Report to the CIGRE Australian Technical Council

Study Committee SC A2 Transformers and Reactors, and Australian Panel AU A2 Activities

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AU A2 Report 2025

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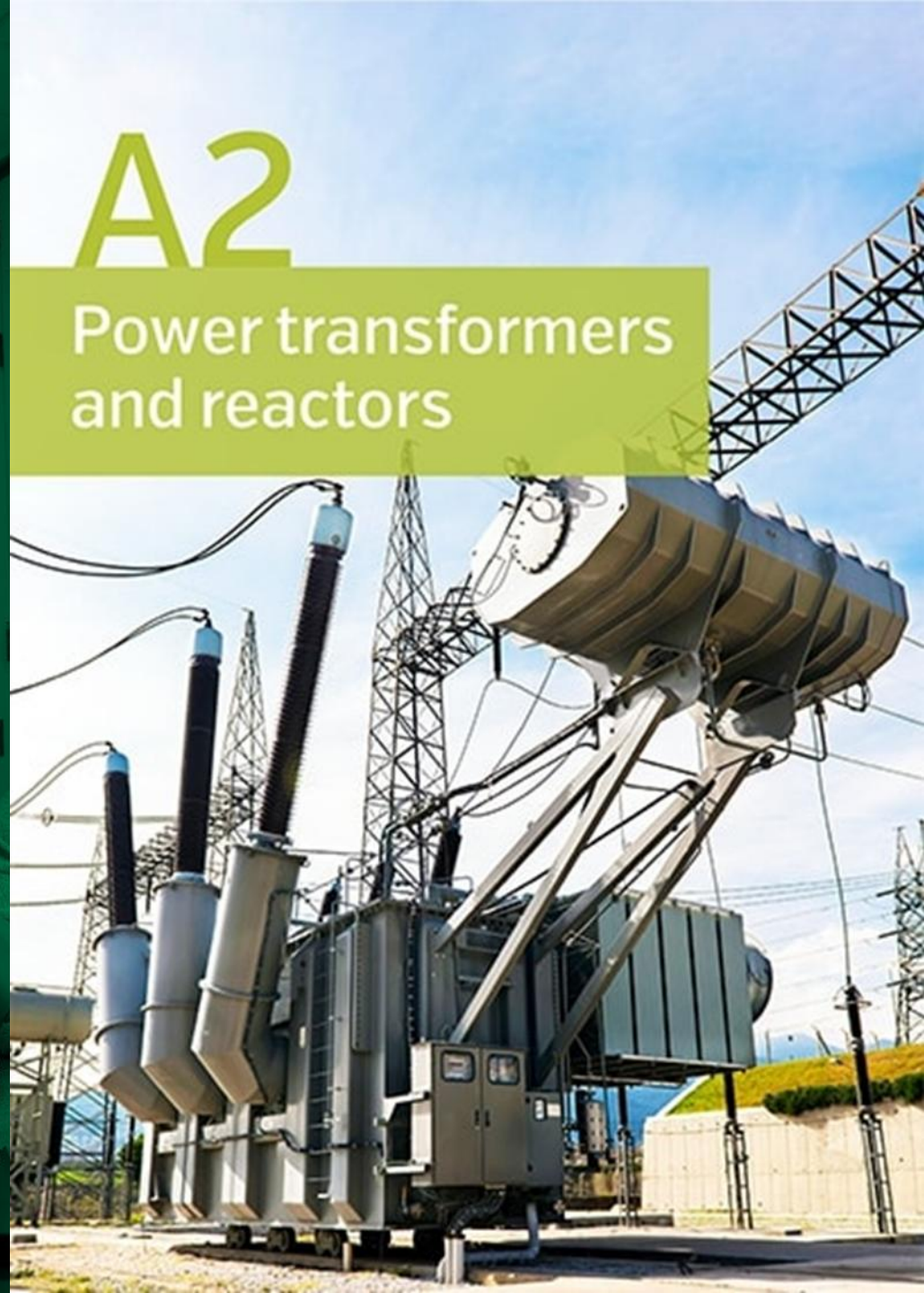
cigre

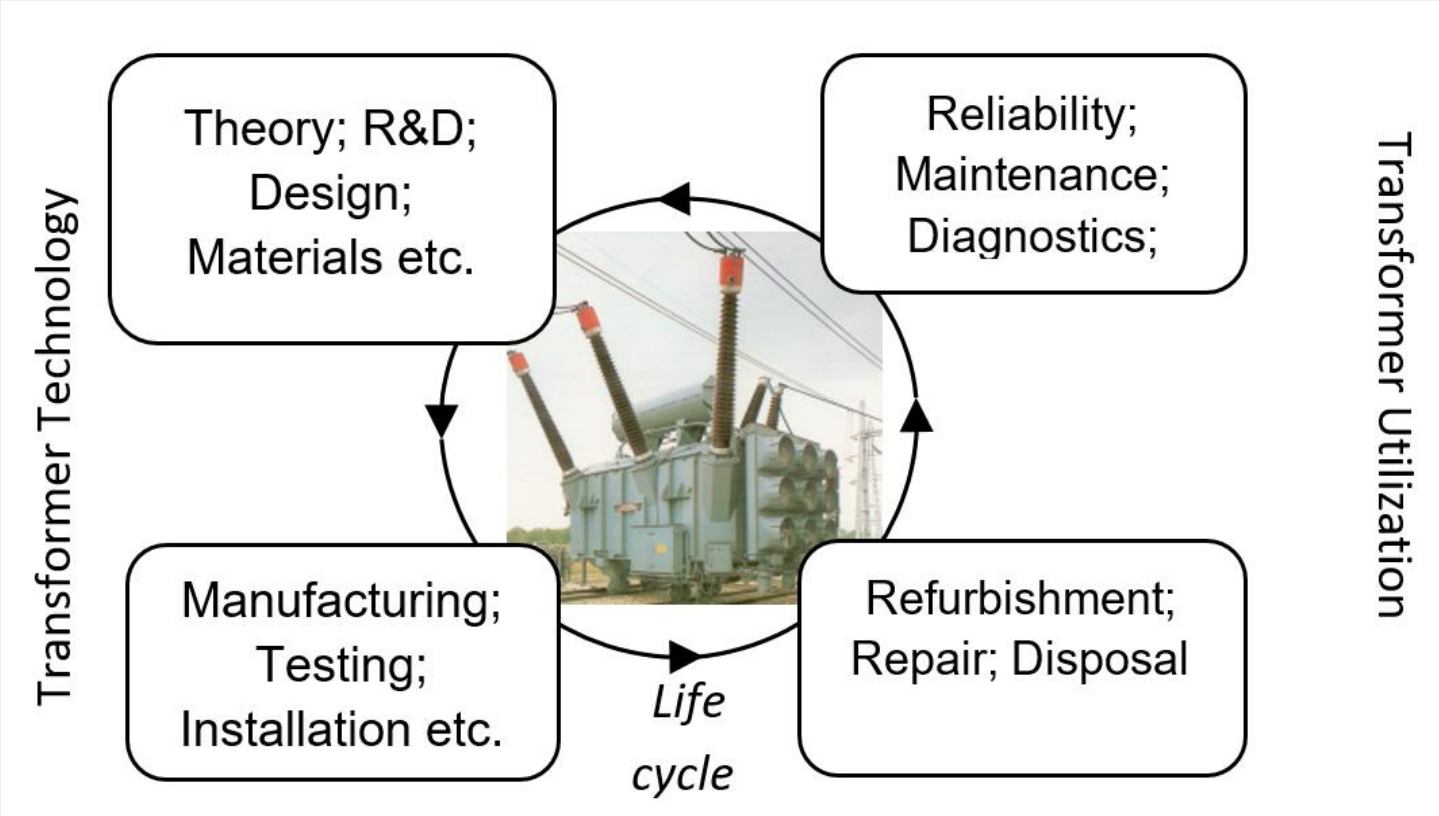
For power system expertise



SC A2 OVERVIEW

- Power **transformers**, including, industrial, DC converter, phase-shifting and distributed energy resource (DER) transformers
- **Reactors**, including shunt, series, saturated and smoothing;
- All transformer **components**, including **bushings**, **tap-changers**, and accessories.

Specific Activities of SC A2



Goals of the Transformers Study Committee

- To monitor current trends in transformer technology
- To facilitate the integration of transformers in networks and in the environment
- To maintain its leading position in the field of transformers by providing unbiased and neutral information on all essential transformer aspects
- To be recognized by the industry as a leading and reliable partner with competence in all engineering issues related to power transformers
- To encourage young experts to participate in the work of Study Committee A2
- To encourage the participation of experts from emerging market and developing countries in the activities of Study Committee A2

Working Groups

Technical Brochure Coming soon

Site Installation & Pre-commissioning	Dynamic Thermal Behaviour	Impulse Testing	Insulating Fluids	Digital Twin
Failure Survey of Lower Voltage Generator Step Up Tx	Breathing Systems	Online DGA	Life Cycle Assessment (LCA	Insulating liquids for bushings, OLTC & accessories
Retrofilling	Dynamic Behaviour of Winding Insulating Materials	Non-metallic solid materials and compatibility with insulating liquids	Digitalisation	Online Moisture Assessment for Ageing

KEY FOCUS AREAS

For more info:
a2.cigre.org

Nominate now!

WG number	Title
A2.75	Tap Changer Specification, Condition Assessment, Testing and Maintenance Guidelines
A2.76	Power transformer passive protection against internal arcing faults
A2/C4/D1.77	Design of transformers for very fast transient overvoltages
A2.78	Bushing Diagnostics Off-Line Testing and On-Line Monitoring Systems
A2/C3.79	Power Transformers and Reactors Sound Levels On Site
A2.80	Guide to Transformer Supplier Qualification and Development
A2.81	Guide for power transformer design review

- Surveys
  - WGA2.68 Failure survey of lower voltage GSUs

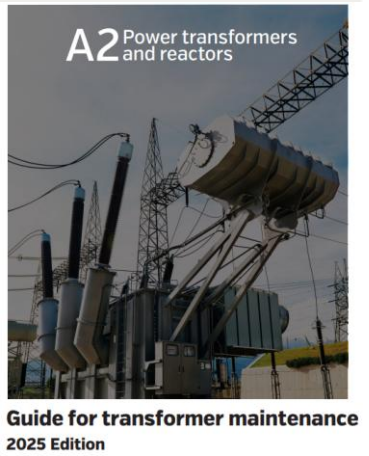
If you or your organisation have a topic, please let us know.

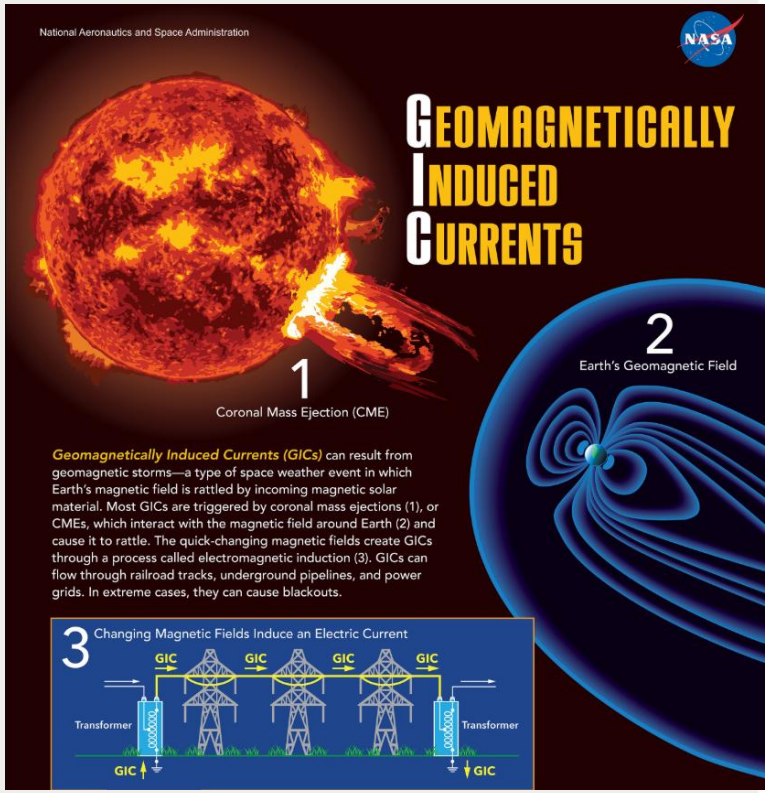
PUBLICATIONS

Download at e-cigre.org

WG	Brochure	Publication
A2.54	TB 940 Power Transformer Audible Sound Requirements	September 2024
A2.57	TB 944 Effect of DC Bias on Power Transformers	November 2024
A2.69	TB 962 Guide for Transformer Maintenance	May 2025
A2.56	TB 971 Transformer Efficiency	September 2025

- Tutorials/Webinars:
  - **DC Bias** => May 2025 webinar and Oct 2025 Seoul Colloquium, Dejan Susa
  - **Transformer Maintenance** => Sep 2025 Montreal Symposium, Claude Rajotte

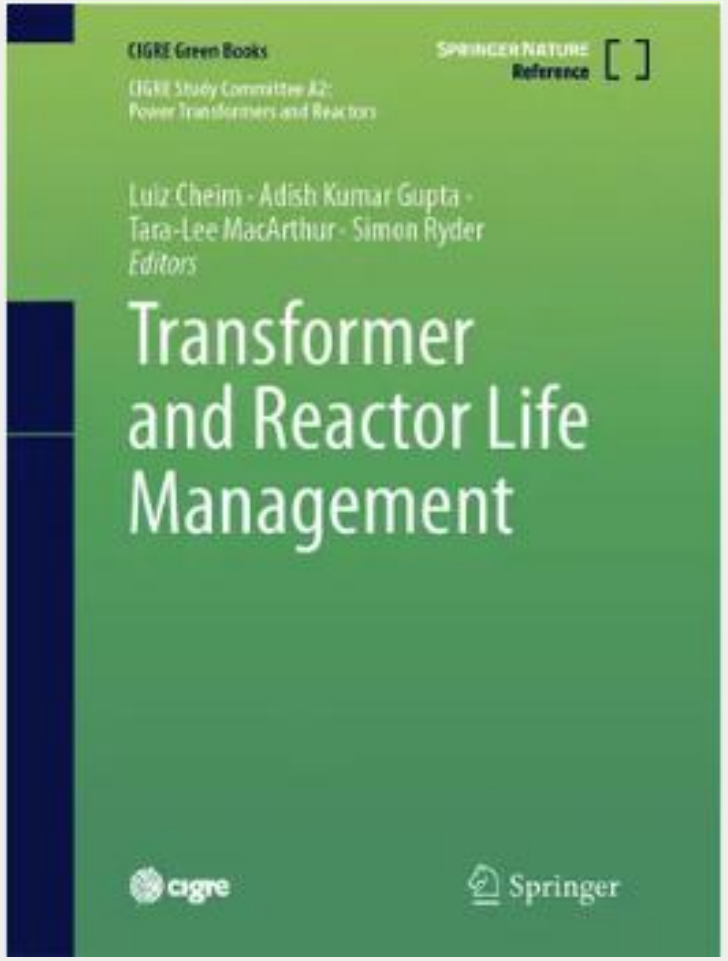




Source: NASA website

GREEN BOOK

- Comprehensive guide to life management, from procurement to disposal
  - Operation, maintenance, testing, diagnosing and resolving problems, repair
  - Covers oil, ester, silicone, gas-insulated and dry-type



Future Topics

PREFERENTIAL SUBJECTS

Major challenges to the power transformer industry

- Impact of **ageing fleet**, new operating requirements and climate changes on the design, maintenance and reliability.
- Strategies to mitigate **supply chain disruptions** and skilled labor shortages.
- **Sustainability** (with C3) and **Life Management**: Transformer economics, Life Cycle Costing, Asset management practices, Eco-design. **Life Cycle Assessment**, circular economy. etc

Power transformer digitalisation journey

- User experiences, challenges and solutions with transformer data management: **data collection**, **processing, exchange** with different stakeholders/systems, confidentiality, and security.
- Innovative **digital solutions** for monitoring, diagnostics, modelling, designing, manufacturing, testing, maintenance and operation of transformers.

Failure prevention, detection and investigation

- **Detailed case histories** of failures including examples such as component issues, short-circuits, moisture, dielectric breakdowns, paper degradation, material compatibility problems, etc.
- **Guidelines** for conducting investigations: **Root Cause Analysis** (RCA) including testing and troubleshooting procedures.
- Predictive maintenance: Best practices for **monitoring, diagnostics, and prognostics**.

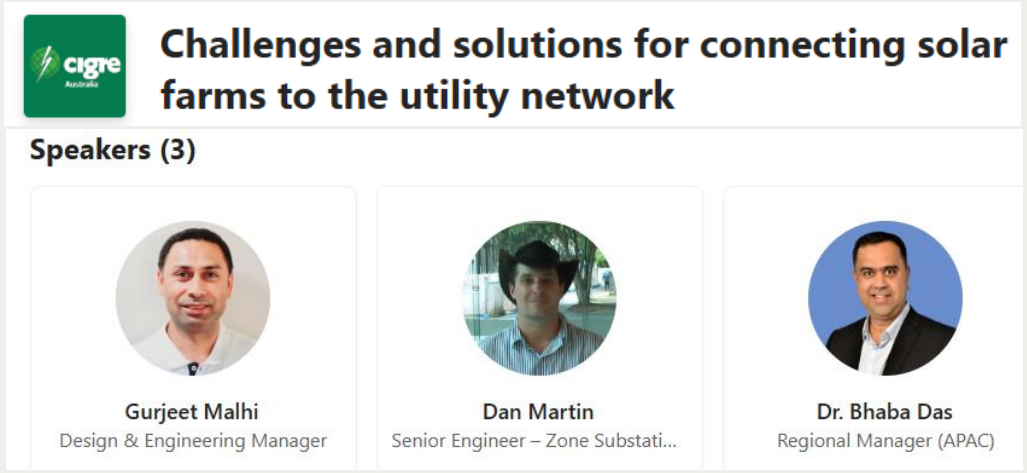
Australian A2 Panel Meeting 2025

- Adelaide – September 1st
  - 33 members

- Presentations & discussion topics
  - Effect of renewables on transformer performance
  - Health condition assessment using data analytics - brochure
  - Silver sulphide
  - Renewable projects
  - Global equipment supply & lead times

LOCAL EVENTS 2025

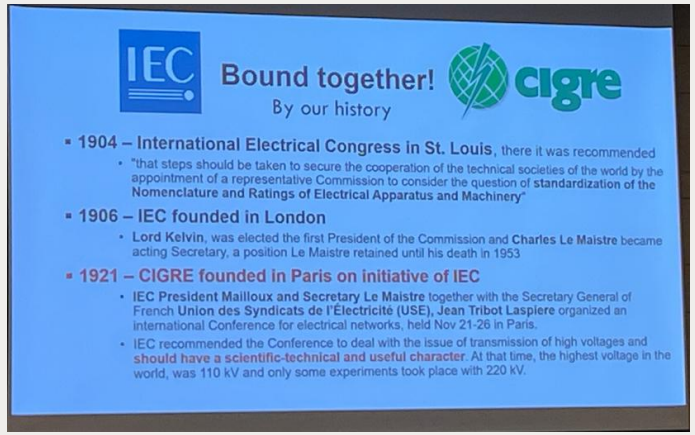
- Transformer workshop – Prof. Stefan Tenbohlen
  - Analysis of AC transformer reliability (Tutorial of Cigre WG A2.62 which was given this year in Paris)
  - Interpretation of FRA measurements
  - Online partial discharge measurement
- Joint AU/NZ webinar – hosted by NGN



- Harmonic headroom limits in allocations to individual solar farms
- Planning / rating capacity limits
- Legacy assets and new stresses
- Monitoring of solar GSU transformers

A2 Study Committee Meeting 2025 & A2/D1 Seoul Colloquium

- Joint A2/D1 Colloquium in Seoul, South Korea – 27th Oct to 1st Nov
  - 4 tutorials
  - 36 presentations & 52 posters
  - Technical tour – KEPCO Gochang Power Testing Centre
  - 4 Australian contributions
- Annual study committee meeting



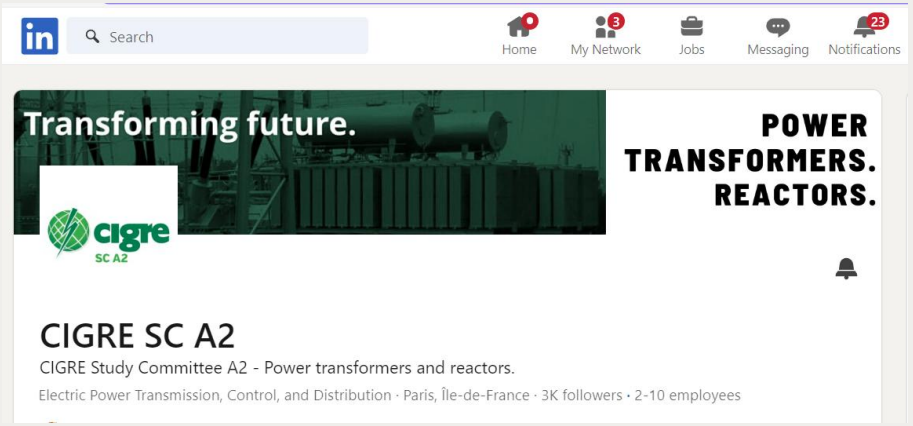
UPCOMING EVENTS

2026

- Transformer Workshop – 2 days, Melbourne, date TBC
- 7th ICTRAM – May 6th to 9th, Cavtat, Croatia
- Paris Session - Aug 23rd to 29th

2027

- Symposium – Apr 26th to 30th, Heidelberg, Germany
- Symposium – Nov 22nd to 26, Bangkok, Thailand

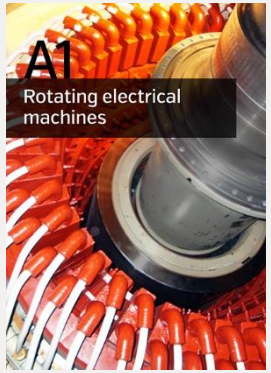


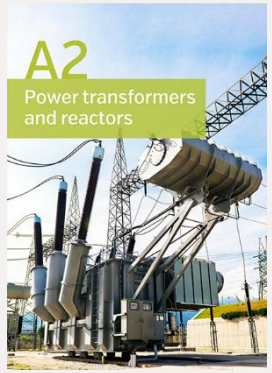
LinkedIn Pages:
CIGRE Australia
CIGRE SC A2

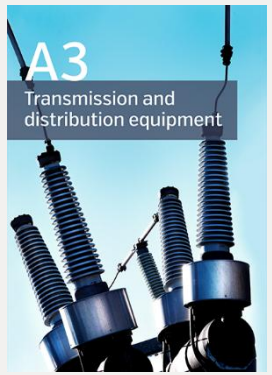
THANK YOU

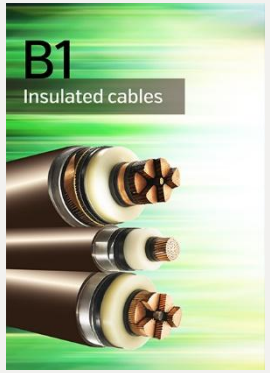
APPENDIX

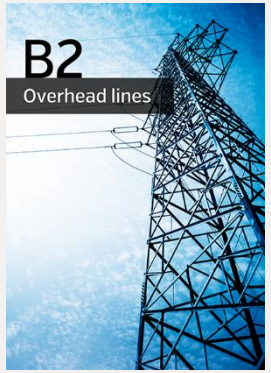
For reference only

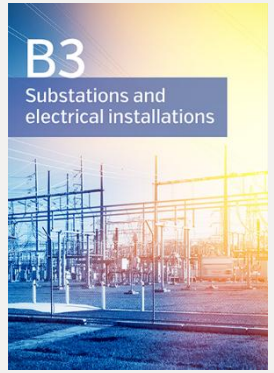


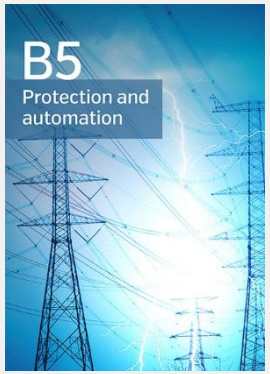


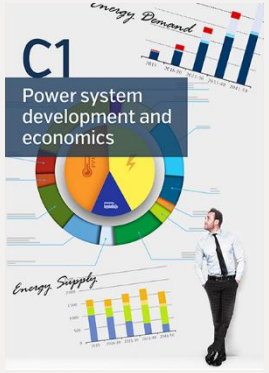


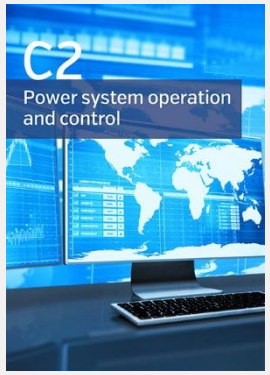


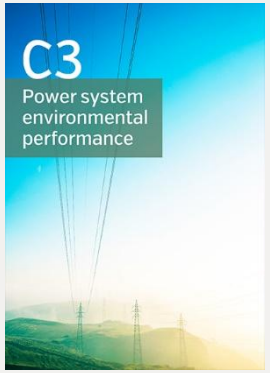


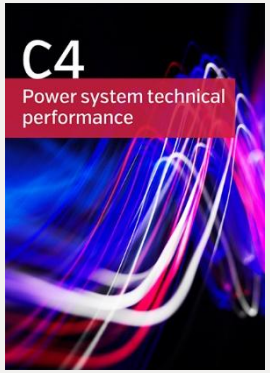


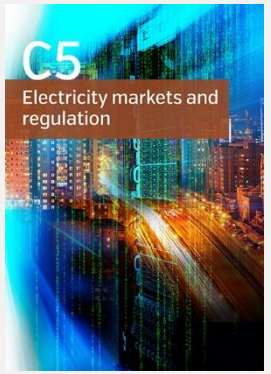


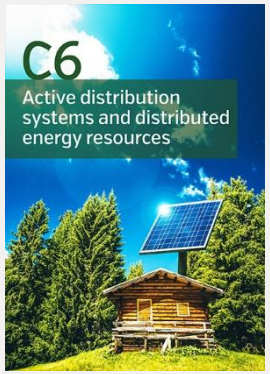


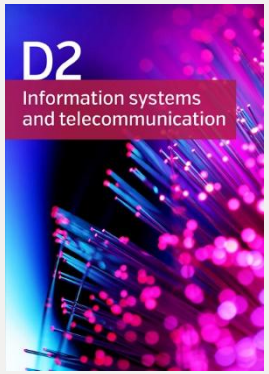












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