

CHARACTERIZATION OF OPERATIONAL UNDERWATER NOISE GENERATED BY WIND PARK IN BELGIAN WATER OF THE NORTH SEA

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"The first offshore wind turbine was installed in Belgian water of the North Sea in 2008 and today more than 170 units are operational in the zone.

The existing turbines of 5 MW, 3MW and 6,15 MW are installed in a variety of foundations respectively gravity-based foundation, steel monopile of 5 and 5,2 m diameter and jacket foundation incorporating 4 steel pinpiles of 1,8 m diameter.

Measurements characterizing operational underwater noise generated by low wind condition were obtained drifting in the direct vicinity of the turbine and inside the wind park. Additional measurements were made using moored equipment and characterize the emitted underwater noise of steel monopile foundation during higher wind regime.

The main conclusion of this study for the low wind condition is that the operational levels emitted by gravity based foundation are of the same order of magnitude as the local background noise while jacket foundations emits some 6 dB more than the background level and steel monopile are the noisier source with some 15 dB more than background noise characterizing the zone."