



Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemerkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

05 June 2013

UCT PhD research helps Eskom reduce power downtime

Nadarajan Moodley, an electrical engineering doctoral student at the University of Cape Town, has devised a method to help power companies like Eskom to detect early signs of deterioration in power transformers, and thus prevent sudden failures and reduce the downtimes of the power stations.

Moodley's thesis, "Power transformer health assessment derived from low energy and dissolved parameters," examines the effects of low energy degradation of the cellulose and oil insulation of power transformers. Using both analytical and empirical techniques, he conceived a Low Energy Degradation Triangle to assess and track the degradation process at lower temperatures than are usually considered, thus providing early detection of a change in transformer health from normal to a deteriorating state.

The Low Energy Degradation Triangle has been successfully applied to the generator transformer fleet within Eskom, identifying several significant transformers that needed intense monitoring. The analysis indicates that deterioration in several transformers commenced as a result of the effects of geomagnetic storms initiated by solar flares. This method can be effectively used as an asset management tool, allowing for effective decision making to prevent sudden failures and reduce the downtimes of the power stations.

Moodley is a professional and certificated engineer with Bachelor of Engineering, Bachelor of Commerce and Master's in Business Leadership degrees. He has been studying at UCT on a part-time basis while employed as a Chief Engineer at Eskom in Cape Town. His PhD supervisor is Professor Trevor Gaunt.

ENDS

Issued by: UCT Communication and Marketing Department

Kemantha Govender

Media Liaison Officer

Communication and Marketing Department

University of Cape Town

Welgelegen, Upper Chapel Road Extension, Rosebank

Tel: (021) 650 5672 Fax: (021) 650 5628

Cell: (084) 737 6522

E-mail: kemantha.govender@uct.ac.za

Website: www.uct.ac.za