# ACTION PLAN

## LIVORNO PROVINCE

# INDEX

## Acronyms

AT = Autolinee Toscane

GP = Good Practice

IE = European Cooperation Programme "Interreg Europe" - 2014-2020

LAM = High Mobility Lines

PNRR = National Plan for Recovery and Resilience

PTCP = Provincial Coordination Territorial Plan

PRIMM = Regional Integrated Infrastructure and Mobility Plan

PUMS = Urban Plan for Sustainable Mobility

SAPE = Associated Service for European Policies

TPL = Local Public Transport

# The Action Plan in a nutshell

## eBussed Action Plan

eBussed Action Plan for promoting electric public transport intends to influence (by suitably integrating into it) the policy instrument represented by the Urban Sustainable Mobility Plan (PUMS) of the Vast Area of Livorno Province coordinated with the PTCP (Provincial Coordination Territorial Plan), as a reference policy on the "green" contents of the provincial energy guidelines.

eBussed Action Plan, consistent therefore with the zero-emission strategy of the Province of Livorno, aims at promoting the adoption of electric public transport in the provincial territory; it is composed of 2 main lines of action (hierarchically structured):

a) The first action aims at promoting the above-mentioned incentive initiative, placing it within the Sustainable Urban Mobility Plan (SUMP), currently being formulated for the Livorno Vast Area - in coordination with the Provincial Coordination Territorial Plan (PTCP), also under preparation; the SUMP is an integrated tool of this latter policy. In this regard, the SUMP will be structured according to the European Guidelines for the compilation of SUMPs, framing this Action Plan as a Specific Objective of the Area SUMP being drafted, i.e. concerning the adoption of electric means of transport in Local Public Transport. To this end, the sub-objectives will be presented, and for each one the relative Target Indicators, necessary for the verification and monitoring of their achievement. For each sub-objective, based on the good practices acquired with the project (see section 1.3 below), a series of actions are outlined, to which are linked indicators and a timetable capable of establishing not only quantitative but also temporal objectives. In this way, the eBussed Action Plan becomes, within the sub-objectives, and therefore, at a strategic level, a part of the Territorial Coordination Plan while, at a more operational level, its Actions are integrated with the drafting of SUMP.
b) The second action intends to stimulate an experimental adoption of electric public transport and related infrastructures, by means of interventions referable to specific territorial contexts and taking advantage of relevant support measures made available by PNRR (the Italian Recovery & Resilience Plan) and other national and regional opportunities.

The invitation of the Interreg Europe Programme is to identify and describe in the Action Plan those initiatives that can be implemented during Phase 2 of the project, i.e. up to 31.07.2023. However, it appears evident that strategies aimed at a gradual and growing adoption of electrically driven means of transport, suitably supported by various types of infrastructures and services, should consider a time scenario at least until the year 2030, and in alignment with the projected time scenarios of the Vast Area SUMP strategies along a period of approx. 10 years.

Short-term target indicators, related to 31.07.2023, as well as more strategic indicators related to the actual implementation of the actions and the verification of their impacts will then be indicated in the above-mentioned structure of objectives and measures.
Those strategies are deployed at different territorial levels, considering the role played by the only now regional road transport company operating from 1 November 2021, the function of LPT in the Vast Area of the provincial territory and, finally, interventions at the level of individual local administrative units - also in associated form. Those interventions aim at alleviating conditions of marginality and fostering a potential comprehensive transport network which can be supported by widespread and customised connections with the rest of the territory.

# Part I – General Information

**Project:**

*Building capacities for European-wide e-bus deployment* (**eBussed**)

**Partner:**

Livorno Province (PP4)

**Other institutions and stakeholders:**

Tuscany Region

S.A.P.E. (Associated Service for European Policies), coordinated by Livorno Province

Associated Local Public Transport (LPT) Management of Municipalities belonging to the Vast Area mobility basin, coordinated by the Territorial Office of Livorno Province.

Autolinee Toscane S.p.A.

**MS:**

Italy

**Region NUTS2:**

Tuscany

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## Part II – Policy context

PP4 expressed in the project Application Form the intention to address ERDF ROP 2014-2020 of Tuscany Region, Axis 4 "Support the transition to a low carbon economy in all sectors", Action 4.6.2. Renewal of rolling stock . Due to the fact the related funds have been depleted, the need has arisen of a policy change, being described hereunder.

PP4 Action Plan intends, therefore, to impact now on the following policy instrument:

**PTCP (Provincial Coordination Territorial Plan) and the Vast Area SUMP of Livorno Province** as the reference policy to the "green" content of the approved provincial guidelines

The procedure for drafting the SUMP is accompanied by the Strategic Environmental Assessment in order to enhance the system of knowledge and strategies that underpin the environmental assessment, which is particularly important in this phase of unprecedented tensions on fuel costs and therefore a harbinger of a lowering of attention to the environmental components of the Government's priorities.

The approved guidelines include many activities consistent with the EU's New Green Deal, with the aim of:

- making the mobility system more efficient by rebalancing the 'modal' balance, improving the accessibility of people and goods, improving the integration between mobility and urban planning choices, improving road and urban space, and reducing accidents;
- ensuring and improving energy and environmental sustainability by reducing fuel consumption from fossil fuels, improving air quality, reducing noise pollution;
- improving socio-economic sustainability by promoting the social inclusion of disadvantaged groups, increasing citizen satisfaction, promoting a logistics system closer to the interests of productive sectors, increasing smart mobility technologies and promoting the use of intelligent transport systems;
- promoting "soft mobility" for short-haul journeys, also to be used as a last-mile network for integration with the network of structural links (rail - ship - road).

One of the most important of these objectives is the provision for the use of alternative fuels to fossil fuels capable of drastically reducing transport emissions without compromising performance. These are technologies (bio-methane, hydrogen, electricity) which, however, in order to have a zero impact on the entire supply chain and thus become true enabling technologies for sustainable mobility, require medium to long implementation times as well as the development of appropriate production, storage and distribution technologies.

The Interreg EBUSSED project has been conceived as a facilitator of one of these technologies (electric drive) with reference to the relevant actions of the Province (in application of the SUMP for the Vast Area) by acting in:

- coordinating the initiatives of local authorities and other stakeholders for their respective areas of competence to promote a system approach to electric traction for sustainable mobility
- monitoring the organisational and managerial effects of NREN infrastructure investments in line with the zero emissions objective
- training initiatives for professional skills inside and outside the organisation to spread the culture of the Green Deal and EU Agenda 30.

In October 2007, the Ministry of Transport issued the guidelines for the "General Mobility Plan", in which it is highlighted, among other things, that the "essential reference for a correct planning of mobility and transport is constituted by the close connection that this must maintain with the policy of the territory in its different components: settlement, environment, landscape".

The European Union has promoted the adoption of Sustainable Urban Mobility Plans (SUMP) by issuing, in 2014, specific European Guidelines, oriented in particular to make SUMP the mobility and transport planning tools, able to contribute significantly to achieve the EU objectives of the 2030 Agenda on energy and climate.

Article 3 of the Decree of the Ministry of Infrastructure and Transport dated 4 August 2017 establishes that also the bodies of the Vast Area, using the guidelines adopted in the aforementioned Decree, shall proceed to the definition of Sustainable Urban Mobility Plans; pursuant to Law no. 56 of 7 April 2014, as amended and supplemented, the Provinces are defined as bodies of the Vast Areas.

By Article 1, paragraphs 85 and 86, of Law no. 56 of 7 April 2014 Provinces, being entities having functions of Vast Area, are delegated to exercise fundamental functions including:

- provincial coordination territorial planning, including also environmental protection, for the fields within their competence
- planning of transport services in the provincial area, authorisation and control of private transport, in accordance with regional planning, as well as construction and management of provincial roads and regulation of the related road traffic

In this regulatory context, the Province of Livorno has set itself the following objectives:

- strategic development of the territory and the management of services in associated form according to the features of the territory
- to elaborate, in continuity with their planning approach, a shared general variant to the PTCP, to which the provincial policies, the provincial sector plans and programmes, the instruments of territorial planning and the instruments of municipal urban planning should conform;
- elaborate a PTCP coordinated with the SUMP of the Vast Area in order to:
  - contribute to the fight against climate change, within the competence of the Provincial Authority, pursuing the objectives of the 2030 Agenda, in order to identify, also with reference to the contents of P.I.T. (regional Integrated Territorial Plan), the objectives and measures to be pursued in the territorial changes and the consequent actions;
  - to identify strategies for the active protection of the territorial heritage and adaptation to climate change, also paying due view to the socio-economic and cultural development of the provincial community.

**Hence, Livorno Province intends to include, within the framework of the SUMP of the Vast Area, specific measures aimed at promoting an increasing adoption of sustainable transport systems and, in particular, electric public transport systems and related services and infrastructures.**

More in detail, in the above-mentioned European guidelines for sustainable mobility, the SUMP is defined as: "a strategic plan aimed at meeting the strategic plan to meet the demand for mobility of people and goods in urban and peri-urban areas to improve the quality of life.

It builds on existing planning practices, taking due account of the principles of integration, participation and evaluation".

The SUMP should be implemented according to these principles:

- Plan for sustainable mobility in the area
- Cooperate across institutional boundaries
- Involve citizens and stakeholders
- Assess current and future efficiency
- Define a long-term vision and a clear implementation plan
- Consider all modes of transport in an integrated view
- Organise monitoring and evaluation
- Ensure quality

Therefore, the focus must necessarily be on people, on citizens, on activities, while the main objectives should be accessibility, liveability and quality of public space.

Decisive importance is given to the Participation Process and the role of the local community in defining the objectives and actions to be pursued and on which timeframe; financing lines are to be identified, too.

In the framework of SUMP, all mobility components in the Vast Area are considered and the environmental impact of their use is assessed.

It is highlighted that this approach is different from traditional planning practices, especially for the aspects of participation and inter-sectoral integration between territory environment, economy, society**.**

***

The above-mentioned policy will be supported by other electric-drive planning initiatives with associated financial coverage, initiatives already implemented or in progress (see Action 2) with the support of Livorno Province; other initiatives are expected to be added in the near future.

Reference is made, for example (also because of the economic significance and foreseeable impact on the project scope) to the initiative taken by the Municipality of Livorno in the context of the "Strategic Plan for Sustainable Mobility. Inter-ministerial Decree no. 71/2021 - Resources allocated to municipalities with a population of over 100,000 inhabitants for the purchase of urban buses and related infrastructure".

At the beginning of 2021, the Municipality of Livorno completed the drafting of the municipal SUMP, which was then published for consultation and comments. The Province of Livorno, in a written note dated 3 March 2021 and sent to the Municipality, in addition to pointing out the potential contribution of initiatives in support of electric transport and in particular the eBussed project, has remarked as follows:

*the indications relating to electric mobility, which although providing for measures aimed at micro-mobility and private transport, did not seem to contemplate initiatives aimed at introducing electrically driven buses into the local public transport system;*

*in view of the National Plan for Sustainable Mobility in Italy, which also provides for funding opportunities to encourage the supply of this type of transport, including funds specifically aimed at municipalities with a population of over 100,000 inhabitants, such as Livorno, the suggestion, therefore, is to integrate the relevant sections of the SUMP with specific provisions to provide for intruding electric buses in the urban centre and the connection with the peripheral and extra-urban areas, in a manner similar to what the Province of Livorno will propose for Vast Area SUMP which will be formulated soon*.

*As far as infrastructures are concerned, from the experiences of the eBussed project mentioned above and from the discussion with operators and other interested parties, it clearly emerges that recharging*

*infrastructures suitable for effectively and punctually serving electrically driven public transport vehicles must also be provided, both in storage areas and at strategic points along service lines.*

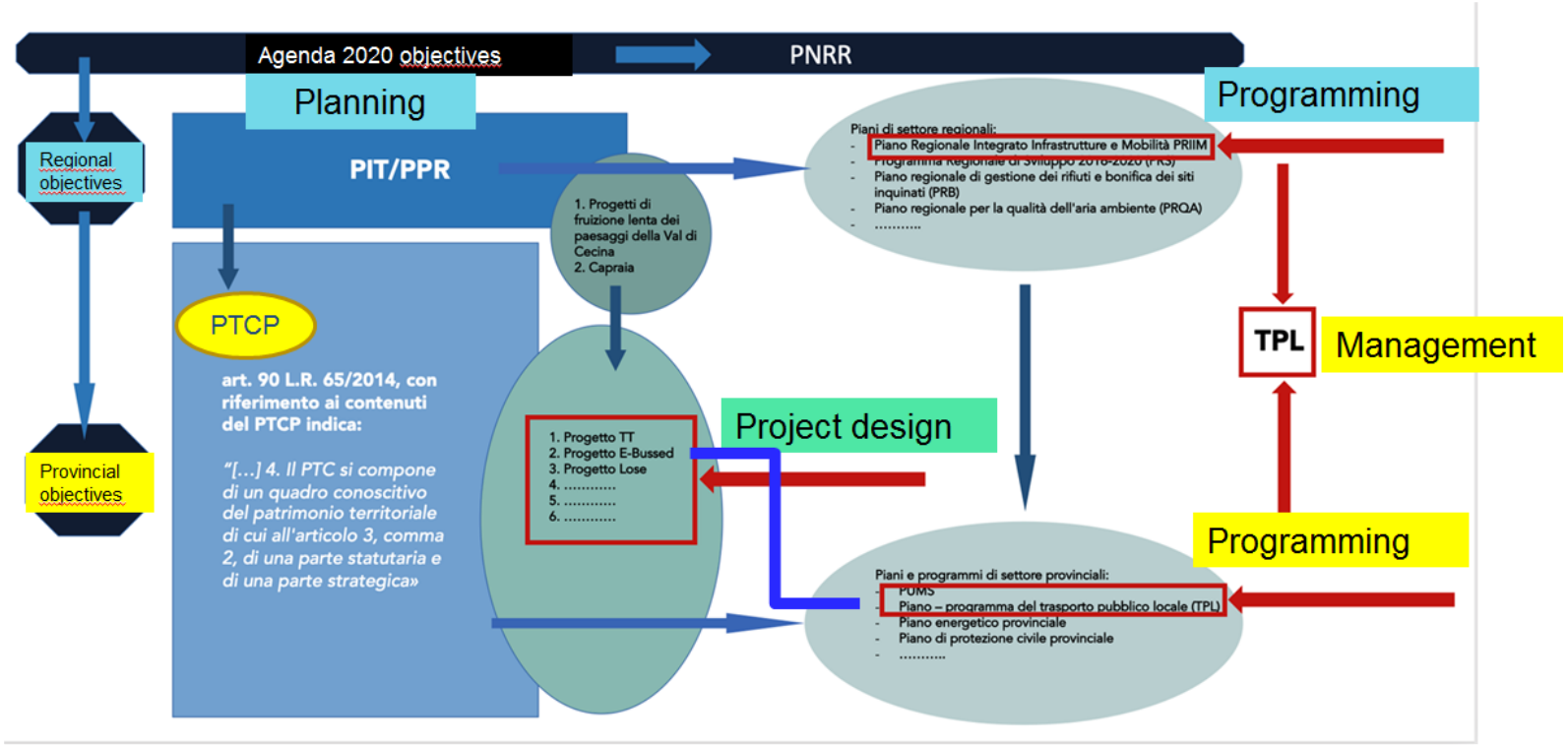
*It was therefore suggested that the relevant parts of the SUMP should also be supplemented by specific additional forecasts, in order to provide the urban structure with infrastructures supporting electric public transport according to the most appropriate methods and innovative technologies currently available on the market and undergoing rapid improvement*.

The Municipality of Livorno, after conducting a number of electric bus tests in April 2021, subsequently adopted a pre-feasibility project (and related technical diagrams) presented by the then OTP manager, CTT Nord, following meetings with the municipal offices and the Enel Energy representative. The project envisages the gradual replacement of the rolling stock of both LAM (High Mobility Lines - urban) Blue and Red with electric buses recharged only at night. A gradual path will be undertaken, divided into steps for its economic sustainability, the implementation of the recharging infrastructure and the purchase of rolling stock.

Following the communication by the Ministry that the request submitted has been financed in two tranches (for a total of € 13,858,666.62), as better described in the following section for Action 2 and in Appendix 1, in January 2022 the Municipality of Livorno requested the advance payment of the contribution granted.

The above example of initiative, as well as the others described in the section devoted to Action 2, attest to the rapid evolution of a situation favourable to the growing adoption of electrically driven means of transport, which finds in the eBussed initiative and in the relative Action Plan effective ways of steering the process of conversion towards more environmentally sustainable means, especially if linked to charging infrastructure from renewable sources.

# Policy instrument and regional needs



# Part III – The Action Plan

## 1.1 The Background: eBussed project

Transitioning from a region with public transportation based on diesel buses to a region with e-bus fleets requires ample expertise in different fields. A vast range of themes must be covered in order to initiate and support e-bus development. The Interreg Europe eBussed project concentrates on the exchange of experience between partner regions at different stages of e-bus operation development, thereby serving regions struggling with this highly technical and fast developing field. As no partner region has entirely settled their e-bus transitioning path, new ideas, solutions and technologies can still be introduced to their development plans regardless of their current e-bus status.

eBussed supports the transition of European regions towards low carbon mobility and more efficient public transport. It promotes the uptake of e-buses in new regions and supports the expansion of existing e-fleets. eBussed project contributes to the Interreg Europe programme Specific objective 3.1 "Improving low-carbon economy policies" by encouraging regions to develop and deliver better policies related to the deployment of e-buses. The project also facilitates the integration of electricity production based on renewables and low carbon electrified public transport. Through new ideas and better policies, the project promotes both the demand and supply side of electricity from clean renewable sources and the subsequent transitioning towards a low carbon economy.

eBussed engages regions from all directions with and without practical experience on e-buses. In addition to this and three other thematic good practice reports, the project will deliver six regional action plans and policy recommendations to be used in partner regions. The project increases capacities and knowledge among its partner regions via a multi-level exchange of experiences and cross-regional pollination of ideas to better support the transition towards fully electrified bus fleets and low carbon mobility.

The consortium formed for eBussed comprises of the following partners:

- Turku University of Applied Sciences, FI (Lead Partner)
- Free and Hanseatic City of Hamburg, DE
- Ministry for Gozo, MT
- Province of Livorno, IT
- University of Applied Sciences Utrecht, NL
- Province of Utrecht, NL
- South Transdanubian Regional Innovation Agency, HU

The main idea in forming the project consortium was to find project partners at different stages of e-bus development in order to maximize the knowledge exchange potential between project partners. The benefits of having a consortium consisting of regions familiar with e-buses and regions with less experience on the topic is evident. As no single or one-size-fits-for-all solution is currently available for e-buses, knowledge exchange is extremely fruitful to all partners despite their different development stage. In addition, e-bus technologies, charging solutions and business models are in a constant flux of development, with many competing solutions and models currently available, and new, more advanced technologies and solutions continuously entering the market. Consequently, all regions benefit from the experiences gathered and shared before and during the project.

## 1.2 June 2021 survey

During Phase 1, the Province of Livorno, in coordination with the Lead Partner and the other eBussed partners, prepared an online questionnaire for passengers on public transport to collect their opinion on the introduction of electric buses in the Municipality of Livorno and the province. Of the 152 questionnaires collected, 136 fully completed refer to the reply of 93 respondents who had not yet used electric buses plus 43 who had an experience in this concern.

From the analysis of the answers (as in Figures 1 and 2 below) a clear interest emerges towards such this means of transport as well as an anticipation (by non-users) and attestation (by users) of the advantages of using e-buses.

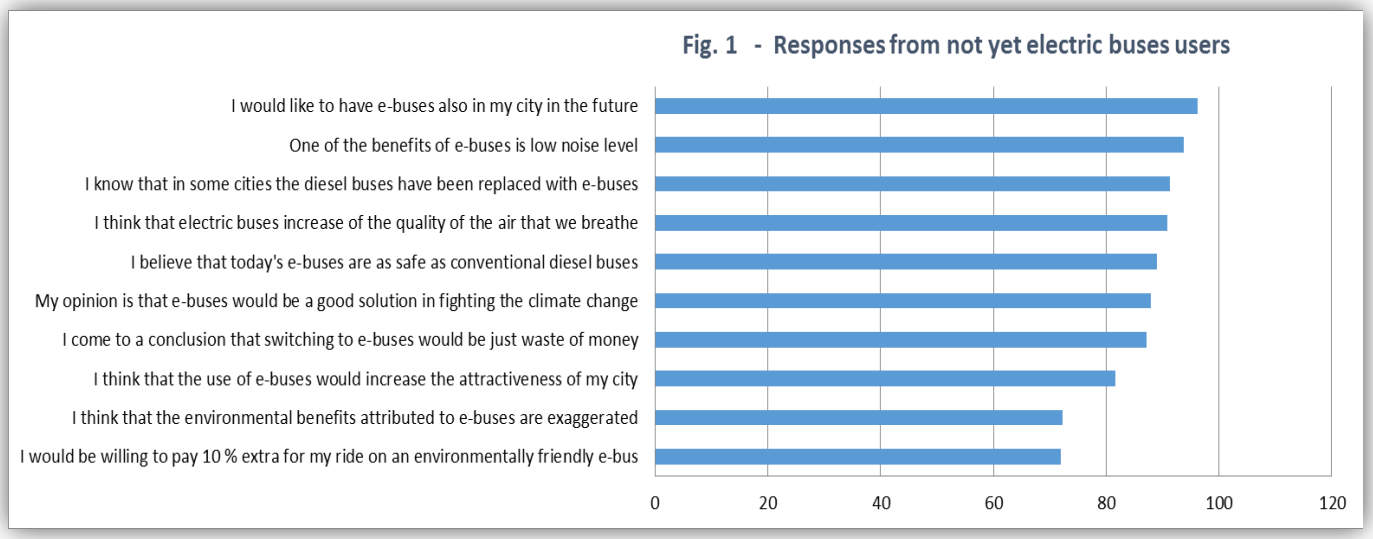
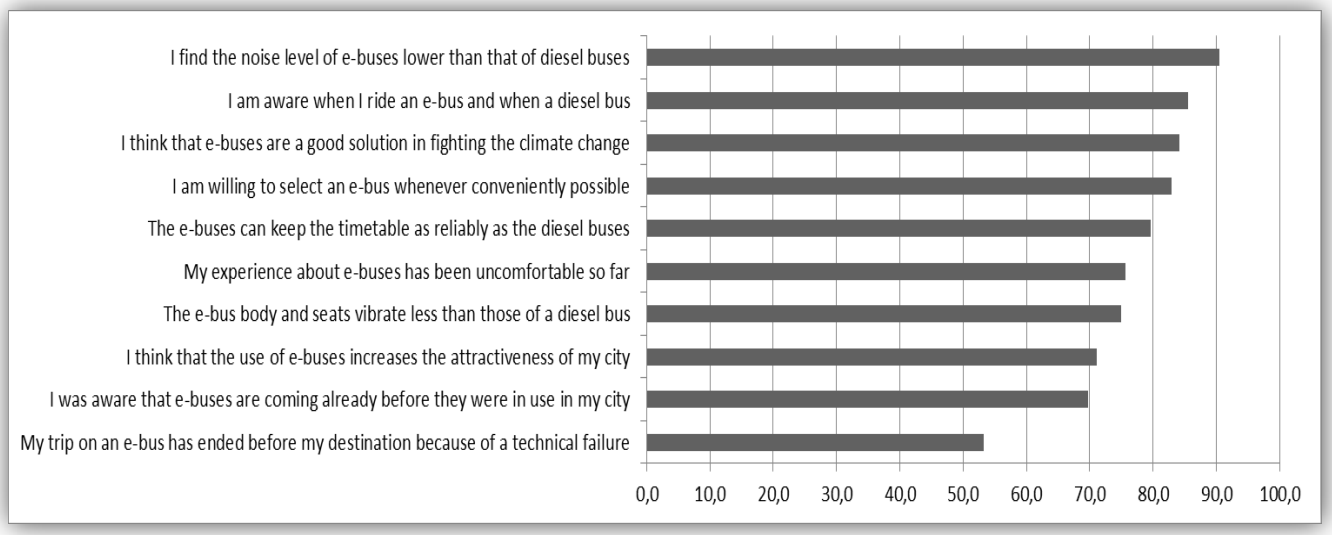



Fig. 2 Responses from electric-bus users



## 1.3 Main Actions and their interlink with the project Good Practices

The Action Plan, aimed therefore at fostering the deployment of electric public transport in the provincial territory and the setting up of related infrastructures, considering survey results summarised in paragraph 1.1 above, is split into 2 main lines of Action (adopting a "top down" approach in Action 1 and a "bottom up" approach in Action 2):

1. **Sustainable Urban Mobility Plan (SUMP) within the Provincial Coordination Territorial Plan (PTCP)**
2. **Procurement of electric buses (pilot interventions)**

In line with the approach of INTERREG EUROPE Programme to promote the identification and exchange of good practices in a cross-partnership context, the Actions here identified wish to capitalise on specific contents of a basket of Good Practices and other thematic documentation prepared during the eBussed project. The following table interfaces the Actions with the Good Practices of corresponding interest and value for the planning activity.

| N. | Action | Coordinator | ▪ Relevant Good Practices (GP) |
|---|---|---|---|
| **1** | PTCP/SUMP | Livorno Province | ▪ Germany \| Structured approach to the transition towards e-bus<br>▪ Germany \| Implementation of data-driven processes<br>▪ + Documented thematic articles and reports on specific topics |
| **2** | Procurement of electric buses (pilot interventions) | Livorno Province | ▪ Malta \| Electric bus pilot project prior to purchasing a large e-bus fleet<br>▪ Malta \| Preliminary e-bus trials such as training for drivers and technical staff prior to launching an e-bus pilot project<br>▪ Finland: Steering the public transport procurement towards the Clean Vehicle Directive<br>▪ Finland \| Maintenance during transport service due to charging problems<br>▪ Netherlands: Buses on loan in the Amsterdam region<br>▪ Netherlands \| New bus depot "Westraven<br>▪ *+ documented thematic articles and reports on specific topics* |

<u>Justification for GPs being adopted/transferred</u>

eBussed, in bringing together tested, innovative good practices as documented by the other European project partners, has provided a contribution to replicate and contextualise innovative practices in the Livorno provincial area, focusing on specific areas such as:

- Barriers and opportunities for the adoption of electric buses
- Technological needs
- User interface
- Procurement and tenders
- Other areas not included above

Almost all of the identified GPs contain innovative aspects, ideas and approaches relevant to the lead theme of each Action here; the transferability and sustainable aspects of each GP have been analysed and the selected GPs have been found applicable/adaptable to the Tuscan context. They are also coherent with the regional policy concerning the improvement of sustainable transport in Tuscany.

More details on the individual GPs of interest and their added value are provided in the two Action Sheets.

## 1.4 Actions in detail

### ACTION N. 1 - Livorno eBussed Action Plan influencing the Vast Area Sustainable Urban Mobility Plan (SUMP)

| | | | |
|---|---|---|---|
| MAIN FEATURES | Title | Livorno eBussed Action Plan influencing the Vast Area Sustainable Urban Mobility Plan (SUMP) | |
| | Location | Entire provincial territory | |
| | Typology | ☐ Unified intervention | ☐ Composite intervention |
| | | ☐ Intervention by functional lots | ☒ Integrated intervention |
| | Nature | ☐ New intervention | ☐ Enlarged intervention |
| | | ☐ Completion intervention | ☒ Renovation intervention |
| | Good Practice references | ▪ Germany \| Structured approach to the transition towards e-bus<br>▪ Germany \| Implementation of data-driven processes<br>▪ + Documented thematic articles and reports on specific topics<br><br>GP1 indicates how easy it is to underestimate the complexity of the transition to e-mobility in an OTP and the depth of change required in operational processes. A main aspect of the approach taken, which could be transferred to Livorno, is to define a structured criterion for dealing with the transition to e-bus and to consider and re-evaluate the entire status quo, including existing operational processes and infrastructure.<br><br>The main objective described in GP2 is knowledge transfer and peer review between OTPs and other stakeholders. The network is used for the exchange of knowledge and model documents (e.g. technical specifications) and contributes to a better overall implementation of e-mobility in Germany through common knowledge and a pool of good practices. Through peer review, uncertainties for the upcoming transition to e-mobility of individual FBOs are reduced and best practices are shared. A good exchange is stimulated by regular conferences including site visits. Relevant partners, e.g. bus manufacturers, charging infrastructure manufacturers, cities and municipalities, need to be identified and involved. All those aspects can effectively influence Livorno territorial planning exercises. | |

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| | **Brief description** | The action aims at promoting public transport electrically-driven, by including it in the Urban Plan for Sustainable Mobility (SUMP) currently being drafted, for the Livorno Vast Area - in coordination with the Provincial Coordination Territorial Plan, of which the SUMP is an integrated tool.<br>SUMP and PTCP are expected to be finalised both before mid-2023, before or latest by the end of project Phase 2 . Starting from early June 2022 (with two planned round-tables at Cecina on 8 June and Portoferraio on 11th June) the eBussed Action Plan – approved by the provincial Municipalities' Assembly on 28 April 2022, - will be presented to the working group engaged in the drafting of PUMS strategy and objectives. It is anticipated that the need of promoting electrical public transport will constitute one main strategic line of the said policy.<br>SUMP is a sector plan aimed at planning mobility in the territory. Its coordination with the PTCP will make Livorno Province's action more effective in pursuing the objectives of the 2030 European Agenda.<br>In relation to this, no less important has been the recent approval of the bilateral convention, between the Province and the Municipalities, for the associated management of mobility and transport. The convention is an essential element in the planning of public transport on a provincial basis.<br>In an historic moment characterised by the alarm over climate change, the Province of Livorno is called upon, together with the Region and the Municipalities, to make its own contribution to the pursuit of sustainable development objectives. Hence the need to promote policies that help the balance development of the economic fabric, integrating environmental sustainability issues not as a brake but as an opportunity to explore innovative proposals in various areas, such as mobility, a decisive lever of development. The process of comparison being undertaken within the PTCP will make it possible to put together the various intervention plans: shared elaboration of the development framework, definition of appropriate projects, and search for resources.<br>This is also the context in which the agreement for the joint management of mobility and transport is being drawn up, which will have a duration of ten years, equal to that of the single regional contract for local public transport, signed by the Region and Autolinee Toscane. |

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| | | This will allow the Province to coordinate better the various aspects relating to the management of the public transport contract, in particular: the possibility of bringing the needs of the territory to the attention of the decision-making tables and the right to manage the assignment of services for weak demand through provincial tenders. The deployment of electric driven transport is being made part of such service assignment strategy. |
| **IMPLEMENTA-TION GROUP AND POLICY REFERENCES** | **Action leader** | Province of Livorno |
| | **Other players** | Municipalities<br>SAPE (the inter-municipal institution coordinated by the Province of Livorno and providing an associated service for European policies to all participants) and the Territorial Office together with the LPT Joint Management with the municipalities belonging to the identified mobility basin will facilitate the task of this and other action implementing groups.<br>Associated Local Public Transport (LPT)<br>Management of Municipalities belonging to the Vast Area mobility basin, coordinated by the Territorial Office of Livorno Province |
| | **Programs** | ☒ **Provincial Coordination Territorial Plan and the Vast Area SUMP of Livorno** |
| **STRATEGY** | **Action Scope** | The action aims to support the policy, with due emphasis to e-bus deployment and provision of related infrastructure, so as to ensure effective:<br>▪ provincial territorial coordination planning, as well as environmental protection and protection, for the aspects within the competence of the Provincial Administration;<br>▪ **planning of transport services within the province**, authorisation and control of private transport, in accordance with regional planning, as well as the construction and management of provincial roads and the regulation of the related road traffic;<br>▪ strategic development of the territory and the management of services in associated form according to the specific features of the territory proper. |
| **ACTIVITIES** | **Activity coordinating players** | **Activity description** |
| | Province of Livorno | 1) PTCP revision (updating) |
| | Province of Livorno | 2) SUMP formulation |

| | | | |
|---|---|---|---|
| **COSTS** | **1. CAPITAL COSTS** | **Amount (€ )** | **Note** |
| | 1.1 Updating the provincial S.I.T. | 91.279,00 | |
| | 1.2 External consultancy services for SUMP formulation | 120.000,00 | |

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| | **TOTAL 1.** CAPITAL COSTS | | **211.279.00** | |
| | **2. RECURRENT COSTS** | | | |
| | 2.1 Maintenance of provincial S.I.T. (2022-23) | | 31.677,30 | |
| | **TOTAL 2.** RECURRENT COSTS | | **31.677,30** | |
| **FINANCING** | Financing source | **Fonte** | **Capital Costs (€ )** | **Recurrent Costs (€** |
| | | UE funding (ROP/PNRR) | | |
| | | National funding | | |
| | | Regional funding | 57.500,00 | |
| | | Provincial funding | 153.779,00 | 31.677,30 |
| | | Municipal funding | | |
| | | Other | | |
| | | **Total** | **211.279,00** | **31.677,30** |
| | Actions to be taken to ensure adequate inflows to cover costs | Action taken in the latter period of 2021 and covered by internal resources from the budget of Livorno Province. | | |
| **OTHER RESOURCES** | Non-financial | 1. Internal staff of the Province of Livorno<br>2. Internal staff of the Municipalities<br>3. SAPE support<br>4. Available media: portals, social channels<br>5. Platform, database, cartography | | |
| **IMPLEMENTATION PERIOD** | Starting date | May 2021 | | |
| | Completion date | July 2023 | | |
| **ANTICIPATED IMPACTS** | 1 | Influencing the policy to enable an increase in the provision of electric buses in urban and suburban areas and related infrastructure | | |

| INDICATOR | N° | Indicator | How monitored (mode, frequency...) | By whom | N° |
|---|---|---|---|---|---|
| | 1 | New lines of action/priorities for e-bus deployment integrated in the SUMP addressing specific areas related to electric transport acquisition and commissioning as well as related infrastructure | Specific descriptive components of strategical lines for ebus deployment being incorporated in the SUMP policy | Province of Livorno | **at least 1** |

| ACTIVITY TIMETABLE | PHASE 2 (august 2022 - july 2023) | | | | | |
|---|---|---|---|---|---|---|
| | Aug-Sept 2022 | Oct-Nov 2022 | Dec 2022-Jan2023 | Feb-Mar 2023 | Apr-May 2023 | Jun-Jul 2023 |
| *Activity 1.1* PTCP | | | | | | |
| *Activity 1.2* SUMP | | | | | | |

## ACTION N. 2 - Procurement of electric buses (pilot interventions)

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|---|---|---|---|
| **MAIN FEATURES** | Title | Livorno province fostering pilot actions for the adoption of electric buses in the provincial territory | |
| | Location | Livorno, Capraia and Suvereto municipalities, Elba island, Provincial Vast Area | |
| | Typology | ☐ Unified intervention | ☒ Composite intervention |
| | | ☐ Intervention by functional lots | ☐ Integrated intervention |
| | Nature | ☒ New intervention | ☐ Enlarged intervention |
| | | ☐ Completion intervention | ☐ Renovation intervention |
| | Good Practice references | 1) Malta \| Electric bus pilot project prior to procuring a large e-bus fleet<br>2) Malta \| Preliminary e-bus trials such as training for drivers and technical staff prior to launching the e-bus pilot project<br>3) Finland: Steering public transport procurement towards the Clean Vehicle Directive<br>4) Finland \| Maintenance during transport service due to charging problems<br>5) Netherlands: Buses on loan in the Amsterdam region<br>6) Netherlands \| New bus depot "Westraven<br>+ documented thematic articles and reports on specific topics<br>The GPs indicated above have provided insights and topics for attention regarding fundamental steps such as:<br>– procurement of electric buses (procurement organisation, related requirements including feasibility testing and related training activities); alternative forms of procurement<br>– testing and inspection<br>– maintenance<br>**GP1** call the attention to identify local challenges and to analyse the technical specifications of the electric bus before the actual procurement of a larger fleet. Tests on sample routes can be useful in helping to identify and anticipate problems that can be avoided during the procurement phase.<br>The opportunity to carry out pre-testing - described in **GP2** - allows the identification of the main challenges of electric bus operation in the local context, as well as serving as a training phase for drivers and technical staff to learn from the problems encountered. | |

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| | Good Practice references | **GP3** suggests preparing for the requirements of clean vehicle directives or regulations by modifying a tendering procedure in order to reward with additional scores bids for vehicles compatible with these requirements.<br><br>**GP4** points out that a city service for reporting problems in the traffic light system could be to receive notifications about problems in charging e-buses. The same technicians who deal with traffic lights are also trained to repair battery charging systems. This speeds up the response time for repairing charging problems and minimises bus downtime.<br><br>**GP5** provides useful food for thought and is relevant when tendering for public transport concessions using e-buses. The public entity can choose whether to submit its own bids for e-buses and e-infrastructures and thus become the owner of the e-bus and the electrical infrastructure or entrust them to a private company. This makes it possible to monitor all the quality requirements themselves and also to achieve high value for money through market forces.<br><br>On a more operational level, among the documented experiences **GP6** shows the added value of anticipating the risks of a fire in an electric bus depot (depending on location) and minimising the risk of a major fire resulting in the loss of a large number of electric buses. Measures such as concrete walls and tracks ensure that a major fire does not spread to other compartments. Daily operation is thus guaranteed, even in the event of a fire. This precaution and other measures to control the risk of battery combustion are also illustrated in the analysis prepared by Working Group 2 and published on the website. Such caveat will be of undoubted benefit to the PTO operating in the regional territory.<br><br>Thematic article no. 14 "Comparison of the procurement process and tenders for electric buses in the Utrecht and Hamburg region". |

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| | **Brief description** | Action 2 is aimed at promoting an experimental adoption of electric public transport and related infrastructures, by means of interventions linked to specific areas and in relation to the corresponding financial support measures made available.<br><br>This action will take the form of an active participation - – as already being assured by Livorno Province - in specific initiatives, primarily those undertaken by the municipalities - to introduce electric-driven means of transport and related infrastructure facilities. Due to its competence in transport planning and implementation at provincial level, the role of Livorno Province consists of:<br><br>a) Direct involvement in specific components of the various interventions in coordination with the Municipality involved. Such involvement, for some of the interventions, will entail the Province directly procuring e-buses and supervising the acquisition and installation of related charging infrastructures.<br>b) Recommendation to give due attention to strategic decisions where electric transport deployments is considered (ex. overnight versus opportunity charge, range of utilisation, size of fleet and bus dimension, driving practices, maintenance problems which may arise especially on transit)<br>c) an alert system to signal funding opportunities for such deployment to favour equal interventions in the near future<br>d) an assistance in preparing technical and financial documents in response to the calls for funding, to ensure adequate after-sale assistance and guarantee<br>e) highlighting caveats and recommendations, regarding the e-bus and other infrastructure procurement process, (tender documentation, pre-commissioning, testing etc.) accrued from the documented experiences acquired by PP4 during eBussed project implementation period so as to remove the risk of unsuccessful attempts to adopt electric transport being repeated, as it has been the case in the past period by PTOs operating in Livorno area. |
| **IMPLEMENTA-** | **Action leader** | Province of Livorno |

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| **TION GROUP AND POLICY REFERENCES** | **Other players** | Livorno, Capraia, Suvereto, Portoferraio, Rio, Porto Azzurro municipalities; other municipalities engaged in e-bus deployment initiatives during Phase 2<br><br>Other municipalities of the provincial Vast Area being interested during Phase 2<br><br>SAPE (the inter-municipal institution coordinated by the Province of Livorno and providing an associated service for European policies to all participants) and the Territorial Office together with the LPT Joint Management with the municipalities belonging to the identified mobility basin will facilitate the task of this and other action implementing groups.<br><br>PTOs, in particular Autolinee Toscane (a private Italian company active in the local public transport sector). It manages the entire bus network in Tuscany, including both the urban networks of the individual municipalities and the extra-urban connections). |
| | **Programs** | **Provincial Coordination Territorial Plan and the Vast Area SUMP of Livorno** |
| **ACTIVITIES** | **Action scope** | This Action (of bottom up type with the direct involvement of Livorno Province) aims at inspiring an experimental and demonstrative adoption of electric public transport means and related infrastructures, through interventions tailored to specific territorial contexts. Such interventions will be linked to the corresponding support measures made available by the PNRR and other national and regional funding opportunities and will also aim at acting as demonstration measures able to stimulate a growing dissemination of electric-drive transport in other localities of the provincial territory. |
| | **Activity coordinating players** | **Activity description** |
| | *Activity 2.1*<br>Livorno Province | 2.1) Involvement (technical and administrative) of Livorno Province in facilitating and partially executing the Activities 2.2 to 2.6 below and similar ones anticipated to be undertaken by other Municipalities and public/private entities in the territory. This involvement is being coordinated with experienced PTOs and e-bus manufacturers to facilitate the access to state-of-the-art electric transport and infrastructure assets.<br>By virtue of the Associated Convention between the Province and the Municipalities, the Province of Livorno is in fact playing the role of **Contracting and Awarding Station** with regard to the "weak" provincial services of transport as it is the case for Activity 2.3 and 2.5. |

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| | *Activity 2.2*<br>Municipality of Livorno | 2.2) Procurement of electric buses and associated infrastructure has been supported by the Province of Livorno when the Province commented that the indications relating to electric mobility in Livorno town SUMP did provide for measures aimed at micro-mobility and private transport but did not consider initiatives aimed at introducing electrically driven buses into the local public transport system. (See Part II above). This formal comment was registered by Livorno Municipality and it resulted in the Municipality initiating steps for e-bus procurement, now ongoing (se also Appendix 1). |
| | *Activity 2.3*<br>Municipality of Capraia | 2.3) Procurement of electric shuttle bus and associated infrastructure. The Province of Livorno, by a special agreement with the Municipality of Capraia, is in-charge of this procurement |
| | *Activity 2.4*<br>Livorno Provincial Transport (LPT) Observatory | 2.4) Procurement of electric bus. The request for funding stems from Livorno Province, being the LPT Observatory a sectoral unit within the provincial administration |
| | *Activity 2.5*<br>Municipality of Suvereto | 2.5) Procurement of electric shuttle bus and associated infrastructure. Livorno Province has supported the preparation of the application for funding and - by a special preliminary agreement between the two public bodies on 14 March 2022 – will be responsible for the procurement and commissioning of the shuttle electric bus and related charging infrastructure, in case the intervention be financed in June 2022 by the National Ministry in-charge of PNRR sectoral financing (Ministry of Culture). |
| | *Activity 2.6*<br>Municipalities of Portoferraio, Rio and Porto Azzurro | 2.6) Procurement of electric mini bus and associated infrastructure- Livorno Province has established a secondary coordination unit in Elba island – by a special agreement with the 3 listed and other municipalities in the island – regarding the transport system including electrically driven minibus on experimental basis. Their operation will start in the summer season of the year 2022. |
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| | **2. CAPITAL COSTS** | **Amount (€ )** | **Note** |
|---|---|---|---|
| **COSTS** | *Activity 2.1*<br>Livorno Province | - | - |
| | *Activity 2.2*<br>Municipality of Livorno | 2.433.983 # | # quinquennium 2019-2023 -<br>€11.424.684 quinquennium 2024-2033 |
| | *Activity 2.3*<br>Municipality of Capraia | 196.000 | 17 seater eBus model L plus charging infrastructure |
| | *Activity 2.4*<br>Vulnerable areas in the provincial territory | 359.900 | 29 seater e-bus Rampini model E60 |
| | *Activity 2.5*<br>Municipality of Suvereto | 299.844 | Purchase of 1 minibus Full Electric with 17 seat capacity + N. 2 grid-connected 11.89 kWp photovoltaic generators |
| | *Activity 2.6*<br>Municipalities of Portoferraio, Rio and Porto Azzurro | 420.000 | Purchase of n. 4 electric mini busses and charging infrastructure |

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| | **TOTAL** | | **3.709.727** | |
| **FINANCING** | **Financing source** | Description | **Capital costs (€ )** | **Activity funded** |
| | | UE funding (ROP/PNRR) National recovery and Resilience Fund: Ministry of Culture call 12/2021 for "Small villages" | 299.844 | Activity 2.5 |
| | | National funding: Strategic Plan for Sustainable Mobility. Interministerial Decree N° 71/2021 (2.2) National funds (Ministry for Ecological Transition) Small Islands Call for Proposals (2.3) (2.4) | 3.049.983 | Activities 2.2 - 2.3 - 2.6 |
| | | Regional funding (Tuscany Region ) | 359.900 | Activity 2.4 |
| | | Provincial funding | - | |
| | | Municipal funding | - | |
| | | Other | - | |
| | | **Total** | **3.709.727** | |
| **OTHER RESOURCES** | Non-financial | 1. Internal staff of Province of Livorno and associated technical consultants in Livorno Provincial Transport Observatory<br>2. Internal staff of Municipalities<br>3. SAPE and Territorial Office support<br>4. Available media: portals, social channels | | |
| **IMPLEMENTATION PERIOD** | Starting date | August 2022 | | |
| | Completion date | July 2023 | | |
| **ANTICIPATED IMPACTS** | 1 | Increased number of electric buses operational in urban and suburban areas | | |

| **INDICATORS** | **N°** | **Indicator** | **How monitored (mode, frequency...)** | **By whom** | **Quantity** |
|---|---|---|---|---|---|
| | 1 | N° of electric buses entering into operation | Progress of single initiatives | Recipients of funding/implementing organisations | Min 10 |

| | | | | | |
|---|---|---|---|---|---|
| | 2 | Project application for funding | Application process and publication of results. | Persons responsible for submitting applications | > 4 |

| ACTIVITY TIMETABLE | Phase 2 (august 2022 - july 2023) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Status | Aug-Sept 2022 | Oct-Nov 2022 | Dec 2022-Jan2023 | Feb-Mar 2023 | Apr-May 2023 | Jun-Jul 2023 |
| *Activity 2.1* Initiatives coordinated by Livorno Province in addition to 2.2 to 2.6 hereunder | **To be formulated** | | | | | | |
| *Activity 2.2* Municipality of Livorno | **Financed** | | | | | | |
| *Activity 2.3* Municipality of Capraia | **Financed** | | | | | | |
| *Activity 2.4* Livorno Provincial Transport Observatory | **Financial request submitted** | | | | | | |
| *Activity 2.5* Municipality of Suvereto | **Financial request submitted** | | | | | | |
| *Activity 2.6* Municipalities of Portoferraio, Rio and Porto Azzurro | **Financed** | | | | | | |

Financed and initial start-up

Financed and being implemented

Funding applied for; pending

Possible initiatives to be formulated / implemented during Phase 2

## Part IV – Procedures to effectively monitor the Action Plan implementation

| Details | Indicator | How monitored (mode, interval...) | By whom |
|---|---|---|---|
| **Action Plan** | (Self-defined performance indicator as in ThreeT Application Form - Sect. C.6.2)<br>**Vehicles replaced with other vehicles having a lower environmental impact**<br>**no. 25 (entire Tuscany region)** | a) Registration of additional vehicles in use at the end of Phase 2 | Action Responsible |
| **Action 1** | New lines of action/priorities integrated in the SUMP addressing specific areas related to electric transport deployment and related infrastructure) | ≥ 1 | Province of Livorno |
| **Action 2** | N° of electric buses | Min 10 | Recipients of funding/implementing organisations |
| | Project applications for funding | > 4 | Project application proposers |

A final, useful tool to assess the ex-post results of the Action Plan at the end of Phase 2 is the reappraisal of the analysis on the scenario change by evaluating new, updated Readiness Indicators, to be compared with those identified and determined in September 2020.

The results of September 2020 analysis are those set out in:

- Thematic Article No. 11 "Readiness Indicators for the Adoption of Electric Buses".

**The Action Plan will be implemented and monitored by:**

**Province of Livorno**

Date: 22/06/2022

Name and title: La Responsabile del Servizio Sviluppo strategico, Pianificazione, T.P.L. Dott.ssa Irene Nicotra

Signature:

Official seal

# Appendix 1

**Sub-Action 2.2 - Municipality of Livorno**

The Municipality of Livorno is the beneficiary of a financing of € 13,858,666.62 from the DM 71/02.2021 "cities with more than 100,000 inhabitants". This funding is currently awaiting the relevant implementing Decrees from the Ministry.

Knowing the timing of disbursement/implementation will allow to proceed with all the other phases of the project, first of all with the purchase of electric vehicles.

The total funding resources are distributed as follows:

- € 450,557.50 in 2019-2020 for the purchase of 1 electric vehicle
- € 450,557.50 in 2019-2020 for the recharging infrastructure in the depot
- € 1,277,390.00 in the three-year period 2021-2023 for the purchase of 2 electric vehicles
- € 255,478.00 over the three-year period 2021-2023 for the depot charging infrastructure
- € 10,100,000.00 over the ten-year period 2024-2033 for the purchase of 22 electric vehicles
- € 1,324,683.62 over the ten-year period 2024-2033 for the depot charging infrastructure

In fact, when fully operational in 2033, 25 urban vehicles should be purchased (of which 13 12m and 12 10.5m) and the related overnight depot recharging infrastructure should be completed. These vehicles will replace the existing diesel vehicles with higher pollution classes.

From an operational point of view, two lines are planned to be made electric, namely the current Blue LAM and Red LAM.


N. 13 12m-vehicles will be deployed on the Blu Line and n.12 10m-vehicles on the Red Line. N. 12 10.5 m vehicles will be used on the Red Line as well.

All of the above will only be possible once the ministerial funding has been released and an agreement has been signed between the Municipality of Livorno and the Autolinee Toscane company (the sole manager of the TPL service in Tuscany), which will be appointed as the implementing body.

The implementation time from the preparation of the tender for the purchase of the vehicles to the awarding and ordering could be in the order of 18-24 months. The implementation of the infrastructure in the depot could take longer. Below is a graphic plan of the current depot in Via Impastato (Fig. 1) on which the possible recharging stations are indicated in the perspective of a 3-step development.

The maximum capacity, envisaged in the draft project, is 27 units per 12m bus, which can easily support the project of 25 units.

Bus charging stations under the perimeter canopy will be powered by a new cabin in tandem with the current one, being increased from 0.7 MW today to 2 MW with smart charge.

**Fig. 1 - Bus depot in Via Impastato**