

European Solar and Energy Storage Solutions

Wind turbine blade scrapping standards



Overview

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At the moment, key stakeholders like wind turbine blade manufacturers, operators, and governments are aware of the looming serious waste problem and are beginning to identify the possible environmental implications, costs of end-of-life management of wind turbine blades, and options about how to manage the end-of-life of wind turbine blades .

These include the estimation and prediction of the volume of wind turbine blade waste, the legislation and standards framing the processes of the value chain and the technical processes transforming wind turbine blades into new valuable materials and their applications.

EPRI is assessing the current landscape of wind turbine blade recycling and disposal options in the U.S. and Europe, pilot-scale processes that have the potential to evolve into commercial-scale operations, and advanced processes and materials that could be used in the next generation of wind turbine technology. What is a wind turbine blade recycling scheme?

By considering the structural characteristics and residual value of the blades, the scheme simplifies the processing process, reduces costs, maximizes material value, and promotes comprehensive recycling of wind turbine blades.

Can wind turbine blades be transformed into new materials?

First, end-of-life wind turbine blades are transformed into new materials. The processes transforming wind turbine blade materials were briefly summarized in this review also listing their advantages and challenges.

Should wind turbine blades be changed for an easier end-of-life processing?

To conclude this section, changing the material of wind turbine blades for an easier end-of-life processing seems only relevant when the wind turbine blade structure, the recycling process and the application for the recovered materials are considered and designed at the same time.

Can wind turbine blades be recycled?

As mentioned earlier, recycling wind turbine blades is seldom presented as a chain of processes and the discussion is often focused on the realization of a technical process to transform wind turbine blades into new materials. However, summarizing recycling in one single step does not highlight the complexity of the recycling value chain.

How much wind turbine blade material is needed per MW?

Another study estimates 10 tons of material is required per MW of wind turbine, and predicts that 400,000 tons of blade material will need to be recycled per year between 2029 and 2033. This number will increase to 800,000 tonnes per year by 2050 [20].

Can wind turbine blades predict global waste?

The results obtained by Liu and Barlow enable to study best and worst case scenarios to assess the influence of various factors on the predictions and estimate global waste from wind turbine blades considering one or more sources of waste: manufacturing, operation and maintenance and end-of-life waste .

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End-of-Life Disposal and Recycling Options for Wind Turbine ...

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World's Largest Wind Turbine Manufacturer Says All Its Blades

"Wind turbine blades at the end of their operational life are landfill-safe, unlike the waste from some other energy sources, and represent a small fraction of overall U.S. municipal solid ...



Waste Management of Wind Turbine Blades: A ...

Turbine blades, responsible for converting kinetic wind energy into mechanical energy, are generally made from multilateral composite materials. The major components of a typical WT, like the nacelle and the tower, except ...

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