

923A East Terra Lane
O'Fallon, Missouri 63366



Phone: (636) 240-6095
Fax: (636) 281-9052
esi-website.com

CHARLES F. LANDY, Ph. D., P. E.
SENIOR CONSULTANT and DIRECTOR of MISSOURI OPERATIONS
<mailto:cflandy@esi-mo.com>

Dr. Charles Landy has 30 years experience and expertise in Electrical Engineering and allied manufacturing operations, particular in the field of Electric Machines and Drives, Electric Power Engineering and High Voltage systems. He is a registered Professional Engineer in the State of Missouri and in South Africa where he lived until recently. He is a Senior Member of the IEEE and a Fellow of the SAIEE (South African Institute of Electrical Engineers).

Dr Landy was the Professor of Electrical Machines and Drives at the University of the Witwatersrand in Johannesburg, South Africa. He was also the Head of the Department of Electrical Engineering from 1993 to 2000 and Executive Dean of the School of Engineering during 2001. Currently he is a Senior Consultant with Engineering Systems, an Honorary Professor at the University of the Witwatersrand in Johannesburg and an Adjunct Professor at the Missouri University of Science and Technology, Engineering Education Center located in St. Louis.

AREAS OF SPECIALIZATION

- Investigation and assessment of electrical equipment failures involving low voltage and high voltage distribution and grounding systems, lightning, high voltage insulation, breakdown and flashover and the effects of high voltage fields
- Investigation of accidents involving electrical equipment
- Design, manufacture, performance monitoring and fault analysis of Electrical Machines & Drives (including insulation systems), Generators and transformers
- Assessment and evaluation of quality of supply, UPS and backup systems
- General Electrical Engineering

LICENSES and CERTIFICATIONS

Professional Engineer (P.E.), MO (2004011826) Expires 12/31/10
Professional Engineer (PrEng), Engineering Council of South Africa (ECSA).

BACKGROUND EXPERIENCE. (Gained through active engagement with the industry and the profession via consulting, failure analysis and contract research.)

- Performance monitoring and fault analysis of electrical equipment and investigations of failures leading to plant outages, accidents and fires.
- Design and manufacture of electric motors, variable speed drives and transformers.
- Research and development of testing procedures for evaluating the characteristics of High Voltage insulation materials in solid and gaseous forms.
- Legal experience through being an expert witness/advisor in numerous cases involving the failure of electrical equipment, injury due to electric shock and damage and injury due to lightning.
- Development of unique type tests for evaluating the characteristic performance of induction motors.
- Vice Chairperson of the Professional Advisory Committee of the Engineering Council of South Africa and a member of the Power Section of the South African Institute of Electrical Engineers.

EDUCATION

University of the Witwatersrand, Johannesburg, South Africa.
BSc(Eng) (1966), MSc(Eng) (1970), PhD (1978).

PROFESSIONAL AFFILIATIONS / HONORS

- South African Institute of Electrical Engineers (SAIEE) - Fellow
- Institution of Electrical and Electronic Engineers (IEEE) – Senior Member
- Association of Engineering Educators (US) (ASEE) - Member

STANDARDS COMMITTEES AND ORGANIZATIONS

Has served and/or is serving as a member of the following Standards Committees.

- South African Bureau of Standards
Committee for development of standards for repair of LV motors – committee member.
Committee for development of standards for noise emitted by rotating electrical machinery . – Committee member.
- South African Institute of Electrical Engineers.
Working group on Rotating Electrical Machines – Committee member.
- National Research Foundation (NRF) (South African Government Research Foundation). Invited Assessor of Proposals for Research Funding.
- Presently a member of the committee for reviewing the IEEE Standard 114-2001 - “IEEE Standard Test Procedure for Single-Phase Induction Motors”.

POSITIONS HELD

- **Engineering Systems Inc, O'Fallon Missouri**
Director of Missouri Operations - January 2009 - Present
Senior Consultant - October 2002 - Present
- **Missouri University of Science and Technology (Formerly University of Missouri, Rolla)**
Adjunct Professor, Graduate Program, Engineering Education Center, St. Louis – August 2002 to present.
- **University of Southern Illinois, Edwardsville.**
School of Engineering: Member of the Dean's Industrial Professional Advisory Committee - February 2003 to December 2008.
- **University of the Witwatersrand, Johannesburg**
Honorary Professor of Electrical Machines & Drives – October 2002 to present.
Professor of Electrical Machines & Drives – January 1993 to October 2002.
Executive Dean of Engineering – December 2000 – January 2002.
Head of Department of Electrical Engineering – September 1993 to December 2000.
Lecturer, Senior Lecturer, Associate Professor – July 1969 to December 1992.
- **GEC Machines (Pty) Ltd.**
Electric Motor Design Engineer – January 1978 to July 1978.
- **Ferro Resonant Technologies (Pty) Ltd.** (Manufacturers of specialized transformers and power correction equipment.)
Technical Director - 1986 to 2002.

PUBLICATIONS (Separate list available)

- 150 Journal and conference publications covering aspects of:
Electrical Machine transient and harmonic performance, condition monitoring, design and development of special and linear synchronous machines.
Development of special systems, e.g. Trace heating systems for oil pipelines.
Assessment of conveyer drives.
Development of specialized controllers.
- 36 non refereed Journal publications and popular talks.

PATENTS AND OTHER MAJOR DEVELOPMENTS

- Ferroresonant Constant Voltage transformer.
- Aluminium sheet in linear synchronous machines.
- Hybrid hoisting system for vertical hoisting in deep level mines.
- Computer programmes for design of three phase squirrel cage and wound rotor induction motors from 2kW to 10 MW.
- Computer programme for the design of single phase squirrel cage induction motors.
- Development of CASED (Computer Aided Simulation of Electrical Drives) computer package.
- Design of a 50Hz induction trace heating system for fuel pipelines.
- Computer programme for the design of Ferro-resonant Constant Voltage Transformers.

EXAMPLES OF MAJOR CASES INVOLVING LITIGATION

- Arbitration related to failure of air-conditioning plant.
- Failure of earth moving equipment owing to negligence and subsequent fire.
- Electrocutions involving high voltage switchgear, faulty grounding systems, etc.
- Failures owing to lightning.
- Failure of large variable speed drives on paper mill.
- Aircraft crash – electrical cause of fire.
- Failure of a large turbo-generator.
- Failure of printing machinery owing to non-connection of neutral conductors/lightning.

EXAMPLES OF OTHER CASES INVESTIGATED

- Failure of high voltage switchgear and transformers.
- Salt and chemical pollution effects in open door substations.
- Assessment of damage to electrical panels and equipment due to flooding.
- Failure of large electrical generators and motors.
- Assessment of damage sustained by large electrical equipment during transportation.
- Electrical failures due to improper assembly and connection.
- Failure of electrical safety devices used by firefighters.
- Failure of electrically powered consumer products.