

Green Offshore Technology: Power-to-X for decarbonization

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Power-to-X refers to an energy conversion technology from green energy to other types of energy that can be useful in wind renewable sectors where energy generation is fluctuating. Power-to-X covers a vast array of applications, technologies and interface; with hydrogen, ammonia, methanol often seen at the centre of this. Applications range from onshore marine facing facilities to fully offshore fixed and floating with integrated or distributed infrastructure. The wind renewable projects are expanding in size, moreover, larger capacity factors are expected due to the development of floating offshore wind farms and the technology. Current technology status and the challenges for the Power-to-X technology will be discussed when rapid upscaling is expected due to the expansion of the renewable projects. Various concepts of hydrogen/ammonia production units are also under research to support Power-to-X.

The project certification and the project assurance can reduce uncertainties and minimise risks to wind renewable and Power-to-X projects. Especially the project certification is essential for floating offshore wind renewable projects as the type certification, traditionally applied for onshore wind turbines, does not take site-specific environmental conditions into account. The more details about the independent assurance and the project certification will be discussed. Lastly, the projects and case studies that Lloyd's Register have been involved will also be discussed.