E-Mobility in the Mediterranean

Executive summary

This policy brief is built on the analysis of background documentation, in-depth interviews with the Urban Transports Community (UTC), a dedicated online survey to get the insights of other international experts and desktop research from where to collect key information and the best practices on E-Mobility arising from Mediterranean cities.

There is a range of measures that are being employed across the EU and in Mediterranean cities to reduce emissions in the transportation sector, including investing in and **prioritising active mobility** (walking and cycling), **public transport** and **electric mobility**.

Electric vehicles (hereby also spelt as e-vehicles and EVs) are a key part of reducing the levels of and effects of pollution produced by the transport sector, consequently, the European Commission's "Sustainable and Smart Mobility Strategy" placed them at the core of **Europe's effort to decarbonise urban mobility** and the transport sector, setting ambitious targets and milestones in 2030 and 2050. The roadmap toward the decarbonisation of urban mobility in many European cities has already carried out important investments in this sector that matches the magnitude of the expected benefits.

The e-vehicle industry has not been immune to the pandemic. Due to the global supply chain disruption, and the war in Ukraine, the planned timeline of production has been slowed down, delaying the delivery period of many electrified models up to 1 year. In addition,

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The Urban Transports Community

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it is worth mentioning that **reaching price parity between internal combustion vehicles and e-vehicles has become harder** than it seemed in 2021: the rising prices for nickel, cobalt, and other metals, crucial to the production of e-vehicle batteries, are contributing to slowing the path toward the goal of producing electric batteries at USD 100 per kWh.

In Europe, the Netherlands, France, and Germany have established 70% of all current e-charging points in the region, even though, together, they only represent 23% of Europe's geographical extent. On the other hand, Mediterranean countries, which are far from the Northern European figures, **are nonetheless setting very ambitious targets to deploy electric charging infrastructure** in the medium term and to meet the known EU goals: in particular, Italy has set a target of 32,000 fast and ultra-fast chargers by 2030[1] and Spain expects to have 100,000 public e-charging stations by 2023 – something that will be supported by a bespoke package of impulse measures announced in December 2021[2].

The large investments made to support the e-mobility industry are a good example of the strategic importance it has for the member states of the European Union: **investments in battery plants** to underpin the EV production industry (so as not to depend on foreign countries such as China), the great commitment to **the electrification of public transport** and **the disincentivising of combustion vehicle's use** represent priorities in the roadmap to sustainable mobility of the vast majority of EU national governments. The recovery funds articulated by the Next Generation program[3] allow countries like Italy and Spain to fund strategic projects aimed at building new infrastructure for the development of e-mobility and modernising the urban mobility sector. On 23 February 2022, the Spanish government awarded 1,000 million euros to 170 municipalities for this specific purpose as part of the Next Generation recovery plan[4].
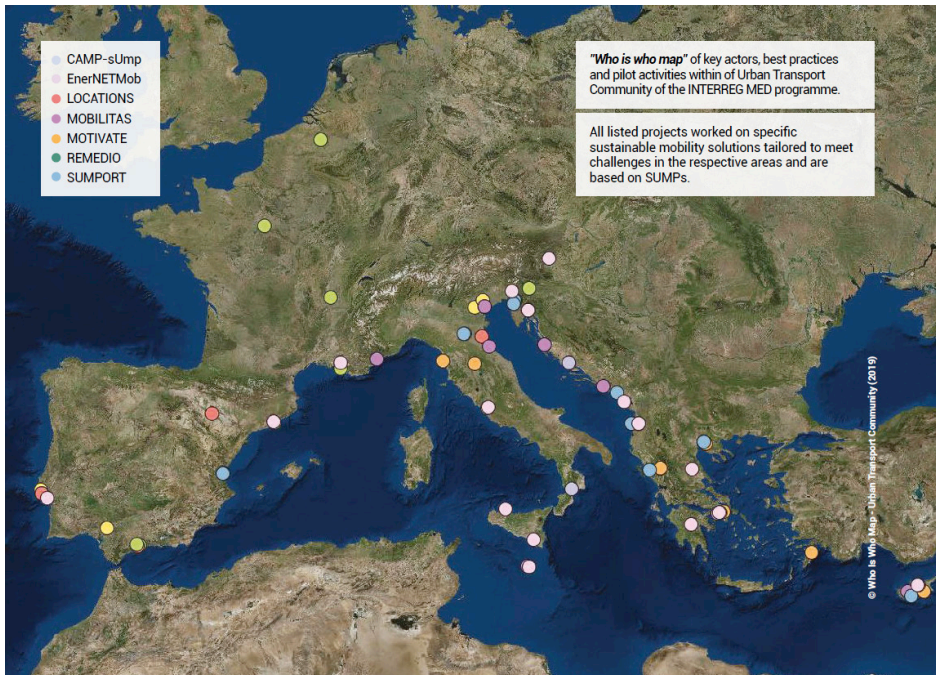
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1 According to the update in 2021 of "The National Plan for Electric Vehicle Charging Infrastructure (PNire)"
2 Spanish Royal Decree 125/2021 of 21 December.
3 Source: Next Generation program - https://europa.eu/next-generation-eu/index_en
4 Source: https://planderecuperacion.gob.es/noticias/mitma-adjudica-1000-millones-de-euros-del-fondo-de-recuperacion-a-170-municipios-y-2-entes-supramunicipales

"Who is who map" of key actors, best practices and pilot activities within of Urban Transport Community of the INTERREG MED programme.

All listed projects worked on specific sustainable mobility solutions tailored to meet challenges in the respective areas and are based on SUMPs.

The Urban Transports Community (UTC) is an Interreg MED initiative co-funded by the European Regional Development Fund (ERDF) launched in November 2016 for a three-year period and renewed in October 2019 until December 2022.

It brings together seven territorial cooperation projects and almost 120 organisations active in twelve European-Mediterranean coastal areas.

The Urban Transports Community

The Interreg MED Urban Transports Community (UTC) **promotes sustainable urban mobility planning in the Euro-Mediterranean region** as an effective tool to reduce carbon emissions and improve the quality of life of the population and the environment.

The Urban Transports Community is featured by a project led by MedCities, in partnership with UNIMED - Mediterranean Universities Union, Area Science Park, CODATU, CIVINET CY-EL, POLIS Network, and Durres Municipality.

The initiative covers a wide range of mobility-related topics such as:
- Data & ICT for smart traffic management
- Soft Mobility
- Shared Mobility
- Mobility Management in Tourist Destinations
- Urban Mobility Planning
- Electromobility

The UTC has developed, tested, and shared good practices covering these topics as solutions **for achieving sustainable and zero-emission mobility in the Mediterranean.** The first policy brief issued by the UTC advocated for more reliable, secured and inclusive active mobility infrastructures; the adoption of collaborative and bottom-up design processes to involve citizens and local stakeholders; and the promotion of EU and state-level standards and targeted funds (read the details here). The second policy brief focuses on Tourism Mobility and is built on the analysis of background documentation, in-depth interviews with tourism and mobility experts, a survey directed at the members of the UTC, Sustainable Tourism Community and CIVITAS, and finally, on the good practices arising from UTC modular projects.

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The role of electric vehicles in urban mobility

There is no doubt that **electric vehicles must be regarded as a means, rather than an end** in the pursuit of the decarbonisation of urban mobility in our cities. In this regard, sustainable mobility policies must promote, combine, and balance investment between **active mobility** (cycling and walking), including cycle lanes and the pedestrianisation of urban spaces; **public transport** and **infrastructure required for electric vehicles**, such as recharging points. Investment in this specific area is key to properly supporting shifting from private car usage to the mentioned sustainable mobility options.

In Mediterranean countries, some factors are accelerating the adoption of electric vehicles, and in particular electric cars. It is worth highlighting **the greater accessibility to electric charging** in medium-sized and large cities, **the existence of a greater commercial offer of vehicles** (extended range, larger size, etc) that now cover a greater spectrum of the demand needs, and **the lower energy cost of electric cars** compared to combustion cars in a scenario of increasing fuel prices.

However, other factors are related to the implementation of public policy measures at the local level aimed to discourage combustion engine vehicles in favour of EVs. Among these measures, we find **the introduction of low-emission zones**, "areas where the most polluting vehicles are regulated"[1] or "areas where vehicular access is limited to vehicles that meet certain emissions characteristics"[2], raising awareness in the population about the importance of reducing emissions from transport and highlighting that **public policy is prioritising zero-emission urban centres**. All the while, at a national and European level, the ban on selling combustion vehicles by, at the latest, 2035, is already influencing car buyers' decisions.

In Spain, the 'Climate change and energy transition law'[3] established mandatory deployment of **low-emission zones** in municipalities with more than 50,000 inhabitants before 1 January 2023. In Italy, Milan and Florence represent good examples of well-implemented low-emission zones, with **Florence,** in particular, announcing plans **to extend it to cover almost the entire city** and equip it with 81 telematic 'digital doors' to monitor all vehicles entering this area.

Overall, cities are aiming to reduce the number of private cars that travel through their roads and shift to electric ones when (and if) necessary. In December 2021, **passenger car registrations** across the European Union declined by 22.8% to 795,295 units (-2,4% in 2021), marking the sixth consecutive month of decline[4].

Overall, cities are aiming to reduce the number of private cars that travel through their roads and shift to electric ones when (and if) necessary. In December 2021, passenger car registrations across the European Union declined by 22.8% to 795,295 units (-2,4% in 2021), marking the sixth consecutive month of decline.

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1 Source: Low Emission Zones – Urban Access Regulations https://urbanaccessregulations.eu/low-emission-zones-main
2 Source: Low Emission Zone – ReVeAL https://civitas-reveal.eu/resources-overview/glossary/#lez-low-emission-zone
3 https://www.boe.es/buscar/doc.php?id=BOE-A-2021-8447#:~:text=La%20ley%20establece%20que%20el,los%20efectos%20del%20cambio%20clim%C3%A1tico
4 https://www.acea.auto/pc-registrations/passenger-car-registrations-2-4-in-2021-22-8-in-december/

In that scenario electric cars are gaining market share, however, battery electric cars and plug-in hybrids account for just 0.5% and 0.6% respectively of total sales in Europe[5]. In this light, when we talk about the need to promote electric mobility, **electric cars represent just one type of e-vehicle** that could and should be prioritised in cities among many. **Electric buses**, for example, **are already playing a fundamental role in decarbonising public transport** in Europe and raising awareness of the benefits of e-mobility. Despite this, their presence in some Mediterranean countries is limited due to a lack of sufficient subsidies and investment in infrastructure required to support the electrification of bus fleets, the absence of public transport electrification plans and the long-term and over-rigid contracts signed with the public bus services' operators that makes difficult to force them to include electric buses in the existing fleet. Nonetheless, there are solid commitments to minimum procurement targets of electric buses for the coming years, such as 38% in 2025 and 57% in 2030 in the case of Greece and 50% and 75% in the case of Malta[6] – percentages that sound encouraging.

Other e-vehicles, such as **electric mopeds,** have gained specific traction in many tourist destinations in the Mediterranean that are characterised by mild weather and a prominent motorcycle culture – Genoa, Nice, Barcelona and Valencia[7], to name a few. Similarly, **electric vans** and **electric light vehicles for delivery** have become more popular in Europe in the last few years, with the number of battery electric vans sold in the EU growing three-fold (over 30,000 units) over the 2017-2021 period[8].

All in all, electric vehicles are predicted to gain further market shares in the Mediterranean, and to do so at a good pace, they **will most probably remain at the top of the policy agenda** of the EU and consequently, also at national, regional, and local administrations.

How will the Mediterranean e-mobility scene evolve

According to different official data sources[9], **Mediterranean countries are behind central and northern European countries** in terms of e-mobility development. Some Mediterranean countries have experienced a strong increase in the sales of battery electric passenger cars. **Italy** went from 55,307 vehicles sold (2020) to 122,669 (2021)[10], an increase of +120%, while **France and Spain reached 60% growth rates.** Despite this, the contribution of Mediterranean countries to hit the EU target of 30 million electric cars by 2030[11] will hardly be relevant **unless a profound change** in behavioural purchasing trends unlocks e-mobility at a higher pace.

Electric cars represent just one type of e-vehicle that could and should be prioritised in cities among many.

5 https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf
6 Source: European Alternative Fuels Observatory
7 In Valencia, more than 7,000 people use the shared electric motorcycle systems that operate in the city.
8 Source: Making the transition to zero-emission mobility. ACEA
9 European Alternative Fuels Observatory
10 Source: European Alternative Fuels Observatory
11 Source: European Council for an energy-efficient economy

Electric charging infrastructure

As expected, the main barrier to electric car adoption is still **the lack of electric charging infrastructure**. This has been one of the findings of the multinational survey conducted in the frame of the preparation of this document, involving e-mobility managers and experts **across the Urban Transport Community** in the Mediterranean.

At present nearly half of the EV buyers in the Mediterranean are holding back plans to purchase an EV because they are uncertain where and how they would charge their vehicles.

On the positive side, it must be highlighted that **public charging stations networks will be expected to continuously grow** both as a result of public and private investment: as the number of EVs grows on our streets, the business models attached to providing charging services at street level will become more profitable, which will trigger larger investment in small- and medium-sized cities and rural territories where electric charging networks are still to be developed. There are some remarkable cases of small municipalities, like Penteli (34.934 inhabitants), a Greek city placed in the northern suburbs of Athens, committed to deploying a modern electric charging stations network to meet the growing demand of change experienced in 2022. Also in Greece, it's worth mentioning the case of Vari-Voula-Vouliagmeni (48,399 inhabitants), in East Attica, which is well known for having installed the first electric charging station in the country for the disabled.

Car ownership

Another conclusion is that some important barriers slowing down decarbonisation in the Mediterranean are related to car ownership. Mediterranean countries have a **higher motorisation rate** compared to the EU average (560 cars/1,000 inhabitants)[1], which has led Mediterranean governments to commit to deploying **ambitious policies to discourage car ownership** while providing more sustainable mobility options and better public spaces for their citizens. A good example is "**Milan's piazza program**"[2] which promotes walkability against cars by turning over 23,226 square meters of vehicle parking into public space in the last two years. As a result of these human-centric policies, **car ownership is expected to gradually decrease in Europe**, a phenomenon that will likely occur in the largest and most attractive destinations for visitors in the Mediterranean. In this context, fully **electric shared mobility systems will gain relevance** to a greater or lesser extent depending on factors like the city demographics, its touristic profile and the city's modal split among others. In any case, car ownership will keep being discouraged in the Mediterranean, nevertheless, shifting to an electric car is proven to pay off. Even though there is a financial advantage when shifting to an electric car, it should be noted that it varies across Mediterranean countries. According to recent studies[3], a Spanish commuter driving over 30,000 km per year can expect

At present nearly half of the EV buyers in the Mediterranean are holding back plans to purchase an EV because they are uncertain where and how they would charge their vehicles.

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1 (560 cars/1000 inhabitants) Source: "Passenger cars in the EU", EUROSTAT
2 Source: https://www.fastcompany.com/90763875/milan-turned-250000-square-feet-of-parking-into-public-space
3 Source: "Electric car ownership: an affordable option for all consumers". April 2021, BEUC

to save more than €14,000 over the first six years after buying a new electric car.

Light electric vehicles

Smaller and more affordable EVs will create a niche in the market. The availability of public space for large vehicles will progressively decrease and city administrations will be less willing to accommodate the same size of vehicles as before. As a result, the automotive industry will deliver a **wider range of light electric vehicles** to meet the expected demand. Moreover, **access restrictions to 4-seater cars** with one occupant are likely to be adopted in many cities in the coming years.

Likewise, there is a **large potential for electrifying urban freight** and last-mile delivery in Mediterranean cities through LEVs (light electric vehicles); many of which have old historic centres with narrow and bumpy streets in which **two/three-wheeler and light-duty electric vehicles** could easily develop in the coming years, reaching up to, respectively, 74% and 55% in 2030[4]. These types of vehicles will become a suitable solution for last-mile delivery when it comes to operating in low and zero-emission zones in city centres.

Micromobility and shared mobility

The new mobility habits that emerged after the COVID-19 pandemic will continue evolving toward wider adoption of micromobility through different schemes. E-scooter and e-bikes sharing systems are likely to **evolve from free-floating structures toward dock-based stations** because of the need for city authorities to prevent unorganised parking in pedestrianised areas or narrow pavements. These micromobility-shared systems are growing at a good pace not only in large capitals but also in small cities in the Mediterranean. Many cities will keep experimenting with electric micromobility by launching innovative pilot projects to test and validate technological solutions and new business models. As an example, it is of great interest to look at the case of the municipality of Rethymno in Crete, which is currently operating 10 micro-mobility charging stations for e-bikes and e-scooters as part of the project "Electric mobility solutions for tourists and residents", funded in the framework of the Interreg MED Programme and included in the catalogue of sustainable urban mobility solutions developed by the Urban Transports Community.

In the near future, the efforts of urban mobility managers in Mediterranean urban areas will be focused on i**ntegrating micromobility into the existing urban mobility services offer** to cover citizens' mobility needs from origin to destination, boosting intermodality and contributing to reducing car dependency. Cities and private operators must work together to guarantee the positive effects of using micromobility feeding the demand for these services by converting car trips into walking and cycling. In parallel, e-scooter and e-bike ownership are likely to continuously grow among the younger generation because of **their incapacity or lack of interest to invest in a car**. An Italian research in 2021 highlighted that 61.7%

The new mobility habits that emerged after the COVID-19 pandemic will continue evolving toward wider adoption of micromobility through different schemes.

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4 Source: "Prospects for electric vehicle deployment. Global EV Outlook 2021". IEA.org

of under-30-year-olds would give up car ownership if efficient public transport was available[5].

E-bus

E-bus deployment **plans will become more and more ambitious** in the Mediterranean. Within the Mediterranean-based countries, **France** has the highest e-bus uptake so far in 2022: in the first half of this year, France has registered 236 new battery electric buses, which comprises 13.3% of total new registrations of e-buses in Europe in the whole year up until July 2022. Out of all French cities, **Marseille**, the first to launch its 100% electric bus line, now wants to start converting around 50 buses per year and electrify its entire fleet by 2035 (i.e. totalling 630 city buses) – a good example of the impact of French enthusiasm towards e-buses.

The e-vehicle buyer

A last but important aspect of the evolution of e-mobility in the Mediterranean revolves around **e-vehicle buyers** – who are they now and who will they be in the mid-term future? At present, when speaking about the technology adoption curve for e-mobility, some Mediterranean countries[6] are close to moving beyond the phase of "early adopters" towards entering the phase of "early majority", joining the trends of countries such as the Netherlands, Sweden, Denmark, and Norway.

The profile of EV buyers in the Mediterranean aligns with **high-income populations between 44 and 65**. In contrast, younger generations have issues with the access price of EVs, consequently limiting the sales within this age group. This may change in the near future, as **electric cars are progressively reaching price parity** with efficient fossil-fuel vehicles in some countries, and this should occur in all major consuming markets by 2025 or 2026, allowing a wider target audience to gain access to electric cars.

The situation for the use of **e-scooters and e-bikes** presents a different picture than that of e-vehicles. In Greece, research into the users of shared e-scooters has shown that there is a **greater attraction to e-scooters in young** (18–27-year-olds), **male populations** and those who live within a short distance of city centres, compared to those who live further out from city centres. In addition, e-scooter trips are likely to replace trips previously made by walking or public transport – which is a rather inauspicious outcome that should be avoided[7]. Other research highlights how the private e-scooter market is growing in demand in Mediterranean cities[8].

Over the last decade, **e-bikes have become popular among older adults[9]**; however, research in 2020 highlighted how the demographic of e-bike purchases has varied, showing that generally,

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5 Source: UNIVE.it Center for Automotive e Mobility Innovation (CAMI) https://www.unive.it/pag/16584/?tx_news_pi1%5Bnews%5D=11705&cHash=c78cc14e516e2512f7d0a3a8039c9875

6 Interesting fact: a recent climate survey (2021-2022) published by the European Investment Bank (EIB) shows that at present 78% of Spanish car buyers would opt for a hybrid (44%) or electric car (34%) instead of a petrol one.

7 Source: https://www.sciencedirect.com/science/article/abs/pii/S1361920921000948

8 Source: https://www.ekisticsjournal.org/index.php/journal/article/view/503

9 Source: https://www.researchgate.net/publication/324467512_Older_E-bike_Users_Demographic_Health_Mobility_Characteristics_and_Cycling_Levels

the younger demographics are more enthusiastic to try an e-bike in Europe. the percentages of those interested in trying an e-bike in Mediterranean countries involved in the research were <u>30% for Italy, 21% for Spain and 19% for France</u>[10], with the Italian research highlighting that <u>people between 35-44 years old</u> were most likely to buy or use an e-bike in 2020[11]. Whilst <u>sales of e-bikes in 2021 accounted for 17% of EU cycle sales</u>, the growth rate of electric bike sales in Western and Central Europe is ahead of combined sales of e-cars and hybrid vehicles[12].

Specific trends and challenges

Easing access to funding for e-mobility

The "Next Generation" recovery fund is **the main financial instrument** for Mediterranean countries to undertake the electrification of their public transport or to deploy electric charging infrastructure.

Challenges:

/The smallest and least prepared cities have difficulties in accessing funding from Europe, such as the "Next Generation" recovery fund, or the "Horizon Europe" funding programme. **Cities need advice and guidance** to identify suitable funding opportunities, as well as specialised technical support to prepare the corresponding applications. In many cases, small cities **do not have specific staff** to address these and other European funding programmes, which results in missing many funding opportunities.

/Cities do not have experience in making investments in electric mobility, there is a risk that these investments will not produce the desired effect if they do not receive adequate support.

Micromobility has grown exponentially

E-bikes and other personal mobility vehicle use, especially electric scooters, have grown significantly after the pandemic.

Challenges:

/Cities still have **difficulties in regulating the use of e-scooters** and continue to try to harmonise the operation of shared micromobility systems with a balanced and rational use of public space to avoid conflicts with pedestrians and ensure road safety.

/New users of micromobility must **get training and information on how to use these vehicles** and become aware of the need to adopt the security measures that apply to them.

/An effort must be made to **prevent micromobility from driving users away from public transport** to instead complement it for last-mile and/or multimodal solutions.

The younger demographics are more enthusiastic to try an e-bike in Europe.

10 Source: https://cyclingindustry.news/quarter-of-europeans-likely-to-be-e-bike-riders-in-2020-says-largest-study-to-date/
11 Source: https://www.statista.com/statistics/1196098/italy-likelihood-to-buy-or-use-an-e-bike-by-age/#:~:text=Italians%20between%2035%20and%2044,or%20use%20an%20e%2D-bike
12 Source: https://cyclingindustry.news/electric-bike-sales-now-17-of-all-eu-cycle-sales-growth-rate-accellerating/

Cities develop new schemes to facilitate access to electric charging

In recent years, cities have launched electric charging deployment projects through which private **operators install and manage electric charging infrastructure** at no cost to cities, through temporary permits that grant the private operators occupation of public space based on an annual cost.

Challenges:

/ These schemes usually entail the condition of giving away the recharge energy for a period not exceeding one or two years, which leads to intensive use of these points. It is still unclear how the demand responds when, after that period, the recharge is offered at market prices (€40c/kWh). If the demands decrease, the unused installations would be unable to recover the cost of the investment.

The energy sector is playing a key role in providing e-charging

Mediterranean countries are fostering public-private collaboration at different scales to take advantage of the favourable positioning and capacity of energy companies. In some cases, **national governments are regulating to push energy companies to get involved.** A good example is the Spanish government's requirement for all gas stations to install e-charging points by law[1], as of December 2021, based on the volume of fuel they sell per year.

Challenges:

/In areas with low implementation of e-mobility or far from main intercity connection routes, the recharging points of the service stations could be underused for several years, making it impossible to recover the investment, forcing the payment of a power term that would be around EUR 6,000 per point per year.

Automakers are quickly shifting their car models to electric

We are witnessing how car dealerships are beginning to expand their offer of electric cars. Most European citizens have access to a wide range of e-cars that at present account for approximately 250 models of e-cars[2] - an amount that is estimated to peak at 340 in 2025[3].

Challenges:

/The promise of being able to access electric models of cars in a reasonable period of time is in danger due to the **scarcity of raw materials and key components**, as well as the difficulty of producing batteries at the rate imposed by the automobile industry. Access to an electric car could become a problem depending on which country we focus on and how different market variables evolve. Moreover, it is important to mention the known environmental challenges of mining battery components.

Investment and business models for EVs grow significantly

Many new companies are emerging around electric charging services, including access to the flexible rental of electric vehicles,

1 Spanish Royal Decree 125/2021 of 21 December.
2 https://ev-database.org/
3 Electric Surge: Carmakers electric cars plans across Europe 2019-2015. Transport & Environment

interchangeable batteries, and micromobility, among others. Mediterranean countries **are allocating large amounts of funds to enable e-mobility to flourish** as desired and planned. France has launched an investment plan called "France "030" for the economic modernisation of the country endowed with 30,000 million euros. The goal is to produce, by 2030, two million electric and hybrid vehicles in its territory. Spain is going to mobilize 11,855 million euros during the coming years within the "framework o" the first Spanish PERTE (Strategic project for the recovery and economic transition) to boost the electric vehicle industry.

Challenges:

/The large, planned public investments must be permeable enough to support SMEs and e-mobility start-ups. It is key to guarantee their involvement in all strategic e-mobility projects and establish a mechanism to prevent large companies to control most of them.

/Users must reach a certain understanding of the new wave of e-mobility services and products and their characteristics and features so that they are capable of discerning offers and services that are good from others that are not suitable for their needs.

/Mediterranean countries must be supported to position themselves at an adequate level of competitiveness in a sector as strategic as e-mobility.

E-mobility and renewable energy go hand in hand

Populations and companies are accessing electric mobility and renewables at the same time. Motivated by the lower energy costs of electric cars and the relatively short amortisation periods of photovoltaic self-consumption installations, they have become combined. The same is happening with many companies and large work centres and municipal buildings, which are offering electrical recharging to their employees and customers by generating electricity through their own photovoltaic installations.

Challenges:

/The global supply chain and the high demand that solar panels are experiencing can cause discontinuity and higher prices for this equipment, negatively affecting this binomial.

/The combination of energy resources may not always be sustainable, as in the case of countries that still heavily depend on coal, yet greatly invest in renewables.

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Policy recommendations at national and EU levels

1/ Guarantee interoperability in recharging

WHY

It is necessary to **facilitate access to recharging to populations** as much as possible. This generates an issue of having multiple different apps and access cards for different private or municipal charging points, which can discourage their use by the public.

HOW

Anticipate recharging needs in the medium-long term and launch large contests for contracts, work to unify recharging access systems as much as possible, oblige operators to share user data and make their systems communicate.

2/ Encourage the transition to EVs

WHY

The Mediterranean countries still require **electric vehicle incentives** in order to grow the sector's market share to reduce the price gap that exists between the equivalent gasoline vehicle (i.e. Croatia provided HRK 105 million (EUR 14 million) in 2021 to co-finance the purchase of energy-efficient vehicles[1]).

HOW

On the one hand, maintain or increase economic incentives for EVs and include other actions that involve prioritising EVs, including the use of exclusive lanes; EV-only access zero-emissions zones that can be designed in historic centres, prompting reservation of exclusive parking spaces for EVs, free recharging in the municipal recharging network and municipal centres, and subscriptions for electric bike and electric scooters systems.

3/ Foster cross-city learning

WHY

The topic of electric mobility is new for many cities. Many cities' initial implementation of measures to promote the uptake of EVs did not have the desired positive impact, specifically with the first deployment of charging networks. The networks experienced low usage levels due to the lack of allocating maintenance budgets for maintaining the charging stations. Another issue with the first deployment of city charging networks was experienced when cities acquired the first fleets of municipal electric cars, but without developing efficient and effective usage guidelines, particularly around the number of kilometres to be used daily to ensure that each vehicle had enough charge for future use, resulting dissatisfaction of staff when using the EVs.

HOW

Today, cities must take advantage of the opportunity to learn from each other about the experiences and best practices from the initial

Many cities' initial implementation of measures to promote the uptake of EVs did not have the desired positive impact, specifically with the first deployment of charging networks.

1 Challenges and Opportunities for Future BEVs Adoption in Croatia. Marko Emanović (2022)

deployment of charging networks to avoid repeating mistakes and successfully face their certification. In Spain, RECI (The Spanish Network of Smart Cities) has working groups where cities advise on contraction processes, acquisition of electric vehicles, public electric bike sharing schemes and how to regulate the boom in the arrival of electric scooters, among others.

4/ Foster regulation

WHY

In recent years it has been necessary to incorporate electric mobility into municipal public policy.

HOW

Electric mobility policies can be implemented through Sustainable Urban Mobility Plan (SUMP) updates or an Electric Mobility Strategy and even through an ordinance. This last case has been collected in many Mediterranean cities that have incorporated the electric vehicle and its associated infrastructures into their urban mobility ordinances – a special mention has to be made of **how these new ordinances are regulating the use of the electric scooter and the shared scooter operation systems** on public roads. In 2021 Rome, Italy, launched its SUMP which specifically targeted encouraging EVs for private vehicles and freight and the improvement of charging facilities as a central focus of its policy[2]

5/ Improve coordination between administrations

WHY

Public policy must be aligned at all levels to avoid moving forward in parallel and producing inconsistencies or duplications. This applies to the level of ambitions and goals at the national, regional, and local levels, and in terms of subsidies for the purchase of EVs.

HOW

There should be **e-mobility observatories or national and regional e-mobility working committees** that bring together suitable actors (national, regional, and local levels) such as public decision-makers, industry representatives and academia to foster public-private cooperation and enable partnerships toward e-mobility development. These bodies would foster the alignment of efforts, monitor the progress made on the deployment of agreed measures and enable fast-paced e-mobility uptake.
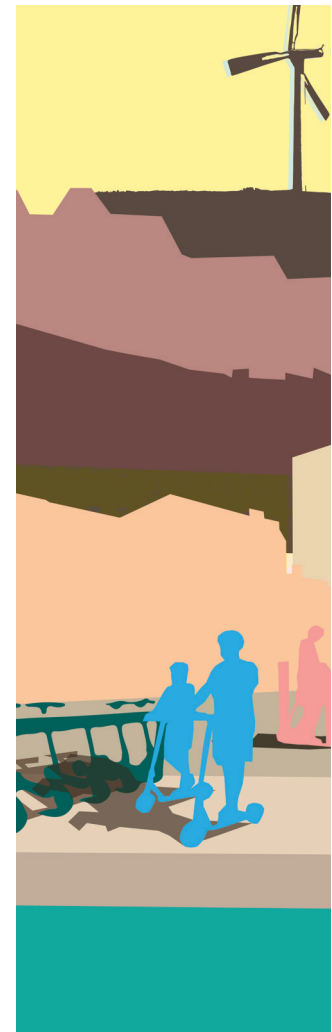
6/ Leverage renewables to speed up e-mobility uptake

WHY

Solar radiation in the Mediterranean countries is between 40% and 110% higher than in central Europe countries – this has contributed to considerable growth in the production of photovoltaic energy in these countries. The progressive reduction in the cost of photovoltaic panels and the increasing uncertainty for the cost of energy are pushing householders and private companies to produce electricity

Public policy must be aligned at all levels to avoid moving forward in parallel and producing inconsistencies or duplications.

2 Source: https://www.eltis.org/in-brief/news/rome-launches-integrated-electric-vehicle-charging-services

and power for their EVs, exploiting an outstanding and hopefully everlasting synergy.

HOW

Mediterranean countries' governments and electricity suppliers must seek formulas to foster that binomial by supporting and facilitating these initiatives. Some of the recommendations would be **reducing the administrative barriers and the bureaucracy linked to the authorisation procedures** and providing subsidies to reduce the upfront costs of these facilities.

Policy recommendations at local and regional levels

1/ Facilitate access to electric recharging infrastructure

WHY

The lack or shortage of electric charging infrastructure is **the first of the barriers that burden e-mobility uptake**, commonly identified in popular consultation processes. On the one hand, city councils must facilitate the deployment of a recharging network in public spaces that is large enough to endorse this technology in front of the population and make range anxiety disappear. Although <u>with the increase in the range of batteries, electric recharging on public roads will no longer play such an important role</u>, the truth is that at present it is still necessary to provide this infrastructure. On the other hand, it is vital to facilitate centralised facilities in neighbouring communities and work centres to universalise access to recharging.

HOW

/The investment associated with the deployment of an electric recharging network can be high, especially if it is fast recharging. For this reason, it is advisable to explore the possibility of using models that allow the granting of authorisation to provide this service to electricity marketing companies.

/When it comes to facilitating access to local network infrastructure it is key that cities look for standardised or widely used services to manage the access of EV users to their charging infrastructure. Typically, many cities have designed a bespoke app for their city, and this makes access to the cities charging point infrastructure a hassle for visitors or EV users in transit who are not familiar with the scheme.

2/ Prioritise the decarbonisation of public bus fleets

WHY

Migrating conventional buses to an electric solution has a positive impact in a triple dimension: **it reduces CO2 emissions** and local NO2 and particulate matter that contributes to local air pollution; **improves awareness** of city populations of the role of EVs; and **improves the habitability of the city** and the financial sustainability of transport operators. Large European capitals have started to shift their bus fleets to e-bus solutions and announced very ambitious electrification projects.

HOW

/Review bus concession contracts to plan or force a change in technology and look for financing schemes to enable a phased transition to electric buses.

/It is recommended that cities and municipal transport companies with no experience in e-buses **seek capacity building in this field** and develop a good level of understanding of the technical and financial feasibility of shifting their bus fleet to electric and outline the roadmap to follow.

The lack or shortage of electric charging infrastructure is the first of the barriers that burden e-mobility uptake, commonly identified in popular consultation processes.

3/ Inform and raise awareness

WHY

False myths about EVs still need to be dispelled. The general public and wider society **need to be aware of the benefits of shifting to E-Mobility** and how effective this new mobility is to fight against climate change.

HOW

/Launching communication campaigns aimed at different target audiences that emphasise the motivations of each group to act toward choosing electric vehicles to meet their mobility needs.

/Making use of digital tools, capacity training and dissemination activities to inform specific actors and decision-makers, both from the public administration and from the private industry, about the benefits and urgency of shifting to e-mobility.

/Carrying out awareness campaigns on the need to reduce local air pollution caused by transport near schools, institutes and universities and the associated positive impacts that reducing local air pollution in these areas can have on public health.

4/ Plan and set goals for the development of e-mobility via e-mobility strategies

WHY

To successfully address the decarbonisation of mobility at a regional and local level, administrations must have local electric vehicle strategies – a strategy would entail a plan with a political commitment to define the vision of the city in this area, establish strategic objectives, quantifiable goals, and a collection of specific measures.

HOW

This document must be informed by an ambitious public-private collaboration process and a participatory process that encompasses civil society, which encourages the political will and emphasises the need to support the strategies and s to be communicated at multiple levels.

5/ Bring the electric vehicle closer to the population and companies

WHY

Electric mobility is still not familiar to a large part of the population. Many people have not ever driven an electric car or ridden on an electric moped, therefore they do not have a full picture of either the experience of using an EV or the environmental and economic benefits of owning one.

HOW

/Carrying out fairs, events and exhibitions represents good opportunities to allow the population and companies to get properly informed, test the vehicles and be capable to experience their performance, features, and environmental and economic benefits.

/Implementing pilot projects where the technology can be tested for specific use cases and the progress, and the outcomes of these

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projects can be monitored. For instance, launching an electric moped sharing system for civil servants on municipal premises.

6/ Create synergies with key stakeholders

WHY

Cities should take advantage of the positioning and relevance of key players in the development of electric mobility.

HOW

Business associations within the e-mobility sector like the European Association for Electromobility (**AVERE**) and user associations like the Electric Vehicle Users Association (**UVE**) in Portugal or the Association of Users of Electric Vehicles (**AUVE**) in Spain have great permeability and the ability to communicate and promote projects. Cities must align efforts with these key stakeholders to use a single voice to provide the certainty that is needed in times with as much turbulence as the ones we live in. The strong changes in energy prices (electricity and fuel) added to inflation, and crises in the supply chain of automotive components are causing multiple instabilities and these actors play a key role in properly informing and disseminating information about the industry.

7/ Promote shared electric mobility

WHY

If cities want to reduce the number of trips made by private combustion cars, they must offer a wide range of urban mobility options. Shared electric mobility is presented as a good complement or substitute for combustion cars for a good number of travel needs. Electric motorcycles, electric bikes and electric scooters are contributing to displacing a significant proportion of combustion car users to e-mobility.

HOW

Facilitating the access of private operators to run electric shared mobility systems in Mediterranean cities would boost e-mobility. Cities like Florence or Málaga are fostering access to these systems, at present Malaga is preparing a tender to grant the public authorisation to operate a 1,200 e-scooters system distributed at 50 sharing stations across the municipality.

8/ Promote intermodality

WHY

Combining public transport, shared mobility and privately-owned e-vehicles helps reduce car use in cities by creating synergies among them.

HOW

There are cities that have come a long way in providing or testing Mobility as a Service (MaaS) schemes. Just in Italy, Rome, Milan, Turin, and Naples have made interesting progress toward offering an integrative solution for providing access to urban mobility services.

The strong changes in energy prices (electricity and fuel) added to inflation, and crises in the supply chain of automotive components are causing multiple instabilities and these actors play a key role in properly informing and disseminating information about the industry.

9/ Offer on-demand E-Mobility solutions for tourists

WHY

Mediterranean cities are major tourist destinations and mobility is an element that can significantly improve the experience of visits. Mobility habits after COVID-19 have however changed: tourists now require access to on-demand mobility upon arrival and this is something that hotels and tour operators are already working on, by providing a complete collection of electric vehicles (including e-bikes, e-scooters, and e-motorcycles) available to rent by the hour for their customers in a comfortable way.

HOW

Integrating tourists' mobility in the SUMP in the EV strategy, promoting public e-bike and e-scooter sharing stations at strategic points (Málaga) and investing in essential infrastructure for example bike lanes.

10/ Foster data-driven decision making

WHY

Cities must collect information on the effectiveness of the measures and projects they undertake to improve these services and increase their effectiveness to accelerate the adoption of electromobility.

HOW

It is necessary to analyse if those who adopt e-mobility respond to specific incentives or communication campaigns. In addition, it is important to analyse the demand for recharging on public roads, for both public and private uses, to understand the recharging habits of users and understand if it is necessary to expand the said network in certain areas of the city.

UTC's good practices

The most relevant good practices from the Urban Transport Community experience in the e-mobility field can be consulted below:

// E-mobility for tourists' projects

Rethymno (Greece): Leading the way for regional EV charging network

http://medurbantools.com/portfolio_page/electric-mobility-solutions-for-tourists-and-residents/

// Electric shared mobility projects

Igoumenitsa (Greece): Refurbishing the City's Bike Sharing System

http://medurbantools.com/portfolio_page/bike-sharing-system-in-igoumenitsa-greece/

Split (Croatia): Bike & E-bike Sharing

http://medurbantools.com/portfolio_page/implementation-of-public-bike-system-in-split/

// Electric mobility implementation plans

Electro-mobility implementation guidelines

https://enernetmob.interreg-med.eu/what-we-achieve/deliverables-database/

To elucidate the trends and the challenges in urban tourism mobility, below you can find some of the most relevant good practices from the Urban Transport Community experience.

Some options:
/ http://medurbantools.com/portfolio_page/electric-mobility-solutions-for-tourists-and-residents/

/ http://medurbantools.com/portfolio_page/action-plan-of-sustainable-electro-mobility-plans/

/ https://enernetmob.interreg-med.eu/no-cache/news-events/news/detail/actualites/e-mobility-in-the-region-of-peloponnese/ from ENERNETMOB project

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