

**PIENAAR ENERGY (PTY) LTD**

# Reuse of Broken Wind Turbine Blades



**European  
Warehouse**



**ONE-STOP SOLUTION**

**65kWh 30kW**

**130kWh 30kW**

**130kWh 60kW**



## Overview

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This article investigates current industry practices regarding the wind turbine generator (WTG) waste management, with a focus on blades, which are the most challenging components to manage at the end of their life cycle. Because there are few options for recycling retired wind turbine blades, most end up buried in landfills, like the one shown here in Casper, Wyoming. Credit: Benjamin Rasmussen/Getty Images

Recurring stories and special news packages from C&EN., Fiber-Reinforced Plastics, mostly fiberglass and carbon fiber) and pose a more significant recycling challenge to the wind industry and the composite materials sector. Wind turbines are intricate machines designed to convert the kinetic energy. Wind energy provides a cleaner alternative to fossil fuels, yet it brings its own environmental challenge: the disposal of retired turbine blades. The largest turbine manufacturers in the world are working harder to produce recyclable blades to meet this issue.

## Reuse of Broken Wind Turbine Blades

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### Decommissioned Wind Turbine Blade Management Strategies

Wind turbine blades make up less than 8% of the total wind turbine's mass; however, recycling of blades has proven to be more challenging because of the materials and methods used to make them.

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### Wind turbine blade recycling for greener and sustainable wind energy

Aligned with the principles of a circular economy, the initial approach to WTB waste management involves reuse. As wind turbines become increasingly efficient and powerful, older ...



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### Four Ingenious Ways to Reuse Blades from Wind Turbines

One of the first wind turbine repurposing initiatives in history was the product of the partnership. Completed in 2008, the playground in the yard of the Kinderparadijs Meidoorn is designed like a ...

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## 6 Remarkable Results of Wind Turbine Recycling Solutions for Blades

The wind energy industry has developed several cutting-edge processes that transform old turbine blades into valuable resources. Through advanced mechanical and chemical treatments, ...



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## Reuse, Recycling & Disposal of Wind Turbine Parts: Industry Practices

The recycling and reuse of wind turbine components, particularly the blades, present significant challenges due to their complex materials and large sizes. As the industry grapples with ...

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## No Time To Waste: Reuse and Recycling Strategy for Wind Energy

Shifts in recycling technologies, new materials, extended useful life, and innovative reuse are needed to move toward reuse and recycling for wind turbine blades.

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## How wind turbine blade recycling works , Business ...



Discover how wind turbine blade recycling transforms waste into resources, supporting a circular economy and sustainable wind energy solutions.

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## How can companies recycle wind turbine blades?

But several companies are working on ways to recycle the enormous blades by shredding them and reusing the fiberglass and plastic resin to make cement, tough industrial plastics, and other products.

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## Repurposing decommissioned wind turbine blades: A circular

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By transforming decommissioned wind turbine blades into valuable infrastructure components, this study highlights a sustainable and innovative pathway for managing wind energy ...

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## Used Wind Turbine Blades: Recycle, Reuse, or Redesign?



While wind power is the leading renewable energy generator in the United States, wind turbine disposal is wasteful and contributes to air and soil pollution. Experts are considering options ...

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