

❖ **INTRODUCTION**

**BDE** is a consulting engineering firm specialising in electrical, electronic and mechanical engineering.

❖ **MISSION STATEMENT**

**BDE** is in business to exceed the expectations of clients with enthusiasm.

**BDE** pursues this with:

- **KNOWLEDGE - INTEGRITY - EXPERIENCE**  
- **INNOVATION - OUTSTANDING SERVICE**

**BDE** is a member of Consulting Engineers South Africa and complies with the CESA code of conduct:



**BDE** is ISO 9001:2015 (a Quality Management System) compliant:



**CAPACITY AND CAPABILITY**

The graduated electrical and mechanical Engineers of BDE's George office have 120 years' experience in electrical bulk supplies (power lines & substations, up to 132 kV), electrical distribution networks, photovoltaic (PV) solar plants, various mechanical and building installations. BDE Engineers have done various electricity masterplans (including Eskom) as well as various load flow analysis for renewable energy plant grid integration:

- Main supplies, including 132kV substations, 66kV cables and 66kV power lines;
- Electrical networks for upper class residential developments;
- Cost-effective networks for informal electrification projects;
- Electrical, telephone, fire detection and data installations for buildings and offices;
- Hospital installations, communication and nurses call systems;
- Power factor correction;
- Automatic load control systems;
- Load flow analysis and associated master planning;
- Asset Management and GIS systems;
- Street lighting installations for major roads;
- Water and sewerage works/pump supply, control and telemetry systems;
- Emergency power generating and UPS systems;
- Metering installations (Prepayment electricity | kWh | Bulk);
- Mechanical installations.

## ❖ LIST OF SELECTED PROJECTS

### (Indicating the broad base of applicable experience)

The following projects were done or are in the process of being done by the Professional Engineers currently employed by or associated with **BDE**:

#### ➤ ELECTRICAL PROJECTS:

##### ▪ Renewable solar energy plants include:

- George Airport: 750 kWp (designed for upgrade to 1000kWp with storage);
- Upington Airport 500 kWp;
- Kimberley Airport: 500 kWp;
- Bloemfontein Airport: 500 kWp;
- Port Elizabeth Airport: 1000 kWp;
- George, Various Commercial: Up to 57 kWp;
- Kleinbrak, Commercial: 85.5 kWp;
- The Craggs, Farm: 20.1 kWp with 62 kWh storage capacity;
- Residential: Various systems between 3 & 15kWp with storage.
- West Coast Mall: Glare study
- Skukuza Solar Plant: 850 kWp
- Lower Sabie Solar Plant: 640 kWp
- University of Johannesburg PV: 300 kWp

##### ▪ Hydro Power energy plants and renewable energy plants include:

- Annlin reservoir, Pretoria: 160 kW
- Bloemwater, Bloemfontein: 90 Kw
- Kwa Madiba, Eastern Cape rural: 50 Kw
- Groblershoop
- Mossel Bay Sludge Generation

##### ▪ Extensive Consulting Engineering experience in the detail design, specification and supervision of services for the following types of projects:

- Commercial projects such as office buildings and shopping centres;
- Academic and other institutions, such as University and Technikon facilities, schools and hospitals;
- Residential projects, such as flats, hotels and University and Technikon residences, old age/retirement homes;
- Industrial projects such as mills, bakeries, food processing facilities, factories and warehouses;
- Power generation and distribution of HV and LV power in municipal, residential and industrial areas;
- Street, road, interchange, area, flood, security and sport field lighting;
- Renewable energy plants.

- **A range of Electrical Engineering work from which form part of the projects listed above include:**
  - Power generation and distribution systems, including generation plant, substations, AC and DC uninterruptible power supplies and distribution networks;
  - Photovoltaic power plants;
  - Hydro plants for energy recovery;
  - Radio and television installations;
  - Access control and CCTV installations;
  - Security, fire detection and alarm installations;
  - Telephone and communication installations;
  - Office installations, including telephone equipment and distribution systems, clock installations, public address, personnel, location and call systems;
  - General building installations, including electric lighting and power installations, power factor correction, lifts, hoists and escalators, fire detection and alarm systems, lighting protection systems, security and access control systems;
  - Hospital installations such as communication and nurse call equipment and distribution systems;
  - Metering systems;
  - Street, road, interchange, area, flood, security and sport field lighting;
  - Water and sewerage pump control systems;
  - 11kV and LV reticulation and distribution networks in municipal, residential and industrial townships;
  
- **Electrical Utility Studies experience includes:**
  - Technical project management for power station feasibility studies;
  - Utility electrical asset valuation studies.
  - Asset Management;
  - GIS Systems.
  
- **Managerial experience includes:**
  - Administration and management of a professional consulting engineering practice;
  - Staff supervision including Engineers, Technicians and CAD Operators;
  - Client liaison;
  - Negotiating appointments;
  - Guidance of staff during design and supervision phases of projects;
  - Checking designs and specifications.
  
- **Major projects done:**
  - Coega Sand Bypass Pump station for the National Ports Authority (R5m);
  - Schonenberg Housing Development for Somerset West JV (R10m);
  - New Offices for SA Navy (4.5m);
  - Various Schools (R1.5m);
  - OHTE condition assessment for SARCC in the Cape Metropolitan Region;
  - V&A Waterfront, Robben Island Museum & Ferry Terminal: Electrical, lighting & electronic installations;
  - George, 132/66 kV Schaapkop substation (R55m);
  - Sedgfield, 10 MVA 66/11 kV main substation and 11 kV main supply cabling;
  - Oudtshoorn 15 km 22 kV power line and 5 MVA 22/11 kV main substation;

- Mossel Bay, 20 MVA 66/11 kV main substation and 4 km 66 kV power line;
  - Herolds Bay, George, 66/11 kV substation and 66 kV power line;
  - Oudtshoorn 2 km 22 kV power line and 10 MVA 22/11 kV main substation (R5.5m);
  - Mossel Bay, Kleinbrak 22/11 kV indoor substation (7.5m).
- **Master planning of Municipal distribution networks:**
    - George Municipality, development of a master plan for the electrical infrastructure;
    - Oudtshoorn Municipality, development of a master plan for the electrical infrastructure;
    - Knysna Municipality, development of a master plan for the electrical infrastructure of Sedgefield;
    - Mossel Bay Municipality, master and asset management plans including load flow study.
- **Golf Estates:**
    - Plattner Golf, Fancourt, Links Golf Course: 66 kV cable and substation;
    - Plattner Golf, Fancourt, main substation and reticulation network upgrade;
    - Plattner Golf, Fancourt, upgrade of main supply to Plattner residence;
    - Plattner Golf, Fancourt, electrical services for the 2003 President's Cup;
    - Plattner Golf, Fancourt, The Links Ridge;
    - Plattner Golf, Fancourt, electrical services for 46 hotel rooms and new parking area;
    - Plattner Golf, Fancourt, Oaklands at Fancourt;
    - Knysna River Reserve, Knysna: Hotel, hall of fame and golf estate (in process);
    - Le Grand, George, with 315 residential units / apartments (R4m);
    - Plattner Golf, Fancourt, electrical services for the 46664 Rock Concert;
    - The Hills Eco Estate, Pretoria, 2068 residential units, commercial units, apartments (R80m);
    - Oudtshoorn golf course development, 512 residential units, club house & boutique hotel (R14m);
    - Plattner Golf, Fancourt, Ernie Els Foundation development;
    - Plattner Golf, Fancourt, organic farm development;
    - Plattner Golf, Fancourt, Noem Noem Village.
- **Residential distribution systems:**
    - Extensive consulting engineering experience in the detail design, specification and supervision of services for more than 100 developments.
- **Township electrification:**
    - Electrification of many homes in George, Plettenberg Bay, Khayelitsha, Sedgefield, etc.;
    - Community Hall in Browns Farm, Crossroads: Electrical & lighting installation;
    - Electrification of 500 houses at Maraiskamp, George;
    - Pacaltsdorp, George, housing project, approximately 904 units;
    - Thembaletu, George, housing project, approximately 2377 informal units;
    - Thembaletu, George, housing project, approximately 4093 formal units;
    - Rosevalley, Oudtshoorn, housing project, approximately 880 formal units.

▪ **Retirement villages:**

- Glen Eden, Plettenberg Bay, main supply and distribution network for Comfort Village including a frail care facility;
- Monte Christo Retirement Village, Hartenbos, main supply and distribution network for 150 units including a frail care facility;
- Grootbrak, Groenkloof retirement village, main supply and distribution network for 160 units including a frail care facility;
- Knysna Lifestyle Estate, Knysna, main supply and distribution network for close to 200 units including a frail care facility;
- Amble Ridge, Knysna, main supply and distribution network for close to 210 units including a frail care facility, assisted living units and club house;
- George, Groenkloof, main supply and distribution network for 160 units including a frail care facility.

▪ **Building electrical installations:**

- Extensive consulting engineering experience in the detail design, specification and supervision of services for more than 50 building installations, including various schools and the SARS building in George.

➤ **MECHANICAL PROJECTS:**

- Extensive consulting engineering experience in the detail design, specification and supervision of services for more than 100 installations.

➤ **BACKUP ENERGY PROJECTS:**

- 500kVA, 11kV Grid synchronised generator, Tsitsikamma National Park;
- 300kVA Generator, South Cape College (Mossel Bay Campus);
- 800kVA Generator, Mossel Bay Municipality (Kleinbrak Water Treatment Works);
- 60kVA Generator, Victoria Street Laboratories, George;
- Various Fancourt generator sets.

➤ **SPECIAL PROJECTS:**

The following special selected projects are listed to demonstrate experience in remote and other special projects:

- Msulo, Angola, Client: GRU: Residential units, internal works, air-conditioning, electrical reticulation, power generation, desalination plants, water and sewerage treatment;
- Waco Cungu, Angola, Client: WK, Hotel and residential units including internal works, air-conditioning, electrical reticulation, power generation, street lighting, water treatment and sewerage treatment;
- Nyungwe, Rwanda, Client: Dubai Africa: Resort: Internal works, air-conditioning and area lighting.
- Bongoville Gabon, Client: RL Israel: Resort Internal works, air-conditioning, reticulation and power generation;
- Funda, Angola, Client: Ofek: Hotel: Internal works, air-conditioning and reticulation;
- Matemo and Mjumbi Islands, Mozambique, Client: Rani Africa: Resort: Internal works and air-conditioning;
- North Island, Seychelles, Client: Wilderness/Moremi safari's: Resort: Internal works, reticulation, power generation, water and sewerage treatment;
- Praslin, Seychelles, Hotel: Internal works, air-conditioning and reticulation;

- Implementation of a SABS ISO 9002 quality system for an electrical utility;
- McCain Foods, George, power factor correction and main network upgrade investigation;
- George Airport, upgrade of 11 kV main substation for ACSA (R10m);
- George Municipality, Thembaletu main road, installation of 4km streetlights;
- George Airport, replacement of 60 km cabling and landing lights (AGL) for ACSA (R8m);
- Eskom, Roshcon, open cycle gas turbine (Mossel Bay & Atlantis), central control and office building;
- Trans Hex, Baken Mine, bulk supplies for electrical driven excavators.

➤ **SPECIFIC MEDICAL FACILITIES AND OTHER RELEVANT TECHNICAL EXPERTISE AND EXPERIENCE:**

▪ **The capabilities of the company may be summarised as follows:**

- |   |   |
|---|---|
| • Air conditioning and ventilation            | • Fixed health care equipment e.g. autoclaves, incinerators   |
| • Boiler installations and steam reticulation | • Specialist healthcare facilities e.g. Linear accelerators, MRI's, Cath' lab's and laminar flow theatres |
| • Centralized hot water reticulation          | • Piped services  |
| • Compressed air, gas and vacuum systems      | • Refrigeration and cold rooms  |
| • Industrial laundries and laundry equipment  | • Standby generators  |
| • Kitchens and kitchen equipment              | • Mechanical building services for industrial, commercial and healthcare facilities.                      |
| • Laboratories                                |   |
| • Mortuaries and fixed equipment              |   |
| • Firefighting equipment                      |   |
| • Energy management                           |   |

❖ **OFFICE DETAILS:**

**BDE** has the following offices managed by the senior staff indicated:

**GAUTENG:** 497 Keiskamma Street, Erasmuskloof, PO Box 4571, Rietvalleirand, Pretoria 0174

Office Manager: Kobus Rademeyer; +27 82 787 4113

**CAPE TOWN:** 21A First Avenue, Rondebosch East, Cape Town, PO Box 53036, Kenilworth 7745

Office Manager: Brent Samson Pr.Eng.; +27 82 625 2803

**GEORGE:** 73 Meade Street, PO Box 1862, George 6530

Office Manager: Danie de Vries Pr.Eng.; +27 82 822 3389

**BLOEMFONTEIN:** 50 Nicolai Street, PO Box 12645, Brandhof, Bloemfontein 9324

Office Manager: Paul Lambrechts Pr.Eng.; +27 82 674 9090

**KNYSNA:** 25 Gordon Street, PO Box 3245, Knysna 6570

Office Manager: Vernon Mitchell Snr.Tech; +27 82 372 7553

❖ **SUMMARISED CURRICULUM VITAE OF BDE PROFESSIONALS AND ASSOCIATES:**

**BRENT SAMSON (BSc Eng, Pr.Eng, SAIEE) (BDE Partner | Director)**

**Date of birth: 1959**

After obtaining his degree in electrical engineering at Cape Town University in 1982 he started his professional career at Eskom. In 1984 he started his career as Electrical Consultant with VKE. In 1991 he joined Du Toit & Van Der Vyver as Engineer and became a partner in 1994. In 1999 he started his own consultancy, B Samson Associates. Brent has spent the last 16 years in the consulting engineering environment giving him a broad base experience in municipal and township infrastructure developments as well as building and industrial services.

**DANIE DE VRIES (B.Eng, Pr.Eng, Government Certificate of Competency, SAIEE) (BDE Partner | Director)**

**Date of birth: 1958**

After obtaining his degree in electrical engineering at Stellenbosch University in 1980 he started his professional career with Eskom. In 1984 he was appointed as Deputy City Electrical Engineer for George Municipality. Following some years consulting electrical engineering experience with the company De Villiers & Moore he was appointed in 1988 as City Electrical Engineer for George Municipality, a position held for 10 years. During 1998 he returned to consulting electrical engineering. Except for the project management skills developed during his career, he has a broad base experience in the establishment of electrical networks (including 132/66/11 kV substations) for residential, commercial and industrial developments.

**WICUS SMIT (B.Eng, Electrical & Electronic) (BDE Partner)**

**Date of birth: 1984**

Wicus matriculated from Bredasdorp High School in 2002, after which he obtained his B.Eng. degree from the University of Stellenbosch in March 2008. He started working at BDE in December 2007 and is currently a Senior Engineer. Wicus has 12 years' experience and focus on building installations (normal and hazardous locations) as well as reticulation and metering systems.

**KEVIN GRUNEWALD (B.Eng, Pr.Eng, Government Certificate of Competency, SAIEE)**

**Date of birth: 1957**

After obtaining his degree in electrical engineering at Stellenbosch University he started his professional career with South African Transport Services. In 1989 he was appointed as Deputy City Electrical Engineer for George Municipality. During 1998 he was appointed as City Electrical Engineer where he served as senior manager until May 2017 when he started working at BDE as Consulting Electrical Engineer. Except for the management skills developed during his career, he has a broad base experience in project management and the operation and maintenance of electrical networks and establishment of electrical networks (including 132/66/11 kV substations) for residential, commercial and industrial developments.

**PAUL LAMBRECHTS (B.Eng, Electrical & Electronic, Pr.Eng.)**

**Date of birth: 1967**

Paul Lambrechts has over 23 years of experience in electrical engineering and spent most of his 16 years of professional career in Eskom in the network planning engineering environment where he gained valuable experience in the planning of distribution (sub-transmission) networks including substations and overhead lines, capital budgeting, economic evaluation of various types of projects to facilitate long term investment decisions and compiling of Network Development and Network Master Plans (including refurbishment planning). He currently practices as a Consulting Engineer for the past 7 years with special interest in the following aspects of electrical engineering (Power system analysis, network development planning & network master planning of electrical networks, geo-based load forecasting, power system economics, electrical network design, residential electrical infrastructure development and associated project- and contract management). He started at BDE as Electrical Consulting Engineer in October 2019.

**HENDRIK BARNARD (B.Eng, MBL, Pr.Eng, Government Cert of Competency, SAIEE) (BDE Associate)**

**Date of birth: 1957**

He obtained his degree in electrical engineering at Stellenbosch University in 1981. He started his professional career with Eskom in 1982 and filled a variety of positions including technical, professional and managerial, mainly in the Distribution Group until 1989. From 1990 he was appointed as Eskom's Electricity Pricing Manager, a position he held until 1997. In 1998 he started his career as Consultant in the energy/dynamic costing field providing products and services to maximize the output of various inputs into business. His key experience and expertise include: 30 years of electricity supply experience, close to 20 years of electricity pricing / economics experience, has completed more than 100 pricing/industry studies, is member of the AMEU tariff committee, is recognised as one of South Africa's leading pricing experts. Hendrik is BDE's principle engineer for the Gauteng area.

**PETRUS JACOBUS STRACHAN (Mechanical Technologist, – Air Conditioning, Ventilation. Refrigeration) (BDE Associate)**

**Date of birth: 1948**

He obtained his National Technical Certificate in Bloemfontein – *National Industrial Counsel for Iron, Steel, Engineering and Metallurgical Industry – 1977. Reg. no. 77/2880*

He started his career at Pres. Brand Gold Mine as Ventilation Officer. In 1979 he advanced his career to the consulting engineering environment with Lindeque & Partners and Cahill de Vries & Brink. Between 1983 and 2015 he worked for De Villiers & Moore, Watson Edwards & van der Spuy, Steward Scott International and Royal Haskoning DHV as Mechanical Engineer. During this period, he also established 4 new offices as Office Manager. Through experience and self-study, he became a Building Services Specialist, including HVAC, fire services, electrical services and maintenance management. Some of his career highlights are the 12 storey Post Office Building in Kimberley, Central Bank of Lesotho, maintenance management for 63 shopping centres, sophisticated HVAC for the 10111 Police Call Centres and the flood light installation for the Nelson Mandela 2010 world cup soccer stadium.

**DANIE JOUBERT (NTC Telecommunications, MDP)**

**Date of birth: 1946**

After obtaining his NTC Telecommunications at the Cape Technicon he furthered his studies at GEC (electrical system protection application), ASEA (Sweden) (electrical HV system protection), University of SA (management development program). He started his professional career in 1967 with Telkom. Nine years' experience in telecommunications consisting of open wire carrier, microwave and radio systems was followed with twenty two years' experience in power system protection systems with Eskom. Since 1999 he is involved with various technical services assisting Wolhuter Consulting Engineers and BDE with contract handling, electrical planning and design of building installations and reticulation systems, radio signal path studies using Pathloss, Mapgrid and Geotran and the installation and maintaining of telemetry systems.

**VERNON MITCHELL (T3) (BDE Associate)**

**Date of birth: 1958**

Vernon matriculated at PW Botha Technical High in 1975. He started as Electronic Mechanical Apprentice at SKF Bearing Manufacturers in Uitenhage and completed his qualification during 1979, followed by T1 and T2 qualifications at Uitenhage Technical College and T3 at PE Technicon. Between the period of 1980 to 1982 he worked at Atlantis Diesel as Electronic Technician. Between the periods of 1983 to 1984 he worked at AECI (SANS) as electronics/instrumentation Technician. During 1985 he took over and operated a family electrical contracting business until 2005. Since 2005 he is associated with BDE as Consultant and Manager of the Knysna office of BDE and project manages various BDE projects in the Knysna/Plettenberg Bay area. Since 2005 to date he specializes in the project management of electrical contracts mainly outside SA borders.