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Offshore wind energy: Drilling instead of driving

New method developed for foundation piles

The intention is to develop offshore wind energy in the German parts of the North and Baltic seas in an environmentally compatible manner. In order to reduce the noise emissions when erecting the wind turbines, a new drilling method has been developed for installing the foundation piles. The new BINE Projektinfo brochure “Low-noise anchoring of offshore wind turbines” (11/2013) presents the drilling rig and a concept for the subsequent construction sequence.

The drilling machine has been further developed from a shaft sinking machine that has proven itself on land. It operates under water inside the large foundation piles (tripods) and extracts sand and rock using a swivelling cutter head. Mixed with water, this is pumped to the surface. The pile for the wind turbine can then continue sinking into the increasingly deeper hole until it has reached the required depth.

The developers expect sound values for future construction measures at high sea that are considerably below the required limit value. In addition to noise-reducing measures (for example, bubble curtains) used for the currently standard pile driving method, another method is therefore now available for reducing construction noise. This mitigation of the sound emissions is necessary in order to protect the harbour porpoises found in the North and Baltic seas, which are dependent on the use of echolocation.

The drilling machine is being developed by the Herrenknecht AG company from Schwanau, Germany. A prototype is currently being constructed and optimised in technical terms.

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