

# MGC

Machabeng Group of  
Companies (Pty)Ltd



high voltage substations | power distribution | renewable energy | Telecoms

Consulting engineers

Machabeng Group of Companies (Pty)Ltd

Machabeng Group of Companies (Pty)Ltd Shortened MGC was registered as a company in 2018 by a group of shareholding companies and individuals offering specialist electrical, Telecoms, electronic and mechanical consulting engineering services.

Machabeng Group of Companies (Pty)Ltd is a member of the Consulting Engineers of Africa

Machabeng Group of Companies (Pty)Ltd has, in terms of the Construction Chapter under the Broad-Based Economic Empowerment (Act 53/2003), received a verified score card having a Level 1 BBBEE Status and a Procurement

## **Machabeng Group of Companies (Pty) Ltd offers clients state-of-the-art, cost-effective solutions for their particular requirements**

In 2018 the focus included specialising in the field of High Voltage Electrical installations and Master Planning of Metropolitan Municipal and other power systems including Telecommunications. We have a vast experience in the master planning of high tension electrical transmission, distribution and Telecommunications networks for local authorities as well as Eskom.

A full spectrum of electrical and Telecommunications consulting engineering services from HV overhead lines, underground cables, substations (indoor and outdoor), power system protection and control systems, SCADA systems, telemetering, Fttx, Microwaves, RF, Tower Rigging, TSSR etc is offered. Other specialties include renewable energy projects such as wind generation farms.

Recognition Level  
of 125 %.

## Commitment to Environment

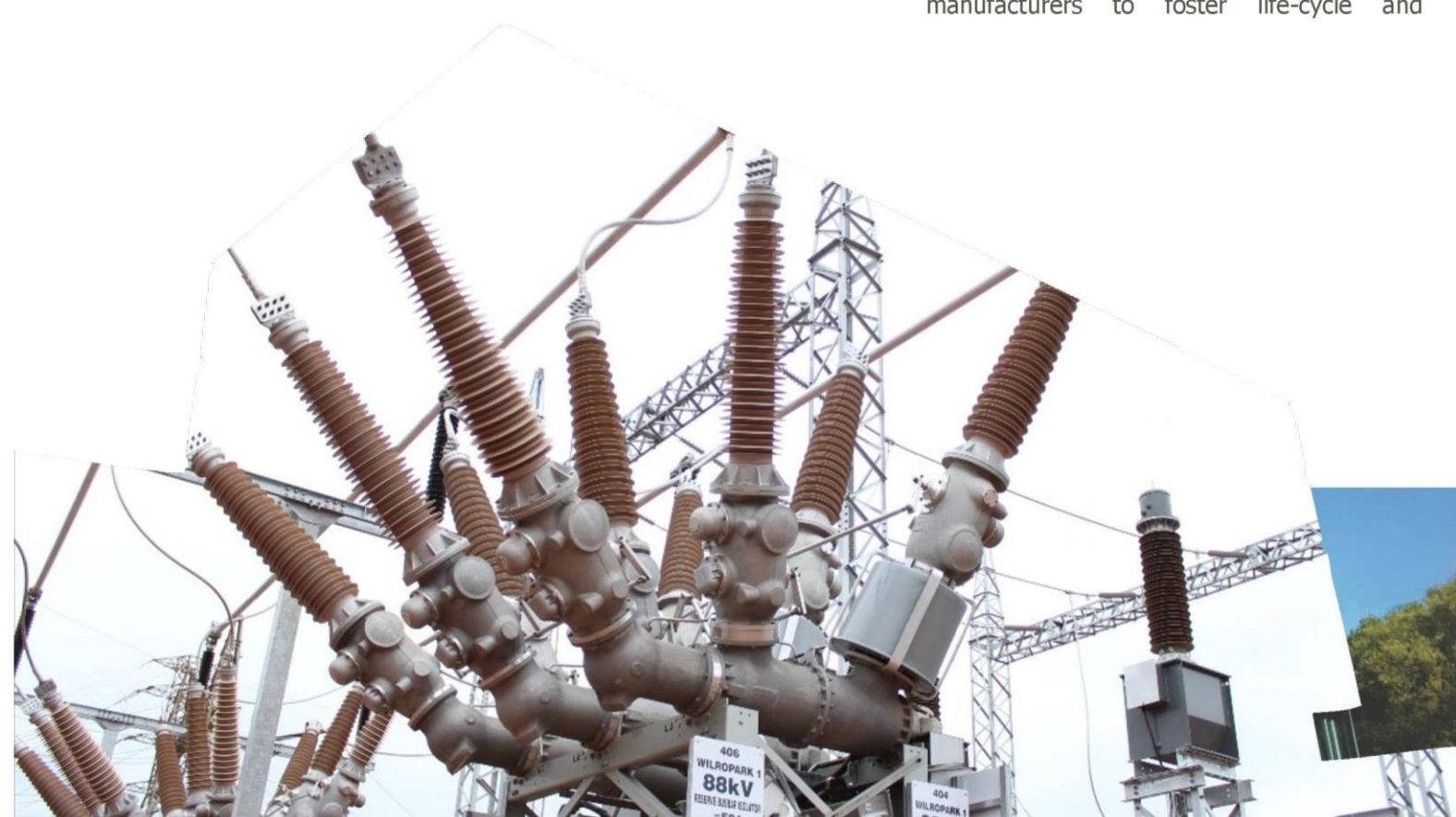
Machabeng Group of companies (Pty)Ltd committed to responsible environmental stewardship and sustainable business practices.

As consulting engineers we recognise the impact of our designs, choice of materials and equipment and construction methods on the environment and will therefore advise Clients and other stakeholders accordingly in order to

implement solutions and services that are environmentally friendly.

Our commitment to minimizing our environmental impact extends across the entirety of electrical, Telecoms and mechanical engineering fields that we are involved with. Within the administrative and operational areas of our business, we are committed to measuring and monitoring our carbon and environmental footprint, redesign our energy consumption, travel-related carbon emissions, paper and consumables' usage and waste. In addition, we are continually seeking to improve the lifespan of products by reusing and recycling wherever possible.

Through the services we provide, we will seek to promote the most energy efficient and environmentally sustainable solutions appropriate for our clients, aiming to consider not simply their energy consumption but the impacts of the entire lifecycle of products and equipment we specify for use on a project. We will work with our clients, members of the professional team, contractors and manufacturers to foster life-cycle and



environmental thinking so that environmental impacts are minimised during operation and on

## Scope of Services

Machabeng Group of companies (Pty)Ltd offers consulting engineering services in the fields of electrical,Telecoms mechanical and electronic engineering disciplines. By being personally involved and totally committed, the best service is rendered to Clients. These services include:

- Client briefing and determination of requirements
- Literature surveys and relevant project research
- Detailed technical analysis and software simulation, where necessary

- Confirmatory on-site field measurements in the case of radio path and coverage studies
- Detailed cost estimates on proposed configurations
- Reporting and determination of final systems design
- Tender documentation and specifications
- Tender adjudication and assistance with appointment of contractor/s
- Technical and financial project management
- Final systems handover and end-user training
- Assistance with systems maintenance functions • Assistance with software optimisation and configuration



## Mission Statement

MGC 's mission is to be professional consulting engineering company that strives to design and project management safe, reliable and efficient electrical ,Telecoms system for the benefit of our customers.

## Vision

MGC's vision is to be known for the direct involvement of our highly qualified and specialist engineers on projects

- Comprehensive project and engineering services are provided in order to assist clients in achieving overall optimum systems solutions.

## **Data Logging and Analysis**

Service, with regard to the monitoring and

analysis of electrical and Telecoms networks or related systems, with the aid of electronic data recorders are offered. Data on various channels is recorded continuously and analysed by a computer which can for example identify peak values, calculate averages, integration over time intervals and summations etc., in order to calculate the performance of the system as well as to analyse design parameters.

System analysis of electrical current, voltage, power factor and other parameters such as temperature is offered.

## **Electrical**

Building installations which includes electrical Master planning of municipal and other distribution distribution; clean power and lightning protection systems which involves the logging and evaluation of Emergency power installations which include data and studying and research of existing electrical emergency generators; battery systems and systems in order to determine a comprehensive uninterrupted power supplies system master plan for all present and future electrical supply requirements. Load flow studies is done using Power Factor Correction; Process Control; power the latest sophisticated computer programmes. distribution and control interlocking for industrial processes and pump installations including motor Bulk and high tension distribution which include power control centres as well as lightning protection and lines and cable feeders 275kV to 11kV, Infeed stations earthing.

400kV to 88kV, Distribution substations 132kV to 11kV.

Township reticulation which covers residential and voltage substations. Our flexibility in adapting to industrial townships; street lighting – ripple, telemetric client's philosophies and specifications ensures that and digital load control; metering and optimised low we best meet their requirements.

Our professional engineering services include design and project management of all types of high

## Air-Insulated Outdoor Substations

Conventional outdoor substations can be designed to suit a client's particular requirements. Individual items of equipment are dependent on the substation's voltage level, busbar scheme and number of feeders and air-insulated substations require a relatively large area of land which needs to be fenced.

## Gas-Insulated Substations (GIS)

Gas insulated substations generally are used in space constrained areas. Because of the compactness of the equipment which only requires a small area of land and minimal civil work resulting in substantial savings and makes GIS compatible with AIS at higher voltages.

**Cellular-type Indoor Substations (AICS)** Innovative design and development of specialised equipment make air-insulated cellular indoor substation designs viable through the use of local outdoor-type equipment within a building. More than 15 cellular indoor substations have been designed.

## Mechanical

Mechanical services include:  
cost township reticulation.

- Energy Research and Energy Management,
  - this involves designing systems and services in buildings and industries for the optimisation in the use of energy. Sophisticated com-



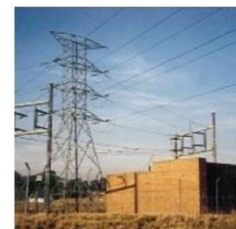
puter control systems are applied to attain the energy saving targets.

- Lifts and Escalator Installations; Fire-fighting Installations which include automatic sprinkler, fire, pump and gas installations as well as the supply of fire hydrant and hose reels.
- Mechanical Handling Equipment which include coal handling, grain handling and ash removal.
- Air-conditioning installations which include Centralised and Packaged Air Conditioning Systems for shopping centres, hospitals, office buildings, hotels, computer rooms, industrial applications, board rooms and auditoriums.
- Ventilation and evaporative cooling installations as well as refrigeration installations, cold-storage and freezer rooms including ammonia and ice storage systems.
- Extraction Installations which include dust, fume and kitchen extraction systems as well as fume cupboards.

## Values

Our core values define how we treat our clients, frame how we work with our colleagues and employees and are an integral part of our ongoing success. By setting standards whereby individual and team performances are measured and rewarded our values are firmly embedded in the way we operate.

puter simulation programmes are utilised in evaluating energy saving methods and comHospital and Laboratory Services which include medical gasses, vacuum, steam and boiler installations and specialised gasses. Piping and pump stations which include domestic water and fire services, water purification and sewerage plants. Heating Installations which include hot water storage and heat pump systems



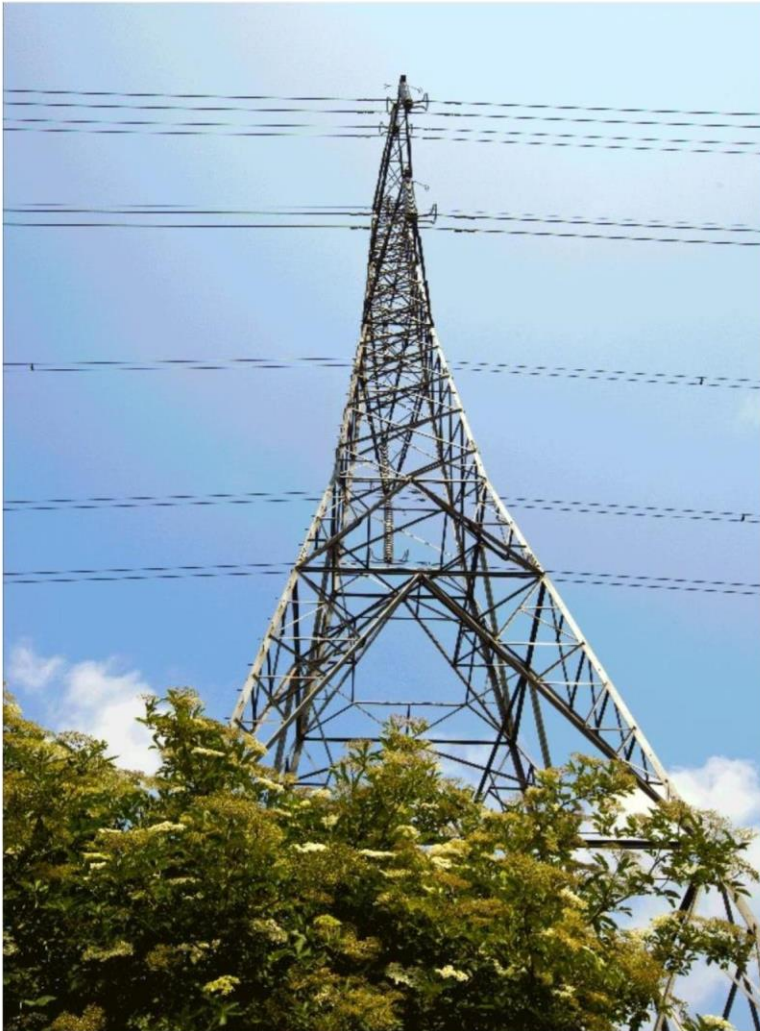
## Quality Assurance

MGC has implemented a Quality Management System in terms of ISO 9001:2015 and has been formally audited by an accredited authority.

## Electronic/Telecoms

Electronic/Telecoms services that MGC provides includes:

- Security Systems which comprise risk assessments; access control; intrusion detection; surveillance; alarms and response as well as fire and smoke detection
- Building Management Systems; Communication Systems; Process Control Systems; Load Control and Energy Management Systems; Telemetry & Telecontrol Systems; Radio & Data Communication Networks and Instrumentation and Automation Systems, ftx,point to multipoint microwave installations,Rf swaps an NSB, Griefield and Lampost NSB.



## Project Management

- Definition of actual requirements
- Scheduling and programming of design activities
- Programming, control and corrective action during construction
- Quality Assurance
- Handing over and acceptance procedures
- Cost control and reporting
- Training and operation



ITS PROJECTS AROUND AFRICA INCLUDE:-

- 200MVA / 88kV double circuit 8Km Mozambique
- 150MVA / 88kV single circuit 8Km Vanderbijlpark
- 2 x 300MVA / 132kV single circuit 6Km Richards Bay
- 1 x 150 MVA / 132kV double circuit 8Km Midrand
- Lesotho Highland Water Scheme 1B, 70Km 132kV
- Lesotho Highland Water Scheme 1B, 30Km 11kV
- Upgrade 75Km 88kV power line for ABB Sweden

## Projects

Cellular substations include:

- 40MVA / 88kV Harward Cellular Substation Arabia
- 50MVA / 88kV Slurry Cellular Substation Eskom
- 60MVA / 132kV Mayville Cellular Substation Pretoria
- 5 Bay / 132kV Carina Cellular Substation Richards Bay
- 60MVA / 132kV Grand Central Cellular Substation Congo
- RF Swaps,Bts upgrades an card edition for Huawei/Mtn 250 sites for KZN regions
- RF Swaps and NSB 3<sup>RD</sup> Party sites Huawei/Mtn SA Gauteng and Capetown complited 480 sites
- Point to Multi point Microwave including TSSR survey SIAE complited 300 Links for SA GN
- FTTX Multiples of KM for MCT/DFA using Micro trenchers and directional drilling.

## Clients

Our client portfolio includes utility companies, municipalities, mining houses and the industrial sector. Our utility clients include ESKOM, City Power, City of Tshwane,Huawei,Mct/D

Old Mutual, M&T, Zendai Development and the Lesotho Electricity Company. **Values**

Our values are listed below

### Professionalism

To be professional in all our interactions ensuring strict adherence to courtesy, honesty and responsibility when dealing with clients and employees alike.

### Mentorship

Through projects professional engineers are mentoring candidate engineers to gain technical and practical experience on projects.

### Stewardship

As engineering professionals we exercise influence, get things done and move our company forward. We are

committed to being responsible stewards contributing to a sustainable environment.

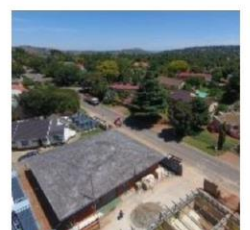
One of Machabeng Group of Companies aims is to offer our clients cost-effective solutions for their particular needs and our senior engineers have immense in-depth experience to ensure these state-of-the-art, cost-effective solutions.

### Knowledgeable

To ensure that we are knowledgeable in the different engineering disciplines and have a clear understanding of what our clients require.

### Accountability

To adhere to a code of ethics, standards of practice, and policies/procedures that govern the conduct of professional engineering activities.



**Leadership**

To have the courage to lead from the front and shape the future of our employees and our clients.

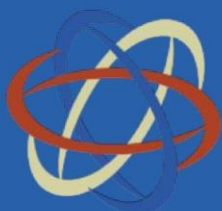
**Commitment to Excellence**

To promote a culture of excellence throughout our company through the use of state of the art tools, consistent and effective training and the quality of results we give to our clients.

**Honesty**

To act with honesty and integrity without compromising the truth in everything we do.

MGC employs highly skilled and professional electrical, Telecoms mechanical and electronic engineers who ably assist the company in ensuring that clients receive the specialist services that we offer.



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