

CIGRE Study Committee A1

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG 1^N A1.76	Name of Convenor: Raül MORALES GARCIA and Vincent FERNAGUT (FRANCE) E-mail address: raul.morales@edf.fr , vincent.fernagut@edf.fr
Strategic Directions #²: 3	Sustainable Development Goal #³: 12
The WG applies to distribution networks: <input type="checkbox"/> Yes / <input checked="" type="checkbox"/> No	
Potential Benefit of WG work #⁴: 3	
Title of the Group: Study on Eco-Design, Circular economy and impacts on generator production process	
<p>Scope, deliverables and proposed time schedule of the WG:</p> <p>Background:</p> <p>Anthropogenic climate change has been identified as one of the greatest challenges facing the world and which will continue to weigh on economic circles and citizens throughout the decades to come.</p> <p>As explained in ISO 14060 series, it's necessary to study the eco-design and circular economy in order to limit greenhouse gas concentrations (GHG) in the earth's atmosphere. This topic affects manufacturers globally, because energy companies will also be asking for Eco-design for all their markets.</p> <p>The purpose of this WG, in the scope of turbo and hydro generators, is to look at different questions such as:</p> <ul style="list-style-type: none"> • What is the ecological impact of manufacturing or rebuilding a generator? • What are the most polluting steps? (Raw materials; manufacturing (stator core, winding...); transports; losses; dismantling) • What can be done to reduce this impact? (Reduce losses, use materials with high reuse rates, promote the circular economy, limit the level of voltage to the least polluting (multiplication of groups?), etc.). <p>Purpose/Objective/Benefit of this work:</p> <p>The objective of this WG is to establish a state of the art on the most polluting elements of a synchronous generator during its supply, manufacture, use and end of life, in order to identify the right factors for its future Eco-design and considerations of circular economy based on the reuse and regeneration of materials or products (recycling) as a means of enabling production in a sustainable and environmentally friendly way (minimizing waste and energy use etc.).</p> <p>Scope:</p> <p>The working group would investigate and report on:</p> <ol style="list-style-type: none"> 1. Inventory of currently existing standards. 2. Inventory of manufacturers practices regarding Eco-design and Circular Economy. 3. Description of a methodology for calculation of generators equivalent CO₂ emission. and application on one example of turbo- and hydro-generators 4. Study the impact of the circular economy 5. Recommendations to obtain generators with the EU Ecolabel and anticipate its future imposition in Europe. 	

Remarks:

Identify previous or related activity (Technical Brochure, Green Book, Working Group ..).

- No work identified for A1 group concerning Eco-design and the circular economy
- EN ISO 14060 and in particular EN ISO 14067: Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification

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) | 02 / 2023 |
| • Develop final work plan | 04 / 2023 |
| • Draft TB for Study Committee Review | 06 / 2024 |
| • Final TB | 01 / 2025 |
| • Tutorial | 2025 |
| • Webinar | Not applicable |

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.