The Use of Subsea Wet Mate Electrical Connectors to promote Subsea Power Generation

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As offshore renewable energy grows, we need better and cheaper ways to interconnect generators and transmit power underwater using proven, commercially available technologies.

This paper investigates the feasibility of using readily available subsea electrical connectors from the oil and gas industry in marine renewable energy applications.

The paper will review specific challenges such as extreme pressure, corrosion, and mating/de-mating underwater. It will then analyze the suitability of various Commercial Off The Shelf (COTS) connector types, considering factors like material selection, voltage and current ratings, environmental sealing mechanisms and qualification testing. Potential benefits of using COTS connectors will be highlighted, such as significant cost reduction, shorter lead times, improved supply chain efficiency and increased reliability.

Finally, the paper will present a conceptual case study of a subsea power transmission system utilizing COTS electrical connectors demonstrating the feasibility and potential advantages of this approach.