CIGRE Study Committee A1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG [1]N° A1.74	**Name of Convenor:** Kondra NAGESH (INDIA)
Strategic Directions #[2]: 2	**Sustainable Development Goal #[3]: 9**
The WG applies to distribution networks: ☐ Yes / ☒ No	
Potential Benefit of WG work #[4] :5	
Title of the Group: Evaluating Quality of Large Electric Motors used in Power Generation Plant	

Scope, deliverables and proposed time schedule of the WG:

Background:

The correct design and manufacturing quality of a motor is very important to ensure a reliable operational life. Many motor component failures have been the result of operational, design and manufacturing issues. Sharing industry experience and best practices will improve the motor quality, efficiency and performance, which enables significant energy savings and extended motor service life benefitting the end user as a whole. This working group will cover the basic requirements of motor specification, manufacturing processes, and best design and quality practices available to ensure the production of high quality motors which have a good service life with respect to performance and reliability.

Additionally, the working group will review the motor specification requirements necessary to ensure good motor performance for the application.

Purpose/Objective/Benefit of this work:

The work is expected to result in a Technical Brochure giving guidance on improving the specification and requirements for motors to ensure the quality and performance of electric motors used in power generation plants.

Scope:

The working group will investigate and report on the best available practices on evaluating the quality of high voltage motors used in power generation plants including some critical aspects of design and manufacturing. The working group will cover the following topics:

1. Content of basic motor specifications
2. Major activities of motor manufacturing
3. Influence of design/manufacturing aspects on motor performance
4. Factory tests for motor acceptance
5. A review of critical design aspects
6. Practices of packing and storage at site
7. A review of issues related to site assembly

Remarks:

The following CIGRE publications cover related topics to the scope listed above. This working group will focus on design and manufacturing aspects of large motors up to and including site installation.

- WGR 258-1 (2011): Motor failure survey (WG A1.19)
- WGR 272-1 (2014): Adjustable speed drives and high efficiency motors applications in power plants (WG A1.27)
- Paper A1-105 (2016): Ensuring high quality insulation system of large motors – Design & testing requirements
- TB 724 (2018): Guide on the use of premium efficiency IE3 (IEC 60034-30) motors & determining benefits of greenhouse gas emission reduction
- TB860 (2022): Guide for cleanliness and storage of generators

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)	Q1 2023
• Develop final work plan	Q2 2023
• Draft TB for Study Committee Review	Q1 2024
• Final TB	Q3 2024
• Tutorial	Q1 2025

Approval by Technical Council Chairman:

Date: April 4th, 2023

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

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	**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.

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.