

## Comprehensive Power Quality (PQ) Investigations & Audits for Improving Network Health

GreenVolt Power Quality Solutions was born from a shared vision of two passionate professional electrical engineers to make power systems more reliable, efficient, and ready for the renewables future; utilising a first-principles approach to solving PQ issues.

### Evolving Generation and Loads

Electrical networks around the world are evolving from traditional generation based on fossil fuel thermal synchronous machines to a mix of renewable generation technologies that include Inverter Based Resources (IBR).

Moreover, customer load is continuously changing from traditional passive loads to electronic based equipment. These changes bring new PQ challenges pertaining to generation, distribution and consumption of electrical energy which are more complex than exhibited in previous aging networks.

### Ghost Faults

PQ issues rarely are obvious; they may manifest as:

- Spontaneous failures or misbehaviour of equipment;
- Equipment requiring frequent replacement and or maintenance; and
- Normal operation on grid supply, failure on generator supply.

### The GreenVolt Difference

From our experience, many organisations use the reporting function of a Power Quality Analyser (PQA) to generate a PQ report with no insight as to the causes of any identified PQ issues, and often with no feasible mitigation strategies offered.

Using engineering principles, GreenVolt aims to tell you **why** your network is behaving the way it is, **what** is causing it and **how** to rectify it using modern mitigation equipment, this includes: Power Factor Correction (PFC) units; Active Harmonic Filter (AHF); STATCOMs; Voltage Conditioners and other similar equipment. We provide recommendations for mitigation that are both cost effective and sustainable.

### Power Quality Services

- Start with a PQ investigation which includes:
  - Monitoring the distribution board for a minimum of one week;
  - Analysing logged data and assess for non-compliances (in accordance to the relevant PQ standards);
  - Assess for external events and influences; and
  - Preparing a PQ report which (a) details power quality parameters; (b) identifies problem areas; and (c) provide recommendations and mitigation strategies where and if required.
- Verification of new plant, for example:
  - New HVAC equipment;
  - EV charging;
  - Solar inverters and transformers;
  - Backup generators;
  - STATCOM; and
  - Synchronous condensers.
- Benchmark your PQ and characterise your electrical landscape with:
  - Annual audits; or
  - Continuous monitoring.
- Our team can design and implement a tailored cost-effective PQ solution.

### Rental Services

You can rent PQAs from us. We can additionally provide you with:

- Installation assistance
- Data analysis
- Technical support

### Expert Witness

GreenVolt Power Quality Solutions have been engaged to provide expert opinion evidence in legal proceedings.