

**CIGRE Study Committee B2**

**PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP**

<b>WG B2.91</b>	<b>Name of Convenor:</b> Boris Adum (NORWAY) <b>E-mail address:</b> boris.adum@statnett.on	
<b>Strategic Directions #<sup>2</sup>:</b> 1, 2, 3		<b>Sustainable Development Goal #<sup>3</sup>:</b> 9
<b>The WG applies to distribution networks:</b> <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No		
<b>Potential Benefit of WG work #<sup>4</sup>:</b> 2, 4, 5		
<b>Title of the Group:</b> Long (>1000 m) overhead line spans: Design practices and field experience covering conductors, dampers, conductor fittings, AWM, and monitoring practices		
<p><b>Scope, deliverables, and proposed time schedule of the WG:</b></p> <p><b>Background:</b></p> <p>Although there are numerous long crossings in the world, there seems to be a lack of literature that delves into the different design practices and experiences surrounding such spans. Therefore, creating a document that summarizes the various practices and experiences could prove to be beneficial for designers who are working on future long spans and crossings. This group will be looking in to spans longer than 1000 meters.</p> <p><b>Purpose/Objective/Benefit of this work:</b></p> <p>By compiling a comprehensive document that showcases different design practices and experiences from around the world, designers can gain a deeper understanding of the various approaches that can be taken when designing long crossings. This can help them to make informed decisions and avoid potential pitfalls that may arise during the design process.</p> <p>Moreover, such a document could serve as a valuable resource for researchers and academics who are interested in studying the design and construction of long crossings. By providing a detailed account of various practices and experiences, this document could contribute to the advancement of knowledge in this field and inspire future research.</p> <p><b>Scope:</b></p> <p>The working group has been tasked with investigating and providing a report on several topics, including:</p> <p><b>ABOUT DESIGN:</b></p> <ol style="list-style-type: none"> <li>1. Providing guidelines for long crossings with high tension (Catenary constant, ratio of horizontal tension and specific weight of conductor, also called C-value which can be up to approx. 6000 m), including guidelines for vibration damping and maximum conductor tension, an overview of different vibration damping methods used as well as design considerations for dampers and conductor fittings.</li> <li>2. Examining possible electrical capacity problems, conductor types used, conductor lengths, use of mid-span joints, and conductor design.</li> <li>3. Practices and experience with accessories attached to conductors such as aircraft warning markers, bird flight diverters, sensors, and other.</li> <li>4. Wind effects on long spans</li> </ol>		

**ABOUT FOLLOW-UP:**

5. Providing an overview of inspection methods and intervals as well as maintenance methods used, including collecting service experience (damage reports) from utilities with long crossings.
6. Offering an overview of the expected conductor lifetime.
7. Providing recommendations for revitalization (restringing) and prolonging the lifetime of spans.
8. Parameters monitored on long crossings.
9. Case study: Existing crossings

**Remarks:**

TB 396 Large Overhead Lines (OVHL) Crossings, Working group B2.08

TB 273 Overhead conductor safe design tension with respect to aeolian vibrations B2.11.04

**Deliverables:**

- Annual Progress and Activity Report to Study Committee
- Technical Brochure and Executive Summary in Electra
- Electra Report
- Future Connections
- CIGRE Science & Engineering (CSE) Journal
- Tutorial
- Webinar

**Time Schedule:**

- |   |         |
|---|---------|
| • Recruit members (National Committees) | Q2 2024 |
| • Develop final work plan               | Q4 2024 |
| • Draft TB for Study Committee Review   | Q2 2027 |
| • Final TB                              | Q4 2027 |
| • Tutorial                              | Q2 2028 |

**Approval by Technical Council Chairman:**

**Date:** November 23<sup>rd</sup>, 2023



**Notes:**

<sup>1</sup> Working Group (WG) or Joint WG (JWG),

<sup>2</sup> See attached Table 1,

<sup>3</sup> See attached Table 2 and CIGRE reference Paper: Sustainability – at the heart of CIGRE's work.

<sup>4</sup> See attached Table 3

WG Membership: refer Comments at end of document

**Table 1: Strategic directions of the Technical Council**

1	The electrical power system of the future reinforcing the End-to-End nature of CIGRE: respond to speed of changes in the industry by preparing and disseminating state-of-the-art technological advances
2	Making the best use of the existing systems
3	Focus on the environment and sustainability (in case the WG shows a direct contribution to at least one SDG)
4	Preparation of material readable for non-technical audience

**Table 2: Environmental requirements and sustainable development goals**

	CIGRE selected the 7 SDGs that are the most relevant to CIGRE. In case the WG work refers to other SDGs or do not address any specific SDG, it will be quoted 0.
0	Other SDGs or not applied
7	<b>SDG 7: Affordable and clean energy</b> Increase share of renewable energy; e.g. expand infrastructure for supplying sustainable energy services; ensure universal access to affordable, reliable, and modern energy services; energy efficiency; facilitate access to clean energy research and technology
9	<b>SDG 9: Industry, innovation and infrastructure</b> Facilitate sustainable infrastructure development; facilitate technological and technical support
11	<b>SDG 11: Sustainable cities and communities</b> Increase attention on sustainable and resilient buildings utilizing local (raw) materials, power for electric vehicles, strengthening long-line transmission and distribution systems to import necessary power to cities, developing micro-grids to reinforce the sustainable nature of cities; protect and safeguard the world's cultural and natural heritage; reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and waste management
12	<b>SDG 12: Responsible consumption and production</b> E.g. Promote public procurement practices that are sustainable; address reducing use of SF6 and promote alternatives, encourage companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle, address inefficient fossil-fuel subsidies that encourage wasteful consumption
13	<b>SDG 13: Climate action</b> E.g. Increase share of renewable or other CO <sub>2</sub> -free energy; energy efficiency; expand infrastructure for supplying sustainable energy; strengthen resilience and adaptive capacity to climate-related hazards and natural disasters; integrate climate change measures into national policies, strategies and planning; improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
14	<b>SDG 14: Life below water</b> E.g. Effects of offshore windfarms; effects of submarine cables on sea-life
15	<b>SDG 15: Life on land</b> E.g. Attention for vegetation management; bird collisions; integration of substations and lines into the landscape

**Table 3: Potential benefit of work**

<b>1</b>	Commercial, business, social and economic benefits 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 directions
<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 contribute to improved safety.

**Comments:**

**1) CIGRE Official Study Committee Rules: WG Membership**

<https://www.cigre.org/GB/about/official-documents>

- a. Only one member per country (by exception of SC Chair)
- b. WG nominees must first be supported by their National Committee (or local SC Member) as an appropriate representative of their country.
- c. Acceptance of the nomination is granted by the SC Chair and advised to the WG Convener

**2) Collaboration Space**

<https://www.cigre.org/article/GB/collaborative-tools-2>

CIGRE will provision the WG with a dedicated Knowledge Management System Space.

The WG will use the KMS for drafting collaboration, capture and retention of discussion and meeting records.

Official country WG Members will be sent registration instructions by the Convener.

Official country WG Members may request the WG Convener to allow additional access for an extra national subject matter specialist to aid in the work at the national level, including NGN members.