CIGRE Study Committee A1

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

WG* N° A1.48	**Name of Convenor : Ben Adams (UK)** **E-mail address**: ben.adams@gdfsuez.com
Technical Issues # (2):	**Strategic Directions # (3): 2**
The WG applies to distribution networks (4): No	
Title of the Group: Guidance on the Requirements for High Speed Balancing / Overspeed Testing of Turbine Generator Rotors Following Maintenance or Repair.	

Scope, deliverables and proposed time schedule of the Group :

Background :

Maintenance or repair of a turbine generator rotor can encompass anything from minor work carried out with the endwinding retaining rings in-situ, to a full rewind and/or mechanical modification of the forging.

It is generally accepted that in order to return the rotor to service with the lowest risk, a set of tests to prove the performance of the rotor, both mechanically and electrically, should be carried out. These tests should be at both operating and over-speed conditions. However, with the relatively low geographical availability of high speed balancing facilities and commercial pressure on outage timescales, operators are increasingly asking if the work is required and what risk is retained by not carrying out the high speed testing.

This guide will consider when a turbine generator rotor requires high speed balancing and over-speed testing following such work.

Scope :

1. Working group will focus on two and four pole round rotor type turbine-generators.
2. The goal of this study would be to investigate:
   - The type of work which would require high speed testing
   - The availability of high speed testing facilities
   - Any guidance already in existence on this subject.
   - Operators experience of rotor repairs with or without high speed testing.
   - OEMs guidance and experience.
   - 3rd party service provider's guidance and experience.
   - The risk of introducing issues following rotor maintenance or repair work.
   - The risk remaining if high speed testing is not carried out.
   - Ways in which the risk could be mitigated.
3. Produce a risk matrix showing what types work can be carried out and what the remaining risk would be

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Deliverables : Report to be published in Electra or Technical Brochure with summary in Electra

Time Schedule : start: September 2014 **Final report:** September 2016

- Working Group Established – 30 November 2014
- Draft questionnaire issued – 30 December , 2014
- Comments by members and experts –1 March 2015
- Final questionnaire issued for responses – 15 April 2015.
- Responses due – 15 June 2015
- Analysis of answers – issued – 30 August 2015
- Discussion by members and experts - SC-A1 Colloquium Spain 2015
- Revised document (Report or Technical Brochure Format) for approval – 30 November 2015
- Comments by SC Members (if any) – 15 February 2016
- Final document for approval under the six weeks rule – 15 April 2016

Comments from Chairmen of SCs concerned :

Approval by Technical Committee Chairman : M. Waldner

Date : 03/11/2014

(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