

Frequently Asked Questions

Recycle and reuse of wind turbine blades challenge

Q1. What are the specifications and dimensions of a hypothetical wind turbine blade?

Wind turbine blades installed 15-20 years ago were in the range of 20m (each, so the rotor diameter was around 40m); as of today, an average size for an onshore wind turbine blade is around 60m (Solvers should take it as an indication as there are bigger ones). Here below some approximate dimensions of the main sections. Again, they shall be intended as an indication.

	20m blade	60m blade
Blade width/diameter @ blade root	1.5-2.5m	4-5m
Blade width @ max chord (20-30% of blade length, from the root)	2-3m	5-6m
Blade width @ tip	Less than 0,5m	Less than 1m

Solvers can then consider that blades taper linearly from the max-width section to the tip.

Q2. What are the materials used in these blades?

The Challenge description already contains some details - composite materials (typically glass/carbon fibres + epoxy matrix), plus some other minor components/materials (e.g. glue and gelcoat). It is not possible to enter in materials percentage or further details, since every blade and wind turbine manufacturer is using materials and compositions that may differ from each other. In any case, the most relevant part to be addressed is the composite one (typically glass/carbon fiber + epoxy), that is representing roughly more than 90% of the blade weight. The rest is typically adhesive and some other minor-weight materials (also some steel inserts – that may be recycled - etc.).

Q3. What is the cost of each blade to manufacture?

The cost varies considerably from blade to blade. In any case, very roughly, please consider it in the range 50-150k€ (old and small ones – new and big ones).