

CIGRE Study Committees C5 and C6
PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP¹

JWG N° C5/C6.29	Name of Convenor: Alain Taccoen (France)	
Strategic Directions #²: 1		Technical Issues #³: 1, 2, 5, 10
The WG applies to distribution networks⁴: Yes		
Potential Benefit of WG work #⁶: 1, 2		
Title of the Group: New Electricity Markets, Local Energy Communities		
<p>Scope, deliverables and proposed time schedule of the Group:</p> <p>Background:</p> <p>Today it becomes more and more efficient to develop local energy systems based on distributed energy resources (DER) allowing customers to become energy suppliers. Adding locally batteries to dispersed generators, stationary or within electric vehicles, allows for a group of citizens or more generally for any group of consumers, to settle their own local structure for their supply of electricity, becoming a local energy community (LEC). With the digitalization of economy and some specific tools such as blockchains, each of this group may organize easily its local market. Depending on national regulation, LEC can or not own and/or operate the network, or even target to be physically balanced, enabling islanded operation. As underlined by the recent Clean Energy Package in the EU, regulation is under development for LEC.</p> <p>This JWG will liaise with parallel JWG D2/C6.47 “Advanced Consumer-Side Energy-Resource Management Systems”.</p> <p>Scope:</p> <p>This working group will provide a worldwide overview of DER technology applied in LEC, planning and operation of DER, and the development of LEC, by describing their level of development and the regulatory framework. The aim is also to understand how members of a LEC can be market actors and how the LEC can be itself a market actor, the following topics should be addressed:</p> <ol style="list-style-type: none"> 1. Definition of LEC (differences to microgrids, virtual power plants or net-zero communities) and of DER technology, including electrical and thermal storage, applied 2. The role of the regulator within the internal organization of the LEC. The regional regulatory framework, local legislations and regulations as well as business cases for LEC 3. Mechanisms for consumers entering and leaving a LEC 4. The options for an LEC being locally responsible for the balance between generation and demand. 5. Interfaces as well as relations and required exchange of data between a LEC and the local DSO. 6. Competition between suppliers within a LEC. 		

Deliverables:

- Technical Brochure and Executive summary in Electra
- Webinar
- Tutorial⁵

Time Schedule: start: December 2018

Final Report: March 2021

Approval by Technical Council Chairman:



Date: December 12th, 2018

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

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

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

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

Table 3: Potential benefit of work

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