ENERGYLOOP

The Industrial Challenge of Wind Turbine Blade Recycling

From Complex Waste to a New Resource

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DS INDUSTRY 2026



1 The challenge is not in the future.

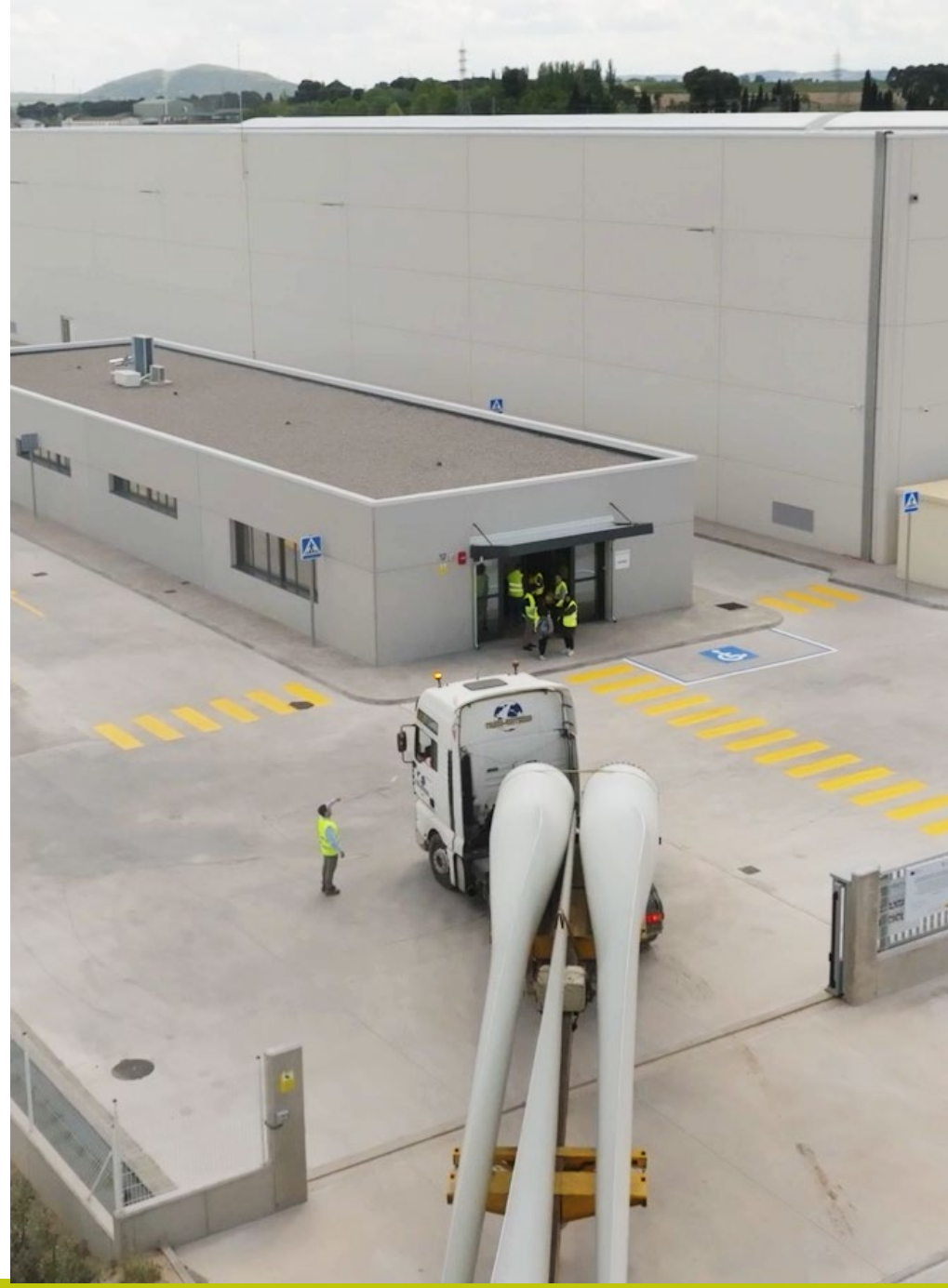
The first major wave is already here

+174
wind farms will be over 25 years old by 2027

+40.000
tonnes of blades associated with those wind farms

Nearly 500
wind farms will be over 25 years old by 2030

+100.000
tonnes of blades will require circular management solutions by 2030



Sources: Plataforma Empresarial Eólica, APPA, MITECO and historical statistics from the Portuguese wind energy sector. EnergyLOOP estimate.

2 Designed to Last. Difficult to Recycle

01

High mechanical strength

02

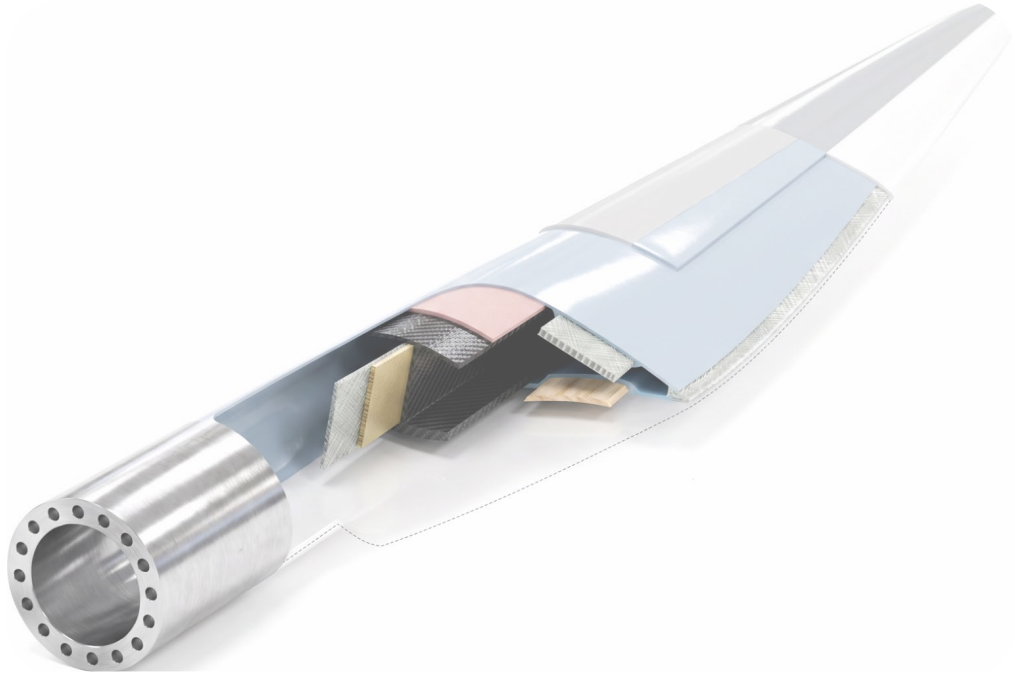
Extreme durability

03

Multi-layer composition

04

Large dimensions and complex logistics



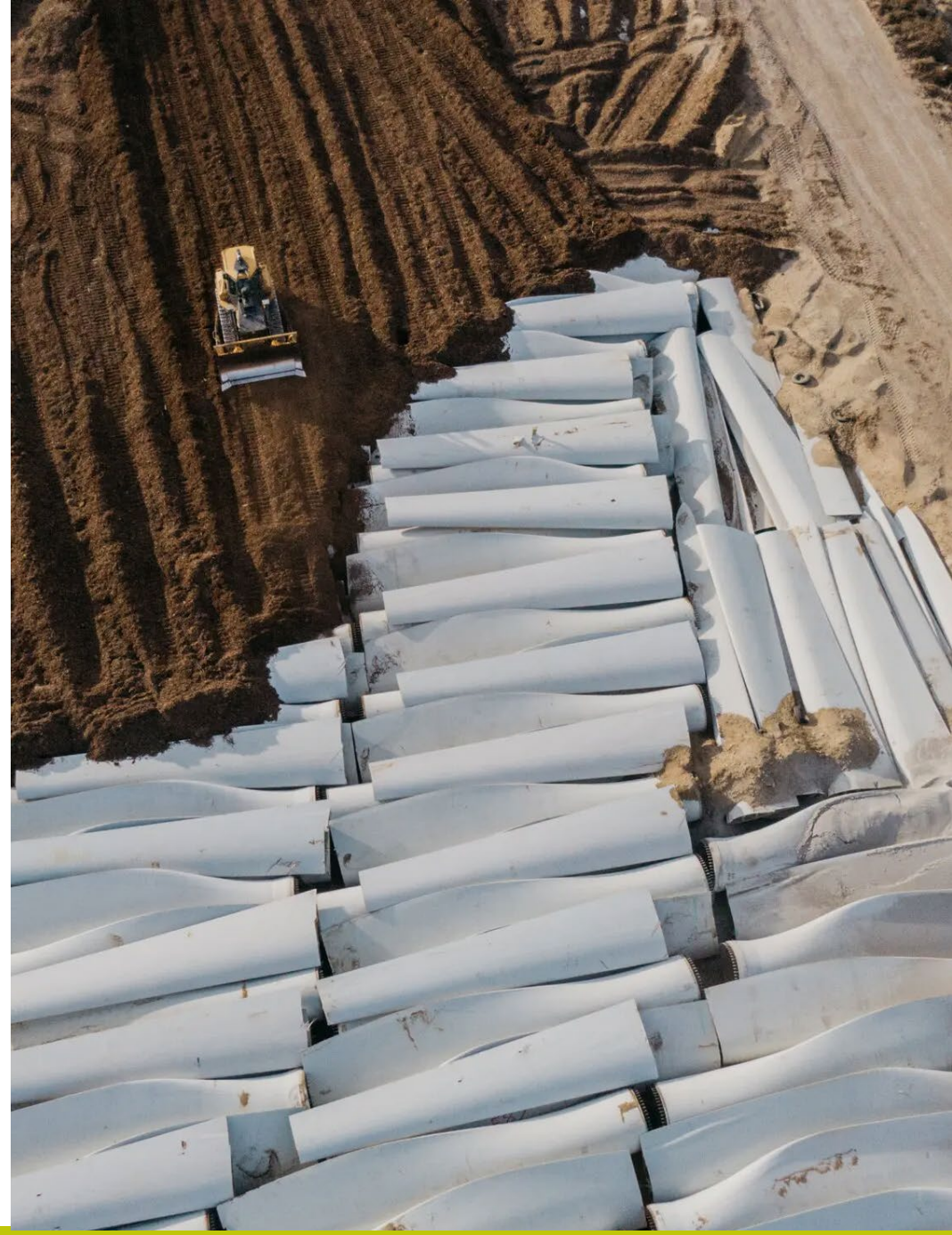
The properties that ensure decades of operation **are also those that make recycling more challenging**

3 The Real Challenge

Preventing end-of-life from becoming an end without value

For many years, landfill has been one of the main destinations for decommissioned blades

The challenge is not only to remove the blade. **It is to preserve the value of its materials**



4 Circularity Needs Industry

FCC Ámbito

Waste management expertise

Iberdrola

Innovation and long-term vision

ENERGYLOOP

Spain's first industrial solution specifically designed for the circular management of wind turbine blades



5 An Integrated Model:
From the Wind Farm to the New Application

1. Wind farm → 2. Cutting → 3. Transport → 4. Plant → 5. Recovery → 6. New applications










A solution is not truly circular until it controls the entire value chain

6 Cortes Provides the Industrial Capacity the Sector Needs

- **Cortes (Navarre, Spain)**
- **10.000 t/year**
- **100% renewable energy**
- **Full traceability**





Infrastructure ready to support market growth

7 From Waste to Recovered Material

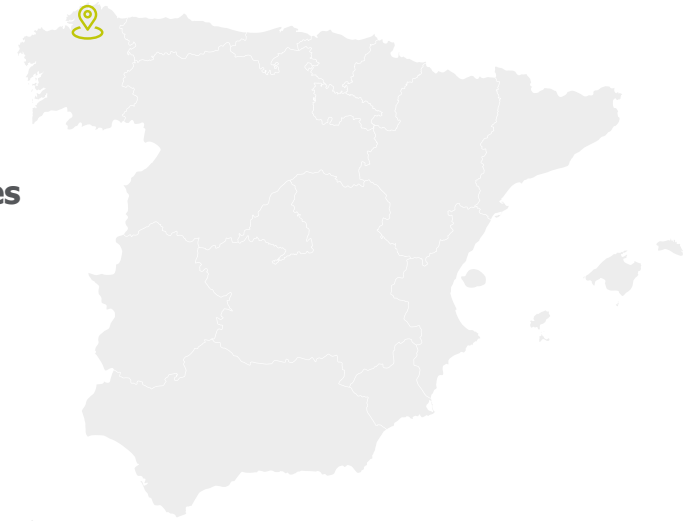
- **Reception and inspection**
- **Preparation and size reduction**
- **Treatment and recovery**
- **Recycled material for new applications**



8 The Solution Is Already Working at Industrial Scale

We receive the decommissioned blades and carry out their treatment and recovery at our plant

Muras Project, Galicia

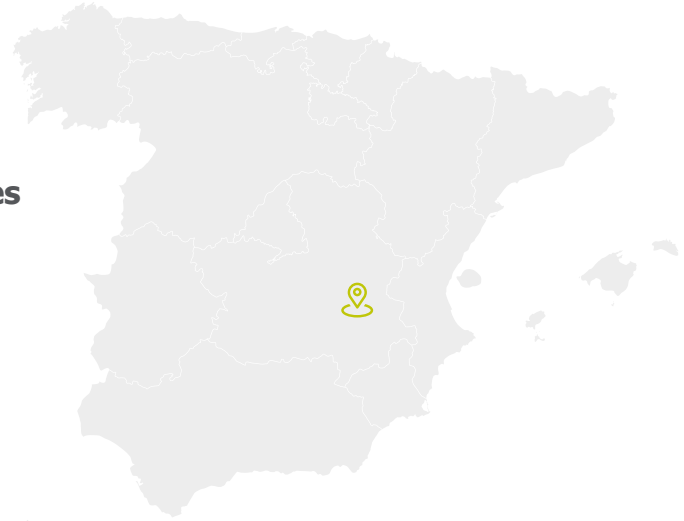


74
Wind turbines

222
blades

+280
tonnes

Isabela & Molar de Molinar project, Albacete



139
Wind turbines

417
blades

+800
tonnes

639 blades managed across these two projects

9 Integrated Operations: From the Wind Farm to the Plant

Repowering: cutting, cleaning, loading and transport

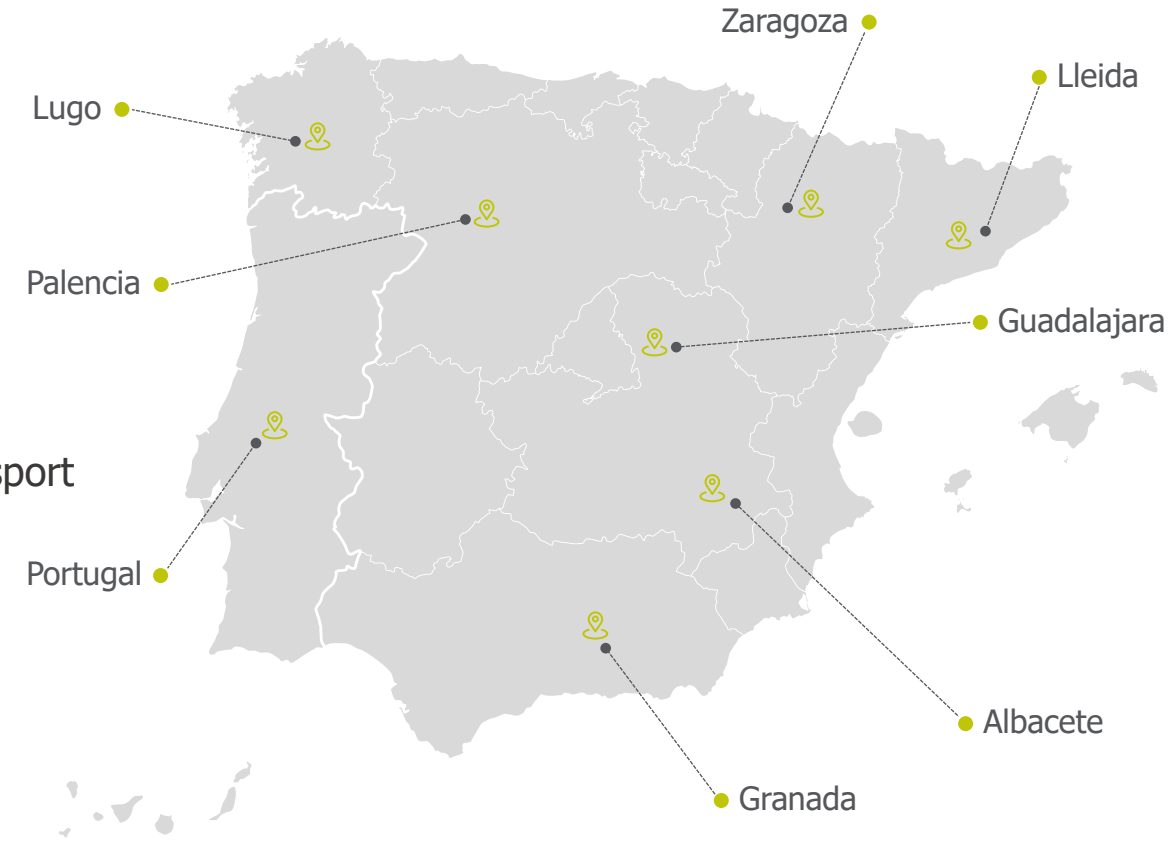
Castelo Branco Project, Portugal

10 Wind turbines | **30** blades | **250** tonnes

Wind turbine blade incidents: cutting, cleaning, loading and transport

Hornillos del Cerrato Project – Palencia **2** blades

Loja Project – Granada **3** blades



Circularity does not start at the plant. It starts at the wind farm

10 The Ultimate Goal:
Creating Materials with New Application Opportunities

Transforming complex waste into raw materials for new industrial processes

01 **Construction**

02 **Automotive**

03 **Cerámics**

04 **Acoustic insulation**











11 A Model Supported by Public Institutions

EnergyLoop recognised by MITECO as a Flagship Project under Spain's Recovery and Resilience Plan



With the support of:

SODENA
DESARROLLO DE NAVARRA
NAFARROAKO GARAPENA

Gobierno de Navarra
Departamento de Educación
Nafarroako Gobernua
Hezkuntza Departamentua

IDAE
Instituto para la Diversificación y Ahorro de la Energía

The question is no longer whether wind turbine blades will need to be managed. **The question is how we want to do it:**



Traceability



Recovery



Industrial responsibility



THANK YOU

ENERGYLOOP

Innovación y tecnología para el reciclaje de palas de aerogeneradores

https://energyloop.es/

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