



European Commission



MANUFACTURING OF COMPONENTS FOR PRODUCTION OF RENEWABLE ENERGY OR ENERGY STORAGE

INNOVATION FUND

Deployment of net-zero and innovative technologies

RoboticRepair: Robotic Wind Turbine Blade Repair System

The Innovation Fund is 100% funded by the EU Emissions Trading System

| Project Factsheet

The aim of the project is to deploy and operate 30 first-of-a-kind robotic systems for Wind Turbine Generator (WTG) rotor blade repair. This robotic system can carry out leading-edge repair tasks up to 67% faster and with similar or higher quality than with industrial rope access technicians. Leading-edge rotor blade repair robots will satisfy the rapidly growing excess demand for wind turbine maintenance services and aims to have a substantial impact on the existing WTG rotor blade repair market, making the production of wind energy more efficient, affordable, and sustainable. The project will enable the WTGs to generate more renewable energy, therefore providing 100% relative greenhouse gas avoidance compared to the reference scenario.

The repairs and maintenance of WTG rotor blades

COORDINATOR

SIA AERONES ENGINEERING

LOCATION

Latvia

CATEGORY

Renewable Energy (RES)

SECTOR

Manufacturing of components for renewable energy

AMOUNT OF INNOVATION FUND GRANT

EUR 4,416,000

EXPECTED GHG EMISSIONS AVOIDANCE

161,349 tonnes CO2 equivalent

STARTING DATE

01 October, 2023

ENTRY INTO OPERATION DATE

31 December, 2025

FINANCIAL CLOSE DATE

31 December, 2024

currently remains a challenging task that needs to be carried out by highly trained personnel working at considerable heights. Other than creating significant risks for industrial rope access technicians, the process can often be expensive, with the WTG downtime often lasting several days or weeks, further adding to the cost. This project deploys state-of-the-art technology to automate this hazardous service that so far, is done manually. The faster service means less WTG downtime and more renewable energy generated. During a 10-year operation, the 30 robots produced can help avoiding up to 145 years of combined WTG downtime, helping to generate additional 918 320 MWh megawatt hour (MWh) of renewable electricity.

Wind energy is among the most efficient and environmentally friendly ways of producing electricity. Wind turbine blades are the most expensive and vulnerable component of the WTG,

which directly impacts the quantity and the costs of the megawatt hour (MWh) the turbine produces. With estimated 3 800 incidents of blade failure each year, studies show that blade damage is amongst the top three causes of WTG failure. With the introduction of its robotic solution, the project aims at mitigating such risks.

The project will directly employ over 130 manufacturing employees and service technicians and has potential for growth once the innovations are scaled further. The robots are produced in Europe, and the project contributes to the strategic autonomy of industrial supply chains and the climate objectives of the Union, framing it squarely within the REPowerEU Plan by contributing to the production of clean energy and helping to diversify the energy supplies within the European Union. The use of robotics in rotor blade repair can lead to new value chain creation in Europe in the fields of advanced polymers and composite materials, sensors, and software.

| Participants

SIA AERONES ENGINEERING

Latvia

AERONES INC

United States