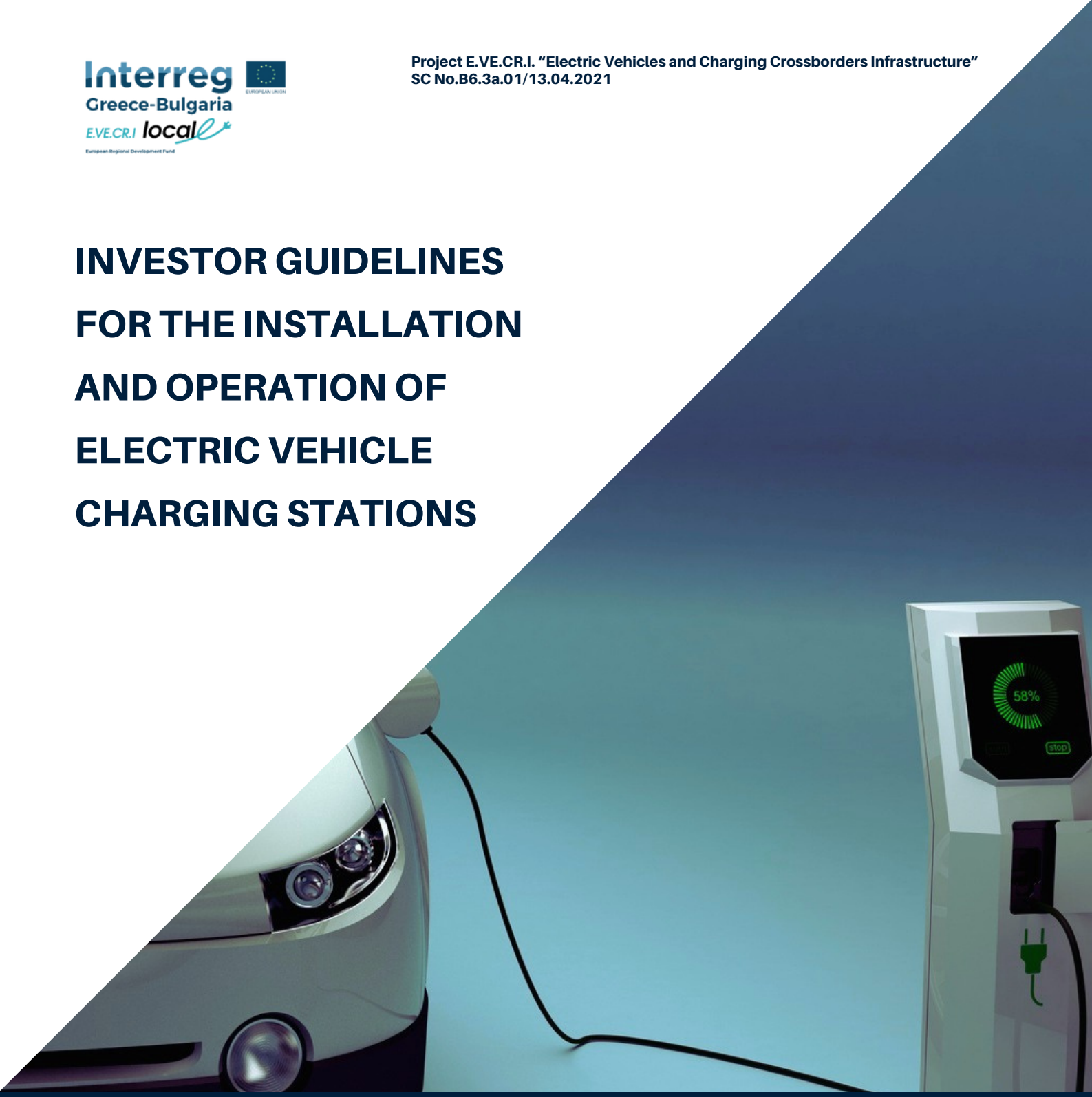
Project E.VE.CR.I. "Electric Vehicles and Charging Crossborders Infrastructure"
SC No.B6.3a.01/13.04.2021

INVESTOR GUIDELINES FOR THE INSTALLATION AND OPERATION OF ELECTRIC VEHICLE CHARGING STATIONS



The Project is co-funded by the European Regional Development Fund (ERDF) and by national funds of the countries participating in the Interreg V-A "Greece- Bulgaria 2014-2020" Cooperation Programme.

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BUSINESS MODEL AND RECOMMENDATIONS FOR SUCCESSFUL PROJECT IMPLEMENTATION

The recommendations are based on the experience of Ennovaty Ltd. in the implementation of numerous projects for the set-up, management, and operation of EV charging points.

The main goal is to expand the knowledge of the investor and support activities that ensure the successful completion of the project.

The considered cases do not exclude other good solutions for investing, the site and the conditions for placing a charging point.

The research connected to the investment project must include several factors that will ensure its success such as the presence of active users using electric vehicles, the availability of enough electric power (e.g. >20kW), optimal location selection, costs, and future revenues, as well as other project benefits.

LOCATION SELECTION

The choice of location is essential for the success of the project. Recommended locations are next to busy roads and on sites with 24/7 free access. The choice of an attractive location that guarantees the flow of people, is a leading prerequisite for the success of installing a charging station.

The most common locations for AC charging stations are commercial sites, public buildings, parking lots, hotels, hospitals and other socially significant sites.

The installation of a 22kW AC station provides the opportunity for fast charging within hours during the EV driver's stay at the site.

The installation of a DC charger would require higher investment while providing quicker charging. Nevertheless, depending on the location operators of charging stations have a preference for one or the other.

International data obtained from the European Union shows that over 80% of EV charging outside of the vehicle's usual resting location takes place at AC charging stations. The recommended access to the station is 24/7 due to the established expectation to provide a permanent service to the end user.

Based on data collected by local retailers that have operating charging stations, nearly 30% of the usage of charging is carried out during working hours and 15% during the night.

An existing wall could be used to mount an AC charging station. The use of existing walls and poles is easier and faster than installing a new post or pedestal. If there is no such possibility, a mounting pole or a concrete base is needed to secure the installation of the charging station.

The location of the charging point should be selected by the available electrical infrastructure to optimize investment costs. Choosing a point that requires a lot of cabling or transformer upgrade to be supplied with the necessary power can increase the investment many times over, especially when building DC stations.

We would recommend only proven operators that use high quality charging stations, which provide a safe way to charge the electric cars of customers, provide 24/7 phone or web customer service, can manage and protect personal data, report correctly the consumed energy, provide safe and simple payment platform and ensure 365 days maintenance and availability.

ELIGIBLE OPERATORS

Connecting to an operator's network provides important benefits for every roadside company and land/parking owner. It facilitates access to the station through a connection to the operator's mobile application, provides a secure payment system and protection of users' data due to the usage of trusted processing software, reduces operating costs, and eliminates the need for micro-management at any point.

Without the services of a proven operator, the operation of a charging station may be impossible due to a lack of control over transactions, lack of access beyond working hours, and inconvenient payment methods. Striving to harmonize charging point payment methods and applications shall simplify and improve the usage of charging infrastructure by making it easier to access by the end user, which would also bring more benefits to the providers of charging infrastructure.

Below, is a list of trusted Operators that have agreed to take part in the project and invest in charging stations and provide both a seamless charging service and a simple and robust common platform for using and paying for the service.

BULGARIA:

- **Bullcharge** https://www.bullcharge.one/
- **Eldrive** https://eldrive.eu/
- **Fines** https://finescharging.com/en
- **GP Station** https://www.gpstation.eu/bg/
- **Kia** https://kia.bg/bg/green-driving/lokacii-zarjadni-stancii
- **Voltspot** https://voltspot.net/bg-en/about-us

GREECE:

- **Elpefuture**
  https://elpefuture.gr/location
- **Watt & Volt**
  https://chargespot.gr/en/
- **MC-Chargers** https://www.geyer.gr/
- **GEYER** https://www.geyer.gr/
- **EVNOW** https://www.evnow.gr/en/

DESIGNATION OF AN EV CHARGING SPACE

Identifying a spot designated for EVs is necessary to guarantee access to the users of the charging station. Additional placement of designated signs for EV charging points helps increase visibility, interest, and usability.

The same is true for registering the charging point on applications such as Plugshare; Google maps; Chargemap and others, which allows locals and also foreigners to easily find the charging point.

In addition to the obvious benefits for the investor, expressed in revenue from recharging, the improvement of the chosen location brings secondary benefits such as reaching a new market segment, building a vision for the future, and protecting the environment.

EV users usually plan their route, available charging points, and required stay in advance. Due to this fact, each investor must ensure the visibility of his point through his efforts or the services of third parties.

TARIFFS AND RETURN ON INVESTMENT

By joining a charging station operator, the owner of a roadside business or land/parking could in some cases agree on revenue sharing with the chosen operator. However, charging station turnover remains low for the time being and in many cases such an agreement is futile.

The main benefit remains to attract new versatile customers and contribute to the safeguarding of nature and the climate. The remote control of multiple charging points by an operator eliminates the need for micro-management of each station.

BUSINESS MODELS AND POSSIBILITIES

Currently, there are two agreements with operators that a site owner could adopt. They have their pros and cons, can differentiate per location, and choosing the correct model depends highly on the owner's plans and expectations.

PARTIAL OWNERSHIP OF THE STATION

The site owner and the Charge Point Operator (CPO) can decide to split the investment as per negotiation and contract. This will require a higher amount of cooperation from both sides and can result in different outcomes depending of the desires of each party. The proposed business model is not easily achievable as it includes a lot of time and effort from both parties and negotiations can prolong the process.

LOCATION PROVIDING

The site owner provides the location for the placement of the station and his sole obligation is to maintain the area and provide the needed legislative agreements for the placement of the station. The investment in infrastructure, hardware, software and operative services are all undertaken by the CPO. All subsequent consumed energy is paid by the EV driver to the CPO, who pays to the site owner.

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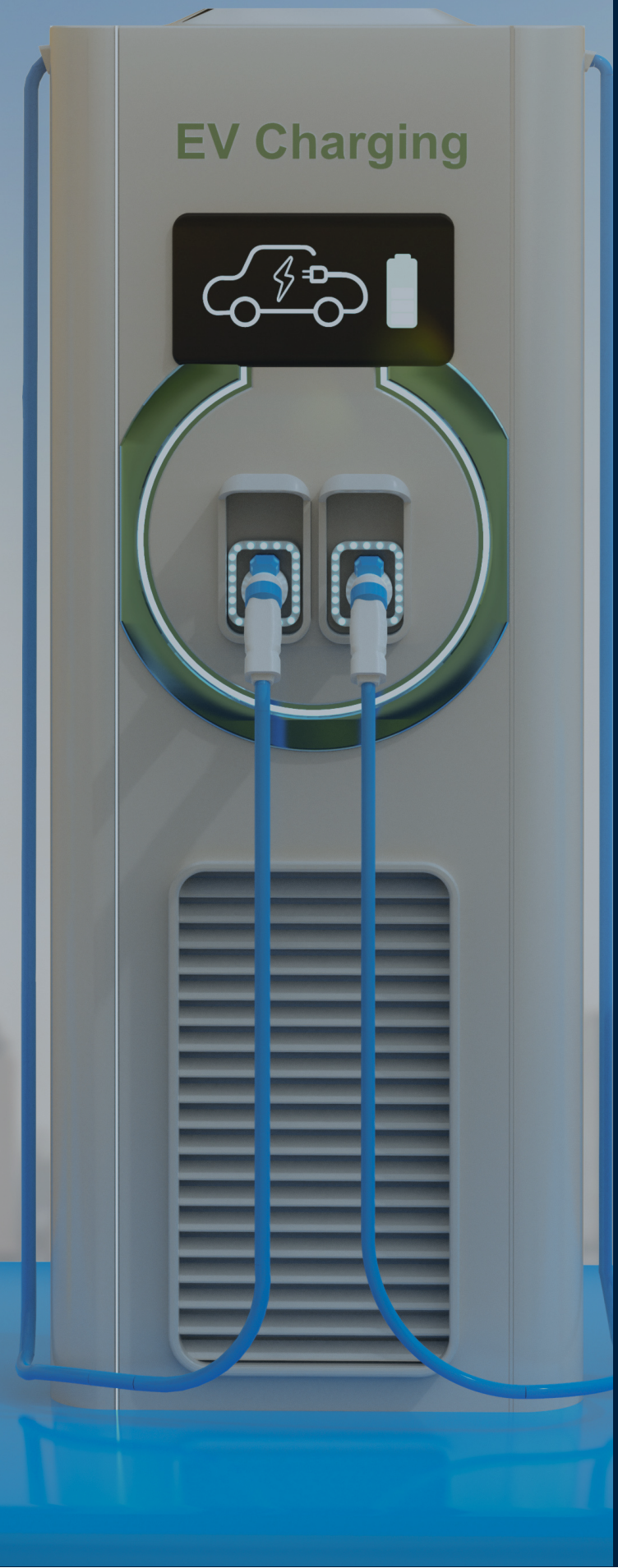
RECOMMENDATIONS AND STEPS FOR PROJECT IMPLEMENTATION



The main reasons for regulating charging stations installation both in Greece and Bulgaria are as follows:

- Safety standards
- Maintenance in good condition
- Resistant to weather conditions
- Accessibility and pass ability in the urban environment
- Safety of traffic at street intersections
- Visibility or effectiveness of road signs, traffic lights, and other means of regulating traffic
- Not to be placed on the technical infrastructure facilities or easement strips for operation and repair of this infrastructure in a way that violates safety requirements, impedes access to them, or creates difficulties for their normal operation
- Not be placed on parts of building entrances or near them, as well as in underlying spaces to sidewalks
- Not to violate living conditions in any way
- Structural, engineering, fire, and sanitary standards
- Aesthetic appearance and correspond to the architectural, natural, and visual environment
- To be used for the intended purpose

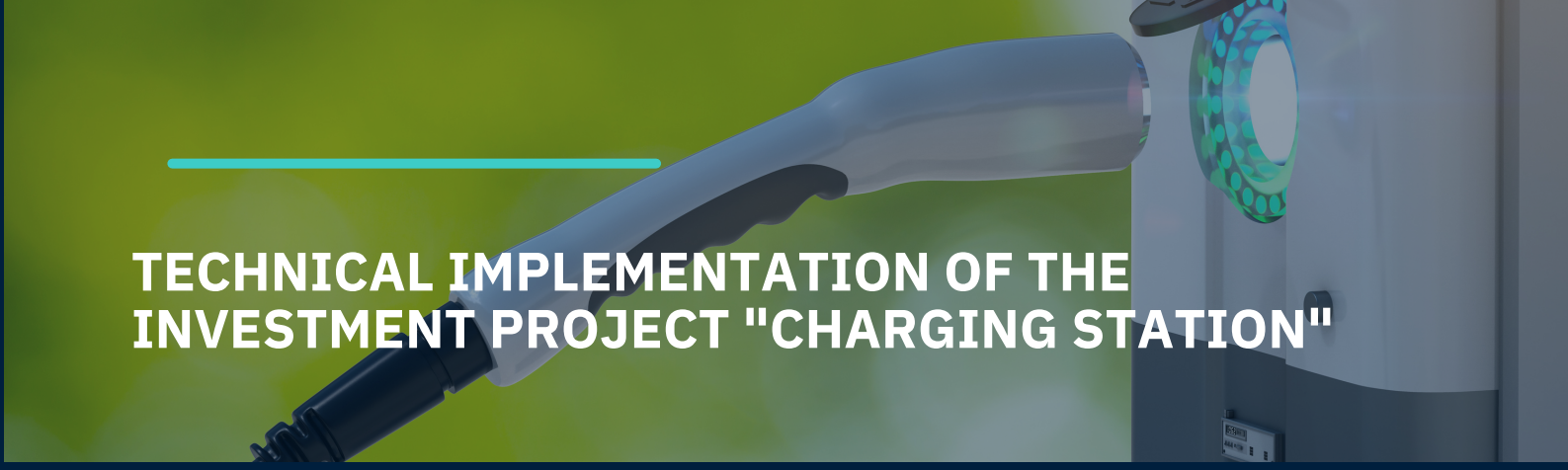
ADMINISTRATIVE PROCESS AND LEGAL STEPS FOR THE REALIZATION OF THE INVESTMENT PROJECT

Before entering the implementation stage, the investor is obliged to go through the legal steps that allow him to implement the project. The investor must follow the legal framework of the spatial planning act when placing a new site called a "charging column" on private property.

The spatial planning act (spa) classifies charging infrastructure as an element of urban furniture. The conditions and the order for placement of the elements of the urban furniture, including chargers for electric vehicles, are determined by an ordinance of the municipal council. The location of the charging columns is presupposed by a permit for the placement, issued based on a scheme/sketch with a specified method of installation and design documentation, approved by the chief architect of the municipality. Sketches with the specified method of placement must be prepared by a designer with the necessary qualifications, accompanied by an architectural, structural, and engineering part. The prepared project is submitted for approval to the municipal authorities together with the additional necessary documentation - application form; proof of ownership or contract for temporary use/consent from the property owner to place the charging station.

The project documentation is also submitted to the electricity distribution company which prepares an expert opinion for joining the site. During the study based on the technical passport of the product, it could be considered a change in the number of phases or an increase in the power of the site to optimize the equipment used. After receiving the approvals from the municipal authorities and the electricity distribution company, the investor can implement the investment project, taking into account the following steps:

1. Preparation of a sketch with the specified method of placement, including architectural, structural, and engineering parts.
2. A study carried out by the electricity distribution company for joining the charging column within the property and receiving a positive expert opinion.
3. Approval for placement of a site by municipal authorities.
4. Implementation of the investment project and connection to the electricity network.



TECHNICAL IMPLEMENTATION OF THE INVESTMENT PROJECT "CHARGING STATION"

01 | THE INSTALLATION

When installing a charging station, several factors must be taken into account, such as the current state of the network, desired power, and technical specifications of the product. Therefore, it is very important to choose a reliable contractor who is familiar with the nature of the work. The installation of a charging station should be done only by installers who are experienced and certified by the manufacturer. By doing this, the investor receives a guarantee for the quality of installation and product warranty.

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02 | THE CONTRACTOR

The contractor, chosen by the investor, has to connect the charging station to the grid according to the terms of reference and the expert opinion of the energy distribution company. For this purpose, the contractor will have to build a route, install the necessary additional power components according to product specifications and available electrical infrastructure, install the charging station and do a test and training to consider the project completed. Due to the specifics of the work, the contractor should have a team of qualified and trained installers, capable to work with the equipment. Below is the process described in the steps:

1. **Electrical connections according to the approved method of installation.**
2. **Installation of additional electrical components according to design additions.**
3. **Assembly and installation of a charging station.**
4. **Test and instruction for work**
5. **Commissioning.**

SHARED PLATFORM

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