

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

<b>JWG 1<sup>o</sup> B3/A3.59</b>	<b>Name of Convenor:</b> Maik Hyrenbach (Germany) <b>E-mail address:</b> maik.hyrenbach@de.abb.com
<b>Strategic Directions #<sup>2</sup>:</b> 3	<b>Sustainable Development Goal #<sup>3</sup>:</b> 12, 13
<b>The WG applies to distribution networks:</b> <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	
<b>Potential Benefit of WG work #<sup>4</sup>:</b> 3, 5	
<b>Title of the Group:</b> Guidelines for SF <sub>6</sub> end-of-life treatment of T&D equipment (>1kV) in Substations	
<p><b>Scope, deliverables and proposed time schedule of the WG:</b></p> <p><b>Background:</b></p> <p>Emissions of SF<sub>6</sub> by any industries are contributing to the overall CO<sub>2</sub> equivalent emissions which drive global warming.</p> <p>In the electric power industry, huge numbers of SF<sub>6</sub>-containing T&amp;D equipment are operating in substations and similar installations such as power plants and Gas Insulated Lines. SF<sub>6</sub> emissions from this equipment occur during production, commissioning, operation (incl. service) and end-of-life treatment. Actual studies e.g. by the well-accepted Fraunhofer Institute of Energy Economics and Energy System Technology (IEE) claim that the emissions during end-of-life treatment are by far predominant.</p> <p>An increasing number of installed SF<sub>6</sub>-containing T&amp;D equipment is now reaching its end-of-life in the coming years. A trend to SF<sub>6</sub>-free solutions might additionally drive a premature dismantling of SF<sub>6</sub>-containing equipment.</p> <p>Although use and handling of SF<sub>6</sub> is regulated for T&amp;D equipment, regulations (e.g. European F-Gas regulation) has not given clear requirements on end-of-life treatment of SF<sub>6</sub> and do not rigorously sanction improper SF<sub>6</sub> end-of-life handling or stimulate re-use/re-cycle of SF<sub>6</sub>.</p> <p><b>Scope:</b></p> <p>The scope of this working group is to give practical guidelines for proper SF<sub>6</sub> end-of-life treatment contained in T&amp;D equipment as a blueprint for environmental responsible end-of-life handling of SF<sub>6</sub> in the electric power industry.</p> <p>Some of the main issues that must be addressed are:</p> <ol style="list-style-type: none"> <li>1. Give an overview of existing SF<sub>6</sub> end-of-life techniques and practices.</li> <li>2. Collect and analyse existing SF<sub>6</sub> end-of-life recommendations, specifications, standards, regulations.</li> <li>3. Conduct a gap analysis where SF<sub>6</sub> end-of-life practices or recommendations, specifications, standards, regulations are missing.</li> <li>4. Establish guidelines for proper, practical SF<sub>6</sub> end-of-life treatment (e.g. removal, storage, transport, final disposal, possible re-use/re-cycle) ensuring minimized end-of-life emissions while ensuring the safety of end-of-life handling.</li> <li>5. Give advice for future regulation(s) addressing the safeguard of proper SF<sub>6</sub> end-of-life treatment, ensuring minimized SF<sub>6</sub> end-of-life emissions.</li> </ol>	

**Deliverables:**

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

**Time Schedule:** start: July 2020

**Final Report:** End 2022

**Approval by Technical Council Chairman:**



**Date:** May 30<sup>th</sup>, 2020

Notes: <sup>1</sup> Working Group (WG) or Joint WG (JWG), <sup>2</sup> See attached Table 1, <sup>3</sup> See attached Table 2 and CIGRE reference Paper: Sustainability – at the heart of CIGRE's work. <sup>4</sup> 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	<b>SDG 7: Affordable and clean energy</b> 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	<b>SDG 9: Industry, innovation and infrastructure</b> Facilitate sustainable infrastructure development; facilitate technological and technical support
11	<b>SDG 11: Sustainable cities and communities</b> 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	<b>SDG 12: Responsible consumption and production</b> 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	<b>SDG 13: Climate action</b> E.g. Increase share of renewable or other CO <sub>2</sub> -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	<b>SDG 14: Life below water</b> E.g. Effects of offshore windfarms; effects of submarine cables on sea-life
15	<b>SDG 15: Life on land</b> E.g. Attention for vegetation management; bird collisions; integration of substations and lines into the landscape

**Table 3: Potential benefit of work**

<b>1</b>	Commercial, business, social and economic benefits for industry or the community can be identified as a direct result of this work
<b>2</b>	Existing or future high interest in the work from a wide range of stakeholders
<b>3</b>	Work is likely to contribute to new or revised industry standards or with other long term interest for the Electric Power Industry
<b>4</b>	State-of-the-art or innovative solutions or new technical directions
<b>5</b>	Guide or survey related to existing techniques; or an update on past work or previous Technical Brochures
<b>6</b>	Work likely to contribute to improved safety.