CIGRE Study Committee B1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG N° B1.34	**Name of Convenor :** Johannes KAUMANNS (Germany) **E-mail address**: johannes.kaumanns@suedkabel.com
Technical Issues : 9	**Strategic Directions : 1 & 2**
Title of the Group: Mechanical forces in large cross section cable systems	

Scope, deliverables and proposed time schedule of the Group :

Background :

There are no special "bad" experiences with "large conductors", but the trend is going to larger and larger cross sections. It was identified through SC B1 target groups that a technical guide could reduce risk of poor design and installation.

Scope : HV and EHV extruded land cables for AC or DC application

Terms of reference :

The WG should:

- Identify the forces that interact with the cable system
- Address the interaction with all types of joints, including transition joints

The internal design of the cable or the accessories is out of the scope.

The work will be limited to cables with extruded insulation, but should study all types of sheaths and the different installation arrangements such as rigid, flexible, transition from ducts to rigid installations, installation in tunnels, shafts, bridges…….
The WG should address:

- short circuit forces ,
- forces derived from temperature
- relevant aspects of installation design (clamping, offsets….)

The WG will recommend when necessary relevant calculations, tests or testing configurations

Deliverables :

The WG will deliver :

- a technical report to be published as a technical brochure and an executive summary in Electra
- a tutorial presenting the results

WG members from: Canada, Denmark, France, Germany(Conv), Japan, Italy, The Netherlands, Spain, Sweden, Switzerland, United Kingdom, United States

Time Schedule : start : September 2010 **Final report** : 2013

Comments from Chairmen of SCs concerned :

Approval by Technical Committee Chairman :
Date :

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