CIGRE Study Committee B2

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

WG* N° B2.55	**Name of Convenor : Dale Douglass (USA)** **E-mail address**: da.douglass@gmail.com
Technical Issues #9: Increase ROW capacity and network reliability.	**Strategic Directions #2: Making best use of existing system**
The WG deliverables do <u>not</u> apply to distribution networks	
Title of the Group: Conductors for the Uprating of Existing Overhead Lines	

Background :

Technical Brochure 244 considered several types of high-temperature conductors available in 2003 but not those incorporating composite cores which are now commercially available. Also, in the last 10 years, more sophisticated acceptance tests have been proposed and certain installation problems have been identified. Sag-tension calculations at high temperature, ac resistance, internal conductor temperature variation, and heat transfer at very high temperatures will be reviewed and updated.

Scope : Expand Cigré TB 244 (2003) to include composite core HTLS conductors and to consider recent ac resistance, sag-tension, creep, acceptance testing models developed since its publication in 2003. Investigate high temperature creep and complex thermal elongation in HTLS conductors. Include recent recommendations on selection of weather conditions for line rating and acceptance testing of HTLS conductors (TB 426). Through coordination with WGB2.48, revised tension limits (to avoid vibration fatigue), installation, and HTLS laboratory test results will be discovered by means of a joint questionaire.

1.Incorporate recent composite HTLS conductors into design comparisons.

2.Update discussion of AC resistance calculation at high current levels (TB 345)

3.Include sag-tension refinements (thermal elongation/creep) (TB 324)

4.Include discussion of rating weather assumptions at high temp (TB 299)

5.Improve heat balance calculation procedures at high temp. (coord WG B2.41)

6.Update material test discussions based on HTLS Acceptance Testing brochure (TB 426

7.Expand design comparison test cases from three to six (coord. WG B2.48).

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

Time Schedule : start : January 2012 **Final report** : 2014

Comments from Chairmen of SCs concerned :

Approval by Technical Committee Chairman : Klaus Fröhlich
Date :08/01/2012

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	Interactive communication with the public and with political decision maker