

### **Horizon Europe**

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# **Electric Vehicles Management for carbon neutrality in Europe**

# Deliverable D 1.7 Patent of V2X Management Station

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Prepared by	Rui Martins (SEL), Rui Costa (SEL)			
Reviewed by	João Marques (INESC ID)			
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#### Disclaimer

This document has been produced in the context of the EV4EU project. Views and opinions expressed in this document are however those of the authors only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the grating authority can be held responsible for them.

## **Acknowledgment**

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## **Executive Summary**

The development and patenting of the V2X (Vehicle-to-Everything) Management Station is a landmark achievement within Task 1.6 of the EV4EU project, coordinated by Smart Energy Lab in collaboration with key partners including INESC ID, DTU, NEW, and ABB. The present deliverable consists in the demonstration of the application for a patent of the cost-effective solution described in Deliverable 1.6 [1].

The primary goal of this task was to address the technological challenges of integrating EVs into the energy grid, facilitating a sustainable and efficient transportation ecosystem. Electric Vehicles (EVs) are key to the transition towards renewable energy sources, presenting unique challenges and opportunities for the energy sector. The integration of EVs with the grid, especially through V2X technologies, introduces a significant shift in energy demand dynamics, offering a novel source of flexibility in energy management.





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# Keywords, Acronym

EV Electric Vehicle

V2X Vehicle-to Everything

WP Work Package





### 1 Introduction

## 1.1 Scope and Objectives

The document *Patent of V2X Management Station* emphasizes the innovation and legal safeguarding of the developed V2X Management Station technology. The V2X Management Station plays a role in improving the charging infrastructure for electric EVs, especially in shared environments. It aligns with the overarching goal of the project to enable the integration of EVs into the electrical grid to promote the use of sustainable energy.

#### 1.2 Structure

This document is organized into three chapters to provide a clear and comprehensive overview of the deliverable's contents and implications. Chapter 1 introduces the scope, objectives, and significance of the D1.7 deliverable within the context of the EV4EU project.

Chapter 2 presents the patent and Chapter 3 presents the main conclusions.

## 1.3 Relationship with other deliverables

The proposed solution has been described in Deliverable 1.6 and will be tested in WP6. Because of that, the installation, commissioning, and validation of the solution will be present in the different deliverable of WP6.





## 2 Chapter title

The patent of the cost-effective charging solution has been submitted to Portuguese intellectual property institution on April 12<sup>th</sup>, 2023. The document is present in Figure 2.1.



PEDIDO DE PATENTE, MODELO DE UTILIDADE OU DE TOPOGRAFIA DE PRODUTOS SEMICONDUTORES

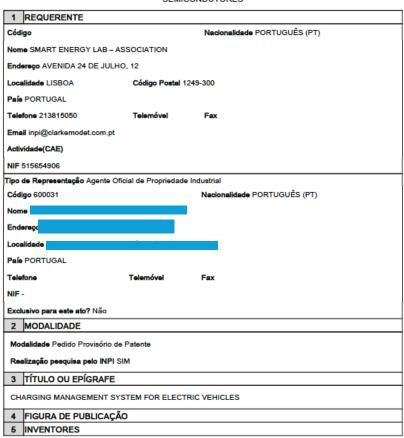


Figure 2.1 - Application of the patent





## 3 Conclusions

Deliverable D1.7 reports the patent application process to create a replicable and scalable V2X charging infrastructure. The management station's design and functionality align with the broader objectives of the EV4EU project, including promoting EV adoption, enhancing grid resilience, and the integration of renewable energy sources.

The patented solution will be demonstrated in the Portuguese demonstrator allowing the validation of the concept, the test of different control algorithms and the test in real use conditions. Some updates can be introduced in the demonstration phase allowing a better alignment with the needs of the users and increasing the potential of the solution.





## 4 References

[1] Rui Costa and Diogo Brito, "Deliverable D 1.6 Real-scale prototype of V2X management station," 2023. Accessed: Mar. 13, 2024. [Online]. Available: https://ev4eu.eu/wp-content/uploads/2024/01/EV4EU-D1.6-Real-scale-prototype-of-V2X-management-station.pdf