

CIGRE Study Committee A1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG 1^o A1.73	Name of Convenor: Franz Ramsauer (AT) E-mail address: franz.ramsauer@andritz.com
Strategic Directions #²: 2	Sustainable Development Goal #³: 7
The WG applies to distribution networks: <input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	
Potential Benefit of WG work #⁴ : 3, 5	
Title of the Group: Customer Requirements for Qualification of Form Wound Stator Insulation Systems for Hydro Generators	
Scope, deliverables and proposed time schedule of the WG: Background: <p>Customers ordering generators the first time at an unknown generator manufacturer often have no experience and less knowledge on the insulation system of this supplier. The same applies, if former orders are far back in the past or if the insulation system of the supplier has changed significantly since the last orders.</p> <p>Customers want to be sure to get the quality they expect and have very different approaches how to qualify such new or less known insulation systems. Most often the qualification requirements are based on the long-time experience of the customers with the insulation systems of the stator windings they have in use in their fleet.</p> <p>The qualification requirements differ from only giving references of already manufactured generators, up to full size qualifications on original bars, either in form of a prototype qualification before start of the production, or even with tests on random selected bars from the production.</p> <p>Some customers accept qualification tests directly performed by the manufacturers in their test fields while other customers require independent laboratories for running the tests. A few customers carry out the qualification tests by themselves.</p> <p>The focus of this working group will be to describe the different practices and requirements from customers to approve, control and to observe the insulation quality from for the customer unknown or at least less known insulation systems.</p> Scope: <p>The goal of the WG will be to investigate the customer insulation system qualification requirements for stator windings of hydro generators with rated voltage in the range between 6 and 21 kV with the focus on:</p> <ul style="list-style-type: none"> • Customer approaches for the qualification of insulation systems • Requirements for a pre-qualification (e.g. during offer phase) • Insulation qualification on prototype bars/coils before start of stator winding production • Quality and qualification requirements during and/or after winding production 	

Deliverables:

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

Time Schedule: start: October 2020

Final Report: October 2024

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| • TOR approval | October 2020 |
| • Forming the WG team | January 2021 |
| • Draft questionnaire | June 2021 |
| • Comments by WG experts | August 2021 |
| • Final questionnaire / Start of survey | January 2022 |
| • Survey answers | June 2022 |
| • Clarification of questions to survey | August 2022 |
| • Draft report | November 2022 |
| • Comments by WG experts | January 2023 |
| • Draft Technical Brochure | August 2023 |
| • TB approval by SC-A1 members | April 2024 |
| • Final Technical Brochure | August 2024 |
| • Electra publication | October 2024 |
| • Tutorial | SC-A1 Meeting 2024 |

Approval by Technical Council Chairman:

Date: September 3rd, 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.