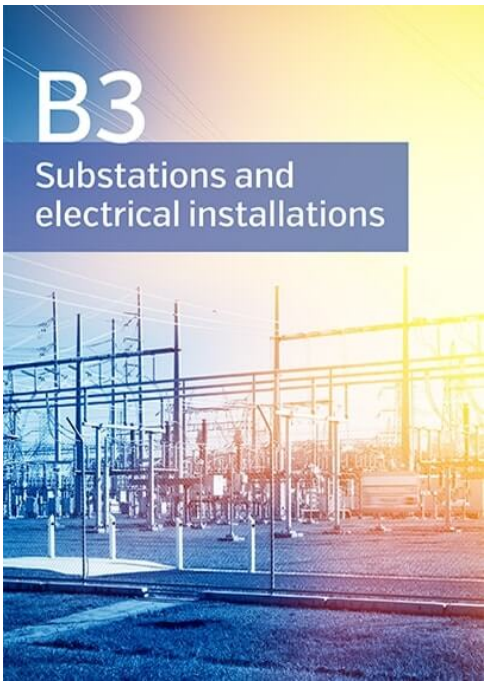
B3 - Substations and electrical installations



Mission

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of substations. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

Technological field of activity

- Substations and similar electrical installations.

Scope

Study Committee B3 deals with issues in all phases of the substation lifetime; from conception, through research, development, design, production, deployment, operation and end-of-life. At all stages, technical, safety, economic, environmental and social aspects are addressed, as well as interactions with and integration into the evolving power system and environment. All aspects of performance, specification, testing and the application of testing techniques are within the scope, with particular emphasis on the impact of changing interactions and requirements due to the evolution of the power system. Life cycle assessment techniques, risk management techniques, education and training are also important aspects.

SC B3 maintains close relationships with SC A3 – Transmission and distribution equipment, SC B1 – Insulated cables, SC C3 – Power system environmental performance, C6 – Active distribution systems and distributed energy resources and D1 - Materials and emerging test techniques.

SC B3 members support CIGRE work and activities in extending the electricity system in sub-Saharan Africa and developing countries globally.

Within this framework additional specific areas of attention include:

- New substation design concepts including new technologies and applications to support energy transitions (on-offshore wind, PV, hydrogen, energy storage, EV charging infrastructure, etc.) and reducing carbon footprint impacts.
  - Lifetime management of substation assets including refurbishment, maintenance, monitoring, reliability and sustainability issues.
  - Substation ownership issues including human resource and training needs, in-service support including quality control, environmental, health, safety and security.
- Integration of intelligence for substation Digitalization, including new digital technologies (Artificial Intelligence, Internet of Things, 3D

technology, etc.) and applications to be used in all types of substations, increased use of advanced information and communication technologies.

Working groups
View a list of CIGRE's current working groups including for B3 here.

Publications

View all publications for Study Committee B3 on eCIGRE

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