

Presented by Ray Brown - Convener

Brisbane – 21/11/2019

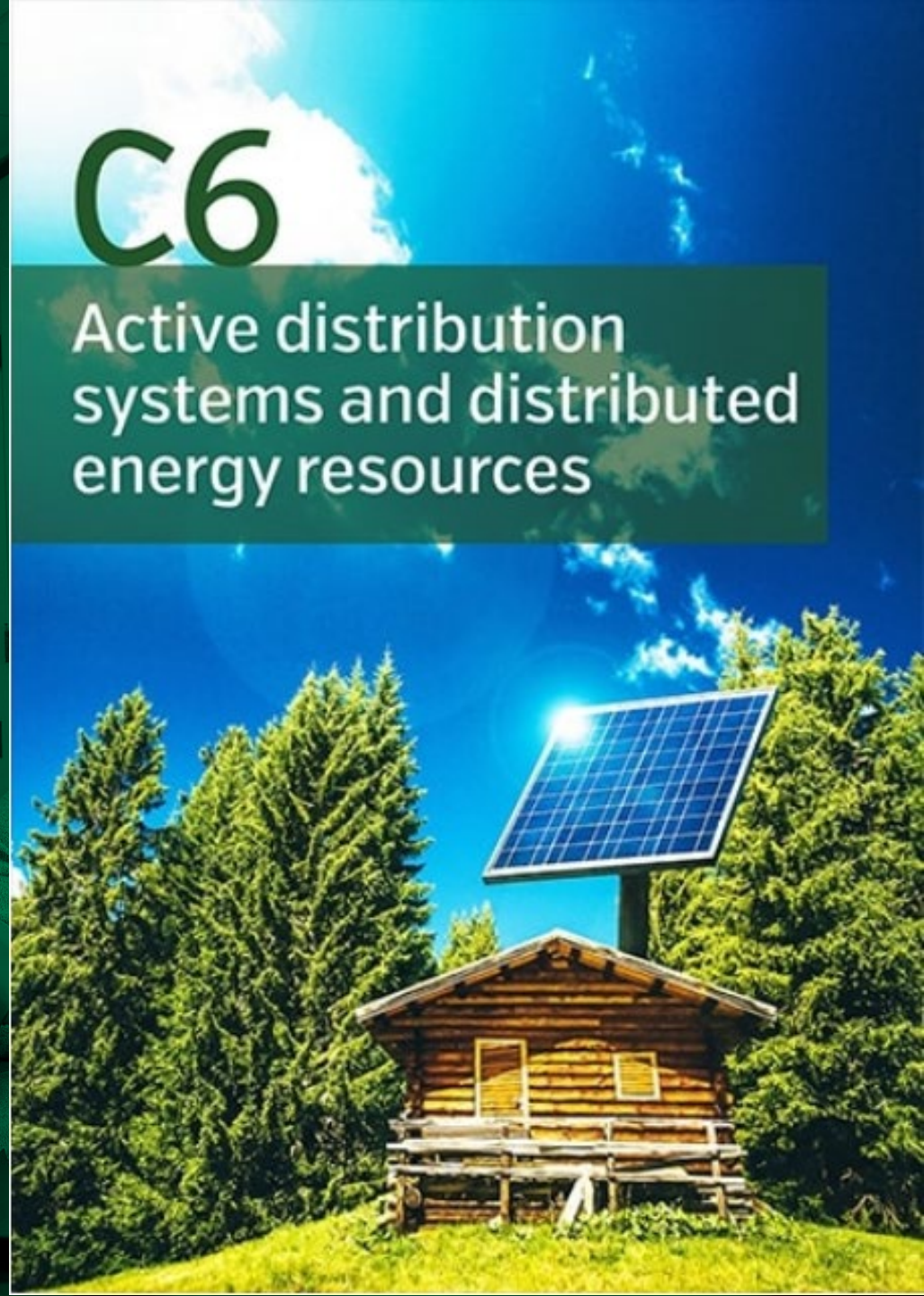


cigre

For power system expertise

C6

Active distribution
systems and distributed
energy resources



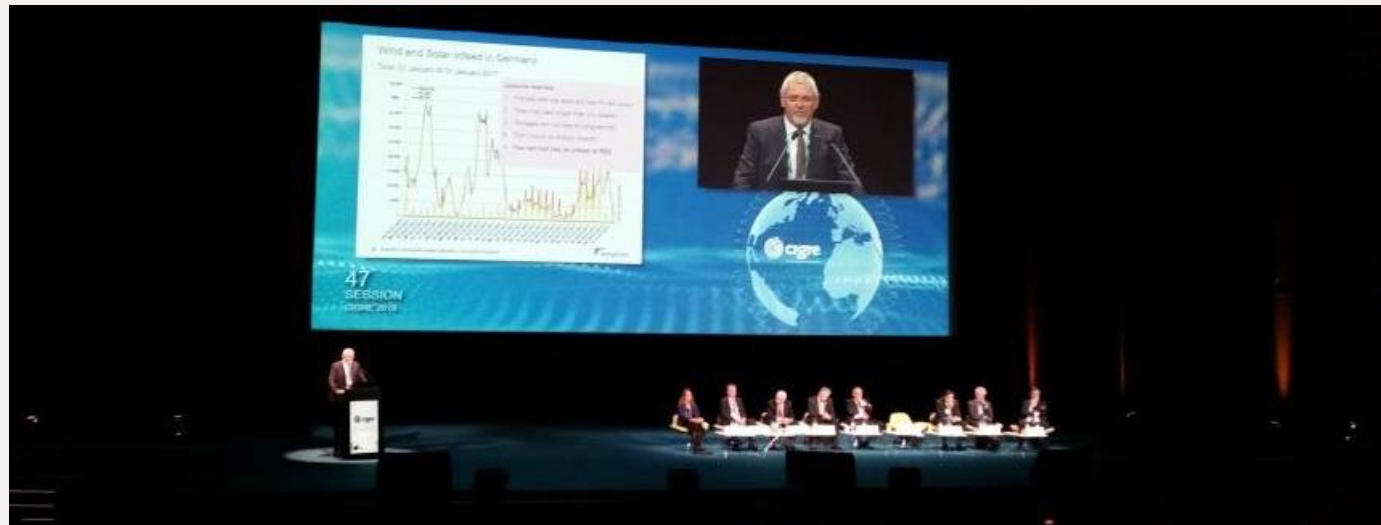
SC C6 Overview

Principal Areas of Interest

- **Assessment of the technical impacts which a more widespread adoption of DER could impose on the whole energy system and of enabling technologies and innovative solutions for DER integration in active distribution networks**

Main Areas of Attention

- **Enabling technologies**
- **Innovative solutions for DER**
- **Storage technologies**
- **New approaches to configure distribution systems**
- **Consumer integration & empowerment**
- **Smart cities**
- **Rural electrification**



2019 International Activities

Symposium Chengdu - September 2019

- C6 and B3 Lead Study Committees
- 87 papers from 19 countries in 15 sessions
- More than 300 registrations



2019 AU/NZ Activities

Australia Panel C6 Meeting - Melbourne - 19 August 2019



2019 AU/NZ Activities



**ASIA PACIFIC CONFERENCE ON INTEGRATION
OF DISTRIBUTED ENERGY RESOURCES**
Pullman, Melbourne on the Park, 192 Wellington Parade, Melbourne, Vic, Australia



CIDER 2019 - Conference on Integration of Distributed Energy Resources Melbourne - 20 & 21 August 2019

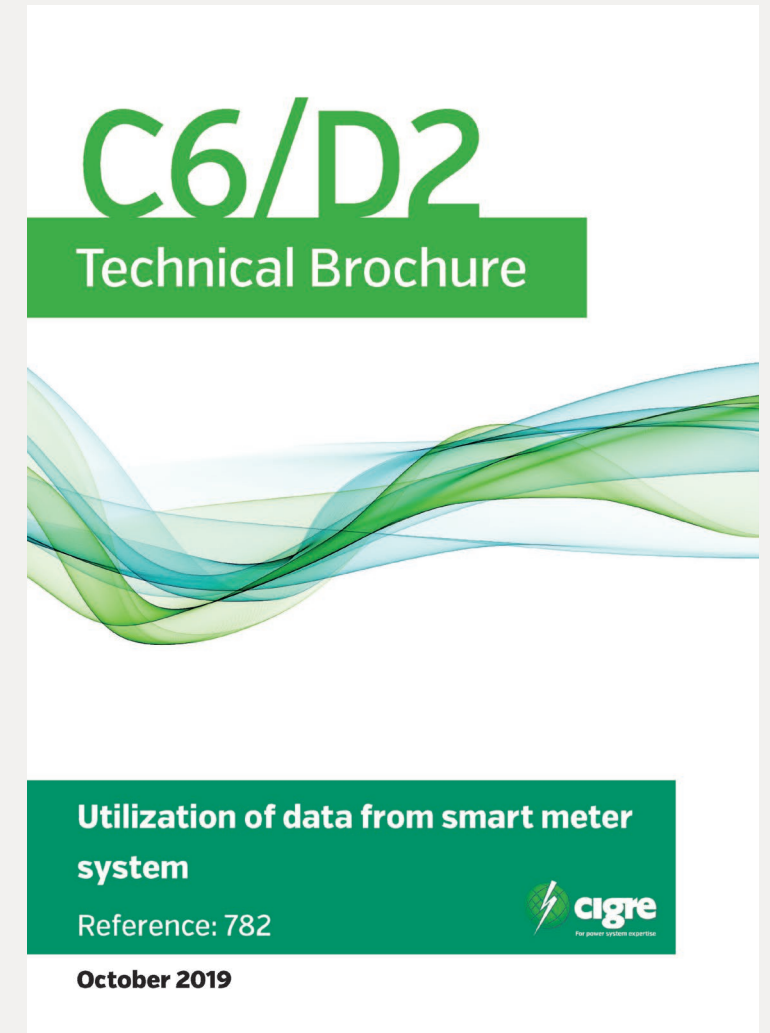
- Previously held Brisbane 2015 and Sydney 2017
- 2 keynote speakers
- 26 presentations
- NGN Session
- Stand-up networking dinner
- Very positive feedback from delegates



2019 Deliverables

Technical Brochures

- TB 782 - Utilization of Data from Smart Meter System (JWG C6/D2)



Upcoming Activities - 2020 Paris

Preferential Subjects

SC C6

PS1 : Advanced distribution system design incorporating DER

PS2 : Enabling technologies and solutions for distribution systems

Co-chaired by both C2 and C6

PS 3: System Operation Challenges with Increasing Distributed Energy Resources



Upcoming Activities




**CIGRE – AORC
Technical Meeting 2020**

Kanazawa – Japan, 14-17 April 2020



10 -16 October,
2021



**Symposium 2021
in Kyoto, Japan**
SC C6, C1, C2, C5, D2

Upcoming Activities

CIGRE Cairns Symposium 4-7 September 2023



Themes and Issues

Community Energy Storage

- Existing trial at Mandurah
- Further installations to go ahead
- Good community feedback, over-subscribed
- Assist with local network issues
- Positive business case



Themes and Issues

Innovative Methods of Supply

Western Power

- 50% of the network only supplies 3% of the customers / load

Installation of 57 stand-alone power systems

- Lower cost
- Increased reliability
- Improved community satisfaction
- Re-training of line workers
- Issue with regulations preventing "shrinking" of the grid
- Need to move quickly as the locations where this is most promising are also where the network most needs re-building

Themes and Issues

Integration of Small-scale DER in Australia

- **Many previous concerns have not eventuated**
 - Power Quality
 - Number tap-changes at zone substation transformers
 - Unintentional islanding
- **Voltage in LV networks remain an issue**
- **Increased range of tools to deal with voltage issues**
 - LV STATCOMs
 - Voltage-regulating distribution transformers (VRDT)
 - Dynamic voltage management system
 - Power Quality response modes of inverters - P(U), Q(U)
- **Standardisation of inverter settings**
- **Tension between anti-islanding protection and system performance**
 - ROCOF
 - Underfrequency