CIGRE Study Committee B2

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP[1]

WG N° B2.71	**Name of Convenor:** Jean-Philippe Paradis (CA) **E-mail address**: jpparadis@helix-uni.ca
Strategic Directions #[2]: 2	**Technical Issues #[3]: 8**
The WG applies to distribution networks[4]: Yes	
Potential Benefit of WG work #[6]: 2,3,4,5,6	
Title of the Group: Recommendations for Interphase Spacers of Overhead Lines	

Scope, deliverables and proposed time schedule of the Group:

Background:

Interphase spacers (IPS) have been used for over 40 years to prevent phase-to-phase contacts due to galloping and other conductor motions. Although their use is common, limited information has been published on technical requirements for IPS systems.

Scope:

The aim of this group will be to produce a technical brochure that will assist line engineers to specify and select interphase spacers suitable for their application.

The working group will review current practice with IPS, including:

- Applications (galloping, ice shedding, others)
- Types of IPS
- Available data on field performance
- Failure modes
- Placement schemes / configurations
- Specifications and standards
- Modeling and calculation tools
- Side effects of IPS use / limitations (especially with respect to other galloping mitigation tools)
- Installation of IPS systems
- Impact on maintenance procedures when IPS are installed (including live-line methods)

Based on published literature, inputs from WG experts and review of best practices, guidelines on multiple aspects will be included in the technical brochure, including:

- Calculation / estimation of loads applied to IPS (and additional loads on conductors and structures due to IPS) under various conditions, as a function of key parameters (including strength requirements under fault conditions)
- IPS system design requirements as a function of phase layouts and span lengths
- Guidelines on dimensioning of IPS (mechanical and electrical)
- Configuration principles under various conditions (galloping, ice shedding, other motions)
- Testing methods / Diagnostic methods (including condition assessment during service life)
- Methods to evaluate and document the effectiveness of IPS systems
- Additional in-span damping requirements

- Conductor-IPS interface and conductor fatigue considerations
- Special applications (e.g. very long spans)
- Gaps in current IPS designs and future / desired features of ideal IPS systems

Deliverables:

☒ Technical Brochure and Executive summary in Electra

☐ Electra report

☒Tutorial[5]

Time Schedule

Start: January 2019 **Final Report:** January 2022

Approval by Technical Committee Chairman:

Date: December 28th, 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