

CIGRE Study Committee B3
PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

JWG 1^o B3/D1.63	Name of Convenor: Roland Kurte (Germany) E-mail address: roland.kurte@wika.com
Strategic Directions #²: 3	Sustainable Development Goal #³: 12, 13
The WG applies to distribution networks: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	
Potential Benefit of WG work #⁴: 3, 5	
Title of the Group: Guideline for assessing the toxicity of used SF ₆ gas onsite and in the lab of T&D equipment above 1 kV in substations	
<p>Scope, deliverables and proposed time schedule of the WG:</p> <p>Background:</p> <p>For the handling of SF₆ not only the environmental impact due to the high global warming potential needs to be done in a proper way, but also toxicity of used SF₆ is an important factor for safe handling and transport. An increasing number of installed SF₆-containing T&D equipment is now reaching its end-of-life in the coming years. A trend to SF₆-free solutions might additionally drive a premature dismantling of SF₆-containing equipment in the upcoming years.</p> <p>Technical clarification is needed whether measuring the SO₂ value of used SF₆ with mobile measuring devices alone allows an assessment of the toxicity of the gas. Especially in the case of toxic impurities such as SF₄, SO₂F₂, SOF₂, S₂F₁₀ and HF it needs to be excluded that misleading toxicity assessments based on a specific substance leaves uncontrolled risks to the workers.</p> <p>Scope:</p> <p>The scope of this working group is to give practical guidelines for proper SF₆ treatment contained in T&D equipment with the main approach of gas analysis comparison between measured SO₂ value (used today as overall toxicity indicator) with mobile analyser and SF₆ decomposition products like SO₂F₂, SOF₂, SF₄, S₂F₁₀ etc. by e.g. GC or FTIR investigation next to SO₂. The objective is to recommend a simple system to classify whether used SF₆ is toxic or not.</p> <p>Some of the main issues that must be addressed by the working group are:</p> <ol style="list-style-type: none"> 1. Collect and analyse existing used SF₆ classification recommendations, specifications, standards, regulations. 2. Conduct a gap analysis where used SF₆ classification practices or recommendations, specifications, standards, regulations are missing. 3. Establish guidelines for proper, practical used SF₆ classification. 4. Give advice for future regulations and standards addressing the safeguard of proper used SF₆ gas handling 5. Outlook for the classification of alternatives to SF₆ based on the recommendations made in this working group. 	

Deliverables:

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

Time Schedule: start: Summer/autumn 2022

Final Report: End 2025

Approval by Technical Council Chairman:

Date: March 23rd, 2022



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.