

According to the International Energy Agency (IEA), transportation is the sector with the highest reliance on fossil fuels, making it one of the leading sources of CO₂ emissions and a major contributor to global warming. Electrifying transport helps address air pollution, oil import dependency and climate change, particularly when the energy used comes from renewable sources. However, this transition to sustainable electric mobility comes with its own challenges. In road transport, it requires a comprehensive approach to electric vehicle (EV) technologies, as well as significant expansion of charging infrastructure, which exceeded 4 million public charging points globally by 2024 but remains unevenly distributed, and improvements in grid capacity and resilience.

The LIFE FREESVEE project addresses the **transition to electric mobility**, proposing **high-level technological solutions for ultra-fast public charging of electric vehicles anywhere, eliminating the need for a high-power electrical grid** to provide service. The proposed solutions employ innovative techniques applicable to different charging point configurations, both grid-connected and stand-alone.

Specific objectives



Reduce GHG emissions associated with mobility and transport



Develop a smart energy controller for ultra-fast EV charging solutions



Develop an innovative system for long-duration energy storage and power supply based in Vanadium Redox Flow Batteries



Bring an integrated solution to the market for service stations with or without connection to the electric power grid



Identify technical and economic difficulties for service stations in Europe to effectively adopt electric mobility



Project information

Project ID: LIFE24-CCM-ES-FREESVEE — 101213372

Duration: 39 months

Start date: July 2025

End date: September 2028

Total budget: €3,607,220.38

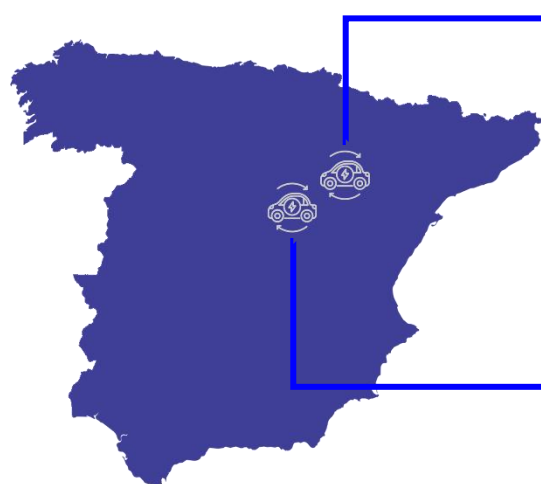
EU contribution: €2,164,332.23 (60%)

Project consortium:

CSIC – Spanish National Research Council
Intergia Energía Sostenible, SL
Satec, SA

University of Zaragoza
Zoilo Ríos, SA
ES Miralbueno, SL

Two demonstrative prototypes



Grid-connected service station in a built-up area. Optimal management of an ultra-fast charging station for EVs with a moderate-capacity connection to the power grid, without the need for grid expansion.



Grid-connected service station with low-power in a sparsely populated area. Optimal management of an ultra-fast charging station for EVs with a weak-capacity connection to the power grid, power outages or even in the absence of a grid.

Both prototypes will be configured as a **microgrid** incorporating renewable generation, short-term storage (Li-ion batteries) and long-term storage (vanadium redox flow battery), ultra-fast EV charging and the usual demand for charging at the service station. A **smart controller device** will be developed for optimal energy management at both service stations.

For further information, consult the project website: www.freesvee.eu

