


CIGRE Study Committee B1

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

WG* N° B1.57	Name of Convenor : Søren Damsgaard Mikkelsen (Denmark) E-mail address: sdm@energinet.dk	
Technical Issues # (2): 9		Strategic Directions # (3): 2
The WG applies to distribution networks (4): No		
Title of the Group: Update of service experience of HV underground and submarine cable systems		
Scope, deliverables and proposed time schedule of the Group :		
Background :		
<p>In recent years, significant quantities of land and submarine cables and accessories have been installed and the associated technology and laying techniques have matured and evolved. With the increasing demands on electrical power transmission and distribution systems, including the need to connect new (renewable) sources of generation, significant quantities of land and submarine cable are currently being installed.</p> <p>In 2009, CIGRE WG B1.10 published a Technical Brochure (TB 379) which collated survey data relating to the installed quantities of underground and submarine cable systems rated at 60 kV and above together with the service experience/performance of existing underground and submarine cable systems. The survey covered a 5 year period ending December 2005 for land cables and a 15 year period ending December 2005 for submarine cables. Our stakeholders have expressed the need to have these data updated.</p> <p>The WG Convener should consider setting up separate Task Forces to consider independently the statistics for land, submarine cable and DC systems. This would enable results for each type of cable to be reported as soon as data are available rather than wait for all work to be completed.</p>		
Scope :		
<p>To update the service experience to the end of 2015, using a format comparable to earlier publications (where possible). Published information is to include:</p> <ul style="list-style-type: none"> • Land and submarine cables and accessories • Type of current (AC, DC) • Technology (the main designs of cables in use) • Mode of installation (Land Cables: direct burial, tunnels, troughs, duct banks and Submarine Cables: protected or unprotected) • Internal and external faults • Number of faults per year. <p>The voltage range will be limited to systems operating at 60 kV and above</p>		
Deliverables : Technical brochure with summary in Electra. A tutorial should be prepared and options for wider dissemination considered.		
Time Schedule : start : January 2016		Final report : August 2018
Comments from Chairmen of SCs concerned :		
<p>Approval by Technical Committee Chairman : Date : 12/01/2016</p> 		



- (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