

Fragmentation hinders large-scale rollout of V2G

UTRECHT | 28 November 2025 – This week, mobility and energy stakeholders, along with policymakers, gathered in the [Bidirectional City of Utrecht](#) to highlight outcomes of the SCALE project – a Horizon Europe project advancing smart charging infrastructure and the mass deployment of electric vehicles (EVs).

Since 2022, SCALE has reduced uncertainties around the rollout of smart charging, interoperable and V2X (Vehicle-to-Everything) solutions to shape a new energy ecosystem that harnesses the flexibility of EV batteries. With a €10M EUR budget, its 29 partners have designed and deployed smart and bi-directional charging use cases across Europe. SCALE findings show that users are open to smart charging and V2G if systems are reliable, transparent, and easy to use. The project has built a system architecture using open standards and protocols, developed tender requirements for cities and operators, while conducting extensive testing in labs and universities across Europe to analyse technical performance and develop V2X business cases.

Smart and bidirectional charging is not yet fully off-the-shelf, but ready for scale, as witnessed with OEMs such as Hyundai, Polestar and Renault taking the first steps in the market. Other manufacturers and the wider V2X community are following, but progress will stall without regulatory action.

Participants stressed the need for a harmonised regulatory framework to enable interoperability, provide market certainty and support smart metering – alongside strong cybersecurity to guarantee secure data exchange and consumer trust.

SCALE Project Coordinator Baerte de Brey, emphasised policies must be flexible on innovation but avoid fragmentation. “Every SCALE use case has differences which does not encourage interoperability.”



Call to Action for European Policymakers

The system architecture for V2X is not yet anchored in EU legislation, with no technical norms existing to test interoperability. With grid responsibilities remaining unclear and other barriers such as double energy taxation blocking viable business models, the market demands a stable framework.

The SCALE consortium calls on behalf of the EU policymakers to act now: Enable harmonised rules, anchor open standards, clarify grid roles, remove double taxation, and provide a cybersecurity baseline to support cities ready to deploy V2X today.

“Europe has the technology. The market is moving—now legislation must unlock scale,” continued de Brey.

Grid congestion is a growing challenge in several countries, including the Netherlands, where EVs help stabilise the grid thanks to cooperation between authorities, grid operators and businesses. In Utrecht, EVs act as decentralised power banks to support local flexibility.

Although Utrecht demonstrates success, sustained collaboration is essential to replicate this progress across Europe. “We need to keep testing – especially with more V2G-capable vehicles entering the market – to gain insights on charging behaviour, interoperability and evolving protocols, not only for light-duty vehicles but also for heavy-duty fleets,” de Brey continued.

The SCALE final conference takes place just days after [V2G Leaders Europe](#), an event organised by the European Commission, The Sustainable Transport Forum and the IEA's [Task53](#), where SCALE's achievements were also presented alongside a collaborative workshop with the [V2X Cluster](#) which includes 8 Horizon Europe projects (€80M in funding) piloting smart and bidirectional charging in 20 European countries.

