



ROUTE 63 TRAINING AND CONSULTING (PTY) LTD

COMPANY PROFILE

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Specialising in:
Power Quality, Reliability, Renewable Power Producers



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OVERVIEW

Route 63 Training and Consulting (Pty) Ltd is an independent engineering training and consulting company. Our expertise ranges from power quality, reliability, integration of independent generation facilities and electromagnetic compatibility aspects. We have dealt with planning, analysis, simulation and evaluation of all aspects and at all levels of these disciplines, always taking cognisance of the financial and economic impacts of technical decisions.

The highly-trained founder and director has 20 years' experience in power system engineering and a comprehensive understanding of power system events and the potential impacts on customers.

Managing and working with teams specifically selected for each task, we know that optimal solutions are out there, waiting to be found and perfected. Our wide range of skills allows us to look at each project from the traditional point of view, as well as various alternative analysis options. Our "outside-the-box" thinking has enabled solutions where previously there had been none.

VISION

Our vision is to see Power Systems and Customer Installations inter-operate at optimal Quality and Reliability levels in the most Economical way possible.

MISSION

To equip engineers and utility staff to understand power systems through co-operative projects and targeted training to ensure optimal Quality and Reliability levels in the most Economical way possible.



VALUE PROPOSITION

The power system is one of the most complex systems that mankind has built. It has evolved over a century into part dinosaur, part high-tech robot. Keeping all parts functioning and functioning together is often more of an art than a science. However, all disciplines of pure science and engineering are merged into operating, maintaining and extending this system into the future.

Drawing on vast experience in analysing system steady-state and event data, we have the ability to model, simulate and evaluate details for virtually any project. From there we can provide the most suitable proposals and solutions.

The nature of our projects rest in their complexities, the more complex, the more fun we have. No question or query is deemed irrelevant and no project is too complex!

VALUES

In business as in our personal lives, we are driven by a set to values to provide the best service possible to our customers. Our key values are:

- Honesty
- Integrity
- Performance
- Respect
- Tenacity

Customers, colleagues and partners are treated with respect, all working together to achieve the company's mission and vision - to the advantage of our customers. We are tenacious in finding optimal solutions within time and budget, providing honest and accurate advice at all stages of a project.



COURSES

Route 63 Training and Consulting presents courses on-site as well as selected venues across the country in order to enable more people to attend these courses. Courses can also be presented at a customer's selected venue, depending on requirements. Specialist courses include the following:

Independent and Renewable Power Producers Grid Code Compliance

Grid Code compliance to Power Quality requirements, as applicable to independent power producers (and especially renewable power producers) can be divided into three linked parts, each the topic of a separate and self-contained course:

1. Utility Responsibilities
2. IPP Responsibilities
3. Measurement and Assessment

Background on power quality is provided in each course, however, it is expected that candidates have fundamental understanding of power quality before attending these courses. These are aimed at Consultants active in the RPP/IPP arena.

Embedded Generators

Embedded Generators generally refer to smaller units that are connected as part of a customer's installation. These are typically installed by residential, commercial and agricultural customers. Courses are aimed at addressing the following aspects:

1. Utility Responsibilities and Processes
2. Customer Processes, Due Diligence and Responsibilities

These courses are aimed at engineers, electrical contractors and customers. No specific pre-requisites are specified.

Custom Courses

Courses can be customised to meet customers' needs within the specialities of Route 63 Training and Consulting as combinations of the above and more, e.g.:

1. Reliability of Networks and Customer Value
2. Analysis of System Steady-State and/or Event Data
3. Simulation of Power Systems
4. Principles of Electromagnetic Compatibility

Since these courses can be customised, the pre-requisites and background information will be based on the requirements of the customer.



CONSULTING

Route 63 Training and Consulting specialist consulting services include, amongst others, the following:

Power Quality

Power Quality encompasses various aspects, investigations and solutions:

1. Consultation
2. Simulation and Modelling
3. Investigations
4. Solutions and Mitigation
5. Monitoring and Reporting
6. Audits

Independent and Renewable Power Producers

We can assist at various phases of planning, design, construction, commissioning and operation in evaluating grid code compliance and investigation of events.

Embedded Generation (Small EG) Projects

We can assist at various phases of planning, design, construction, commissioning and operation to smooth the process. The formal certification process for small generators does not yet exist in South Africa; we can assist in evaluating systems and obtaining the necessary approvals and certification for use in South Africa.

Network Modelling, Simulation and Analysis

Whether modelling the network to assess current performance and evaluate improvements, or planning for future networks, we can assist with model development, simulation and analyses of a range of alternatives. Analysis could include evaluation of expected performance, optimisation of solutions vs. costs etc.

Data Analysis

From power quality to network performance and beyond – large data sets can be daunting. We can process data into usable information. Key reasons for such data analyses and visualisation is to meet regulatory requirements or motivate network upgrades.



CO-OPERATION AND PARTNERSHIPS

We have an extensive network of independent consultants and specialists whom we collaborate with. Key current partnerships are with the University of the North-West (NWU) and the South African Power Quality Initiative (SAPQI) in Potchefstroom and CT Lab (Pty) Ltd in Stellenbosch.

THE FOUNDING MEMBER AND DIRECTOR

Dr MG (Gerhard) Botha has over 20 years' post-graduate electrical engineering experience. After finishing his PhD in wide-band high-voltage measurements at Stellenbosch University, he started at Eskom's Research Department in 2002, specialising in Quality of Supply. He has worked extensively with the operational side of the business, from LV to HV planning, to Demand Side Management and Electromagnetic Compatibility.

He has advised Eskom on various guidelines and standards; with the main focus being on the Quality of Supply, System Reliability and integration of Generators at all voltage levels.

He has lectured (part-time) at the University of the Witwatersrand (WITS) at undergraduate level as well as for the University of Kwa-Zulu Natal (UKZN) at post-graduate level as part of the Eskom/UKZN specialised power engineering program

He is currently the chairman of the NRS 097-2-1&2 specification development working group. These specifications set the requirements for connection of LV generators to utility networks in South Africa. Additionally, he contributed significantly to the *RPP Power Quality Guideline – Evaluating Grid Code Emission Compliance* document that forms part of the South African Grid Code for RPPs.