



## SPE ELECTRICAL – CONSULTANCY



SPE can provide a wide range of consultancy services which includes everything from site surveys, power system design to fault investigations. The company prides itself on offering, practical, clear, cost-effective and concise advice and is keen to help its Clients resolve a problem as swiftly as possible. Typical consultancy areas include:

### **Concept Development**

There are many factors to consider when developing an initial power system design concept from scratch, which can seem a daunting task. These considerations include compromises necessary between performance, reliability and cost. SPE can help develop a design to find the most cost-effective approach for a system. Careful assessment, during concept development, include issues such as system redundancy, cost, fault levels, equipment ratings and market availability.

### **New Electrical Supplies & Utility Connections**

When a company is considering a new development, it is usually necessary to obtain a new electrical supply, or to upgrade an existing supply. While this may sound straight forward, utility companies can often be difficult to deal with directly and will frequently ask for information which may not readily available. SPE can act on a Clients behalf to liaise directly with the utility company, and help gather the correct information, present it in a suitable way to the DNO.

### **Renewable Energy**

SPE has been involved in many renewable energy projects including wind farms, solar photovoltaic (PV) arrays, Combined Heat & Power (CHP) plants, as well as hydro power. This allows SPE a broad appreciation of the different requirements of each of these systems, and an understanding of how the electrical system and utility company interface must be developed in order for the system to operate correctly.

### **Site Surveys**

Many industrial sites have been designed and upgraded many times in their life and record keeping has often not been kept up to date. SPE can attend a site to review the existing site configuration and documentation to help identify any weak areas in the system and provide assurance that the equipment configuration is suitable for operation, or to help plan equipment upgrade strategies.

**SPE Electrical**

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### **Client Engineer Role**

Where a company has limited in-house electrical expertise or are dealing with a project that is outside of its comfort zone, SPE can act as a 'Client Engineer' on their behalf. This is where one of SPE's experienced consultants takes on the responsibility of reviewing and interacting with third parties on a Clients behalf to ensure that they are being treated fairly. When undertaking this role, an SPE engineer can review design documents, attend design review meetings, factory acceptance tests and site tests, as well as liaise directly with utility companies.

### **Power Quality Reviews**

SPE can help Clients optimise their electrical system, by studying the power quality at a site to determine if the site requires power factor correction or harmonic filters installing. These devices, whilst initially expensive, can quickly bring a return on investment by reducing electricity costs and helping to prevent future equipment failure.

### **Due Diligence Studies**

Before investing in new items of capital plant, it is often wise to undertake a due diligence study to confirm if the new equipment is suitable for the planned use, before committing major investment to a new concept. SPE's experienced power system consultants have a wide depth and breadth of knowledge and can provide detailed reviews of the technologies maturity, reliability and suitability for the role. This enables Clients to see past the technical brochures produced by the manufacturer, and ensure that the technology is right for their operation.

### **Operability / Safety Investigations**

It is becoming increasingly common for new and existing electrical systems to be subject to rigorous safety analysis, in a similar manner to HAZOP studies undertaken by process industries. These studies are known by a variety of names such as SAFOP, and OPAN, but all follow a structured review process to identify any potential flaws in the system design or operating procedures. SPE can chair these workshops to help with facilitation, as well as preparation of fish-bone diagrams and cause-effect type diagrams. Where specific safety concerns exist, SPE can provide a specialist engineer to review the design / operating condition and provide an opinion of the safety of such an approach.