

## Research project and supervisory team

### Scholarship:

22CBIGE\_PH01 / PhD Scholarship in Recycling of Wind Turbine Blades with Environmental Impact Analysis

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| <b>Supervisory Team</b>   | <a href="#">Dr. Philip Hall</a><br><a href="#">Prof. Nick Miles</a><br><a href="#">Dr. Zheng Wang</a>  |
| <b>Short introduction &amp; description of research project</b> | <p>The first generation of industrial scale wind turbines were installed back in the early 2000s and with over 20 years' service they are gradually reaching their end of life. The responsible disposal of such structures, particularly turbine blades, has become a major concern for wind turbine operators. Significant effort and resources are required for the decommissioning process and in the dismantling and transportation of blades to waste treatment facilities, not least because of its footprint.</p> <p>This project will take a life cycle assessment approach to recycling different wind turbine blades identifying carbon intensive operations and investigate alternative solutions to improve the overall environmental performance for their recycling. The turbine blades typically consist of glass fibre (as a reinforcement), epoxy as a plastic polymer, balsa wood as a core material, a polyurethane coating and lightning conductors. For example, a typical 60MW wind turbine comprises 660 t composites, 38 t plastics and 29 t wood that are all potentially recyclable.</p> <p>The project will investigate the application of mineral processing techniques to provide on-site shredding and pre-concentration of composite materials and other components, and prepare waste derived fibre/composite material for other potential processes, eg, wood plastic manufacturers.</p> |
| <b>Contact points</b>   | Dr. Zheng Wang<br><a href="mailto:Zheng.wang@nottingham.edu.cn">Zheng.wang@nottingham.edu.cn</a>   |