

European project EoLO-HUBs will develop innovative technologies to recycle high value materials from wind turbine blades

- EoLO-HUBs, co-funded with almost 10 million euros by the European Union, will recover glass and carbon fibre from large thermoset structures which have reached the end of their useful life.
- The 18 partners of the EoLO-HUBs consortium met at Aitiip Technology Center, the project coordinator, to kick off this project that will be carried out over a period of 48-months. The consortium includes the research divisions of several leading industrial companies, such as Centro Ricerche Fiat, Mitsubishi Chemical, Saint-Gobain Placo and PLATA.

Lyon- Europe currently is among the global leaders in wind energy technology accounting for more than 70% of all wind power installed in the world. This meets nearly 14% of the EU's power demand, being the second largest form of power generation in the EU. However, the huge growth that wind energy has experienced in Europe since the 90's is starting to pose environmental problems associated to the challenges of the end-of-life management of wind farms that have reached the end of their useful lives. The EU co-funded **project EoLO-HUBs**, funded with almost 10 million euros, comes to propose and demonstrate novel solutions to recycle high **value materials from the wind turbine blades**, developing a set of **innovative composite material recycling technologies**.

Wind turbines blades are made of a combination of different materials, such as wood, metallics, adhesives, coatings, and composites. The recycling of end of life composites is challenging due to the heterogeneity of the material (i.e including both fibres and polymerics) and the strong adhesion between the fibre and the polymer. Recycling composite materials frequently comes with the undesirable side-effect of "downgrading", resulting in a raw material with low performance and therefore a low value. As a result, most of this end of life composite is currently landfilled or incinerated.

In this context, EoLO-HUBs' solution will provide an answer to the three main areas involved in the decommissioning and recycling of end-of-life wind turbines:

1. Decommissioning and pre-treatment of wind turbine blades, including handling, non-destructive inspection tools, cutting, shredding, and sorting.
2. Sustainable fibre reclamation processes addressing two alternative technologies: Low carbon pyrolysis and green chemistry solvolysis.
3. Upgrading processes for the recovered fibres, including both glass fibre and carbon fibre.

Furthermore, a knowledge hub will be set up by means of a digital platform. This platform will provide a circular economy framework, an overview of circular solutions for turbine blades and the organisations offering such solutions, and a toolset for sustainable business model development to enable the adoption of wind turbine blades recycling in diverse regions across Europe. Development of secure material passports to provide accurate data on raw materials and design recommendations will further enhance turbine blade recycling in the future.

Project Consortium

Funded by the European Union, under the Horizon Europe Programme, with a total budget of 9.99 million euros for 4 years, the project is coordinated by Aitiip, and involves 18 European partners from 7 countries.

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