Mobility project aims to address the challenges of sustainable multimodal mobility in rural areas of Mediterranean Europe. With 30% of the EU's population residing in rural regions, but covering 83% of the total EU area, rural mobility presents a significant challenge for local authorities. One of the key issues is the lack of electric vehicle (EV) charging infrastructure in rural areas, leading to "range anxiety" among drivers and a reliance on conventional transport options.

The project seeks to reduce the environmental impact of transportation in rural areas by facilitating the adoption of EV technology and supporting the integrated planning and financing of EV charging infrastructure. By promoting low carbon mobility solutions and enhancing the connection between urban and remote rural areas, the project aims to contribute to energy goals and carbon neutrality objectives.

Key objectives of the RuralMED Mobility project include:

1. Reducing CO₂ emissions by promoting the use of EV technology in rural areas,
2. Supporting the planning and financing of EV charging infrastructure and public shared EV rental schemes,
3. Promoting low carbon mobility solutions to meet energy goals and achieve carbon neutrality,
4. Improving connectivity between urban and remote rural areas through sustainable multimodal mobility initiatives.

Through capacity building, policy development, and strategic coordination, the project aims to empower rural and remote local authorities to address the challenges of sustainable mobility effectively. By enhancing awareness, expertise, and policy frameworks, the project seeks to create a more sustainable and connected transportation system in rural Mediterranean Europe.

It is essential to analyse the local policy frameworks and assess the specific needs of each region to identify opportunities for improvement in sustainable mobility. This joint self-assessment study aims to provide insights into the current situation regarding mobility in each participating territory, both from individual and collective perspectives. By examining local policy frameworks and understanding the unique challenges and potential of each region, we can identify innovative solutions that may be suitable for implementation. These findings will inform the development or enhancement of sustainable mobility plans.

This report seeks to identify existing knowledge and policy frameworks in the field of sustainable mobility. It aims to provide a broad, albeit necessarily not exhaustive, analysis of the main issues, policies, laws, and funding opportunities affecting the investments to be implemented in the pilot regions, while at the same time, providing some general insights on the overall state in the countries and regions that participate in the RuralMED Mobility project.

To be able to capitalize findings from activity A1.1 (innovative policies in sustainable mobility) and transfer or adapt successful practices in the field of EV infrastructure and advanced



mobility services (MaaS), it is necessary to analyse the local policy frameworks, as well as the specific needs of each region and the potential they have for improvement.

Joint self-assessment on the situation regarding mobility in each participating territory from both a particular and collective point of view constitutes as an important milestone in this project. It will directly or indirectly help to:

- Directly develop the overall transnational cooperation strategy (D1.4.1) as the present document will help identify loopholes, weaknesses and threats in each region that will be tackled in the capacity building, learning, communication, and knowledge transfer activities to be developed in activities related to transnational cooperation (A1.4), communication and dissemination (A1.5), joint methodology for pilot implementation (A2.3), mobility strategies and roadmap for implementation (A2.4), thematic pilot definition (A3.1), training programme (A4.2) and awareness raising (A4.3). These 2 documents (joint self-assessment studies and transnational cooperation strategy) together with the identified good practices in activity 1.1, are the true keystones of this project.
- Develop the communication and dissemination strategy (D1.5.1) in A1.5, for the same reasons as the first point, as it will deal with the communication needs of the project.
- Develop the joint methodology for pilot implementation (D2.3.1) in A2.3, same as above, as it will deal with the main on-the-ground knowledge transfer activity (pilot implementation).
- Develop the sustainable mobility strategies in RuralMED regions (D.2.4.1) in A2.4 as they will mark the goals and objectives that the regions will commit themselves to, during and after the end of the project, precisely tackling the identified loopholes, weaknesses and threats in each region that have been identified in this document.
- Develop the pilot selection report (D.3.1.1) in A3.1, as it will further define (together with D2.3.1) how individual pilots are going to be implemented.
- Develop the training programme for public staff in A4.2, as it will close the knowledge gap of the public representatives in charge of implementing mobility strategies in their regions.
- Develop the awareness-raising actions in A4.3, as they will help the wider society understand the importance of the issues dealt with in this project, to identify themselves with the strategies and to participate in the pilots.

The document was created by RuralMED Mobility project (Adopting electric mobility in underserved rural and remote MED areas), financed by the Interreg EURO-MED Programme.



3 Status on sustainable mobility development

3.1 Sustainable mobility in Extremadura & Spain

SoA on Electric Vehicle and related infrastructure in Spain

According to the last semestral report 2nd semester of 2023 published by the Spanish Car Industry Association ANFAC1, Spain is advancing in EV development, but far from the pace of the European average. In this period, the global electromobility indicator for Spain (which assesses the penetration of electrified vehicles and the installation of publicly accessible recharging infrastructures with respect to the 2030 target according to the Fit for 55 package of measures) has increased by one point, obtaining a total rating of 12 points out of 100. In contrast, the European average already stands at 25 points, with an improvement in the indicator of 1.5 points in the second quarter, increasing the gap between Spain and the continent.

The same report, highlights the example of Portugal which, with a growth of more than two points, is positioned very close to the European average and distances itself from the European tail block, headed by Spain and Italy. The Portuguese policies around the electrified vehicle with a fiscal policy oriented to encourage the acquisition of EV and PHEV, especially for companies (the most driving segment of change) and of a rapid and efficient information and deployment system for the development of recharging infrastructure, have allowed a remarkable improvement in Portugal's overall indicator.

As for the Spanish regional global indicator (including EV market penetration and availability of charging points), Extremadura is situated over the national average in charging point availability but is the second region with the lowest market penetration of EV, only above the autonomous cities of Ceuta and Melilla.

As for Spain's position within the EU, the EV market penetration reaches an average of 18,9 points, representing an increase of 1,5 points, compared to the previous quarter. Although it achieves a growth comparable to the increase of 1,8 points recorded in the European average, it remains far from the 38.7 points out of 100 obtained by Europe as a whole, placing Spain almost 20 points below. Thus, Spain stands low in the EV market ranking (slightly higher than countries such as Hungary, Italy or Czech Republic), far from leading countries such as the Netherlands, Germany and the UK, located above the European average. Within the indicator, Portugal once again stands out, achieving a growth of 4 points, up to 39.2 out of 100 of general valuation.

Finally, Spain still lags the development of EV charging points when compared to the EU average. According to the EV charging points indicator, Spain managed to grow just 0.6%, getting a total of 5.1 points out of 100 and ranking well below the EU average and many western EU countries, including Portugal.



More specifically the charging point evolution from year 2022 to 2023 has taken the following shape, which clearly shows the good evolution of the ultrafast chargers (above 50 kw) and a rapid growth of 41% in total installed power in just one year²:

Power	Slow 22 kw <	Slow 22 kw ≥	Fast 22-50 kw	Ultrafast 50-250 kw	Ultrafast ≥ 250 kw	Total
2023	10.191	10.205	7.444	1.923	587	30.350
2022	7.613	7.300	5.367	984	309	21.573
Growth	↑ 34%	↑ 40%	↑ 39%	↑ 95%	↑ 90%	↑ 41%

As for the total amount of newly registered EV, the evolution from 2022 to 2023 shows the following shape, with a much larger growth of battery cars (BEV) than plug-in hybrids (PHEV), but PHEV having still a larger share of the market³:

Vehicle	Units	Growth (2022-2023)	Market share
BEV	76.347	↑ 46%	5,7%
PHEV	62.838	↑ 30%	6,5%
BEV + PHEV	131.185	↑ 39%	12,2%

With regards to the evolution of the shared mobility schemes (Mobility as a Service), Spain had an 86 % of EV in the total amount of cars devoted to shared mobility, an increase of 25 % of EV in shared EV from year 2022 to 2023 (from 3.500 units to 3.900 units). The humble numbers of the total amount of EV devoted to shared mobility and its rapid increase from year 2022 to year 2023, clearly show there is still plenty room for improvement in this respect⁴.

SoA on Sustainable Mobility in Extremadura

Following the analysis of the mobility trends made for the drafting of the Extremadura Sustainable Mobility Plan⁵, Extremadura had in 2022-2023 an average of 2.388.757 daily travels, which equals a total of 2,24 daily travels per inhabitant. Most of the trips (95%) are intraregional and 90% are interprovincial, showing the local nature of most of the trips done.

Extremadura has 388 municipalities. 100 % of the municipalities of Extremadura are connected by at least one regular intercity bus line to the main cities, where the main points of attraction of travel are located, including, but not limited to, hospitals, universities, institutes, administrative services, etc. It should be noted, however, that connections are not usually direct from origin to destination, so the conditions of intermodality with the same or other modes of transport in the bus stations of these localities are fundamental and should be considered when developing intermodal and MaaS solutions.

116 municipalities (30% of the total) in which 15.7% of the population live, do not have a direct connection with any of the public service lines of regular road passenger transport to their reference hospital. Similarly, there are 108 municipalities (28 per cent of the total) in which 12 per cent of the population live without direct connection by public road transport to their health centres. On the other hand, there are up to 21 municipalities that have a health centre,



but which do not have a functional connection by public road transport with their reference hospitals.

Regarding railroad transport, there is a high deficit in railroad infrastructure and services in Extremadura, which lacks a modern and efficient system. Citizens demand high-speed connections in addition to an improvement and modernization of rail infrastructure. In addition, shorter travel times and more frequent transit services are required to make rail transport a competitive and functional mode compared to the private vehicle.

Despite the national growth in EV adoption, Extremadura is among the communities with fewer electric and hybrid vehicles in circulation.

The electric and hybrid vehicle continues to grow in Extremadura⁶, which closed in 2023 with an increase in registrations of 46.5 % and 20.9 %, respectively, according to sector data.

746 electrified vehicles have been sold in Extremadura in 2023 -passenger cars, commercial vehicles, industrial vehicles, buses, and quadricycles- and, although the increase has approached 50%, the market share has fallen by a tenth compared to December 2022 to 0.59%.

Registrations of hybrids have reached 2,861, 20.97 % more than a year ago, with a reduction in the market share also in that case, from 0.97 to 0.93 %, according to data from the Spanish Association of Automobile and Truck Manufacturers (Anfac).

Extremadura is the Spanish region with the lowest relative weight of hybrid and electric vehicles, with 1.7 %, according to data from Unespa, in collaboration with Tirea and Centro Zaragoza, disseminated in November 2023⁷

According to ANFAC's (Spanish automobile industry association) Electromobility Barometer of the 2nd quarter of 2023, Extremadura is placed on the second to last place in the indicator of EV to total vehicle market share (just above the autonomous cities of Ceuta and Melilla). It is also second to last in the indicator of total EV over total potentially motorized population.

When looking to the development of EV charging infrastructure, Extremadura has a clearly better position, also according to ANFAC's barometer. Extremadura is placed close to the Spanish average (Spanish total indicator amounts to 7,6 points, while Extremadura reaches an indicator of 7,1), above 8 other Spanish regions, some of them with a high degree of socioeconomic development (such as Madrid or Vasque Country).

When it comes to the development of ultrafast charging points (more than 50 kw), Extremadura is much better positioned, placed on 5th place in ANFAC's indicator for this kind of infrastructure, which clearly shows the regional commitment towards the development of EV and related infrastructure in Extremadura. This constitutes a regional strength that should be further developed.

Anyhow, according to ANFAC and the Spanish EV dealer association (Faconauto), the ideal figure for the region of Extremadura for the year 2023 was to have some 6,133 publicly accessible EV charging points⁹, compared to the just over 140 it had by the end of 2023m, which gives an idea of the long way that our region still must go.



3.2 Sustainable mobility in Croatia

Sustainable mobility is gaining prominence in urban and rural settings alike, especially as cities aim for greater sustainability and efficiency. It serves as a cornerstone for economic growth and improved living standards, with unsustainable modes of transportation having adverse effects on both. The COVID-19 pandemic has underscored the significance of mobility, prompting a transition towards more sustainable transportation options. Despite the global momentum towards sustainable mobility plans, Croatia still heavily relies on conventional cars. Acknowledging the imperative for sustainability, Croatian urban centres, as well as rural areas, have begun adopting strategies outlined in the Transport Development Strategy.

Number of Electric vehicles

Total number of electric vehicles (BEVs), hybrid electric vehicles (HEVs), and plug-in hybrid vehicles (PHEVs) in Croatia is 59.399 in 2023 from the Centre for Vehicles of Croatia. The data shows the number of vehicles that underwent (initial) registration in Croatia, renewal of vehicle registration without the obligation of undergoing regular technical inspection or underwent regular technical inspection for the specified year.

Table 1 Number of BEVs, HEVs and PHEVs in Croatia in the past 3 years

Year	BEV	HEV	PHEV
2021	4.825	15.918	1.181
2022	7.436	26.467	2.544
2023	10.554	44.311	4.534

Koprivnica-krizevci County, as the project partner, accounts for 113 BEVs, 400 HEVs, and 48 PHEVs according to the Centre for Vehicles of Croatia in the year 2023.

Number of EV chargers

TEN-T

The European Parliament's Committee on Transport and Tourism (TRAN) has approved an updated agreement with the Council of the EU regarding the Trans-European Transport Network (TEN-T). This agreement expands the network to include more transport routes and hubs in Croatia. Croatia is now positioned on two additional transport corridors: the Baltic-Adriatic and the Western Balkans-Eastern Mediterranean. Previously, only the Zagreb-Rijeka transport connection was part of the European transport corridors, but now, the ports of Split and Ploče, regional railways, airports, and other infrastructure are also included. This deeper integration into the EU's transport system unlocks new investment opportunities, particularly in railway, road, air, maritime, and river infrastructure. The amendments also enable EU financing for previously overlooked areas in Croatia, such as rail and road infrastructure to Split and in Slavonia.



Being part of four EU transport corridors recognizes Croatia's geostrategic value and offers further investment and development opportunities, especially aligning with the main deployment targets for 2025 and 2030 provided by Alternative fuels infrastructure regulation.

To facilitate further transportation development while reducing negative environmental impacts and oil dependency, Croatia has enacted the [National policy framework for the establishment of infrastructure and development of the market for alternative fuels in transport \(NN 34/17\)](#). The purpose of this framework is to define goals and measures for establishing infrastructure and developing the market for alternative fuels in transportation, including assessing market conditions, setting up infrastructure for alternative fuels in urban areas and ports, and promoting infrastructure installation in public transportation.

According to the framework, it is necessary to implement conditions as follows:

- Year 2020 – minimum of 296 plug points (222 AC minimum power output 22/(11) kW, 74 DC minimum power output 50 kW) on 164 charging stations
- Year 2025 – minimum of 602 plug points (434 AC minimum power output 22/(11) kW, 168 DC minimum power output 50 kW) on 348 charging stations
- Year 2030 – minimum of 806 plug points (554 AC minimum power output 22/(11) kW, 252 DC minimum power output 50 kW) on 479 charging stations
- Optimal number of locations for charging stations by the year 2030 is around 300 locations.

Around 871 EV charging stations in Croatia.

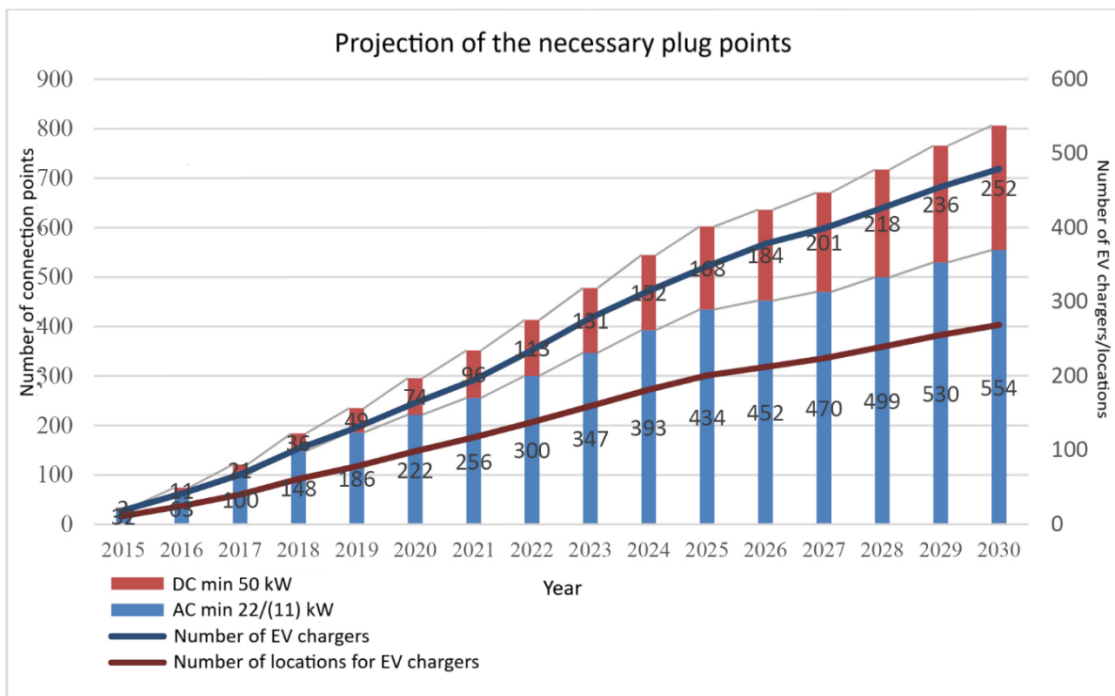


Figure 1 Projection of necessary plug points and EV chargers¹

General social attitude

The general social attitude of Croatians towards electric vehicles (EVs) and EV chargers has been gradually evolving. While Croatia has been embracing sustainable initiatives, including electric mobility, the adoption of EVs has been somewhat slower compared to some other European countries.

However, there has been increasing interest and awareness regarding EVs among Croatians, driven by concerns about air pollution, environmental sustainability, and the desire to reduce dependence on fossil fuels. Many view EVs as a promising solution to these challenges.

Regarding EV chargers, there has been a growing recognition of the need for an expanded charging infrastructure to support the widespread adoption of electric vehicles. Efforts to install more EV charging stations across Croatia have been underway to address this need.

However, challenges such as concerns about range anxiety, the initial cost of EVs, and the availability of charging infrastructure still exist and may influence public attitudes. Education and incentives to promote EV adoption, along with further development of charging infrastructure, are likely to play crucial roles in shaping attitudes towards electric vehicles and EV chargers in Croatia in the coming years.

¹ Source: https://narodne-novine.nn.hr/clanci/sluzbeni/2017_04_34_748.html



Associations

- „Strujni Krug” (eng. Electric Circuit)

By improving the infrastructure of electric vehicle charging stations in Croatia, refining the legal provisions related to electric vehicles, and raising public awareness about environmental issues predominantly caused by traffic, the aim of this association is to facilitate a smoother transition for Croatian citizens from fossil fuels to zero-emission vehicles.

By significantly electrifying transportation and establishing an appropriate legal framework, closely aligned with the European e-mobility initiative, it's aim is to enable Croatia to achieve a more efficient mode of transportation and reduce dependency on fossil fuels, which are the primary contributors to pollution. The goal is to create cleaner, quieter, and healthier urban and rural environments.

- “H2 – Hydrogen Cell Croatia”

Croatian association for the development and application of hydrogen fuel cells of more than 50 scientists, PhD, engineers and technology companies from Croatia, Slovenia, BiH, and Austria. They are involved in production, transport, storage, and consumption of green hydrogen on South European market.

The projects that are in the phase of obtaining building permits are Ludbreg 5 MW of electrolyser, additional 3 projects in Dalmatia of 20 MW + additional 30 MW and 20 MW. Another project of 20 MW of electrolyser is in Bosnia and Herzegovina. All this power of 95 MW electrolysers will produce renewable - green hydrogen from solar power plants. The first kilograms of hydrogen are expected to be on the market in the 2024.

Hydrogen Projects in Croatia - conversion and new construction of conventional vehicles-machines with diesel engines and electric vehicles with batteries to hydrogen fuel cell electric vehicles: RASCO - Multifunctional municipal vehicles, HITTNER - Forestry Tractors-Skidder, DOK-ING - Light delivery vehicle.

- “Croatian Hydrogen Association (CROH2)”

The Croatian Hydrogen Association aims to promote hydrogen technologies for a clean and sustainable industry in Croatia. Our key objectives include advocating for favourable conditions, influencing policies, fostering collaboration between research and industry, and promoting knowledge transfer. They support young professionals, participate in public discussions, contribute to regulations, encourage scientific research, promote demonstration projects, and organize expert events.

Industry and production

- “Rimac Technology”

As a vital component of Bugatti Rimac, Rimac Automobili stands at the forefront of electric hypercar innovation, crafting the next generation of high-performance vehicles through design, engineering, and production.

Established in 2009 and headquartered in Croatia, Rimac initially emerged as a garage project before blossoming into a globally renowned technology powerhouse, driven by the vision and



dedication of its Founder and CEO, Mate Rimac. With a firm belief in the potential of electric propulsion systems to revolutionize sports cars, Rimac embarked on this journey with a small team, aiming to create vehicles that were not only superior but also faster and more exhilarating.

The company's groundbreaking flagship model, the Concept_One, was meticulously conceived, developed, and manufactured entirely in-house. In 2021, Rimac introduced its second technological marvel – the Rimac Nevera, featuring four electric motors and claiming the title of the fastest accelerating production car in existence. Once again, this achievement was realized entirely within the confines of Croatia.

From creating the world's fastest electric car to pioneering next-generation stationary Energy Storage Systems, Rimac Energy is committed to pushing boundaries and reshaping how we power our planet. Developing unique battery architecture will offer greater efficiency and durability, all developed and produced in-house in Europe.

Today, Rimac Technology boasts a workforce of over 1000 individuals and has established itself as a frontrunner in an intensely competitive industry landscape.

- “DOK-ING”

Dok-Ing is a Croatian company specializing in the development and production of robotics, automation systems, and electric vehicles. Established in 1991, Dok-Ing initially focused on developing remote-controlled demining systems to clear landmines in war-torn areas.

Over the years, the company diversified its portfolio to include electric vehicles, particularly electric cars, and urban mobility solutions. One of its notable projects is the Dok-Ing XD, an electric city car designed for urban commuting, featuring innovative design and sustainable technology.

In addition to electric vehicles, Dok-Ing continues to innovate in the field of robotics and automation, providing solutions for various industries such as mining, agriculture, and defence. The company's expertise in robotics and electric mobility has earned it recognition both domestically and internationally. Also, stronger introduction of hydrogen as another green option would help achieve decarbonisation goals, reduce dependence of Croatia on energy imports and encourage the development of domestic industry which shows great interest in this new business area.

Dok-Ing remains committed to advancing technology in Croatia and contributing to the global innovation landscape through its cutting-edge products and solutions.

- “Ducati komponenti”

Ducati Komponenti, operating in Ludbreg since 2002, has increasingly ventured into the green economy sector. They produce various electric mobility solutions, including the Free Duck4 electric moped, EV charging stations, and innovative electric bike wheels. The company has also developed the first solar tree in Croatia, providing renewable energy to Ludbreg's main square. Originally starting with loan work for the DUCATI Energia S.p.A. group headquartered in Bologna, Italy, Ducati Komponenti has grown to become independent, producing a wide range of electronic components for vehicles and beyond. Despite challenges such as rising energy



costs and supply chain disruptions, the company continues to prioritize innovation and sustainability. Looking ahead, Ducati Komponenti hopes to undertake an innovative battery project, contributing to green production and recycling efforts.

3.3 Sustainable mobility in Alto Alentejo Region & Portugal

Portugal has witnessed a significant shift in the mobility paradigm, with a growing interest in and adoption of electric vehicles (EVs) across the country.

This phenomenon is also reflected in the District of Portalegre, where 47 EV charging stations stand out, bringing the total to 92 charging points spread across the 15 municipalities of the Alto Alentejo region. This infrastructure not only benefits the local population, but also attracts visitors interested in sustainable transportation options, in line with national efforts to promote electric mobility.

Between 2010 and 2023, Portugal witnessed an exponential increase in the number of EVs registered in the country, from 950 to an impressive total of 130.250, which shows a strong growth in consumer interest and adoption. This upward trajectory reflects Portugal's commitment to reducing carbon emissions and embracing cleaner transportation alternatives.

Electric Vehicle Park in Portugal	
Year	Number of vehicles
2010	950
2015	3.411
2020	33.749
2023	130.250

The year 2024 marks another milestone in Portugal's sustainable mobility journey, with 1.081.726 EV charging sessions registered, representing an increase of 62% compared to previous years.

In addition, the energy consumed in these charging sessions amounted to 21.588 MWh, contributing to an 82% reduction in carbon dioxide emissions, which represents a saving of 17.357 tons of CO2.

It is also worth noting that in Portugal, 4.700 charging stations and 9.730 charging points were used during 2024, demonstrating the country's active involvement in sustainable mobility.

In addition to the growth at all levels explained above, Portugal has implemented various policies and incentives to promote sustainable mobility, such as financial incentive programs for the purchase of electric vehicles, tax benefits, favourable fares for public transport users and measures to restrict the traffic of polluting vehicles in urban areas.

It is also important to highlight the cooperation between public and private entities in developing the infrastructure needed to support electric mobility. Partnerships between local authorities, energy companies and vehicle manufacturers have been fundamental in expanding the EV charging network across the country. In addition, we would like to highlight the



educational and research institutions that have also made a positive contribution to promoting sustainable mobility.

This collaboration between academia, industry and government has strengthened Portugal's position in the transition to cleaner and more efficient mobility, thus also benefiting the Portalegre District and its local communities.

3.4 Sustainable mobility in Slovenia

Slovenia has a sparse population with dispersed settlements. In 2022, there were on average 104 inhabitants per square kilometre (SURS, 2023). In regions with low population density, traditional bus services are not economically viable. According to a 2023 national study on public transport usability, over 56 % of the population believes that public transport connections are inadequate. Additionally, more than 64 % of the population primarily uses cars for transportation (Mediana, 2022). Despite this, the Ministry of the Environment, Climate and Energy actively promotes sustainable mobility policies at both national and local levels. Municipal initiatives mainly focus on restricting personal vehicle access to city centres, expanding cycling lanes and sidewalks, and reducing parking spaces, while national and regional efforts aim to enhance public transport services. However, the adoption of alternative fuel mobility in Slovenia is progressing slower than national policy targets.

Number of Electric vehicles

At the end of 2023, battery electric vehicles (BEVs) and hybrid electric vehicles (HEVs) comprised the following shares in Slovenia. BEVs made up 1 % of the total number of passenger and special passenger cars, while HEVs accounted for 3 %. Among the total share of buses and minibuses, BEVs and HEVs each represented 0.9 %. For freight motor vehicles, BEVs constituted 0.3 % and HEVs 0.08 % of the total.

Table 1: Number of BEVs and hybrid electric vehicles HEVs

Type of vehicle, type of drive and fuel, measures and year		Number of all vehicles on 31 December		
		2021	2022	2023
Passenger cars and special passenger cars	Electric drive	5423	7988	12761
	Hybrid drive	16151	24961	37546
Buses and minibuses, coaches and Mini coaches	Electric drive	6	10	27
	Hybrid drive	18	28	28
Freight motor vehicles	Electric drive	268	340	460
	Hybrid drive	55	96	122

Source: SURS, 2024

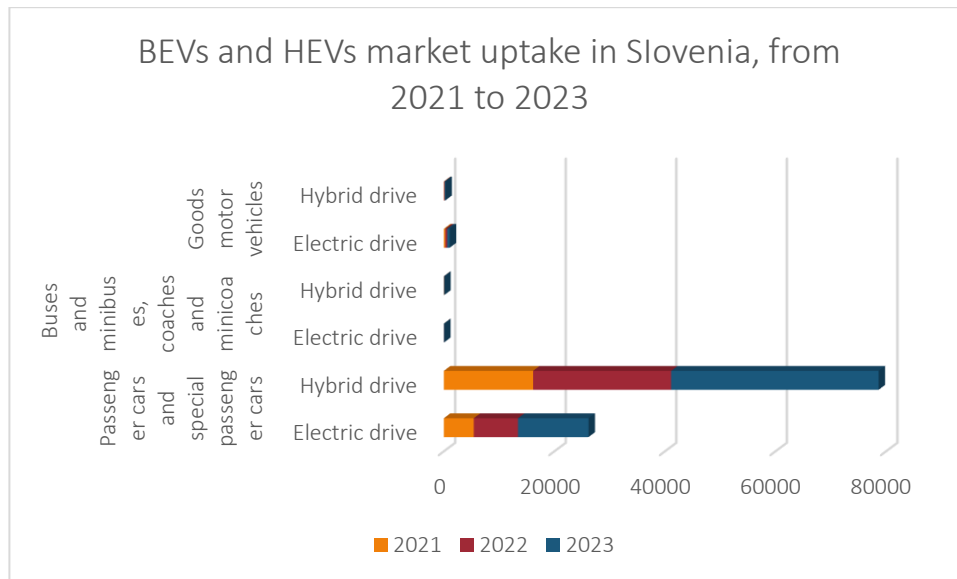


Figure 2 BEVs and HEVs in Slovenia

To meet the goals for alternative fuels by 2030, according to the optimal scenario, it will be necessary to implement measures to improve public passenger traffic and ensure the following: at least 17 % of passenger cars should be electric vehicles or plug-in hybrids (200,000 vehicles), and 12 % of light trucks should be electric (11,000 vehicles) (RS VRS, 2017) ².

Number of EV chargers

As of 2024, Slovenia has 1,538 charging points (with an average ratio of 1 charging point per 8.6 BEVs) provided by 27 providers (NAP, 2024). These figures account for about 75 % of all charging points in the country. Additionally, there are at least 48 Tesla Superchargers, ranging from 150 kW to 250 kW, most of which are accessible to other electric vehicles. The Ionity network, which is not included in the initial count, has eight locations in Slovenia, offering a total of 32 charging points with up to 350kW capacity. It is also important to note that a single charging station typically features two charging points.

² The Strategy in the field of market development for the establishment of appropriate infrastructure related to alternative fuels in the transport sector in the Republic of Slovenia.

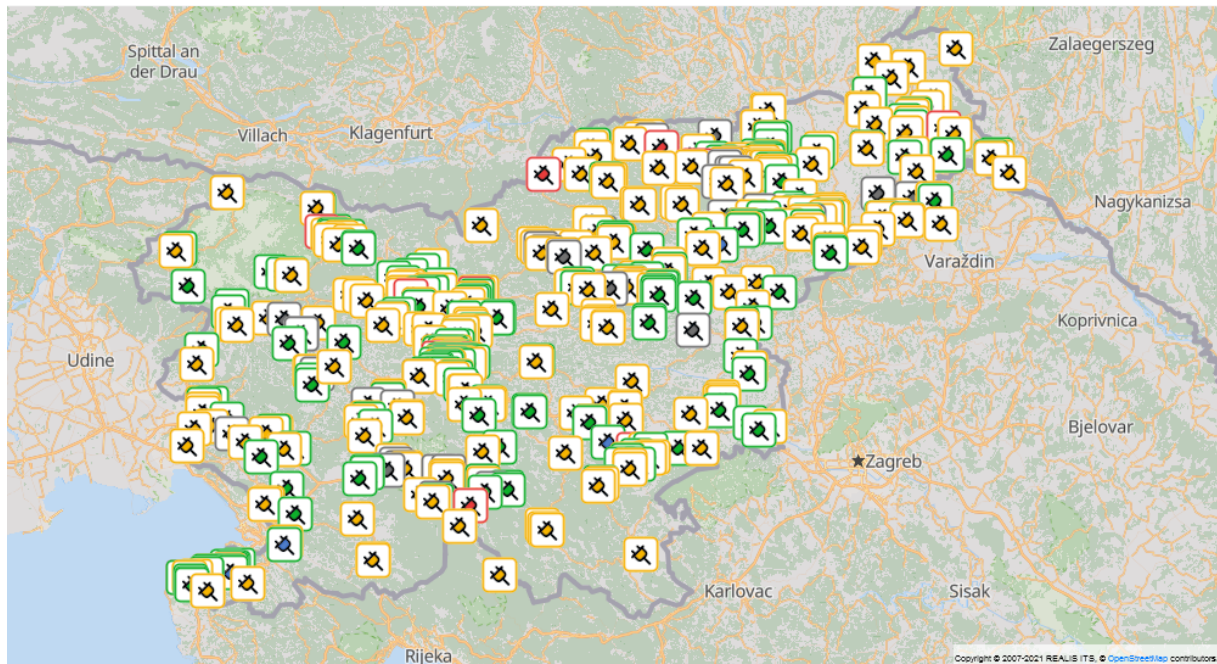


Figure 3 e-charging network in Slovenia (Source: NAP, 2024)

According to the Strategy in the field of market development for the establishment of appropriate infrastructure related to alternative fuels in the transport sector in the Republic of Slovenia from 2017, the country was one of the first in Europe to install high-power e-chargers at its highway intersections. This network is set to be significantly expanded over the next five years to provide adequate coverage of the pan-European TEN-T network with charging stations. For internal traffic, given the anticipated growth in the number of vehicles, Slovenia will need 7,000 normal power charging stations by 2025 and as many as 22,300 by 2030.

General social attitude

The general social attitude towards electric mobility in Slovenia is positive, though some remain unconvinced of its necessity or global adoption. Biofuels, which require no behavioural changes, are also being developed and used in Europe.

Ljubljana, the capital city, was an early adopter of e-mobility, initially testing electric buses. However, after two buses caught fire, public perception of electric mobility was negatively impacted. Fortunately, no one was injured in these incidents. Years later, the city decided to transition to alternative fuel public transport, planning to purchase electric battery buses and 40 hydrogen buses. They already operate methane buses, which they aim to convert to bio-methane. Other cities are also transitioning to electric bus fleets.

There is ongoing debate about battery recycling and the negative emissions associated with a vehicle's life cycle, although research and studies counter these concerns. Dependency on China for battery supply is a valid consideration, but ongoing research aims to find alternative materials for current batteries. The main reasons people are hesitant to buy electric vehicles are the cost-benefit ratio and the behavioural changes required for ownership.



Associations

- GIZ ACS

GIZ ACS is a business association that unites Slovenian automotive suppliers to enhance competitiveness and add value. As the central communication hub of the automotive cluster, it supports members in integrating into the global automotive industry and improving their offerings. Collaborating with both Slovenian and international R&D institutions, GIZ ACS boosts efficiency through robust R&D support.

Operating across various Slovenian engineering and manufacturing industries, GIZ ACS connects sectors such as metalworking, mechanical, electrical, electronics, chemical, rubber, textile, and transport equipment, along with R&D institutions and service providers in the automotive supply chain. The SRIP ACS+ Strategic Research and Innovation Partnership in Mobility, part of GIZ ACS, unites the ACS Automotive Cluster of Slovenia and the Transport Association at the Chamber of Commerce and Industry of Slovenia.

The Slovenian automotive industry significantly impacts the economy, contributing about 10% of GDP and over 20% of exports. SRIP ACS+ members alone contribute more than 17% of GDP, with annual revenues of €7.5 billion. The industry includes over 100 Tier 1 and Tier 2 suppliers and more than 600 sub-suppliers, accounting for over 25% of award-winning innovations in Slovenia each year. Since 2017/2018, GIZ ACS - SRIP ACS+ has been a pioneer in promoting green mobility and electric mobility infrastructure to municipalities.

- National Hydrogen Association of Slovenia (NHAS)

The main goal of NHAS is to promote more ambitious goals and plans in the field of hydrogen production, storage, distribution and use. The NHAS “connects companies, research centres, universities and other key actors carrying out or planning to engage in research and development, production, system integration, and other activities related to hydrogen or hydrogen technologies. Slovenia, along with Croatia, is expected to benefit from [major hydrogen corridors](#) that should traverse Southeastern Europe. (Balkan Green Energy News, 2023). Slovenia’s state-owned energy company Holding Slovenske elektrarne (HSE) is the lead partner in the North Adriatic Hydrogen Valley project, together with Croatia and Italy (Friuli Venezia Giulia).

- DEMS - Slovenia e-mobility association

DEMS is promoting e-mobility since its revival in the 21st century. It started with a few enthusiasts, lobbying for adoption of e-mobility in Slovenia, organising events and acting as speaker on third parties’ events advocating for electric mobility. In 2024, they connect and partner with multiple companies important for electric mobility development and promotion. They have a website and blog promoting e-mobility and they are still active on events.

- RCM Gorenjska – Regional Mobility Center Gorenjska

In 2022, BSC, Ltd, Kranj - Regional Development Agency of Gorenjska, along with five other regional development agencies, established regional mobility centers. By April 2024, the network of six RCMs had customized the Oslo 3 package for regional sustainable mobility



management and strengthened cooperation with the national ministry responsible for sustainable mobility and energy policies.

RCM Gorenjska focuses on alternative fuel mobility, mainly through Interreg projects (ERDF funds). Between 2018-2019, BSC, Ltd, Kranj, and a regional DSO created the first interoperable network of electric charging stations (ECS) in the region, which later became part of a large national ECS network. BSC Kranj had previously financed the first eight regional ECS with local stakeholders. In 2018, BSC, Ltd, Kranj launched a regional e-mobility platform (e-hub) to facilitate online communication and serve as a promotional and educational tool for e-mobility. In 2022, the e-mobility gorenjska website was restructured and expanded to promote sustainable mobility, providing extensive information on electric mobility activities.

Industry production

- Renault Group, Revoz JSC – Novo Mesto, Slovenia

Revoz in Novo Mesto is the exclusive production site for the Renault Twingo Electric. The company, originally established under a different name in 1955, entered a contract with Renault in 2017 to manufacture Renault vehicles. By 2004, Renault had become the sole owner of Revoz. The production of the Renault Twingo Electric began in 2020, and by 2022, Revoz had manufactured 25,375 units of this model (Revoz, 2023).

- Domel

Domel, Ltd is a global supplier of electric motors, vacuum motors, blowers, and components. In the e-mobility segment, Domel produces a variety of electric motors ranging from 12 V to 76 V with an output power of up to 5 kW, which can be customized according to customer needs. These motors can be used in passenger cars, wheelchairs, cargo bikes, delivery three- or four-wheelers, smaller motocross bikes, and various small boats or surfboards. Domel also produces essential components for fuel cell technology, including blowers, recirculating pumps, and water pumps, which are crucial for air delivery, hydrogen supply, and cooling within the fuel cell system (Domel, 2024).

- Etrek - Landis+Gyr EV Solutions Ltd

Founded in 2007, Etrek specializes in smart charging solutions for electric vehicles. They develop a range of products from simple home chargers to advanced power management systems. Their INCH interactive charging stations and OCEAN charge point management software provide comprehensive tools for e-mobility service businesses. In July 2021, Etrek became part of Landis+Gyr, serving as a competence center for electric mobility within the group. Etrek continues to contribute to Smart Grid-oriented research and development, enhancing connected EV infrastructure. Their products and services include AC charging stations and software solutions for managing charging infrastructure and services, recognized globally for their innovation and effectiveness (SLOEXPORT, 2024).

- Hidria Ltd

Hidria is a leading European and global company in automotive and industrial technologies. In the e-mobility sector, one of Hidria's key products is electrical steel laminations, essential



components of every electric motor. Committed to energy efficiency, Hidria uses its products to achieve a 10% increase in energy savings.

3.5 Sustainable mobility in Bulgaria

Public Transport Modernization

Stara Zagora has been actively working on modernizing its public transport system. A European project worth over 7.5 million euros has been implemented to create more efficient, integrated, and faster public transport options with reduced energy consumption.

The project focuses on constructing accessible secondary infrastructure for transport networks and introducing environmentally friendly alternatives. The goal is to ensure that Stara Zagora boasts one of the best public transport systems in Bulgaria and Europe.

Electric Buses

The city has taken significant steps towards sustainable urban transport by adopting electric buses. Irizar e-mobility has been awarded an order for 33 electric buses for Stara Zagora, strengthening the city's position in Bulgaria. These 12-meter-long "Irizar" electric buses prioritize comfort, accessibility, and safety for passengers and drivers. They can transport up to 77 passengers and are equipped with features like video surveillance and air purifiers².

EV Charging Infrastructure

Stara Zagora has made strides in establishing EV charging infrastructure:

- EV Point operates several charging stations in the city, including one at Restaurant Tsar Simeon Veliki³.
- El drive Galleria Mall also hosts four EV charging stations⁴.
- Complex Andi Stara Zagora offers another charging station on Nikola Petkov Boulevard.
- ENERGOCONSULT LTD provides an additional charging station.
- EV Point - FB Auto is another option on Nikola Petkov Boulevard⁷.

Industry and Energy Profile

Stara Zagora is known as the energy heart of Bulgaria due to its coal mining and energy production. The Maritsa Iztok energy complex houses the largest coal-fired power plant in the country and employs over 13,000 people. Beyond coal-related activities, the region's economy includes manufacturing (heavy machinery, military equipment, electronics), chemical industry (fertilizers, plastics, essential oils), food processing, construction services, and wholesale and retail trade.

Investment Intentions

The region has attracted investment intentions from various companies, contributing to its economic growth and development.

Associations and Attitude

While specific associations dealing with sustainable mobility were not mentioned in the available data, the city's commitment to modernization and environmental consciousness indicates a positive attitude towards sustainable practices.



In summary, Stara Zagora is actively embracing sustainable mobility through public transport improvements, electric buses, and the establishment of EV charging infrastructure. Its dynamic economy, low unemployment rate, and energy contributions position it as a key player in Bulgaria's transition towards a low-carbon future. However, further details on social attitudes and specific associations would require additional research.

3.6 Sustainable mobility in Bosnia and Herzegovina

Electromobility, centered around electrical propulsion systems like batteries or capacitors, represents a pivotal shift in transportation paradigms. Across a diverse spectrum of vehicles, from e-cars to e-buses, e-trucks, and off-road vehicles, this technology heralds a departure from fossil fuel dependence.

Electromobility in Bosnia and Herzegovina currently faces significant developmental challenges. Legal hurdles, insufficient regulatory frameworks, and a lack of charging infrastructure present formidable obstacles to its widespread adoption. The scarcity of charging stations deters potential electric vehicle buyers, as the absence of adequate infrastructure limits their ability to travel the necessary distances. Consequently, the uptake of electric vehicles remains modest, with only a small number of conversions and hybrid vehicles that do not rely on grid charging. Building an extensive network of charging points is imperative to incentivize the purchase and use of electric cars in the region.

Moreover, the absence of a cohesive regulatory framework exacerbates the situation, with each canton in Bosnia and Herzegovina operating under different laws. While efforts are underway to streamline regulations and facilitate infrastructure development, progress remains uneven across regions. Some areas, such as the Una-Sana canton, exhibit more favourable conditions for electromobility, yet challenges persist in establishing a comprehensive framework conducive to sustainable transportation.

Despite these challenges, there are promising signs of progress, with municipalities like Cazin and Ključ offering support for the installation of charging points. As laws evolve to accommodate the needs of electric vehicle infrastructure, there is hope for greater investment and expansion in this critical area. Through collaborative efforts between government bodies, investors, and local communities, Bosnia and Herzegovina can overcome these obstacles and pave the way for a more sustainable future in electromobility.

JP Elektroprivreda BiH d.d. - Sarajevo has recently installed seven charging stations for electric vehicles across various locations in Bosnia and Herzegovina. These stations are strategically placed in key areas such as Bihać, Goražde, Mostar, Sarajevo, Travnik, Tuzla, and Zenica. Equipped with 2 AC Mode 3 Type 2 connectors each, capable of delivering 22 kW of power individually, these charging stations offer convenient access to electric vehicle users. Authentication for charging is facilitated through RFID cards, which can be obtained at reception/security points within the facilities of EP BiH, streamlining the charging process for drivers.

In the initial phase of the project, charging at these stations is offered free of charge to all electric vehicle drivers, promoting the uptake of electromobility in the region. Interested drivers can acquire a permanent RFID card for accessing EPBIH filling stations, providing them



with easy and consistent access to charging facilities across the EPBIH network. This initiative aims to facilitate access to existing and future charging stations within the EPBIH system, promoting the transition to electric vehicles.

The state of electromobility in Bosnia and Herzegovina has shown significant improvement in recent years, with a notable increase in the number of registered electric vehicles. In 2022 alone, there was an 82.7 percent increase in registered electric vehicles compared to the previous year. Currently, there are 170 charging stations operational in Bosnia and Herzegovina, boasting a total of 205 connections. Among these stations, there are 10 DC fast chargers and two "superfast" charging stations, each with a capacity of 150 kW.

Despite these advancements, Bosnia and Herzegovina still lags neighbouring countries and the European Union in terms of charging station infrastructure and electric vehicle adoption. With just over 1,000 registered hybrid vehicles and 138 electric vehicles, there is significant room for growth in the adoption of eco-friendly transportation solutions. Efforts are underway to promote electromobility, with initiatives such as electric scooter rentals in Sarajevo aimed at promoting tourism, ecology, and micromobility.

However, challenges remain, particularly in the regulatory framework governing electric vehicle transportation. The lack of legislation regarding electric scooters poses safety concerns for users, highlighting the need for comprehensive regulations to ensure the safe operation of electric mobility solutions. Despite these challenges, there is optimism for the continued growth of electromobility in Bosnia and Herzegovina, driven by investments in infrastructure and a growing awareness of the benefits of sustainable transportation.



3.7 Sustainable mobility in Italy

National overview about EVs and e-charging points

Electric vehicle charging points

As of December 31, 2023, Italy had installed 50,678 recharging points across 26,997 stations and 17,537 recharging pools, with 3,829 of these featuring at least one DC high-power point. Compared to 2022, there was an increase of 13,906 recharging points and 7,663 stations in 2023, marking a growth of 38% and 40% respectively. These figures represent the highest annual increase in the last five years, aligning with recent growth trends.

In the last quarter of 2023, the growth rate of recharging points was 7% higher than in the previous quarter, consistent with the average quarterly growth rate for the year. Notably, installations with increasing power are on the rise. The share of DC points grew from 12% in 2022 to 15% in 2023, with the number of ultra-fast points (over 150 kW) also increasing. Specifically, 3,120 DC points, including 1,399 ultra-fast points, were installed, reflecting a 21% increase in DC points and a 59% increase in ultra-fast points compared to 2022.

The growth rate for high-power recharging points surged in the last quarter, with DC points growing by 31% and ultra-fast points by 72% compared to the previous quarter.

Geographically, the distribution of recharging points remains uneven across Italy. About 58% of the infrastructure is in Northern Italy, 19% in Central Italy, and 23% in the South and Islands. The map provided highlights the details of recharging points in each region for 2023.

In terms of regional distribution, Northern Italy leads with Lombardy having the most recharging points (9,395), followed by Piedmont (5,169), Veneto (4,914), Lazio (4,659), and Emilia-Romagna (4,253). The South and Islands have shown improvement, now accounting for 23% of the total recharging points, with Campania standing out with an increase of 2,691 points this past year. Lombardy topped the list with an increase of 4,853 points, followed by Piedmont (2,519), Veneto (2,492), and Lazio (1,991).

Among cities, Rome leads with 3,588 recharging points, followed by Milan (2,883) and Naples (2,652). When considering the number of charging points per square kilometer, Naples ranks highest with 225 points per 100 km², followed by Milan (183 points per 100 km²) and Rome (67 points per 100 km²).

As of now, 932 public recharging points have been installed across approximately 153 motorway service areas out of around 407 along the Italian motorway network. Of these, about 85% are direct current (DC) chargers, while the remaining 15% have a recharging power of 43 kW or less (AC). Notably, over half (61%) of these chargers have a power of 150 kW or more. The number of installations on motorways has seen a significant increase of 87% compared to 2022 when 496 points were installed.

However, the status of the infrastructure concerning grid connection remains stable compared to last year, with about 22% of installed stations still not usable by end users.

Critical issues can arise at any stage of the process, from inspection and authorization to installation.



The lack of clear and standardized national regulations in Italy requires sector operators (designers, service providers, and contractors) to constantly adapt to the requirements of individual public authorities. These authorities have full decision-making power and can have varying demands, even within the same regional territory, leading to further delays.

Regulation and Policy in Italy

The NRRP is advancing electric mobility by allocating EUR 740 million for the installation of 21,400 fast and ultra-fast charging stations by the end of 2025. Specifically, under Mission 2 (Green Revolution and Ecological Transition) of Component 2 (Renewable Energy, Hydrogen, Grid and Sustainable Mobility) of the NRRP, investments are aimed at setting up 7,500 fast charging stations in extra-urban areas (excluding motorways) and 13,755 within urban centers, along with 100 experimental charging stations equipped with energy storage technologies.

Additionally, a regulatory measure to streamline the installation procedures for public charging infrastructures is outlined in Article 23 of DL 23 September 2022 no. 144, also known as the 'Aiuti-Ter Decree,' which was enacted into law by Law No. 175 on November 17, 2022. This amendment to Article 57, paragraph 8, of Decree-Law 76/2020 (DL Semplificazioni) mandates that municipalities must publish the receipt of installation requests on their official websites. If no objections are raised within 15 days of publication, the authorization may be granted to the applicant.

Furthermore, the regulation specifies that if multiple parties apply for authorization and it is not feasible or compatible with the municipality's public space planning for charging infrastructure, the authorization will be granted through a transparent assessment process. This process ensures adherence to the principles of impartiality, equal treatment, and non-discrimination among operators.

On September 13, 2023, the European Parliament and the Council approved Regulation (EU) 2023/1804, which focuses on the implementation of an alternative fuels infrastructure (AFI), replacing Directive 2014/94/EU (DAFI). The AFIR sets various targets for charging light and heavy-duty vehicles to foster the development of sustainable mobility ecosystems.

According to this new legislation, to meet the 2035 targets, the power output of public charging stations must be proportional to the number of registered electric vehicles. By April 2024, the total power output must reach at least 1.3 kW per circulating light BEV and 0.8 kW per circulating light PHEV. Italy is required to draft and submit a national strategic framework for the development of the alternative fuels market in the transport sector and the related infrastructure to the European Commission by December 31, 2024.



E-vehicles

Electric mobility in Italy shows significant potential but also faces notable challenges. In the car segment, Battery Electric Vehicles (BEVs) in key European countries hold substantial market shares, with the Netherlands at nearly 30%, Belgium and Germany around 19% and 18% respectively. In contrast, Italy lags with a market share of about 4%. Despite a positive rebound in 2023, the Italian market struggles to keep pace with other major European nations. In 2023, Italy registered 66,276 fully electric cars, marking a 35.1% increase from 2022 and achieving a market share of 4.2%. However, these figures only match those of 2021, lacking the consistent growth seen in Germany, England, France, and Spain.

The PNIEC, Italy's National Integrated Energy and Climate Plan, aims to have 6.6 million electric cars on the road by 2030—a target that seems distant given the current data. This slow progress contrasts sharply with global trends, where electric car sales grew by 15% in Europe, 51% in the United States, and an impressive 82% in China.

In Italy, the sluggish sales of electric vehicles are part of a broader downturn affecting the entire mobility sector. The Stiles of Mobility Observatory report by Ipsos and Legambiente highlights the difficulties Italians face in traveling, particularly in large cities. These challenges include the high cost of owning a vehicle and the poor quality of local public transport. The survey also reveals that only 50% of citizens plan to buy a new car, and of those, 47% still prefer internal combustion engines. A mere 14% are considering fully electric cars, 11% are looking at Plug-in Hybrid Electric Vehicles (PHEVs), and 29% are interested in hybrid cars.

Overall, while electric mobility in Italy holds promise, it requires substantial effort to overcome its current limitations and align with the more dynamic growth observed in other parts of the world.

3.8 Sustainable mobility in Greece

In recent years, socio-economic shifts in Greece have influenced the Greek cities' urban structures and transport systems. In Greece cost-effective urban transport options seems to be a priority whereas the developed European countries aim to upgrade the sustainability and environmental friendliness of their transportation systems. Greece confronts significant challenges in promoting sustainable mobility, rooted in its transport landscape and socio-economic dynamics. The predominance of conventional fossil fuel-powered vehicles contributes to air pollution and carbon emissions, with transportation accounting for a significant amount of Greece's total greenhouse gas emissions. Moreover, traffic congestion is a persistent issue in urban areas, leading to productivity losses and environmental degradation. Moreover, currently Greece has low adoption of e-mobility, which conflict with national and EU climate goals. Factors like urbanization, traffic issues, and peak transport demands especially on tourism high seasons exacerbate the challenge.

However, the last three years (2021-2023) e-mobility in Greece is gradually advancing, with specific governmental initiatives. This can be illustrated in Figure 1 where the purchase of EVs in Greece increased tenfold compared to the 2020 levels. These initiatives concern subsidies for purchasing electric vehicles, installation of charging stations, exemption from taxes and circulation fees, as well as access to restricted traffic zones. In this manner, the charging network is expanding as more chargers are installed in public and private spaces. This can be seen in Figure 2 where the evolution of installed EV charging stations is presented for the years 2014-2022. Simultaneously, for the period, the growth of EVs divided per category (battery EVs - BEVs and Plug-in-hybrid EV – PHEV) is also depicted.

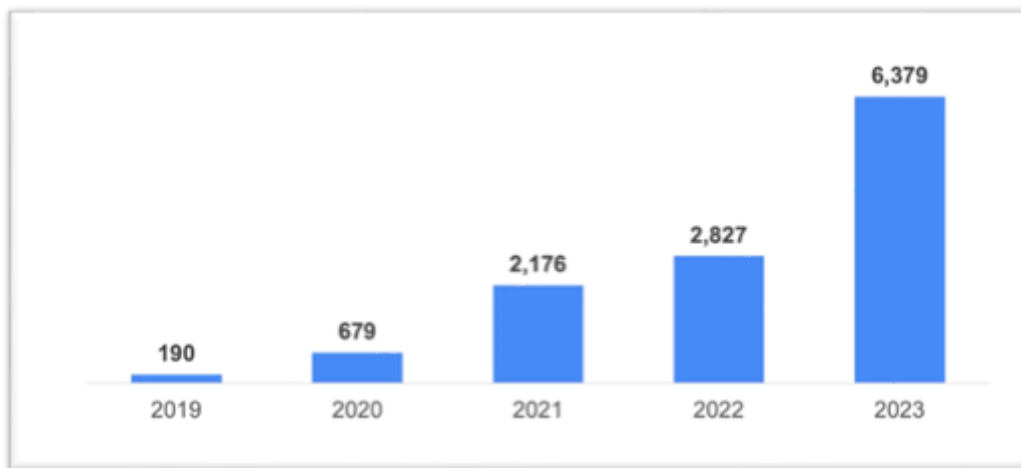


Figure 1: Electric vehicles sales in Greece (The Greek Analyst, 2024)

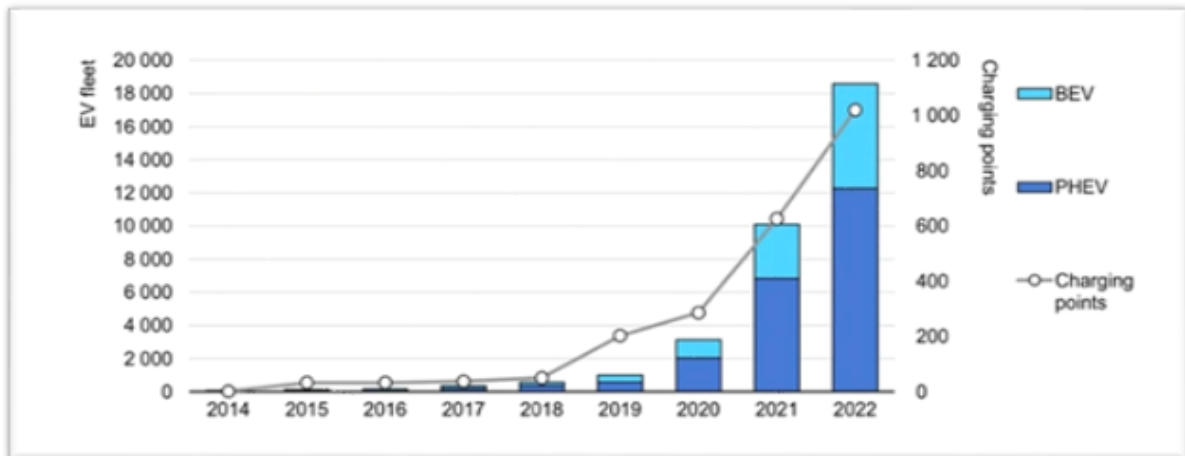


Figure 2: Classification of electric vehicles and charging points in Greece (The Greek Analyst, 2024)¹

The rise of electric vehicles sales, as expected, was accompanied by a rapid increase in EV charging stations across the country. Back in 2018, there were fewer than 50 public charging points throughout Greece. By the end of 2023, according to the Ministry of Infrastructure and Transportation there are 5,493 publicly accessible charging points, approximately 110 times higher than five years ago, connected to the Register of Infrastructure and E-Mobility Market Bodies (Ministry of Infrastructure and Transportation, 2024)².

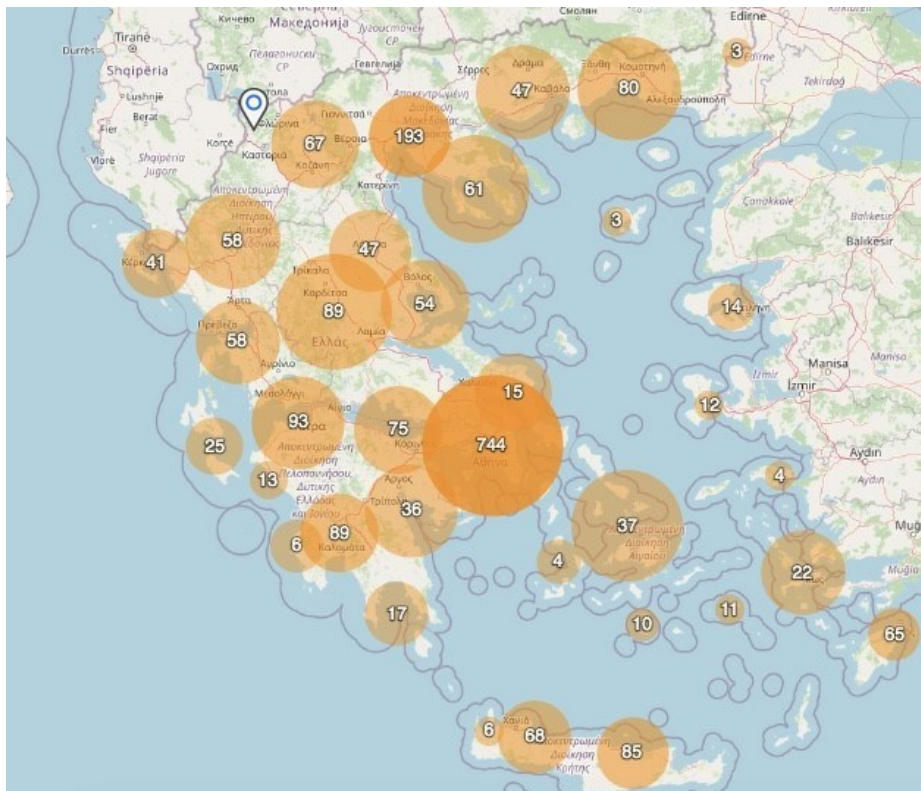


Figure 3. Charging points map in Greece (Ministry of Infrastructure and Transportation, 2024)²

Moreover, according to the Registry of Infrastructure and Charging Points for Electric Vehicles in the Western Macedonia Region (Regional Units of Kozani, Florina, Kastoria, Grevena) now there are 48 publicly accessible charging points (Ministry of Infrastructure and Transportation, 2024)².

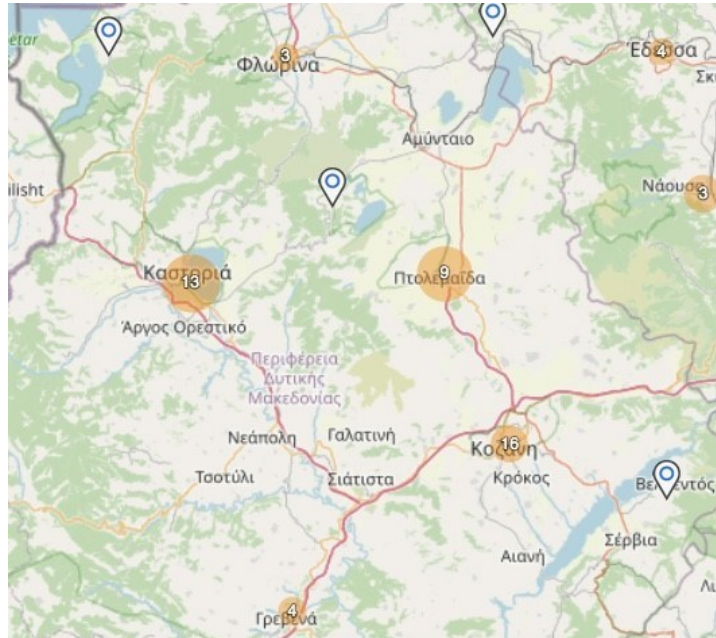


Figure 4 Charging points map in the Region of Western Macedonia (Ministry of Infrastructure and Transportation, 2024)²

Electromobility in the Municipality of Kozani

The Municipalities of Western Macedonia where the e-mobility infrastructures will be installed in the current RuralMED is Kozani and Amyntaio. Both these entities have already started progressed to initiatives concerning e-mobility. The Municipality of Kozani has gained valuable experience in electromobility by participating in the European Programme Green e-Motion back in 2014, alongside the Public Power Corporation (PPC). Throughout this collaboration, the first 8 electric vehicle-charging stations in Greece were installed. Furthermore, in partnership with the Power Lab of the Department of Electrical Engineering at the area of Western Macedonia University installed a solar charging station to charge 3 electric vehicles, harnessing solar energy (Lioliou Vasiliki, 2012)⁵. Since 2017, the Municipality of Kozani has taken steps to acquire and include the first three electric vehicles in its municipal fleet. Recently, the Municipality of Kozani has entered the initiative of the 100 Climate-Neutral and Smart Cities by 2030, which include a vast list of actions for sustainable mobility, including the installation of EV charging stations as well as the replacement of conventional vehicles with new technology options. The Municipality of Florina has acquired two electric cars since 2022. Furthermore, other municipalities in the region have proposed joining the "Electric Mobility Infrastructure - Electric Vehicles - Charging Stations" project. Through this initiative, they aim to procure vehicles powered by electricity, emitting zero carbon dioxide emissions during operation, thus contributing to environmental protection. Finally, the Municipality of Amyntaio has installed an electric vehicle charging station in the city center and has taken actions to replace its



conventional municipal vehicles with electric ones as discussed in the Municipality's Sustainable Energy and Climate Action Plan. The charging station can accommodate two vehicles at the same time (Press Office of the Municipality of Amyntaio, 2021)⁶.

4 EU legal framework on sustainable mobility

European Green Deal

The European Green Deal, approved in 2020, is a set of policy initiatives by the European Commission with the overarching aim of making the European Union (EU) climate neutral in 2050. The plan is to review each existing law on its climate merits, and introduce new legislation on the circular economy, building renovation, biodiversity, farming, and innovation.

Climate change and environmental degradation pose a critical threat to both Europe and the global community. To combat these challenges, the European Green Deal aims to reshape the EU into a modern, resource-efficient, and competitive economy. Key objectives include achieving net-zero greenhouse gas emissions by 2050, promoting economic growth independent of resource consumption, and ensuring equitable progress for all individuals and regions. Moreover, the European Green Deal serves as a crucial pathway out of the COVID-19 pandemic. A significant portion of the €1.8 trillion investments from the NextGenerationEU Recovery Plan, alongside the EU's seven-year budget, will be allocated to support this initiative.

The European Commission has introduced a series of proposals to align the EU's climate, energy, transport, and taxation policies with the goal of reducing net greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels.

The *Fit for 55* legislative package, adopted by the European Commission, represents a comprehensive set of measures aimed at achieving the EU's ambitious climate targets for 2030. The package covers various sectors of the economy and includes initiatives to reduce greenhouse gas emissions, promote renewable energy, improve energy efficiency, and transition to cleaner transportation.

Key elements of the package include:

1. Carbon Pricing and Emissions Cap: The package introduces carbon pricing mechanisms and emissions caps to ensure polluters pay for their emissions and generate revenues for climate and energy-related projects. This includes extending the EU Emissions Trading System to new sectors like transport and heating fuels.
2. Social Support and Climate Fund: Member States will allocate 100% of emissions trading revenues to climate and energy projects and establish a Social Climate Fund to support vulnerable citizens and small businesses with the transition to green technologies.
3. Renewable Energy and Energy Efficiency: The package sets ambitious targets for renewable energy, aiming for at least 42.5% by 2030, and energy efficiency improvements of 11.7% by 2030. It also includes measures to combat energy poverty and promote energy efficiency among affected populations.
4. Clean Transport: The package mandates that all new cars and vans registered in Europe be zero-emission by 2035, with interim targets for emissions reductions by 2030. It also promotes the deployment of electric recharging and hydrogen refuelling infrastructure.



and sets rules for the use of sustainable aviation fuels and low-carbon fuels in maritime transport.

Renewable Energy Directive (RED III)

The Renewable Energy Directive 2018 (2018/2001) is a Directive in EU law that requires 42.5 percent of the energy consumed within the European Union to be renewable by 2030. This target is pooled among the member states.

The Renewable Energy Directive is the legal framework for the development of clean energy across all sectors of the EU economy, supporting cooperation between EU countries towards this goal.

The EU has significantly increased its use of renewable energy sources, rising from 12.5% in 2010 to 23% in 2022, with Sweden leading at 66%, followed by Finland and Latvia. Recognizing its global leadership in renewables, the EU aims to strengthen competitiveness and reduce dependency on external suppliers through initiatives like the Renewable Energy Directive and the European Green Deal.

In 2023, the Renewable Energy Directive was revised to set a binding target of at least 42.5% renewable energy by 2030, aiming for 45%. This came in response to the need for a faster transition to clean energy and geopolitical developments. The revised directive introduces stronger measures to promote renewables uptake, including sector-specific targets, electrification support, and easing permitting procedures. It also emphasizes sustainability criteria, particularly for bioenergy.

Building on previous directives, the revised legislation aligns with the EU's goal of climate neutrality by 2050 and enhances energy security. It promotes renewables-based electrification and the use of renewable fuels like hydrogen, especially in sectors where electrification is challenging. Additionally, it streamlines permitting procedures for renewable energy projects and infrastructure.

Overall, the revised directive aims to accelerate the EU's clean energy transition, reinforcing its position as a global renewables leader and helping to meet emissions reduction commitments under the Paris Agreement.

Alternative fuels infrastructure regulation (AFIR)

With the Alternative Fuels Infrastructure Regulation (AFIR), the European Commission has presented a draft proposal on how to ensure sufficient public charging infrastructure in the future. It serves to accompany the transition to zero-emission vehicles.

AFIR stands for Alternative Fuels Infrastructure Regulation and aims to accelerate and standardize the development of charging infrastructure across the EU. The regulation was presented in July 2021 as part of the Green Deal. The goal is a cross-border and user-friendly charging infrastructure in Europe, the use of which should be as simple as possible for consumers. With the draft, the corresponding EU directive ("Alternative Fuel Infrastructure Directive", AFID) was further developed into a regulation. This is intended to set legally binding targets for all EU member states.



The text of the regulation provides for specific deployment targets that will have to be met in 2025 or 2030 as follows:

- from 2025 onwards, fast recharging stations of at least 150 kW for cars and vans need to be installed every 60 km along the EU's main transport corridors, the so-called "trans-European transport (TEN-T) network".
- recharging stations for heavy-duty vehicles with a minimum output of 350 kW need to be deployed every 60 km along the TEN-T core network, and every 100 km on the larger TEN-T comprehensive network from 2025 onwards, with complete network coverage by 2030.
- hydrogen refuelling stations serving both cars and lorries must be deployed from 2030 onwards in all urban nodes and every 200 km along the TEN-T core network.
- maritime ports welcoming a minimum number of large passenger vessels, or container vessels, must provide shore-side electricity for such vessels by 2030.
- airports must provide electricity to stationary aircraft at all gates by 2025, and at all remote stands by 2030.
- users of electric or hydrogen-fuelled vehicles must be able to pay easily at recharging or refuelling points with payment cards or contactless devices and without a need for a subscription and in full price transparency.
- operators of recharging or refuelling points must provide consumers full information through electronic means on the availability, waiting time or price at different stations.

The alternative fuels infrastructure regulation (AFIR) is part of the Fit for 55 package. Presented by the European Commission on 14 July 2021, the package aims to enable the EU to reduce its net greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels and to achieve climate neutrality in 2050.

The Energy Efficiency Directive (EED)

First adopted in 2012, the directive was updated in 2018 and 2023, setting rules and obligations for achieving the EU's ambitious energy efficiency targets

The revised Energy Efficiency Directive (EU/2023/1791) significantly raises the EU's ambition on energy efficiency. It establishes 'energy efficiency first' as a fundamental principle of EU energy policy, giving it legal standing for the first time. In practical terms, this means that energy efficiency must be considered by EU countries in all relevant policy and major investment decisions taken in the energy and non-energy sectors.

The 2023 revision of the directive follows a proposal for a recast directive on energy efficiency put forward by the Commission in July 2021, as part of the EU Green Deal package. The 2021 proposal was further enhanced as part of the REPowerEU plan, presented by the Commission in May 2022, aiming to decrease the EU's dependency on fossil fuel imports from Russia.

Full implementation of the Energy Efficiency Directive will be key for the EU to comply with the commitment of the Global Pledge to double the global rate of energy efficiency improvements from about 2% to over 4% by 2030.



Current energy efficiency improvements should reduce at least 32.5% of the EU's overall energy consumption by 2030. Even though the EU recognises the percentage should be higher. Hastening the shift to more efficient electric vehicles and increasing the efficiency of the existing vehicle population is how the EU aims to reach the target.

In practice, multiple countries have already taken concrete steps to speed up the transition towards e-mobility with national zero-emission mobility targets or by introducing scrappage schemes and rewards for old cars. The Directive has already been implemented in member countries and can and should be supported with ambitious transport policies that support the EU's 2030 energy efficiency target.

Sustainable and Smart Mobility Strategy – Putting European transport on track for the future.

Within the European Union, transport accounts for around a quarter of greenhouse gas emissions (EEA 2020) and imposes further significant costs on society in terms of pollution, accidents, congestion, and loss of biodiversity.

To address these impacts, the European Union adopted the European Green Deal in December 2019, which aims at carbon neutrality by 2050. To achieve this, the transport sector must reduce its CO₂ emissions by 90% over the next 30 years – a stark contrast to the current trend, since transport emissions have risen in recent years.

On the 9th of December 2020, the European Commission has therefore put forward its Sustainable and Smart Mobility Strategy. This complex strategy outlines how the European transport sector should be transformed and aligned with the European Green Deal by making it sustainable, smart, and resilient.

All transport modes need to become more sustainable, with green alternatives widely available and the right incentives put in place to drive the transition. Concrete milestones will keep the European transport system's journey towards a smart and sustainable future on track:

By 2030

1. at least 30 million zero-emission cars will be in operation on European roads
2. 100 European cities will be climate neutral.
3. high-speed rail traffic will double across Europe
4. scheduled collective travel for journeys under 500 km should be carbon neutral
5. automated mobility will be deployed at large scale
6. zero-emission marine vessels will be market-ready

By 2035

- zero-emission large aircraft will be market-ready

By 2050

- nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission.
- rail freight traffic will double.
- a fully operational, multimodal Trans-European Transport Network (TEN-T) for sustainable and smart transport with high speed connectivity.



5 Legal framework on sustainable mobility

5.1 Legal framework in Extremadura and in Spain

Spanish Legal/Strategic Framework

Spanish Strategy for Sustainable Mobility

The Spanish Sustainable Mobility Strategy (EEMS), approved on 30 April 2009, was born with the will to develop a national reference framework that integrates the principles and coordination tools to guide and give coherence to sectoral policies that facilitate sustainable and low carbon mobility.

The objectives and guidelines of the EEMS are embodied in 48 structured measures in five areas: territory, transport planning and infrastructure; climate change and reduction of energy dependence; air quality and noise; safety and health; and demand management. Among the measures envisaged, special attention is paid to the promotion of alternative mobility to the private vehicle and the use of the most sustainable modes, noting the need to take care of the implications of urban planning in the generation of mobility.

The EEMS requires for its implementation the involvement of all administrations, which has been ensured by the creation of an array of coordination instruments: the Network of Cities for Climate, Network of Networks of Sustainable Local Development, the National Climate Council, the Climate Change Policy Coordination Committee and Sectoral Roundtables, the Metropolitan Mobility Observatory and various existing mobility forums.

Spanish Road Safety Strategy 2011-2020

The "Road Safety Strategy 2011-2020" (ESV) established the priorities of the general administration, the regional and the Municipal Governments (in collaboration with private agents), which were considered fundamental in improving road safety from a multidisciplinary perspective, promoting, and guiding the actions of the rest of the public administrations with competence in this area.

It included priorities promoting a more sustainable mobility and more sustainable vehicles.

Alternative Energy Vehicle Promotion Strategy (VEA) in Spain 2014-2020.

This strategy, launched for the period 2014-2020, has allowed the automotive and industrial equipment industry to be prepared in key new technologies, maintaining Spain's position as global producers of vehicles and parts. It has 30 measures to place Spain as a reference country in the sector of alternative energies applied to transport (electric, LPG Liquefied Petroleum Gas, CNG Compressed Natural Gas, LNG Liquefied Natural Gas, biofuels, and hydrogen) supporting the automotive industry in the context of current energy and environmental challenges.

The strategy promotes the industrialization of vehicles with alternative energies and associated supply points, with the aim of placing Spain at the forefront of the promotion of these technologies. It includes measures for the industrialization of vehicles, components, and supply infrastructure, as well as measures to enhance R&D.



Law 2/2011 on Sustainable Economy (04/03/2011)

Chapter III of this Law strongly encourages the transformation of the transport sector to increase its economic and environmental efficiency and competitiveness. It sets out the principles applicable to the regulation of transport, such as guaranteeing the rights of operators and users, promoting competition, efficient management and the promotion of the transport means with lower environmental and energy cost. It also intends to carry out a regular classification of transport markets to assess their degree of competition and propose measures to promote competition. The concept of transport services of public interest eligible for subsidies is defined; and Law 16/1987 of 30 July on land transport planning is amended by the final provision, as regards public inter-urban passenger road scheduled transport services, to shorten the maximum duration of concessions and to promote greater competition in tenders for the award of public transport lines.

Law 15/2018, of urgent measures for the energy transition and the protection of consumers.

This Law liberalizes the activity of EV recharging, eliminating the figure of the “charge manager” provided for in the Law of the Electric Sector, since it had been revealed as excessively rigid and disincentive of the activity. Such deletion in no case entailed a loss of the safety of the installations, which must comply with the relevant regulations in the field of industrial safety and for which a register of information will be kept for the monitoring of the activity.

Royal Decree 1053/2014, supplementary technical Instructions for charging points.

A new Supplementary Technical Instruction is approved by this regulation for 'Special purpose installations. Infrastructure for recharging electric vehicles», which complements the electrotechnical regulation for low voltage, approved by Royal Decree 842/2002.

The aim is to establish the technical specifications that allow the safe recharging of electric vehicles in any of the usual charging situations. For equipment and materials, only recharging stations with standardised and technically safe connecting elements should be used. The first additional provision prescribes minimum structure endowments for EV charging points in newly built buildings or parking lots and on public roads.

Sustainable Mobility Bill (Law to be approved throughout 2024)

According to Title I of the Bill (Law project to be approved in 2024), the National Sustainable Mobility System is developed as a key tool to enable the effective coordination of administrations, promoting their sustainability over time from the environmental, social, and economic point of view. It also invites citizen, academic and productive participation in decision-making about what actions to implement in the system.

Similarly, the law advocates reorganizing the regular transport of road passengers under state competence with a new concession map, something that the Spanish regions are already carrying out and that will allow offering a better service to citizens. With the cooperation between different administrations, public transport services will allow to serve more people, with better prices, services, and shorter travel times.

Thanks to this cooperation and cohesion between administrative bodies, for example, a State-owned bus will arrive at its destination right when the user will be able to transfer to another



regional bus, allowing more efficient travel, as well as boosting intermodal and integrated mobility.

Legal/Strategic framework in Extremadura

Already approved: Extremadura Strategy for Electric Vehicles (2018-2030)

The Extremadura regional government approved its "Regional Strategy for the promotion of the Electric Vehicle in Extremadura 2018-2030", which, marks the main lines of action to contribute to a new model of mobility in Extremadura, supported by the principles of safety, efficiency and environmental and economic sustainability, by boosting electric mobility in line with the principles of a green and circular economy and by stimulating emerging markets and creating innovative networks and services.

There are four strategic objectives that have been established in the Regional Strategy for the Promotion of the Electric Vehicle in Extremadura. Horizon 2018-2030:

1. Creation and provision of an interoperable recharging infrastructure, able to fit to the evolution of the sector and to facilitate the mobility of electric vehicles. It is intended that at least 8,280 linked charging points, 189 public access charging stations and 220 additional private public access charging stations will be reached at the end of the period.
2. In 2030, 10% of the new vehicles registered will be electric.
3. The development of the electric vehicle sub-sector, investing in business projects and R&D activities more than 6 M€.
4. Coordination between all stakeholders in the electric vehicle sector, both public and private, through the creation of a common regional organizational and technical structure.

In preparation (to be issued in 2024): Extremadura Sustainable Mobility Plan (PEMS)

PEMS is a set of documents and tools that allow analysing and planning Extremadura's mobility to adapt it to the challenges of society in the future and the new habits of sustainable mobility.

It will allow to understand how the regional administration must improve the transport infrastructures, services and technology associated with mobility to design solutions tailored to the needs of the population in the coming years. This Plan provides a reference framework for sustainable mobility in Extremadura, which lays the foundations for designing a new model of mobility, which puts at the centre the social, environmental, and economic needs of the population. It includes rural mobility and urban areas, through the planning and connection of the public means of transport.

It is centred around public transport, intramodality, shared mobility and the integration of electric mobility into the public transport services.

The budget for the implementation of the PEMS until 2030 is estimated at approximately 1,890 million euros. Due to the strategic nature of the Plan and considering the distribution of competences between the different public administrations affected by it, as well as the different actors involved in the mobility and transport sector, the sources of funding contained



in Plan will be varied. In this sense, public-private partnerships, and the use of different sources of public funding will be necessary to achieve the objectives of the PEMS.

Local level: SUMP (8 individual municipalities and 2 supra-municipal plans)

In Extremadura 8 municipalities have currently an approved SUMP. The Sustainable Urban Mobility Plans (SUMP) are a set of actions that aim to implement more sustainable forms of transportation in the urban space, with a reduction in energy consumption and emissions, also managing to guarantee the quality of life of their citizens. They seek to promote transportation that makes economic growth compatible with social cohesion, road safety and environmental protection, thus guaranteeing a better quality of life for citizens.

The SUMP have a local scope of action, although they can be developed at a supra-municipal level when agreed upon by the municipalities that share an interdependent mobility scheme because they all belong to the same metropolitan area or community.

The 8 municipalities with a local SUMP in Extremadura are: Don Benito, Villanueva de la Serena, Plasencia, Miajadas, Mérida, Almendralejo, Cáceres, Badajoz.

At supra-municipal level we have the following SUMP: “Cáceres Network of sustainable municipalities” and “Plasencia Surroundings”, both in Cáceres province.

Provincial level: Plans from the Diputación de Badajoz and Cáceres

We have identified 3 plans, one pertaining to the Cáceres province, the other 2 pertaining to the Badajoz province.

à Integral Mobility Plan (Badajoz Province): the main objective of the Comprehensive Sustainable Mobility Plan of the province of Badajoz is to improve the sustainability of transportation in the province, through the application of provincial powers in relation to the provision of public services of a supramunicipal nature and, where appropriate, the promotion or coordination of the unified provision of services of the municipalities of their respective territorial scope.

This objective is intended to be achieved through different actions, such as the promotion of alternative modes to the private combustion vehicle at the urban level, the promotion of collective transport or electric mobility in external trips, with special interest in connections between municipalities and in the roads that are main corridors at the supra-provincial level. It includes the setting of a series of EV fast and ultrafast interoperable charging stations within the provincial space in previously studied settings that maximized their use.

This plan also encompasses the following point, the “MOVEM” plan.

- ❖ MOVEM Plan (Badajoz Province): Badajoz Provincial Council, has put into practice the Electric Vehicle Mobility Plan in Municipalities (MOVEM), a pioneering plan in the use of cutting-edge eco-friendly and user-friendly EV technologies.

The MOVEM Plan aims to promote the use of electric vehicles and accessibility to vehicle recharging in the provincial territory. Its main actions are the delivery of a 100% EV per municipality for use by municipal services and the creation of an intelligent network of electric vehicle charging points located on public roads.



MOVEM involves an investment of 7 million euros, of which 6 million are allocated for the acquisition of electric vehicles and the rest for the creation of the intelligent network of charging points. This plan has been fully carried out during the period 2018-2019.

- ❖ MOVECA Plan (Cáceres Province): Similar to MOVEM, but active in the Cáceres province. The objective of this provincial Plan is:
 1. Creation and provision of an interoperable EV charging infrastructure, facilitating the mobility of electric vehicles throughout the province. It is intended that in the marked period at least 8,280 linked charging points, 189 public access charging stations and 220 additional installations of private charging stations with public access will be reached.
 2. That in 2030, 10% of new vehicles registered in our province will be electric.
 3. The development of the EV economic sector associated in the area, mobilizing more than €6 million in business and R&D&I projects.

The objective set is to contribute to the installation of EV charging infrastructure in the Cáceres province, to configure a network of facilities located less than 50 kilometers from each other. In accordance with the above, the objective of having at least one charging station in each county of the province was established too.

Local level: SECAPs

The Sustainable Energy and Climate Action Plan (SECAP) is a strategic document that provides guidelines related to energy efficiency and climate change mitigation. Within the framework of energy transition and CO₂ reduction, SECAPs are documents that help cities and municipalities implement their activities with consideration for climate and environmental impact. The action plans of cities and municipalities in Spain are unified through the Covenant of Mayors initiative, a European initiative launched in 2008 with the aim of achieving the main EU objectives for greenhouse gas reduction at the level of local government units.

The commitment has the following objectives:

- Reduce CO₂ emissions by 40% by 2030.
- Increase energy efficiency by 27%.
- Increase the use of energy from renewable sources by 27%.
- Prepare a Reference Emissions Inventory (IER).
- Carry out an assessment of risks and vulnerabilities derived from climate change.
- Present the Action Plan for Sustainable Energy and Climate (PACES) within two years from the official signing of the Pact.
- Submit a monitoring report at least every two years.

In Extremadura, 61 municipalities in the Cáceres province and 59 municipalities in Badajoz province have signed the Covenant of Majors. Meanwhile, only 8 municipalities in Cáceres and 12 in Badajoz have presented an action plan.



5.2 Legal framework in Croatia

Legal framework

Law on the Establishment of Infrastructure for Alternative Fuels (NN 120/16, NN 63/22)

This law establishes a common framework of measures for establishing infrastructure for alternative fuels, aiming to minimize dependence on oil and mitigate the negative environmental impact of transportation. It sets out minimum requirements for building alternative fuel infrastructure, including charging stations, common technical specifications, user information requirements, and reporting obligations. For all other aspects not covered by this law, existing regulations related to transportation infrastructure, spatial planning, spatial data infrastructure, construction, energy, energy efficiency, environmental protection, occupational health and safety, fire and explosion protection, flammable liquids and gases, and laws governing the scope of the Environmental Protection and Energy Efficiency Fund apply.

Transport Development Strategy of the Republic of Croatia (2017 - 2030) (NN 84/2017)

The Transport Development Strategy of Croatia for the period 2017-2030 assesses and defines future measures related to transportation infrastructure, operations, and organization across all transport sectors, regardless of funding sources. It provides a framework for intervention development and addresses interfaces with other strategies or assessments. The strategy considers European strategies and requirements while basing itself on a comprehensive analysis of Croatia's situation. It identifies the need for further data collection/generation and outline steps for future revisions.

Croatian Strategy for Hydrogen until 2050 (NN 40/2022)

The Strategy aims to align with EU goals, particularly those outlined in the European Green Deal, which aims for climate neutrality by 2050. The Strategy highlights hydrogen as a key element in achieving these goals and outlines plans for its production, storage, transportation, and use to reduce CO₂ emissions and enhance energy security. Additionally, it emphasizes the need for Croatia to develop its hydrogen industry and participate in the global hydrogen market.

Energy development strategy of the Republic of Croatia until 2030 with a view to 2050 (NN 25/2020)

The Energy Development Strategy of Croatia sets out a pathway towards low-carbon energy by 2030, aligning with global climate goals. It emphasizes private sector investment in renewable energy projects and aims to enhance energy security, reduce losses, and increase efficiency. The strategy promotes innovation and positions Croatian companies in the global energy market. It's based on thorough analysis detailed in accompanying papers.

Integrated national energy and climate plan for the Republic of Croatia for the period from 2021 to 2030 (NECP)

The Integrated National Energy and Climate Plan for the period from 2021 to 2030 builds upon existing national strategies and plans. It provides an overview of the current energy system and the state of energy and climate policy. It also outlines national objectives for each of the five



key dimensions of the energy union and the corresponding policies and measures to achieve those objectives, requiring the establishment of an analytical basis. Special attention should be paid to the goals for 2030 in the Integrated Energy and Climate Plan, which include reducing greenhouse gas emissions, increasing renewable energy sources, improving energy efficiency, and enhancing energy interconnection. It is essential to ensure that the Integrated Energy and Climate Plan aligns with sustainable development goals and contributes to them.

SUMP

To fully leverage the capabilities of modern transportation while simultaneously mitigating negative impacts on the environment, safety, and public health, the European Commission encourages and assists in the development of local and regional Sustainable Urban Mobility Plans (SUMPs).

In Croatia, there are a total of 556 local government units, comprising 128 cities and 428 municipalities. However, only 17 of these units have implemented a Sustainable Urban Mobility Plan (SUMP). Notably, within the Koprivnica-Križevci County, both the City of Koprivnica and the City of Križevci have adopted SUMPs.

These figures underscore the necessity for ongoing efforts to expand the implementation of SUMPs across the country. Moreover, there is a pressing need to reassess and update existing plans, particularly those developed more than five years ago. This is crucial because many of the targets and objectives outlined in these older SUMPs have not been met, highlighting the importance of refining strategies and setting achievable goals for sustainable urban mobility.

The City of Koprivnica has adopted a SUMP in 2015, becoming the first Croatian city to do this. The document was developed as part of the CIVITAS DYN@MO project, aiming for a long-term strategy for transportation and mobility, with implications for the broader region and international context. By adopting SUMP, it joined the ranks of European examples of best practices, making it easier to secure funding from European funds for its projects. The development of Koprivnica's Sustainable Urban Mobility Plan (SUMP) involved 10 workshops with stakeholders and eight public awareness campaigns. It was officially adopted on July 17, 2015, by the City Council, with clear responsibilities, funding, and resources outlined. Special emphasis was placed on training staff for implementation, supported by the establishment of a SUMP competence centre. The city also benefited from the EU CIVITAS-DYN@MO project, leveraging external expertise to enhance the plan's quality. It aimed to enhance traffic safety, reduce noise, and curb air pollution by promoting walking, cycling, public transport, and electric vehicles. It focuses on four key areas: walking and cycling improvements, enhancements to public transport services, initiatives to promote e-mobility, and optimization of transport and traffic flow. Additionally, the plan seeks integration into the city's main planning tools to ensure alignment with construction and land-use plans for long-term sustainability. The development highlighted the need for thorough strategic preparation and reliance on external guidance due to limited national support. Challenges included road responsibility divisions and funding constraints. Despite these, Koprivnica remained committed to sustainable mobility, serving as Croatia's National Focal Point in key projects.



In 2021, the City of Križevci initiated a Sustainable Urban Mobility Plan (SUMP) to address its pressing parking congestion issue, which often exceeds capacity during peak hours, leading to illegal parking. The SUMP emphasizes optimizing the existing parking system by efficiently monetizing legal parking demand and reducing illegal parking. It also aims to discourage car use and promote non-motorized transport and public transit by gradually converting street parking spaces into infrastructure for sustainable transportation modes. Parking fees were introduced in March 2023 to reduce demand in the city centre and eliminate certain parking spots. Residents are limited to one annual parking permit per housing unit in the first zone. This measure has resulted in a 50% decrease in parking demand, freeing up approximately 50% of paid parking spots in the first zone for short-term parking. Additionally, it prevents illegal parking and allows for the repurposing of empty parking spaces for community use. Evaluating the long-term impact of these measures and regulating traffic flows in the city centre will be necessary.

Furthermore, the SUMP aims to raise awareness of sustainable transportation options and eventually replace parking lots with bicycle lanes and electric vehicle (EV) charging stations. It also focuses on optimizing road networks and traffic patterns by constructing expressways, industrial road networks, and city bypasses to alleviate congestion and reroute freight traffic. Additionally, measures such as traffic calming zones, traffic flow optimization, and reorganizing traffic flows aim to enhance safety, promote non-motorized transportation, and efficiently redirect vehicle movements.

The Republic of Croatia lacks a national program to support sustainable urban mobility planning, despite a recommendation from the European Commission. Establishing such a program, aimed at aiding cities, enhancing governance, and coordinating nationally, is crucial. Currently, Croatian cities aren't required by law to develop Sustainable Urban Mobility Plans (SUMP), but a proposed EU regulation seeks to bolster the role of cities in sustainable transportation. To comply, Croatia's urban nodes on the trans-European transport network (TEN-T) must adopt sustainable mobility plans and collect relevant data by 2025. This initiative aims to reduce congestion, boost public and active transportation, improve road safety, and eliminate traffic bottlenecks.

SULP

The Sustainable Urban Logistics Plan (SULP) is a tool that supports local authorities and stakeholders in managing urban logistics measures and improving freight distribution processes according to economic values, environmental sustainability, and societal benefits. It is designed to meet the mobility and business needs in cities and surrounding areas with the aim of enhancing the quality of life. SULPiTER and ENCLOSE are European projects aimed at profiling their logistics systems in line with proclaimed sustainable development policies, achieving more energy-efficient logistics, and consequently reducing carbon emissions related to freight transport. The city of Rijeka and its functional urban area are part of the SULPiTER project, implementing measures defined in the plan. It is conditioned by the need for further sustainable development of the North Adriatic functional region, in accordance with economic and social goals and the need for improving living conditions, environmental protection, energy savings, energy efficiency, and other sustainable development objectives.



SECAP

The Sustainable Energy and Climate Action Plan (SECAP) is a strategic document that provides guidelines related to energy efficiency and climate change mitigation. Within the framework of energy transition and CO₂ reduction, SECAPs are documents that help cities and municipalities implement their activities with consideration for climate and environmental impact. The action plans of cities and municipalities in the Republic of Croatia are unified through the Covenant of Mayors initiative, a European initiative launched in 2008 with the aim of achieving the main EU objectives for greenhouse gas reduction at the level of local government units.

This action plan represents the initial step in a long-term process to reduce CO₂ and other greenhouse gas emissions by at least 55 % by 2030, in line with EU goals. The focus of the SECAPs in Koprivnica-križevci County are measures to reduce CO₂ emissions primarily in the transportation and building sectors, where the greatest savings are expected. The municipalities plan to initiate measures aimed at changing citizens' behaviour about transportation, households, and workplaces. These measures, based on the experiences of other countries, are expected to bring savings without requiring significant investments but necessitate ongoing engagement through educational activities, workshops, and the distribution of leaflets and brochures. Further development of technology and increasing the share of electric and hybrid vehicles will play a significant role in the transportation sector.

Significant financial resources will be required to achieve the set goals and implement the measures needed to keep track of EU goals. It's important to note that the municipalities are not expected to cover all necessary financial resources independently but primarily to assist in implementing the measures through various activities, including information dissemination, communication with stakeholders, and acting as a moderator.

5.3 Legal framework Alto Alentejo in Portugal

The country's commitment to electric mobility dates back more than a decade, and the first Electric Mobility Program in Portugal was approved by Resolution of the Council of Ministers no. 20/2009, of February 20, 2009. This program came about as part of the implementation of the first National Action Plan for Energy Efficiency, approved by Resolution of the Council of Ministers no. 80/2008, of 20 May, with the aim of positioning the country as a pioneer in the adoption of new environmentally sustainable mobility models capable of exploiting the relationship with the electricity grid, maximizing the advantages of energy from renewable sources.

Thus, a strategy was outlined that aimed, on the one hand, to create a pilot infrastructure of publicly accessible, high-powered charging points on the main national roads and at local level (through a protocol with 25 municipalities) and, on the other hand, to promote the electric vehicle by defining financial and tax incentives, as well as other benefits associated with the circulation and parking of these vehicles.

This plan also anticipated investment in technological development and research for the implementation of an electric mobility pilot project, in which the model for electric mobility in Portugal - MOBI.E - was adopted.

The main legal aspects to be taken into consideration in Portugal are therefore identified.



- 2010:
 - technical and financial requirements to which the granting of a license to carry out the activity of selling electricity for electric mobility is subject,
 - technical requirements to which the granting of a license to carry out the activity of operating charging points is subject,
 - technical requirements to which the granting of a license to carry out the activity of operating charging points is subject.
- 2012:
 - Decree-Law N. 170 of 2012 - Creates the legal regime for electric mobility.
- 2014:
 - Decree-Law N. 90 of 2014 - rules aimed at creating a pilot electric mobility network.
- 2015:
 - Order N. 8809 of 2015 - Includes the Action Plan for Electric Mobility, the locations of fast and normal charging stations, from the pilot phase of the MOBI.E network.
 - Ordinance N. 241 of 2015 – New technical requirements to which the granting of a license to carry out the activity of operating charging points on the electric mobility network is subject.
- 2016:
 - Ordinance N. 221 of 2016 - Establishes the rules applicable to the installation and operation of charging points for electric vehicles, as well as the rules applicable to the installation and operation of charging points that must comply with the technical and functional requirements set out for smart meters.
- 2021:
 - Regulation N. 103/2021 - provisions applicable to the exercise of activities related to electric mobility covered by ERSE regulation:
 - Identification of subjects involved in the electric mobility network,
 - Rules for commercial relationships between those involved in the electric mobility network,
 - Identification of the regulated activity of the entity managing the electric mobility network,
 - Process of determining the income from the regulated activity of the entity managing the electric mobility network,
 - Definition of the structure and methodology for calculating regulated tariffs applicable to electric mobility,
 - Rules applicable to the measurement, reading and provision of consumption data from the electric mobility network,



- Information management of the electric mobility network,
- Service quality principles and obligations applicable to services provided on the electric mobility network.
- *The Mobi.E Network, or Electric Mobility Network, is a network of universally accessible, interoperable, and user-centered electric vehicle charging stations. **Currently, the network has more than 4.700 publicly accessible charging stations across the country, more than 1.650 of which are fast or ultra-fast charging, that is, their power is greater than 22 kW.***

To support the legislation described above, MOBI.E has drawn up various technical rules, procedures, and guidelines in its capacity as the Electric Mobility Network Management Entity.

- Technical Rule N. 1 - 2019
 - Refers to the Communication Protocol for Measuring Equipment for Charging Points Integrated into the Electric Mobility Network, with the Electric Mobility Management Entity (EMME) management system.
- Technical Rule N. 2 - 2020
 - Refers to the Model and Data Format Provided by EMME to all the stakeholders - Data referring to electric mobility consumption.
- Technical Rule N. 3 - 2022
 - Refers to the Model and Format of data exchanged between EMME and the Distribution Network Operators.
- Technical Rule N. 4 - 2023
 - Refers to the charging validation criteria and methodology for adjustments and consumption corrections of the electric mobility network.

Regional Level – Alentejo

The “Alentejo Regional Programme 2021-2027” is currently in motion, and it considers three funds – ERDF (European Regional Development Fund), ESF+ (European Social Fund) and JTF (Just Transition Fund). Its specific objectives contemplate the investment in sustainable mobility throughout several main priorities, of which we highlight the 2B-“Greener Urban Centres of Alentejo”. Its specific objective is to promote multimodal sustainable mobility, as a part of the transition for a zero emissions economy (ERDF). It prioritizes a set of actions, that are foreseen in the sub-regional plans of action (PAMUS-AA) and are meant to be applied within the scope of the Sustainable Urban Mobility Plan (SUMP). These actions are to be implemented at the sub-regional level by the respective Intermunicipal Communities. It is also referred the potential for inter-regional, cross-border and transnational cooperative actions through programs like INTERREG and URBACT. The funding possibilities are the PRR initiatives like the one described in the next chapter (C15), and the ongoing thematic programs, like the Environmental Fund (Fundo Ambiental).



Sub-regional Level – Alto Alentejo

On the sub-regional level, an Action Plan for Sustainable Urban Mobility in Alto Alentejo (PAMUS-AA) was published in 2016. This plan comprehends an extensive characterization of the territory and the subjacent mobility dynamics, and it results in the formulation of proposals for the promotion of sustainable urban mobility. These proposals are meant to contribute through to the plan's implementation through sets of concrete actions. Anchored in a low-carbon strategy, it includes the promotion of multimodal urban mobility sustainable and contains measures that promote the reduction of greenhouse gas emissions and the reduction of energy intensity, while promoting an increase in the share of public transport and soft modes, associated with commuting.

The proposals are as follows:

- Structuring an integrated public transport network,
- Encouraging the use of soft modes,
- Promotion of public transport and intramodality,
- Traffic and parking management for sustainable mobility,
- Encouraging the reduction of emissions associated with individual transport.

5.4 Legal framework in Slovenia

Transport development strategy in the Republic of Slovenia until 2030

In July 2015, the Government of the Republic of Slovenia adopted the Strategy for the Development of Transport 2030 (SRP), outlining measures primarily aimed at implementation by 2030. This strategy is integral to Slovenia's national vision, ensuring sustainable mobility for the population and supporting economic supply chains. Sustainability within this context emphasizes the efficient operation of the transport system, balancing environmental, social, and economic considerations.

The SRP defines key objectives of transport policy to achieve its vision:

- Enhancing mobility and accessibility
- Improving economic supply chains
- Enhancing traffic safety and security
- Reducing energy consumption
- Lowering costs for users and managers
- Minimizing environmental impact

A significant focus of the strategy is on reducing greenhouse gas emissions and air pollution originating from the transport sector, a major contributor to these issues. This will be accomplished through promoting shifts in mobility behaviours towards public transport and environmentally friendly modes, alongside advancements in vehicle technologies to enhance efficiency and cleanliness.

Aligned with European guidelines, the strategy emphasizes adopting more energy-efficient mobility practices. Achieving these goals requires encouraging efficient utilization of transport



networks, particularly public transport and eco-friendly modes, as well as promoting the adoption of modern vehicles that are cleaner and more efficient. Additionally, the strategy emphasizes the importance of utilizing alternative fuels and ensuring sustainable management of used vehicles.

Resolution on the national transport development program in the Republic of Slovenia for the period up to 2030

In November 2016, the National Assembly of the Republic of Slovenia, upon the proposal of the Government, adopted the Resolution on the National Program for the Development of Transport in Slovenia up to 2030 (National Program). Within measure Ro.35, the National Program outlines several sub-measures:

1. Establishing a national policy framework for developing the market for alternative fuels in the transport sector and creating appropriate infrastructure.
2. Building a network of charging stations for electric vehicles.
3. Promoting the use of vehicles powered by alternative fuels.
4. Installing charging points for electric vehicles.
5. Establishing a supply point for LNG in the port of Koper.
6. Setting up publicly accessible LNG filling points for motor vehicles, both locally and on the TEN-T network.
7. Establishing publicly accessible service points for CNG for passenger vehicles in urban areas.
8. Creating publicly accessible hydrogen supply points.
9. Developing infrastructure to supply electricity from the coast to seaports.
10. Developing infrastructure to supply stationary aircraft with electricity.

However, LNG and CNG no longer enjoy the same level of political support or investor interest as they did in 2016.

Strategy in the field of market development for the establishment of appropriate infrastructure related to alternative fuels in the transport sector in the Republic of Slovenia

In October 2017, the Government of Slovenia adopted the Strategy for Alternative Fuels in the Transport Sector, aligning with EU Directive 2014/94/EU. This strategy complements the national transport development vision by fostering conditions and incentives for low-emission mobility. By 2025, Slovenia plans to restrict the initial registration of passenger vehicles and light trucks exceeding 100 g/km CO₂ emissions, lowering this limit to 50 g/km by 2030. This initiative prioritizes electric and hybrid vehicles, alongside high-standard fossil fuel vehicles with reduced environmental impact.

The strategy targets introducing at least 200,000 electric vehicles and other alternative fuel vehicles by 2030, supported by over 50 measures tailored for each energy source. These measures encompass:

Promoting electro-mobility:

- 1) Technology and economic development
- 2) Charging infrastructure



- 3) Vehicle incentives
- 4) Legislative changes and administrative simplification
- 5) Public transport provisions
- 6) Promotional campaigns
- 7) Recommendations to local communities, including installing charging stations in residential areas, regulating parking policies, promoting urban and taxi transport on alternative fuels, allowing access to designated lanes, and waiving parking fees for electric vehicles.
- 8) Supplying electricity to seagoing ships and stationary aircraft.

Promoting hydrogen and fuel cell vehicles:

1. Research and innovation promotion
2. Charging infrastructure
3. Financial incentives
4. Spatial deployment
5. Promotional campaigns
6. Demonstration projects
7. Energy supply and pricing policies
8. Integration of hydrogen technologies into education
9. Administrative streamlining.

These initiatives aim to advance Slovenia's sustainable transport goals through comprehensive analysis and strategic planning.

Action program for alternative fuels in transport for 2022 and 2023

On June 6, 2019, the Government of Slovenia approved the Action Program for Alternative Fuels in Transport. Concurrently, it mandated the Ministry of Infrastructure to provide annual reports on its implementation to the Government. To ensure effective execution, the program includes annual reviews of implemented measures and updates for the subsequent two-year period, adapting to market changes and evolving conditions.

In 2020, the Ministry of Infrastructure issued a report on the program's implementation and updated the Action Program for Alternative Fuels in Transport for 2022-2023. This revised program, comprising 19 measures, is structured into three sections: vehicles and infrastructure for alternative fuels, regulatory frameworks, and research projects, studies, and supplementary measures. The transparency of the program is ensured by aligning measures with plans and budgets of state administration bodies for the years 2022-2023, as detailed in the report submitted to the Government of Slovenia for information and confirmation (Vlada RS, 2021).

The Act on Infrastructure for Alternative Fuels and Promotion of the Transition to Alternative Fuels in Transport

This law sets forth regulations for planning Slovenia's national policy framework on alternative fuels infrastructure in transport. It aims to establish sufficient infrastructure for alternative fuels across road vehicles, stationary aircraft, and vessels. The law governs the operation of commercial public services for managing supporting infrastructure, including high-power charging parks. It outlines obligations for operators of charging and supply points, technical



standards for infrastructure setup and maintenance, user information requirements, and methods for registration and record-keeping. Additionally, the law addresses financing mechanisms, promotes transition measures to alternative fuels, and mandates the establishment of a center to facilitate this transition. By transposing Directive 2014/94/EU into Slovenian law, the legislation aims to reduce greenhouse gas and air pollutant emissions from transportation, increase renewable energy usage, shift vehicle fleets to low-carbon and zero-emission technologies, and optimize material and cost efficiency in electrification and alternative fuel adoption. The law also aims to create a dense, interoperable, and accessible network of charging and supply infrastructure, encourage private investment, and ensure safe infrastructure usage (MOPE, 2023).

National Energy and Climate Plan

The national energy and climate plan (NEPN) is a strategic document mandated by EU Regulation 2018/1999, requiring every EU member state to adopt it. This plan outlines goals, policies, and measures across five key dimensions of the energy union: decarbonization (including greenhouse gas and renewable energy emissions), energy efficiency, energy security, internal market integration, and research, innovation, and competitiveness. Currently in preparation, the NEPN proposes investments in energy infrastructure and electric mobility, encompassing both hydrogen and battery technologies.

Operational program for the implementation of the European cohesion policy for the period of 2021-2027

In the period from 2021 to 2027, cohesion policy in the EU is supported by four main funds: the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund. Together, these funds provide a total of EUR 3.2 billion for cohesion policy measures, distributed across five priority areas:

- 1) Smarter Europe: Focuses on innovative and smart economic transformation.
- 2) Greener, low-carbon Europe: Aims at energy transition, circular economy, climate change adaptation, and risk management.
- 3) More connected Europe: Emphasizes ICT, mobility, and connectivity improvements.
- 4) More social Europe: Supports the European Pillar of Social Rights and enhances healthcare services.
- 5) Europe closer to citizens: Promotes sustainable development in urban, rural, and coastal areas, as well as local initiatives.

Eastern Slovenia receives higher project co-financing at 85%, while Western Slovenia's share is set at 40%.

Under the "Green transformation for climate neutrality" priority, EUR 762 million from EU funds are designated for specific objectives including promoting energy efficiency, reducing greenhouse gas emissions, expanding renewable energy sources in line with EU Directive 2018/2001, developing smart energy systems, and enhancing networks and storage outside the TEN-E framework.

Within the "More connected Europe" priority, EUR 511 million is allocated for developing a smart, safe, and sustainable intermodal TEN-T network, and for bolstering sustainable, smart,



and intermodal national, regional, and local mobility systems. This includes improving access to the TEN-T network and enhancing cross-border mobility, with a specific focus on promoting battery electric and fuel cell vehicles under alternative fuel mobility objectives.

Sustainable Energy and Climate Action Plan Gorenjska (SECAP Gorenjska)

The SECAP Gorenjska, developed in 2018, originated from a proposal accepted by the municipalities of Gorenjska at the Council of the Gorenjska Region in January 2016, led by the Regional Development Agency BSC Kranj. This sustainable energy climate plan for Gorenjska embraces a synergistic approach to sustainable development, leveraging collaboration and knowledge sharing among stakeholders to achieve enhanced outcomes compared to isolated efforts. The plan is structured into three main parts:

The first part provides an overview of the region's energy landscape, including energy systems, sector-specific energy supply and consumption patterns, emissions profiles, and the potential of renewable energy sources.

The second part focuses on climate change dynamics in Gorenjska, outlining projected climate shifts, vulnerability assessments for key sectors such as mobility, tourism, and forestry, and risk evaluations.

The third part outlines the action plan of SECAP Gorenjska, detailing various investments and initiatives. This includes strategic investments in energy infrastructure aimed at promoting mobility through alternative fuels, among other priorities.

Overall, SECAP Gorenjska not only identifies challenges and opportunities in energy and climate sectors but also sets a structured pathway towards sustainable development through coordinated actions across various sectors and stakeholders within the region.

SUMP - sustainable urban mobility plans

In 2024, a funding call was initiated for the preparation of new municipal Sustainable Urban Mobility Plans (SUMPs), focusing on implementing sustainable mobility measures. Notably, this call allowed smaller municipalities to participate, making all 212 municipalities eligible for funding. Another innovation was the opportunity for municipalities to collaborate in small consortia to jointly address common mobility challenges.

In addition to municipal SUMPs, regional and national sustainable mobility plans are also being developed. Slovenia has already validated three regional sustainable mobility plans, including one for the Upper part of the Gorenjska region, Julien Alps. Current SUMPs have had limited focus on alternative fuel mobility, but the new SUMPs are expected to address this more comprehensively.

5.5 Legal framework in Bulgaria

The Policy Framework and Active Mobility in Bulgaria:

- Active mobility refers to using physical activity for travel, including walking, and cycling. Bulgaria faces urban transportation challenges, including congestion and car dominance.



- The country aims to promote active forms of transport through an integrated policy framework that prioritizes pedestrians and cyclists.
- Key areas include constitutional, real property, intellectual property, company, foreign investment, bankruptcy, contract, and antimonopoly law.
- Opportunities: Enhancing pedestrian and cycling rights, improving infrastructure, and fostering a culture of active mobility.

Efforts Towards Electric Mobility:

- Bulgaria has established an inter-governmental work group to develop a national program and roadmap for electric mobility up to 2025 (extended to 2030).
- Legislative changes support electric vehicles, encouraging their adoption.
- Opportunities: Further incentivizing electric mobility, expanding charging infrastructure, and promoting EV adoption.

Integrated Urban Transport Projects (IUTP):

- Large Bulgarian cities, including Stara Zagora, have been developing IUTPs since the previous programming period (2007-2013).
- These plans address sustainable mobility strategies, including active transportation, public transport, and infrastructure improvements.
- Opportunities: Aligning IUTPs with the city's specific needs, enhancing pedestrian-friendly infrastructure, and promoting cycling networks.

Relevance to Project Idea and Pilots:

Electric Buses in Stara Zagora:

- The legal framework supporting electric mobility aligns with the city's adoption of electric buses (e.g., Irizar e-mobility).
- Opportunities: Strengthening regulations for electric vehicle adoption, ensuring charging infrastructure availability, and promoting clean public transport.

EV Charging Infrastructure:

- Existing laws should facilitate the installation and maintenance of EV charging stations.
- Opportunities: Streamlining permitting processes, incentivizing private investment in charging infrastructure, and ensuring accessibility for all.

Active Mobility and Urban Planning:

- Legal provisions should prioritize pedestrians and cyclists in urban planning.
- Opportunities: Integrating active mobility considerations into zoning regulations, land use plans, and transportation projects. 3



Property Rights and Land Use:

- Clear property rights are essential for sustainable mobility infrastructure (e.g., bike lanes, charging stations).
- Opportunities: Strengthening property rights protections, especially for public infrastructure development.

Public Awareness and Education:

- Legal provisions can support public awareness campaigns promoting active mobility and electric vehicles.
- Opportunities: Funding educational programs, encouraging behaviour change, and promoting sustainable choices.

In summary, Bulgaria's legal framework provides opportunities for sustainable mobility in Stara Zagora. Improvements can focus on active mobility, electric vehicle adoption, infrastructure development, and public awareness. Collaboration between local authorities, businesses, and citizens is crucial for effective implementation.

5.6 Legal framework in Bosnia and Herzegovina

At the national level, Bosnia and Herzegovina currently lacks comprehensive regulations specifically addressing the use of electric vehicles. The "Framework Energy Strategy of the FBiH - working version" briefly mentions the integration of electrical energy in transportation, primarily focusing on biofuels. It forecasts that electricity's share in transport by 2035 will be approximately 10% - 15%, emphasizing the need for the construction of electric charging stations.

Bosnia and Herzegovina's commitment to sustainability is underscored by its endorsement of the Sofia Declaration, signalling cooperation with the European Union to achieve carbon neutrality by 2050. This commitment involves implementing stringent climate policies and reforming the energy and transport sectors. Notably, the declaration mandates the development of solutions for sustainable mobility, including plans for alternative fuel usage and the establishment of electric charging and pumping stations. Increased regional cooperation is envisioned for infrastructure development aimed at promoting alternative fuels.

To fulfil these commitments, institutions within Bosnia and Herzegovina must devise concrete plans outlining strategies for enhancing sustainable mobility while incentivizing the adoption of electric vehicles. Certain local communities and cities in the Federation of Bosnia and Herzegovina are actively engaged in initiatives such as the Alliance of Mayors (Covenant of Mayors). These initiatives involve the development of energy action plans for sustainable development (Sustainable Energy and Climate Action Plan - SECAP), aligned with European Commission guidelines. These plans aim to reduce CO₂ emissions by at least 40% by 2030 compared to the base year, while also bolstering resilience to climate change within their respective territories.

The Sustainable Energy and Climate Change Action Plan (SECAP) is designed to achieve several key objectives:



- Reduce CO₂ emissions (and potentially other greenhouse gases) within the city by at least 40% by 2030 compared to a base year, accomplished through the more efficient utilization of energy and increased reliance on renewable energy sources.
- Enhance the city's resilience to the adverse effects of climate change.
- Facilitate the sharing of vision, outcomes, experiences, and knowledge gained from the SECAP creation and implementation process with other local and regional entities within and outside the European Union. This is achieved through direct cooperation and exchange, particularly within the context of the Covenant of Mayors agreement.

These action plans have been developed for various municipalities and cities, including Mostar, the municipality of Centar Sarajevo, Kakanj, Zenica, Tuzla, Travnik, Cazin, Bihać, Gračanica Municipality, among others.

To incentivize the purchase and utilization of electric vehicles within the Federation of Bosnia and Herzegovina, the Federal Ministry of Energy, Mining, and Industry allocated funds from the Federation of Bosnia and Herzegovina's budget in 2022. These funds were reserved to assist individuals aged 25 and above in purchasing new cars registered in the Federation of Bosnia and Herzegovina. Eligible vehicles include those with exclusive electric drive, dual energy sources (electric motor and internal motor), plug-in hybrid (combustion), and full hybrid (combustion engine and electric motor).

In 2022, the Council of Ministers of Bosnia and Herzegovina abolished customs duties on electric vehicle imports and reduced customs duties on hybrid vehicle imports. This decision, extended until the end of 2023, significantly eased the development of electromobility by boosting the interest of authorized representatives and car traders in importing electric vehicles. However, challenges such as high registration costs, underdeveloped infrastructure, steep connection fees, and limited awareness among citizens and relevant institutions about the concept of electromobility and its benefits hindered its progress in Bosnia and Herzegovina.

Within the Federation of Bosnia and Herzegovina Chamber of Commerce, an Electromobility Association has been established, comprising members who actively strive to improve conditions for electromobility in the country through their enthusiasm and proactive initiatives.

5.7 Legal framework in Italy

National legal framework

National Recovery and Resilience Plan (NRP), approved by EU Council Implementing Decision on 13 July 2021

As of December 2023, Mission No. 3, 'Infrastructure for Sustainable Mobility,' has been allocated approximately EUR 23.8 billion, with EUR 23.06 billion in loans and EUR 680 million in grants. This mission aims to complete a modern, digitized, and sustainable infrastructure system by 2026, aligning with the European Green Deal, UN Agenda 2030 sustainable development goals, and Italy's National Integrated Energy and Climate Plan (PNIEC).

Mission 2, 'Green Revolution and Ecological Transition,' includes investments in 'Energy Transition and Sustainable Mobility.' This involves simplifying authorizations for sustainable mobility projects, constructing bicycle paths and rapid transport infrastructure (such as metro,



tram, and bus systems), and purchasing zero-emission buses, rolling stock, and airport fire-fighting vehicles.

The newly established Mission 7, under the revised PNRR with the RePowerEU chapter, plans several key investments:

1. Strengthening the regional railway fleet for public transport with zero-emission trains (M7C1).
2. Subsidizing the development of international, industrial, and research leadership in electric buses (M7C1 I12).

Italian National Integrated Energy and Climate Plan (PNIEC)

The Integrated National Energy and Climate Plans (NNIECs) were established by the EU Governance Regulation 2018/1999, effective since December 24, 2018. Italy's 2030 Integrated National Energy and Climate Plan is a crucial instrument initiating significant changes in the country's energy and environmental policies toward decarbonization.

The plan encompasses five integrated action lines: decarbonization, energy efficiency, energy security, internal energy market development, and research, innovation, and competitiveness. Its objective is to develop a comprehensive energy policy ensuring the environmental, social, and economic sustainability of the national territory throughout this transition.

The Italian government, along with other European nations, has until June 30, 2024, to revise the draft PNIEC based on the European Commission's recommendations and submit the final version.

National Strategic Plan for Sustainable Mobility – PSNMS

Envisaged by the 2017 Budget Law, approved by DPCM 30.04.2019 on the proposal of the MiMS, the Plan has the following objectives: the renewal of the road vehicle fleet, through the replacement of the most energy-intensive and polluting vehicles; the improvement of air quality, the reduction of climate-changing and particulate emissions.

To be updated within three years, several Administrations are involved: Ministry of Transport, Ministry of Economy and Finance, Ministry of Energy Transition.

Plan for the Ecological Transition (PTE) approved by CITE Resolution No. 1 of 8 March 2022

The Plan provides a general framework on the Italian Ecological Transition Strategy and a conceptual framework to accompany the interventions of the National Recovery and Resilience Plan (PNRR).

One of the eight areas of intervention of the PTE is sustainable mobility, since a significant part of the actions aimed at decarbonisation concerns the transport sector, which is responsible in Italy for about 26% of emissions (in line with the EU27 average).

National Strategy for Sustainable Development (SNSvS), approved by CIPE Resolution 108/2017

The Strategy is structured in five areas: People, Planet, Prosperity, Peace and Partnership, which included an annual report on the status of its implementation. The Strategy was created as a tool for coordinating the implementation of the 2030 Agenda in Italy to be the reference



framework for planning, evaluating and monitoring public policies and investments and is currently being updated. It is also recalled that Decree-Law No. 111/2019 (“Climate Decree-Law”) had adopted urgent measures for the definition of a national strategic policy to combat climate change and improve air quality.

Sustainable Urban Mobility Plans (PUMS)

Sustainable Urban Mobility Plans (PUMS), prepared by each municipality, are the planning tool, in a medium to long term time horizon, within which new mobility interventions in urban areas must find justification and strategic coherence. The preparation of PUMS is not compulsory, but is strongly recommended, for the country's urban areas under 100,000 inhabitants.

Legislative Decree no.194/16 provided for the adoption of uniform criteria at the national level for the preparation and application of PUMS and with the Ministry of Transport Decree no. 397 of 2017, the Guidelines for the drafting of PUMS were issued and a Technical Table for the monitoring of PUMS was established. With Ministerial Decrees No. 171 of 2019 and No. 594 of 2019, state resources were made available for the preparation of PUMS by those still in default.

Legislative Decree No 187 of 8 November 2021 implementing Directive (EU) 2019/1161 on the promotion of clean and energy-efficient road transport vehicles

The Decree stipulated that contracting authorities and contracting entities must consider the energy and environmental impact, including energy consumption and emissions of carbon dioxide and certain pollutants, over their entire lifetime in the public procurement of road transport vehicles (these are certain categories of M- and N-category vehicles).

MITE Decree 17 June 2021 (Official Journal 2/7/2021)

The Decree defines the minimum environmental criteria for contracting authorities for the purchase, leasing, renting and hiring of road transport vehicles (passenger cars and light commercial vehicles of category M1 and N1).

Mobility Manager

To encourage the reduction in the use of individual private transport and the decongestion of traffic in urban areas, Decree-Law No. 34 of 2020 (Art. 229, para. 4) provided for the adoption, by 31 December of each year of a plan for the home-work journeys of personnel by companies and public administrations with individual local units with more than 100 employees and located in a regional capital, a metropolitan city, a provincial capital or a municipality with a population of more than 50. 000 inhabitants, appointing, for this purpose, a Mobility Manager with functions of continuous professional support to decision-making, planning, programming, management and promotion of optimal sustainable mobility solutions. In the case of public administrations, this figure is chosen from among tenured staff.

The MITE decree of 12 May 2021 dictated 'Implementation modalities of the provisions concerning the figure of the mobility manager'. The subsequent MITE decree of 16 September 2022 amended the decree of 12 May 2021.

DL No. 73 of 2021 provided (Article 51, paragraphs 7 and 8), the establishment of a fund at the Ministry of Transport for a more effective distribution of users of scheduled public transport, as well as to achieve a more appropriate connection between the start and end times of



economic, work and educational activities and the timetables of local, urban and suburban public transport services, taking into account the containment measures identified with the anti-Covid measures.

Lombardy Region legal framework

Regional Mobility and Transport Programme (PRMT), approved by Regional Council Resolution No. 1245 of 20 September 2016

The entire Regional Mobility and Transport Programme is geared towards promoting sustainable mobility, and in the text of the document, the 60 actions that contribute most to the environmental sustainability of travel are shown. In this sense, all the initiatives functional to the development of collective transport (rail and road) are highlighted, with significant interventions for the strengthening and upgrading of infrastructures and the implementation of services. Actions dedicated to promoting cycling and complementary and shared mobility (car and bike sharing) are also worth mentioning, as is the development of intramodality in the movement of goods.

The Regional PRMT is undergoing an updating procedure, started by the Regional Government in July 2023.

Implementation document of the Regional Strategy for the development of electric mobility (d.g.r n. 6366 published in BURL SEO n. 12 of 23 March 2017)

The Strategy outlines key objectives for the development of electric mobility in Lombardy, focusing on reducing climate-changing and polluting emissions and improving energy efficiency. The Lombardy Region aims to enhance liveability, boost entrepreneurial opportunities, and increase the spread of electric vehicles and charging infrastructure.

Three priority areas of intervention are identified, each with specific actions and target groups:

- 1) Urban, Suburban, Lake, and River Mobility: Municipalities, enterprises, citizens, and Local Public Transport Agencies will work together to achieve regulatory compliance, expand charging points, introduce more electric vehicles into public and private fleets, and incentivize the replacement of private vehicles with electric and shared options.
- 2) Education, Training, and Information: Enterprises, citizens, and educational institutions will initiate awareness campaigns on environmental issues, communication efforts, and professional training programs.
- 3) Research, Development, and Innovation: Universities, enterprises, and research bodies, particularly those in Lombardy Regional Technological Clusters (CTL), will focus on infrastructure innovation, performance improvements, distributed generation systems, and the design of intelligent transport systems with strong technological components.

Implementation will be managed by the Working Group for Electric Mobility in Lombardy (MEL), which will coordinate with established and new thematic working tables and engage with national and territorial institutional bodies.



Regional Cycling Mobility Plan (PRMC) approved by resolution no. X /1657 of 11 April 2014

The Regional Cycling Mobility Plan (PRMC) defines guidelines for the updating of local authority planning and technical standards for the implementation of the cycling network of regional interest with the aim of promoting and encouraging sustainable approaches in daily and leisure travel.

The Plan identifies the cycle system on a regional scale, aiming at connecting and integrating it with provincial and municipal systems; it favours the development of intermodality and identifies "host" railway stations; it proposes a single signposting system for cyclists; it defines the technical standards for Local Authorities to implement the cycle network of regional interest.

Mantova Province legal framework

The Regional Mobility and Transport Programme (PRMT) for the province of Mantova

The PRMT outlines significant initiatives to enhance transport infrastructure and services in the province of Mantova, aiming to boost accessibility and competitiveness in the region. These actions align with broader regional efforts, including:

1. Implementation of Regional Law No. 6 of 2012: This law mandates the operation of Public Transport Agencies, such as the Cremona and Mantova Basin Agency, responsible for planning, organizing, monitoring, controlling, and promoting integrated and optimized transport services across their jurisdictions.
2. Investments in Public Transport: Between 2016 and 2025, €2 billion is allocated for purchasing railway and metro-tram rolling stock to improve regional public transport services.
3. Development of Tariff Integration: This initiative aims to benefit travelers with tickets valid across multiple transport modes, supported by a unified, simplified, and recognizable transport service image (standardized information, consistent map and legend styles, recognizable shelters, etc.).
4. Promotion of E-Ticketing: The rollout of interoperable systems for tickets and e-readers to streamline the ticketing process.
5. Sustainable Mobility Interventions: Efforts to encourage the use of low-emission vehicles and promote environmentally friendly transportation options.
6. Cycling Infrastructure Development: In line with the Regional Plan for Cycling Mobility (PRMC), which sets guidelines for local authorities' planning and technical standards for implementing the regional cycling network, the goal is to foster sustainable travel for both daily commutes and leisure activities.

Provincial Sustainable Mobility Plan (PPMS)

The Provincial Sustainable Mobility Plan (PPMS) is a long-term structural and strategic plan adopted by the Province of Mantova.

The PPMS will have the effect of giving a more rational structure to the system of functions and instruments that contribute to the government of mobility, making it more organic and complete: at the centre is the Provincial Coordination Territorial Plan (PTCP).



The PPMS systematises plans and choices that have as their object the mobility sector, stimulates and, if necessary, redirects their action, evaluates their efficiency and effectiveness, and refers them to a shared system of objectives (participation) pursuing aims of economic, social and environmental sustainability.

5.8 Legal framework in Greece

The ever-increasing and rapid development of the "e-mobility" electric mobility market in all countries of the world as well as in Greece, combined with the rapid increase in new electric vehicles that is prescribed in the next period lead to the need to form a modern and safe institutional framework for electric mobility, which for several years has begun to be drawn for both National and EU level. The basic legislation is summarized in paragraph with a simultaneous brief mention of the most important incentives established for the purchase of electric vehicles. The following present a brief historical overview of the legislation:

- Pursuant to Law 4233/2014 and the provisions of art. 15, the possibility of installing electric vehicle charging stations at fuel and energy stations, indoor and outdoor car stations, car and motorcycle maintenance and repair shops and public or private K.T.E.O.
- Pursuant to Law 4439/2016, Directive 2014/94 of the European Commission was incorporated into Greek legislation, which establishes measures for the development of alternative fuel infrastructure in the European Union and defines the required minimum specifications for the creation of alternative fuel infrastructure, including the points recharging of electric vehicles, defining at the same time the common technical specifications for this recharging.
- Pursuant to Law 4513/2018 and the provisions of Art. 17 of this allowed the installation of electric vehicle charging stations in public common areas.
- Pursuant to EU Directive 2018/844 (the harmonization of which with Greek legislation was completed with Law 4685/2020) foresees, on the one hand, the installation of recharging infrastructure for electric vehicles in both new and existing buildings and, on the other hand, measures to simplify the process and deal with regulatory obstacles.
- Pursuant to Law 4643/2019, the rules to be followed by the agencies and interested parties for the organization of the electric vehicle charging market are set, and among other things, the services of electrification and recharging of electric vehicles and the provider of electrification services are defined.
- Pursuant to KYA 42863/438/27.5.19 (Government Gazette 2040/TB/4.6.2019) the terms and technical specifications for the installation of electric vehicle battery charging devices at vehicle service facilities, at publicly accessible points along the urban, interurban, and national road network and in parking areas of public and private buildings.
- Pursuant to Law 4710/2020 on "the promotion of electric mobility and other provisions" - which is the most complete legislation on electric mobility to date - it is foreseen: the establishment of financial and fiscal incentives for the purchase, lease and use of



electric vehicles, as well as development incentives for electric vehicle production units, the organization of the operation of the electric mobility market and the electric vehicle charging infrastructures, the operation of the Electric Mobility Infrastructure and Market Operators Register (M.Y.F.A.H.), the spatial and urban planning of infrastructures of electric mobility with a provision for the location of parking spaces and charging infrastructures in private and public spaces, the conditions and specifications for the installations of electric vehicle charging infrastructures, as well as the establishment of an Autonomous Department of Electric Mobility in the Ministry of Environment and Energy.

The main incentives for the development of electric mobility pursuant to LAW 4710/2020.

- FINANCIAL INCENTIVES include: a) Creation of free parking spaces for electric vehicles with low or zero emissions up to 50 g. CO₂/km. within the administrative boundaries of the OTAs of the first degree (from 1.1.21 to 31.12.22) b) incentives for licensing electric vehicle production units and goods or items for these vehicles installed in the Regions of: Western Macedonia and Arcadia (Peloponnese) c) imposition of an environmental fee and import ban on old, polluting used vehicles
- TAX INCENTIVES include:
 - Exemptions from income for expenses or concession of a vehicle with zero or low emissions up to 50 g. CO₂/km,
 - additional discount for specific costs of zero or low emission vehicles concerning employees, businesses, and environmental protection,
 - Tax depreciation on zero or low emission means of transport d) exclusion of the purchase of a zero-emission car from the annual objective expenditure and asset acquisition expense.

Over the last few years, several Sustainable Urban Mobility Plans (SUMPs) were developed in Greece on a purely voluntary basis, as there was no mandatory legal framework in place to oblige local authorities to design and implement such plans. The plans were based on the Etis SUMP guidelines, but not all SUMP elements in the guidelines, nor the steps that encompass a SUMP cycle, were always included. Both at the European and national level, led to the establishment of a unit within the Ministry of Infrastructure and Transport in 2017, which was dedicated to the development of SUMPs in Greece. To establish a uniform way of elaborating, examining, and monitoring SUMPs based on the principles of sustainable urban mobility planning, a regulation was introduced in 2019, (Article 22 of Law 4599) which described the minimum key elements and obligations that a SUMP should encompass. A few years later in 2021, Law 4784 (Articles 1 to 14) was introduced, which established more detail on the principles, processes, and elements of a SUMP, as well as making it a legal obligation to prepare a SUMP for certain Municipalities and Regional Authorities. The Law 4784/2021 (Articles 1 to 14) defines a “Sustainable Urban Mobility Plan” based on the definition given in the Etis SUMP guidelines. It specifies that SUMPs can be developed by Municipalities or a union of Municipalities or Regional Authorities, and it makes SUMPs mandatory for Municipalities over 30,000 inhabitants, as well as for Municipalities located within the region of responsibility of



Athens and Thessaloniki Public Transport Authorities (OASA and OSETh, respectively), and for all Regional Authorities across the country. A ministerial decision is issued by the Ministry of Infrastructure and Transport for each SUMP that meets the requirements of Law 4784/2021. During the SUMP Implementation phase, local authorities must conduct a biannual progress report, based on the SMART targets and indicators that they have decided upon during their SUMP Elaboration phase. In addition, the Law (Article 3) describes a set of nine transport objectives that local authorities should, at a minimum, plan implementation measures for their area of intervention. Based on the results of a survey conducted in September 2021 by the competent unit of the Ministry of Infrastructure and Transport, approximately 120 municipalities were in the process of preparing, elaborating, or implementing a SUMP. More authorities are expected to follow because of the enforcement of Law 4784/2021. SUMPs are mandatory for certain Municipalities and all Regional Authorities across the country. It is foreseen that proposed SUMP measures that meet the requirements of Law 4784/2021 and fall within the areas of responsibility of the Ministry of Infrastructure and Transport, will be examined by the Minister of Infrastructure and Transport, and may be prioritized for inclusion in the annual Public Investment Program.

In 2023, Greece has prepared The National Plan for Electrification in Greece which orchestrates activities during the market development phase in the short and medium term while providing long-term guidance for these activities. Several goals were set which should be achieved with an initial policy action plan that combines measures to increase the economic attractiveness of electric vehicles, disincentives for internal combustion vehicles and a favourable regulatory environment for business, combined with investment in charging infrastructure for to achieve maximum efficiency.

The main objective of the plan is to evaluate and adapt recent initiatives aimed at the development of electrification in Greece, supplementing these initiatives with additional interventions to cover all modes of transport, facilitating private sector investments in electrification, calibration of all measures and ensuring a continuous dialogue with stakeholders.

The action plan foresees the continuation of the incentives under the "Move Electric" program and the establishment of complementary actions. The key factors influencing fleet electrification are the total cost of ownership of EVs compared to internal combustion engine vehicles, as well as the availability and accessibility of charging infrastructure. Policy measures affecting the total cost of ownership include incentives introduced mainly in the short and medium term in combination with the introduction of disincentives, which are gradually replaced only by disincentives for users who delay the transition to electrification. The following policy actions for the electrification of fleets (PA-EF) are considered effective in supporting the further spread of electric vehicles in Greece:

1. Subsidies for electric vehicles and retirement programs
2. Bus electrification fund
3. Low-pollution zones with tolls for conventional vehicles
4. Incentives and disincentives for corporate fleets



5. Micromobility in urban nodes
6. Electrification of municipal fleets
7. Incentives for FEVs – Electric Freight Vehicles
8. Reduced fee for hybrid and electric boats

The lack of charging infrastructure is one of the most important obstacles to the adoption of electric vehicles in Greece, which must be addressed to ensure adequate coverage by charging infrastructure in the short and medium term. The development of charging infrastructure should be supported by financial and non-financial means (e.g. simplified licensing system), as well as incentives for the private sector and end-users. The Greek Government offers incentives for the purchase and installation of charging stations in homes and office spaces, but publicly accessible charging infrastructure in common areas of residential areas is still not sufficient. Adequacy of publicly accessible charging infrastructure along motorways is judged to be even more difficult to achieve.

Considering the long payback periods of investments in charging infrastructure, special support schemes are needed to make these investments profitable. Although business models for Electric Vehicle Recharging Infrastructure Operators should not rely on government support in the long term, it is important to incentivize Electric Vehicle Recharging Infrastructure Operators in the short term, especially for unattractive locations where they are expected to have low profitability. The action plan therefore foresees measures aimed at increasing the profitability of investments in charging infrastructure, which will facilitate the participation of the private sector. These measures include subsidies and regulations, as well as strengthening ongoing dialogue with stakeholders.

The action plan includes additional interventions to orchestrate the installation of charging infrastructure during the market development phase, by improving licensing and approval processes, intensifying coordination efforts and cross-sectoral cooperation. In addition to increasing profitability and orchestrating the installation of charging infrastructure, the policies will promote user-centric charging solutions, ensuring interoperability and barrier-free accessibility of charging stations. The following sets of policy measures for charging infrastructure (PA-CI) have been identified as particularly important to support the development of charging infrastructure.

Concerning the regulatory framework Greece is in the early stages of EV adoption, but the country does already offer some very attractive EV incentives for residents. It was announced a new €100 million plan called “I Move Electricity”, which aims to subsidize the purchase of EVs and chargers until the end of 2021. The plan stipulates that “every new building should have the infrastructure to charge electric vehicles”, with the goal of installing 1,000 new charging stations in the next few years and 10,000 charging points in the medium term. In Athens, the plan is for every third new vehicle to be electric by 2030. It is expected the new funding to cover 25% of the cost for about 14,000 new electric cars. The main incentives available are based on LAW 4710/2020 (Codified) - Official Gazette A 142/23.07.2020 - Promotion of electric mobility and other provisions. The aforementioned law includes EV Incentives that will enable citizens to benefit from up to €10,000 when buying an electric car applying from 1 June 2020



to 31 December 2021 and are applicable to vehicles with emissions of up to 50g CO₂/km. Moreover, there are incentives for business concerning a number of purchase grants for various types of vehicles e.g. cars or light duty vehicles. Tax benefits are also included in the aforementioned law that lead to tax depreciation rates when purchasing an EV either for companies or for individuals. Finally, a number of incentives are also mentioned for the promotion of EV charging stations which concern both individuals and businesses including tax depreciations rates and purchase subsidies.

EV Incentives

The sum of all planned EV incentives will enable residents to benefit from up to €10,000 when buying an electric car. Here is a full breakdown:

Public EV Charging Network

Greece will step up the development of the public EV charging infrastructure in the years to come, and has already set up some key dates:

End of 2021: All the country's main roads to be fully covered by EV chargers.

March 2021: Municipalities are required to have EV charging points within the limits of their liability. Greece matches other European EV grants to boost their market. Greece's new €100 EV plan reveals the country's hopes to join some of the bigger EV markets in the EU. Over the next 18 months, Greek residents can benefit from greater grants than ever before when investing in EVs or chargers.

Electric Mobility

This paragraph focuses on whether the charging point operator, i.e. the agent selling charging services to vehicle users, be different to the charging point owner/holder of the electricity supply contract associated to that charging point. A parameter that is taken into consideration is whether a charging station is built on private or state-owned land and whether it will be installed at already operating and licensed infrastructure. In each case, different legal requirements shall be met:

- where a charging station is built on state-owned land and operated by a private entity, land usage rights with relation to the State-owned property shall be granted, usually by means of an installation permit and the issuance of an installation protocol by the competent authority. The procedure is less complicated and time-consuming where a charging point is installed at already operating and licensed infrastructure (e.g. a fuel station). However, in this case, the existing licenses and approvals issued in relation to said infrastructure should be amended.
- where the operator of the charging station and the owner of the land on which the charging station is constructed are not the same legal entity, parties shall enter into an agreement (usually a lease) in order for the operator to secure land usage rights.



Policy & Strategies in Region of Western Macedonia

The Region of Western Macedonia aspired to foster a more environmentally friendly approach by promoting sustainability that will help to reduce CO₂ emissions and to refine its policy tools to align with the evolving transition dynamics, as the Region has already entered the post-lignite era. Transportation is one of the priorities that Region of Western Macedonia focuses on as this entity is characterized by multiple urban centres interconnecting municipal and regional areas. The distribution of workplaces, services, and other facilities are spread over a wide geographic area that require extensive travelling and reliance to private vehicles. Thus, the Region of Western Macedonia has via a number of project such as REGIO-MOB (Interreg Programme), developed a regional strategies for transportation focusing on the transition to a more sustainable and environmentally friendly option. In this manner, the Municipalities of Western Macedonia have already prepared their Sustainable Urban Mobility Plans where several options such e-mobility are also included.

6 Financing instruments for sustainable mobility solutions

6.1 General possible funding sources in EU

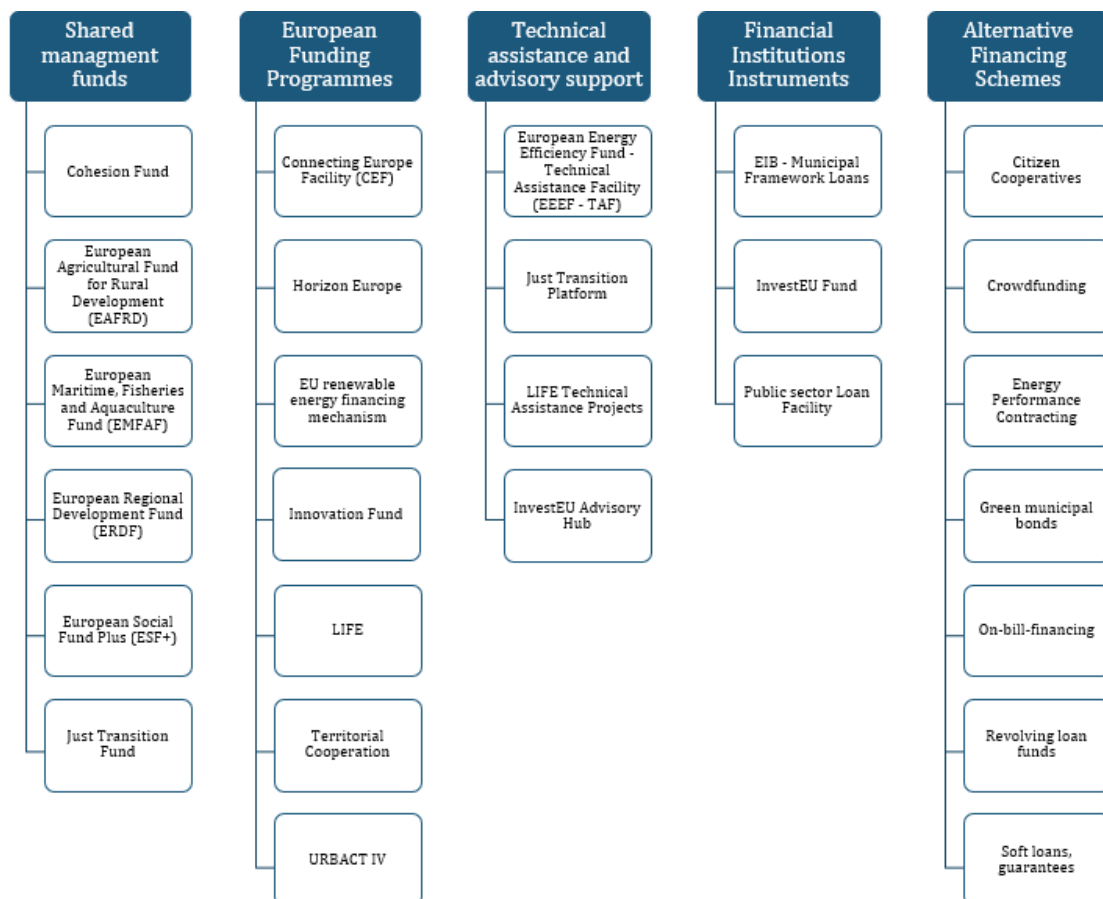


Figure 4 EU Funding Sources



The EU financing architecture for local mobility and urban transport for 2021-2027 is built on two main pillars: the Multiannual Financial Framework (MFF) 2021-2027 and the Next Generation EU 2021-2023. The MFF, totalling €1.2 trillion, is the traditional EU budget funded by EU own resources and provides an overview of budget priorities. The Next Generation EU, amounting to €807 billion, is a temporary recovery instrument funded by borrowings on capital markets. EU financing for local mobility and urban transport includes EU grants, financing instruments, and support from the European Investment Bank (EIB), with the latter disbursing around €16.5 billion for urban mobility between 2014 and 2020. While EU grants are non-repayable, financing instruments and EIB support are reimbursable, often in the form of loans. The European Structural and Investment Funds have traditionally been the main source of EU grants for sustainable local transport, totalling €16.3 billion in 2014-2020. Additionally, the Connecting Europe Facility – Transport allocated around €200 million in the same period for projects in larger cities on TEN-T urban nodes. The Recovery and Resilience Facility is expected to provide significant grants and loans for local mobility and public transport investments in the period 2021-2027.

Major EU funding programmes:

1. Recovery and Resilience Facility

€723.8 billion (2021-2023, Next Generation EU)

The Recovery and Resilience Facility (RRF), a core component of Next Generation EU, serves as a vital tool in addressing the economic and social repercussions of COVID19 while also fostering sustainability and resilience in European economies. With a focus on green and digital transitions, RRF provides financial support to Member States through loans and grants, aiding in the implementation of reforms and investments aligned with EU priorities. Member States submit recovery and resilience plans outlining their intended reforms and investments, with funds disbursed based on achieved milestones. Sustainable and green mobility investments, receiving around €72.2 billion predominantly in grants, are a significant aspect of RRF, aimed at promoting clean, smart, and equitable urban mobility. Eligible transport measures include those addressing green transition and digital transformation, aligning with country-specific recommendations and EU funding programs to maximize impact and minimize duplication.

2. European Structural and Investment Funds

European Regional Development Fund

Cohesion Fund

€274 billion (2021-2027, MFF)

More than half of EU funding is distributed through five key European Structural and Investment Funds (ESIFs), such as the European Regional Development Fund (ERDF) and the Cohesion Fund (CF). These funds, managed jointly by the European Commission and Member States, operate through Partnership Agreements at the national level and Operational Programmes at the regional level. Responsible authorities in each Member State manage these funds, with cities also receiving funding for integrated urban development strategies. During



the 2014-2020 financing period, ESIFs allocated approximately 20% of their budget to clean urban transport, including significant amounts for urban public transport and walking/cycling initiatives.

The ERDF, the largest fund with €226 billion, aims to enhance economic, social, and territorial cohesion in the EU. A portion of ERDF grants, around 30%, is dedicated to climate objectives, and from 2021-2027, at least 8% will be allocated to sustainable urban development projects aligned with cities' climate-neutral economy strategies.

The Cohesion Fund, amounting to €48 billion, provides grants to Member States with lower income per capita to bolster economic, social, and territorial cohesion. It supports investments in climate adaptation/mitigation, transport infrastructures, and TEN-T-based projects. Notably, 37% of CF allocations contribute to climate objectives. Both ERDF and CF offer grants covering up to 85% of eligible costs.

3. Connecting Europe Facility – Transport

€25.8 billion (2021-2027, MFF)

CEF-T is the funding tool for the TEN-T policy, aimed at improving European transport networks. It supports infrastructure development, focusing on cross-border projects and bottleneck removal. 60% of its budget is allocated to EU climate goals, distributed over three calls from 2021 to 2023. The latest call includes funding for the Alternative Fuels Infrastructure Facility, promoting electric and hydrogen infrastructure. CEF-T also enhances multimodal hubs for seamless urban transportation connections. Asset procurement for clean vehicles is now addressed through other funding sources, with CEF-T concentrating on alternative fuel infrastructure and multimodal hubs.

4. Horizon Europe

Cluster 'Climate, Energy and Mobility'

EU Mission 'Climate-Neutral and Smart Cities'

€15.3 billion (2021-2027, MFF)

Horizon Europe is the EU's primary research and innovation funding program, with Cluster 5 focusing on Climate, Energy, and Mobility to drive green and digital transitions. It operates through partnerships such as co-programmed partnerships (for zero-emission transport, batteries, waterborne transport, and automated mobility), co-funded partnerships (for urban sustainability), and institutional partnerships (for clean hydrogen and rail). EU Missions, a new feature, aim to achieve specific goals, including "Climate-Neutral and Smart Cities," involving various stakeholders in creating 100 such cities by 2030. The Mission Platform supports cities with technical, regulatory, and financial aid, including research and innovation in mobility, energy, and urban planning.



5. Just Transition Mechanism

Just Transition Fund	InvestEU scheme	Public Sector Loan Facility
€7.5 billion, MFF	€1.8bn, Next Generation	€11.5bn, Next Generation
€10 billion, Next Generation EU	EU	EU

The Just Transition Mechanism aims to assist EU regions impacted by the shift to climate neutrality, focusing on Territorial Just Transition Plans. It includes the Just Transition Fund (JTF) for regions heavily reliant on fossil fuels, which can support projects like sustainable mobility. Additionally, the InvestEU "Just Transition" scheme offers a budgetary guarantee to mobilize private sector investments, and the Public Sector Loan Facility blends grants and loans to stimulate public investment in areas like energy and transport infrastructure.

6. INTERREG Programme

€8.1 billion (2021-2027, MFF)

The 6th generation of the Interreg instrument, funded by the European Regional Development Fund, supports cross-border projects and regional cooperation. With a focus on adjacent regions and maritime borders (Interreg A), it promotes integrated development. Co-financing for projects is capped at 80%, rising to 85% for outermost regions.

7. REACT-EU

€50.6 billion (2021-2023, Next Generation EU)

REACT-EU (Recovery Assistance for Cohesion and the Territories of Europe) supplements Cohesion policy programs from 2014-2020 and extends support to cohesion allocations from 2021-2027. It covers retroactive expenditures from February 1, 2020, to December 31, 2023, aiding projects for crisis response to COVID-19 and investments promoting a green, digital, and resilient economic recovery. This includes funding for sustainable mobility infrastructure and electric mobility in public transport.

8. LIFE Programme

€5.4 billion (2021-2027, MFF)

The LIFE Programme for Climate Change Mitigation and Adaptation serves as the EU's funding mechanism for environmental and climate action. Within its scope, LIFE supports various thematic areas and offers co-financing for projects aimed at sustainable mobility, including initiatives related to local public transport. Projects addressing specific environmental concerns related to mobility can be submitted under calls focusing on topics such as 'Air quality – Sustainable Road transport mobility' or 'Actions in support of the shift to zero-emission mobility reducing CO2'. Eligible costs encompass expenses associated with equipment, infrastructure, and the operation of specific transport services. However, LIFE is not anticipated to fund projects solely dedicated to constructing transport infrastructure.



Major EU financing instruments:

1. InvestEU Fund

€9.9 billion for Sustainable Infrastructure policy window (2021-2027, MFF)

The InvestEU Programme, building upon the framework of the Investment Plan for Europe, consolidates various EU financial instruments, including the European Fund for Strategic Investments and CEF Debt and Equity Instruments. With an EU budgetary guarantee of €26.2 billion, InvestEU aims to mobilize over €372 billion in public and private investment, primarily through partners like the European Investment Bank Group. InvestEU offers support through a range of financial instruments, including loans, guarantees, equity, and credit-enhancement instruments, aligning closely with EU policy priorities. It prioritizes sustainable, safer, and smart mobility projects, with 38% of the total guarantee allocated to the Sustainable Infrastructure policy window. Additionally, at least 30% of InvestEU funds are dedicated to climate-related objectives, with the Sustainable Infrastructure window aiming for 60%. InvestEU also plays a crucial role in the European Green Deal Investment Plan and serves as a key component of the Just Transition Mechanism, particularly through a dedicated "Just Transition" scheme. Member States can integrate parts of their national recovery and resilience plans into InvestEU voluntarily, contributing to the overall goals of the European Green Deal.

2. Innovation Fund

€25 billion (2020-2030; ETS-driven)

The Innovation Fund, an EU funding program, aims to facilitate the commercial demonstration of innovative low-carbon technologies to drive Europe's transition to climate neutrality. It supports both large and small-scale projects through calls for proposals. Building upon previous initiatives like the NER300 program, the Innovation Fund enhances project risk-sharing by providing funding more flexibly and simplifying the selection process. It prioritizes highly innovative technologies and flagship projects with significant emissions reduction potential. By sharing risks with project promoters, the Fund helps demonstrate pioneering projects. It covers up to 60% of additional capital and operational costs for large-scale projects and up to 60% of capital costs for small-scale projects. The European Commission oversees the Fund's management, with support from implementing bodies like CINEA and EIB.

3. European Investment Bank instruments

Loans, equity funds, financial blending

Cleaner Transport Facility

The European Investment Bank (EIB) is a major financier of urban and regional transport networks, offering long-term loans and guarantees primarily to support mobility projects. With over a quarter of its portfolio dedicated to transport, the EIB invests more than €10 billion annually in the sector. Its loans cover up to 50% (or 75% for specific projects) of total investment costs and are complemented by initiatives like the Cleaner Transport Facility (CTF), which aims to accelerate the adoption of cleaner transport solutions. Additionally, programs such as the European Local Energy Assistance (ELENA) Facility provide grants and technical



assistance for energy-efficient transport projects. Through various support mechanisms, including thematic Impact Finance Facilities, the EIB fosters innovation and growth in the transport sector, including investments in smart and sustainable urban mobility solutions.

4. EU Taxonomy and Green Bonds

The EU's new Sustainable Finance Strategy, alongside initiatives like the Fit for 55 Package and the Smart and Sustainable Mobility Strategy, aims to drive private investment towards a sustainable economy. It seeks to enhance sustainable finance by aligning it with the EU Taxonomy Regulation, implementing reporting standards, and facilitating access to sustainable capital for public authorities. The Strategy also proposes a European Green Bond Standard to guide companies and public entities, including in the public transport sector, in raising funds for large-scale investments while meeting strict sustainability criteria. The Taxonomy Regulation's criteria for urban passenger transport prioritize zero CO₂ emissions, potentially expanding eligibility for various projects. Encouraging private investments in urban transport can accelerate the shift to greener modes and facilitate funding for innovative projects, despite their higher economic risk.

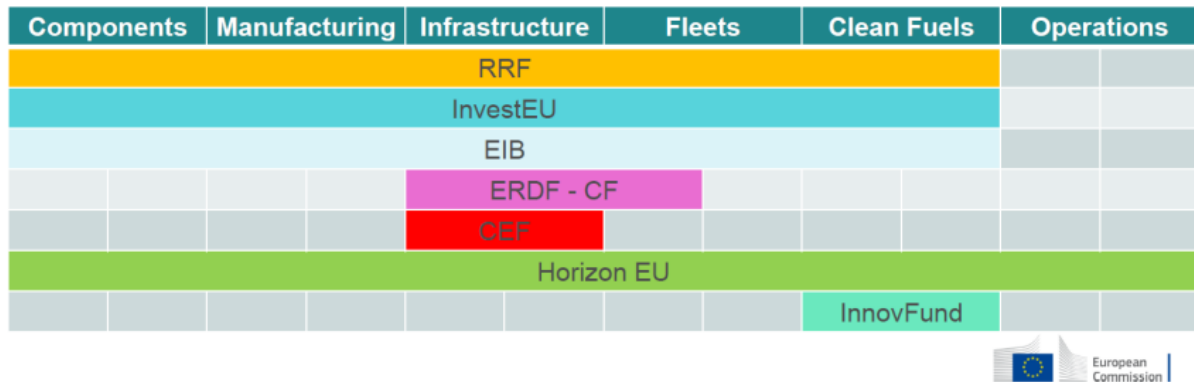


Figure 5. An overview of key EU funding and financing measures with transport investment eligibilities³

³ Source: https://cms.uitp.org/wp/wp-content/uploads/2022/03/EU-Funds-and-Financing-policy-paper_v2.pdf



6.2 Funding sources in Extremadura and in Spain

National level: MOVES Singular Projects Grant Program (ongoing)

The program is an initiative promoted by the Ministry for Ecological Transition and the Demographic Challenge and managed through the Institute for Diversification and Energy Saving (IDAE) that seeks to promote new technological developments in public and private transport, speed up their maturity and hence their subsequent marketing.

It will encourage technological development projects and innovative experiences in electric mobility that serve to promote the technological leap towards the electric vehicle and fuel cell, encouraging the development of projects by Spanish companies, to reach the technological maturity that facilitates its commercialization.

The aid intensity for innovative single projects will be 40% of eligible costs (VAT or IGIC not included). It may be increased by 10 percentage points for medium-sized enterprises and by 20 percentage points for micro and small enterprises.

Regional level: Extremadura MOVES Grant Program (ongoing)

This programme is also an initiative promoted by the Ministry for Ecological Transition and the Demographic Challenge, but this time it is managed entirely by the different Spanish regional governments, including Extremadura. It is centered on the acquisition of individual EV and EV charging points.

The following actions are eligible:

- 1- Purchase of "plug-in" electric vehicles and fuel cell vehicles.
- 2- Implementation of infrastructure for recharging electric vehicles.

These grants will be available for those individuals and entities who have their tax residence in Spain and their activity or residence in Extremadura. The potential beneficiaries are: Self-employed professionals, natural persons, communities of owners, legal persons operating in Extremadura and municipalities and other minor public entities based in Extremadura.

An application shall be submitted per vehicle purchased, in the case of Programme 1, or per station location or recharging point, in the case of Programme 2, with the same applicant having to submit as many applications as financeable actions.

The aid for purchasing electric vehicles ranges from € 4,500 to € 900, depending on the type of beneficiary. Aid for the installation of recharging points will cover 10 % to 30 % of the total costs, also depending on the beneficiary.

Regional level: Subsidies for the conversion of passenger and freight transport fleets into sustainable transport technologies (ongoing)

Objective of the grants: The self-employed and companies in Extremadura with transport-related activities can apply to renew their fleet of vehicles. These grants will finance different concepts such as the purchase of vehicles driven by alternative energies, the modification



(retrofit) of the form of propulsion of vehicles (electric vehicle or engines driven by renewable fuels) or the installation of recharging points for EV fleets.

The beneficiaries of this aid may be natural or legal persons holding a public transport license for goods (for vehicles above 3,5 tons), a public transport license for bus passengers, or private transport of goods (also for vehicles above 3,5 tons).

The total amount of this subsidy programme is of 6,163,042.44 euros.

6.3 Funding sources in Croatia

Environmental Protection and Energy Efficiency Fund

The Environmental Protection and Energy Efficiency Fund (EPEEF) serves as the primary hub for gathering and allocating additional financial resources to initiatives related to environmental conservation, energy efficiency, and the adoption of renewable energy sources.

Within Croatia's management framework for EU structural funds, the EPEEF operates as an Intermediate Body level 2, overseeing specific objectives concerning environmental protection, resource sustainability, climate action, energy efficiency, and renewable energy adoption.

The transportation sector poses significant environmental challenges due to its reliance on fossil fuels, emissions, and noise pollution. Globally, transport accounts for over 30% of energy consumption, with greenhouse gas emissions rising by nearly 70% since 1990. Urgent action is needed to transition urban transport systems to cleaner modes, emphasizing efficient public transportation, cycling infrastructure, car-sharing, and promoting electric vehicles. Croatia has embraced e-mobility, partly due to co-financing programs by the Environmental Protection and Energy Efficiency Fund, investing approximately €40 million from 2014 to 2020 in various energy-efficient transport initiatives.

Co-financing the purchase of energy efficient vehicles

The Environmental Protection and Energy Efficiency Fund (EPEEF) in 2024 continues its co-financing program for the purchase of energy-efficient vehicles. The process involves a public call for manufacturers, distributors, or importers to submit available vehicle models that meet the criteria. Citizens can then apply for co-financing through the Fund's application portal. The funding covers up to 40% of the vehicle cost, with maximum amounts varying based on vehicle category. Only vehicles priced up to 50,000 euros, including discounts and VAT, are eligible. The initiative aims to promote cleaner urban transportation, reduce emissions, lower fossil fuel consumption, and enhance traffic safety. Croatia has seen an increase in electric and hybrid vehicle registrations, partly attributed to previous co-financing programs by the Fund.

Public call for co-financing of energy-efficient vehicles in the public sector

This call for proposals implements measure TR-6 outlined in Croatia's National Energy and Climate Plan for the period 2021-2030, focusing on providing financial incentives for energy-efficient vehicles. The objective is to increase the share of registered energy-efficient vehicles in Croatia by 0.01%. It is estimated that the implementation of this call will result in the



registration of 90 new energy-efficient vehicles. The expected outcomes include energy savings of 0.00134 PJ and a reduction in CO₂ emissions by 121.43 metric tons. The Fund is designated as the authority responsible for monitoring and verifying the achieved energy savings.

Eco-driving

Eco-driving is promoted as a key strategy for boosting energy efficiency in transportation. The ECOWILL project, launched in 2010 under the IEE program, aimed to integrate eco-driving into driving lessons and training for licensed drivers, resulting in a 10% average reduction in fuel consumption. Eco-driving offers various benefits, including reducing emissions and noise, improving safety, and cutting fuel and maintenance costs. Key eco-driving rules include shifting gears early, maintaining steady speeds, and anticipating traffic flow. To educate professional drivers, the Fund collaborated with ORYX Group, conducting 170 training sessions and achieving significant fuel savings. Additionally, a call for proposals for companies facilitated nearly 1,500 training sessions, with continued co-financing to promote eco-driving principles.

Other energy efficiency measures in transport

Traffic congestion in urban areas contributes to higher fuel consumption, pollution, and noise. To address this issue, it's crucial to implement sustainable development measures in urban transport systems to improve energy efficiency. The Environmental Protection and Energy Efficiency Fund has supported initiatives aimed at enhancing energy efficiency in transport, including developing public city bicycle infrastructure, and improving energy efficiency of public transport vehicles through various measures. These initiatives aim to reduce CO₂ emissions, harmful exhaust gases, noise, and enhance traffic safety, particularly in urban areas.

Public call for the establishment of an infrastructure for charging road vehicles powered by electricity (charging stations) in the parking lots of public sector buildings

The purpose of this call is to provide financial support for the installation of electric vehicle charging stations (EVCS) in parking lots of public sector buildings, in accordance with the law on establishing infrastructure for alternative fuels and technical specifications. These charging stations will be installed in parking lots of public sector buildings with a minimum of 20 parking spaces, as required by the Building Act. The initiative aligns with Croatia's Integrated National Energy and Climate Plan for 2021-2030, aiming to facilitate infrastructure development as a crucial step toward fostering the market for electric vehicles.



6.4 Funding sources in Portugal

Public Funding Sources

Public Funding Sources are mainly focused on the Public Transport monetary support, for example, the reduction of the Social Pass price and the fleets maintenance costs. Since 2016, the Intermunicipal Communities have acquired competences, needed by the municipalities for the management of Public Transport, as well as associated funds.

PART- Programa de apoio à redução da tarifa (2019-2023)

Established through the government's dispatch n. 91234-A/2019, this program was then regulated in 2020, through the Decree-Law n.º1-A/2020 (3rd of January), creating the appropriate legal framework for the Fare Reduction Support Program (PART) in collective public passenger transport. This program supports the transport authorities with a certain amount of annual funding which allows them to carry out a careful adjustment of fares and supply, within the framework of the powers assigned to them by Law No. 52/2015, of 9 June, in its current wording. The condition to apply for this fund is to submit an annual plan for the application of the entity's appropriations. It also foresees an annual assessment of the impact of fare reduction and supply increase measures on the national public passenger's transport and mobility. Its funds derive from the Environmental Fund (Fundo Ambiental), a thematic national program. In the 2023 State Budget Law, 138.6 million euros were earmarked for the PART. There was a reinforcement of this measure through the initiative "Extra PART", meant public transport operators from the effects of the covid-19 pandemic.

PROTransP (2020-2023)

The Support Program for the Densification and Reinforcement of Public Transport Supply (PROTransP), created in 2020, aims to promote the reinforcement of current public transport services and the implementation of new, regular, and flexible public transport services. With an allocation of €15,000,000 in 2020 and 2021, and €20,000,000 in 2022, the programme was continued in 2023 through Order No. 5963/2023, of 26 May, which establishes the rules applicable to PROTransP for 2023. The only beneficiaries applicable were the intermunicipal communities (CIM). There are no conditions for obtaining this fund, only to retain it, through an annual report. Since it was annually distributed along the 21 CIM's and spent according to the needs of the respective Public Transport Systems, following the program's legal framework.

Incentiva+TP (2024)

These two Programs (PART and PROTransP, including Extra PART) are since the 19th of March (2024) fused into one program called "Incentiva+TP", through law-decree n. 921/2024. It counts with a fund of four hundred and ten million euros, of which Alto Alentejo is endowed with one million seven hundred and ninety-five thousand eight hundred euros (1.795.800€). The conditions to use the fund are based on reporting obligations, much like the two programs it integrates. Furthermore, there are two public entities, responsible for the evaluation and supervision of the fund applications (IMT and AMT respectively).



Private and Public Funding Sources

To consistently foment the adoption of sustainable transportation along the country, the Portuguese government developed funds directed to the acquisition of null emission vehicles and infrastructure. Incentives through tax reductions also took place, defining the measures explained below as catalysers to the green transition in the mobility sector.

POSEUR (2014-2020)

PO SEUR - Operational Programme for Sustainability and Efficiency in the Use of Resources aims to contribute especially to the priority of sustainable growth, responding to the challenges of the transition to a low-carbon economy, based on a more efficient use of resources and the promotion of greater resilience in the face of climate risks and disasters. It is organized in three axes of investment that comprehend a vast quantity of eligible typologies. The program already approved fifty-three appliances/candidatures only in the sub-region of Alto Alentejo, contributing to the territory with an investment of over fourteen million euros of approved community funds. The main usage of this program for the support of Public Transports was in the acquisition of zero emissions passenger vehicles. The supported cost would be the difference between the acquisition costs of a diesel model to a zero emissions model. This typology of investment is at present year (2024) transitioning to the PRR fund, described below.

PRR - “Decarbonization in Public Transports – 01/C15-i05” (2021 – 2024)

In the context of the recovery and resilience mechanism created through European Regulation (2021/241), on February 12, the measure for the decarbonization of Public Transport was developed. This measure is currently being reinforced to support the acquisition of new zero-emission buses and charging or refuelling stations dedicated to this type of vehicle. This notice now has a total allocation of ninety million euros, divided in half between the metropolitan areas and the rest of the continental territory.

Its last update results in the payment of the difference (in value) between a conventional bus and a zero-emissions bus. In other words, the beneficiary, for the price of a new diesel bus, can purchase a new bus powered by renewable energy (hydrogen or electric). In the case of the electric models, that difference can be suppressed up to two hundred seventy thousand euros. In the case of the hydrogen fuelled buses, the difference will be supported up to four hundred and seventy thousand euros.

Eligible Public Transport Service beneficiaries: municipal, intermunicipal, inter-regional, flexible and scholar (municipal) transports.

Operation Typologies - Eligibilities

- Acquisition of green energy buses with zero emissions, in the M2 and M3 categories.
- Charging points infrastructures for electric and/or hydrogen vehicles.

Maturity Level

- Maturity minimal degree, procedures and parts needed for operation;



- Investment after appliance submission;
- Execution of the project must start within a hundred and eighty days after signing contract.

Incentive through the Introduction in the consumption of null emission vehicles (2022-2024)

This incentive is implemented since 2017 and it is within the scope of climate change mitigation through the Environmental Fund (Fundo Ambiental). It includes a heterogeneous group of investments, mainly focused on the private sector, differing from institutional or individual beneficiaries. Overall, the fund supports the acquisition of sustainable individual transport, from bicycles to 100% electric cars, to hybrid cars and even electric charging points/station. The fund also incentivises the sustainable mobility through the reduction of taxes associated to individual transport (IUC and ISV) and charging stations tariffs. This fund is relevant to the project mainly because of the beneficiaries' possibilities, from students, to private companies and even public entities.

Flexible Transport

The Intermunicipal Community of Alto Alentejo is currently in the process of acquiring services for the **“Elaboration of the Study for the Implementation of Flexible Transport in Alto Alentejo”**. The Study contract is divided into two phases, the first consists in a detailed diagnosis of the territory's characteristics concerning flexible mobility. The second results in the definition of the concept and circuits, configuration, and requirements, for the system to be implemented. This type of transport is crucial to complement the public transport network in a low-density rural area like most of the region.

6.5 Funding sources in Slovenia

Beside the direct financing from European funds, there are national financing mechanisms, which can also draw funds from EU funds, like ERDF, but some of them, like Climate fund – Eco fund gains money from national taxes.

Climate Change Fund (Eco fund)

On October 12th, 2023, the government adopted a Decree allocating 104.200 million EUR for alternative fuel mobility spending until 2026.

1) Agreement for the development of regions (ADR)

ADR is a national financial mechanism for municipal investments funded by the European Cohesion Fund. Agreements are formulated based on identified needs communicated among municipalities, regional development agencies, the Ministry of Cohesion and Regional Development, and other relevant ministries. Projects eligible for funding align with specific investment objectives outlined in the agreement. During the 2014-2020 period, one key objective was mobility infrastructure for alternative fuels. In the current 2021-2027 period, eligible projects focus on preparing regional sustainable mobility plans and financing regional mobility centers.



Integrated territorial investments (ITI)

Investments in sustainable urban development across all 11 Slovenian city municipalities — Ljubljana, Maribor, Koper, Kranj, Celje, Novo mesto, Velenje, Nova Gorica, Ptuj, Murska Sobota, and Slovenj Gradec — are facilitated through the Integrated Territorial Investment (ITI) mechanism. These investments aim to align closely with the sustainable urban strategies of each municipality, as well as the objectives and indicators of the Operational Program for the current European cohesion policy period.

Under the ITI mechanism, eligible investments for city municipalities, supported by the European Regional Development Fund (ERDF) and the national budget of Slovenia (RS), include initiatives to promote sustainable mobility among other priorities. The mechanism incorporates both grant funding and refundable funds to facilitate these investments.

National calls for investments

Since May 2023, the Ministry for the Environment, Climate and Energy, together with the Ministry of Infrastructure, has been empowered by law to initiate funding calls aimed at financing investments in alternative fuel mobility. These initiatives are designed to reduce the environmental impact caused by internal combustion engine vehicles or similar technologies.

6.6 Funding sources in Bulgaria

National Funding Sources:

European Investment Bank (EIB) Framework Loan:

- The EIB and Sofia Municipality signed a €60 million framework loan to promote sustainable urban mobility in Bulgaria's capital.
- Projects funded include road and street network construction, tramway improvements, walking and cycling infrastructure, and electric vehicle charging installations.

Just Transition Fund (JTF):

- Bulgaria has secured EUR 1.15 billion from the JTF for coal regions, including Stara Zagora.
- Focuses on transitioning from coal-based energy production to green alternatives.

Relevance: Supports economic diversification and job creation in the region.

Bioeconomy Development Strategy:

The Bioeconomy Strategy aims to enhance rural and regional development.

Funding opportunities exist for bio-based initiatives, including food production, forestry, resource management, and digitalization.

Relevance: Supports sustainable bioeconomy projects in Stara Zagora



Regional Funding Sources:

Stara Zagora Hydrogen Valley:

- Secured EUR 8.2 million in EU funding for sustainable energy projects.

Relevance: Supports the transition to green energy and job creation in the region.

Just Transition Plan for Stara Zagora:

- The EU approved a grant from the JTF for the region, including satellite municipalities.
- Focuses on economic diversification, new job opportunities, and green economy initiatives.

Relevance: Aligns with the region's transition away from coal-based industries.

Local Funding Sources:

Local Taxes and Initiatives:

- Stara Zagora maintains relatively low local taxes.
- Local initiatives may include funding for specific projects related to sustainable mobility.

Relevance: Local support for infrastructure improvements and community-driven initiatives.

Bioeconomy Initiatives:

- Stara Zagora's bioeconomy potential can attract counter-funds through various financial instruments.

Relevance: Encourages investment in bio-based projects and resource-efficient practices.

Conditions for Obtaining Financing:

- Specific conditions vary by funding source but may include project alignment with sustainability goals, feasibility assessments, and compliance with relevant regulations.

Public Interest for Financing:

- Public interest lies in improving transport infrastructure, reducing emissions, creating jobs, and enhancing quality of life.

Thoughts on Improvement:

- Enhance awareness of available funding sources among local stakeholders.
- Foster collaboration between public and private sectors to leverage funding opportunities.
- Streamline application processes and provide capacity-building support for project development.



In summary, a mix of national, regional, and local funding sources can drive sustainable mobility initiatives in Stara Zagora. Continued efforts to optimize funding mechanisms and engage stakeholders will contribute to successful projects.

6.7 Funding sources in Bosnia and Herzegovina

The Council of the Federation of Bosnia and Herzegovina has approved two programs allocating funds outlined in the 2023 Budget of FBiH, as proposed by the Federal Ministry of Energy, Mining, and Industry, within the framework of current transfers intended for incentivizing the purchase of electric cars, totalling 1,000,000 KM (approximately 511,958.01 €).

The first program serves as state support and incentives for private companies and entrepreneurs, amounting to 500,000 KM (approximately 255,979 €). Eligible beneficiaries include private companies, entrepreneurs, craftsmen, or other self-employed individuals based in FBiH. Applicants must submit documentation and fulfil specified conditions outlined in the public invitation. The subsidy is granted to those whose applications, at the time of submission, meet the set criteria and demonstrate available funds for vehicle subsidization in the budget, not already allocated to other users at the time of registration.

The second program entails continuous transfers directed towards individuals, offering incentives for the purchase of electric cars amounting to 500,000 KM (approximately 255,979 €). Eligible recipients of this subsidy include individuals who are citizens of Bosnia and Herzegovina, reside in the Federation of BiH, and are over 18 years of age. To qualify, applicants must submit necessary documentation and meet the specified conditions outlined in the public invitation. Additionally, funds must be available in the budget allocated for vehicle subsidization at the time of application submission.

The objective of these programs is to provide state support and incentives to both private companies, entrepreneurs, and individuals for the acquisition of new vehicles registered in the Federation of Bosnia and Herzegovina within the period from January 1st to December 11th, 2023. Eligible vehicles include those with exclusively electric drive (electric cars) and hybrid vehicles equipped with both an internal combustion engine and an electric drive capable of independently starting the vehicle.

Furthermore, these programs specify the financial incentives provided, which amount to 10,000 KM (approximately 5,119.58 €) for electric vehicles, 7,000 KM for hybrid electric "plug-in" vehicles, and 5,000 KM (approximately 2,559.79 €) for hybrid "full hybrid" vehicles. Financial resources will be allocated to private companies and entrepreneurs for the purchase of a maximum of two vehicles, while individuals can receive subsidies for the purchase or registration of one vehicle.

These subsidies constitute grant funds of the Ministry and will be distributed in accordance with the guidelines outlined in these programs and through announced public calls. Public invitations will be disseminated through the Official Gazette of Federation BiH, a daily newspaper, and the Ministry's website, with the application period remaining open until December 11th, 2023, or until the funds are expended.



6.8 Funding sources in Italy

National funding sources

MASE Decree 18 March 2024, no. 110

Defines the criteria and modalities for the granting funding for the construction of 13,755 electric charging infrastructures in urban centres.

MASE Decree 18 March 2024, no. 109

Defines the criteria and modalities for granting funding for the construction of 7,500 superfast charging infrastructures in extra-urban roads.

Italian Budget Law 2022 (No. 234 of 2021- Art. 1, para. 392)

The Law established a fund for the sustainable mobility strategy for combating climate change and reducing emissions, with a total endowment of €2 billion. The decree distributing the fund allocates €1 billion, equal to 50 per cent of the fund, for interventions on urban mobility in metropolitan cities and municipalities with more than 100,000 inhabitants, including: the purchase of electric vehicles for local public transport and the creation of recharging infrastructures, interventions to pedestrianise urban areas and to facilitate cycling, and the creation of digital infrastructures for the management and monitoring of traffic flows.

Prime Ministerial Decree 4 August 2022

Contribution for the years 2022, 2023 and 2024, for the purchase of standard power recharging stations for the recharging of electric vehicles by domestic users, equal to 80 per cent of the purchase and installation price, up to a maximum of 1,500 euros per person, raised to 8,000 euros in the case of installation on the common parts of condominium buildings

National Recovery and Resilience Plan - NRRP

The NRRP has launched several investment opportunities to implement Sustainable Urban Mobility Plans (PUMS), particularly under Mission 2: Green Revolution and Ecological Transition. The M2C3 component, which focuses on renewable energy, hydrogen, grid, and sustainable mobility, includes four key areas:

1) **Strengthening Cycling Mobility:**

- Budget: Approximately €600 million.
- Goal: Build around 570 km of urban and metropolitan cycle paths and about 1,250 km of tourist cycle paths.
- Timeline: Tenders closed by December 2023; new paths completed by June 2026.

2) **Development of Rapid Mass Transport:**

- Budget: €3.6 billion.
- Goal: Shift at least 10% of private car traffic to public transport.
- Projects: 231 km of new network by December 2023 (11 km of metros, 85 km of tramways, 120 km of trolleybuses, and 15 km of funiculars), with the first 25 km of public transport lanes by September 2024.



3) Development of Electric Charging Infrastructures:

- Budget: €740 million.
- Goal: Install 7,500 fast charging points on motorways, 13,755 in urban centers, and 100 experimental stations with energy storage technology.

4) Renewal of Bus Fleets and Green Trains:

- Budget: €3.64 billion.
- Goal: Purchase approximately 3,360 low-emission buses, 53 new trains, and 100 new coaches made of recyclable materials with photovoltaic panels. Modernize the fire brigade's vehicle fleet.
- Timeline: Contracts for buses by December 2023, 175 new trains and 3,800 buses by June 2026.

Under Mission 3: Infrastructures for Sustainable Mobility, component M3C1 focuses on investments in the rail network, and M3C2 addresses intermodality and integrated logistics:

- **Enhancement of Metropolitan Rail Nodes and Key National Connections:**
 - Budget: €2.97 billion.
 - Goal: Upgrade 700 km of lines by December 2024, with an additional 1,280 km by June 2026.
- **Upgrading Regional Lines:**
 - Budget: €940 million.
 - Goal: Improve the transport system, increase passenger numbers, travel speed, and interconnect urban centers with other infrastructures.
 - Timeline: Contracts by June 2023, completion by June 2026.
- **Improvement of Railway Stations in the South:**
 - Budget: €700 million.
 - Goal: Upgrade urban hubs and stations, enhance building functionality, service quality, energy efficiency, and railroad intramodality.
 - Timeline: Upgrade 10 urban hubs by December 2024, another 38 by June 2026.

Lastly, Investment 5.3 of NRRP M2C2, with a budget of €300 million, is managed by Invitalia and targets enterprises in Italy with investment plans between €1 and €20 million. This measure supports:

- Production and optimization of electric traction systems.
- Development of new bus architectures for increased electric vehicle use, digitalization, and weight reduction.
- Production of sensors and digital systems for assisted driving and fleet management.
- Creation of components for public transport vehicles.
- Development of new IoT technologies for public transport.
- Standardization and industrialization of charging and refueling systems.
- Production of smart charging systems for electric buses.



Sustainable Mobility Fund

The types of co-financed actions are diverse and all relate to countering the environmental damage caused by the use of private cars in urban travel. These are actions of

- control and reduction of vehicle traffic in urban centres
- expansion of local public transport service fleets with environmentally friendly vehicles and supplementary services such as car sharing and demand responsive transport services,
- support for cycling,
- incentives for citizens to purchase environmentally friendly vehicles,
- experimentation of goods distribution systems in city centres with low-impact vehicles, dissemination of infomobility at the service of citizens,
- construction of interchange car parks,
- support for safety measures to protect weak users such as children.

SMARTER ITALY PROGRAMME

The Smarter Italy programme aims to improve the lives of communities and citizens through experimentation in the territories of emerging technological solutions in various fields: mobility, the environment, personal well-being and cultural heritage.

Promoted and financed by the Ministry of Economic Development, the Ministry of Universities and Research and the MID - Department for Digital Transformation of the Presidency of the Council of Ministers and implemented by the Digital Italy Agency, the programme is based on the tool of Innovative Procurement: the public administration does not buy standardised products or services already available on the market, but stimulates operators and companies to develop new solutions, often based on emerging technologies, to respond concretely to the needs expressed by local realities.

The programme started with 23 municipalities joining, including 11 cities defined as Smart Cities, and 12 smaller centres defined as Borghi del Futuro (with at least 3,000 inhabitants, but under 60,000).

The budget for the implementation of Smarter Italy is more than 90 million euro.

METRO PLUS National Plan and MEDIUM-SOUTH CITIES

In January 2023, some of the cohesion policy programmes came into force. Among these, alongside the ERDF regional programmes, is the National Metro Plus Programme, which replaces the previous NOP Metropolitan Cities of the 2014-20 period and provides, under Policy Objective 2 'Towards a greener Europe', a priority dedicated to 'sustainable multimodal urban mobility' (Priority 3) and a specific objective 'RSO2.8 Promoting sustainable multimodal urban mobility as part of the transition to a zero net carbon economy'. This objective is pursued by the PN Metro through 4 actions that can only be accessed by metropolitan cities to carry out interventions in coherence with Sustainable Urban Mobility Plans (PUMS).

Ecobonus - Sustainable mobility



Article 1 of Law No. 145 of 30 December 2018 (Budget Law 2019), paragraphs 1031 to 1038, introduced an incentive for persons who purchase, also under finance lease, and register in Italy from 1 March 2019 to 31 December 2021 a brand new M1 category vehicle. This incentive, the so-called ecobonus, consists of a subsidy, paid by the seller by offsetting it against the purchase price, parameterised on the number of grams of carbon dioxide emitted per kilometre (CO₂ g/km).

The Ecobonus contribution has been replicated in subsequent years, including the year 2024.

Lombardy Region funding sources

The Regional Programme under the European Regional Development Fund (ERDF PR) allocates €2 billion for the 2021-2027 period. This funding aims to promote economic recovery and business competitiveness in the region, which was severely impacted by the 2020 health crisis. This is more than double the resources compared to the previous period (2014-2020), which had around €970 million.

In addition to the ERDF PR funds, the ESF+ PR allocates €1.5 billion primarily for education, training, and employment. This brings the total funds for the 2021-2027 European programming cycle in Lombardy to over €3.5 billion.

The Lombardy Region's funding for sustainable mobility focuses on Objective 2 - A Greener Europe (Axis 2: €591 million; Axis 3: €51 million). Nearly 40% of the Programme's resources support the transition to a sustainable development and growth model. This includes promoting the conscious use of energy resources and renewable sources, investing in new technologies and circular economy principles, supporting energy efficiency projects for both public and private buildings, and enhancing sustainable multimodal mobility. These efforts also aim to improve air quality in alignment with the Regional Waste Management Programme (PRGR).

6.9 Funding sources in Greece

Western Macedonia public and private sectors can access various EU and national funding schemes to support e-mobility actions. These funding opportunities include:

- Grants and subsidies from EU programs such as Horizon Europe and INTERREG, the European Regional Development Fund (ERDF), and the Cohesion Fund.
- Financial instruments such as loans, guarantees, and equity investments from the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and from Commercial Banks such as Piraeus Bank.
- National funding schemes administered by the Ministries and Regional government to support renewable energy, energy efficiency, and sustainable development initiatives.



Regional Program “Western Macedonia”

The total budget for Public Expenditure amounts to 394 110 958 euros. Of this total, 334 994 311 euros constitutes the contribution from the European Union, while 59 116 647 euros represents the National contribution.

Indicative Actions

- Priority 1: Strengthening the productive and economic transformation of the Region,
- Priority 2: Supporting clean energy and green sustainable development,
- Priority 3: Improving the connectivity of the Region,
- Priority 4A: Strengthening the Social Development of the Region (ERDF),
- Priority 4B: Strengthening the Social Development of the Region (EKT+),
- Priority 5: Integrated Spatial Development of urban and rural areas.

I move electrically - SECOND CYCLE

The Greek government's subsidy program to promote the purchase of electric vehicles and chargers and sustainable mobility by the ministries of Finance, of Environment and Energy and Infrastructure and Transport.

Key program features

Natural Persons

- 30% subsidy for the purchase of an electric car with a maximum amount of €8,000.
- 30% subsidy and up to €8,000 for long-term leases, with no obligation to purchase.
- €1,000 withdrawal bonus and €500 smart charger purchase subsidy.
- Additional subsidy of €1000 for the purchase of a car for a disabled person.
- Additional subsidy of €1000 for families with at least 3 dependent children (€1000 for 3 dependent children, and an additional €1000 per additional dependent child up to €4000).
- An additional €1000 for the purchase of a car and a minicar for young people up to 29 years of age.
- Possibility of assigning the right to collect a subsidy to the selling company.
- Subsidy up to 40% and with a maximum amount of 3,000 for the purchase of two-wheelers and three-wheelers of category L5e to L7e (professional electric three-wheelers and minicars).
- Subsidy of electric two-wheelers category L1e to L4e up to 30% and with a maximum subsidy amount of €1300.
- 40% subsidy for electric bicycles, with a maximum subsidy amount of €800.

Companies

- 30% subsidy for the purchase of an electric car with a maximum amount of €8,000 from 1 to 20 vehicles and 20% subsidy with a maximum amount of €6,000 from 21 vehicles and above.



- Withdrawal bonus of €1,000 per vehicle and smart charger purchase subsidy of €400 per recharging point.
- Subsidy to courier, distribution, and tourism companies for the purchase of up to 10 electric bicycles.
- 30% subsidy and up to €8,000 for long-term leases, with no purchase obligation for 1 to 20 vehicles and 20% subsidy and up to €6,000 for 21 vehicles and above respectively.
- An additional €4,000 per car for companies operating on islands.
- 30% subsidy and with a maximum amount of €8,000 per car for the purchase of electric demonstration cars (test drive) from 1 to 20 vehicles and 20% subsidy with a maximum amount of €6,000 for 21 vehicles and more respectively.

Green Fund

The Green Fund is capable of funding programs devised by the Ministry of Environment, Energy, and Climate Change, as well as other ministries and their affiliated bodies, decentralized public administrations, local government entities, and legal entities within the broader public sector as outlined in Law 1256/1982. Additionally, it can support associations or similar groupings of legal and natural persons whose objectives, as defined by their statutes, align with the protection, enhancement, and restoration of the environment.

Hellenic Development Bank (HDB)

The Hellenic Development Bank (HDB) plays a crucial role in the financing cycle of Micro, Small, and Medium-sized Enterprises (MSMEs) by providing collateralization for the portion of business risk that is not covered by the banking system. This broadens the opportunities for viable entrepreneurial ventures undertaken by MSMEs. With a focused business agenda that adapts continuously to mitigate the challenges posed by the tough macroeconomic environment on MSMEs' sustainability, the HDB aims to establish itself as a leading institution in offering supplementary funding for the Greek MSME market. In doing so, it seeks to serve as a growth model for the local economy.

"Green Guarantee Fund for Sustainable Development" will support investments focused on renewable energy sources, energy conservation and the field of e-mobility infrastructure.

In addition, HDB has been implementing the new 'Innovation Fund' which combines the provision of an investment loan guarantee with the provision of a grant for the successful achievement of innovation and ESG (Environmental, social, and governance) criteria.

Ministry of Infrastructure and Transportation

Additionally, there are a few promotional initiatives to increase public awareness about the environmental and economic benefits of electric mobility. Starting in 2022, the country has introduced subsidies aimed at advancing electric mobility, facilitating the purchase of EVs and the installation of charging stations under the "Moving Electric" initiative. State incentives include exemptions from registration taxes, annual vehicle taxes, and luxury taxes for EVs. Moreover, EVs have permitted access to restricted traffic zones in the centre of Athens. However, the adoption of electric mobility is still in its early stages, with many challenges that



need to be addressed, such as the development of a more extensive charging infrastructure and the strengthening of the support system, which will play a major role in addressing potential charging and vehicle maintenance issues (CRES, 2020)³.

Some of the noteworthy advancements concerning renewable energy and electric vehicle charging in Greece is taking place on the island of Astypalea. The specialized subsidy program "e-Astypalea," exclusively available to island residents, concerns incentives that encourage the switch from conventional to electric vehicles. Additionally, the program aims to install a 3MW PV station, coupled with a 7 MWh Battery Energy Storage System. This energy initiative is anticipated to cover the island's entire EV charging needs. In addition, the main objective concerning the electric mobility of the island involves replacing around 1,500 conventional vehicles with roughly 1,000 EVs, while also promoting increased use of shared transportation options like carpooling and on-demand services (CRES, 2022)⁴.

PIRAEUS FINANCIAL HOLDINGS

ev-lease: electric vehicles through leasing from Piraeus Bank

Through Piraeus Leasing, Piraeus Bank created and offers an innovative and environmentally friendly product that supports zero-emissions transport, enabling interested parties to acquire or use electric vehicles through leasing (ev-lease). In this way, Piraeus Leasing, the top company in the sector, with a market share of close to 40%, is actively contributing to expanding electric-powered road transport, which is intrinsic to the transition towards a sustainable low-emissions economy.

The small environmental footprint of electric transport, in combination with the use of renewable energy sources, contributes to the achievement of the Paris Agreement goals for responding to climate change and the European Union goal of climate neutrality by 2050, as described in the 2019 Green Deal.

In this way, Piraeus Bank puts into practice its commitment to the Principles of Responsible Banking, transparently implementing ESG principles in its banking procedures that consider environmental protection and society's support.

ev-loan: Electric vehicle financing from Piraeus Bank

Firmly committed to maximising harmonisation with the Sustainable Development Goals and the Paris Climate Agreement, Piraeus Bank has added its ev-loan to the framework of "green" financing tools it has developed. This specialized financing programme supports the electric car market, with the aim of promoting electric-powered transportation in Greece.

Through Piraeus Bank's ev-loan, interested parties can acquire electric passenger vehicles at favourable pricing and loan terms.

The creation and provision of ev-loan reflects Piraeus Bank's commitment to incorporating the Principles of Responsible Banking into all its financing, transparently implementing ESG principles – which concern environmental protection and support of society – in its banking procedures.



Financing for the purchase a business electric or hybrid car

Piraeus Bank actively supports Green Entrepreneurship and offers “Piraeus Business e-car”, a financing solution for the purchase of a company electric or hybrid car, with preferential interest rate and terms depending on the customer's profile and the offered collateral.

ATTICA BANK – ECO LOANS

My Eco Car

Loan Amount

From € 1,500 to € 50,000 for the purchase of a new eco-car

From € 1,500 to € 25,000 for the purchase of a used (up to 5 years old) eco-car.

An electric or hybrid car, as well as an L-type small car, is considered to be an eco-car.

Interest rate

Fixed for the entire duration of the loan:

6,75 % for the purchase of a new ecological car, and

9,75 % for the purchase of a new ecological car; 9,75 % for the purchase of a used ecological car (up to 5 years old)

*The above-mentioned interest rates are nominal and are subject to the levy of Law 128/75 (currently 0.60%)

My Eco Bike

Loan amount

From €1,000 to €20,000

Interest rate

Fixed for the entire duration of the loan. 6.75% (currently 0.60%).

Just Development Transition⁷

The Action entitled “Strengthening Existing SMEs in the areas of the Fair Transition Territorial Plans of Western Macedonia & Megalopolis” will be implemented with funds from the “Fair Development Transition” Program of the NSRF 2021-2027, with a total amount of 30.000.000.000 € and aims to upgrade, modernize, diversify, productive transformation and turnaround of existing enterprises operating in the areas of the Fair Transition Territorial Plans.

The minimum grant budget is 20 000 € and the maximum is 100 000 €. The aid rate will be 70 % and the rate of private participation will be 30 %.

7 SWOT analysis on sustainable mobility

7.1 SWOT analysis Extremadura in Spain

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • The regional government (Junta de Extremadura) is a partner of the project and has the capacity of developing its own legislative sustainable mobility framework. • The regional government also manages and coordinates Extremadura's public bus system, having a strong commitment to its modernisation and the use of advanced intermodal solutions. • Extensive road network in the region. The regional government is also the manager and owner of the secondary road system unifying the main cities with rural counties and municipalities around them. • Downward trend in road accident and fatalities. • Recent surge in the private and public acquisition of EV, thanks among other, to the MOVES programme. 		<ul style="list-style-type: none"> • Lack of an integrated regional mobility management system- • Lack of knowledge and capacity on sustainable mobility issues among the general population. • Financial deficit on the public transport system, due to the low use of public means of transport, the long distances to be covered and the low population density. • Intermodality affected by the low development of rail lines: There are few and tend to be damaged and outdated. • Sustainability of transport and intermodality in bigger municipalities affected by the lack of park-and-ride parking lots, close to other public means of transport. • Very low number of EV and other sustainable fuel-powered vehicles in the region with respect to the rest of Spain (second-to last place in the Spanish framework). • Relatively low development of the EV charging infrastructure, it is however evolving fast and is getting close to the Spanish average.







	OPPORTUNITIES		THREATS
	<ul style="list-style-type: none"> • Extremadura regional government has the capacity of modifying the concession map for intraregional bus lines and modifying/reforming bus stations at will. This is an opportunity for intramodality, on-demand services and the placement of EV charging points in such places. • Growing concern in the whole society for sustainable mobility. • Growing use of home-office work due to year's 2020 pandemia. • Available EU, national and regional funding for EV, EV charging points and other sustainable transport investments. • Intermodal uses among consolidated urban spaces, with public services and the surrounding rural areas (to be further developed under the Extremadura Sustainable Mobility Plan -PEMS-). • Younger generations are less interested in car culture and owning a car than previous generations. • Low-emission areas in bigger cities. • Continuous technological improvements in EV techs • Bikes are being used more and now are more accepted by the general society than before. 		<ul style="list-style-type: none"> • Continuous international economic uncertainty (wars, pandemia, etc.) • Regulatory uncertainty in EV market due to continuous technological change. • Strong rural depopulation. • Car culture is strongly consolidated in the region.



	<ul style="list-style-type: none"> • <i>railway system is being slowly improved.</i> 	
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7.2 SWOT analysis in KCKZ County in Croatia

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • <i>Funding of EV for citizens and for public authorities</i> • <i>Awareness raising on dependency of fossil fuels</i> • <i>Natural resources (solar, wind, hydro)</i> 		<ul style="list-style-type: none"> • <i>Grid status</i> • <i>EV infrastructure gaps</i> • <i>Regulatory challenges</i>
OPPORTUNITIES		THREATS	
	<ul style="list-style-type: none"> • <i>Tourism promotion</i> • <i>Technology and innovation improvements</i> • <i>Renewable energy sources can lower the costs of charging EVs at home</i> • <i>Green economy growth</i> 		<ul style="list-style-type: none"> • <i>Risk of overloading the existing grid</i> • <i>Threat of range anxiety</i> • <i>Expensive investment in EVs and EV chargers</i> • <i>Resistance to change</i> • <i>External factors</i>

Strengths:

1. Increasing awareness: There's growing awareness among citizens and policymakers about the importance of sustainable mobility for environmental conservation.
2. EU funding opportunities: Croatia has access to various EU funding programs like Horizon Europe, which can support sustainable mobility initiatives.
3. Natural resources: Croatia's geography provides opportunities for renewable energy sources like solar and wind power, which can support electric vehicle infrastructure.
4. Government support: The government has shown commitment to sustainable development, evidenced by policies promoting electric vehicle adoption and investment in public transportation.

Weaknesses:

1. Infrastructure gaps: There's a need for further development of charging stations for electric vehicles and infrastructure for alternative transportation modes like cycling and walking.



2. Financial constraints: Limited budget allocation for sustainable mobility projects may hinder large-scale implementation.
3. Public awareness: While awareness is increasing, there's still a need for more education and outreach to encourage behaviour change towards sustainable transportation options.
4. Regulatory challenges: Existing regulations may not fully support the development and adoption of sustainable mobility solutions, requiring legislative updates.

Opportunities:

1. Tourism promotion: Croatia's tourism industry can benefit from sustainable mobility initiatives, attracting eco-conscious travellers interested in environmentally friendly transportation options.
2. Technological advancements: Rapid advancements in electric vehicle technology and smart transportation systems present opportunities for innovation and efficiency improvements.
3. Public-private partnerships: Collaboration between government entities, private companies, and NGOs can leverage resources and expertise to accelerate sustainable mobility projects.
4. Green economy growth: Investing in sustainable mobility can stimulate economic growth by creating jobs, fostering innovation, and attracting investment in green technologies.



Threats:

1. Economic uncertainty: Economic challenges or budget constraints may divert funding away from sustainable mobility projects.
2. Political instability: Changes in government leadership or policies could impact the continuity of sustainable transportation initiatives.
3. Resistance to change: Cultural norms and habits may present resistance to adopting new modes of transportation, slowing down the transition to sustainable mobility.
4. External factors: Events like global economic downturns, natural disasters, or pandemics can disrupt transportation systems and derail sustainability efforts.

7.3 SWOT analysis in Portugal

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • <i>Territory and Demography: Regional adjacency to Spain, consolidated urban centres and progressive adoption of sustainable policies by public actors.</i> • <i>Active Mobility: New urban areas equipped with better</i> 		<ul style="list-style-type: none"> • <i>Territory and Demography: Dominance of low or very low-density territories and high dependence on personal transport utilisation.</i> • <i>Active Mobility: Lack of infrastructures in the</i>






	<p>access infrastructures, compact urban centres, generally favourable orography, and low urban traffic volume.</p> <ul style="list-style-type: none"> • <i>Collective Transport:</i> Acceptable services coverage, articulated with railway. Rail stations in good conditions complemented with taxi service. • <i>Individual Transport:</i> Good territory coverage, with only punctual traffic congestion. High utilisation rate with more offer in parking needs than demand, in most cases free. Roadway security of the region follows national tendencies. 		<p>historic centres, single-deck tracks with obstacles (e.g. parked cars) and lack of habit in the use of this type of transport.</p> <ul style="list-style-type: none"> • <i>Collective Transport:</i> Low frequencies, not compatible with commuting necessities. Municipal bus networks highly supported by scholar transportation. • <i>Individual Transport:</i> Narrow roads without kerbs and long straights, crosses urban agglomerations and is associated with chaotic parking in the historic centres. Road security is worse in the sub-regional level when compared to the national panorama.
	OPPORTUNITIES		THREATS
	<ul style="list-style-type: none"> • <i>Territory and Demography:</i> Flexible Transport as complement to the PT Network. • <i>Active Mobility:</i> Short commuting routes. Implementation of structuring projects for cycling mobility, related to cycling networks and sharing electric bike stations. • <i>Collective Transport:</i> Predicted increase in taxes associated with personal transport, implementation of PEDU's. • <i>Individual Transport:</i> Municipal responsibility in management of parking 		<ul style="list-style-type: none"> • <i>Territory and Demography:</i> Demographic aging and Isolation of population without personal means of transportation. • <i>Active Mobility:</i> Urban tissue is too compact, the orography is too steep in the historical centres, the respective paving is unfriendly to bicycles and the population is used to its conditions. • <i>Collective Transport:</i> High dependency on individual means of transportation. • <i>Individual Transport:</i> Predicted raise of associated taxes. The historic centres offer no parking alternatives



	<i>service and mitigation of road accidents.</i>		<i>to residents and there is an increasing touristic pressure associated with these areas.</i>
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7.4 SWOT analysis in Slovenia

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • <i>Public charging network</i> • <i>Positive public acceptance</i> • <i>Energy mix.</i> • <i>EV supply</i> • <i>EV sharing systems</i> • <i>Introduction of e-mobility by public authorities in the region</i> • <i>Subsidies for public transport</i> • <i>Lower taxes</i> 		<ul style="list-style-type: none"> • <i>Technical problems</i> • <i>Charging infrastructure</i> • <i>Payment solutions</i> • <i>Multi dwelling buildings</i> • <i>Electricity pricing system</i> • <i>EV cost-benefit ratio</i> • <i>Usability</i> • <i>Thermo-plant energy</i> • <i>Maintenance</i> • <i>EV supply/offer</i> • <i>Loss of value</i>
OPPORTUNITIES		THREATS	
	<ul style="list-style-type: none"> • <i>Green economy</i> • <i>Job opportunities</i> • <i>Increasing competitiveness</i> • <i>Reducing negative environmental impact</i> 		<ul style="list-style-type: none"> • <i>Biofuels</i> • <i>Electricity prices</i> • <i>Electricity network</i> • <i>External factors</i> • <i>Reduction of jobs</i> • <i>Slower upgrade of ECS network</i> • <i>Slow uptake of new payment solutions</i> • <i>Negative promotion</i>

Strengths:

1. **Public Charging Network:** Slovenia has over 1,600 public charging points, including superchargers, with ongoing developments in high-speed charging hubs.
2. **Positive Public Acceptance:** BEVs, especially in public transport, have broad public support. Efforts by various organizations have addressed concerns about safety, environmental impact, and battery life, boosting BEV adoption.
3. **Energy Mix:** 73.68% of Slovenia's energy comes from non-fossil sources, enhancing the sustainability of electric mobility. Plans to close coal plants and build new facilities will further improve this.



4. EV Supply: The range of personal EV models is increasing, with more imports and lower prices expected. The supply of electric buses and light-duty EVs is also expanding.
5. EV Sharing Systems: EV sharing in major Slovenian cities reduces vehicle ownership and costs, with flexible rental options available.
6. Public Authority Adoption: Municipalities are adopting BEVs for various uses and establishing charging infrastructure, with larger cities transitioning to electric or fuel cell buses.
7. Subsidies for Public Transport: Despite a reduction in subsidies for BEVs, financial support for purchasing and free charging at some stations is still available.
8. Lower Taxes: BEV owners are exempt from emission taxes and enjoy other tax benefits.

Weaknesses:

1. Technical Problems: Charging stations often face malfunctions and payment issues, with online solutions requiring reliable smartphones and multiple attempts to resolve problems.
2. Charging Infrastructure: Though there are over 1,600 charging points, coverage is insufficient, particularly in smaller towns and multi-dwelling buildings.
3. Unified Payment Solutions: Lack of standardized, easy payment methods complicates the charging process for users.
4. High Installation Costs: Setting up home charging in older multi-dwelling buildings is costly and often requires complex approvals.
5. Uncertain Pricing: Changes in electricity pricing may lead to higher costs for home EV charging.
6. Cost-Benefit Ratio: EVs remain more expensive than ICE vehicles, with higher insurance and potential repair costs, impacting their appeal.
7. Fossil Fuel Dependency: 26.31% of Slovenia's energy is still fossil-based, reducing the environmental benefits of EVs.
8. Depreciation: EVs often depreciate faster than ICE vehicles, and battery replacement can be costly.

Opportunities:

1. Green Economy: EVs and their batteries can drive circular economy practices, including recycling and second-life applications.
2. Job Creation: The rise of electric mobility offers new jobs in maintenance, battery management, and logistics.
3. Competitive Edge for Tourism: Operational charging infrastructure can enhance competitiveness for hospitality businesses.
4. Environmental Benefits: BEVs are generally more environmentally friendly than ICE vehicles, reducing noise and emissions.



Threats:

1. Biofuels: HVO and other biofuels offer a lower-cost, environmentally friendly alternative, potentially undermining BEV adoption.



2. Rising Electricity Prices: Increasing energy costs could impact the attractiveness of EVs.
3. Network Capacity Costs: Investments in energy infrastructure to support EVs contribute to higher electricity prices.
4. External Factors: Political changes and economic shifts could affect EV market dynamics and subsidies.
5. Job Losses: Political and economic pressures may reduce car ownership, impacting the automotive industry.
6. Slow ECS Network Upgrades: The pace of expanding and improving the charging network is lagging demand.
7. Payment Solution Delays: Slow progress in adopting unified payment systems for charging could deter potential EV buyers.
8. Negative Promotion: Misinformation or negative publicity about BEVs can hinder their adoption and market growth.

7.5 SWOT analysis in Bulgaria

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • <i>Electric Bus Adoption</i> • <i>EV Charging Infrastructure</i> • <i>Bioeconomy Potential</i> • <i>Just Transition Funding</i> • <i>Integrated Urban Transport Projects (IUTP)</i> • <i>Energy Heart of Bulgaria</i> • <i>Low Local Taxes</i> 		<ul style="list-style-type: none"> • <i>Limited Public Awareness</i> • <i>Incomplete Cycling Infrastructure</i> • <i>Dependency on Private Cars</i> • <i>Challenges in Funding Allocation</i> • <i>Limited Integration of Modes</i> • <i>Insufficient Last-Mile Connectivity</i> • <i>Lack of Incentives for EV Adoption</i> • <i>Zoning and Land Use Challenges</i> • <i>Social Attitudes and Behaviour Patterns</i> • <i>Data Collection and Monitoring</i>



	OPPORTUNITIES		THREATS
	<ul style="list-style-type: none"> • <i>Modernization of Public Transport</i> • <i>Smart Traffic Management</i> • <i>European Project Funding</i> • <i>Bioeconomy Potential</i> • <i>Just Transition Fund (JTF)</i> • <i>Location and Infrastructure</i> • <i>Energy Complex and Green Hydrogen Potential</i> • <i>Traditions of Organizing Events</i> 		<ul style="list-style-type: none"> • <i>Limited Public Awareness and Behaviour Change</i> • <i>Incomplete Cycling Infrastructure</i> • <i>Dependency on Private Cars</i> • <i>Challenges in Funding Allocation</i> • <i>Limited Integration of Modes</i> • <i>Insufficient Last-Mile Connectivity</i> • <i>Lack of Incentives for EV Adoption</i> • <i>Zoning and Land Use Challenges</i> • <i>Social Attitudes and Behaviour Patterns</i> • <i>Data Collection and Monitoring</i>

Strengths:

1. **Electric Bus Adoption:** Successful introduction of electric buses like the Irizar e-mobility fleet, improving air quality and reducing noise
2. **EV Charging Infrastructure:** Established network of charging stations, including those by EV Point and El Drive Galleria Mall.
3. **Bioeconomy Potential:** Emphasis on sustainable practices in agriculture and resource management.
4. **Just Transition Funding:** Access to financial support for moving away from coal-based industries.
5. **Integrated Urban Transport Projects (IUTP):** Participation in projects that enhance active and public transportation.
6. **Energy Heart of Bulgaria:** Key role in energy production with potential for clean energy innovation.
7. **Low Local Taxes:** Attracts businesses and investments.

Weaknesses:

1. **Limited Public Awareness:** Lack of widespread knowledge about sustainable mobility options hampers behavioural change.
2. **Incomplete Cycling Infrastructure:** Insufficient bike lanes and connectivity reduce cycling as a viable transport option.



3. Dependency on Private Cars: Heavy reliance on private cars leads to congestion, pollution, and parking issues.
4. Challenges in Funding Allocation: Complexities in allocating funds hinder efficient implementation of mobility projects.
5. Limited Integration of Modes: Poor integration between transport modes causes inconvenience for commuters.
6. Insufficient Last-Mile Connectivity: Difficulties in connecting transport hubs to final destinations affect public transport effectiveness.
7. Lack of Incentives for EV Adoption: Limited incentives and inadequate charging infrastructure obstruct private EV adoption.
8. Zoning and Land Use Challenges: Urban planning and zoning regulations may not support sustainable mobility goals.
9. Social Attitudes and Behaviour Patterns: Resistance to changing habits and preference for cars complicates the shift towards greener transport.
10. Data Collection and Monitoring: Incomplete or outdated data limits effective planning and evaluation of mobility strategies.

Opportunities:



1. Modernization of Public Transport: Continued improvements in public transport through large-scale projects can enhance efficiency, reduce energy consumption, and boost residents' quality of life.
2. Smart Traffic Management: Investment in advanced traffic management technologies, such as new controllers and LED traffic lights, can alleviate congestion and improve safety.
3. European Project Funding: The €7.5 million European project supports sustainable urban transport development, improving public transport and reducing environmental impacts.
4. Bioeconomy Potential: Utilizing Stara Zagora's natural resources for sustainable tourism and eco-friendly initiatives can drive economic growth and attract visitors.
5. Just Transition Fund (JTF): Access to JTF funding can facilitate the transition from coal-based industries to green initiatives, promoting economic diversification and better air quality.
6. Location and Infrastructure: The city's strategic location and strong infrastructure can attract businesses, boost sustainable tourism, and drive economic development.
7. Energy Complex and Green Hydrogen Potential:
8. Opportunity: Leveraging the Maritsa East power complex to develop green hydrogen can enhance energy production, reduce CO₂ emissions, and support economic growth.
9. Traditions of Organizing Events: The city's history of cultural events can be expanded to enhance cultural tourism, engage the community, and stimulate economic vibrancy.

Threats:





1. Limited Public Awareness and Behaviour Change: Persistent lack of awareness about sustainable mobility may slow the adoption of greener transportation options.
2. Incomplete Cycling Infrastructure: Gaps in cycling infrastructure may deter people from choosing cycling as a mode of transport.
3. Dependency on Private Cars: Heavy reliance on private cars leads to traffic congestion, air pollution, and parking issues, complicating efforts to reduce car use.
4. Challenges in Funding Allocation: Complexities in fund allocation may result in resource mismanagement or delays in implementing sustainable mobility projects.
5. Limited Integration of Modes: Disjointed transport networks can cause inconvenience for commuters switching between different transport modes.
6. Insufficient Last-Mile Connectivity: Ineffective first- and last-mile solutions may discourage the use of public transport.
7. Lack of Incentives for EV Adoption: Limited incentives and high costs may impede the widespread adoption of electric vehicles.
8. Zoning and Land Use Challenges: Urban planning regulations may not fully support sustainable mobility, creating misalignment with mobility goals.
9. Social Attitudes and Behaviour Patterns: Cultural norms favouring car use may resist efforts to shift towards public transport and active mobility.
10. Data Collection and Monitoring: Outdated or incomplete data can hinder effective planning and decision-making for sustainable transport initiatives.

7.6 SWOT analysis in Bosnia and Herzegovina

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • <i>financial incentives for the purchase of electric vehicles,</i> • <i>enthusiasm of individuals and business entities, cities, and cantons</i> • <i>recognizing the problems and challenges of electromobility in Bosnia and Herzegovina</i> 		<ul style="list-style-type: none"> • <i>No regulations that would explicitly regulate any segment of e-mobility,</i> • <i>Different legal regulations in cities and cantons of Federation,</i> • <i>The lack of infrastructure charging stations.</i> • <i>Limited funds</i>



	OPPORTUNITIES		THREATS
	<ul style="list-style-type: none"> • Use of electrical energy sources • Green economy growth • Growing awareness among citizens 		<ul style="list-style-type: none"> • Limited Public Awareness and Behaviour Change • Low local support of cities for infrastructure -charging points. • Threat of range anxiety • Resistance to change • Restricted legal framework

Strengths:

1. Availability of Financial Incentives: Bosnia and Herzegovina benefits from pre-accession funds from the European Union, facilitating the implementation of reforms supporting sustainable mobility initiatives.
2. Enthusiasm of Individuals and Entities: Both individuals and organizations, including public entities like JP "Elektroprivreda BiH" and the government, demonstrate commitment to sustainable development through the promotion of electric vehicles, investment in public transportation, and support for charging infrastructure.
3. Awareness of Challenges: Recognition of the challenges facing electromobility in Bosnia and Herzegovina enables a focused approach towards their resolution.

Weaknesses:

1. Lack of Explicit Regulations: There are no comprehensive regulations specifically addressing various aspects of electromobility at the national level.
2. Disparities in Legal Frameworks: Different cities and cantons within the Federation of Bosnia and Herzegovina have varying regulations, leading to inconsistencies in the development of charging infrastructure.
3. Insufficient Charging Infrastructure: The limited availability of charging stations impedes the adoption of electric vehicles, highlighting the need for further infrastructure development.
4. Funding Constraints: As Bosnia and Herzegovina is not yet an EU member, financial resources for electromobility initiatives are limited.

Opportunities:

1. Increasing Citizen Awareness: Initiatives like the Association for Electromobility under the FBiH Chamber of Commerce are raising awareness and fostering proactive action among citizens.





2. Utilization of Renewable Energy: Leveraging electrical energy sources can significantly reduce CO2 emissions and enhance resilience to climate change.
3. Growth in Green Economy: Investment in sustainable mobility has the potential to stimulate economic growth by creating jobs, fostering innovation, and attracting investment in green technologies.

Threats:

1. Limited Public Awareness and Behavioural Change: Without sufficient public awareness, the pace of adoption of electromobility initiatives may be slow.
2. Lack of Local Support for Infrastructure: Inadequate planning and incentives at the local level may hinder the development of charging infrastructure.
3. Range Anxiety and Resistance to Change: Concerns about range limitations and resistance to change may deter individuals from transitioning to electric vehicles.
4. Continued Restricted Legal Framework: The absence of comprehensive regulations poses a persistent threat to improving conditions for electromobility in Bosnia and Herzegovina.

7.7 SWOT analysis in Italy

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • <i>Electric traction has locally zero environmental impact. It is particularly suitable for urban and suburban individual mobility. The advantages do not only concern harmful emissions and carbon dioxide, but also noise pollution.</i> • <i>The electric car is the individual means of transport that has enjoyed the broadest political, opinion and financial (public and private) support in the entire history of the automobile. There should therefore be no restrictions on its circulation in the short to medium term, in urban as well as non-urban areas.</i> 		<ul style="list-style-type: none"> • <i>High cost: Even with substantial incentives, affording an electric car with a comparable range to conventional vehicles remains challenging, especially considering its more limited utility in some contexts.</i> • <i>Limited range: Manufacturer-stated mileage is already lower compared to internal combustion cars, and many owners report actual mileage often falling significantly short, sometimes by up to 50%.</i> • <i>Charging times: Even with ultra-fast charging options, refueling times remain prolonged relative to the</i>





	<ul style="list-style-type: none"> • The image associated with the electric car is strongly positive, trendy and generally denotes belonging to the upper classes or to particularly enlightened and environmentally sensitive mentalities • A large part of the costs related to the price and recharging facilities are and will be borne by general taxation, resulting in convenience for the buyer. 		<p>demands of modern society, impacting battery longevity.</p> <ul style="list-style-type: none"> • Battery lifespan: The lifespan of electric car batteries remains a contentious issue, with estimates varying widely from 80,000 to 400,000 kilometers. • Maintenance challenges: While routine maintenance for electric vehicles is minimal, handling extraordinary repairs can lead to extended downtimes, occasionally exceeding six months.
	OPPORTUNITIES		THREATS
	<ul style="list-style-type: none"> • The spread of electric vehicles in Italy is supported by political choices that, if irreversible, would gradually lead to the same technology for all vehicles, greatly simplifying the production phase. • Marketing and sales communication would also become much simpler and unnecessary, as the current technological variety of supply would be drastically reduced. Simplified production and communication processes would represent significant cost savings for the industry and the collective. • The strong political and motivational content of the electric car would make its prescription easier for public bodies: public 		<ul style="list-style-type: none"> • The transition to electric cars may not generate sufficient demand to sustain the sector without ongoing public support, both in the short and long term. • Middle and lower-income groups, less swayed by environmental appeals than the affluent, may find electric cars prohibitively expensive relative to their perceived benefits compared to traditional vehicles. • The affordability of electric vehicles could be compromised by widespread adoption, potentially necessitating compensatory tax increases on electricity for transportation to offset reduced revenue from petroleum fuel consumption. • Shifting towards new automotive technologies





	<p>administrations, hospitals, police forces, territorial public bodies, etc. could be obliged to go 'full electric' quickly, with considerable business support.</p> <ul style="list-style-type: none"> • The recharging business could also be complemented by greater governmental protections, to allow operators a secure return on their investment, as was the case for renewables in their early stages. 		<p>could potentially relocate significant portions of the industry from EU countries to the Far East or lead to partial closures, posing significant social challenges.</p> <ul style="list-style-type: none"> • Increased demand for rare earths and other critical materials essential for battery production may exacerbate scarcity issues, driving up production costs further.
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7.8 SWOT analysis in Greece

STRENGTHS		WEAKNESSES	
	<ul style="list-style-type: none"> • Several municipalities in the Western Macedonia Region have formulated their individual Sustainable Urban Mobility Plans (SUMP). • Engaging in European initiatives concerning the establishment of charging stations and experimental projects for sustainable mobility and smart urban development. • Executing initiatives aimed at the revitalization and enhancement of urban/rural areas concerning transportation and communal infrastructure. • The Western Macedonia Region stands to gain from considerable research capabilities available within its open market sector or via universities and research 		<ul style="list-style-type: none"> • Road connections in mountainous areas are of average quality. • There's a shortage of intermodal centers and freight stations for combined transportation. • Charging infrastructure is lacking both in urban centers and mountainous villages. • Air and rail connections with the rest of Greece are insufficient. • Public knowledge about new technology is limited. • Lack of common policy among various public authorities and agencies. • Electric vehicles come with high purchase prices.



	<p><i>institutions within its boundaries.</i></p> <ul style="list-style-type: none"> • <i>Kozani Municipality and other regional municipalities have embraced strategies to promote electric mobility and have well-documented proposals for charging station networks.</i> • <i>Taxi services comprise electric vehicles or plug-in hybrids.</i> • <i>Developing new links to enhance road accessibility, particularly in economically significant areas (tourist destinations, natural landmarks, etc.), and initiatives to improve the quality of the road network.</i> 		
	OPPORTUNITIES		THREATS
	<ul style="list-style-type: none"> • <i>Growing interest in environmentally friendly technologies.</i> • <i>Rise in the utilization of renewable energy resources.</i> • <i>Advancements in technology leading to job creation.</i> • <i>Enhancing air quality and overall living standards.</i> • <i>Expansion and enhancement of rail infrastructure to support integrated and accessible transportation.</i> • <i>Political will and funding opportunities</i> • <i>Raising public awareness regarding environmental conservation.</i> 		<ul style="list-style-type: none"> • <i>The installation expenses for setting up charging stations are high.</i> • <i>There are various charger types to consider.</i> • <i>Developing eco-friendly transportation systems remains challenging.</i> • <i>Sustaining unfavourable economic climates leads to decreased interest and limited access to funding sources.</i> • <i>Eco-friendly transportation system development is lacking.</i> • <i>Public awareness regarding electrification is inadequate.</i> • <i>Limited banking support for new ventures and uncertainty pose obstacles to small or medium-scale investments.</i>



	<ul style="list-style-type: none">• <i>Within the framework of smart city development in the Municipality of Kozani, strategic planning for an extensive network of charging stations for alternative fuels and electric vehicles could boost the adoption of renewable energy sources (RES) and storage system installations.</i>		
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8 Conclusion

The "D1.2.1 Joint self-assessment study on sustainable mobility in the regions RuralMED Mobility" document provides a comprehensive analysis of the state of sustainable mobility across various regions in the Mediterranean, focusing on rural areas. This document highlights the challenges and opportunities in promoting electric vehicle (EV) adoption and infrastructure development, as well as the broader legal and financial frameworks supporting these initiatives.

This self-assessment study underscores the significant strides made towards sustainable mobility in rural Mediterranean regions, yet it also highlights the considerable work still required. The adoption of EV technology, supported by appropriate infrastructure and legal frameworks, is critical to reducing CO₂ emissions and achieving carbon neutrality. The project's focus on enhancing connectivity between urban and rural areas through multimodal mobility solutions aligns with broader EU energy and environmental goals.

One of the key insights from this study is the variation in progress and challenges among different regions. While some areas have made substantial advancements in EV infrastructure and market penetration, others lag due to economic, geographical, or policy-related barriers. For instance, Extremadura in Spain shows significant promise with its charging infrastructure but faces challenges in EV market penetration. Similarly, Croatia's inclusion in the Trans-European Transport Network (TEN-T) highlights its potential for growth, yet the reliance on traditional vehicles remains high.

The legal frameworks across these regions play a crucial role in facilitating or hindering the development of sustainable mobility. Countries with robust policies and incentives for EV adoption, such as Portugal, show better progress compared to those with less supportive frameworks. This study suggests that harmonizing policies across the EU and providing targeted support to lagging regions could enhance overall progress.

Financing instruments also emerge as a critical factor. Access to EU funds and other financial resources can significantly boost the deployment of EV infrastructure and sustainable mobility initiatives. However, the effectiveness of these funds depends on the regions' ability to navigate and utilize them efficiently. This study recommends strengthening local capacities in securing and managing funding.

Moreover, the study emphasizes the importance of public awareness and education in driving the transition to sustainable mobility. Without widespread public support and understanding, the adoption of EVs and other sustainable practices may face resistance. Therefore, ongoing efforts in awareness-raising and education are vital.

While the "D1.2.1 Joint self-assessment study on sustainable mobility in the regions RuralMED Mobility" highlights many challenges, it also points to a path forward. By addressing identified barriers, leveraging financial instruments, harmonizing legal frameworks, and enhancing public awareness, rural Mediterranean regions can achieve significant progress in sustainable mobility. The findings from this study will inform future strategies and actions, ensuring that



the transition to a more sustainable and connected transportation system continues to gain momentum.