CIGRE Study Committee A1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP (1)

WG* N° A1. 45	**Name of Convenor : Phumlani Khumalo (ZA)** **E-mail address**: **Phumlani.Khumalo@Eskom.co.za**
Technical Issues # (2): None	**Strategic Directions #(3): 2**
The WG applies to distribution networks (4) : No	
Title of the Group: Guide for Determining the Health Index of Large Electric Motors	

Scope, deliverables and proposed time schedule of the Group :

Background :

The CIGRE WG A1.26 published a Guide for the Monitoring, Diagnosis and Prognosis of Large Motors (TB 558). Its purpose was mainly to provide tools available for condition monitoring and testing of electric motors, on-line and off-line, which are effective enough in qualitatively detecting the existence of component defects. With the axiom that all motors have inherent defects, however, it is necessary to quantify the defects' severity in order to link it the likelihood/probability of the motor functional failure.

There are utilities that have developed health indices for electrical equipment, e.g transformers, with these health indicators used to identify operational risks and rank the urgency of attention for one plant over other similar plants. Large electric motors also need quantitative analysis of monitored motor data, which when normalised with operational and environmental conditions of the monitored motor, show the severity of the defect in relation to the level of functional in-service failure risk exposure.

The guide will aid utilities in identifying the appropriate measurements that are necessary for statistical quantification of in-service failure risk for effectively planned predictive maintenance interventions.

Scope :

The proposed Guide will focus on determining the Health Index of large electric motors.

Deliverables: Technical Brochure with summary in Electra

Main Tasks and Time Schedule:

Start: : September 2014 **Final report:** November 2016

- ToR approved – July 2014
- Presentation at Paris Meeting – August 2014
- Form WG – September 2014
- Draft outline (possible table of contents) of Guide – November 2014
- Preliminary sections distributed to SC-A1 members – March 2015
- Discussion and further schedule – SC Meeting - August 2015
- Draft of guide - March 2016
- Comments by members and experts – June 2016
- Final version of document – August 2016
  Document approval (Technical Guideline and summary for Electra) – Meeting November 2016

Comments from Chairmen of SC concerned :

Approval by Technical Committee Chairman :

Date : 15/07/2014

M. Wald

(1) Joint Working Group (JWG) - (2) See attached table 1 – (3) See attached table 2

(4) Delete as appropriate

Table 1: Technical Issues of the TC project "Network of the Future" (cf. Electra 256 June 2011)

1	Active Distribution Networks resulting in bidirectional flows within distribution level and to the upstream network.
2	The application of advanced metering and resulting massive need for exchange of information.
3	The growth in the application of HVDC and power electronics at all voltage levels and its impact on power quality, system control, and system security, and standardisation.
4	The need for the development and massive installation of energy storage systems, and the impact this can have on the power system development and operation.
5	New concepts for system operation and control to take account of active customer interactions and different generation types.
6	New concepts for protection to respond to the developing grid and different characteristics of generation.
7	New concepts in planning to take into account increasing environmental constraints, and new technology solutions for active and reactive power flow control.
8	New tools for system technical performance assessment, because of new Customer, Generator and Network characteristics.
9	Increase of right of way capacity and use of overhead, underground and subsea infrastructure, and its consequence on the technical performance and reliability of the network.
10	An increasing need for keeping Stakeholders aware of the technical and commercial consequences and keeping them engaged during the development of the network of the future.

Table 2: Strategic directions of the TC (cf. Electra 249 April 2010)

1	The electrical power system of the future
2	Making the best use of the existing system
3	Focus on the environment and sustainability
4	Preparation of material readable for non technical audience