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CiViTAS
Cleaner and better transport in cities

DESTINATIONS



Measure Evaluation Results

ELB 4.5 - EV legislation revision and charging infrastructures in Elba

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Executive Summary

The electric motorization of cars is a widespread phenomenon all over the world. However, there were few fully electric vehicles (EVs) registered on the island of Elba before the DESTINATIONS project, although there were many hybrid and plug-in cars. A factor that hampered the expansion of full EVs in Elba was the lack of charging stations.

In order to overcome this fundamental problem, the municipalities of Portoferraio and Rio had planned, as part of the DESTINATIONS project, to install, at their own expense, 2 charging stations in Portoferraio and 1 charging station in Rio.

In 2018, an opportunity arose to significantly increase the number of recharging stations in the area, thanks to the participation of Enel-X, the National Board for Energy, which offered to install this kind of infrastructure in public areas, in exchange of permission to use public soil for free. Enel-X's intentions were to create the technical conditions for a real transition towards the electric mobility all over Italy. Since the two municipalities of Portoferraio and Rio agreed on the objective, they immediately seized the opportunity, trying also to involve all the other municipalities of the island in the initiative.

In 2019, the company ENEL-X and each of the two Municipalities entered into an Agreement for the installation of up to 15 electric charging stations in the territory of Portoferraio and 8 in the territory of Rio. Later, other municipalities also did the same. Once they had signed the agreements and established the final goal in terms of numbers of stations, the Municipalities internally elaborated an implementation plan, defining primary and secondary phases of installation, and taking into account several issues, such as the actual aspect of the urban area, and the presumed demand of electric recharging point or parking slots, etc. Thus, for the first tranche of installations, the numbers established were the following: 9 in Portoferraio and 5 in Rio. Unfortunately, the COVID-19 emergency postponed the installation of the charging stations. The first 7 installations were scheduled for spring 2021. But other installations will follow shortly.

Concerning the rest of the island, Portoferraio and Rio organized meetings with the other 5 Municipalities and Enel-X in order to facilitate the relationship among them and encourage the finalization of the same agreement. In addition, the two Municipalities supported the others by sending administrative and informative material.

Initially, a revision of the legislation on electric mobility was also foreseen within this measure, but an in-depth study of the subject made it clear that the Italian national legislation is already sufficiently advanced and does not require further revisions. This action was therefore converted into the creation of a Vademecum for e-drivers (especially for foreign ones) – essentially a front and back leaflet with dedicated sections about legislation on electric mobility, such as rules in terms of parking and entry into the LTZ. In addition, it also contains the location of the public charging stations all over the island.

The general public has been informed about the effort made in the field of electric mobility through press releases and web articles. The initiative has been considered very useful for residents and also for tourists since they would be allowed to arrive and use their electric car on the island roads. The brochure for the circulation of electric cars, drawn up by the Municipality of Portoferraio, was judged very positively.

A Description

On the Island of Elba, the interest in e-mobility has been gradually increasing over the years. Many hotels and rental operators started to experiment with the potential of e-mobility, providing their customers with electric vehicles and recharging infrastructure. To regulate and foster electric mobility (in particular EV and PHEV (Plug-in Hybrid Electric Vehicle)), a common leaflet for people driving an electric car on Elba was drafted, between Portoferraio and the other 6 Elba Municipalities.

This leaflet includes several aspects, such as free parking in the blue line parking lots, free circulation in the LTZ, possibility of charging batteries at dedicated "green" reserved multivendor parking lots, etc. It also included a map with the localization of the public recharging stations for e-vehicles.

Thanks to the mediation and facilitation action undertaken by the two Municipalities of Portoferraio and Rio, an agreement was reached between all the municipalities of Elba and ENEL X, the largest electricity supplier in Italy, for the installation of 50 charging infrastructures on the island. The ENEL company will install the charging stations during 2021 and take care of the management and maintenance of the charging stations at its own expense. In particular, the ENEL company has undertaken the installation of up to 15 charging stations in the municipality of Portoferraio and 8 charging stations in the municipality of Rio.

The main aim is the improvement of citizens' quality of life and the enhancement of the Island appeal for tourists, thanks to the decreasing of noise and air pollution, which is harmful for humans and the environment.

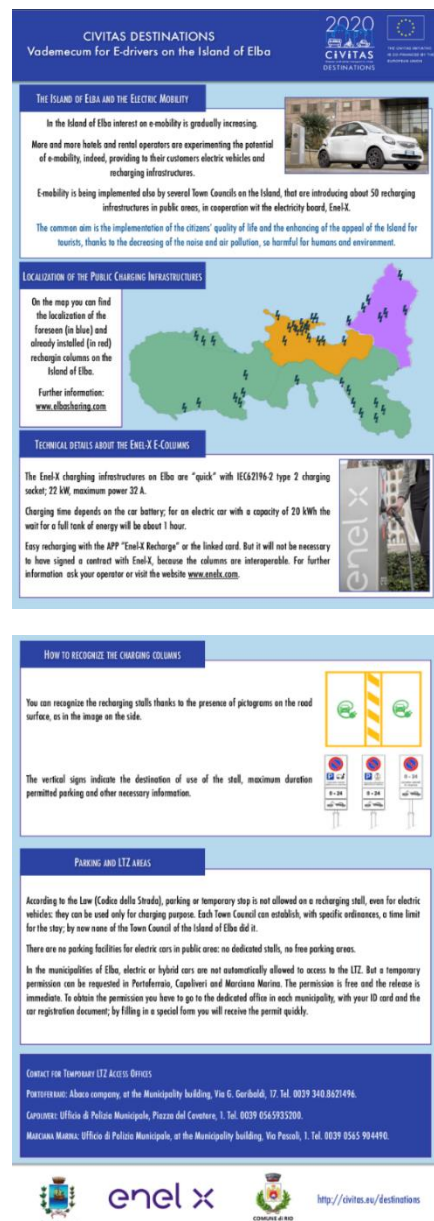


Figure 1: The leaflet for e-drivers (English version).

A1 Objectives and outputs

City policy level objectives

- Increase the attractiveness of Elba Island for tourists as an "Electrified island"
- Creating supportive conditions for citizens for the adoption of clean vehicles
- Reduction of pollution/noise emissions and energy consumption for a better-quality environment.

Measure specific objectives

- Provide clear rules for the movement of electric cars
- Give citizens and tourists the opportunity to recharge their electric cars

Output

- Leaflet for e-drivers written in Italian and English
- 23 e-charging stations will be installed during 2021 in Portoferraio and Rio. By April 2021, 7 charging stations are expected to be installed in Portoferraio and 5 in Rio¹

Supporting activities

- The company ENEL X, thanks to the agreement with the Elba municipalities, largely contributes to the construction of the network of electric charging stations, which will be at its own complete expense
- The vademecum (brochure) for the circulation of electric cars, which has been adopted by many Italian cities, has represented the guide for the elaboration of the Elba Vademecum

A2 Inter-relationship with other measures

This measure is linked to ELB 2.1 (Elba SUMP) that pushed for a strong increase in electric mobility on the Island in the medium-long term.

A3 Target groups and/or affected part of the city or region

Target groups of this measure are represented by the segment of citizens and tourists owning or renting an electric vehicle, as well as some commercial activities having their own business located in the limited traffic zone (ZTL) on the island.

A4 Stakeholders involvement

Stakeholder name	Activities description
Municipality of Portoferraio	New road EV regulations for city centre
Town police of Portoferraio	Suggestion on writing the new road EV regulations for city centre
Municipality of Rio Marina	New road EV regulations in city centre
Elba shopkeeper association	Suggestion on writing the new road EV regulations for city centre
Elba Electric Vehicles dealers	Suggestion on writing the new road EV regulations for city centre
Electric energy suppliers	Electricity supply to the charge station
Suppliers of electric charge stations	Agreements for supply of electric charge stations

Table 1: Stakeholder involvement

¹ Extra-output during DESTINATIONS, funded by **ENEL X**

B Measure implementation

B1 Situation before CIVITAS

Before the CIVITAS DESTINATIONS project, specific local regulation regarding EVs or public electric charging stations was missing. The only regulation available and adopted was represented by the national law on this topic. Only a few hotels, including a large one in Portoferraio, had their premises equipped with private electric charging stations available for their customers.

B2 Innovative aspects

The most innovative aspect of this measure was the agreement signed by the municipalities of Elba with the company Enel X for the free installation of 50 electric charging stations in the island. The agreement provides that ENEL X will be responsible for all the costs of installing and maintaining the stations, while the municipalities will make the installation areas available and will speed up their authorization procedures.

The brochure with information on EV circulation and charging stations as a common tool for the whole island, available for residents and tourists. The Leaflet is innovative at a local level, since there isn't a common tool for the whole island regarding electric mobility. In general, it is not very common to produce unique material for the whole island.

B3 Research and technology development

Not applicable.

B4 Actual implementation of the measure

The EV circulation leaflet was elaborated by Portoferraio municipality and is available and downloadable from the web (<https://www.elbasharing.com/piani-di-mobilita/un-vademecum-per-la-mobilita-elettrica>) for electric car owners. The manual will be updated with the exact locations of the charging stations of the whole island as soon as they will be installed in 2021. This leaflet will be disseminated widely, through the two Municipalities' media channels (websites and social media), and through local newspaper as well as through agencies, offices, and institutions managing tourist communication and targets (such as the Hoteliers' Association, the GAT - Gestione Associata Turismo, the local institution for tourist policies, and its media channels, and so on).

Concerning the concrete installation of the charging infrastructure, the two Municipalities have already proceeded with the following actions:

- Meetings and phone calls with Enel-X company's representatives, in order to establish the founding elements of the cooperation and to proceed with the drafting and signing of the agreement;

- Meetings with Enel-X and the other municipalities of the Island in order to facilitate the same process all over the territory, to the advantage of the widespread installation of charging infrastructure and therefore of the full development of electric mobility;
- Preliminary rough localization of the charging infrastructures in the territory, taking into account the ownership, the present and future use of the area, the availability of electricity nearby, and the potential for future use of the charging columns;
- Physical inspections by technicians of both the Enel-X Company and the Municipalities in order to assess the feasibility of the hypothesized infrastructure, and to collect data pictures and information for the purpose of drafting preliminary designs;

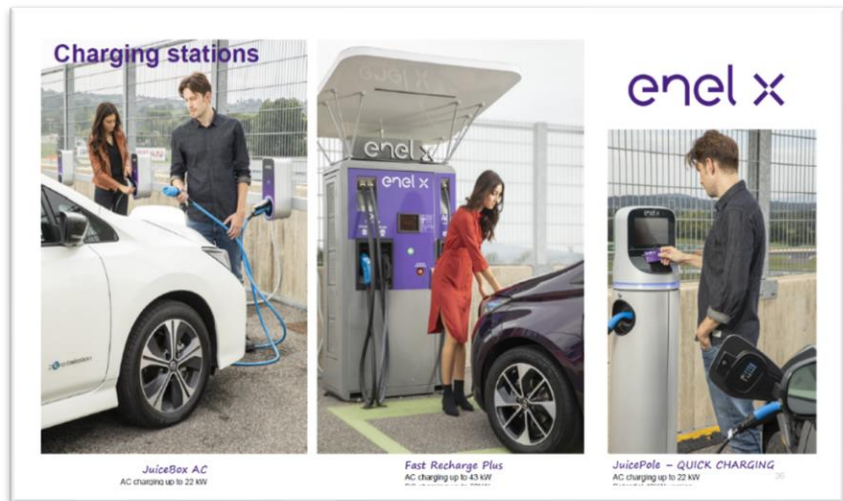


Figure 2: Enel X company charge station

- The engineers hired by Enel-X then sent the preliminary designs to the two Municipalities of Portoferraio and Rio; the designs were examined by the politicians and technicians and possibly modified or approved to be passed to the final design and, then, to the permitting phase.

The municipality of Portoferraio initially identified positions which were later replaced with others, following the change of the City Council which took place in April 2019, due to different development strategies of the urban environment compared to the previous political administration.

In addition, since the charging stations could not in any way have been used as parking stalls, the municipal administrations have decided to proceed in stages. This is to gradually accompany users towards the transition to electric mobility without creating imbalances between the demand for parking areas and the stalls concretely present and demand for electric recharging and the (still very small) number of EVs circulating in the territory. It was therefore decided to quickly install a certain number of columns (about half) and then to proceed with the others established by the agreement with longer times. Unfortunately, COVID has significantly slowed down the design and installation phases. Nevertheless, in spring 2021, the first recharging infrastructure will be installed.

As already mentioned, very decisive criteria have been adopted to choose the area of installation for the new infrastructure. Apart from the technical characteristics (municipal property of the land and availability of sufficient electricity nearby), it was taken into account that the station should have been located in a place where the driver could have stayed and carried out activities for the duration of the recharge, but no more, considering that the location could in no way be considered a parking lot. Therefore, the stations near museums, shopping centres, churches, restaurants, and bars were considered valid; whereas the locations near the beaches were

considered less suitable, both in order not to remove useful parking spaces and for the duration of the stay which at least is 4-5 hours.



Figure 3: Rendering of the charging infrastructure in Viale Elba (main port area) in Portoferraio

The municipality of Rio has also taken into account the particular conformation of its territory, made up of various inhabited centres and neighbourhoods scattered over a vast area. The administration has decided to equip each of these neighbourhoods with charging stations, without favouring the main centre of Rio Marina, thus avoiding problems of marginalization or exclusion from services and creating a good and effective local electric charging network.

In order to liven up the market and encourage the participation of various companies, the municipality of Rio is also assessing the entrusting of other areas to other minor electricity companies that also deal with the installation of charging infrastructure.

The installation of charging stations is also an opportunity for the municipality for a general redevelopment and beautification of the areas involved. Not surprisingly, at the same time as the design of the infrastructure, possible planting, positioning of flower boxes, redesign of pedestrian crossings, etc. are also being considered, which will improve the usability and aesthetic appearance of the places. For example, in the area of Le Ghiaie, in Portoferraio, the large case necessary for the charging infrastructure will be placed in a flower bed and large bushes will hide it from view; moreover, in this area, the installation is accompanied by a general review of the entire pedestrian and vehicular traffic.



Figure 4: Rendering of the electric infrastructure Piazza Don Pietro Berti in Portoferraio, nearby a very important church.

C Impact evaluation

C1 Evaluation approach

Expected impacts and indicators

Impact category	Impact indicator	Unit of measure
Society	1-EVs owned by Elba's citizens	Number
Society	2-EV users/people satisfied with the rules for electric vehicles mobility	%
Society	3 - EV users satisfied with electric recharging stations	%

Table 2: Expected impacts and indicators

Method of measurement

Impact indicator	Method *	Frequency			Target Group	Domain (demonstration area/city)
		Bef.	Dur.	Aft.		
1-EVs owned by Elba's citizens	DC	-	-	M50	Citizens	Elba island
2-EV users/people satisfied with the rules for electric vehicles mobility	DC	-	-	M50	Citizens/Tourists	Rio Portoferraio
3-EV users satisfied with structures for electric recharging	DC	-	-	-	Citizens/Tourists	Rio Portoferraio

*Data collection (DC), Estimation (E), Survey (S)

Table 3: Method of measurement

Detailed description of the indicator methodologies:

1- EVs owned by Elba citizens – In order to indicate the number of EVs owned by Elba citizens in 2020, the technical staff of Portoferraio realised an interview with the (unique) Portoferraio electric car dealer in October 2020, asking the question: *“how many electric cars are on the island?”*

2- EV users/people satisfied with the rules for electric vehicles mobility - Information related to this indicator was collected by Portoferraio municipality staff through the interview with the Portoferraio electric car dealer in October 2020. The dealer was asked if the car owners were satisfied with the new leaflet for the circulation of electric cars.

In the same month, 8 shops located in the limited traffic zone (LTZ) of Portoferraio were also interviewed. The following questions were asked:

- *Do you know the vademecum that the municipality has made for the circulation of electric and hybrid cars?*

- Do you think that the regulation can encourage non-citizens who own electric cars to shop in the centre (LTZ) of Portoferraio?

- Do you think that the regulation can increase traffic in the LTZ and occupy the car parks now reserved for residents?

The overall question “are you satisfied with the new vademecum for the circulation of electric cars?” had a multiple-choice answer: Vs=Very satisfied, s=satisfied, n=not satisfied.

3- EV users satisfied with structures for electric recharging - The responsibility for collecting information on this indicator belongs to Portoferraio municipality. Due to the delay caused by the COVID 19 emergency, the information will be collected in the summer of 2021, when the first public stations for electric car charging will be installed in Portoferraio. The question “are you satisfied with the new charging stations?” will be asked with the same multiple-choice options (Vs=Very satisfied, s=satisfied, n=not satisfied).

The Business-as-Usual scenario

If the vademecum for the circulation of electric vehicles had not been produced, the owners of electric cars would not have become aware of the regulatory benefits for mobility reserved for this category of vehicles. Even without the DESTINATIONS project, certainly at least the municipality of Portoferraio would have created a regulation for the circulation of electric cars, for fostering the expansion of this sustainable and environmentally friendly type of vehicles.

Before the DESTINATIONS project, Portoferraio had planned to install only 2 public charging stations and Rio 1 public charging station. The two municipalities counted a lot on private installations at the big hotels, but this would have entailed difficulties for the electric cars of many tourists and residents.

C2 Measure results

Impact category	Impact indicator	Unit of measure	Baseline	Ex-Ante	Ex-Post
Society	1-Fully EVs owned by Elba's citizens in 2021	Number	N/A	10	NA
Society	2-EV users/people satisfied with the rules for electric vehicles mobility	%	N/A	Vs 80% S 20%	Vs 88% N 12%
Society	3-EV users satisfied with structures for electric recharging	%	N/A	Vs 80% S 10% N 10%	N/A

Vs=Very satisfied, s=satisfied, n=not satisfied

Table 4: Measure results

C 2.1 Society

1 - EVs owned by Elba's citizens in 2021. Due to the COVID-19 emergency and the consequent delay of the first electric charging stations installation, full EVs were not purchased until the first quarter of 2021. The purchase of hybrid cars was in line with forecasts (about 60 in the year). As many charging stations are expected to be installed by April 2021, and it is possible that some fully electric cars will be purchased by the end of the year.

2 - EV users/people satisfied with the rules for electric vehicles mobility. Portoferraio Municipality staff interviewed the shopkeepers. To the question "Do you know the leaflet that the municipality has elaborated for the circulation of electric and hybrid cars?", 100% of the surveyed people answered "Yes". The same was verified with the question "Do you think that the regulation can encourage non-citizens who own electric cars to shop in the centre (LTZ) of Portoferraio?", to which 100% answered "Yes".

To the question "Do you think that the regulation can increase traffic in the LTZ and occupy the car parks now reserved for residents?", only 25% answered positively, with 75% indicating "No".

Overall, 88% of the surveyed indicated "Yes" to the question "Are you satisfied with the new vademecum for the circulation of electric cars?". Only 12% said "No".

3 - EV users satisfied with structures for electric recharging. The ex-post data relating to the indicator "EV users satisfied with the electric charging structures" will be collected in the summer season 2021, after the installation of the first charging stations, scheduled for spring 2021. Compliance with this installation date depends on the COVID-19 emergency which blocked the execution of the works throughout the whole of 2020.

During 2020, no fully EV arrived on the island. The COVID-19 emergency and the almost absence of charging stations may be the cause. With the installation of numerous charging stations scheduled for the first half of 2021, and with the hoped-for resumption of a tourist presence, it is foreseeable that by the end of 2021 some fully electric cars will circulate on the island and therefore it will be possible to obtain an evaluation on the installed charging stations.

C3 Quantifiable targets

N°	Target	Rating
1	*At least 10 electric vehicles will be purchased by the Elba citizens for their travel by the year 2020	O
2	*At least 80% of citizens and tourist are satisfied with the rules for electric vehicles mobility	**
3	*At least 80% of citizens and tourist are satisfied with the electric charge stations installed in Portoferraio and in Rio	N/A
4	EV legislation revision and charging infrastructures in Elba: Foster sustainable mobility behaviors	N/A
5	Improve and facilitate EV use by residents and tourists.	N/A
NA = Not Assessed O = Not Achieved * = Substantially achieved (at least 50%) ** = Achieved in full *** = Exceeded		

*New targets, not in GA

Table 5: Quantified targets

This measure should have contributed to reaching the following impacts: “foster sustainable mobility behaviours” and “improve and facilitate EV use by residents and tourists”. These impacts of unrealistic measurement have been broken down into three more measurable and tangible impact indicators that can be more realistically assessed.

Target 1 was Not Achieved. From the interview carried out with the electric vehicle dealer in Elba, it was found that no fully electric cars had yet been sold. 60 hybrid and plug-in cars were sold, and the same quantity is expected to be purchased in 2021. This absence of fully electric cars in the car dealer’s opinion was caused by the delay in the installation of public charging stations due to the COVID-19 emergency.

Target 2 was Achieved in Full. The Elba electric car dealer and Portoferraio shop keepers declared that they were completely satisfied with the vademecum concerning the circulation of electric cars.

Target 3 was Not Assessed. This objective had not been evaluated due to ENEL X's delay in installing the planned electric charging stations. The delays were mainly attributable to the COVID-19 emergency which totally blocked the installation works. In 2020, on the island there were 3 private charging stations owned by hotels.

Target 4 was Not Assessed. The vademecum (brochure) on the mobility of electric cars, valid for the entire island of Elba and the numerous charging stations that are expected to be installed by 2021, will be a boost to the adoption of electric mobility for both cars and scooters. Since the measurement of this impact is not realistic, its measurement is, in practice, linked to the purchase of fully electric vehicles as envisaged in Target 1.

Target 5 was Not Assessed. Also, for this impact it was not practically possible to carry out a direct measurement. However, using the new Target 2, its impact is measurable in practice by the acceptance (or lack of) from citizens towards the rules for the circulation of electric cars that have been illustrated in the brochures drawn up by Portoferraio.

C4 Up-scaling of results

The installation of electric charging stations by Enel X and the gradual use of electric cars by citizens and tourists is expected to lead to the installation of additional charging stations by other electricity distribution companies, in several relevant locations such as in hotels, in camping sites, nearby major shopping centres, nearby electric car rental shops, etc., towards a desirable sensitive electrification of mobility on the island.

D Process Evaluation Findings

The transition from the prevailing use of fossil fuels to electricity sources in mobility is one of the objectives of the strategic energy plan of Elba. When Enel X, the largest electricity provider in Italy, installs all 50 charging stations on the island (of which 15 in Portoferraio and 8 in Rio), it is possible that an increase of the development of the electric motorization in the island will happen in the following years. The Vademecum for the circulation of electric vehicles developed by

Portoferraio, which benefits EV circulation, will also contribute to the development of electric mobility.

Since there are very few electric cars circulating on the island, the evaluation of the new regulation for the circulation of electric cars was limited to an interview with the largest electric car dealer on the island and some shopkeepers in the centre of Portoferraio. Although being very positive, the result of the evaluation has limited value, considering the few interviews. A better assessment can be made both on the new regulation and on the charging stations in future years, when there will be a significant increase in electric cars (both residents and tourists) on the island.

D 1 Drivers

The main drivers identified during the implementation of this measure were related with the political will of the municipalities of Portoferraio and Rio to install electric charging stations, the agreement made by the municipalities of Elba with the company Enel X which will install, manage, and maintain the electric charging stations, and the economic incentives established by the Italian government for the purchase of electric cars.

D 2 Barriers

On the other hand, the local partner had to deal with the high cost of electric cars compared to combustion vehicles, which hampered the successful implementation of the measure. In addition, the landscape constraint of the whole island, the various bureaucratic alleys, not related to individual municipalities, to be overcome for the approval of the location of the electric charging stations. Finally, the COVID-19 emergency delayed the electric charging station installations.

D 3 Lessons learned

Citizens are very oriented towards environmentally friendly mobility: the number of hybrid cars sold so far on a small island like Elba proves it. Therefore, it can be expected that, following the installation of public charging stations, more fully electric cars will be purchased by citizens or rented by tourists.

E Evaluation Conclusions

A broader assessment of this measure, which does not have any cost for the DESTINATIONS project, can be made at the conclusion of the installation of all the Enel X charging stations.

Some large hotels have already installed electric charging stations at their premises to the full satisfaction of customers. From this, and from the preliminary interviews carried out, we can easily predict the total satisfaction of citizens and tourists for the implementation of this measure.

F Additional information

F1 Appraisal of evaluation approach

The manual for users of electric vehicles was well appreciated by shopkeepers and by owners of electric or hybrid cars. The evaluation approach used for this measure was heavily impacted by the delay in the progress of the installation of the electric charging stations, as well as by the COVID emergency. Without electric charging stations on the island, citizens are not encouraged to buy electric vehicles. Tourists who own electric cars prefer to go to destinations equipped with charging stations. Nevertheless, the interviews carried out, albeit limited, convey the opinions of very competent people in marketing and dissemination of electric motorization.

F2 Future activities relating to the measure

With the advent of a large use of electric vehicles on the island, the current leaflet will certainly have to be revised. The number of electric charging stations is expected to greatly increase, compared to the number planned to be installed by Enel X; indeed, many hotels could install charging stations for their customers, further increasing the need for better regulation.