




## CIGRE Study Committee C5

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

<b>WG N° C5.27</b>	<b>Name of Convenor:</b> Gerard Doorman (Norway) <b>E-mail address:</b> gerard.doorman@statnett.no
<b>Strategic Directions #<sup>2</sup>: (1)</b>	<b>Technical Issues #<sup>3</sup>: (5, 8)</b>
<b>The WG applies to distribution networks<sup>4</sup>: No</b>	
<b>Potential Benefit of WG work #<sup>6</sup>: (1, 2)</b>	
<b>Title of the Group: Market Design for Short-Term Flexibility</b>	
<b>Background:</b> The continuing increase of non-dispatchable generation such as solar and wind presents challenges for handling the real-time balance between production and demand. The current Day Ahead markets provide reasonable forecasts and approximations of actual operations. The growing deviations between forecast and actual generation are beginning to require a broader range of tools and market arrangements to ensure that there is enough flexibility in the system to continue to meet that real-time balance.  Flexibility is a characteristic of capacity. If we view capacity as the possibility (or option) to either consume or produce electrical energy, then flexibility is the capability to use this capacity freely and to adapt the capacity responding to price signals. The more flexible the capacity (in terms of speed and lack of constraints), the better its ability to serve the short term needs of the power market.  The challenges to the real-time balance have many technical aspects that are outside the scope of Study Committee C5, however, there is a need to design the market instruments to enable and facilitate those technical solutions in a market environment and to provide incentives to market participants to deliver the required services.  The Working Group will conduct a survey to quantify market design options – both those market design options currently being used to provide short term flexibility as well as market design options that are being considered to address future needs. Drawing on the experiences from various market designs will provide key insights into market design concepts as well as being potentially useful for other markets with very different basic designs.	
<b>Scope:</b> <ul style="list-style-type: none"><li>• Investigate short-term (Day Ahead and Real-time) market designs used to incentivise providers of the flexibility necessary to complement the growth of non-dispatchable generation</li><li>• Focus on Intraday and balancing markets from a market point of view with particular focus on incentives for market participants, including those connected to the DSO grids.</li></ul>	
<b>Deliverables:</b> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Technical Brochure and Executive summary in Electra</li><li><input type="checkbox"/> Electra report</li><li><input type="checkbox"/> Tutorial<sup>5</sup></li></ul>	

<b>Time Schedule:</b> start: Q3 2017	<b>Final Report:</b> Q2 2019
• <b>Start:</b>	<b>Q3 2017</b>
• <b>Develop work plan and recruit members</b>	<b>Q3 2017</b>
• <b>First meeting</b>	<b>Q4 2017</b>
• <b>Finalize survey and approach respondents</b>	<b>Q1 2018</b>
• <b>Compile data</b>	<b>Q2 2018</b>
• <b>Analyze data and first draft</b>	<b>Q3 2018</b>
• <b>Second meeting and first reporting (Paris)</b>	<b>Q3 2018</b>
• <b>First draft report</b>	<b>Q4 2018</b>
• <b>Final draft (2019 C5 meeting)</b>	<b>Q2 2019</b>
• <b>Final report</b>	<b>Q2 2019</b>

**Approval by Technical Committee Chairman:** 

**Date:** 18/09/2017

Notes: <sup>1</sup> or Joint Working Group (JWG), <sup>2</sup> See attached Table 2, <sup>3</sup> See attached Table 1,  
<sup>4</sup> Delete as appropriate, <sup>5</sup> Presentation of the work done by the WG, <sup>6</sup> See attached table 3

**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
<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 (ref. 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

**Table 3: Potential benefit of work**

<b>1</b>	Commercial, business or economic benefit for industry or the community can be identified as a direct result of this work
<b>2</b>	Existing or future high interest in the work from a wide range of stakeholders
<b>3</b>	Work is likely to contribute to new or revised industry standards or with other long term interest for the Electric Power Industry
<b>4</b>	State-of-the-art or innovative solutions or new technical direction
<b>5</b>	Guide or survey related to existing techniques. Or an update on past work or previous Technical Brochures
<b>6</b>	Work likely to have a safety or environmental benefit