



ENGINEERED
ELECTRICAL SOLUTIONS
AND TECHNOLOGY





Engineered electrical solutions and technology from design to functioning, with total cost of ownership in mind.



ABOUT

Gibson Technologies was founded by Fred Gibson in 2006, after years of experience in the Electrical Engineering and Electrical Automation fields. Fred's passion for innovative software development and programming mastery, combined with his various engineering qualifications and experience, has led to unique and effective system designs at Gibson Technologies. This, along with strategic partnerships and Fred's high work ethic has also allowed Gibson Technologies to revolutionise the Electrical Engineering Industry in South Africa. Second director Anne-Marie Moller, Fred's right hand and confidant, joined the Gibson Technologies team in 2010.

With the establishment of their workshop for in-house panel building and manufacturing, Gibson Technologies has offered a complete turnkey solution since 2016. Their move to

Route 21 Corporate Park was soon necessitated by their need for additional space and resources.

In 2018, Gibson added a 3D panel layout service, which ensured an even more refined and better-engineered design solution. This method of proactive engineering allows for an advanced design and spatial planning process, which continues to set Gibson Technologies apart in the industry. In 2018, more software engineers were employed, which allows for the ability to provide clients with a 24-hour, speedy, standby service.

Since 2020, Gibson Technologies can be found in their second building, around the corner from their first, in Route 21 Corporate Park. 2022 marks their 16th year in business, boasting highly qualified and experienced employees, looking avidly to the future.

01

EXPERTISE

Gibson Technologies provides turnkey engineered electrical solutions and technology across the mining and agricultural industries in Southern Africa and beyond. Within the said industries, we provide long-term solutions to ensure value for money, growth and prosperity by prioritising total cost of ownership. We pride ourselves in not merely offering our clients a catalogue solution, but rather an engineered solution in the following areas of expertise:

- Design
- Substations up to 22kV
- Transformers, Generators & Change-Over Systems
- Power Factor Correction
- Distribution Boards & Systems
- Motor Control Centres
- Instrumentation
- PLC, SCADA & SQL Programming & Reporting
- Maintenance & 24h Support

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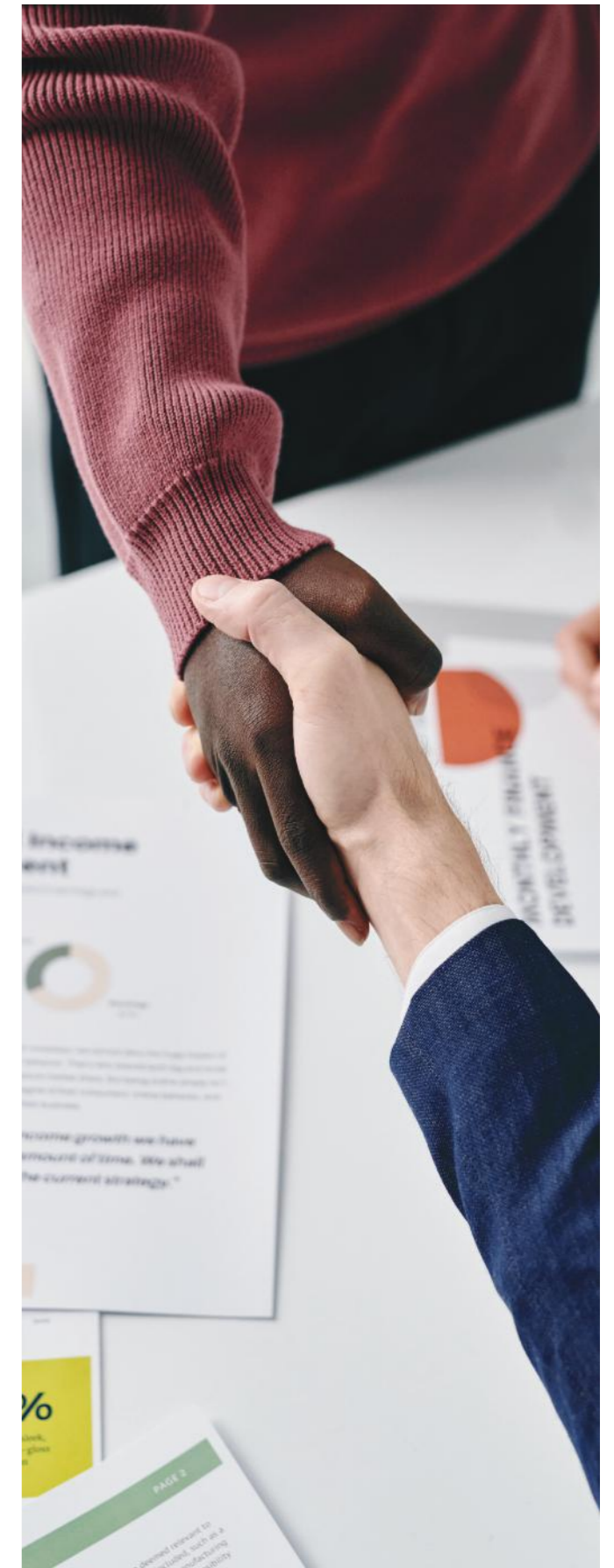
RESOURCES

Our complete in-house solution starts with a meticulous design process, made possible by experienced design engineers and state-of-the-art software. This proactive engineering practice ensures a clear and accurate view of the final product before the onset of manufacturing. Our designs are brought to life by our team of electrical and software engineers working closely with our construction team, comprising skilled professionals, using excellent equipment and effective processes. Our installation team ensures correct implementation and final testing of products, whereafter our extended team of software engineers, on 24-hour standby, takes over with excellent, rapid support. Our design, manufacturing, installation, and maintenance capabilities, together with clear communication and accurate costing, result in transparent projects and partnerships on which you can rely.

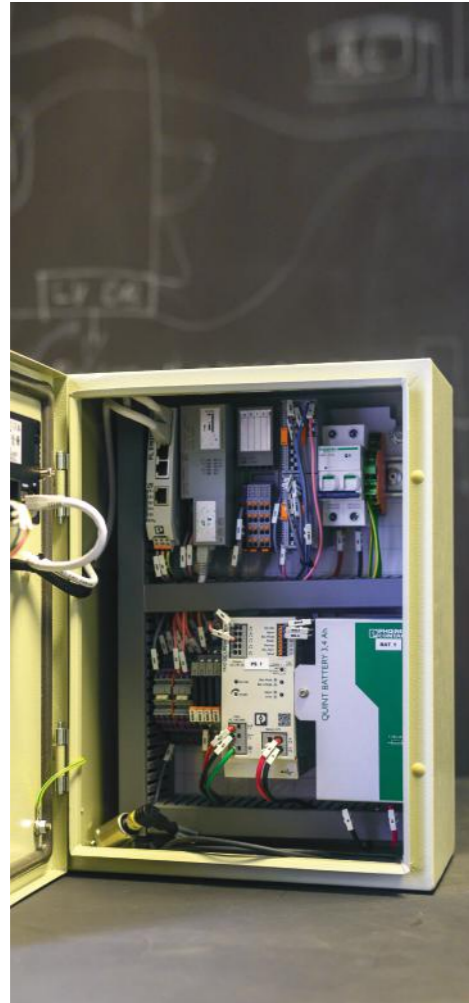
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PARTNERSHIPS

Gibson Technologies is built on a foundation of mutually-beneficial partnerships that often turn into friendships. Our suppliers are the best in the industry, which translates into a consistent supply of high quality materials and components. In the case of specialised work or a project that isn't viable for us to do ourselves, we make use of excellent contractors to execute the work on our behalf, although we still sign off on the completed project. This ensures our high standards of design, quality and safety specifications are maintained. Where contractors are already in place with a client, we prefer to partner with them instead of making use of our contractors. This simplifies the process as the contractor would then already be registered with the client, and have passed all necessary security, safety and medical tests.



SERVICES



DESIGN

Distinctive in-house design services, offering engineered customer-specific solutions through proactive engineering, by experienced design engineers, using state-of-the-art software.

SUBSTATIONS UP TO 22kV

Superb automation, monitoring, refurbishment, and maintenance of substations up to 22kV.

ENERGY MANAGEMENT

Schneider Electric EcoStruxure Power Monitoring Expert energy supply management software for large sites.

TRANSFORMERS, GENERATORS & CHANGE-OVER SYSTEMS

Effective electrical supply solutions.

POWER FACTOR CORRECTION

Tailor-made PFC with condition monitoring for maximum uptime and self-diagnostics.

DISTRIBUTION BOARDS & SYSTEMS

Modular-based enclosures catering for future expansion, accompanied by complete design and full load-flow analysis.

MOTOR CONTROL CENTRE

3D-designed panels driven by first-class electrical design.

INSTRUMENTATION

Precise selection and placement of sensors and instrumentation for maximum stability.

PLC, SCADA & SQL PROGRAMMING & REPORTING

Valuable tools to assist users with interaction and control of plants for optimum production, with minimum down time.

MAINTENANCE & 24H SUPPORT

Preventative maintenance, remote support & breakdowns.

SERVICES:

DESIGN

Distinctive in-house design services, offering engineered customer-specific solutions through proactive engineering, by experienced design engineers, using state-of-the-art software.



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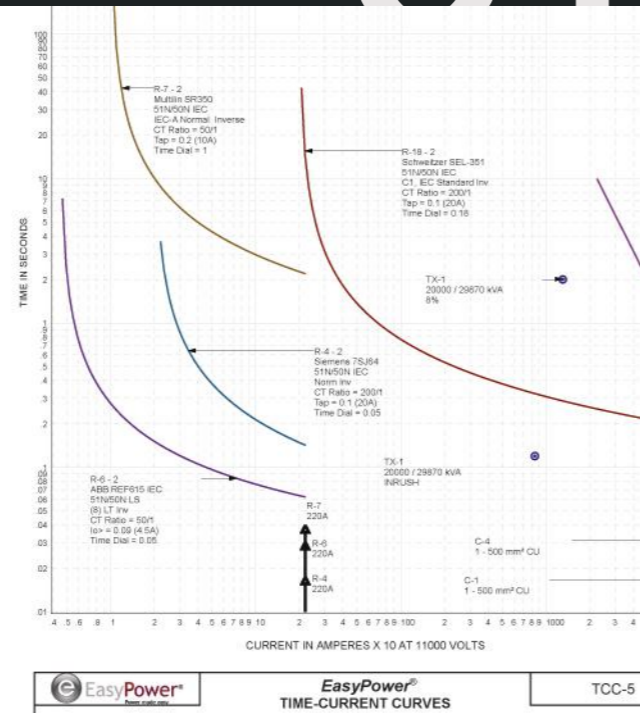
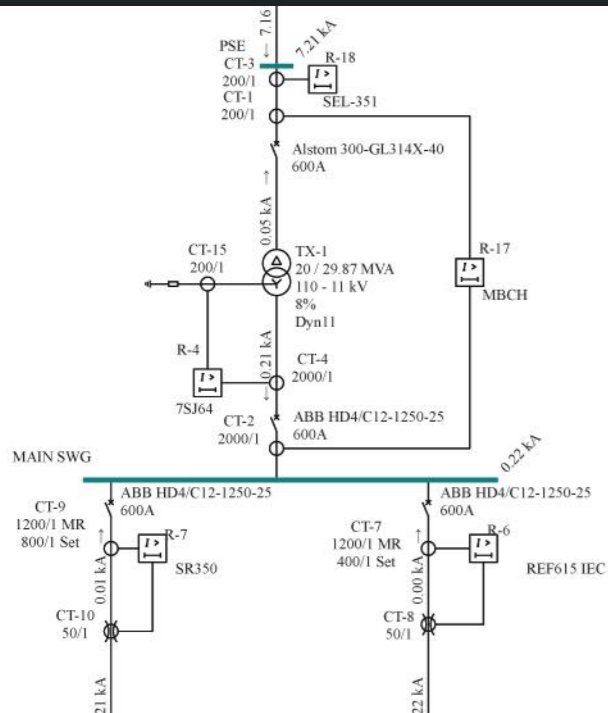
SERVICES:

SUBSTATIONS UP TO 22kV

Superb automation, monitoring, refurbishment, and maintenance of substations up to 22kV. These services include:

- Partial discharge studies
- Injection testing
- Green fields substations
- Complete new substations
- Retrofitting substations - Replacing old equipment with new technology
- Rewiring of LT cabinets
- Servicing and testing of circuit breakers
- Cabling and terminations
- Remote switching, automation & interlocking schemes
- Full SCADA interface, showing individual circuit breakers accompanied by sequence of event recording.

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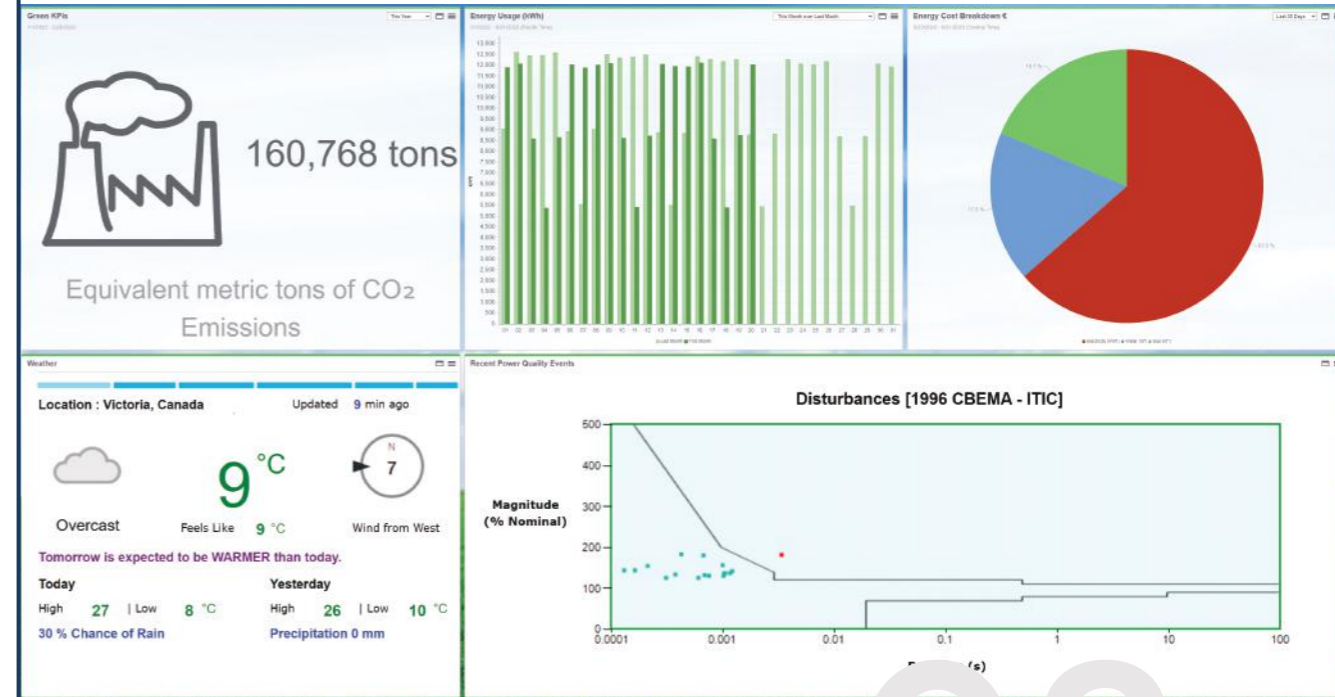


SERVICES:

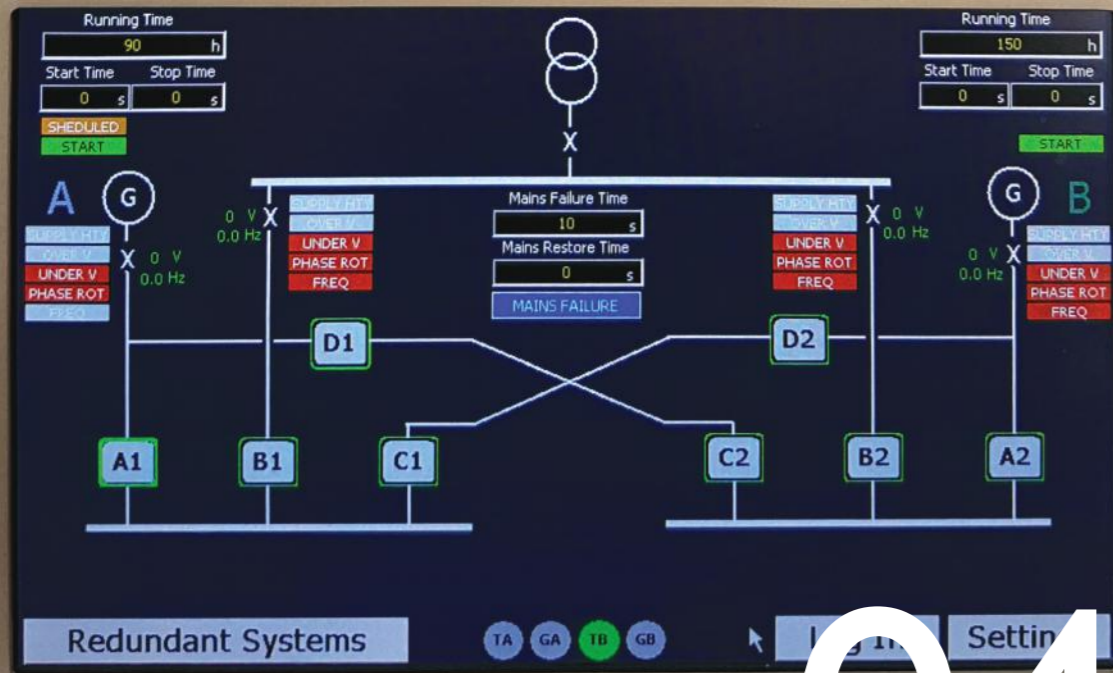
ENERGY MANAGEMENT

Gibson Technologies uses the Schneider Electric EcoStruxure Power Monitoring Expert energy supply management software for all of its large sites. This award-winning software helps power-critical, energy-intensive facilities maximise uptime and operational efficiency by utilising IoT connectivity and distributed

intelligence. Using the most advanced energy visualisation and analysis tools to calculate, model, forecast and track your key energy performance indicators (EnPIs), the Electric EcoStruxure PME provides the flexibility and adaptability needed for today and the IoT-enabled future.



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04

SERVICES:

TRANSFORMERS, GENERATORS & CHANGE-OVER SYSTEMS

Effective electrical supply solutions through reticulation, dual triple change-over systems, synchronised generator change-overs, and step-up/step-down transformers.

- Transformer sizing and specifications.
- Supply, install, test and commission oil and resin core transformers.
- Step-up, Step-down transformer configurations for long distance LT distribution.
- Temperature, pressure and Buchholz monitoring through SCADA interface.
- Generator sizing and specifications, including maximum step loads.
- Reticulation, dual triple change-over systems and synchronised generator change-overs.



SERVICES:

POWER FACTOR CORRECTION (PFC)

Tailor-made PFC with condition monitoring for maximum uptime and self-diagnostics.

Our custom site-specific designs are based on our recorded data from the site, which includes voltage variation, harmonics, and ambient temperature. For sites running at maximum available power, the power factor becomes critical to maintain load. We therefore

supply a condition-monitored system integrated with SCADA, giving the operator real-time feedback about the system's status and health.

Not mixing temperature-sensitive equipment with high power loss components, keeps the power factor bank cool constantly.

05



SERVICES:

DISTRIBUTION BOARDS & SYSTEMS

Modular-based enclosures catering for future expansion, accompanied by complete design and full load-flow analysis.

A full load-flow analysis ensures correct cascading and discrimination between circuit breakers. Regular discrimination curves supplied by catalogues fail to consider the equipment failure curves, especially transformer primary/secondary

damage curves and transformer inrush current.

Motor starting current and special loads are also considered when designing distribution boards. Motor regeneration on a fault condition is calculated and considered in the short circuit rating of panels.

06



SERVICES:

INSTRUMENTATION

Precise selection and placement of sensors and instrumentation for maximum stability. Through experience and fault finding we

have built up a knowledge-base for selecting the correct sensor for the application.

SERVICES:

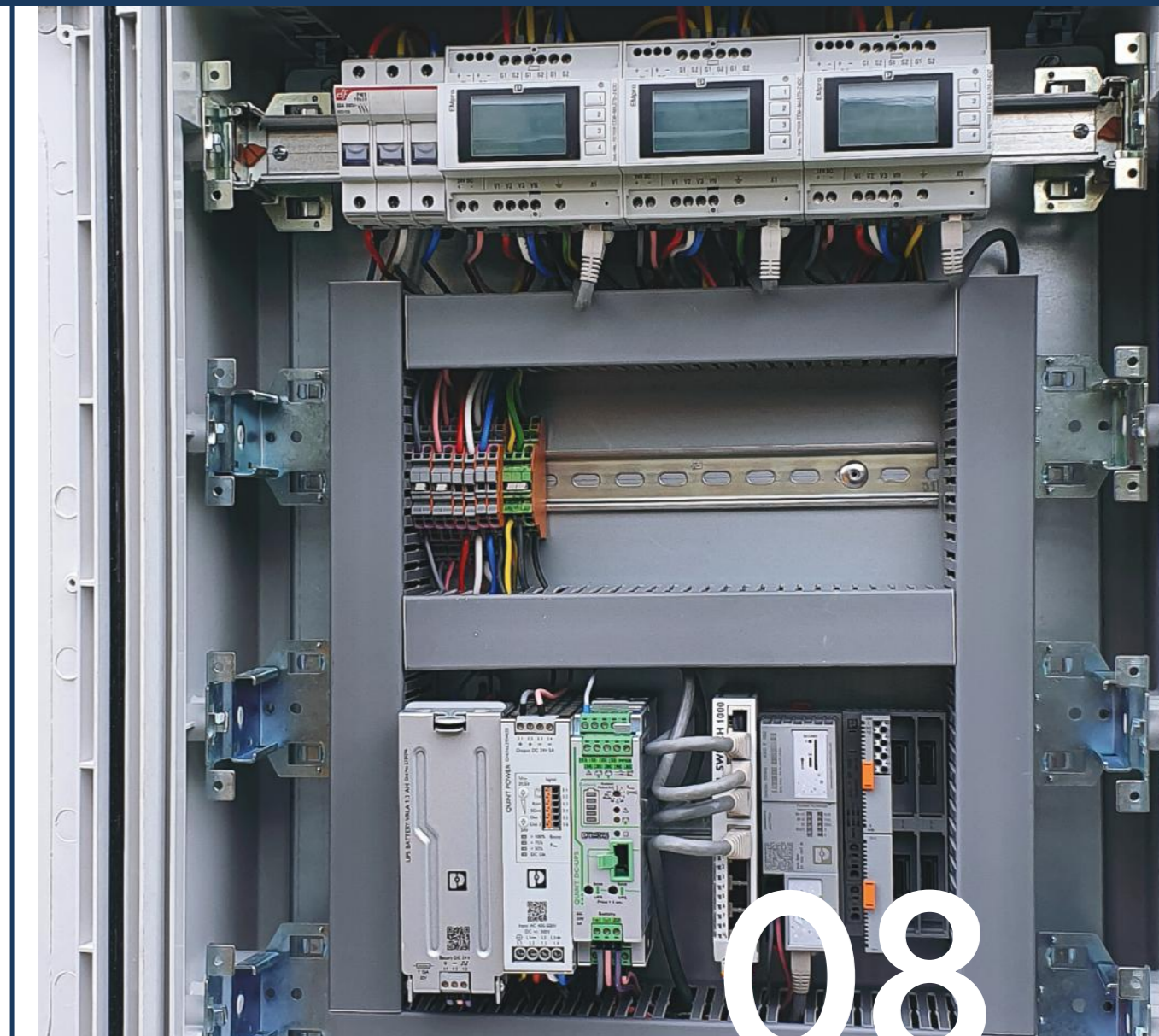
MOTOR CONTROL CENTRE

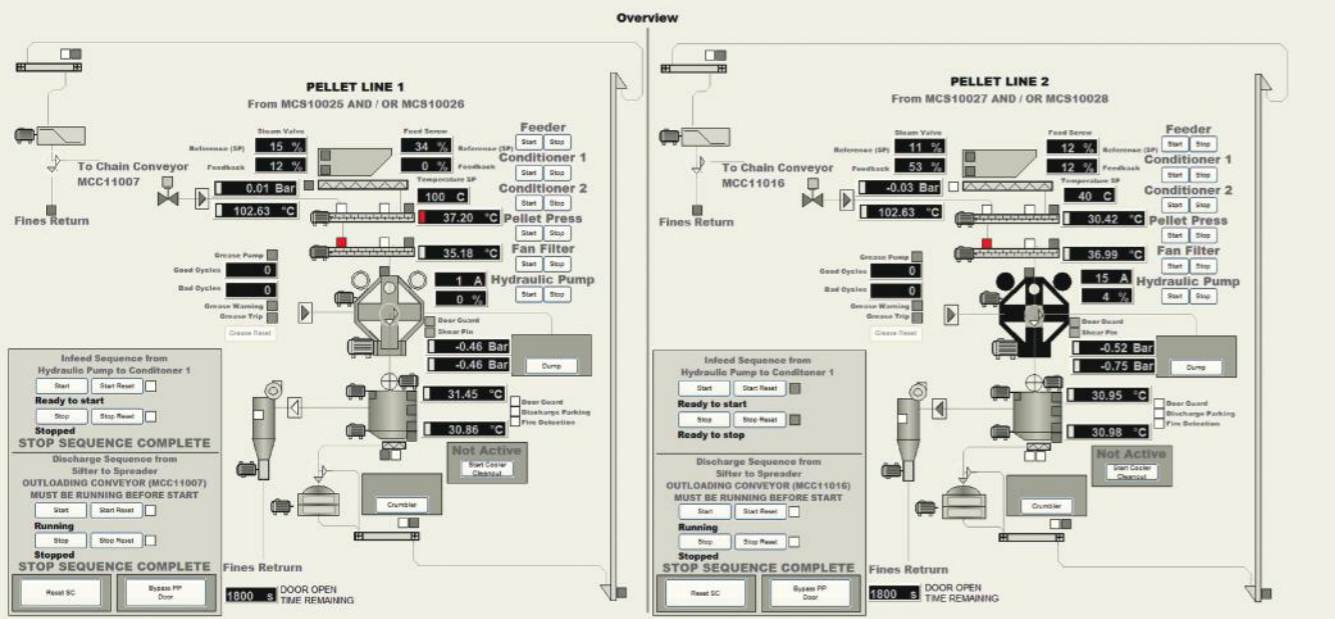
3D-designed panels driven by first-class electrical design.

The 3D layout for each site ensures that the MCC maximises the available space. The individual heat dissipation of each component is considered to accurately determine the cooling requirements of each cabinet.

A digital twin, complete with part numbers, gives a visual representation of the MCC, assisting remote support and eliminating the need for a call out.

Standardisation reduces the critical spare count and complexity of the system.





SERVICES:

PLC, SCADA & SQL PROGRAMMING & REPORTING

Valuable tools to assist users with interaction and control of plants for optimum production, with minimum down time.

A real time monitoring SCADA interface allows a single operator to control and monitor a large plant.

Distributed control systems eliminate the use of multi-core cables, reducing the complexity of plant wiring/installation while simplifying fault finding. Site

installation and cable cost is reduced drastically.

Database recording of production, operational, energy and maintenance data allows for in-depth reporting and optimisation of the production process, affording our clients a competitive edge in the market. Recorded data can be used for machine learning and data mining, giving new insights to existing processes.

SERVICES:

MAINTENANCE & 24H SUPPORT

Preventative maintenance, remote support & breakdowns.

All MCC and systems that we design and supply allow for remote support and fault-finding. PLCs, weighing systems, and VSDs can be configured and programmed remotely, significantly reducing downtime.

For critical operations, a Service Level Agreement is recommended, which can include the following and more:

- 24h/7 remote/phone support
- Fault finding
- Critical spares

For new customers, the process is as follows:

- Maintenance audit to evaluate the site condition
- Identify and label equipment
- Develop a maintenance plan
- Schedule maintenance activities, including external and internal personnel.

PROJECTS

Afgri Seed Plant Bethal (Beckhoff PLC & Adroit SCADA)
Afgri Lydenburg Silo (Mitsubishi Q-Series PLC)
Allem Brothers Feedmill (Telemecanique Premium PLC & Adroit SCADA)
Allem Brothers A-Mill (Telemecanique Premium PLC & Wonderware SCADA)
Allem Bros B-Mill (Telemecanique Premium PLC & Wonderware SCADA)
Kangra Coal (ION 7650 Power Meters & ION Enterprise)
Prime Cure (650KVA Caterpillar Generator)
Pride Milling Kinross Mill (MCC Design, Telemecanique Premium PLC, Citect SCADA, Project management)
Pride Milling Bethal Mill (MCC Design, Telemecanique Premium PLC, Citect SCADA)
Pride Milling Ermelo Mill (MCC Redesign, Mitsubishi Q Series PLC, Citect SCADA, Project management)
SAB Rosslyn (Concept software for 11kV Power Factor)
Caddell Construction, Cameroon (Commission American Embassy PowerLogic System & Busbar changeover system)
Caddell Construction, Guinea (Commission American Embassy PowerLogic System & Busbar changeover system)
Technip (Commission Exxon Mobil new gas pumping platform PowerLogic system offshore Nigeria)
Meyerton Local Council Substation (Sepam Protection, Momentum PLC, Powerlogic SMS system)
Southrand Hospital (PowerLogic system & SMS Software)
Prion Tex (PM850 Power meter & Twido Load shedding PLC)
MIS Engineering (PM700 Power meters, Citect SCADA, Siemens S7 PLC on Inductive Furnace power management)
Rand Refineries (PM700 Power meters, Citect SCADA, Power management)
Kromdraai Best Milling (PLC Direct PLC, Beckhoff distributed PLC, Citect SCADA plus 4 Display Clients)
De Hoek Trust Potato Washing Plant (Beckhoff PLC and HMI)
Pilkington Float Glass (Powerlogic SMS Setup)
SA Feed Phosphates (Beckhoff PLC & Citect SCADA)
Nestle Standerton (Replace Fix SCADA with Wonderware)
Sasko Olifantsfontein (Design and Build 11kV Metering Cubicle with RM6 Ring main unit)
Edgars (C++ Software to interface Telemecanique Premium PLC to Unix Server)
Letaba Milling (Intake plant on Unitronics PLC)
Ruto Mills Pretoria (Pelletizing plant on Wonderware SCADA)
DPI Plastics Weighbridge (Citect SCADA)
Kangra Coal 22kV CT, ION 7650, Ion Enterprise Installation
Rand Merchant Bank Triple Changeover system PLC & Citect SCADA
Pride Milling Nigel Mill & Packing PLC and Citect SCADA
Namib Mills Blending Plant Delta PLC and HMI
Continuity SA ION Enterprise and Power meters
Kingsbury Bird seed blending plant Delta PLC and HMI
Allem Brothers ION enterprise energy management system and Power factor correction banks
De Heus Pietermaritzburg Feedmill Database and Wonderware SCADA
Samquarz Mine ION Enterprise and Power factor banks including a 1MVAR bank
Pride Milling Devon Main Electrical Panel, 110kW Hammer mill panel, M340 PLC and Citect SCADA
Afgri Argent Silo Mimic panel replace with M340 PLC and Citect SCADA
Bokomo Olifantsfontein Flour Blending Plant Siemens S7-317 PLC & WinCC SCADA and Database
Afox consulting to start 10MW 11kV motor after maintenance
Allem Bros. C-Mill (New Premium PLC and Citect SCADA)
Allem Bros. – Supply and Install and commission new Medium Voltage switchgear.
Lepelle Water Upgrade SMS system to ION Enterprise and re-configure Sepam Protection Relays.
Levi Junction Zambia install M340 PLC and write C# SCADA to view remote.
Build and install 350kVA Power Factor bank at Coca-Cola Witbank.
Install Siemens S7-314 PLC at De Heus Kleinberg, Do PLC and C# SCADA to do feed mill batching.
Vodacom – Install Siemens S7-1200 PLC and Magelis HMI's in Data Center to control Chillers.
Russel Stone Soya – Install Siemens S7-300 PLC and program WINCC to control intake system from Afgri Silo.

Teraco – Install, Program and commission dual redundant PLC to control data center Power source from Ups to Generator to Mains for Datacenter A.
Kromdraai Best Milling – Supply and install RM6 Ring main unit, Metering Cubicle and 5 MV Switches.
Flip Human Waterworks Krugersdorp – Supply and install 5 Power factor banks and ION enterprise energy monitoring system via Ethernet Radio.
SAME Water – Supply and Install Power factor banks at Percy Steward Waterworks.
Kellogg's ION SPM7 Energy Monitoring system
Schneider Electric – Design and build 50A primary protection current injectors
Boksborg North Swimming Pool – Beckhoff control system for humidity and temperature
Vodacom – Install 700 CT's and EM4800 Power meters in data center.
Internet Solutions – Install, program and commission Dual redundant M340 PLC changeover system to automatically control 2 x 2MVA UPS's, 2 X 2MVA Generators and 2 X 2MVA Transformers including Citect SCADA to indicate circuit breaker statuses.
SASOL – Design, Commission and Program logic for Changeover panel for water pump station with dual redundant Sepam 80 Protection relays and Logipam software.
Base Titanium – Fault find and commission borehole Field via Miri Telemetry radio PLC's and write Citect SCADA to display status and Control from Control room.
Tormin – Commission 2 X 1400A SCR rectifiers to inject DC current into SLON's
Kellogg's Design, build and install 800kVAr Power Factor bank with harmonic filters.
Anglo American Polokwane Smelter – Do energy audit and supply working plans to save energy. Some already implemented.
Tenke Fungurume Mining DRC – Adapt and change Rectifier Allen Bradley PLC programs
US Embassy Burundi – Siemens Energy Management System fault Finding and Commissioning
Schneider Electric Prisma Smart panel with PowerSCADA Expert
Teraco Germiston Triple Changeover system Datacenter B M340 PLC
Volkswagen – UPS Failure investigation and report
Letseng Mine Lesotho – Energy Study
Botselo Mills Delareyville Yellow Mill Siemens S7-300 PLC, WinCC SCADA
Botselo Mills Load low analysis on ETAP
Botselo Mills 22kV Substation, 4000A DB and 2500A DB
Botselo Mills A & B White Mills 160 Motors, Design and Build MCC's, PLC WinCC SCADA and Scale Management Software
Internet Solutions Randview Dual Tripple Changeover system Beckhoff PLC, C# SCADA
EOH Datacenter Product Specification and Design
Menlyn Shopping Center Metering Project and Power Monitoring Expert
NMS (Nelson Mandela Square) Panel Project
NMS PME Project
NMS Meter Installation Project
NMS Design and Project Management
Liquid Telecom/Neotel/Africa Data Centers Energy Centers Energy monitoring and Management system for their Microsoft Data Centers.
Godrich Mills new Siemens MCC, PLC and WinCC Control system Turnkey
Just Flour PLC and SCADA System Durban
Albchrome Arc Furnace Monitoring and Control System
De Heus Bread Drying plant MCC, PLC and HMI system Turnkey
De Heus Klerksdorp New Intake Silo Complex MCC, PLC, SCADA, 11kV Transformers Turnkey
Internet Solutions MOD 3 Energy Center Changeover System with Protection Relays and IEC61850 implementation
Rand Refineries Load Flow and Protection Grading with ETAP
Ceramic Industries Power Monitoring Expert Implementation from 88kV to DB level
Phalaborwa Municipality Main Substation, Sub5 and Sub7 Switchgear rewire, Protection Upgrade and Remote Control
Tiger Brands Henneman Power Factor Banks complete re-design and rebuild
Allem Brothers D Mill MCC, PLC, SCADA and PME
Allem Bros 800kVAr Power Factor Bank
African Chrome Fields Zimbabwe complete Containerized MCC, PLC and SCADA
Premier Foods Ghana 320 Motor MCC, PLC SCADA control System
Metal Concentrators Dismantle, Label, Make Electrical Drawings, Reassemble and Recommission
Gold Refining Plant in new building
De Heus Umlaas Road Pellet Press complete new PLC, SCADA and Control System including Safety Circuits

ENGINEERED ELECTRICAL SOLUTIONS AND TECHNOLOGY



GIBSON TECHNOLOGIES (Pty) Ltd | Registration Number 2020/663444/07 | Directors: C.F. Gibson; A. Moller



072 174 9183 / 082 325 5653



Admin: anne-marie@gibsontech.co.za

Technical: fred@gibsontech.co.za



www.gibsontech.co.za



Route 21 Corporate Park, 71 Regency Drive,
Building A, Irene, 0046
PostNet Suite #1133, Private Bag X10,
Elarduspark, 0047