

INVITATION



Professor Innocent Ewean Davidson,

Head of Department: Electrical Power Engineering

PhD (UCT), MEng (Unilorin), BEng (Hons), PGDipBusMgt (UKZN), SEMAC (BCIT, Canada),

Pr. Eng. (ECSA), C Eng. (UK), SMIEEE, MNSE, MCIGRE, MBCSEA, MWCGCE, FSAIEE, FIET

Professor Thandwa Mthembu, Vice-Chancellor & Principal of the Durban University of Technology cordially invites you to attend the Inaugural Lecture of Professor Innocent Ewean Davidson, Head of Department: Electrical Power Engineering, Faculty of Engineering and the Built Environment.

Date: Thursday, 25 October 2018

Time: 18:00 (All guests to be seated by 17:45)

Venue: Mansfield Hall DUT Ritson Campus
(Entrance opposite Sastri College and Curries Fountain)
(Coordinates: 29°51'05"S 31°0'26"E)

RSVP: Bongiwe Chiliza on Email: bongiwec@dut.ac.za
no later than 20 October 2018

Enquiries: Thandeka Ndinisa on Email: ThandekaN4@dut.ac.za
or Phone: 031 373 2938

TITLE:

ENERGIZING AFRICA'S EMERGING ECONOMY – THROUGH A SMART INTEGRATED ELECTRIC POWER SUPER-GRID

The last century has demonstrated that every facet of human development is woven around a sound and stable energy supply regime. It is recognized that the organization of society, national and social security are highly dependent on the availability of energy supplies. There is a strong correlation between the per capita gross national product (GNP), per capita energy consumption and the standard of living of any society. Hitherto, Africa has had the lowest energy per capita in the world, thus making energy poverty a major cause of under-development in Africa. Since electricity is the engine of economic growth and development, it is imperative that a concerted effort and forceful investment is made in human capital and infrastructure that facilitates trade and investments across the continent. This lecture proposes to use highly complex power system controllers to integrate African power grids into one super-grid that can accept large penetration of renewable powers, without compromising power quality, active and reactive power flow, and voltage and power system stability. The proposed super-grid will be constructed with high-voltage direct-current (HVDC) and flexible ac transmission systems (FACTS) along with dedicated AC and DC inter-connectors and smart grids. DC inter-connectors will be used to segment the entire continent power systems into four or five large asynchronous segments (regions). Asynchronous segments will prevent ac fault propagation between segments whilst allowing power exchange between different parts of the super-grid, with minimum difficulty for grid code unification or harmonization of regulatory regimes across the continent as each segment maintains its autonomy.

A Smart Integrated African Electric Power Super-Grid driven by these technologies is central in supporting Africa's sustained economic growth and development; and built on the cornerstone of green energy and harnessing over 100000MW untapped potential of Africa's clean renewable hydro-electric power as a share of a vast energy mix made of conventional and alternative energy resources. African problems require home-grown solutions. A critical challenge includes transforming our resource-based economies to manufacturing and knowledge-based economies. It demands a responsible undertaking of human and natural resources, integrating our markets, building infrastructure, and creating an enabling environment for domestic and foreign direct investments to thrive in Africa. A key strategy is for our national governments to double-up invest in human capital while building a critical mass of strategic skills on the continent that enables us to become a major player in the global arena. Over the last 30 years, Professor Davidson has committed to a lifelong career to train, develop and supply Africa with highly motivated, marketable and competent professionals who understand the new and existing issues concerning the profession, namely: the generation, transportation, distribution and utilization of electrical energy to serve consumers in an efficient, safe, economic and reliable manner. His graduates are leaders and captains in the electricity industry in South Africa, Sub-Saharan Africa, Europe, Australia, Canada and the United States. This presentation highlights efforts in capacity building in electric power and HVDC engineering, smart grids and RE technologies, research, independent testing and verification services, power system solutions and smart utility services. Africa can leap-frog to become the most electrified continent in the world in one generation.

 LIKE US ON FACEBOOK

 FOLLOW US ON TWITTER

 FIND US ON YOUTUBE

www.dut.ac.za