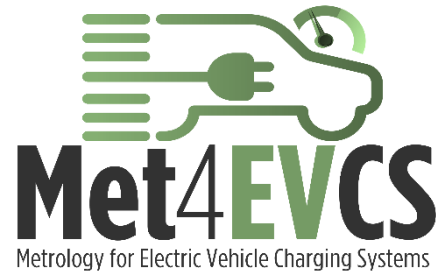


## Met4EVCS Metrology for electric vehicle charging systems

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The European Commission strives to make [Europe the first climate-neutral continent by 2050](#). To support this goal, a competitive and sustainable transport system needs to be built. Electromobility is the core of the European Commission's transition plan for the transport sector. The successful integration of EVs requires the deployment of an extensive infrastructure for EV charging stations (EVCSs) that covers the overall charging needs of consumers. Improving EVCSs across Europe heavily relies on harmonised legislation and developing the underlying metrological infrastructure. Specifically, accurate measurement facilities for total net energy transfer and charging losses are needed. Additionally, the charging process needs to be established without negatively affecting the power quality of public electricity networks. These developments will support the [Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative fuels infrastructure](#) and the United nation's [Sustainable goal 7](#) on affordable, reliable, sustainable and modern energy for all.

This three-year project, that started in July 2024, will tackle the challenges of power quality effects on and as a result of EVCSs, and evaluate the associated losses and reliability of metering under actual on-site conditions. The project aims to cover several charging modes, such as AC and DC charging at low and high power, smart charging, and bi-directional charging. The project will support the industry needs by developing a metrology infrastructure for traceable testing of EV charging systems. The project aims to develop operational reference test benches for the characterization of metering accuracy and the energy transfer efficiency, as well as for the conducted emissions of AC and DC EVCS. In addition, calibration services will be established and offered by national metrology institutes for the calibration of the reference test benches and for on-site verification equipment for AC and DC EVCS. The project will also develop a database of measured grid distortions and grid impedances close to EVCS sites to ensure grid security is not compromised.

An online stakeholder workshop was organised to discuss these project aims on 5 November 2024, with more than 100 attendees covering a wide range of stakeholders including EVCS manufacturers, grid operators, EV manufacturers, academia, governmental and legal metrology organisations, standardisation bodies, testing laboratories and national metrology institutes and designated institutes. A follow-up workshop dedicated to on-site and laboratory measurements of EVCS distortions (conducted emissions and grid impedance) will be organized at the end of 2025 or early 2026.

You can read about the participating organisations, the objectives and the expected outcomes and impact by downloading the [Project publishable summary](#). To be informed about the latest project updates you can visit the project's website: [23IND06 Met4EVCS](#). In case you are interested in becoming part of the project's stakeholder committee please contact us by email via [met4evcs.impact@ri.se](mailto:met4evcs.impact@ri.se).

The 23NRM06 Met4EVCS project has received funding from the European Partnership on Metrology, co-financed from the European Union's Horizon Europe Research and Innovation Programme and by the Participating States. Click here for more information published at Euramet website: [The gateway to Europe's integrated metrology community](#). This project aligns with the [Strategic research agenda of EURAMET's European Metrology Network on Smart Electricity Grids](#) (EMN-SEG).

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#Measurement Science, #Metrology, #EUFunded, #EUPartnership, #Electric Vehicles, #EV Supply Equipment

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EUROPEAN PARTNERSHIP



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METROLOGY PARTNERSHIP



Consortium members during the hybrid kick-off meeting of the project on 16/17 July at VSL.