



*Highly advanced Probabilistic design and Enhanced Reliability
methods for high-value, cost-efficient offshore WIND*

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1. Executive Summary

Below is our communication plan, which emphasizes our communication strategy throughout the project. We look into our main target groups: R&D community, market enablers and gatekeepers and industry end-users; what should be communicated to the different groups, when and how. Market enablers and gatekeepers includes standardisation bodies (in between market enablers and industry end users), financing and insurance companies, electrical grid operators as well as policy and regulatory bodies. Then we have the industry-end users which entail Wind farm developers and OEMs as well as sub-suppliers and service providers.

A website and a LinkedIn profile has been created and will be used to share relevant news and information publically. Also an internal repository has been created on SharePoint, where the HIPERWIND project group can share information, upload documents to facilitate interactions between tasks.

2. Introduction

The core challenge addressed in this project is the advancement of the entire modelling chain spanning basic atmospheric physics to advanced engineering design in order to lower uncertainty and risk for large offshore wind farms. The five specific objectives of the HIPERWIND project are: 1) improving the accuracy and spatial resolution of met-ocean models; 2) developing novel load assessment methods tailored to the dynamics of large offshore fixed bottom and floating wind turbines; 3) developing an efficient reliability computation framework; 4) developing and validate the modelling framework for degradation of offshore wind turbine components due to loads and environment; and 5) to prioritize concrete, quantified measures that result in LCOE reduction of at least 9% and market value improvement of 1% for offshore wind energy.

HIPERWIND employs multi-scale atmospheric flow and ocean **modelling, creating a seamless** connection between models of phenomena on mesoscale level and those on wind farm level, with the aim of reducing uncertainty in load predictions, and broadening the range of scenarios for which adequate load predictions are possible. Improved modelling of environmental conditions, improved load predictions, better reliability assessment and lower uncertainty, cost efficient design and operating strategies and lower O&M costs will as a minimum yield a projected 9% decrease in the Levelized Cost of Energy (LCOE) and 1% increase in the market value of offshore wind by the conclusion of the project.

3. Dissemination target groups

HIPERWIND is a low-TRL project that will deliver final results at TRL 4/5. In order for the project results to reach full implementation at TRL9, subsequent development after the end of the project is consequently needed. The HIPERWIND consortium is capable of developing the project outputs into fully marketable commercial products. However, in order to ensure that HIPERWIND also contributes to European growth and productivity and to ensure faster and wider market deployment, three target groups are essential to engage during and after the project period. The three dissemination target groups are:

3.1. R&D community

This group represents the research and development community in the wind energy sector, comprising both private and public actors. The R&D community can be divided into two sub-groups:

- R&D agenda setters: This sub-group consists of major European and international fora for wind energy R&D including IEA Wind TCP, EERA JP WIND, ETIPWIND and the wider EUSETPlan community. This group helps set international trajectories for R&D efforts and build support and understanding of new scientific and technological paradigms such as those proposed by HIPERWIND.
- Academia and RTOs: University and research organisations play a key role in engaging in the uptake and diversification of the core research ideas and progress developed in HIPERWIND. Universities in particular are important due to their education of the next generation of wind energy engineers and scientists.

Importance and engagement: The R&D community is supporting European growth by a fast uptake of new paradigms in research, development and education. HIPERWIND will engage with this target group through activities that help disseminate knowledge, build competences and strengthen adoption of new ideas in R&D agenda setting.

3.2. ‘Market enablers and gatekeepers’

In order to reap the benefits of reduced uncertainty through better models and tools, a set of key stakeholders are required to accept and adopt the new measures. These are players which may not be directly part of the energy supply chain, but which facilitate the business through providing essential services such as financing and control. This group of stakeholders includes, among others, standardisation bodies (in between market enablers and industry end users), financing and insurance companies, electrical grid operators as well as policy and regulatory bodies.

During a wind farm project, designers follow standards and norms. This facilitate the certification approval and, hence, a simplified process with the insurance companies. When new methodologies are developed, in order to make those new methodologies usable for all the market actors, a norm has to be developed including those new methodologies. Hence, standard and norms organizations have to be included and convinced of those novelties.

Importance and engagement: The market enablers are key stakeholders to ensure the deployment of the HIPERWIND methods and tools. However, they also have a more limited role in the actual development and deployment as such, especially in the early phase (TRL 2-7). HIPERWIND will engage with this target group through direct bilateral efforts such as standardisation body meetings, webinars with select group of market enablers, as well as coordination with standardisation committees working on new standards.

3.3. Industry end-users

HIPERWIND aims to develop new solutions that will benefit the wind energy industry. This group can also be divided into two sub-groups:

- Wind farm developers and OEMs. These will be customers of the new models and design tools to be developed and commercialized by the HIPERWIND partners. Furthermore, the largest companies will adopt and integrate solutions in their internal models and work flows.
- Sub-suppliers and service providers. A large group of sub-suppliers and service providers is likewise expected to adopt the HIPERWIND solutions. As specialized companies of varying size from small SMEs to large multinational companies, this group requires efficient solutions which help integrate their product in the wind turbine design process.

Importance and engagement: The industry end-users represent the main users and customers of the HIPERWIND methods and tools. The larger industry actors are expected to engage with consortium partners in the immediate follow-up of the project to adapt and adopt project results in their own models. HIPERWIND will engage with this target group through a wide variety of dissemination tools as outlined in the following section.

4. Main messages

The following table highlights the key messages to each of the dissemination target groups.

Dissemination target group	Main/key messages
R&D agenda-setting organisations	Adapting public funding strategies for wind, support knowledge development of new paradigms.
Academia and RTOs	Science progress, new methods and tools, educational resources, fundamental engineering science in wind energy
Standardisation bodies	Update standards based on latest state-of-the-art to enable cheaper offshore wind power. Control requirements for reliability and for the design process.
Finance and insurance	Lower risk of offshore wind power, increase bankability of projects.
Offshore wind energy consultancies	Adapt new standards and engineering tools.
Regulatory and policy (Government bodies, EP)	Adapt requirements to reliability and safety, site assessment.

Developers and OEMs	New tools and methods for better design for reduced LCOE and improved reliability; manage uncertainties to optimize financial strategies;
Sub-suppliers and service providers	Adapt new methods to stay competitive.

4.1. Main messages for the dissemination target groups:

4.1.1. R&D community

- *“Learn about new tools to for load and reliability assessment of bottom fixed and floating offshore wind turbines”- #interest #access #resources*
- *“A new paradigm for research and innovation in load and reliability assessment”*
- *“Advanced computer modelling in support of the EU green deal”*

4.1.2. ‘Market enablers and gatekeepers’

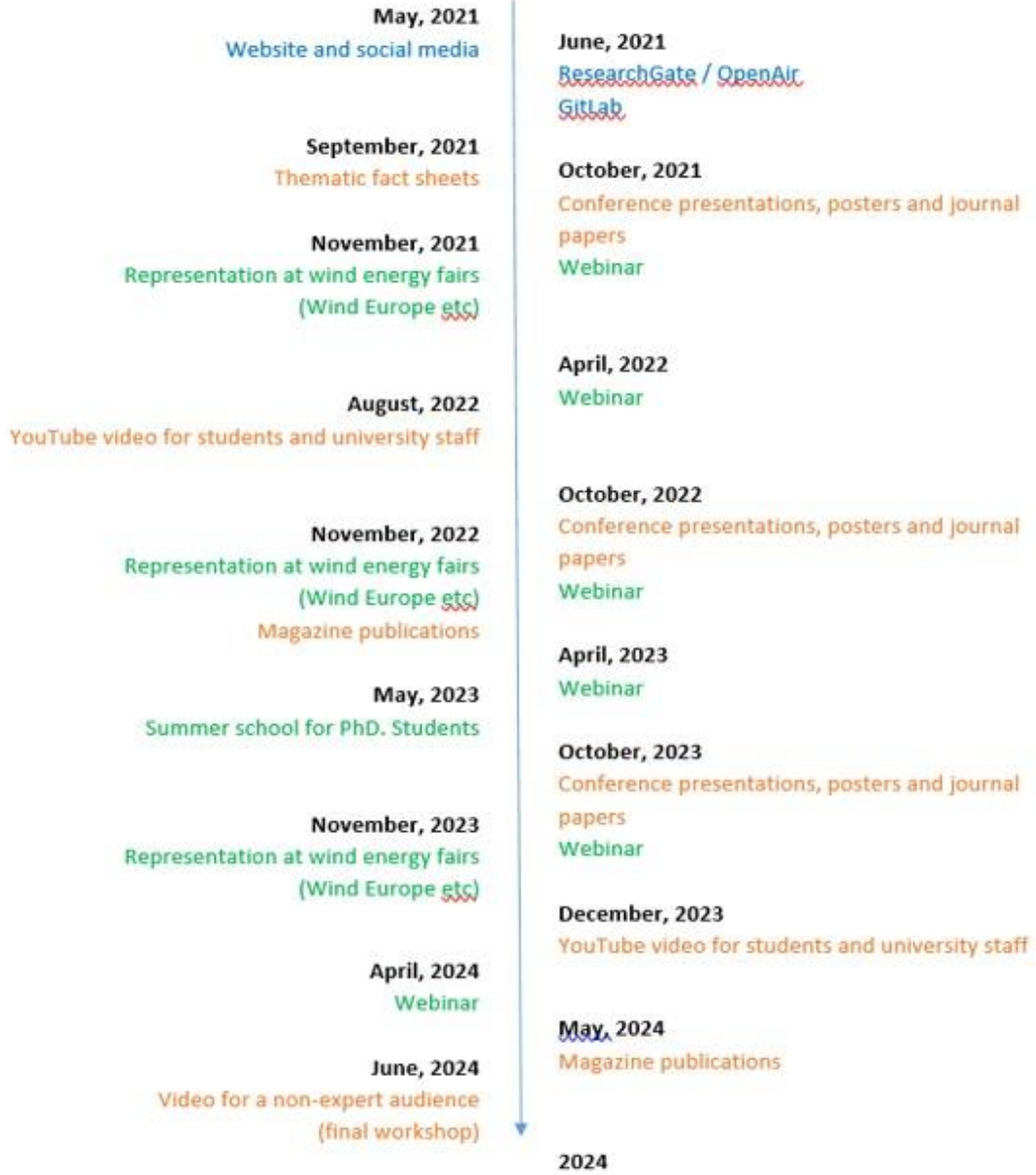
- *“New engineering tools and models lower the risk profile of offshore wind projects”*
- *“Are you updating standards in load and reliability assessment? Learn about the latest developments from HIPERWIND”*

4.1.3. Industry end-users

- *“New engineering models can lower the LCOE of future wind farms by at least 9%”*
- *“A cheaper wind energy contributes to a cleaner energy for European citizens and attain European objectives for a zero carbon energy”*
- *HIPERWIND pushes floating wind for being the future leading energy sector”.*
- *“Floating wind is the largest potential source of energy in Europe. By optimizing designs and operations, this is the most profitable and the cleanest energy for the future”.*
- *“Will we have offshore wind energy at the price of onshore by 2050?” Lowering risks and optimizing O&M, this is possible.*

In addition to these, HIPERWIND will also be communicating to the general public about how R&D can contribute to lower the price of electricity for consumers.

5. HIPERWIND Timeline for Setup of Dissemination Channels, 2021



2021-2024
Bilateral meetings and participation in ongoing meetings of relevant bodies
Plug-in events, discussion forum, open days and final event



6. Communication Measures and Responsibilities

6.1. Channels:

6.1.1. Website and social media

HIPERWIND will produce a website and a social media account for sharing project findings, events and other communication measures. The website will be created in Sitecore and as a minimum include the following pages or sections: Front page with general information about the HIPERWIND project, a publication page/section for disseminating results and an event page/section for promoting events, webinars and meetings.

A dedicated and active social media account will be set up on LinkedIn to reach and engage with a wider stakeholder community.

For industrial target, EDF declines its communication strategy in 3 axis:

- First way is related to social medias (LinkedIn and Twitter):EDF can produce posts on LinkedIn by its ambassadors (highly followed people). DTU Wind Energy will also share the posts made by HIPERWIND in order to reach a larger audience. Important milestones of the project will be followed by a new communication in order to highlight important achievements related to HIPERWIND.
- The second axis is related to the industrial competitors and sub-contractors that live around EDF. In order to target this audience, EDF publish regularly articles and zooms on its activities, focusing on what EDF considers to be important for the future of the energy industry. On EDF website , a special issue for Floating Wind with a set of articles and zoom on this topic will be made this year. One special article will be dedicated to HIPERWIND. Moreover important achievements will be diffused in the market by the strong communication between EDF R&D and EDF Renewable, an important actor of the wind energy industry.
- Third axis is related to the organization of an event at EDF Lab in the Paris region. Once the project will achieve important milestones (around the end of 2022), this event will meet together many of the actors of the wind energy industry in order to promulgate the important developments of HIPERWIND and in general the benefits of the European collaborations.

Target group: All groups

Responsible: DTU Wind Energy (Setup and Maintaining)

When: March 2021

6.1.2. Webinars

Eventbrite will serve as a helpful tool for creating and hosting events online, including the project webinars. Eventbrite is a user-friendly global self-service event platform. Systematic guides will be developed ensure that hosts and managers are comfortable and capable with creating and sharing events without prior experience.



Target group: All groups

Responsible: DTU Wind Energy (Setup)

When: April 2021

6.1.3. ResearchGate / OpenAir

A dedicated project will be set up on ResearchGate or OpenAir, to disseminate results to the R&D community.

Target group: R&D community

Responsible: DTU Wind Energy

When: March/April 2021

6.1.4. GitLab

A dedicated repository will be set up to share, disseminate and exploit new code and software packages under open source license such as MIT License⁴⁵ or similar (DTU License).

Target group: R&D community and Industry end-users

Responsible: DTU Wind Energy (anat/niko)

When: March/April 2021

6.1.5. Magazine publications

Sector magazines such as Recharge News, Windpower Monthly, and OffshoreEnergy.biz will be relevant dissemination channels by the end of the project when results have been tested in lab and relevant environment.

Target group: Industry end-users and wider stakeholder community

Responsible: DTU Wind Energy

When: End of the project/as we go

6.1.6. Participation and presentations at event and meeting

In addition to the communication channels outlined above, HIPERWIND will also be present at a number of relevant professional for an including standardization body meetings, conferences, wind industry fairs, EU and national events.

Due to the corona situation, some of the meetings will be held online. It will be possible to have a physical event at EDF Lab Saclay.

6.2. Products:

6.2.1. Thematic Fact Sheets

A set of fact sheets for the key methods and tools developed in the project will be produced. These fact sheets will be used to present results and value of results to industry end-users and market enablers. They will be developed as 1-pagers in a 16:9 format to make them applicable for dissemination on the website, social media, at wind energy fairs, as well as for conference presentations and meetings.

Target group: Industry end-users, Market enablers and gatekeepers

Responsible: DTU/EDF

When: at the webinar

6.2.2. Webinars

Topical webinars on expert topics targeted specific end-user groups can be an efficient way to engage with stakeholders in a time efficient manner. Webinars will be organized 2 to 3 times a year, to disseminate results from WP 2-6, focusing on periods between conferences

Target group: Industry end-users, Market enablers and gatekeepers

Responsible: DTU Wind Energy

When: 2 times a year (1 webinar 2021), Workshop included each year

6.2.3. Video for a non-expert audience

As part of the communication activities, a video for non-experts will be produced before the final workshop of the project (M42). All videos will be subtitled in both Danish, English and French. It is also possible to produce one video in French.

Collaboration and synergies with partners on webinars and videos is also considered.

Target group: Non-experts

Responsible: DTU and EDF

When: Before the final workshop

6.2.4. (2) YouTube videos for students and university staff

HIPERWIND will produce two videos to be made available via the HIPERWIND website, consortium partners' YouTube channels, and potentially integrated in the DTU Wind Energy MOOC46 on Coursera.

Target group: Academia and RTOs

Responsible: DTU Wind Energy

When: Perhaps around the WindEurope event in 2022 and 2023



6.2.5. Summer School

Summer school for PhD students coordinated by DTU Wind Energy and involving project partners will be organized during the project's 3rd year.

Target group: Academia and RTOs

Responsible: DTU Wind Energy

When: June-August 2023