The Company

TEG Consulting Engineers provides engineering services to:

- Private Sector
- Mining
- Commercial /Industrial Sectors
- State and Local Government Entities

Our Clients

Include:

- Individuals & Private Developers
- Major Construction Companies
- Major Corporations
- Government & Private Sector Asset owners
- Mining Corporations
- Quarries

Services Offered

TEG Consulting Engineers:

- Civil & Structural Engineering.
- Electrical & Mechanical Engineering
- Architectural Design
- Project Management (From Initiation to Turn Key)
- Asset Management Planning
- NDRRA – management and planning, including audit preparation.
- Inspections / Audits
- Design Reports
- Damage/ Condition Reports
- Insurance Assessment Reports
- Stakeholder Liasion's

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TEG CONSULTING ENGINEERS PROJECT SUMMARY SHEET

TEG CONSULTING ENGINEERS

2014 Clarke Energy & Fortress Resistors – Load Bank Failure Investigation

Project Scope

Stephen Edwards was engaged as an Electrical Engineer and Technician to gather data and perform and root cause analysis of an 11kV Resistive Load Bank failure at Clarke Energy's Reedy Creek 1 Power Station for Fortress Resistors.

The projects involved the installation of a Hioki PW3198 Power Quality Analyser into the 11kV switchboard with remote monitoring and control as well as analysis of the recorded data, to establish the root cause of the load bank failure.
The role required the following:

- Negotiation and discussion with the client as well as Origin Energy and Clarke Energy staff to install and remove the data logging hardware into the 11kV switchboard.
- Establish a method of connection for the data logger within the 11kV switchboard as well as its remote PC interface, with the site unseen and the shutdown period restricted by Origin Energy.
- Establish remote access to the PC Interface via the internet so that data logger could be controlled and monitored from the office.
- Control and monitor the data logger while communicating with the Reedy Creek 1 power station control staff.
- Recover the data logger within a 2 hour shutdown period.
- Preparations of the root cause analysis report including the preparation and acquisition of all supporting references and data.

Key Personal

Client: Fortress Resistors

Consulting Engineer: Stephen Edwards TEG Consulting Engineers T/A Protech Power.

Client Representative: Phil Newman
Email - phil.newman@fortressresistors.com

Our Involvement

Protech Power was engaged by Fortress Resistors to perform a root cause of failure investigation on an 11kV resistive load bank, installed at Clarke Energy's Reddy Creek 1 power station, which had failed while still under warranty.
Discussions between the load bank manufacturer (Fortress Resistors) and the consumer (Clarke Energy) had already begun with the possibility of litigation not being dismissed. This placed Protech Power in a difficult position as Clarke Energy was an existing long term customer.
Stephen Edwards was employed by Protech Power and was responsible for conducting the investigation and producing the report.
Protech Power undertook the following actions:

- Arranged shutdown times and durations with Clarke Energy and Fortress Resistors as well as Origin Energy.
- Installed the HIOKI power Analyser into the 11kV switchboard to monitor power quality characteristics such as harmonics and voltage fluctuations that may affect the load bank.
- Extract and analyse the gathered data for signs of potentially damaging or erroneous electrical events such as harmonics and voltage spikes.
- Investigate possible causes of such erroneous events and establish a case for the potential root cause(s) of failure.

Protech Power was required to maintain all ingress ratings of the switchboard and satisfy all the operational requirements of both Origin and Clarke Energy.

Project Outcomes

The power quality data was successfully recorded using remote control and acquisition. The installation and recovery of the analyser hardware was also seamlessly completed while maintaining all client confidentiality and relationships. The report was completed with the root cause of failure being identified and then submitted to the client.