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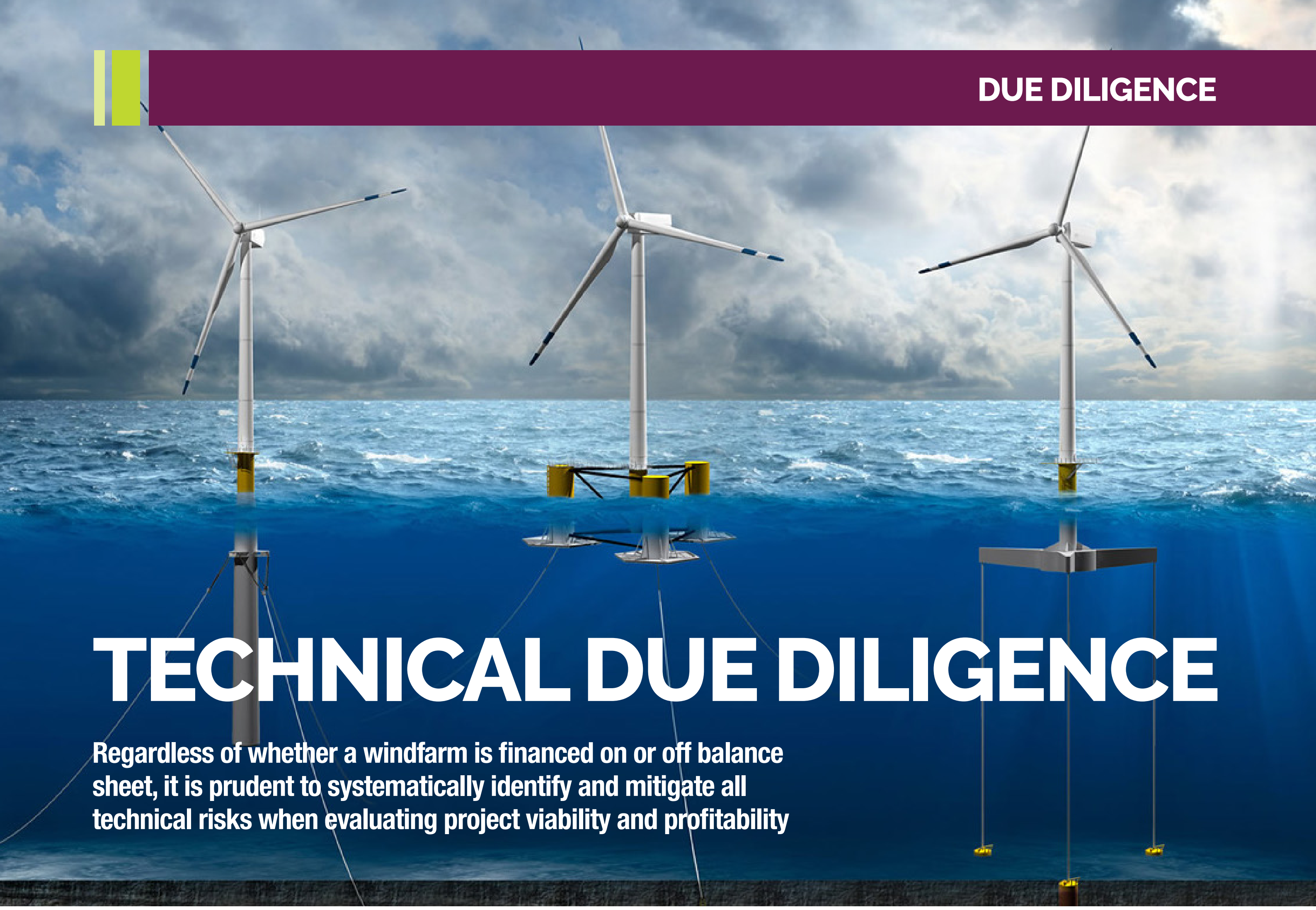
SPOTLIGHT ON NORWAY
EARLY INDUSTRY GAME-CHANGER

TORQUE & TENSIONING
THE RIGHT TOOLS FOR THE JOB

CONDITION MONITORING
INDUSTRY NECESSITY

WEATHER FORECASTING SERVICES
CONFIDENT PROJECT PLANNING



TECHNICAL DUE DILIGENCE

Regardless of whether a windfarm is financed on or off balance sheet, it is prudent to systematically identify and mitigate all technical risks when evaluating project viability and profitability

For investors, an offshore windfarm is its own security and Technical Due Diligence (TDD) is conducted. Without project finance, an owner might commission a '3rd Party Review'.

EARLY DAYS

Although most floating wind technologies currently under development are based on familiar oil & gas substructure types, they are still in the 'proof of concept' stage with no clear design candidate(s) for market dominance [1].

The key point to note is that TDD of a demonstrator project is not fully representative of its future utility scale expansion. Platform size, installation procedures, floating transformer stations, advanced controllers, and improved mooring & anchoring systems are considered the most critical technical barriers to commercialisation [2].

MARKET TOLERANCE

Further, the maturing wind power market has little tolerance for over-predicted pre-construction yield estimates, which for demonstrator projects may be based on statistically unreliable (small/bias) data sets and exaggerated availability assumptions.

Consenting challenges, electrical / grid connection constraints, legal and socio-environmental risks add another dimension to utility scale TDD.

This means that TDD for a demonstrator project should be a precursor for TDD of its utility scale expansion(s). The subtle difference lies in the feasibility objectives at each scale: At the demonstrator stage, the practical potential is to prove the realisability of a technical design within budget and time constraints. For utility scales, the practical potential is to maximise technical efficiency in order to maximise profit.

ARCHITECTURAL CONSIDERATION

For example, windfarm architecture must be considered to optimise the field layouts of six degree-of-freedom floating turbines under pitching wake-effects [3] [4]. Another would be to apply economies-of-scale O&M strategies using real-time site-specific data analytics to deploy drones that inspect and repair major turbine components across the whole windfarm.

ADDRESSING COMMON CHALLENGES

Finally, it would be beneficial for the floating industry to undertake cross-project industry-wide TDD initiatives to address common challenges and critical bottleneck issues across the supply chain [2]. This will help standardise engineering and streamline floating technologies towards commercialisation.

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