


PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP <sup>(1)</sup>

<b>WG* N° D1.67</b>	<b>Name of Convenor :</b> Christian FRANCK (CH)	
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<b>Technical Issues # <sup>(2)</sup>:</b> 7		<b>Strategic Directions # <sup>(3)</sup>:</b> 3
<b>The WG applies to distribution networks <sup>(4)</sup>:</b> Yes		
<b>Title of the Group:</b> Dielectric performance of new non-SF6 gases and gas mixtures for gas-insulated systems		
<b>Scope, deliverables and proposed time schedule of the Group :</b>		
<b>Background :</b>		
<p>SF6 gas is today's preferred solution for compact and reliable gas-insulated systems. Environmental care is taken by low gas handling losses and high tightness requirements, resulting in very low emissions during recent years. But, SF6 gas has the highest known global warming potential and the demand for alternative solutions is increasing. Recent developments presented alternatives based on either natural gases or mixtures of natural gases with fluorinated components. The state-of-the-art of natural gases is summarized by CIGRE WG D1.51 which will finalize its work in 2016. Since mixtures of natural gases with e.g. fluorinated components were out of the scope of WG D1.51, there is a need to set up a new WG to investigate and summarize the dielectric properties of these new types of insulating gases. Practical application aspects are within the scope of the new WG B3.45.</p>		
<b>Scope :</b>		
<p>Describe methods for identifying new insulating gases and gas mixtures and investigate and summarize the dielectric properties and the practical insulation performance of new non-SF6 insulating gases and gas mixtures for gas-insulated systems.</p> <p>The main working items are:</p> <ul style="list-style-type: none"> <li>• Description of methods to find new insulating gases</li> <li>• Properties of non-SF6 gases <ul style="list-style-type: none"> <li>• Basic discharge properties, discharge development</li> <li>• Practical insulation performance</li> <li>• Degradation products</li> </ul> </li> <li>• Definition of appropriate tests and test procedures</li> </ul> <p>The WG will summarize available information and conduct further studies (e.g. by testing).</p>		
<b>Deliverables:</b> Technical brochure, summary report in Electra and Tutorial Presentation.		
<b>Time Schedule :</b> start : 2017		<b>Final report :</b> 2020
<b>Comments from Chairmen of SCs concerned :</b>		
<p><b>Approval by Technical Committee Chairman :</b> </p> <p><b>Date :</b> 18/08/2016</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)**

<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