Taking responsibility Blade by Blade

Siemens Gamesa is leading the way to a sustainable future. For the first time in the industry, we are able to separate and recycle the blade materials to be used in new applications. This is a major step towards achieving 100% recyclability of our offshore turbines.

The RecyclableBlade is produced the same way as a standard blade and is based on the same IntegralBlade® manufacturing process. The only difference is the use of a new type of resin that makes it possible to efficiently separate it from the other components at the end of the blade’s working life. This allows the materials to be recycled for new applications.

1. Decommissioning after end of life
   The blades will be dismantled from the turbine and prepared for the recycling process.

2. Immerse in mild acidic solution
   The blade will be immersed into a heated mild acidic solution, which will separate the resin from the fiber glass, plastic, wood, and metals.

3. Reclaim separated components
   The separated materials can then be recovered from the solution and prepared for secondary use, such as rinsing, drying.

4. Re-use
   The materials are now ready to be used in new products matching the technical properties of the materials, such as in the automotive industry or in consumer goods like flight cases and flat-screen casings.

Why do we need the RecyclableBlade?

- 85% of a wind turbine is already recyclable, but it has been inherently difficult to recycle the wind turbine blades in a cost-efficient way.
- Several European countries have introduced bans on the use of fiber-reinforced composite (FRP) in landfills.
- 10% of the total fiber-reinforced composite (FRP) waste in Europe stems from wind turbine blades.
- Some countries have introduced or are planning to introduce requirements for the recyclability of the entire turbine, including the blades.
- Until now, blades are mostly disposed of as landfill.

What are the challenges in producing recyclable blades?

+200,000 blades could be recycled and avoid ending their life as e.g. landfill. The length of all the blades in total would be more than 22,000 kilometers long if stretched out in a line, reaching more than halfway around the world.

All blades together would amount to more than 10,000,000 tons of recyclable material, or the weight similar to more than 1,600,000 elephants.

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