SWIP Project

NEW INNOVATIVE SOLUTIONS, COMPONENTS AND TOOLS
FOR THE INTEGRATION OF WIND ENERGY
IN URBAN AND PERI-URBAN AREAS

SWIP Demonstrators

The new solutions developed by SWIP will be further implemented into three demonstration sites, in order to test and validate them under real operating conditions.

Zaragoza (Spain)

- CIRCE's Headquarters. Polytechnic University of Zaragoza
- 3-4 kW horizontal axis wind turbine
- Continental weather, representative of a wide range of locations across Europe

Choczewo (Poland)

- Choczewo commune
- Commune Office building on the ground
- 1-3 kW vertical axis
- Shore line, replication in open areas with sea wind

Gdansk (Poland)

- Kokoszki district
- Industrial area
- 20-30 kW horizontal axis
- Industrial area connected to the grid, integration in this kind of areas

SWIP challenges and goals

The goal of the project is o develop and validate innovative solutions for small and medium size wind turbines to improve their competitiveness, enabling and facilitating the integration and deployment into urban and peri-urban areas. These solutions will address the current main barriers that delay the market uptake of this technology:

WIND PREDICTION

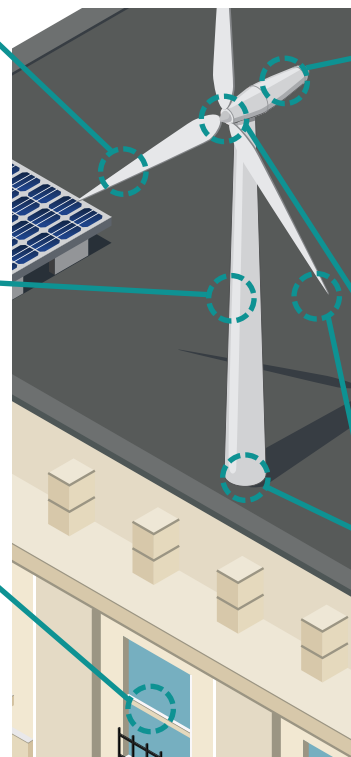
New methodology for wind resource assessment in urban and peri-urban areas, able to predict wind speed in urban location with a maximum 8% standard RMS error, without the need of performing a measuring campaign.

OPERATION

Implementation of a Supervisory Control And Data Acquisition (SCADA) system that will allow a better performance of the wind generator, through improved operation and maintenance. This system will be used for the control of the turbine, safety issues, operation mode selection and reliability improvement.

AESTHETIC ASPECT & SOCIAL ACCEPTANCE

Improved structure and anchorage elements of small and medium size wind turbines for their installation into districts and buildings. Development of best practices guidelines for the aesthetic integration of these systems into urban and peri-urban settings.



COST OF TECHNOLOGY & WIND MARKET

Design of an innovative and low cost wind generator (between 1 and 100 kW) which could be adapted to different types of wind turbines deployments depending on its final emplacement.

Two configurations of permanent magnet generator will be developed, one for direct drive connection and a second one for a gearbox connection.

POWER PERFORMANCE

Cutting-edge technology wind blades, which maximize the wind energy conversion in each type of final model, addressing small and medium size wind turbines and considering both vertical and horizontal axis.

NOISE & VIBRATIONS

New solutions to mitigate and absorb the noise and vibration produced by the wind turbine, according to the existing safety regulations regarding small wind turbine operation.

The new blades will also contribute to the objectives of reducing vibration and noise coming from those elements.

The project

Coordinator

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EU CONTRIBUTION
4,9 m€

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SWIP

www.swipproject.eu