



ANALYSIS ON THE POWER HUB

Pramac Power Hub – A solution to support the *Multi Fuel Smart Charging Station*

PROJECT DESCRIPTION

Pramac Power Hub is part of the **MUST Project** - *Multi Fuel Smart Charging Station*, aimed at developing innovative solutions to support service stations for electric vehicle charging. The initiative, funded by the Tuscany Region, had Pramac as the lead in an industrial and academic partnership.

KEY TECHNOLOGY

- A hybrid unit composed of a gas-powered generator and a Battery Energy Storage System (BESS).
- The Energy Management System (EMS): designed to monitor, control, and optimize the use of energy in various contexts.

APPLICATION

The Power Hub technology has been successfully tested at a service area operated by Piccini Paolo S.p.A in Sansepolcro, Arezzo. The primary objective is to implement ultra-fast charging stations (exceeding 100 kW), overcoming the limitations of the electrical grid and maximizing the use of renewable energy.

As of 2024, there are 47,228 charging points in Italy, with only 9.1% falling into the ultra-fast category. Their distribution is not widespread, primarily concentrated in Northern Italy and Lazio.

IMPACTS AND ADVANTAGES

- Reduction of waste and energy optimization in production sources are two of the most significant advantages offered by Energy Storage Systems (BESS) and Energy Management Systems (EMS).
- System resilience is achieved through the management of multiple production sources such as gas generators, renewable energy, BESS, and the connection to the national electrical grid.
- Enabling system for the widespread adoption of electric vehicles, promoting the energy transition towards a cleaner and more efficient future in the automotive sector.
- Monitoring, control, and optimization of energy usage through an Energy Management System (EMS). The system can adapt its operation to the variability of the electric vehicle market using prediction algorithms.
- Carbon Neutral System with Bio Methane.
- Decentralized production of electrical energy.
- The opportunity to participate in network support programs (peak shaving and demand response) through gas generators.

MARKET OPPORTUNITIES

Currently, innovation in the energy sector is crucial to address global challenges. Our project aims to develop advanced solutions that not only meet current market needs but also lead the way towards a more sustainable future. The objective is to provide tangible responses to the emerging demands of decentralized electrical energy production, with a specific focus on fast-charging for electric vehicles, optimizing the management of energy sources. Simultaneously, we aim to make energy microgrids self-sufficient, adaptable, and resilient, thus offering a comprehensive solution for a sustainable energy transition.