

CIGRE Study committee B3

PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

WG B3.72

NAME OF THE CONVENOR

Bednarik Jan (IRELAND)

TITLE

Integration of asset information in modern substations for (asset) management of substation equipment

THE WG APPLIES TO DISTRIBUTION NETWORKS: YES

ENERGY TRANSITION

4 / Sustainability and Climate Change

5 / Grids and Flexibility

8 / Sector Integration

POTENTIAL BENEFIT OF WG WORK

1 / commercial, business, social, economic benefits

2 / potential interest from a wide range of stakeholders

3 / likely to contribute to new or revised industry standards

4 / state-of-the-art or innovative solutions or directions

5 / Guide or survey on techniques, or updates on past work or brochures

6 / work likely to contribute to improve safety

STRATEGIC DIRECTION

2 / Making the best use of the existing systems

3 / Focus of the environment and sustainability (in case the WG shows a direct contribution to at least one SDG)

SUSTAINABLE DEVELOPMENT GOAL

9 / Industry, innovation and infrastructure

BACKGROUND :

In electrical power companies, many different digital systems are utilised from the initial planning and design stages, during construction and while performing maintenance in the remaining life of the substation. Those systems are typically managed by different parts of the organisation. Systems and tools are not connected together. Legacy paper-based systems are still in use as well. The use of these legacy systems is inefficient and results in suboptimal asset management interventions.

Individual systems and tools may include:

- A system planning database.
- Substation design and modelling tools including BIM methodology and a common document management system for the design documentation.
- Tools for design calculation.
- Substation control and protection design systems (i.e. IEC 61850 or CIM tools)
- Commissioning and testing result storage.
- Online monitoring systems
- SCADA system
- Asset Health and Risk Index databases.
- Asset register
- Register of critical substations and equipment in compliance with security and resiliency regulations

PURPOSE / OBJECTIVE / BENEFIT OF THIS WORK :

In this brochure we will suggest a set of guidelines on managing the complete set of tools used for the digital management of substations assets. We will indicate the main systems used in substations and potential solutions on how they can be integrated together.

This will enable the asset owners to create fully digital substations of the future.

SCOPE :

The working group would review existing CIGRE activities, documents and other literature that relate to handling tools used for the digital management of substations assets in substations.

We will examine existing practices and analyse the challenges they present. Survey will be conducted to obtain the relevant information about existing practices. Case studies will be presented to show different approaches to the systems integration.

The group will produce a guideline on what tools used for digital management of substations assets are used in each stage of the asset lifetime, how the different databases and tools can be connected together and how the asset owner can get complete access of them in a unified manner.

It is not in the scope to define the content of the systems or how they are used or managed. This work will focus on possible synergies from the asset management point of view when such systems are better integrated.

Remarks:

We will identify previous or related activities in B3, B5 and D2 and other Study Committees and reference their contributions on this topic.

DELIVERABLES AND EVENTS

Deliverables Types

Annual progress and activity report to Study Committee

Electra report

Technical Brochure and Executive Summary in Electra

Tutorial

Time schedule

Q3 2025

Remarks: We will identify previous or related activities in B3, B5 and D2 and other Study Committees and reference their contributions on this topic.

Q1 2026 Develop final work plan

Q1 2029 Draft TB for Study Committee Review

Q2 2029 Final TB

Q3 2029 Tutorial

APPROVAL BY TECHNICAL COUNCIL CHAIRMAN:

Rannveig S. J. Loken

August 02nd, 2025