



SPE ELECTRICAL – OIL & GAS CAPABILITIES



SPE Electrical Limited (SPE) a UK based, small, independent Electrical Engineering consultancy, well-positioned to offer strong and continuing support for onshore and offshore oil and gas projects from concept developments stages up to EPC execution stage.

Many of the Oil & Gas companies and associated EPC companies in the UK contains a number of very experienced electrical engineers, but they are often constrained in lack of time, resources or knowledge of very specialist areas. SPE's approach is to work with established companies to help them bridge any shortfalls in their current capability to help them execute projects successfully.

Electrical engineering is a large and complex area, with many sub-fields and sectors, and it is virtually impossible for one engineer to specialize in all aspects. At SPE we focus on several niche areas, that are often difficult to execute successfully, due to lack of available personnel. Typical areas include:

- HV and EHV electrical system design and equipment (132kV up to 400kV),
- Power System Studies with industry leading software packages ETAP and DigSilent
- Use of very large (25MW+) electrical motors and VSDs
- Generator selection and optimization studies
- Deployment and use of IEC61850 based communication networks
- Selection and configuration of Power Management Systems and Load Shedding Systems
- HV system earthing design and analysis using industry leading software package CDEGS

Members of this team, working together, have successfully worked on several notable projects, which are summarized below:

Storengy – Stublach

SPE were appointed by Storengy to carry out a verification study for an existing site, that was undergoing a planned upgrade to include two additional 9MW, 33kV connected VSD compressors. As part of SPE's scope a new ETAP model of the site was created, to analyse various load-flow and short circuit conditions from the 132kV Utility connection down to the main LV switchgear, before then carrying out verification of the existing protection settings, before proposing protection settings for the new equipment.

SPE Electrical

Tel: +44 (0)1305 300210 **Email:** info@sp-eng.co.uk

www.sp-eng.co.uk



SPE ELECTRICAL – OIL & GAS CAPABILITIES



British Pipeline Association – Buncefield Rebuild Project

SPE were appointed by BPA to provide general consultancy services to assist with the Buncefield rebuild project. SPE's scope included carrying out detailed HV and main LV cable sizing calculations, developing the site earthing strategy and confirming the overall site Earth Potential Rise, providing assistance on implementing the Standby Earth Fault and Restricted Earth Fault protection schemes and clarifying the correct neutral-earthing strategy for the 3.3kV and LV systems.

Royal Haskoning – Ras Al Khair Maritime Yard (Saudi Aramco)

SPE were appointed by RHDHV to carry out an extensive ETAP study for a large maritime yard, that once completed, will be the largest of its kind in the world. The electrical network received main power at 115/13.8kV and consisted of a massive 13.8kV cable distribution system containing over 150 substations and using over 130MW of energy. As part of SPE's scope ETAP studies were carried out to assess the site for a variety of load-flow, short circuit, motor starting and arc flash scenarios, as well as providing guidance to RHDHV and Saudi Aramco on the most appropriate network configuration.

Grange Industries – Beattock and Brighthouse Bay

SPE was contracted by Grange industries to carry out a series of power system analysis reports for two different gas compression sites at Beattock and Brighthouse Bay in the UK. SPE first undertook a detailed review of the existing site data and survey information provided and compared the results of the power data logging equipment to the as built documentation. A model was created in ETAP for each of the main sites, and then a series of loadflow, short circuit and arc flash studies were carried out to confirm satisfactory performance of the plant.

Fabri Consulting (Shell Haven)

SPE were appointed by Fabri consulting to undertake the HV electrical design for a planned upgrade to the Shell Haven terminal. SPE were tasked with carrying out a site survey of the HV electrical equipment, preparing an protection and metering single line diagram of the HV network, specifying the HV switchgear, defining the interfaces between the new equipment and existing equipment, carrying out sizing of the main HV cables and helping to prepare the ITT for the Define stage of the project.

SPE Electrical

Tel: +44 (0)1305 300210 **Email:** info@sp-eng.co.uk

www.sp-eng.co.uk