Benefits

- Increased resilience of the energy system based on improved and/or new technologies to control the system and maintain system stability under difficult circumstances.
- Increased flexibility and resilience of the energy system.
- Provided solutions to short-duration energy storage needs by developing two relevant technologies.
- Enabled industrial grid users to benefit who have engaged with the energy transition and invested in on-site production and storage assets.
- Delivered efficient solutions for transporting and transforming energy (on-shore and off-shore) thanks to power electronics and hybrid Alternate Current – Direct Current grid solutions.
- The results of the project will strongly contribute to implementation of common standards and requirements for interoperability on the grid side and within the industrial user site.

Consortium

The consortium is led by EPRI Europe and it consists of 15 members from nine countries, including storage and power electronics providers, industrial grid users, a grid operator, a engineering consultancy, research institutes, universities and an energy storage association.

FUNDING

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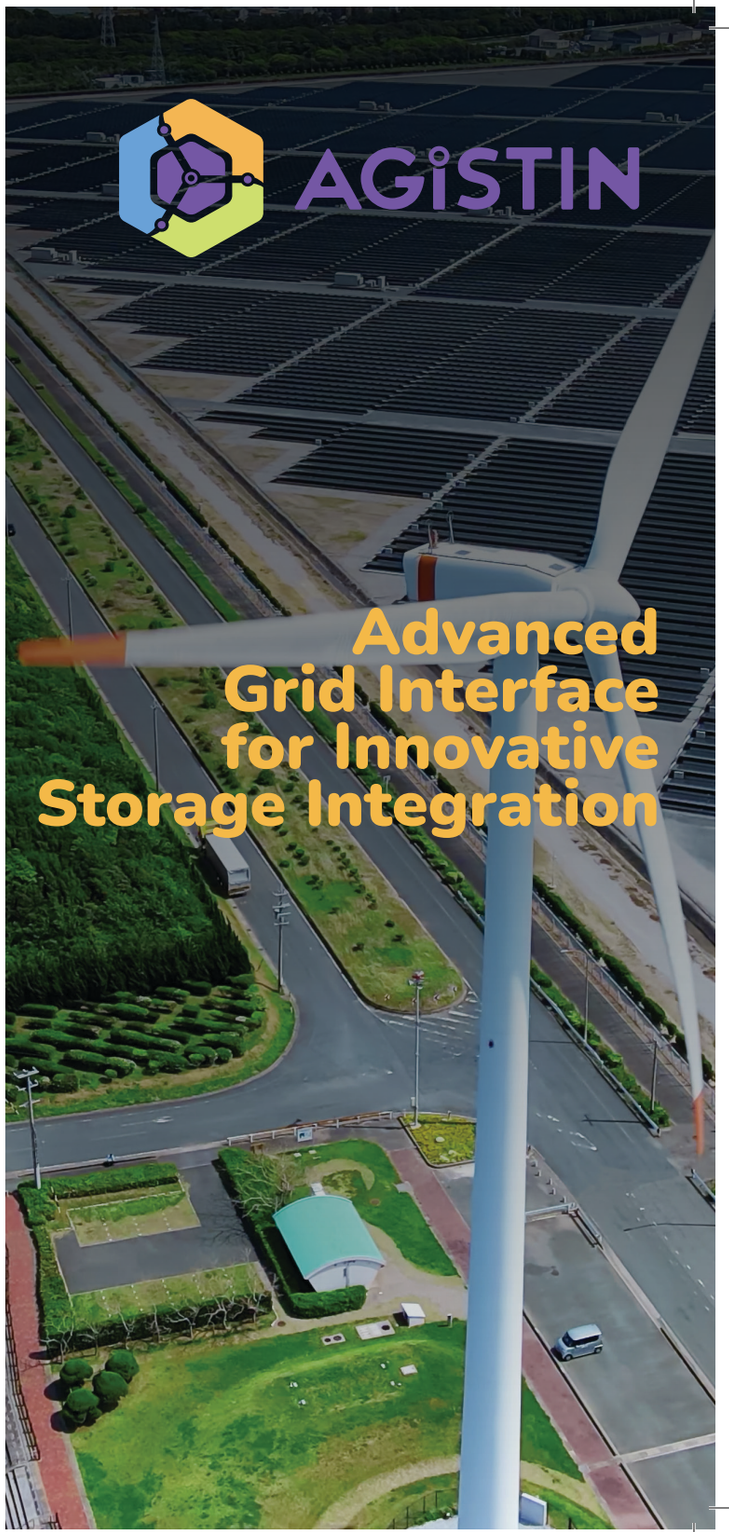


Context

The rapid and widescale deployment of renewables and electrification of society presents an era-defining challenge for grid operators to develop and operate the grid reliably.

In European grids such as Ireland, Germany and the Netherlands, challenges for grid development, grid access, network congestion, operations with low inertia grids, human capital and supply chain threaten to impede the realisation of decarbonisation goals, despite the best effort of grid operators.

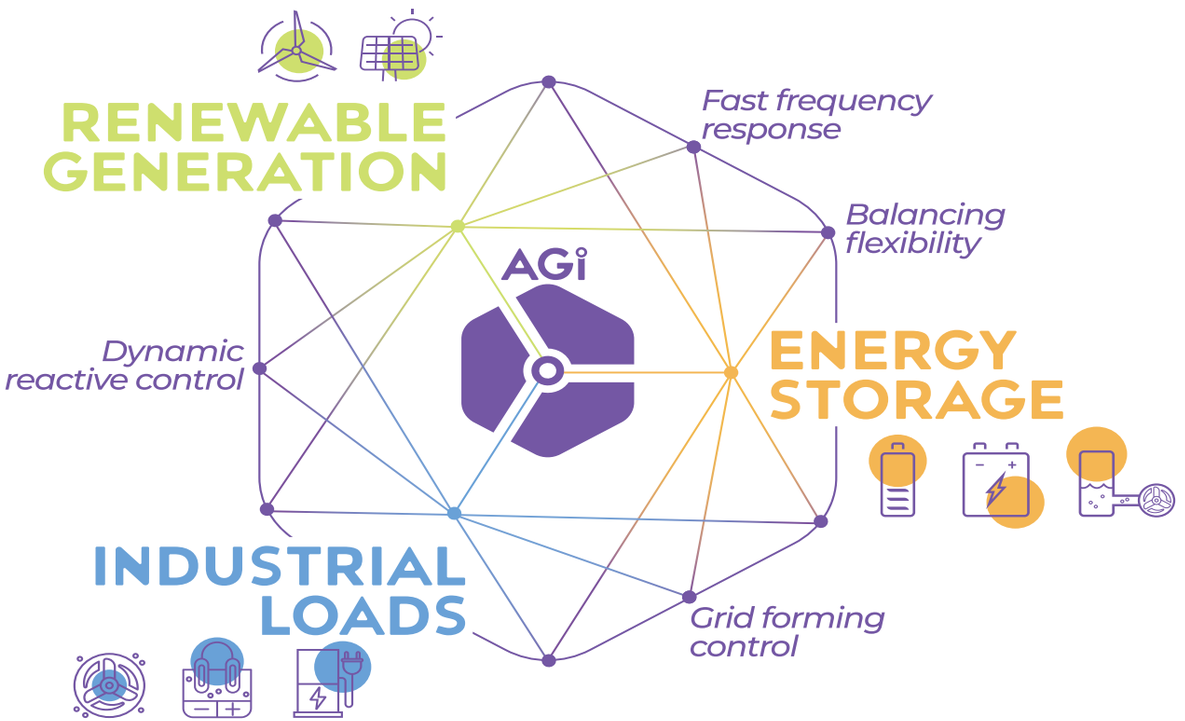
Energy storage is the key resource that is needed to orchestrate and integrate industrial processes and large-scale renewables. Advanced storage integration methods are needed to resolve issues for grid users and operators.

About

AGISTIN is a four year project (2023-2027) that proposes to develop grid integration architectures for energy storage with on-site renewables and emerging Direct Current (DC) end uses.

This follows the DC coupling approach considered in current PV + storage hybrids, extending it to include end use, grid users and system integrators.

The project will develop control algorithms to coordinate between all three asset classes that will be open sourced for exploitation by system integrators and power electronics OEMs.



Objectives

- Demonstrate the performance and value of innovative storage technologies providing flexibility and grid services.
- Design advanced grid interfaces to integrate energy storage with industrial grid users and on-site generation.
- Demonstrate the technical feasibility of the innovative coupling of multiple forms of energy storage, production and demands into innovative energy systems and novel grid topologies.
- Enable innovative storage, coupled through the proposed advanced grid integration technologies, to provide the new grid services needed in the energy transition.
- Reduce material use and embedded emissions by innovative approaches of energy storage integration with industrial grid users.
- Propose innovative business models to easily enable energy storage integration with significant grid users.

Two demonstrations and three test activities centered around renewable hydrogen electrolysis, irrigation pumping, and fast EV charging will be used to demonstrate advanced concepts for energy storage, grid integration and grid users.