CIGRE Study Committee A1

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

WG* N° A1.50	**Name of Convenor : Sergio Rodriguez (Spain)** **E-mail address**: **srodriguezru@iberdrola.es**
Technical Issues # (2): x	**Strategic Directions # (3): 2**
The WG applies to distribution networks (4): No	
Title of the Group: Factory Quality Assurance Testing Requirements for Turbo-generator Components.	

Scope, deliverables and proposed time schedule of the Group :

Background :

Generator expected life, reliability and integrity in service is directly linked to design and manufacturing performance in the factory.

In order to verify this performance, users develop purchase technical specifications which include quality assurance tests that are required on all main generator components during the manufacturing process, as well as on the final product. These tests are in most of the cases based on international standards and OEM procedures but in some cases, users specify quality assurance tests that are not included in the OEM manufacturing quality assurance standards. Users can also request pass/fail criteria based on their own experience, which can differ somewhat from that included in international standards and OEM internal procedures. In these cases, it has to be discussed and approved/accepted by both parties before placing a purchase order.

An ITP (Inspection Test Program) has to include in clear terms the test method to be used in each case and its associated pass/fail criteria. The ITP must include the type of quality assurance record (internal record or report handed over to customer) and, if it will be a hold or witness point by the user or his representative. The technical specification must also clearly state the consequences of not meeting any of these quality assurance testing criteria.

Scope :

Working group will focus on air, hydrogen and water cooled turbo-generators rated 100 MW or larger. Auxiliary systems are not intended to be included.

The goal of the working group is to investigate through a questionnaire the present state of the art in quality assurance testing and assessments during the manufacturing process of the following main generator components:

- Stator winding bars.
- Stator winding assembly.
- Stator winding slot and overhang support systems.
- Stator core plates.
- Stator core assembly.
- Forged Rotor.
- Rotor winding.
    - Retaining Rings.
    - Rotor Wedges.
    - Rotor assembled

Present day best practices used for testing and assessing quality of newly manufactured generator equipment will be filtered from the questionnaires, analysed and compared to standard practices. The results and recommendations from this analysis will form a guideline for users when compiling and influencing future ITP plans.

Deliverables : Report to be published in Electra or technical brochure with summary in Electra

Time Schedule : start : Dec 2014 **Final report** : 2018

- TOR submitted for approval on December, 2014.
- Draft questionnaire by November, 2015.
- Comments by members and experts – March 2016.
- Final questionnaire – June 2016.
- Survey – answers – December 2016.
- Draft report – June 2017.
- Comments by members and experts - SC-A1 Colloquium 2017.
- Final document (Report or Technical Brochure) – December 2017.
- Approval of final document – Paris 2018.

Comments from Chairmen of SCs concerned :

Approval by Technical Committee Chairman : M. Waldron
Date : 09/01/2015

(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