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Pilot Selection Report: Impacts and Benefits for Rural Territories

PP05 – AREANATejo

June 2025

Content

1. Project identification

Project full title	Adopting electric mobility in underserved rural and remote MED areas
Mission	Promoting green living areas
Programme priority	Greener MED
Specific objective	RSO2.4: Promoting climate change adaptation and disaster risk prevention, resilience, taking into account eco-system based approaches
Deliverable number and title	D3.1.1: Pilot Selection Report: Impacts and Benefits for Rural Territories
Work package number and name	WP3: Thematic pilots implementation
Activity number and name	Activity 3.1: Joint thematic pilot definition
Partner in charge	PP5 - AREANATejo
Partners involved	AGENEX, AREANATejo, BSC KRANJ, CERTH, CIMAA, CIMNE, COM, JUNTAEX, KCKZ County, RAUSK, RDFWM, REAN, SZ REDA
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Previous steps/deliverables	**Reported deliverable**	**Further steps/deliverables**
Activity 3.1 - Joint thematic pilot definition	D3.1.1 Pilot selection report: impacts and benefits for rural territories	D.3.4.1 – Pilot completion report

2. List of abbreviations

AC – Alternating Current
AGENEX – Consortium Extremadura Energy Agency
AREANATejo - Regional Energy and Environment Agency from North Alentejo
BEV – Battery Electric Vehicle
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
CMK – City Municipality of Kranj
COM – Consortium Oltrepò Mantovano
CP – Charging Point
D – Deliverable
DC – Direct Current
ECS – Electric Charging Station
EMSP – Electric Mobility Supplier
EU – European Union
EV – Electric Vehicle
EVSE – Electric Vehicles Supply Equipment
GHG – Greenhouse Gas
ICE – Internal Combustion Engine
ITS – Intelligent transportation system
JUNTAEX – Directorate-General for Transport of the Government of Extremadura
KCKZ – Koprivnica-Krizevci County
KPIs – Key Performance Indicators
MaaS – Mobility as a Service
MED – Mediterranean
N/A – Not Applicable
RAUSK – Development Agency of Una-Sana Canton
RDFWM – Regional Development Fund of Western Macedonia
REAN – Regional Energy Agency North
RES – Renewable Energy Sources
SZ REDA – Stara Zagora Regional Economic Development Agency

3. Pilot selection report: impacts and benefits for rural territories

Identifying pilot projects in electric mobility is crucial for advancing sustainable transportation solutions. These projects serve as testing grounds for new technologies, policies, and infrastructure models, allowing stakeholders to assess their effectiveness before large-scale implementation. By targeting strategic areas and populations, pilot projects can provide valuable data and insights that guide future investments and decision-making.

From an environmental perspective, pilot projects contribute to reducing greenhouse gas emissions and improving urban air quality by promoting the adoption of electric vehicles (EVs) and renewable energy integration. They support the transition away from fossil fuels, helping cities meet climate targets and reduce their environmental footprint.

On a social level, pilot projects can enhance quality of life by decreasing noise pollution and improving public health. They also provide opportunities to promote social inclusion through the deployment of affordable and accessible mobility solutions, particularly in underserved communities.

Economically, pilot initiatives stimulate innovation and job creation, attracting investment and supporting local industries involved in the EV value chain—such as vehicle manufacturing, battery technology, and charging infrastructure. They also allow governments and private actors to assess the cost-effectiveness of different approaches, minimizing financial risk in the long term.

In summary, identifying and implementing pilot projects in electric mobility plays a vital role in shaping the future of sustainable transportation, delivering tangible environmental, social, and economic benefits.

The main objective of WP 3 - Thematic pilot implementation is to clearly identify the pilot projects that will be developed within the scope of the RuralMED Mobility project.

This WP is divided into several distinct and complementary tasks:
Activity 3.1 - Joint thematic pilot definition
Activity 3.2 - Blic procurement process
Activity 3.3 - Pilot implementation in each territory
Activity 3.4 - Monitoring of tested solutions

By bringing partners and their local action groups together, the pilot projects will accelerate the uptake of innovative solutions towards a more sustainable mobility in the involved regions. These solutions will be tested in different areas, that can be gathered in two main groups: one focused in increasing and improving the charging infrastructure and the public EV fleet, and the other focused on developing Mobility as a Service through different pioneering services. This activity will allow partners to develop their pilot selection report based on the actions to be implemented and on the impact, they will have in the territories from an environmental, economic and social point of view.
The present deliverable aims to present the main territorial benefits and impact on each territory for each pilot implementation.

3.1. Spain

Pilot project on intermodal sustainable transport

- **Location**
  - City: Coria, Cilleros & Perales del Puerto
  - Area Covered by the Pilot: 1.135 km2
  - Country: Extremadura (Spain)

- **Implementation Month/Year:**
  - June/2025-September/2026

- **Partners/Institutions Involved**
  - PP2 JUNTAEX - owner of the investment; involved in preparation and implementation of the pilot action
  - LP1 AGENEX - technical and administrative support in pilot solution
  - Municipality of Coria, Cilleros & Perales del Puerto - availability of land for the development of the pilot
- **Pilot Information**
- Pilot Typology: Installation of electric charging stations/Acquisition of electric vehicles:
  - **Number of Charging Stations:**
    - Rated power of charging station 1 (kW): 22 kW
    - Location of charging station 1: Municipality of Coria - C/ Cervantes, 78-Bis. Coord. X: 709.883 / Y: 4.429.689 (UTM-ETRS89 H29)
    - Rated power of charging station 2 (kW): 22 kW
    - Location of charging station 2: Municipality of Cilleros - Plaza el Caño. Coord. X: 688.112 / Y: 4.442.848 (UTM-ETRS89 H29)
    - Rated power of charging station 3 (kW): 22 kW
    - Location of charging station 3: Municipality of Perales del Puerto - Avda. Sierra de Gata. Coord. X: 697.451 / Y: 4.447.743 (UTM-ETRS89 H29)

- **AND**
  - **Number of Eletric Vehicles:**
    - Vehicle range 1 (kWh/100 km and autonomy): 15 kWh/100 km // 300-400 km
    - Vehicle range 2 (kWh/100 km and autonomy): 15 kWh/100 km // 300-400 km

- **Financial sources and financing details:**
  - Total investment value: 104.150 € (including External expertise and services, Equipment and Infrastructure and works costs)
  - Sources of financing: Interreg Euro-MED 80%, own (public) 20%
  - Savings (electricity/fuel): 3.200 litres of fuel are saved, which are replaced by 6.000 kWh
  - Savings calculation: -

        - Each vehicle is expected to travel 20.000 km in 15 months (June 2025–September 2026), so the total number of kilometres travelled will be 40.000 km.
        - Average fuel consumption is 8 l/100 km (fuel) vs 15 kWh (EV).
        - Current average prices are 1.45 €/l (fuel) vs 0,403 €/kWh (EV).
    - Cost savings: 2.222 € (4.640 € fuel - 2.418 € EV)

- **Criteria for Evaluating Locations**
    - The criteria established for determining the location of the charging stations were as follows:
        - Accessibility to healthcare facilities.
        - Accessibility to administrative support centers.
        - Ease of promoting cross-border transnational mobility.
        - Availability of land.
        - Availability and conditions for connection to the electricity supply grid.
        - Availability of digital connectivity.
        - Expected impact on climate change.

- **Expected Impacts and benefits for Rural Territories**
    - Positive impacts are expected not only in rural populations where the charging points are installed, but also in nearby populations, by offering a car sharing service that will complement public transport services, improving intramodality conditions for moving from these rural areas to urban areas.
    - Thus, the expected impacts and benefits for rural territories where the pilot will be implemented are:
        - 1) Social improvement - Offering the population an alternative mode of transport for their mobility needs for health, administrative or recreational reasons.
        - 2) Environmental benefits – Supporting lower GHG emissions and improved air quality, aligning with Extremadura Sustainable Mobility Plan targets.
        - 3) Transnational relationships – Offering a transnational EV sharing system near the border between Extremadura and Portugal.
        - 4) Infrastructure improvement – Expanding the charging network in rural areas to enhance accessibility, reduce range anxiety, and facilitate trip planning.
        - 5) Data analysis – Providing insights for future EV infrastructure development in rural regions and serving as a model of best practices.

- **Territorial Impact**
    - Environmental:

- Reduced GHG emissions and improved air quality as more people switch to EVs
- Encouragement of sustainable mobility by providing the necessary charging infrastructure for EVs in rural areas
- Support for the transition to low-carbon transportation in line with Extremadura Sustainable Mobility Plan targets and EU climate goals

- Economic:
  - Stimulus to local commerce and regional economies by attracting EV drivers/tourists who can now confidently travel to rural areas
  - Increased economic activity and turnover in rural municipalities
  - Potential for new business opportunities related to EV infrastructure and services
  - Enhanced competitiveness of rural areas by offering modern, sustainable transportation options

- Social:
  - Improved accessibility and connectivity between rural areas and urban centers
  - Enhanced quality of life for rural residents through access to cleaner transportation options
  - Reduced isolation of rural communities by enabling easier travel to/from urban areas
  - Charging stations located closer to rural population centers and key access points
  - Increased awareness of sustainable mobility options among rural populations
  - Potential for new mobility services like EV car sharing to improve transportation access

- **Expected Results**
  - Involved and nearby municipalities, will be able to connect the scattered villages with EV intertwined with other public transport services ("on demand" approach), to make up for the lack of public transportation. This is a great opportunity for citizens as end-users, which currently are facing problems when they need to move from their households to the main public services.
  - In a regional scale, the investment will produce also results at regional level, since we will coordinate the actions with the "Extremadura Sustainable Mobility Plan" and connect them to wider regional public transport network.
  - This can produce positive benefits both for Sierra de Gata rural area and Extremadura in general: after the investment the municipality will be connected to a regional network that links to the provincial main cities, bus stations and railway stations.
  - Implementing the pilot is expected to bring several key benefits:
    - Improved connectivity between rural areas and nearby urban centers.

- Lower GHG emissions and improved air quality, supporting environmental sustainability.
- Better data collection on EV charging patterns in rural areas to inform future infrastructure planning.
- Increased awareness and adoption of EVs among rural residents.
- Alignment with Extremadura Sustainable Mobility Plan goals.
- Reduced range anxiety for EV drivers traveling through rural regions, making trips more feasible.
- A testing ground for innovative rural mobility solutions to inform future expansion.
- Capacity building for local authorities in planning and implementing EV infrastructure.
- Fuel and cost savings.

- **Level of Transferability and Replication**
  - The rural area selected for the pilot implementation allows for testing shared mobility solutions adapted to other low-demand environments, which are more flexible and economical, and which allow for solving the real needs of citizens' daily mobility. This selected area allows testing the use of on-demand electric mobility solutions from the most isolated towns to their travel attraction centers, such as towns with a referral hospital, administrative services, other regular public transport services, etc. The results of the pilot project in this area can be replicated in other rural areas with similar characteristics, both at the regional level and in the EuroMED territory.

- **Performance Indicators**
  - Environmental KPIs:
    - Annual CO_2 Emissions Reduction
    - Fossil Fuel Displacement
  - Operational KPIs:
    - Distance Travelled per EV
    - Charging Station Usage
    - Charger Availability (Uptime)
    - Vehicle Availability for Service
  - Economic KPIs:
    - Operational Cost Savings
    - Maintenance Cost Reduction
  - Social KPIs:
    - Number of Beneficiaries Served by EV
    - Public Awareness and Acceptance Score
    - Citizen Feedback Engagement
  - Strategic KPIs:
    - Inclusion in Rural Mobility Planning
    - Pilot Data Used in Regional Policy Reports
    - Number of Replication Requests or Inquiries

3.2. Croatia

Installation of EV charging stations in rural area of KCKZ County

- **Location**
  - City: Municipality of Gola, Ferdinandovac, Kalnik and Gornja Rijeka
  - Area Covered by the Pilot: 1.748 km2
  - Country: Koprivnica-Krizevci County, Croatia

- **Implementation Month/Year:**
  - April/2025-July/2025

- **Partners/Institutions Involved**
  - Koprivnica-Krizevci County - owner of the investment; involved in preparation and implementation of the pilot action
  - Regional Energy Agency North - technical support to the KCKZ County in pilot solution

- **Pilot Information**
- Pilot Typology: Installation of electric charging stations:
  - **Number of Charging Stations:**
    - Rated power of charging station 1 (kW): 22 (with load balancing)
    - Location of charging station 1: Municipality of Gola, M. P. Miskine 1, 48331 Gola (cadastral plot nr.: 56 and 3335, cadastral municipality: Gola)
    - Rated power of charging station 2 (kW): 22 (with load balancing)
    - Location of charging station 2: Municipality of Ferdinandovac, Trg Slobode 30, 48356 Ferdinandovac (cadastral plot nr.: 714 and 741/4, cadastral municipality: Ferdinandovac)
    - Rated power of charging station 3 (kW): 22 (with load balancing)
    - Location of charging station 3: Municipality of Kalnik, Trg Stjepana Radica 13, 48267 Kalnik (cadastral plot nr.: 160, cadastral municipality: Kalnik)
    - Rated power of charging station 4 (kW): 22 (with load balancing)
    - Location of charging station 4: Municipality of Gornja Rijeka, Varazdinska 2, 48268 Gornja Rijeka (cadastral plot nr.: 31/1, cadastral municipality: Gornja Rijeka)

- **Financial sources and financing details:**
  - Total investment value: 44.200,00 euros
  - Sources of financing: Project RuralMED Mobility
  - Savings (electricity/fuel): 26.451,74 L/y (diesel)
  - Savings calculation: Estimated 2h of charging per day per charging station (Total of 8h/day) with the maximum power of 22 kW; Energy charged equals to 176 kWh/day or 64.240 kWh/year. Typical EV efficiency is about 17kWh/100km (equals to cca.

7L/100km). That is 377.882 km (3.778,82 100km/y). Charging for citizens will be free, thus the cost savings depend on the cost of diesel/gas (1,44 €/L on date 04/03/2025); 1,44 €/L x 7L/100km = 10,08 €/100km; 10,08 €/100km x 3.778,82 100km/y = 38.090,51 €/y. Fuel saved in L: 7 L/100km x 3.778,82 100km/y = 26.451,74 L/y.

- Cost savings: 38.090,51 €/y

- **Criteria for Evaluating Locations**
  - The locations for the EV charging stations were carefully selected based on key criteria, including high-traffic areas within the four municipalities. The chosen EVCS sites—Health Centers in Gola, Ferdinandovac, Kalnik, and Gornja Rijeka—will be integrated into existing parking infrastructure to ensure accessibility and convenience. Each location was strategically chosen to serve a specific purpose:
    - Kalnik, a well-known tourist destination, will allow for the analysis of seasonal charging patterns and comparisons with other EVCS sites, supporting both tourism infrastructure and data-driven planning.
    - Gola, located along the Hungarian border, was selected for its strategic position, enhancing cross-border mobility.
    - Ferdinandovac, near the Drava River valley (the D2 highway route), offers connectivity to a key regional transportation corridor.
    - Gornja Rijeka, a typical rural municipality, will provide a valuable benchmark for evaluating EV adoption in less densely populated areas.
  - These locations were also chosen for their reliable electrical availability, proximity to grid connection points, and sufficient space for installation. By placing EVCSs in rural municipalities beyond major commercial hubs, the project aims to increase EV adoption in these areas while fostering broader accessibility and sustainable mobility.

- **Expected Impacts and benefits for Rural Territories**
  - 1) Tourism enhancement – Boosting local tourism, especially in destinations like the Municipality of Kalnik, by attracting more EV-driving visitors.
  - 2) Economic development – Encouraging EV users to spend time and money in rural municipalities while charging their vehicles.
  - 3) Environmental benefits – Supporting lower GHG emissions and improved air quality, aligning with Croatia's efforts to meet EU targets.
  - 4) Infrastructure improvement – Expanding the charging network in rural areas to enhance accessibility, reduce range anxiety, and facilitate trip planning.
  - 5) Data analysis – Providing insights for future EV infrastructure development in rural regions and serving as a model of best practices.

- **Territorial Impact**
  - Environmental:
    - Reduced GHG emissions and improved air quality as more people switch to EVs

        - Encouragement of sustainable mobility by providing the necessary charging infrastructure for EVs in rural areas
        - Support for the transition to low-carbon transportation in line with EU climate goals
        - Potential integration with renewable energy sources like solar for charging stations
    - Economic:
        - Stimulus to local commerce and regional economies by attracting EV drivers/tourists who can now confidently travel to rural areas
        - Increased economic activity and turnover in rural municipalities
        - Potential for new business opportunities related to EV infrastructure and services
        - Enhanced competitiveness of rural areas by offering modern, sustainable transportation options
        - Boost to sustainable tourism in rural regions
    - Social:
        - Improved accessibility and connectivity between rural areas and urban centers
        - Enhanced quality of life for rural residents through access to cleaner transportation options
        - Reduced isolation of rural communities by enabling easier travel to/from urban areas
        - Charging stations located closer to rural population centers and key access points
        - Increased awareness of sustainable mobility options among rural populations
        - Potential for new mobility services like EV car sharing to improve transportation access

- **Expected Results**
    - Implementing EVCSs in rural Croatia—specifically in the municipalities of Kalnik, Gornja Rijeka, Ferdinandovac, and Gola—is expected to bring several key benefits:
        - Improved connectivity between rural areas and nearby urban centers.
        - Boost to sustainable tourism by attracting more EV-driving visitors, particularly in tourist destinations.
        - Lower GHG emissions and improved air quality, supporting environmental sustainability.
        - Economic growth, as EV users are likely to spend more time and money in rural communities.
        - Better data collection on EV charging patterns in rural areas to inform future infrastructure planning.
        - Increased awareness and adoption of EVs among rural residents.
        - Alignment with Croatia's EU climate and sustainable transport goals.
        - Reduced range anxiety for EV drivers traveling through rural regions, making trips more feasible.

- A testing ground for innovative rural mobility solutions to inform future expansion.
- Capacity building for local authorities in planning and implementing EV infrastructure.
- Fuel and cost savings, with an estimated 26,451.74 liters of fuel saved per year, translating to €38,090.51 in annual cost reductions

- **Level of Transferability and Replication**
  - Addressing key questions—such as how to install EVCSs under different ownership models, selecting the appropriate output power based on building consumption, the role of location in attracting EV users, and developing operational and financial models to encourage private investment in rural areas—is essential for successful replication in other regions, as these challenges are widespread. The pilot municipalities and the "Croatian County Association", which represents all Croatian counties, play a crucial role in scaling and sharing the results. Moreover, similar challenges exist beyond Croatia's borders, making this experience valuable for addressing EV infrastructure issues in other countries as well. Building on this expertise, REAN has leveraged the knowledge and experience gained through the RuralMED Mobility project to apply for the Interreg VI-A Hungary-Croatia Programme with the CROSS-EV project, which is currently under evaluation for approval.

- **Performance Indicators**
  - Key metrics to assess the success of the initiative include:
    - 1) Total number of charging sessions to measure usage and demand.
    - 2) Average duration of each charging session to understand user behavior.
    - 3) Total energy delivered by the EVCSs to evaluate infrastructure performance.
    - 4) Reduction in CO2 emissions, measured in diesel/gasoline equivalents, to assess environmental impact.

3.3. Portugal

Shared use of municipal electric vehicles

- **Location**
  - City: Portalegre
  - Area Covered by the Pilot: Alto Alentejo region (6 065 km²)
  - Country: Portugal

- **Implementation Month/Year:**
  - May/2025-July/2026

- **Partners/Institutions Involved**
  - CIMAA - Implement pilot's elements: 2 EV charging stations; 2 Eletric Vehicles Renting; Fleet Monitoring Software; Transport Sharing Management Software; AREANATejo - Carry out the survey of the municipal fleet and develop feasibility studies for the electrification of CIMAA's fleet, which includes proposals to change the current vehicles for EVs; Research the best locations for the new charging stations in rural spaces; Propose the best adapted combination of MaaS services with the help of the existing networks and EV fleet (the already existing and the rented EV); Study the feasibility of cross-border interoperability with the nearby Spanish region of Extremadura.

- **Pilot Information**
- Pilot Typology: Installation of electric charging stations/Acquisition of electric vehicles:
  - **Number of Charging Stations:**
    - Rated power of charging station 1 (kW): 2x22
    - Location of charging station 1: Largo Serpa Pinto, Portalegre
    - Rated power of charging station 2 (kW): 2x22
    - Location of charging station 2: Largo da Boavista, Portalegre
- **AND**
  - **Number of Eletric Vehicles:**
    - Vehicle range 1 (kWh/100 km and autonomy): Urban - 8.8 kWh/100km - autonomy 336 km ; Combined- 13.3 kWh/100km - autonomy 228 km
    - Vehicle range 2 (kWh/100 km and autonomy): Urban - 8.8 kWh/100km - autonomy 336 km ; Combined- 13.3 kWh/100km - autonomy 228 km

- **Financial sources and financing details:**
  - Total investment value: 45 166,04 €
  - Sources of financing: CIMAA and INTERREG Program (80%)
  - Savings (electricity/fuel): 316 €/Month/Car
  - Savings calculation: Each electric car is expected to make the equivalent of 3 full charges per week, with a battery capacity of 26.8 kWh, and taking into account that they will be used in a mixed cycle, which translates into a range of 228 km per charge. In order to make the respective comparison, in the case of the fuel car, a consumption of 7l/100 km and a price of 1,70 €/l of fuel were considered. In other words: It is estimated that each vehicle will travel around 2736 kilometres per month, representing an electricity consumption of 321,6 kWh/month. Assuming an electricity cost of 0.22 €/kWh, the estimated monthly cost will be approximately 70.75 €/month/vehicle. If we compare this to a petrol car, with an average consumption of 7 l/100 km, at 1,70 euros per litre, the cost of each vehicle is 316 euros/month,
  - Cost savings: 9 173,95 €

- **Criteria for Evaluating Locations**
  - Criteria used to evaluate locations was the following: Electrical availability and distance from the grid connection point; Space conditions (shading, weather protection); Proximity to essential services and proximity to partners offices.

- **Expected Impacts and benefits for Rural Territories**
  - Contribute to the creation (in the medium/long term) of a consolidated network of EV charging stations in the region, as well as the improvement of environmental quality indicators through the decarbonization of mobility, promoting the quality of life of citizens as well as the development of the region.
- **Territorial Impact**
  - Environmental: Reducing emissions, encouraging sustainable mobility.
  - Economic: Stimulus to local commerce, more appealing to those travelling in electric vehicles. Attraction of sustainable tourism investments.
  - Social: Improved accessibility and quality of life for the population. Improvement on the perception of the territory by inhabitants and visitors.
- **Expected Results**
  - Carbon emission due to transport are expected to be reduced; Better perception of electric mobility solutions (cost/efficiency wise);
- **Level of Transferability and Replication**
  - This model is possible to apply and transfer to the municipalities that constitute CIMAA's area (Alto Alentejo region), mostly due to the involvement of both the institutional and technical partners in the implementation of the investments.
- **Performance Indicators**
  - Number of users, reduction of emissions, feedback from the stakeholders and economical balance of the investment.

3.4. Slovenia

Name of the Pilot, Area Covered and implementation Month/Year

- **Location**
  - City: Bohinjska Bistrica
  - Area Covered by the Pilot: Municipality Bohinj
  - Country: Slovenia
- **Implementation Month/Year:**
  - May/2025-July/2026
- **Partners/Institutions Involved**
  - BSC, Ltd, Kranj - RDA of Gorenjska is responsible for the implementation of the pilot activities, which are the purchase and a set up of 1 ECS and coordination of the testing of transport on call in the Municipality Bohinj with 1 EV van. The ESC will be owned by us. The e-van is provided free of charge by the Municipality Bohinj, but we

need to pay for the driver services. It is scheduled that the testing phase - the monitoring is done 17 to 18 months - according to the agreement.

- Municipality Bohinj is the strategic associated partner and the owner of the land where the ECS will be set up. They gave us the permission and have also chosen the location upon careful consideration, analysing all the localisation aspects, at the end they've chosen a public parking lot at the Camp Danica in Bohinjska Bistrica. They are also the beneficiaries of the pilot and they already have established transport on call service for vulnerable groups of people.
- ToyotaGo is a service provider with an APP where the users of the transport on call can book a transfer and the APP optimizes the route. It already gathers some of the analytical data needed for the project's platform. They will connect with the platform sharing data available and needed for the future analysis of the service and planning. ATM we still do not have an official agreement with them on the terms of cooperation and are not yet externalised.
- Regional energy distributor has done the Feasibility study - in Slovene called a bit differently, upon which we were able to start a pilot action. They are also one of the 2 evaluators on the implementation quality of the pilot action and the project. The Local Energy Agency Gorenjska is the second evaluator of the project implementation quality. They also happen to be chosen for the preparation of the Climate impact analysis.
- Other external expert is also a company who is doing the construction works, but I do not know if this is relevant and other companies that need to be involved for this.
- ABB company who's ECS was chosen (1 ECS). But they are not going to ne the CPO. We still need to choose the CPO, but first we need to know if our changes in the pilot action are going to be approved. We wish to combine the open use of the ECS with the use for charging 1 EV for the transport on call. But since the location in the future the location could serve as P&R.
- Other not relevant stakeholders for the project, but are interested in the results are the neighbouring municipalities and the Institute for Tourism Bohinj, but also the national level since they are going to start their own transport on call pilot action in 2026.

- **Pilot Information**
- Pilot Typology: Installation of electric charging stations/Acquisition of electric vehicles/Installation of charging stations and purchase of electric vehicles/Others:
  - **Number of Charging Stations:**
    - Rated power of charging station 1 (kW): 50 kW DC
    - Location of charging station 1: Parking lot Kamp Danica, lot no. 971/7 ko., 2200 Bohinjska Bistrica
    - Rated power of charging station 2 (kW): 22kW AC, but there is going to be 1ECS with 2 cables/chargers
    - Location of charging station 2: Parking lot Kamp Danica, lot no. 971/7 ko., 2200 Bohinjska Bistrica

- **AND**
  - **Number of Eletric Vehicles:**

- Vehicle range 1 (kWh/100 km and autonomy): 24.5 kWh / 100 km

- **Financial sources and financing details:**
  - Total investment value: 127.600,00 euros
  - Sources of financing: Interreg Euro-MED 80%, own (public) 20%
  - Savings (electricity/fuel): WTPL 24.5 kWh / 100 km vs. 7.5 l/100 km
  - Savings calculation: CO2 per km, diesel emits 197g/km CO2, EV 0. Other calculations could be cost of electricity VS cost of fuel, but both costs are changing. Diesel is currently 1.55EUR per/l, for the electricity charging with 22kW 0,43 €/ kWh + Price of additional tariff for each subsequent minute 0,04 € / min, for DC charging 50kW, the price is 0,77 €/ kWh + Price of additional tariff for each subsequent minute 0,15 € / min.
  - Cost savings: to be determinated.
- **Criteria for Evaluating Locations**
  - Possibility do to the infrastructural work
  - At the point of the decision making, the municipality did not know what the extent of the infrastructural works would be and how much will it cost in case the enforcement of the cables will be done, but they knew that in other locations it would be worse if that was need to be done
  - Land owned by the municipality most convenient location for charging the EV for the transport on call regarding routs and without bothering others or having any restrictions
  - The most convenient location with the potential to expand the service, test demand
  - Most used location for parking (restaurant near by, camp, the municipal centre)
  - Good position for the P&R system.

- **Expected Impacts and benefits for Rural Territories**
  - Improved mobility for all, using public transport service where the use of buses is not economic, addressing mobility poverty, making life for parents and elderly easier, addressing tourism demand for mobility and managing the parking systems.

- **Territorial Impact**
  - Environmental: Reducing emissions, encouraging sustainable mobility, - YES
  - Economic: Stimulus to local commerce or regional economies, more appealing to those travelling in electric vehicles. - YES
  - Social: Improved accessibility and quality of life for the population, charging stations closer to access points. - that too
  - Improved mobility for all, using public transport service where the use of buses is not economic, addressing mobility poverty, making life for parents and elderly easier, addressing tourism demand for mobility (sending the message to the tourists that they will be mobile and flexible even if they come to the destination with a public transport) and managing the parking systems (dedicate spaces for parking and prevent parking elsewhere where is not desirable.

- **Expected Results**
  - Expect to get analytical data upon which can decide with the municipality(es) if the service should be expanded and or transferred to other municipalities, especially neighbouring and if the demand for charging is sufficient or not, if it is already the time that additional ECS should be installed or not yet, but the further analysis will go even deeper, looking at electrification of e-buses and the charging infrastructure.

- **Level of Transferability and Replication**
  - Under conditions the practice can be transferred for sure. Some of conditions are: political willingness, investment funds, whether the people can pay for the service or the municipality or the state needs to subsidise this service and to what extent, if the service provider exists. In the future the transport on call in the rural areas where in any case there is not a lot of traffic can be done with autonomous vehicles and the costs for driver would significantly contribute to cost savings.

- **Performance Indicators**
  - In Slovenia the number of users seasonally and annually, then the CO2 savings according to the actual no. of km driven and if the location has been chosen well.

3.5. Bulgaria

Installation of electric charging stations

- **Location**
  - City: Galabovo and Radnevo
  - Area Covered by the Pilot: Municipality of Galabovo and Municipality of Radnevo
  - Country: Bulgaria

- **Implementation Month/Year:**
  - 2025

- **Partners/Institutions Involved**
  - The implementation of the pilot in Galabovo involves two key partners with distinct roles and levels of engagement:
    - 1. Stara Zagora Regional Economic Development Agency (SZ REDA)
      - Role: Key implementing and supporting partner.
      - Activities and Involvement:
        - Pilot Implementation Lead: Directly responsible for investment elements and pilot actions in Galabovo (and Radnevo), especially crucial due to the coal transition affecting these municipalities.

        - Business Model Development: Supports the exploration and testing of innovative business models for rural e-mobility.
        - Technical and Strategic Support: Acts as a support agency for administrative processes, procurement, technical specifications, and feasibility studies.
        - Public Engagement: Coordinates awareness campaigns to ensure community and stakeholder involvement.
    - Capacity Building: Uses its institutional capacity and experience to build local capabilities and influence sustainable mobility policymaking.
        - 2. Municipality of Galabovo and Municipality of Radnevo
            - Role: End-user and local authority.
            - Activities and Involvement:
                - Infrastructure Hosting: Provides the site and administrative facilitation for installing EV charging stations.
                - Stakeholder Coordination: Engages with citizens and stakeholders to boost awareness and adoption of e-mobility solutions.
                - Permit Management: Issues permits for infrastructure deployment, working closely with SZ REDA.
                - Maintenance Support: May assume responsibility for infrastructure upkeep post-implementation.
                - Collaboration Depth
                - The collaboration between SZ REDA and the Municipality of Galabovo and Municipality of Radnevo is strategic:
                - SZ REDA brings technical expertise, EU project experience, and administrative efficiency.
                - Galabovo and Radnevo provides on-the-ground facilitation, community access, and ensures local policy alignment.
                - This partnership ensures a balanced mix of strategic guidance and localized action, enhancing the pilot's impact and replicability in similar rural transition areas.

- **Pilot Information**
- Pilot Typology: Installation of electric charging stations:
    - **Number of Charging Stations:**
        - Rated power of charging station 1 (kW): 50 KW
        - Location of charging station 1: Stara Zagora region, Municipality of Galabovo
        - Rated power of charging station 3 (kW): 50 KW
        - Location of charging station 1: Stara Zagora region, Municipality of Radnevo

- **Financial sources and financing details:**
    - Total investment value: 36.420 euros
    - Sources of financing: -
    - Savings (electricity/fuel): -
    - Savings calculation: -

- Cost savings: -

- **Criteria for Evaluating Locations**
  - The decision for the placement of the charging station in Galabovo and Radnevo were guided by a combination of technical, social, and strategic criteria to ensure maximum utility, accessibility, and sustainability. The main criteria considered were:
    - 1. Accessibility and Visibility
      - The site had to be easily accessible by vehicles and located near frequently used public or municipal infrastructure.
      - High visibility was prioritized to promote awareness and encourage adoption among residents and visitors.
    - 2. Electrical Infrastructure Availability
      - Proximity to existing electrical grid connections with sufficient capacity to support DC fast charging (50kW).
      - Compatibility with 3-phase 400V AC systems and feasibility for safe and cost-effective grid connection.
    - 3. Land Ownership and Permissions
      - The location is municipally owned and managed, minimizing legal or administrative barriers.
      - Fast-track availability of permits and support from Municipality of Galabovo and Municipality of Radnevo.
    - 4. User Demand and Mobility Patterns
      - Preference was given to areas with higher vehicle flow or community concentration to maximize usage.
      - Consideration of potential integration with local mobility initiatives or shared EV schemes.
    - 5. Security and Environmental Conditions
      - The site needed to offer physical safety, surveillance potential, and be protected against vandalism or weather impacts (e.g., IP54/55 environmental protection for devices).
    - 6. Synergy with Local Development Plans
      - Alignment with the municipality's long-term development or decarbonization strategies, especially in the context of coal transition.
      - Ability to serve as a reference model for replication in nearby rural areas.
    - 7. Feasibility for Expansion
      - Capacity for future scaling (e.g., adding additional charging points or smart mobility solutions) without major structural adjustments.

- **Expected Impacts and benefits for Rural Territories**
  - 1. Improved Accessibility and Mobility
    - Enhances connectivity between remote rural areas and urban centers.
    - Offers new low-carbon mobility options for residents with limited access to public transport.
  - 2. Reduction of CO_2 Emissions

        - Promotes the use of electric vehicles (EVs) and replaces fossil fuel-based transport.
        - Contributes to local, national, and EU climate and decarbonization goals.
    - 3. Economic Revitalization
        - Attracts eco-conscious visitors and tourists, especially those traveling with EVs.
        - Encourages green investments and business models (e.g., EV car-sharing, e-taxis, charging-as-a-service).
    - 4. Technological and Infrastructure Development
        - Integrates digital platforms for managing charging infrastructure (OCPP, RFID/NFC apps).
        - Strengthens local infrastructure with smart, resilient, and interoperable charging solutions.
    - 5. Social Inclusion and Service Equity
        - Provides mobility access to underserved and aging populations.
        - Ensures fair distribution of sustainable transport services beyond urban areas.
    - 6. Knowledge and Capacity Building
        - Strengthens the skills of local public authorities and stakeholders in sustainable mobility planning.
        - Empowers municipalities to design and implement data-driven, future-ready mobility solutions.
    - 7. Replicability and Scalability
        - Establishes models that can be replicated in other rural or coal-transition areas.
        - Creates institutional know-how and tools for wider regional application.

- **Territorial Impact**

Here is a structured assessment of the impact and benefits of implementing the RuralMED Mobility pilot in Galabovo and in Radnevo, broken down into environmental, economic, and social dimensions

- Environmental Impact and Benefits
    - 1. Reduction of Greenhouse Gas Emissions
        - Replacing internal combustion engine vehicles with EVs contributes directly to lowering CO_2 emissions in rural areas.
        - The use of fast-charging infrastructure enables higher EV adoption, especially for daily commuting and service vehicles.
    - 2. Promotion of Sustainable Mobility Practices
        - Demonstrates the viability of low-emission transport solutions in coal-transition regions.
        - Supports long-term climate resilience and adaptation goals in line with EU Green Deal targets.
    - 3. Air and Noise Pollution Reduction
        - EVs reduce local air pollutants (NO_x, PM2.5) and noise levels, improving overall environmental health in populated areas like town centers.
        - Economic Impact and Benefits

- 4. Stimulus to Local Commerce
  - Charging stations placed in central or commercial zones can increase footfall in nearby businesses (cafes, shops, services) while drivers charge their vehicles.
  - Encourages longer dwell times and local spending by EV tourists and pass-through traffic.
- 5. Regional Attractiveness
  - Makes Galabovo and Radnevo and surrounding areas more appealing to EV users, promoting rural tourism and sustainable travel routes.
  - Puts the region on national and international EV maps, potentially attracting private sector partnerships (hospitality, transport operators).
- 6. Job Creation and Green Skills
  - Stimulates demand for local technical skills (installation, maintenance, energy systems).
  - Fosters a green innovation ecosystem, potentially encouraging startups in mobility services or digital platforms.

- Social Impact and Benefits
  - 1. Improved Accessibility and Mobility
    - Offers affordable, clean transport alternatives in areas where public transport may be limited or inefficient.
    - Especially beneficial for residents without private transport, elderly citizens, and vulnerable groups.
  - 2. Enhanced Quality of Life
    - Easier access to services (healthcare, education, shopping) via reliable mobility solutions improves day-to-day convenience and wellbeing.
    - Reduced pollution supports healthier living conditions, especially in residential zones.
  - 3. Community Engagement and Awareness
    - Pilot implementation includes awareness-raising and educational activities, increasing knowledge about sustainable mobility.
    - Builds civic pride and ownership around being part of the green transition.
- Overall Conclusion
  - Implementing the pilot in Galabovo and in Radnevo is expected to deliver tangible multi-sectoral benefits. It not only supports decarbonisation and digitalisation, but also addresses rural challenges like mobility exclusion, economic stagnation, and limited infrastructure investment. The project becomes a catalyst for long-term regional transformation aligned with EU cohesion and sustainability policies.

- **Expected Results**
  - 1. Deployment of Charging Infrastructure

        - Installation of at least one DC fast-charging station (50 kW) compliant with international standards (e.g., OCPP 1.6, CCS2, Type2).
        - Full operational readiness, including electrical connection, physical mounting, and software integration.
    - 2. Operational Integration and Connectivity
        - Charging station integrated with a centralized digital platform for monitoring, booking, and user management.
        - Enable multiple authentication methods (mobile app, QR code, RFID, NFC), improving accessibility for different user profiles.
    - 3. Increased EV Adoption and Usage
        - Enhanced attractiveness of Galabovo and Radnevo for electric vehicle users—both local and transient—thanks to visible, functional infrastructure.
        - Encouragement of public sector, service, or logistics operators to consider transitioning to EV fleets.
    - 4. Local Capacity Building
        - Improved local institutional capacity (e.g., municipal staff and SZ REDA) to plan, procure, and manage electromobility solutions.
        - Knowledge transfer on EV infrastructure maintenance, interoperability, and user support.
    - 5. Public Engagement and Awareness
        - Greater awareness among residents about the environmental and economic benefits of electric mobility.
        - Engagement through local communication campaigns, public demonstrations, or test-drive events.
    - 6. Policy and Strategy Support
        - Pilot serves as an evidence base for developing a local or regional sustainable mobility action plan.
        - Results feed into the broader transnational RuralMED strategy for replicability and scaling across the Mediterranean.
    - 7. Contribution to EU Objectives
        - Direct support to EU Green Deal and Territorial Agenda 2030 goals through concrete rural action.
        - Reinforcement of the green transition in coal-transition territories like Galabovo and Radnevo.

- **Level of Transferability and Replication**
    - 1. Applicability in Other Contexts or Regions
        - The pilot model implemented in Galabovo and ::: are highly applicable to other rural and semi-rural areas, particularly those facing:
        - Low population density and limited public transport;
        - Post-industrial or coal-transition challenges;
        - Growing interest in low-carbon mobility and EU-funded transformation.
    - 2. Suitable target regions include:
        - Remote Mediterranean or Balkan territories;
        - Island or mountainous municipalities with weak transport connectivity;
        - Small towns aiming to boost green tourism and environmental resilience.

        - The model aligns well with EU funding frameworks (Interreg, Recovery and Resilience Plans, Cohesion Policy) and policy agendas such as the European Green Deal, REPowerEU, and Just Transition Mechanism.
    - 3. Key Elements That Enable Replication
        - Modular infrastructure setup: The use of standardized DC fast chargers (e.g. CCS2, OCPP 1.6) ensures hardware interoperability.
        - Digital integration: Cloud-based platforms and mobile apps allow for easy scaling and regional monitoring.
        - Public-sector leadership with technical support: Combines municipal ownership with guidance from experienced energy/development agencies (e.g., SZ REDA).
        - Co-financing model: Blends public funding with in-kind contributions from municipalities or local businesses.
    - 4. Degree of Difficulty in Replicating the Pilot Action
        - Replication Factor Assessment Notes
        - Technical complexity Low to moderate Off-the-shelf charging solutions and cloud platforms are widely available.
        - Regulatory/legal adaptation Moderate National energy and construction regulations must be reviewed per country.
        - Financial effort Moderate Requires initial CAPEX; EU co-funding or national green recovery support is essential.
        - Institutional capacity needed Moderate to high Needs a lead agency or municipality with basic project management and procurement know-how.
        - Community engagement Moderate Tailored awareness and outreach strategies are needed in each region.

- **Performance Indicators**
    - Here is a comprehensive set of metrics that can be used to evaluate the success of the RuralMED Mobility pilot initiative in Galabovo and Radnevo and ensure alignment with project goals and EU policy indicators:
        - Key Metrics to Evaluate Pilot Success
            - 1. Usage and Operational Metrics
                - Indicator Description
                - Number of charging sessions Total number of EV charging operations conducted at the station over time (daily/monthly/yearly).
                - Unique users Number of individual EV drivers who use the station (can be measured via app logins, RFID scans, etc.).
                - Utilization rate (%) Time the charging station is actively used vs. total available time (e.g. hours/month).
                - Average charging duration Helps assess the type of users (e.g., local short-stay vs. long-distance travellers).
            - 2. Environmental Impact Metrics
                - Indicator Description

- Estimated CO_2 emissions avoided (kg or tons) Based on the number of EV km driven using electricity instead of fossil fuels (standard emission factors can be applied).
- Energy consumed (kWh) Total electricity delivered through the station, useful for carbon offset calculations.
- Share of renewable energy (if applicable) % of total charging energy coming from renewable sources (e.g., if local solar is integrated).

- 3. Economic and Local Development Metrics
  - Indicator Description
  - Increase in local business activity Proxies: change in sales or visitor counts in nearby commercial areas (pre/post comparison or surveys).
  - Public-private investment mobilized Additional funding or co-investments attracted as a result of the pilot.
  - Job creation or training Number of people trained or employed for installation, maintenance, or user support.
- 4. Social and Community Metrics
- Indicator Description
  - Public satisfaction / awareness Surveys to measure perception, satisfaction, and understanding of EV infrastructure.
  - Feedback from users Collected through digital platforms, physical forms, or public events.
  - Access equity Share of residents within walking or short driving distance of the station (geo-based evaluation).
- 5. Strategic and Policy Impact Metrics
  - Indicator Description
  - Replication interest Number of inquiries or formal requests from other municipalities to replicate the model.
  - Inclusion in policy documents Evidence of the pilot influencing local or regional mobility or climate strategies.
  - Integration with other transport services Whether the pilot is connected to mobility-as-a-service (MaaS), public transport, or logistics systems.

- Suggested Data Collection Tools
  - Charging station back-office platforms (real-time data, usage logs).
  - Mobile apps & user registration systems.
  - Resident surveys and interviews.
  - Environmental monitoring tools or emissions calculators (e.g. CO_2 savings models).
  - Municipal economic statistics or interviews with local businesses.

3.6. Italy

Electromobility and MaaS in Suzzara Municipality

- **Location**
  - City: Suzzara Municipality
  - Area Covered by the Pilot: 20 municipalities, members of Consorzio Oltrepò Mantovano
  - Country: Lombardy – Italy

- **Implementation Month/Year:**
  - 2025

- **Partners/Institutions Involved**
  - AGENEX, JUNTAEX, REAN, KCKZ, AREANATejo, CIMAA, BSC KRANJ, SZ REDA, RAUSK, CERTH, RDFWM, CIMNE, all these members are partners in the 'Adopting Electric Mobility in Underserved Rural and Remote MED Areas' project. In this pilot, the main partners are the Consorzio Oltrepò Mantovano and the Municipality of Suzzara. The Oltrepò Mantovano Consortium is the executing entity of the project, while the Municipality of Suzzara is the owner of the area of interest and will be responsible for its maintenance.

- **Pilot Information**
- Pilot Typology: Installation of electric charging stations/Acquisition of electric vehicles:
  - **Number of Charging Stations:**
    - Rated power of charging station 1 (kW): 1 EV fast charging station
    - Location of charging station 1: Municipal Hall Square and Main Town Square in Suzzara (Via F.lli Montecchi,7, Suzzara)
    - Rated power of charging station 2 (kW): 1 EV medium-fast charging station
    - Location of charging station 2: Municipal Hall Square and Main Town Square in Suzzara (Via F.lli Montecchi,7, Suzzara)
- **AND**
  - **Number of Eletric Vehicles:**
    - Vehicle range 1 (kWh/100 km and autonomy): 15,9 Kwh/100 and 400 km
    - Vehicle range 2 (kWh/100 km and autonomy): 15,9 Kwh/100 and 400 km

- **Financial sources and financing details:**
  - Total investment value: 90500 € (this cost evaluation includes the purchase of the 2 EV (E-Vai Car Sharing) and the installation of 2 charging stations and power hookups)
  - Sources of financing: PSN/PAC 2023-2027 “Investimenti in infrastrutture per l'agricoltura e per lo sviluppo socio-economico delle aree rurali”
  - Savings (electricity/fuel): By using 2 electric cars (with an average distance of 25000 km over 15 months of use), approximately €7500 is saved. The average cost with a petrol car is €11000 while the average cost with an electric car is €3500. The

estimated average cost is €0.22 per km for a petrol car and €0.07 per km for an electric car.

- Savings calculation: The methodology used to calculate cost savings considers an average of 25000 km driven per car, the total cost per km of 0,22€ for petrol car and 0,07€ for EV. The considered period is a duration of 15 months (from May-June 2025 to September 2026).
- Cost savings: 7.500,00 euros

- **Criteria for Evaluating Locations**
  - The choice of charging station locations was guided by:
    - A central position within the city of Suzzara
    - Easy access for workers and local associations
    - Availability of accessible parking spaces for users with disabilities
    - Lack of charging stations in the surrounding area
    - Availability of a POD (contractual power of 100 KW)
    - Plans for installing solar panels in the area immediately surrounding the electric charging stations
    - Low environmental risks

- **Expected Impacts and benefits for Rural Territories**
  - The proposed model for the Municipality of Suzzara is highly exportable to other municipalities in the Oltrepò Mantovano area. The project's transferability ensures its implementation in territories characterized by a lack of alternative transportation options to private cars.
  - The environmental benefit of reduced emissions and the consequent improvement in air quality is accompanied by the introduction of the concept of shared mobility within the community, as an alternative to private and individual car use.
  - The fact that the model is transferable results in interconnected municipalities linked by a low-impact mobility network, which is expandable and capable of fostering a shift towards more sustainable forms of urban transportation. Furthermore, the use of electric vehicles instead of petrol vehicles allows for an average reduction of 5.5 tons of CO_2 over 15 months of use.

- **Territorial Impact**
  - Environmental: Reducing emissions, encouraging sustainable mobility, contributing to the improvement of air quality.
  - Economic: Stimulus to local commerce or regional economies, more appealing to those travelling in electric vehicles. The availability of electric vehicles in urban areas meets the needs of those who require a second vehicle for transportation.
  - Additionally, the fact that the vehicles are electrically powered allows for savings in fuel costs.
  - Social: Improved accessibility and quality of life for the population, charging stations closer to access points. Furthermore, the fact that the cars are shared by the community helps foster a sense of "common good."

- **Expected Results**
  - The expected results from the implementation of the pilot action are that each electric car made available will cover approximately 25000 km per 15 months (89 recharges per car per 15 months). The car usage is expected to involve 300 users.
  - With the implementation of the MaaS system, a 8% reduction in private car use is anticipated in favor of more sustainable mobility solutions. The project will also provide greater mobility opportunities for users with limited travel options, thereby helping to combat the phenomenon of mobility poverty.

- **Level of Transferability and Replication**
  - The pilot action of the Municipality of Suzzara is highly transferable to other urban contexts in areas with limited access to public transport.

- **Performance Indicators**
  - In the context of the Municipality of Suzzara, a number of 300 uses and 150 recharges could be indicators of the project's success. Furthermore, the use of electric vehicles instead of petrol vehicles allows for an average reduction of 8 tons of CO_2 over 15 months of use.
  - KPIs that will be monitored are:
    - Kilometres travelled per month by each vehicle
    - Number of monthly rentals per vehicle
    - Time slots of highest usage
    - Main routes travelled
    - Average car-sharing rental duration

3.7. Greece

Installation of electric charging stations and Eletric Vehicles use in Western Macedonia Prefecture

- **Location**
  - City: Kozani
  - Area Covered by the Pilot: Western Macedonia Prefecture
  - Country: Greece

- **Implementation Month/Year:**
  - Report of technical requirements regarding the two charging stations: August 2024. Charging stations installation: October 2024. First functionality and maintenance services report of the two charging stations: December 2024. Electric cars delivery: January 2025. Software applications: December 2024.

- **Implementation Month/Year:**
  - Report of technical requirements regarding the two charging stations: August 2024. Charging stations installation: October 2024. First functionality and maintenance

services report of the two charging stations: December 2024. Electric cars delivery: January 2025. Software applications: December 2024.

- **Partners/Institutions Involved**
  - RDFWM – RURAL MED Project partner 12
  - CERTH – RURAL MED, Project partner 11
  - Municipality of Amyntaio – Associated partner, Pilot organization 1
  - Decentralized Administration of Epirus and Western Macedonia – Pilot organization 2
  - INNORA P.C.: Study, design, supply and installation of two electric vehicle charging stations of 22 kW each. Provision of sublease services for two electric vehicles.
  - LIME TECHNOLOGY: Report of technical requirements regarding the two charging stations. Functionality and maintenance services of the two charging stations. Software design and development of a web and mobile application for communication between server and vehicles. Optimal routes report delivery and consequences evaluation report delivery based on the usage of electric vehicles.

- **Pilot Information**
- Pilot Typology: Installation of electric charging stations/Acquisition of electric vehicles:
  - **Number of Charging Stations:**
    - Rated power of charging station 1 (kW): 22 kW
    - Location of charging station 1: Western Macedonia Prefecture, ZEP Kozanis
    - Rated power of charging station 2 (kW): 22 kW
    - Location of charging station 2: Municipality of Amyntaio
- **AND**
  - **Number of Eletric Vehicles:**
    - Vehicle range 1 (kWh/100 km and autonomy): 405 km real range at Combined Ccycle and Mid Weather (14,3kWh/100km)
    - Vehicle range 2 (kWh/100 km and autonomy): 405 km real range at Combined Ccycle and Mid Weather (14,3kWh/100km)

- **Financial sources and financing details:**
  - Total investment value: 37.000€ (2 charging stations and 2 EV's leasing for 18 months)
  - Sources of financing: INTERREG Euro - MED Program
  - Savings (electricity/fuel): Instead of consuming 1.600 liters of gasoline per year, there is now a consumption of 2.860 kWh of electricity per vehicle.
  - Savings calculation:

Type	Real Consumption	Consumption/Year	Unit Price (€)	Cost/year (€)
Fuel	8lt/100km	1600 lt/20.000km	1,8 €/lt	2 880,00
Electricity	14,3kWh/100km	2860 kWh/20.000km	0,18 €/kWh	514,80
Cost Saving per vehicle /year (€)				**2 365,20**
Cost Saving for 2 vehicles /year (€)				**4 730,40**

  - Cost savings: 4.730,00 € for 2 vehicles per year

- **Criteria for Evaluating Locations**
  - In ZEP, the station is placed at the seat of the Region of Western Macedonia, a hub that concentrates a wide range of administrative and public services. This ensures high visibility, frequent use, and administrative ownership, while also offering excellent electrical infrastructure, minimal grid connection distance, and suitable space conditions for year-round operation. Importantly, the station supports a dedicated electric vehicle used by regional services, allowing direct testing of electric mobility in the context of inter-city and administrative transport—a use case with high replicability across the Mediterranean.
  - In Amyntaio, the charging station is located at the parking area of the municipal social service, specifically to serve the vehicle used by the "Help at Home" (Βοήθεια στο Σπίτι) program, which assists elderly and vulnerable populations in rural villages. This pilot directly addresses one of RuralMED's core goals: improving accessibility and reducing carbon emissions in rural areas through low-carbon, community-based transport services. The selection of this location ensures that the EV investment is embedded within daily service delivery, providing real-world data on how e-mobility can support social inclusion, health access, and operational reliability in a sparsely populated area.
  - In both cases, the location choices avoid infrastructure duplication, meet clearly defined local service needs, and are placed within or adjacent to urban areas for ease of access and monitoring. By integrating the charging infrastructure into the operational base of public services—rather than placing them as stand-alone assets—RuralMED ensures that the pilots generate continuous usage data, promote public familiarity with EVs, and test scalable service models that can be adopted by other small municipalities or regional authorities. These pilots also allow for the exploration of Mobility as a Service (MaaS) concepts, especially in Amyntaio, where a flexible vehicle could potentially serve both social care and shared community use in the future. Ultimately, these installations serve as functional models that illustrate how rural areas can transition to resilient, low-emission mobility systems, fulfilling RuralMED's objectives of carbon reduction, service innovation, and policy-informed infrastructure deployment.

- **Expected Impacts and benefits for Rural Territories**
  - The implementation of the RuralMED pilot projects in the Municipality of Amyntaio and the ZEP (Zone of Alternate Urban Planning) of Kozani is expected to generate a wide range of direct and indirect benefits for rural and remote territories across the Mediterranean, particularly in addressing the challenges of mobility, sustainability, and social inclusion.
  - One of the most significant impacts lies in the environmental and climate dimension. By replacing fossil-fuel-powered vehicles with electric ones in key public services, the project reduces the carbon footprint of daily transport operations in rural areas. In Amyntaio, where the electric vehicle will support the "Help at Home" program that provides essential services to elderly and vulnerable residents in dispersed villages, this shift has tangible environmental value. Each kilometer traveled

by an electric vehicle avoids the greenhouse gas emissions and air pollutants typically produced by diesel-powered municipal cars. The same applies in ZEP Kozani, where the electric vehicle will be used by regional administrative services. The cumulative effect over time is a measurable reduction in CO_2 emissions, which is particularly important in rural areas that are often overlooked in national climate action strategies but where per capita emissions from transport can be high due to limited public alternatives. Moreover, both Kozani and Amyntaio are situated in Western Macedonia, a region undergoing a historic transition from lignite-based energy production to clean energy systems. The use of EVs in this context reinforces and complements regional decarbonization strategies.

- Beyond the environmental benefits, the project generates substantial social impacts, particularly in terms of accessibility, equity, and inclusion. In many rural areas across the Mediterranean, access to reliable and affordable transport is a persistent barrier—especially for older adults, people with disabilities, low-income residents, and youth. Public transport in these cases is often infrequent or non-existent, and long distances between settlements make walking or cycling unfeasible. In Amyntaio, the choice to allocate the EV to the municipality's social care services directly addresses these issues. It enhances the municipality's ability to reach isolated individuals, ensures continuity of care, and improves the responsiveness of social programs—all with a lower environmental cost. In ZEP Kozani, the EV serves a different but equally strategic social role which is to improve the operational efficiency of regional public administration, which supports services across Western Macedonia.
- In terms of strategic planning and policy development, these pilot implementations serve as demonstration models that will inform and influence future investments, both within Greece and across the broader RuralMED partnership. By gathering real-time data on the usage of EVs in specific service contexts, local authorities can assess user behavior, charging patterns, range limitations, and maintenance needs. This evidence-based approach is essential for crafting effective regional and national policies for sustainable rural mobility. Furthermore, the integration of the pilot into existing public services ensures that the EVs are not stand-alone or symbolic investments, but rather fully operational tools with direct utility. This makes the results of the pilots highly transferable to other rural territories with similar demographic and geographic conditions. Whether a small municipality or a mountainous village , the lessons from Amyntaio and ZEP Kozani can offer a replicable template for how to implement electric mobility in a meaningful and cost-effective way.

- **Territorial Impact**
  - 1. Environmental Impact: In ZEP Kozani, where the electric vehicle will serve the Region's administrative operations, emissions from routine intercity trips and administrative mobility will be substantially reduced. This is particularly important given ZEP's strategic role as the nerve center for regional policy and its ambitions to become a Positive Energy District (PED). The use of EVs powered by renewable energy will help ZEP model carbon-neutral urban operations, with potential for replicability in other regional hubs. In Amyntaio, the environmental benefits are localized and socially impactful. The electric vehicle will be used for the "Help at Home" program, which supports vulnerable populations across dispersed villages. This ensures that mobility-related emissions are minimized in areas where air quality and ecosystem sensitivity are already a concern, especially around protected lake zones (Vegoritida, Petres, Cheimaditida, Zazari). Moreover, Amyntaio's integration into the post-lignite renewable energy framework (including PV and biomass projects) means that these vehicles will increasingly operate on clean, locally produced electricity, helping demonstrate the synergy between green energy and green mobility. Both pilots will help reduce noise pollution, promote energy-efficient transport, and set a visible example of sustainable transport in public service, enhancing awareness and acceptance. 2. Economic Impact
  - The economic benefits of the pilot are both direct and systemic. At the operational level, replacing fossil-fueled municipal vehicles with EVs brings long-term cost savings in fuel and maintenance—a key advantage for local and regional authorities operating under constrained budgets. In the case of Amyntaio, this means that resources saved on vehicle operation can be redirected to improve social services or invest in further infrastructure. In ZEP, it supports the broader green budgeting of the Region of Western Macedonia, aligning financial management with environmental goals. Over time, as EV adoption increases, these pilot stations will encourage private sector investment in mobility services, including EV rentals, e-bike programs, or maintenance services—generating local employment and entrepreneurship. 3. The social impacts are perhaps the most transformative. In Amyntaio, access to mobility is a fundamental issue for many residents, especially seniors and isolated individuals in mountain or lakeside villages. The use of an electric vehicle by the "Help at Home" service directly improves the efficiency, reach, and reliability of this essential program. It ensures that care providers can serve more people with fewer logistical obstacles and at lower environmental cost, leading to better health and well-being outcomes in vulnerable rural populations. Moreover, the pilot introduces EV technology into a part of the population that may otherwise be excluded from the e-mobility shift, thus helping bridge the urban-rural mobility divide. In ZEP Kozani, the station placed at the regional administrative headquarters strengthens the public sector's leadership role in climate action and technology adoption. Citizens accessing regional services will see electric mobility as a standard part of operations, normalizing its presence in everyday life. This visibility, accessibility, and symbolism are critical in promoting behavioral change and raising public awareness. It encourages trust in new technologies, and over time, can foster cultural acceptance and even stimulate private adoption of EVs among residents.

- **Expected Results**
  - The pilot implementations of electric mobility under the RuralMED project in the Region of Western Macedonia—specifically in the ZEP area of Kozani and the Municipality of Amyntaio—are expected to yield substantial and multifaceted results across environmental, economic, and social dimensions. These outcomes are not only measurable in technical and financial terms but also deeply aligned with the strategic goals of the RuralMED project: to promote sustainable, inclusive, and low-emission transport systems in rural and remote Mediterranean territories. From an environmental perspective, the transition from fossil-fuel-powered vehicles to electric vehicles (EVs) in both pilot areas brings an immediate and quantifiable reduction in carbon dioxide emissions. Each electric vehicle will replace a conventional petrol vehicle that consumes approximately 1,600 liters of gasoline annually. Based on average emission factors (around 2.49 kg of CO_2 per liter of gasoline), each EV avoids the release of nearly 4 tons of CO_2 per year. Across both vehicles deployed in the pilot—one in ZEP Kozani for the regional administration, and one in Amyntaio for the municipality's "Help at Home" social services—the combined annual CO_2 reduction is approximately 8 tons. This is a significant contribution toward local and regional climate neutrality goals and supports Western Macedonia's wider decarbonization strategy, particularly as the region transitions away from lignite-based energy production. Moreover, since both vehicles will be powered via charging stations connected to Greece's national grid—which increasingly incorporates renewable energy—and potentially to local solar PV installations, the environmental benefits extend beyond emissions. Electric mobility eliminates tailpipe pollutants such as nitrogen oxides (NOx) and particulate matter (PM), contributing to improved air quality in urban and rural environments alike. In Amyntaio, this is particularly beneficial given the proximity of sensitive natural ecosystems and the need to protect the health of elderly or vulnerable populations served by municipal care programs. In addition, electric vehicles reduce noise pollution, creating quieter and more comfortable conditions in towns and villages—an often overlooked but important quality-of-life improvement in rural areas.
  - Economically, the RuralMED pilot brings immediate operational savings to public authorities. Conventional gasoline-powered vehicles operating over 20,000 kilometers per year incur fuel costs of approximately €2,880 annually, based on current average fuel prices and consumption levels. In contrast, the electric vehicles planned for use in the pilot have an average real electricity consumption of 14.3 kWh per 100 km, resulting in an annual energy use of approximately 2,860 kWh. With an electricity unit price of €0.18/kWh, the annual operating cost for each electric vehicle is just €514.80. This represents a savings of €2,365.20 per vehicle per year. Across both vehicles, the total annual cost reduction amounts to €4,730.40. These savings free up financial resources that municipalities and the region can reinvest in other public services or use to support the maintenance and expansion of the electric mobility infrastructure itself.
  - Beyond operational savings, these pilots act as catalysts for economic development in rural areas. The installation of charging infrastructure in public service zones makes the areas more attractive to tourists and visitors who travel using electric vehicles—especially eco-conscious travelers visiting Nymfaio, the lakes of Zazari and

Petres, or the wine-producing areas of Amyntaio. By ensuring that EV drivers can charge vehicles locally, the municipalities create opportunities to stimulate small businesses such as local shops, cafes, agrotourism accommodations, and wineries. Furthermore, the deployment and operation of EV infrastructure supports the growth of new economic sectors, such as green energy services, vehicle maintenance, and digital transport solutions. These are important for Western Macedonia's broader strategy of building a post-lignite, innovation-driven economy.

- The social impacts of the pilot are equally substantial. In Amyntaio, the deployment of an electric vehicle for the "Help at Home" program directly enhances the municipality's ability to deliver critical care services to elderly, disabled, and otherwise vulnerable residents in scattered rural villages. The cleaner, quieter, and more cost-efficient vehicle enables caregivers to reach more individuals with fewer constraints, improving service reliability and coverage while reducing environmental burdens. This not only improves accessibility but contributes to social cohesion, equity, and overall quality of life for rural residents. In ZEP Kozani, the use of an electric vehicle by the regional administration has a different, but no less important, social function. It positions the Region of Western Macedonia as a leader in the adoption of climate-smart practices, demonstrating to the public that low-emission transport is not a distant vision but an operational reality. The placement of the charging station in a high-visibility, high-traffic public building encourages public familiarity with electric mobility and helps shift public attitudes, especially in communities where EV adoption is still relatively low.
- The social dimension is also supported by improved geographical access to charging infrastructure. Both stations are installed in central, highly accessible service areas—the regional headquarters in ZEP and the municipal parking facility in Amyntaio—ensuring that EV charging is not a peripheral or symbolic effort, but an integrated and visible part of community infrastructure. As public awareness grows and local populations become accustomed to seeing and using electric vehicles, broader behavioural change becomes possible, creating momentum for future scaling.
- Finally, the pilots serve an important strategic function. As demonstration sites, they provide valuable operational and usage data that can inform policy-making, planning, and replication across the wider RuralMED partnership and beyond. The practical insights gained—on energy consumption, usage patterns, service delivery, and user acceptance—will help other rural and peri-urban areas design electric mobility interventions that are both efficient and socially responsive. Moreover, the pilot reinforces the integration of mobility with other rural development policies, including those focused on climate, health, aging, and smart infrastructure.

- **Level of Transferability and Replication**
  - The pilot actions implemented in ZEP Kozani and the Municipality of Amyntaio under the RuralMED project offer a highly replicable and adaptable model for rural and remote territories aiming to transition toward sustainable mobility. The model's core strength lies in its integration of electric vehicles and charging infrastructure into existing municipal and regional public services, rather than relying on private or commercial users to initiate adoption. This ensures immediate utility, visibility, and public benefit, making it particularly suitable for replication in similar rural or semi-

urban environments across the Mediterranean and beyond. In terms of transferability, the model is technically straightforward: it requires only moderate investments in standard electric vehicles and 22kW AC charging stations, installed at publicly owned sites with secure parking and existing electricity connections. This makes the approach financially feasible and logistically manageable for most municipalities. The replication potential is especially strong in areas with public service needs such as elderly care, municipal administration, or inter-village logistics, where transport patterns are predictable and distances are compatible with EV range. The use cases in Amyntaio and ZEP represent two complementary contexts—one rural and socially focused, the other administrative and regionally scaled—demonstrating the model's flexibility. Moreover, the approach aligns with EU policy frameworks such as the Green Deal, the Fit for 55 package, and the Just Transition Mechanism. These provide a favorable policy and funding environment for replication, particularly in post-industrial and carbon-dependent regions seeking alternative development paths. The model also supports national strategies for sustainable mobility, regional climate targets, and rural digital and energy transition plans.

  - However, replication success depends on a few enabling conditions. Electric grid adequacy must be assessed, particularly in isolated villages where voltage limitations may restrict charger installation. Administrative capacity and technical know-how are also necessary for managing procurement, operation, and maintenance of the infrastructure. In municipalities with limited resources, external technical assistance or regional coordination may be required. Furthermore, community engagement and behavioral acceptance are critical, especially in rural areas where familiarity with EVs may still be limited. The use of EVs in public services, as demonstrated in the pilots, plays a crucial role in building awareness and public trust.

- **Performance Indicators**
  - Environmental KPIs
    - 1. Annual CO_2 Emissions Reduction
    - 2. Fossil Fuel Displacement
    - 3. Share of Electricity from Renewable Energy
  - Operational KPIs
    - 4. Distance Traveled per EV
    - 5. Charging Station Usage
    - 6. Charger Availability (Uptime)
    - 7. Vehicle Availability for Service
  - Economic KPIs
    - 8. Operational Cost Savings
    - 9. Maintenance Cost Reduction
    - 10. Investment Payback Period
  - Social and User Engagement KPIs
    - 11. Number of Beneficiaries Served by EV
    - 12. Public Awareness and Acceptance Score
    - 13. Staff Satisfaction Rate
    - 14. Citizen Feedback Engagement

- Strategic KPIs
  - 16. Inclusion in Local Mobility Planning
  - 17. Pilot Data Used in Regional Policy Reports
  - 18. Number of Replication Requests or Inquiries

4. Conclusions

The different approaches considered for the implementation of the pilot projects made it possible, in a general way, to meet the objectives of enhancing electric mobility in rural areas.
By analyzing each implementation, it is possible to verify the level of associated investment as well as the advantages in terms of territorial impact, such as:

Environmental:

- Reduced GHG emissions and improved air quality as more people switch to EVs
- Encouragement of sustainable mobility by providing the necessary charging infrastructure for EVs in rural areas
- Support for the transition to low-carbon transportation in line with EU climate goals
- Potential integration with renewable energy sources like solar for charging stations

Economic:

- Stimulus to local commerce and regional economies by attracting EV drivers/tourists who can now confidently travel to rural areas
- Increased economic activity and turnover in rural municipalities
- Potential for new business opportunities related to EV infrastructure and services
- Enhanced competitiveness of rural areas by offering modern, sustainable transportation options
- Boost to sustainable tourism in rural regions

Social:

- Improved accessibility and connectivity between rural areas and urban centers
- Enhanced quality of life for rural residents through access to cleaner transportation options
- Reduced isolation of rural communities by enabling easier travel to/from urban areas
- Charging stations located closer to rural population centers and key access points
- Increased awareness of sustainable mobility options among rural populations
- Potential for new mobility services like EV car sharing to improve transportation access

The table below identifies the summary of the 7 pilot projects, promoted within the scope of the Rural MED Mobility Project.

Country	Location	Partners	Pilot Typology	Charging stations	Eletric Vehicles	Total Investments	Cost Savings
Spain	Coria, Cilleros & Perales del Puerto	PP2 JUNTAEX LP1 AGENEX Municipality of Coria, Cilleros & Perales del Puerto	Installation of electric charging stations/Acquisition of electric vehicles	3	2	104 150,00 €	2 222,00 €
Croatia	Municipality of Gola, Ferdinandovac, Kalnik and Gornja Rijeka	Koprivnica-Krizevci County Regional Energy Agency North	Installation of electric charging stations	4	0	44 200,00 €	38 090,51 €
Portugal	Portalegre	CIMAA AREANATejo	Installation of electric charging stations/Acquisition of electric vehicles	2	2	45 166,04 €	9 173,95 €
Slovenia	Bohinjska Bistrica	BSC, Ltd, Kranj - RDA of Gorenjska	Installation of electric charging stations/Acquisition of electric vehicles	2	1	127 600,00 €	ND
Bulgaria	Galabovo and Radnevo	Stara Zagora Regional Economic Development Agency (SZ REDA) Municipality of Galabovo and Municipality of Radnevo	Installation of electric charging stations	2	0	36 420,00 €	ND
Italy	Suzzara Municipality	Consortium Oltrepò Mantovano	Installation of electric charging stations/Acquisition of electric vehicles	2	2	90 500,00 €	7 500,00 €

Country	Location	Partners	Pilot Typology	Charging stations	Eletric Vehicles	Total Investments	Cost Savings
Greece	Kozani	RDFWM CERTH Municipality of Amyntaio Decentralized Administration of Epirus and Western Macedonia INNORA P.C. LIME TECHNOLOGY	Installation of electric charging stations/Acquisition of electric vehicles	2	2	37 000,00 €	4 730,40 €
Total				**17**	**9**	**485 036,04 €**	**61 716,86 €**

It can therefore be seen that the implementation of the pilot projects represents a total investment of around 485.000 euros, driving an annual cost reduction of around 62.000 euros. This is undoubtedly an important approach to boost the electric mobility sector in the MED area, especially in the areas where the pilot projects are being implemented. The methodologies presented, as well as the solutions implemented, have a high degree of replicability in other zones, or MED areas, once again enhancing all the benefits of the Project.