



WORKING GROUP FORM

Study Committee: B3

WG number: B3. 32

Name of Convener: Toly MESSINGER

Title:

Saving through Optimized Maintenance of Air Insulated Substations

Terms of reference

Background:

Utilities and Asset Owners throughout the world are faced, on one hand with higher requirements for reliability of power delivery and, on the other one with ageing assets that require increasingly more maintenance and capital expenditure to sustain the existing levels of service. Furthermore, their pool of technical expertise in engineering and maintenance of the assets is dwindling, as the workforce is greying and retiring before a new generation of engineers has a chance to acquire the required skills.

In this environment it is essential to use expertise from inside and outside the organization to streamline and standardize the levels of equipment maintenance in substations, standardize and review the commissioning and periodic testing methodology, and to determine the optimal point of the ageing equipment replacement or major overhaul via prioritization studies and life-cycle cost estimates.

The objective of this Working Group is to review the concepts of Sustainment, in particular for Air Insulated Substations (AIS), applicability to various types of equipments and in different jurisdictions, methodology of testing to improve the reliability of the substation, Refurbish versus Replacement decisions in AIS substations and optimization of operating and maintenance costs for the Utility or Asset Owners, such as:-

- reduction of man-hours required for various equipment maintenance
- extension of maintenance intervals for various equipments
- simplification of maintenance tasks and elimination of some that are redundant or have marginal benefit
- accelerating capital replacement of maintenance-intensive equipment that requires frequent maintenance for support systems(e.g. airblast breakers supported by compressed air stations, etc.)

The work will be coordinated to avoid duplication with the activities of the proposed WG A3.29 (Deterioration of Ageing Substation Equipment and Possible Mitigation Techniques)and WGA3.30(Impact of overstressing of substation equipment).

Scope:

The work will include:

1. Review of operating and maintenance methodologies presently in use in the utility industry, with emphasis on optimizing maintenance expenditures and reliability of the substation.
2. Guidelines for creating uniform and practical Maintenance Standards for various types of substation equipment.
3. Review commissioning and periodic testing methodology for various types of equipment, applicability and pragmatic time intervals.

4. Guidelines for Refurbish-versus-Replace decisions based on life-cycle costs.
5. Review of experience from utilities, documenting do's and don'ts in case studies.

Deliverables and time schedule:

- 1) Interim report by mid 2012 (After coordinating with A3.29/A3.30)
- 2) Electra paper and brochure before 2014 Paris meeting (After coordinating as above.)

SCs /Target Groups concerned

- SC A2,A3/Utility engineers, Asset owners, Consulting companies, Manufacturers
Maintenance Contractors

Approval by TC Chairman: Klaus Fröhlich

Date: 09/02/2011