

research highlights

OFFSHORE WIND

Decommissioning plans

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Offshore wind farms have an expected lifetime of 20–25 years. So far, only a few offshore wind farms have reached the point where they should be decommissioned and they are small and close to the shore compared to the giants installed today. With the growing number of offshore wind farms being built — each unique in technical characteristics and site requirements — tailor-made plans for future repowering, refurbishing and decommissioning programmes are required. Now, Eva Topham and David McMillan from the University of Strathclyde, UK, propose a methodology to minimise costs, risks and environmental impacts of the decommissioning phase of monopile wind farms.

The researchers take into account technical aspects, such as various monopile foundation types or cutting techniques to remove the turbine and foundations. Notably, they recommend lifting the turbine and the foundations each in one piece, to minimize both dismantling at sea and impact. Tools and methods are drawn from the onshore wind and the offshore oil and gas industries to lift and transport these weights of a few hundreds of tons. Finally, decommissioning times and costs are modelled for several transportation strategies and various existing farms. Modelled costs are much higher than those previously estimated, reaching £100,000–300,000 per MW. This suggests that careful retrofit options and decommissioning methods should be considered at the initial farm design stage. For example, floating turbines will require less sub-surface work, simplify decommissioning operations and lead to lower costs than the older monopile designs.

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