



CIGRE Study Committee B4

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG B4.68	Name of Convenor : Nigel SHORE (UK) E-mail address: nlshore@se.abb.com
Technical Issues # : 3	Strategic Directions # : 1
The WG applies to distribution networks : No	
Title of the Group: Revision of Technical Brochure 92 – DC Harmonics and Filtering	
Background : <p>CIGRÉ Technical Brochure 92 “DC Side Harmonics and Filtering in HVDC Transmission Systems” (1994) was prepared by Task Force 2 of WG14.03. It is an extensive treatment of the subject, has been quoted in numerous Technical Specifications for HVDC Projects, and is not known to contain any technical errors. However, the typed format of the Brochure is outdated and makes it a little difficult to read and to access key information. The Brochure itself, being quite old, has slipped out of people’s knowledge – to the extent that the appropriate IEC group dealing with this area recently stated that there was no CIGRÉ publication on DC filters.</p> <p>There are also aspects of the document which could be improved, as listed further below. It is therefore proposed that a revision of this Technical Brochure should be undertaken. The revised document could then be used by IEC in the normal process of adopting the technical work which flows from CIGRÉ.</p>	
Scope : <ol style="list-style-type: none">1. Review of the existing TB92 for to identify any factual inaccuracies or areas where clarification would be beneficial.2. Review of the existing TB92 to consider which areas should usefully be expanded or new sections inserted.3. Drafting of new material in at least the following areas:<ul style="list-style-type: none">• Calculation of coupling to vulnerable communication and other systems• DC cable systems• Testing and measurement• Higher frequency aspects, associated with VSC• Review of experience with active filters• Interaction / interference with parallel AC overhead lines• Series / blocking filters• Consequences of DC side low-order harmonics and proposed limits (transformer saturation, amplification/resonances resulting in overvoltages• DC filter specifications and design for multi terminal HVDC stations considering staggered installation of terminals.4. Re-formatting in the modern recommended layout for Technical Brochures.	
<i>Continued over</i>	

Deliverables :

A revised and updates Technical Brochure on DC Side Harmonics

Time Schedule : start October 2014**Final report :** 2016**Comments from Chairmen of SCs concerned :****Approval by Technical Committee Chairman :****Date :** 21/07/2014A handwritten signature in black ink, appearing to read "M. Wald", is written over a horizontal line.

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