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INNTERESTING

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INNOVATIVE FUTURE-PROOF TESTING METHODS FOR RELIABLE CRITICAL COMPONENTS IN WIND TURBINES

The INNTERESTING project aims to develop a novel hybrid methodology and breakthrough design tools to assess reliability of larger wind turbine critical components without the need of building larger test benches in the future.

3	4.8	8	36
COUNTRIES	M€ BUDGET	PARTNERS	MONTHS

OBJECTIVES

01. To develop a hybrid testing methodology able to robustly predict the expected reliability and lifetime of large wind turbine components (up to 20 MW) without the need of performing physical tests of full-size prototypes (thus removing the need of large-scale testing infrastructures in the future).

02. To develop design tools integrating cutting-edge models and technologies supporting the INNTERESTING methodology.

03: To bring two new ground-breaking designs of real wind turbine components to a TRL-4, proposing much higher load capacities and increased lifetime.

04: To validate the methodology in the assessment of a novel repair solution (in process of patenting) addressed to increase lifetime extension of already installed pitch bearings.

05. To reduce environmental and economic impact and to improve social acceptance of the newly developed designs, concepts and testing methods.

06. Replication of project results to other components and sectors.

MAIN EXPECTED IMPACTS

UP TO **25 %** LIFETIME EXTENSION

UP TO **40 %** RELIABILITY INCREASE

UP TO **70 %** PDP* COST REDUCTION

UP TO **50 %** PDP* TIME SAVINGS

Environmental, economic and social benefits

Enhanced social acceptance and livelihood

*PDP (Product Development Process)

TECHNOLOGICAL APPROACH

The INNTERESTING hybrid testing methodology combines results from simplified physical tests and advanced virtual testing through smart fusion process and upscaling techniques to robustly predict reliability, lifetime and failures of full-scale wind turbine components. Three Case Studies will be developed:

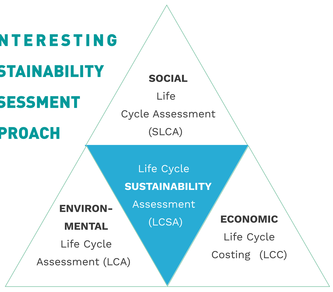
SOURCE: LAULAGUN

CS1 - Novel pitch bearing design concept

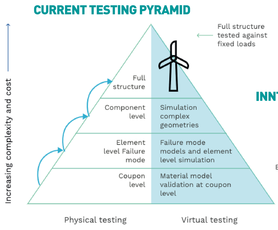
CS2 - Novel gear design concept

CS3 - Novel stiffening concept for lifetime extension of existing pitch bearings

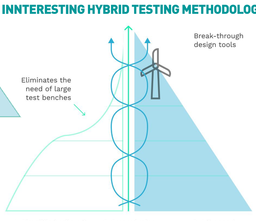
INNTERESTING SUSTAINABILITY ASSESSMENT APPROACH



CURRENT TESTING PYRAMID



INNTERESTING HYBRID TESTING METHODOLOGY



PARTNERS

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LAULAGUN bearings

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