



SPE ELECTRICAL – INDUSTRIAL & WATER



SPE Electrical Limited (SPE) a UK based, small, independent Electrical Engineering consultancy, well-positioned to offer strong and continuing support for the industrial sector, from concept development to design and commissioning. The industrial sector is one of the most complex areas in the UK and can include manufacturing plants, water treatment and sewage treatment works, data centers and new residential developments.

The industrial sector faces many challenges in electrical design, typically including the need for high reliability and availability, high running costs and a desire from management to keep future investments to a minimum. One of the areas where SPE can assist is in helping to understand the practical constraints and limits of a client's existing networks, and to help identify weak spots in their network and cost-effective ways of improving reliability, reducing energy usage and configuring embedded generation schemes. Typical services include:

- Site surveys and reviews
- HV network design and reinforcement
- Load flow studies, fault level studies, protection studies and motor starting studies
- HV earthing strategies and studies

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

Wyelands WTW - Costain

SPE were appointed to carry out a full HV design for a new Water Treatment Works (WTW) site upgrade. SPE's activities included carrying out a site survey, designing the HV protection scheme and interface between existing protection (1970s vintage) and new scheme, HV cable sizing calculations, protection coordination studies (in ETAP), soil resistivity survey, earthing design and development for the generator neutral-earthing strategy.

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Forest Park Energy From Waste – Trant Engineering

SPE were appointed to carry out all of the HV design and key parts of the LV and control design for a new waste to energy plant containing a 4.5MW Steam Turbine Generator. As part of our scope SPE developed an HV protection & control drawing, LV protection and control drawing, operating and control philosophy, control block diagram, short circuit study, P28 / voltage disturbance study and protection coordination study in ETAP. SPE also provided assistance in helping coordinate and define the supplier roles and responsibilities and the interfaces to the end user and DNO.

HV Network (Confidential) - Capita

SPE were appointed to carry out a loadflow, short circuit and relay protection coordination study of large HV industrial network, for a key UK infrastructure project. An extensive model of the site was created in ETAP with numerous operational configurations examined in detail.

Basildon Data Centre - Confidential Client

Full relay protection coordination study of large 30MW data centre for a key financial institution based in both the USA and the UK. SPE imported the existing client software model in SKM, into ETAP and then undertook a detailed scenario analysis before producing over 20 separate TCC coordination studies.

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