A project experiment with the potential of smart grids for the integration of large wind energy capacities in a rural network

VENTEEA project is located in the Aube department, which has the highest number of medium and high power wind turbines in France. It is studying how to adapt the power distribution network to the generation of renewable energies, and more precisely wind power. The project whose implementation is based on the wind farm in Vendeuvre-sur-Barse, was initiated by Enedis with eight industrial partners.

VENTEEA aims to create conditions conducive to efficient integration, both in economic and in technical terms, of renewable energies on the power distribution grid. This project will test the contribution of new solutions:

- experimenting with new functions to manage the generation of renewable energy on the medium voltage grid: wind power generation forecasts, observability, voltage regulation, storage of electricity, optimization of losses, controllability of wind farms;
- study the impact of renewable energies on the quality of the electric wave, protection plans, safety of people and property; and develop appropriate solutions;
- test innovative hardware and soft-ware supporting these functions: sensors, fault detectors, transformer with power electronic, circuit-breaker interconnected, instrumentation & remote control of primary substations;
- adapt Enedis’s information systems to handle renewable energies and their intermittent nature in particular for planning and cartography. Develop data models related to renewable energy generation and propose them to standardisation bodies;
- optimize the cost of grid connection of renewable energy generation sites by leveraging the flexibility afforded by a more sophisticated automation of the network;
- study the contributions of solutions for storing the energy generated by renewable energy sites as a means of stabilizing the grid, and analyze the related business models.

VENTEEA thus prepares the power grids of the future by testing ground-breaking control equipments and tools for medium voltage grids with wind energy in rural areas.

The Consortium’s Partners

- Enedis (project coordinator)
- Schneider Electric
- General Electric
- RTE
- SAFT
- MADE
- ENEL Green Power
- EDF R&D
- L2EP
- UTT

The Key Stages of the Project

- JUL 2011 Funding application filled to Ademe*
- Dec. 2011 Ademe’s decision to provide funding
- Jul. 2012 The consortium’s agreement
- Dec. 2012 Delivery of the new digital central control station (DCCS)
- T1 2013 Installation of sensors
- Mar. 2013 Activation of the mini DCCS
- Spring 2016 Running the experiments

*French Agency for Environment and Energy Management

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