SPE ELECTRICAL

CASE STUDY 6: PRESCIENT POWER

G59 RELAY PROTECTION: TRIPPING INVESTIGATION

Client:	**Prescient Power**
Industry:	**Renewables**
Plant Type:	**Solar Farm**
Project:	**Investigation**
Contract:	**Lump Sum**
Date:	**2016**

"SPE undertook an urgent detailed investigation to identify the cause of continual tripping of a G59 relay leading to lost revenue for a customer."

SPE was contracted by Prescient Power to investigate a series of spurious trips of a G59 relay, which was causing a new solar farm to trip frequently for no discernible reason. This was leading to frequent outages and lost revenue for the end customer. SPE recognised the urgency of this job and gave it immediate priority.

SPE began the investigation by reviewing the possibility of an intermittent fault in the equipment causing the trip. Once this had been ruled out, SPE suggested installation of data loggers on the system, to build up a picture of the system behavior prior to the trip. After several days-worth of data, SPE managed to identify that the cause of the fault was a local factory on the same system, which had a heavily unbalanced lighting system. Once the factory production systems had gone off line, and all the lights were on, this was causing a noticeable voltage unbalance of nearly 4% on the electrical system, which was causing the G59 relay to trip on unbalance / vector shift.

Once the problem was identified, SPE alerted Prescient Power to the issue, and advised them to request permission from the DNO to increase the vector shift settings on the G59 relay as an interim solution, whilst discussions were held with the factory to get them to address their load balancing problem.

The Client advised that they were impressed with SPE's speedy response, and that SPE had reduced the original estimate of 5 days-worth of work to identify the fault, to finding the fault within 2.5 days-worth of fees. This resulted in a fast and cost-effective resolution to a frustrating problem for our Client.

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