

POWER ENGINEERING SERVICES

CAPABILITY STATEMENT



SAFETY | QUALITY | RESPONSIBILITY | VALUE

INTRODUCTION AND COMPANY OVERVIEW

Established in 2015, **POWER ENGINEERING SERVICES** is an Australian owned and operated company based in Perth, Western Australia.

Our core expertise is the engineering design, commissioning, testing, maintenance, and repairs of high voltage (HV) and low voltage (LV) electrical systems and their associated equipment.

The company employs a team of electrical engineers, technicians, electricians, trade assistants and electrical apprentices all with one goal in mind – to **safely** and **effectively** deliver the solutions our clients expect, to do this on time and within budget.

Another of our key goals is providing an after-hours service and giving value-added service to our clients.

Work undertaken by us covers most sectors within the electrical industry including mining, oil and gas, utilities, heavy/light industry, manufacturing, construction and commercial.

We travel to all parts of Australia and the wider area to locations where our services are required.

CERTIFICATION

Our HSEQ Management System has been developed by JS ISO Services and is certified by GRS Certification. The system meets the requirements of the following Standards:

- ISO 9001:2015 (Quality), ISO 14001:2015 (Environment) and ISO 45001:2018 (Safety).

CORE COMPETENCIES

Testing & Commissioning

Provide our clients with a comprehensive testing and commissioning service on a wide range of HV & LV power system assets including power transformers, current & voltage transformers, circuit breakers, switchgear, protection relays, revenue meters, earthing systems, cables etc. Development of commissioning plans, procedures, and verification documents for projects and to provide recommendations if necessary.

Electrical Engineering Design and Consulting

Power quality audits, HV & LV infrastructure designs and discrimination studies. We also liaise with the electricity supplier regarding power upgrades and new installations.

Asset Condition Monitoring

Condition monitoring of power system assets is a very effective strategy used by many successful asset owners. For our clients to maximise the use of their assets, we provide a service to effectively maintain and monitor them. We also develop asset maintenance strategies and plans and work in conjunction with our clients to implement these strategies.

To assist with this, we provide online & offline thermographic, corona discharge & partial discharge surveys. We also provide transformer oil analysis and other services.

Construction

Carry out new electrical installations of both HV & LV plant and equipment.

Maintenance & Repairs

Maintain and repair a wide range of HV and LV electrical equipment. This includes power transformers, current transformers (CTs) & voltage transformers (VTs), HV & LV circuit breakers, switchgear and switchboards, protection relays, revenue meters, electrical earthing and lightning protection systems, HV cables and other electrical assets.

DETAILS OF SERVICES PROVIDED

- Power System Scheme Tests
 - Transformer through tests to check transformer protection stability
 - Bus Zone primary injection to check stability
 - Discrimination Studies
- Protection Relays
 - Set up
 - Testing by Secondary & Primary injection,
 - Function tests
- High Voltage & Low Voltage Switchboards
 - Commission, Test and Maintain
 - Diagnostic tests
 - Protection injection tests
 - Functional tests, Interlocks etc.
 - Online and Offline Partial Discharge testing
- Earth systems
 - Soil Resistivity
 - Design and Modelling
 - Installation
 - Earth Grid Impedance
 - Step & Touch Potential Tests
 - EPR tests
- DC Power Systems
 - Commission Battery systems
 - Battery Capacity Testing
- Current transformers (HV & LV)
 - Ratios, Polarity, Magnetisation Curves, Winding Resistance, IR & PI
 - Dielectric Loss Angle
 - Partial Discharge (Online & Offline)
- Voltage Transformers (HV & LV)
 - Ratios, Polarity, Winding Resistance, IR & PI
 - Dielectric Loss Angle
 - Partial Discharge (Online & Offline)
- Power Transformers
 - Insulation (Oil & Paper) Analysis
 - Oil Quality, Dissolved Gas Analysis
 - Oil filtration
 - Regeneration of oil.
 - Basic Transformer Tests
 - Insulation Resistance
 - Ratio
 - Winding Resistance, Dynamic Resistance
 - Vector group & Polarity
 - Other Tests
 - Short Circuit tests
 - Excitation Current
 - Sweep Frequency Response
 - Leakage Reactance/Impedance
 - Dielectric Loss Angle
 - Partial Discharge (Online & Offline)
 - Paper Insulation moisture content
 - Transformer Tap changer
 - Operation checks & Maintenance
 - Dynamic resistance tests
 - Leaking Bushings, Tap Changers
 - Radiators
 - Maintenance and repairs of Transformers
 - Oil streamlining and regeneration
 - Replacement of bushings and radiators

- High Voltage & Low Voltage Circuit Breakers
 - All types of Circuit breakers – Air, Oil, Vacuum, SF6
 - SF6 Gas Circuit Breakers
 - Charge with SF6
 - SF6 Leak detection
 - SF6 Gas analysis
 - SF6 Dew Point tests
 - Electrical tests including
 - Insulation Resistance
 - Power Withstand
 - Polarisation Index
 - Contact Resistance
 - Static & Dynamic
 - Contact Timing
 - Dielectric Loss Angle
 - Partial Discharge
 - Online & Offline
 - On-board Protection Relays
 - Set up
 - Primary & Secondary injection
 - Maintenance
 - Contact wear
 - Mechanical
 - Oil change
 - SF6 and Oil Analysis
 - Mechanical
- Cable Jointing and Terminations up to 33kV
 - LV and HV Cables
 - XLPE Cables
 - Paper Lead Cables
- HV Switching
 - Make up HV switching programs
 - Carry out HV switching
- High Voltage Cables
 - Commissioning tests including
 - Insulation Resistance (IR)
 - Polarisation Index (PI)
 - Very Low Frequency (VLF)
 - Tan Delta (DLA)
 - Partial Discharge (Online & Off Line)
- Dry Ice Cleaning
 - Electric Motors
 - HV & LV Stators
 - HV & LV Rotors
- Power Lines
 - Pole Inspections
 - Corona Discharge surveys
 - Thermographic surveys
 - Installation
 - Live line insulator washing
 - Maintenance of pole top hardware (Disconnectors, Isolators etc.)
- Workshop Facilities
 - Repairs, maintenance & testing are carried out on most pieces of High Voltage equipment within our workshop.
 - Programming relays
 - Electrical testing of mobile elevated work platforms – on and off site
 - Insulation resistance of
 - HV Gloves & Hot Sticks
 - HV Portable Earths

CLIENTS

Detailed below is a summarised list our clients:

- Monadelphous
- BHP Billiton
- Co-operative Bulk Handling
- Curtin University
- Fremantle Ports
- Lend Lease
- Metrowest
- Royal Perth Hospital
- Southern Seawater Joint Venture
- UON
- Various electrical contractors

CONTACT DETAILS

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