

Master Thesis Brief Description

Thesis Title	UPS as a Back-Up of an Oil Refinery
Programme of Studies	MSc in Sustainable Energy Systems
Course	MES 580 Master Thesis
Area of Study	Energy Storage
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Supervisory Committee	Dr Michalis Menicou, Assoc. Professor, Mechanical Engineering Department Dr. Nicholas Christofides, Asst. Professor, Electrical Engineering Department
Semester	Fall Semester 2020
Short Description	The project focused on using an Uninterruptible Power Supply (UPS) as a backup for an oil refinery's operations, specifically in conjunction with a blow-out preventer (BOP). The blow-out preventer is a specialized valve or mechanical device utilized to seal, control, and monitor oil and gas wells to prevent blowouts and explosions in the refinery. During the project, an UPS was connected in series with the blow-out preventer on one AC circuit. This configuration facilitated more straightforward and faster control and monitoring of the well remotely, ensuring continuous energy distribution without interruptions. The study demonstrated the feasibility and advantages of incorporating the UPS into the blow-out preventer setup, providing a reliable backup power solution for critical operations in the oil refinery. This implementation improved operational efficiency and enhanced safety measures, reducing the risk of blowouts and ensuring a smoother energy supply to the refinery's operations.