778 - Improving VSD System Availability by using Fully Redundant Power Converters

Authors: Stephane Mouty (ABB), Axel Rauber (ABB)

Abstract: VSD Systems are thoroughly evaluated for their availability and reliability, when used in critical applications for Chemical, Oil and Gas plant.

Critical and demanding process applications have traditionally been driven by steam and/or gas turbines, due to their well-known reputation in the market. Efficiency, environmental and life cycle cost considerations are motivational factors that encourage operators to replace these machines with fully electrically driven powertrains. The focus to avoid any unplanned process interruption has increased.

Despite a power converters ability to automatically re-start following an interruption within a short time frame; associated critical processes may require more time to recover.

Therefore, recently established specifications include requirements to use redundant elements. Having a second VSD converter used in a “hot stand-by configuration” reduces the risk of process disruption and allows maintenance activities, without process interruption.

In this paper different VSD (LCI and VSI) and different system configurations will be compared. The performance will be described based on HiL simulation results.