NEWSLETTER
May 2024

Co-funded by the European Commission's Horizon Europe programme, "Enabling interoperability of multi-vendor high-voltage direct current (HVDC) grids" (InterOPERA) brings 21 European partners together to unlock the potential of HVDC grids and to enable the large-scale transition of the European energy sector.

InterOPERA presence at the WindEurope Annual Event 2024

InterOPERA took part in WindEurope's Annual Event 2024 from 20-22 March in Bilbao, Spain.

Project partners showcased project activities and outcomes across the 3-day event.

On the first day, Syed Hamza Kazmi from Ørsted, partner leader of Work Package 4, presented InterOPERA at the ETIPWind side event looking at the value of EU funded innovation projects.

On the second day, Syed Hamza Kazmi hosted an open-access session about InterOPERA activities and outcomes, as well as the need to achieve interoperability of HVDC systems on the Ørsted stand in the exhibition area.

And on the final day, Beatriz Romero, Chief Strategy & Growth Officer - South Europe from GE Vernova, showcased InterOPERA at a high-level conference session on offshore grids.

1st workshop with the Stakeholder Committee

On 14 March, members of the project Stakeholder Committee took part in the InterOPERA consultation workshop to share initial insights and provide feedback on the project's deliverables. This was the first of a series of workshops with the members of the InterOPERA Stakeholder Committee.

The Stakeholder Committee was officially formed in late 2023 and it includes experts from 27 different organisations. The consultation workshops will ensure that stakeholders affected by the project's results are exclusively kept up to date on the project status and results, giving them an outlet to provide input on project deliverables on a regular basis.

This first workshop looked at the upcoming reports of Work Package 1 (development of standardised interaction study processes and interfaces) and on the recently published report "Demonstrator Definition & System Design Studies" prepared by the Work Package 3 experts. You can download the report here.

Check out here the full list of the Stakeholder Committee members.

InterOPERA 2nd General Assembly

On 22-24 January, the Groningen Centre of Energy Law and Sustainability hosted the second General Assembly of InterOPERA. Our HVDC experts discussed the latest updates from all the Work Packages and focused on two upcoming deliverables in Work Package 2:

- Grid forming functional requirements; and
- The report on lab demonstration of the multi-terminal multi-vendor (MTMW) HVDC system and investigation of the interaction studies.

Finally, the experts shared the latest updates on the multi-party cooperation framework, which contains important guidelines to drive collaboration in future multi-vendor HVDC projects.

Updates from Work Packages

Work Package 1 "Development of standardised interaction study processes and interfaces"

Working Package 1 launched work on the fundamental requirements for simulation platforms, focusing on essential features for Electromagnetic Transient (EMT) simulation tools, both in offline and real-time scenarios. Central activities included the organisational structure necessary for system integrators to efficiently manage interaction studies, as well as additional components required alongside EMT simulation tools.

The resulting requirement framework aims to guide collaborative efforts between TU Delft and RTE, in preparation of the dry-run and subsequent interaction studies for the demonstrator. Both labs are developing generic test benches for the dry-run. The objective is to demonstrate that the models and real-time systems provided by the vendors fulfil the previously defined requirements. The labs are also developing solutions to automatise the tests and the reports. And Work Package 1 experts are also preparing the facilities for the installation of the real-time systems.

On their side, vendors remain engaged in adopting template models and real-time systems that are scheduled for delivery during the dry-run phase.

Finally Work Package 1 continues work on the interaction studies process that began in late 2023, focusing on energisation studies. The goal is to ensure that the energisation of any component (e.g. an offshore HVDC converter station, or an onshore HVDC converter station, etc.) won't cause any problems on the AC and/or DC grid.

Work Package 2 "Requirements and assessment of interoperability for multi-vendor multi-terminal HVDC systems"

Working Package 2 activities have primarily focused on two tasks.

First, on drafting the report "functional requirements for the DC side of HVDC systems". The report has now moved onto the project partners for review and it should be ready for publication in June.

Second, Work Package 2 experts kicked-off preparatory work on a new task on multi-vendor HVDC grid interaction tests. The experts will work on developing a simulation and test protocol for multi-vendors HVDC systems and sub-systems. This test protocol aims to ensure that the inputs and guidance of Work Package 1 will be applied for the purpose of the InterOPERA demonstrator, while keeping an optimal trade-off between the number of simulation tests, the calculations effort, and the available resources of the two labs for the given project period.

Work is still in progress and the first results of this protocol will be available for internal project use by Q3 2024.

Eventually the protocol will be used during interaction studies at the labs, planned for 2025. These studies will be carried out to explore interactions of converters and other assets like protection systems, cables, transformers, etc. at the AC and DC connection points.

Work Package 3 "Multi-vendor multi-terminal demonstrator project"

The demonstrator is the centerpiece of the InterOPERA project, since it is the infrastructure that will allow testing of interoperability between technologies from different manufacturers.

The first report on the demonstrator, prepared by Work Package 3 experts, was published in March. This report defines the InterOPERA demonstrator for a multi-terminal multi-vendor system and explores the assessment of the design and functionalities of multi-terminal HVDC use-cases. In addition, it analyses the preliminary main circuit parameters and system design concepts for the InterOPERA demonstrator as well as the preliminary system design studies for the InterOPERA demonstrator from an asset owner perspective.

Since the publication of this first report, Work Package 3 work has continued, hitting key milestones in developing the conceptual functional specifications for the demonstrator's subsystems. These include the integration and specification of subsystems such as the AC/DC Converters, the DC Switching Station, the AC Offshore Network, the Dynamic Braking System, Power Park Modules, the AC Onshore Grid, and the DC Grid Controller.

Considering the complexity and variety of the topics addressed, there was a consultation on the demonstrator's use cases and features. This involved different stakeholder groups: TSOs, HVDC vendors, and the wind industry. The goal of the consultation was to review the list of use cases and features and to provide consolidated feedback and positions, further aiding in shaping the multi-vendor, multi-terminal demonstrator project.

These specifications will be compiled in another report focusing on the conceptual functional specifications for the demonstrator's subsystem that will be published later in 2024.

Work Package 4 "Cooperation framework and governance"

In the first quarter of 2024, Working Package 4 experts work focused on the Generalised Multi-Party Cooperation Framework that should guide future collaborations in multi-vendor multi-terminal HVDC projects. The aim was to clearly define the roles and responsibilities for any parties involved.

By the end of 2024, Working Package 4 will release an updated version of the framework, with a focus on increasing InterOPERA support, addressing cooperation issues, and integrating lessons from the project. Stakeholder interviews took place in February and March and gave insights into the legal and practical concerns targeted by the framework.

Additionally, Working Package 4 launched two task forces to mitigate patent and intellectual property risks and establish a governance structure for model and data sharing. The Task Forces aim to deliver key outcomes by summer 2024 at the earliest.

Work Package 5 "Procurement Strategy and Future Projects Preparation"

Working Package 5 looks at the risk assessment and procurement strategy. Based on insights from the kick-off workshop that was organised in September 2023, Working Package 5 experts refined the objectives of the work to align it with the project's collective vision, particularly within the multi-party cooperation framework established by Working Package 4.

Work Package 5 together with Work Package 4 organised a joint 3-day workshop on 15-18 April to synchronise roles and responsibilities for future commercial MVMT projects between the two Work Packages.

Day 1 began with status updates from the two work packages followed by a workshop focusing on how the demonstrator's present form could enable the procurement strategy for future MVMT systems.

Day 2 focused on building the first commercial-scale MVMT projects and multiple workshops were held to define the process and determine the roles, duties and responsibilities of different parties in future MVMT projects. A number of stakeholders also addressed functional contractual lot setup and specific procurement questions for these extremely complicated projects.

Finally, Day 3 brought the workshop to a close by identifying synergies in the work of Work Packages 4 and 5.

35 representatives from 19 InterOPERA partners took part in the workshops, physically and remotely. A follow up session is planned for June after the General Assembly in Oslo.

Looking ahead, Working Package 5 will hold a thorough risk assessment, evaluating market readiness, establishing robust tendering procedures, and addressing evolving responsibilities and risk allocation in multi-vendor HVDC grids.

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Get in touch at info@interopera.eu

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