



UPWARDS

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project funded
by the European
Union*

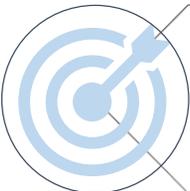
Understanding of the Physics of Wind Turbine and Rotor Dynamics through an Integrated Simulation Framework



UPWARDS project aims to make the development of bigger and better designed wind turbines possible, thus increasing the capacity of societies all over Europe and the rest of the world to harness wind-energy.



UPWARDS gathers a consortium of 11 partners (companies, research institutes and universities) across 8 countries and 2 continents.



UPWARDS is an European Commission (EC) backed project that promises to make achieving ambitious sustainability goals a reality.

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A NEW MILESTONE REACHED BY VKI AND SISW

The von Karman Institute for Fluid Dynamics (VKI) and Siemens Industry Software N.V. (SISW) are collaborating at improving wind turbine design by accounting for more realistic weather conditions, impacting both the generation of noise and its propagation through the atmospheric boundary layer.

They have reached an important milestone of the UPWARDS project, validating the core methods of the aeroacoustic simulation chain through benchmark comparison. The procedure is based on an automated two-dimensional workflow applied to iso-radius sections along the blade span. The VKI model is based on semi-empirical models derived from Amiet's theory while the method adopted by SISW is based on a stochastic reconstruction of sound sources combined with a finite-element code for acoustic propagation. Preliminary results have also been obtained for a Siemens SWT-2.3MW-93 wind turbine subjected to uniform flow conditions, as a first step. The next objectives are to account for real atmospheric boundary layer effects, and to include leading-edge noise due to incoming turbulence.



NEXT GENERATION MATERIALS FOR WIND TURBINES

Siemens Gamesa Renewable Energy, Denmark, is one of the biggest wind turbine manufacturers in the world. Within UPWARDS, Siemens Gamesa brings its expertise related to modelling, design, and manufacturing of wind turbines, in order to make them more efficient and reliable

Siemens Gamesa's deep expertise in composite blade design and modelling, helps to further develop high-fidelity material failure simulation models of an operation wind turbine. Victoria Bloodworth from Blade Design, Structures Department, works along with Soeren Henrichsen on modelling of structural materials for wind turbines.

Recently, samples of materials were done using Siemens internal R&D processes. Material were sent to SINTEF (Norway) and Aalborg University (Denmark), in order to perform further testing phase. An example of manufacturing processes can be seen on the picture below:

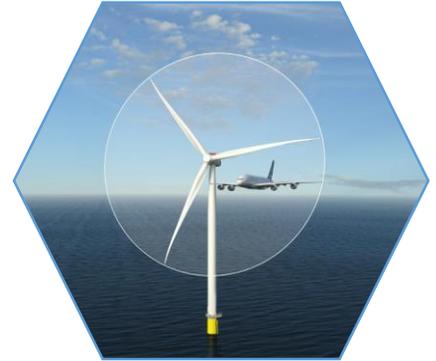


Next steps to be done are the representative tests. Tests will be done on the part of the wind turbine in order to see if the module can predict the failure. The objectives are development of progressive material damage models and simulation tools for static and fatigue-driven damage development in laminated composite wind turbine blades in order to evaluate the structural performance and integrity.



WAGENINGEN UNIVERSITY HAS PUBLISHED A PAPER ON PUBLIC PARTICIPATION IN WIND ENERGY PROJECTS

Public concerns surrounding landscape conservation, noise pollution and impacts on bird populations are commonly incorporated into the planning phase of wind energy projects. However, public involvement tends to be highly localized and procedural, aimed at informing local stakeholders and gaining their acceptance for implementation. At the same time, other ways of engaging the public have emerged that move beyond invited stakeholder participation to facilitate the co-production of wind energy technologies and the landscapes in which they are placed.



Have a look on this paper published by UPWARD'S partner :
<https://www.upwards-wind.eu/publication/>

This paper systematically reviews the academic literature with the aim of identifying and characterizing these modes of co-production. A total of 230 papers published between 2009 and 2019 that report on public engagement with wind energy were included in our review. From this sample, we characterize public engagement into three modes of co-production: (1) local co-production, in spatially proximate wind energy projects; (2) collective co-production, performed through collaboration among different actors in the wind energy sector, joined ownership or consumption of wind energy; and (3) virtual co-production, mediated through information technology. These different modes of co-production cover a broad spectrum of ways in which local and non-local publics engage in decisions about where, when, how and by whom wind energy projects are designed, developed and managed over time. Combined, they can offer guidance for future research on how the wind energy sector can further support a transition to sustainable and inclusive energy systems.

WELCOME TO IEIC

We are pleased to welcome IN EXTENSO INNOVATION CROISSANCE on board of the UPWARDS project. IEIC will be in charge of ensuring and boosting communication around the project.

In Extenso Innovation Croissance (IEIC) is a French company specialized in innovation management. It has developed partnerships in every European country.

The company was founded in 2002 by In Extenso group (4500 employees and 220 offices in France). It is now composed of over a hundred consultants with background varying from engineering to marketing and finance.

In Extenso
Innovation Croissance

Aside from market expertise, IEIC can rely on numerous experiences regarding French and European projects, either as a support during project elaboration, or as a consortium member, assigned with tasks varying from project management and dissemination to market and impact studies, assessing projects outcomes in terms of social, economic, strategic or environmental impact. IEIC experts are also regularly commissioned by EC for European projects assessment. For twenty years, IEIC and its composing entities have supported over 500 European projects proposals. IEIC involvement in many European and National projects highlight the excellency of its contributions and the co-optation from major public and private research actors.

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