CIGRE Study Committee C3

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG[1] C3-25	**Name of Convenor:** Michael GATZSCHE (Switzerland) **E-mail address**: michael.gatzsche@hitachienergy.com
Strategic Directions #[2]: 3	**Sustainable Development Goal #[3]:9, 12, 13**

This Working Group addresses these Energy Transition topics:

	Storage
	Hydrogen
	Digitalization
x	**Sustainability and Climate Change**
	Grids and Flexibility
	Solar PV and Wind
	Consumers, Prosumers and Electrical Vehicles
	Sector Integration
	None of them

Potential Benefit of WG work #[4] : 2,3,5

Title of the Group: Ecodesign methods for the power system

Scope, deliverables and proposed time schedule of the WG:

Background:

Ecodesign is a systematic approach which takes into account environmental impacts in the design and development process over the entire lifecycle with the aim to reduce adverse environmental impacts. Applying this approach to the whole transmission and distribution network, i.e., “systemic ecodesign” will benefit both the climate and circular economy. It will be an important factor to achieve the UN Sustainability goals, and it will rely on several steps:

- Rational assessment of an extensive set of positive and negative environmental impacts, over the product’s or service’s life cycle.
- Identification of key areas of improvement.
- Design and implementation of the most sustainable solutions.

There are a number of challenges in implementing ecodesign, such as:

- The lack of information and data on environmental impacts.
- The complexity of environmental impact assessments, such as Life Cycle Assessment (LCA), and ecolabels.
- The potential for greenwashing or misleading information about a product or service’s environmental performance.
- Potential cost impacts of ecodesigned products.

However, the opportunities that are brought through ecodesign practices can be:

- Opportunities for innovation, differentiation, and value creation.
- Stakeholders becoming more conscious of sustainability.
- Data and tools for ecodesign becoming increasingly available.
- New technologies and materials being developed to improve environmental performance.
- New markets, niches, and networks for ecodesign being created to align with the circular economy principles and goals.

Purpose/Objective/Benefit of this work:

Since the scientific evidence indicates that the planet is likely to exceed environmental limits faster than ever (biodiversity loss, climate change, resource depletion,…) the need for ecodesign methodology becomes more urgent and significant. This ecodesign development has already proven to be beneficial for technological innovation and economic improvements.

Scope:

In order to activate and harmonize all the ecodesign potential for users' environmental impact reduction, the working group will:

1. Give a structured introduction into the field of ecodesign, highlighting the points relevant for the power system regarding:
    a. Current and upcoming regulations, directives and guidelines (internationally)
    b. Methodologies such as Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), Life Cycle Assessment (LCA), Material Flow Analysis (MFA), Cost Benefit Analysis (CBA), dynamic prospective models, etc.
2. Give a structured overview of relevant ecodesign activities in pre-standardization (CIGRE) and standardization (IEC, IEEE, GB/T …) for the power system, as well as for the equipment.
3. Share, benchmark and summarise the actual ecodesign methodologies that users have or are about to implement.
4. Identify and define which are the most relevant environmental aspects that users should prioritise through their systemic ecodesign strategies. Link the prioritised aspects to relevant study committees in CIGRE groups A (Equipment) and B (Technologies).
5. Specify the best way to collect and share the environmental data between users. It could include the definition of the mandatory data for ecodesign, the most appropriate format standardisation to allow information exchange.
6. Guideline and recommendation on how to consider ecodesign requirements for relevant elements in the power system.

Particular areas of focus will be:

1. Identification and prioritization of the most relevant environmental hot spots for users.
2. State of the art of ecodesign methodologies applicable to the power system, specifications, and recommendations to improve it.
3. State of the art environmental data management and sharing solutions for users and recommendations to improve it.
4. State of the art of environmental impact assessment methodologies applicable to users and recommendations to improve it. The methodologies will include the available LCA tools and database.
5. Guidelines and recommendations to implement systemic ecodesign requirements and quality insurance for relevant elements of the power system and recommendations to improve it.
6. Anonymized real-world examples of above points to make the complex topic accessible to the readers.

Remarks:

Since this is a systemic approach, this Working Group will rely on experts which are familiar with systemic approach and, when necessary, will be in contact with other working groups to exchange information related to relevant topics. The Working Group will focus on the user

perspective; “users” encompassing all relevant power system operators like TSOs, DSOs but also industrial players.

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, WiE, NGN)	Qtr 2 2024
• Develop final work plan	Qtr 3 2024
• Draft TB for Study Committee Review	Qtr 2 2026
• Final TB	Qtr 2 2026
• Tutorial	Qtr 2 2026
• Webinar	Qtr 3 2026

Approval by Technical Council Chair:

Date: June13th, 2024

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, WiE and NGN nominees.

b. WG nominees by NCs 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.