

CIGRE Study Committee C4
PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP (1)

WG* N° C4.27	Name of Convenor : Leonardo Pittorino (ZA) E-mail address: PittorL@eskom.co.za
Technical Issues # (2): 8	Strategic Directions # (3): 2
The WG applies to distribution networks (4): No	
Title of the Group: BENCHMARKING OF POWER QUALITY PERFORMANCE IN TRANSMISSION SYSTEMS	
<p>Scope, deliverables and proposed time schedule of the Group :</p> <p>Background: Benchmarking is receiving growing interest from both transmission companies and electricity regulators. This proposed work aims at developing guidelines for technical performance benchmarking by combining the input from specialists in C4 (System Technical Performance) and C5 (Electricity Markets and Regulation). Technical performance here refers to: interruption performance (reliability), availability, voltage dips, and voltage waveform quality (harmonics, unbalance, magnitude, and flicker). The work undertaken by C4 (publication TB 261) identified that various transmission companies are using widely different indices for technical performance reporting, especially in the case of voltage dips, system reliability, and availability reporting. Various commercial benchmarking companies also use very different indices, and in some cases the manner in which common indices are defined and applied can vary greatly – making comparisons between the performance reported by these different companies difficult. The peer groups for which such benchmarks are determined are also often not well selected, and characteristics of the systems are not included with the benchmarking information. Furthermore the implementation of exclusions is not consistent among transmission companies making comparisons difficult (e.g. third party caused incidents).</p> <p>Scope: The scope of the working group is to develop a set of guidelines for transmission technical performance benchmarking based on:</p> <ul style="list-style-type: none"> • A review of the practical application and definitions of the indices proposed by the C4 TB 261 for Transmission and Sub-Transmission systems. (This report on Power Quality Indices and Objectives has provided an in-depth analysis of possible indices, and provides proposals on indices and the manner in which these indices are calculated). These proposed indices may be used as a starting point, but may well need to be adapted or further defined for application to benchmarking. • The definition of important “internal” indices such as circuit availability and line fault rates. • Consideration of the implications on monitoring and reporting systems. • Recommendations on how systems can be described (important characteristics to be identified as part of the benchmarking information) to assist transmission companies, regulators, and benchmarking companies in the identification of a suitable peer group. • Highlight what historical data, system descriptions, and calculation methodologies need to be in place for effective benchmarking to be undertaken (or alternatively highlight cases where benchmarking is not an appropriate tool for decision making). <p>Note 1: For clarity, the aim of this working group is not to actually undertake benchmarking – but only to provide a practical framework for such benchmarking studies. Examples and/or case studies may be included if the working group feels this is necessary to demonstrate the application of the recommendations.</p> <p>Note 2: Although the focus of the proposed guideline is on assessing the relative technical performance of two comparable systems, economic issues may be taken into consideration by the JWG – as the technical link between economic and technical benchmarks are important to regulators and the companies they regulate.</p> <p>Note 3: As IEEE 1366 is focussed on addressing interruption performance monitoring, reporting and benchmarking issues in MV distribution systems, the scope in this proposal is limited to interruption performance for Transmission systems. The generally meshed nature of transmission systems also presents unique challenges for the calculation and application of indices.</p>	

Deliverable: A technical report/ brochure providing practical guidelines for undertaking benchmarking of system technical performance in the case of Transmission systems.

Time Schedule : start : December 2012

Final report : June 2014

Comments from Chairmen of SCs concerned :

Approval by Technical Committee Chairman :

Date : 2nd October 2012

A handwritten signature in black ink, appearing to read "M. Waldkirch".

(1) Joint Working Group (JWG) - (2) See attached table 1 – (3) See attached table 2

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