CIGRE Study Committee B1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG [1]N° B1.76	**Name of Convenor:** Christian Freitag (GERMANY)
Strategic Directions #[2]: 1, 3	**Sustainable Development Goal #[3]:** 9
The WG applies to distribution networks: ☐ Yes / ☒ No	
Potential Benefit of WG work #[4] : 1, 2, 3, 5, 6	
Title of the Group: Enhancing Quality Assurance/Quality Control Procedures for HV and EHV Cable Systems	

Scope, deliverables and proposed time schedule of the WG:

Background:

The share of cables in HVAC transmission systems is increasing and more and more HVDC transmission systems ensure the availability of electrical power in an increasing number of countries. With the growing share of cable systems in our power systems, line outages generated by cable faults are more likely to lead to major parts of the grid in a critical system state. Therefore, the improved quality of cable systems as a result of the robustness of QA/QC (Quality Assurance/Quality Control) measures is of increasing importance because it directly influences the quality, reliability and availability of electrical power supply.

Scope:

The WG will cover the following items:

1. List existing literature about cable quality assurance and quality control
2. Establish definition of QA/QC for cable systems and roles of the different stakeholders
3. To present current practices, identify gaps and give recommendations for QA/QC starting with the development of cable systems up to and including commissioning (supplier and supply chain evaluation, engineering, qualification, production, transportation, installation, commissioning)
    a. Create indicative set of QA/QC activities for HVAC and HVDC cables and their associated accessories.
    b. The intention is not to change testing methods in existing standards but existing methods can be enhanced and completed if gaps are identified
4. Give recommendations for process to develop specifications and tender evaluation
5. Develop a strategic and educational approach to cable system QA/QC
    a. QA methods of a qualifying nature (development test, PQ test, EQ test, type test, extension of type/PQ test)
    b. QA methods of supply-nature (routine test, sample test, factory acceptance test, site acceptance test)
    c. If necessary practices outside of the regular regime of the above

The content will focus on (extra) high voltage cable systems for AC and DC applications including submarine and land cable systems under consideration of existing and new technology.

The members of the working group shall be composed of manufacturers, utilities and QA/QC experienced persons. The group can consider different means of collecting relevant information like issuing a questionnaire and/or consultation of stakeholders' groups.

Deliverables:

☒ Technical Brochure and Executive Summary in Electra
☐ Electra Report
☐ Future Connections
☐ CSE
☒ Tutorial
☒ Webinar

Time Schedule: start: Q4/2020 **Final Report**: Q4/2023

Approval by Technical Council Chairman:

Date: November 28th, 2020

Notes: [1] Working Group (WG) or Joint WG (JWG), [2] See attached Table 1, [3] See attached Table 2 and CIGRE reference Paper: Sustainability – at the heart of CIGRE's work. [4] See attached Table 3

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	**SDG 7: Affordable and clean energy** 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	**SDG 9: Industry, innovation and infrastructure** Facilitate sustainable infrastructure development; facilitate technological and technical support
11	**SDG 11: Sustainable cities and communities** 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	**SDG 12: Responsible consumption and production** 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	**SDG 13: Climate action** E.g. Increase share of renewable or other CO_2-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	**SDG 14: Life below water** E.g. Effects of offshore windfarms; effects of submarine cables on sea-life
15	**SDG 15: Life on land** E.g. Attention for vegetation management; bird collisions; integration of substations and lines into the landscape

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.