




**CIGRE Study Committee B1**

**PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP**

<b>WG* N° B1.44</b>	<b>Name of Convenor :</b> Caroline Bradley (UK) <b>E-mail address:</b> caroline.bradley@nationalgrid.com
<b>Technical Issues #:</b> 9	<b>Strategic Directions #:</b> 1
<b>The WG applies to distribution networks (4):</b> Yes	
<b>Title of the Group:</b> Guidelines for safe work on cable systems under induced voltages or currents	
<b>Scope, deliverables and proposed time schedule of the Group :</b> <b>Background :</b> During several phases of a cable system life (installation / maintenance / testing / upgrading / removal), it can be necessary to work under induced voltages or induced currents: <ul style="list-style-type: none"> <li>▪ During the pulling or the laying of a cable in the vicinity of an energized system: underground cable or overhead line</li> <li>▪ During the jointing operations in the installation process</li> <li>▪ When checking or maintaining link boxes</li> <li>▪ During the repair of the cable after fault</li> <li>▪ When removing the cable for disposal at the end of its life.</li> </ul> <p>As hazardous conditions could occur, it is important to provide Target Groups (utilities, manufacturers,...) with guidelines for safe work on cable systems.</p> <p>NB: After several years of active work, IEEE/PES/ICC is now close to publish such guide, limited to installations in ducts and manholes.</p>	
<b>Scope:</b> All topics related to work under induced voltages or currents on land or submarine cables shall be addressed in a comprehensive guide which will include the appropriate terminology. The WG should address : <ol style="list-style-type: none"> <li>1. Extruded or lapped cable systems</li> <li>2. HV but also MV and even LV AC when they are part of the connection scheme,</li> <li>3. Permanent or fault conditions (Cable system stresses under grid fault)</li> <li>4. Methods to calculate induced voltages and/or currents in various possible configurations (including EMF or Magnetic effect from cables installed in the vicinity)</li> <li>5. Protecting equipments (gloves, earthing systems....)</li> <li>6. Jointing, Terminating and work on Link Boxes.</li> <li>7.</li> </ol>	
<b>Deliverables :</b> Technical Brochure proposing safe working procedures with summary in Electra and a tutorial. A set of dedicated Tutorials. The result of the work will be sent to IEC TC 20 for possible further consideration.	
<b>Time Schedule :</b> start : April 2013 <span style="float: right;"><b>Final report :</b> 2015</span>	
<b>Comments from Chairmen of SCs concerned :</b>	
<b>Approval by Technical Committee Chairman :</b>	<b>Date :</b> 03/04/2013
	



**Table 1: Technical Issues of the TC project “Network of the Future” (cf. Electra 256 June 2011)**

<b>1</b>	Active Distribution Networks resulting in bidirectional flows within distribution level and to the upstream network.
<b>2</b>	The application of advanced metering and resulting massive need for exchange of information.
<b>3</b>	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.
<b>4</b>	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.
<b>5</b>	New concepts for system operation and control to take account of active customer interactions and different generation types.
<b>6</b>	New concepts for protection to respond to the developing grid and different characteristics of generation.
<b>7</b>	New concepts in planning to take into account increasing environmental constraints, and new technology solutions for active and reactive power flow control.
<b>8</b>	New tools for system technical performance assessment, because of new Customer, Generator and Network characteristics.
<b>9</b>	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.
<b>10</b>	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)**

<b>1</b>	The electrical power system of the future
<b>2</b>	Making the best use of the existing system
<b>3</b>	Focus on the environment and sustainability
<b>4</b>	Preparation of material readable for non technical audience