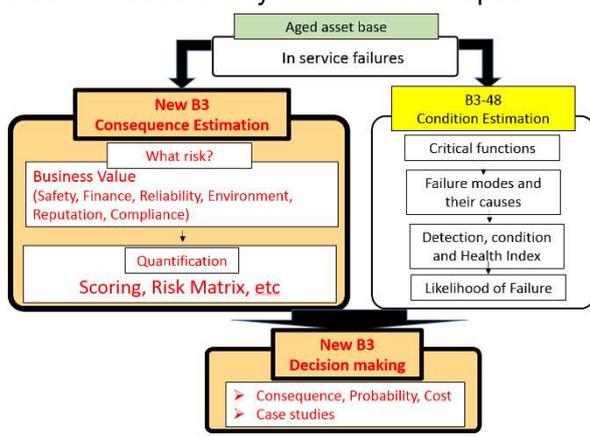


CIGRE Study Committee B3

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

(J)WG 1^o B3.61	Name of Convenor: Jan Bednarik (IRELAND) E-mail address: jan.bednarik@esb.ie
Strategic Directions #2: 2	Sustainable Development Goal #3:9
The WG applies to distribution networks: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	
Potential Benefit of WG work #4 : 1, 2, 6	
Title of the Group: Risk and asset health based decision making in existing substations	
Scope, deliverables and proposed time schedule of the WG:	
Background:	
<p>In electrical power companies, risk based asset decisions are based jointly upon assessments of the likelihood of in-service failure and the consequences of an in-service failure. Working group B3.48 began in April 2017 developing a common approach for creating asset health indices (AHI) for the range of substation assets. These AHIs would be used to assess only the likelihood aspect of in-service failures. As the latter work is completed by May 2021, it is proposed, therefore, to start a new WG in May 2021 to build the outcomes of B3.48 with a consequence factor, as shown in the figure. This may then proceed to asset health index (AHI) and risk based decision making. Both projects are intended to develop practical tools for working asset managers and support utilities in achieving more sustainable utilisation of their power equipment in service. As such, both tools are complementary to other descriptions of risk management undertaken elsewhere.</p>	
	
Scope:	
1. Reviewing risk in existing substations	
<p>The group would review existing CIGRE activities, documents and other literature that relate to risk based decisions for primary substation assets, particularly the work from A2 (TB642, 761), A3(TB737, 816), B3 (TB462, 734, 764) and C1(TB787, 791). The assets proposed would include individual assets such as power transformers circuit breakers, disconnectors, instrument transformers, surge arresters and auxiliary equipment. It would also include their combination in bays and circuit ends.</p>	
2. Assessing a common risk methodology	
<p>The areas of interest are to develop a common AHI-based risk methodology for these assets and identifying how best to provide asset managers with substation display based on performance and risk. However, the way individual companies respond to risk depends upon both the risk assessment and their risk appetite. Varying responses will be a significant theme to be explored.</p>	
3. Generic decision making procedure for existing substations	
The work would involve:	
<ul style="list-style-type: none"> Update views expressed in earlier TBs relating to risk based decision making, particularly relating to some of the methods described to calculate AHI and likelihood of failure. Important are conclusions in recent TBs from A2 (TB642) and A3 (TB514) on failure rates. 	

- Considering how to integrate the consequences of in-service failures associated with a condition based assessment of each asset. This will involve looking at other information, such as business interruption costs, network criticality, performance, utilization, obsolescence, failure impact on safety and environmental impact etc.
- Prioritization of risk mitigation interventions for replacement, refurbishment, maintenance work.
- Determine the impact on risk by taking mitigation or risk management actions.
- Options analysis on risk, including doing nothing.
- Using case studies showing how risk for assets in each bay and substation is being displayed, including dynamic data feeding in and continuously updating the output.

Deliverables:

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

Time Schedule: start: May 2021

Final Report: April 2024

Approval by Technical Council Chairman:

Date: May 28th, 2021



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.