CIGRE Study Committee C3

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG [1]N° C3.21	**Name of Convenor:** Susana Batel (PORTUGAL) **E-mail address**: susana.batel@iscte-iul.pt
Technical Issues #[2]: 10, 7	**Strategic Directions #[3]:** 4, 3
The WG applies to distribution networks[4]: No	
Potential Benefit of WG work #[5]: 1, 7	
Title of the Group: Including stakeholders in the decision-making processes for grid development	

Scope, deliverables and proposed time schedule of the WG:

Background:

In the last decades, investments in upgrading and developing grid systems have increased. Connecting new (renewable) energy sources to the existing grid involves both the construction of new lines and the upgrading of existing network. Other drivers of the current changes include the export and import of energy to other countries, the goal of an integrated electricity market all around the world and increasing focus on security of supply.

Although huge investments are being made, grid development is a complex process, where results can be difficult to achieve. Several institutions are involved, and currently the feasibility of projects for grid development - considering also in the grid the relevant aspects of generation and distribution, has a tendency to rely more and more on acceptance from the public opinion.

Cases of opposition to new grid developments have arisen frequently in the last years and have led to delays and withdrawal of projects. Much in line with observed conflict patterns regarding the placement of renewable energy facilities, research on public responses to high voltage power lines has shown that while people in general tend to be favourable to grid developments, scepticism increases when particular developments are to take place in specific places. Together with the perceived risk of these objects and diminished available space, this imposes a real risk on the realization of such projects.

Knowledge on these expected “hotspots” and incorporation in the decision-making processes for grid development is seen then as the next challenge for system operators. CIGRE offers an excellent platform to gain insights and produce knowledge on these issues, as it can provide information on how different nation-states and different system operators involve stakeholders in the decision-making processes for grid development and what best practices might be. These include compiling and generating knowledge on who should be involved, when, how and what for, including mitigation measures and dialogue with stakeholders, including manufacturers, distribution system operators, NGO’s, renewable energy generation developers, authorities at different levels, regulators, and society at large.

It is the goal of this workgroup to study the best practices of the Cigre members and as identified in the social sciences’ literature on the social acceptance of energy infrastructures, to improve the decision-making processes for grid development both to system operators and the public/local communities.

Scope:

The working group seeks to find the best practices on this topic through a mainly open-ended questions survey and deliver a technical brochure on this matter.

The questionnaire and technical brochure will aim to respond to the following main questions

1. How should projects for building new infrastructure and/or maintaining/renewing existing assets be communicated to stakeholders?
2. How should stakeholders be involved in the decision-making processes for grid development, including in relation to the need for grid development, its routing and potential alternatives? How, when, who and what for?
3. Which mitigation measures should be considered? And should community benefits be included? When, what, from whom?
4. What are the differences and similarities between different nation-states/TSO's regarding the three aspects above, and which of those can inform best practices?

Deliverables:

☒ Technical Brochure and Executive Summary in Electra

☒ Electra Report

☒ Tutorial[6]

☐ Webinar[6]

Time Schedule: start: June 2019 **Final Report**: June 2021

Approval by Technical Council Chairman:

Date: March 18th,2019

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

Table 1: Technical Issues for creation of a new WG

1	Active Distribution Networks resulting in bidirectional power and data flows within distribution levels up to higher voltage networks
2	Digitalization of the Electric Power Units (EPU): Real-time data acquisition includes advanced metering, processing large data sets (Big Data), emerging technologies such as Internet of Things (IoT), 3D, virtual and augmented reality, secure and efficient telecommunication network
3	The growth of direct current (DC) and power electronics (PE) at all voltage levels and its impact on power quality, system control, system operation, system security, and standardisation
4	The need for the development and significant installation of energy storage systems, and electric transportation, considering the impact they can have on the power system development, operation and performance
5	New concepts for system operation, control and planning to take account of active customer interactions, and different generation types, and new technology solutions for active and reactive power flow control
6	New concepts for protection to respond to the developing grid and different generation characteristics
7	New concepts in all aspects of power systems to take into account increasing environmental constraints and to address relevant sustainable development goals.
8	New tools for system technical performance assessment, because of new Customer, Generator and Network characteristics
9	Increase of right of way capacity through the use of overhead, underground and submarine infrastructure, and its consequence on the technical performance and reliability of the network
10	An increasing need for keeping Stakeholders and Regulators aware of the technical and commercial consequences and keeping them engaged during the development of their future network

Table 2: Strategic directions of the Technical Council

1	The electrical power system of the future: respond to speed of changes in the industry
2	Making the best use of the existing systems
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, social and economic benefits 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 directions
5	Guide or survey related to existing techniques; or an update on past work or previous Technical Brochures
6	Work likely to contribute to improved safety.
7	Work addressing environmental requirements and sustainable development goals.