***Advances in Jacket Foundation Design for Offshore Wind Farms in Chalk***

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In the UK over 10GW of wind power is expected to be harnessed by offshore wind farms by 2020. Jacket structures are widely used to support offshore substations and are also used to support offshore wind turbines particularly in deeper waters. The majority of foundations for these jacket structures comprise conventional driven tubular steel piles for which design methods in sands and clays are well established. However, design methods for driven piles in chalk are limited and potentially conservative due to a paucity of well documented testing. Furthermore they do not explicitly consider potential for strength degradation under the cyclic loading experience by offshore jacket piles. Chalk is widely present in the southern North Sea and English Channel and these limitations have created challenges for designers and developers. This paper presents testing and design methods developed to overcome these challenges on a number of UK wind farms. These methods include the specification, interpretation and use in design of advanced static and cyclic soil testing on higher quality samples and back analysis of installed piles in order to verify design parameters.