

Groundbreaking innovations in V2X technologies from European Partners

Barcelona, 16th of January 2025.

As the shift towards sustainable energy systems accelerates, innovations in electric vehicle (EV) charging technologies and grid integration are playing a pivotal role in transforming how energy is consumed and shared. Across Europe, collaborative efforts among leading researchers, industry pioneers, and infrastructure developers are unlocking new possibilities for Vehicle-to-Everything (V2X) technologies and smart charging solutions.

In this context, the FLOW project has brought together diverse stakeholders to explore cutting-edge solutions, such as advanced EV charging protocols and bi-directional power flow platforms. From rigorous testing at ElaadNL facilities in the Netherlands to groundbreaking developments by HELIOX and EATON, these initiatives are paving the way for a more flexible, efficient, and sustainable energy ecosystem.

DTU activities at Elaad NL

A few months ago, researchers from [DTU Wind and Energy Systems](#), as part of the FLOW project, visited ElaadNL facilities in the Netherlands to conduct advanced testing of EV charging technologies. The team, including [Kristian Sevdari](#), [Kristoffer Pedersen](#), [Rasmus Meier Knudsen](#), and [Gabriel Fabbri](#), focused on verifying interoperability with the ISO 15118-20 protocol. They tested the compatibility between the Keysight Charging Discovery System, a commercial bidirectional EV, and their Watt&Well 22 kW DC charger under various operating conditions.

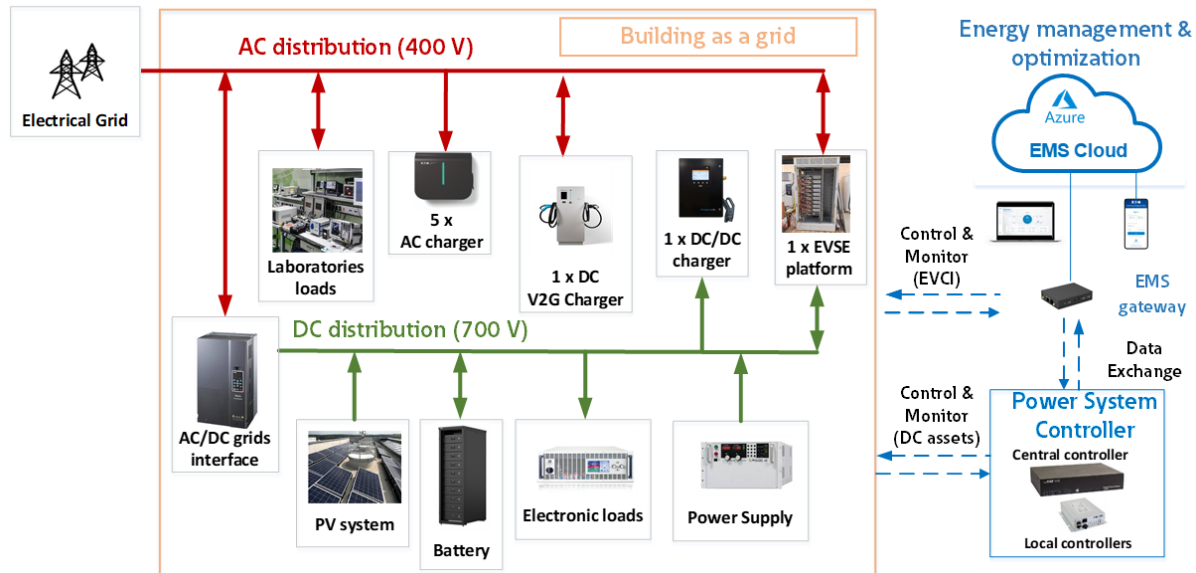


The tests provided valuable insights into the performance of chargers and EVs, with findings set to be published in upcoming scientific papers (for more, stay updated via [FLOW's website](#)). The visit also fostered collaboration between FLOW, [EV4EU](#), and other European projects like [SCALE](#), reinforcing joint efforts to advance sustainable electric mobility.

ElaadNL, an initiative by Dutch grid operators, is dedicated to researching and testing smart charging solutions for EVs. Learn more about [ElaadNL](#).

HELIOX and EATON collaborate to advance electric mobility and grid integration through cutting-edge V2X solutions

HELIOX has developed a cutting-edge Vehicle-to-Everything Electric Vehicle Supply Equipment platform, enabling seamless bi-directional power flow between electric vehicles, battery energy storage systems, and both AC and DC grids. Designed for scalability, the platform supports diverse applications, facilitating the integration of renewable energy sources into existing infrastructures. Initial tests successfully demonstrated bi-directional power flow in key operational modes such as charging BESS, Vehicle-to-Grid, and Vehicle-to-Building, highlighting its potential to ease grid constraints while advancing the transition to cleaner energy systems.



EATON's Prague Testbed serves as a pivotal site for showcasing these advancements. This state-of-the-art facility combines traditional 230/400 V AC commercial building distribution with a 700 V DC microgrid to test innovative energy management solutions. HELIOX's EVSE platform will be deployed at the testbed for behind-the-meter demonstrations of DC fast charging and V2B functionalities. With its integrated photovoltaic (PV) system, battery storage, and DC loads, the testbed offers a comprehensive environment to evaluate the real-world benefits of V2X technologies.

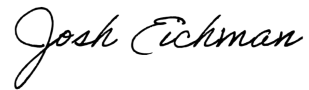
"This will demonstrate the flexibility and the bi-directionality of such system to contribute to the power flow management of the grid, by providing bi-directional power flow between the AC and DC input/output of the platform" stated spokesperson from Heliox" and this will facilitate DC fast charging sessions and Vehicle-to-Building (V2B) for the behind the meter demonstration in the commercial building of the Prague Testbed".

About FLOW

The FLOW project, funded under the Horizon Europe framework, unites 30 European organizations to promote sustainable electric mobility and grid flexibility. With a total budget of €10 million, the project explores innovative solutions, including V2X technologies, to address the challenges of mass EV adoption.

FLOW includes partners from diverse sectors, including charging infrastructure providers (HELIOX), energy management leaders (EATON), academic institutions (DTU, RWTH Aachen, and others), and industry associations (AVERE, E.DSO). The project aims to validate and quantify the benefits of EV charging flexibility through five demonstration sites across Europe, including the Czech Republic, Ireland, Italy, Denmark, and Spain.

For more information about FLOW and its partners, visit theflowproject.eu.

A handwritten signature in black ink that reads "Josh Eichman". The signature is written in a cursive, flowing style.

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Josh Eichman
FLOW Project Manager