


**CIGRE Study Committee C4**

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

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| <b>WG* N° C4.30</b>   | <b>Name of Convenor : WH Siew (UK)</b><br><b>E-mail address: w.siew@eee.strath.ac.uk</b> |  |
| <b>Technical Issues # (2): Item No.8</b>  | <b>Strategic Directions # (3): Item No. 1</b>  |  |
| <b>The WG applies to distribution networks (4): Yes / No</b>  |  |  |
| <b>Title of the Group:</b> EMC in Wind Generation Systems   |  |  |
| <p><b>Scope, deliverables and proposed time schedule of the Group :</b></p> <p><b>Background :</b> Wind energy has developed significantly over the last two decades. Today, wind energy forms a significant contribution to the generating resources of most countries and it is expected that its share of generating resource will increase further in the future. Wind turbines operate in a very different environment and this is particularly true for off-shore wind plants. There are challenges on almost every engineering aspects and EMC for wind generation systems will need special considerations. Although CLC/TR 50373:2004 Wind Turbines - Electromagnetic Compatibility exists, several members of WG C4.208 felt that the document is a start and that CIGRE could contribute to it further. It is therefore the aim of this working group to produce a technical brochure covering EMC for wind generation systems that are not sufficiently addressed in the above mentioned documents and are listed in the scope below.</p> <p><b>Scope :</b></p> <ol style="list-style-type: none"> <li>1.To produce a Technical Brochure on EMC for wind generation systems</li> <li>2. To consider immunity requirements for electronics located in the immediate vicinity of high electromagnetic fields caused by a lightning current.</li> <li>3. To consider the immunity requirements for electronics as a result of close power interconnection of similar systems in large wind power plants.</li> <li>4. To consider all the above for on-shore as well as off-shore wind plants.</li> <li>5. To consider the effect of all of the above to the compact electronics installed within a wind turbine.</li> </ol> <p>The scope does not include power quality issues.</p> <p><b>Deliverables :</b> A technical brochure with summary in Electra</p> <p><b>Time Schedule :</b> Start : January 2013 <span style="float: right;"><b>Final report : 2015</b></span></p> |  |  |
| <b>Comments from Chairmen of SCs concerned :</b>  |  |  |
| <p><b>Approval by Technical Committee Chairman :</b> <br/><b>Date :</b> 23/10/2012</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)**

|           |  |
|-----------|--|
| <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)**

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|----------|---|
| <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 |