CIGRE Study Committee D1

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

WG* N° D1.50	**Name of Convenor :** Johannes Rickmann (US) **E-mail address :** johannes.rickmann@phenixtech.com
Technical Issues # (2): 4	**Strategic Directions # (3): 1**
The WG applies to distribution networks (4): Yes	
Title of the Group: Atmospheric and altitude correction factors for air gaps and clean insulators	

Scope, deliverables and proposed time schedule of the Group :

Background :

In IEC there is a need to harmonise the atmospheric and altitude correction factors applied by the various equipment committees, in particular with respect to the extension of the IEC standards to UHV and to HVDC (SMB/4427/DP). In consequence, JWG 22 "Atmospheric and altitude correction" has been established under the responsibility of TC 42 with participation of SC 17A, 17B, SC 17C, TC 28, TC 36 and TC 115 (SMB/4427A/CC), with the following task:

> The purpose of the JWG is to determine atmospheric correction factors (temperature, pressure, absolute humidity) for AC, SI, LI and DC test voltages in voltage systems greater 1000 V relevant for installation up to 6000 m above sea level, for air gaps and clean insulators. It is to propose necessary modifications of the atmospheric corrections and altitude corrections in the existing standards, if necessary, and to revise and update these standards.

After having issued the call for experts for JWG 22 (42/289/AC), the convenor of IEC JWG 22 requested CIGRE SC D1 to study the subject in more detail and to give guidance on the appropriate correction factors.

Note: The subject of "atmospheric corrections" used to be part of present WG D1.36 with special focus on application to UHV. Since the scope of the new task is much wider and in view of the complexity of the subject, the difficulty to get experimental results from first hand and the obvious need to perform additional testing, the establishment of a new WG is necessary.

Scope :

1. Check and evaluate the existing correction factors (temperature, pressure, absolute humidity) for AC, SI, LI and DC test voltages in voltage systems greater 1000 V relevant for installation up to 6000 m above sea level, for air gaps and clean insulators.
2. Collect available new test results and initiate round-robin-tests, if necessary.
3. Give guidance on modifications of the atmospheric and altitude corrections, if necessary.

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

Time Schedule : start : 2012 **Final report** : 2015

Comments from Chairmen of SCs concerned : A3, C4

Approval by Technical Committee Chairman : Klaus Fröhlich **Date** :15/04/2012

(1) Joint Working Group (JWG) - (2) See attached table 1 – (3) See attached table 2 – (4) $U_m \leq 72.5$ kV

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