

Australia & New Zealand Report

Presented by Russell Wheatland
Convener AU B1

Brisbane November 2019



cigre

For power system expertise

B1

Insulated cables



Australia & New Zealand Report

- AU B1 has strengthened its links with NZ, now with 5 Kiwi members
- AU B1 now has 32 active members



Australia & New Zealand Report

- **CIGRE is now actively engaging with MV assets**
 - ✓ Some AU B1 members engaged in MV only networks
 - ✓ Looking at developing a NZ B1 mirror panel just for MV networks
- **NGN member involvement**
- **AU B1 members have been active this past year**
 - ✓ MV cable accessory forum due to termination and joint failures in the field
 - ✓ Planning for a cable seminar to present several tutorials
 - ✓ Planning a Cable Failure database for AU/NZ utilities
- **HV and EHV cable systems are growing in popularity**
 - ✓ Expanding populations in capital cities of both countries
 - ✓ Redevelopment of city areas - to remove overhead infrastructure
 - ✓ The push for more renewable, distributed generation
 - ✓ Renewed pressure on aged infrastructure replacement
 - ✓ Increased use of GIS with cable entry options



Australia & New Zealand Report

Transmission

▪ Renewable Energy

- ✓ **Significant investment in Solar and Wind farms**
- ✓ **In Victoria alone estimated 5GW by 2040**
 - Extensive upgrade of Western Transmission 220kV and 500kV networks
- ✓ **Snowy 2.0 (Extension of the Snowy Mountains hydro scheme)**
 - Strengthens Snowy Mountains role as a “battery” for national electricity market
 - Central geographic location in between the major load centres (Sydney and Melbourne)
- ✓ **Project Marinus - a 2nd link to Tasmania**
- ✓ **Commissioning renewable generation continues relentlessly, all requiring some cable**
 - Developers demanding shorter implementation times - creating cost vs engineering discipline tension
- **Increased interest in undertaking PD measurements at both T & D Voltages**
- **NZ constructing and planning 110kV circuits to manage Auckland's growth**



Australia & New Zealand Report

Distribution

▪ Renewable Energy

✓ Distribution (domestic roof top generation)

- In Victoria, by 2030 potentially four times the currently installed capacity up to 2.6GW
- Reverse power flows, Major change to demand profiles, Mini Grids

▪ NZ Regulator sanctioned 'step' increase in capital expenditure

- ✓ To replace aged/condition expired equipment. Consequently, a building demand on local engineering profession.

▪ NZ Govt. sponsoring research on effects of Lava flows on U/G infrastructure

▪ Focus on reducing System Outages

- Average Interruption Frequency Index (SAFI) and
- System Average Interruption Duration Index (SAIDI)



Australia & New Zealand Report

AU B1 Involvement with WGs and TFs

- | | | |
|--|--------------|--------------|
| ✓ WG B1.54 Behaviour of Cable Systems under Large Disturbances | R. Joyce | R. Wheatland |
| ✓ WG B1.58 Asset Management in MV Cables Networks | | D.C. Lee |
| ✓ WG B1.60 Maintenance of HV Cable Systems | | J. Ferencz |
| ✓ WG B1.61 Installation of HV Cable Systems | | P. Robinson |
| ✓ WG B1.67 Loading pattern on cables connected to windfarms | | K. Prickett |
| ✓ WG B1.68 Condition evaluation and lifetime strategy | | R. Bradley |
| ✓ WG B1.69 Recommendations for the insulation coordination on AC cable systems | | T. Auditore |
| ✓ WG B1.71 Guidelines for safety risk management in cable system | | C. Noel |
| ✓ WG B1.72 Cable ratings verification (2nd part) | | D. Spackman |
| ✓ WG B1.73 Recommendations for the use and the testing of optical fibres in land cable systems | G. Barnewall | |
| ✓ TF B1.74 Recommendations for a performance standard of insulated busbars | | D. Platt |
| ✓ JWG D1/B1.75 Strategies and tools for corrosion prevention for cable systems | | T. Auditore |
| ✓ TF B1.76 Increasing the role of QA and quality control to reduce the cable failure possibility | P. New | |
| ✓ TF B1.78 Status detection, condition monitoring and rejuvenation for power cables | A. Cuppen | |

Australia & New Zealand Report

International Activities

✓ AORC B1 Meeting in Bali (Indonesia) March 2019

- Well chaired by Tanaka san
- Australia plays an active part in this AORC
- Agenda item with the AU NC
- Providing a link with fast growing regional countries
- Bali meeting coordinated with AORC Technical meeting
 - Managed to spend some time with Rob Stephen



✓ JiCable 19

- Several AU B1 members attended

Attended	6 th	7 th	8 th	9 th	10 th	11 th	12 th	13 th	14 th
Australia	X	X	X	X	X	X	X	X	X
Bangladesh									
China PR	X	X	X		X	X	X	X	X
Hong Kong	X		X		X	X		X	X
India				X	X		X	X	X
Indonesia						X			X
Japan	X	X	X	X	X	X	X	X	X
Korea	X	X	X	X	X				
Macau									
Malaysia West	X		X		X	X	X		
Malaysia East									
New Zealand				X	X			X	
Singapore	X	X	X			X	X	X	(X)
Sri Lanka									
Thailand	X	X			X	X	X	X	X
Vietnam									

AU B1 AORC Summary

National Committees may come together to form a Region, which is designed to enhance technical cooperation between countries and to promote and develop CIGRE.

Geographical proximity is the primary motive for forming a Region, but other situations can be accommodated when they align with the basic objectives, i.e.:

- Contribute to activities of the Study Committees, addressing and developing local issues;
- Organise Regional Meetings or other local meetings (Colloquia...);
- Coordinate with industry organisations;
- Coordinate contributions to CIGRE main events (Session, Symposia);
- Encourage and provide an incentive to increase CIGRE membership and create new National Committees, by incorporating countries without a National Committee in the working structure.

The existence of Regions has no impact on the governance structure of CIGRE - National Committees, Administrative Council, and Steering Committee - nor does it introduce any hierarchical notion in relations with National Committees or Study Committees.

AU B1 AORC Summary

There are currently four CIGRE Regions

- AORC (Asia-Oceania Regional Council of CIGRE)
 - Australia, China, Gulf Cooperation Council, India, Indonesia, Iran, Japan, Jordan, Korea, Malaysia, New Zealand, Thailand
 - The Gulf Cooperation Council (GCC) is a political and economic alliance of six countries in the Arabian Peninsula: [Bahrain](#), Kuwait, Oman, [Qatar](#), Saudi Arabia and the United Arab Emirates.
- ERIAC (Ibero-American Region of CIGRE)
 - Brazil, Argentina and Paraguay
- NRCC (Nordic Regional Council of CIGRE)
 - Denmark, Estonia, Finland, Island, Norway and Sweden
- SEERC (South East European Regional Council)
 - Austria, Bosnia and Herzegovina, Croatia, Czech Republic & Slovakia, Georgia, Greece, Hungary, Italy, Kosovo, Montenegro, North Macedonia, Romania, Serbia, Slovenia, Turkey, Ukraine

AU B1 AORC Summary

The AORC (Asia-Oceania Regional Council of CIGRE)

- Australia, China, Gulf Cooperation Council, India, Indonesia, Iran, Japan, Jordan, Korea, Malaysia, New Zealand, Thailand
- The Gulf Cooperation Council (GCC) is a political and economic alliance of six countries in the Arabian Peninsula: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates.



Thank You