

## **854 – Decarbonization of offshore installations using converters with active front end**

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Abstract: There are many ongoing initiatives to reduce carbon emissions in oil and gas operations. One of the most common and traditional methods is to electrify motoric applications that were either supplied direct-online or driven with fossil fuels. Now, there are possibilities to also electrify the power generation of offshore installations that are typically supplied with fuel-driven generators. This paper presents a case example of electrification of a Norwegian offshore platform with a 36MVA medium-voltage static frequency converter system. Static frequency converters can be used to convert the network frequency to match the installation's frequency. By using subsea power transmission, the offshore installations can be supplied with power from the onshore grid.

By using converters with Active Front Ends, reactive power can be compensated by the converter to offset the effects of the long subsea cable, where power management coordination is needed for system interaction. The results present how the power system interacts with the converters and loads, as well as how to mitigate project risks in the different operational cases.