



**SPE ELECTRICAL**



## **CASE STUDY 12: GRANGE INDUSTRIES**

### **GAS COMPRESSION STATIONS: POWER SYSTEM STUDIES**

<b>Client:</b>	Grange Industries
<b>Industry:</b>	Oil & Gas
<b>Plant Type:</b>	Gas Compression
<b>Project:</b>	System Studies
<b>Contract:</b>	Lump Sum
<b>Date:</b>	2017

**“SPE was appointed to undertake a power flow and arc flash study for Grange Industries”**

SPE was contracted by Grange industries to undertake a power flow and arc flash study for two different gas compression sites at Beattock and Brighthouse bay in the UK, based on site survey data provided by the end Client.

SPE began by reviewing all the existing site data provided, and the results of the power data logging equipment. SPE then reviewed the data logger information to check and confirm the site power demand and load cycling, power factor, voltage unbalance and levels of harmonic distortion on the site.

SPE then constructed a model in ETAP of the main sites, and used the loading data to setup diversity factors for the system which were 'tuned' to match the load data recorded by the site data loggers to take into account actual operating conditions. Once this base condition was established, a variety of load flow cases were carried out to confirm a satisfactory rating of all of the items of the plant.

To complete the project, a series of arc flash study calculations were carried out based on the protection settings for the maximum and minimum short circuit cases to confirm the levels of incident energy and the required PPE for operations personnel.