872 – A study on the effects of grid faults on the grid connected oil & gas terminal

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Abstract: A study was undertaken to understand the types of faults that occur on the national electrical grid (the grid) side of the electrical power system which supplied power to an onshore oil and gas terminal (the terminal) in Caspian region. The terminal has its local aero derivative gas turbine generators with a processing capacity of 1.2 million barrels per day (190×103 m3/d) and 1.25 billion cubic feet (35×106 m3) of gas per day (bcfd). The underlying reasons for plant trips/upsets because of the grid side electrical faults were analysed to eliminate future trips/upsets of the equipment and to prepare a basis for further studies. The scope of the study included the following systems/units: high voltage switchgear (110kV, 11kV, 6.6kV AC), low voltage switchgear (660V, 400V AC), electrical motors, electrical Control and Data Acquisition system and other systems. The study was concluded with actions to reduce the downtime of the equipment due to the grid related faults and optimise the auxiliary systems so that the electrical equipment can ride through the transient faults on the grid that affect that equipment.