

ME24_15 – Election and Design of High Availability Variable Speed Drive System for Critical Oil & Gas Applications

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Abstract - High availability is of essence when we are talking about critical applications in Oil & Gas Industry as the economics of the complete project depends on availability of such applications. In this paper, we take a deeper look into various aspects for selection of a variable speed drive system for a critical Oil & Gas application.

Traditionally high power electrical variable frequency drive systems use current source, load commutated technology (LCI) coupled with Synchronous motors. However, recent developments in voltage source inverters (VSI) has made this technology available at increasingly higher powers. Current source LCI drives are well referenced but are viewed as complex by operators, whilst VSI is considered, overall, a simpler system but lacking in experience at very high ratings, which is changing rapidly. In this paper, we will compare various Drive topologies including mechanical variable speed fluid couplings on various aspects such as availability, efficiency, footprint, weight, cooling, technology readiness, CAPEX and OPEX for a complete working system.