

CIGRE Study Committee C6

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG 1° N° C6.46	Name of Convenor: Aradhna Pandarum (SOUTH AFRICA) E-mail address: APandarum@csir.co.za
Strategic Directions #2: 1,2,3	Sustainable Development Goal #3:7,9,11,12
The WG applies to distribution networks: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	
Potential Benefit of WG work #4 : 3,4,5	
Title of the Group: Energy Efficiency in Distribution systems	
<p>Scope, deliverables and proposed time schedule of the WG:</p> <p>Background:</p> <p>The potential for energy efficiency measures to address economic growth, facilitate a sustainable and secure energy future, together with a positive impact on the environment is well known. Energy efficiency can however have a pronounced impact in developing and developed countries where the need for access to electricity, and where electrification growth is affecting these requirements. Utilities are battling to keep up with the demand for electricity, grid capacity is becoming constrained, and the capital to expand the availability of energy and improve the quality of supply is scarce.</p> <p>Energy efficiency in electrical systems thus promotes a host of beneficial characteristics that may ultimately assist with the achievement of the Sustainable Development Goals (SDG), whilst also improving environmental and climate outcomes, health, gender equity and associated economic opportunities.</p> <p>The working group will thus evaluate energy efficiency measures in electrical networks, the associated impact of the implementation of such programs on power systems and associated customer behaviour.</p> <p>Purpose/Objective/Benefit of this work:</p> <p>The Working Group intends to provide an overview of best practices relating to the introduction of a variety of energy efficiency measures in distribution systems around the globe. It will thus be a reference for Utilities, Regulators, and associated Stakeholders to achieve the aim of a sustainable energy future.</p> <p>Scope:</p> <p>The working group would investigate and report on:</p> <ol style="list-style-type: none"> 1. Introduction with a clear definition of energy efficiency 2. Current international trends of energy efficiency measures. It includes strategies deployed by countries, the impact of energy efficiency measures and the consequent reduction in the energy burden and decarbonisation metrics. 3. Regulatory, governmental, and institutional stakeholder coordination requirements to further energy efficiency aims and objectives in distribution systems. 4. Application of Energy efficiency measures and tools. This would include: <ol style="list-style-type: none"> a. Industrial applications 	

- b. Residential buildings and commercial properties
 - c. Power factor correction measures
 - d. Lighting and streetlighting programs
 - e. Heating and cooling measures
 - f. Other regulations, which includes material used for construction, insulation, double-glazing etc.
 - g. Impacts on end-use load profiles.
5. Energy Efficiency Standards that are applicable guides for customers and to aid transparency for the use of appliances, heat pumps, lighting, and refrigeration.
 6. Co-location of generation and consumption to minimise the impact of technical losses, reduce the need for public infrastructure and reduce land use needs. It includes energy efficiency metrics where DER integration measures were adopted.
 7. Maintenance and life-cycle analysis requirements for the energy efficiency requirements to ensure system benefits are derived.
 8. Digital strategies and platforms that enable the adoption of energy efficiency measures in distribution systems.
 9. Lessons learned and an evolution towards new energy efficiency measures (examples from around the globe), concentrating on technology used, innovative practices adopted, and tools and systems used to manage the energy efficiency programs in distribution systems.
 10. Conclusions and energy efficiency considerations for distribution systems for the future.

Remarks:

Joint work with other SCs: Liaison experts from SC C1, C2, C3 and C5 will be invited.

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) | Q3 2023 |
| • Develop final work plan | Q4 2023 |
| • Draft TB for Study Committee Review | Q4 2025 |
| • Final TB | Q4 2025 |
| • Tutorial | Q3 2025 |

Approval by Technical Council Chairman:

Date: May 30th, 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.