ME24_09 – ELECTRIFYING LARGE CRITICAL COMPRESSOR APPLICATIONS REDUNDANT VSD SYSTEMS INSTEAD OF MECHANICAL DRIVERS A CASE STUDY IN SUCCESSFUL IMPLEMENTATION

Author(s): Axel Rauber (ABB Switzerland Ltd), Shane Harvey (Elliot Group), Federico Bertoldi (ABB Switzerland Ltd)

Abstract - Traditional high-power compressor applications have in the past relied on steam or gas turbines as primary drivers. In response to the growing emphasis on clean energy initiatives, the industry is shifting towards electric motors as an alternative to turbine drivers.
When speed control and therefore variable speed drives (VSD) are required, their reliability becomes an important topic. As the risk of unplanned process interruptions is to be mitigated, hot redundancy concepts have been developed.
This case study focuses on the application of such a VSD redundancy concept, for the Reactor Effluent (REC) and Heat Pump Compressor (HPC) within a large-scale propane dehydrogenation (PDH) plant process. The selection of VSD technology was driven by specific process requirements, including the need for minimal switchover time. This paper details the journey towards a successful handover to production, highlighting the considerations, challenges, and outcomes of implementing redundant VSD systems in lieu of mechanical drivers for large critical compressor applications.