


**CIGRE Study Committee C5**
**PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP<sup>1</sup>**

<b>WG N° C5.28</b>	<b>Name of Convenor:</b> Adam Keech (US) <b>E-mail address:</b> adam.keech@pjm.com	
<b>Strategic Directions #<sup>2</sup>:</b> (1, 2, 3)		<b>Technical Issues #<sup>3</sup>:</b> (5, 8)
<b>The WG applies to distribution networks<sup>4</sup>:</b> No		
<b>Potential Benefit of WG work #<sup>6</sup>:</b> (1, 2, 3, 4, 5)		
<b>Title of the Group:</b> Energy Price Formation in Wholesale Electricity Markets		
<p><b>Background:</b></p> <p>The structure of wholesale electricity markets impacts how prices are formed, and how accurately prices reflect the true cost of serving load. As the dynamics of the electric power sector change – especially the characteristics of the generation mix – there is a need to evaluate whether pricing mechanisms are adequately valuing wholesale electricity.</p> <p>This working group will analyze price formation with a focus on wholesale energy markets. The group will gather information about pricing mechanisms as they exist today and examine if these mechanisms are working as desired. For example, are energy markets incenting desired operational behavior? Are out-of-market (uplift, make-whole) payments impacting desired price signals? Are there attributes not currently valued in energy markets – like flexibility or environmental externalities – that should be considered in price formation? After evaluating today’s energy pricing landscape, the working group will discuss potential enhancements that could more accurately reflect the true cost of wholesale energy.</p> <p><b>Scope:</b></p> <ol style="list-style-type: none"> <li>1. Obtain information on general market structure.</li> <li>2. Evaluate pricing schemes under normal peak conditions.</li> <li>3. Evaluate pricing schemes under emergency conditions.</li> <li>4. Examine the benefits and challenges of pricing mechanisms as they exist today, and explore desired or planned enhancements.</li> </ol> <p><b>Deliverables:</b></p> <p><input checked="" type="checkbox"/> Technical Brochure and Executive summary in Electra</p> <p><input type="checkbox"/> Electra report</p> <p><input checked="" type="checkbox"/> Tutorial<sup>5</sup></p> <p><b>Time Schedule:</b> Start Q1 2018 <span style="float: right;"><b>Final Report:</b> August 2021</span></p> <p><b>Approval by Technical Committee Chairman:</b> </p> <p><b>Date:</b> October 16<sup>th</sup>, 2018</p>		

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

