

AUC5 report to ATC 2023

Presented by Greg Thorpe, Convenor
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gthorpe@oakleygreenwood.com.au



cigre

For power system expertise

C5

Electricity markets and
regulation



Major changes in the industry are reflected in changes to markets and regulatory arrangements

- As we all recognise, technology is changing dramatically
- Previous paradigms are no longer fit for purpose
- Other study groups are looking at the systems and equipment changes
- C5 members are focussed on the regulatory and commercial instruments
- There are some common themes and issues that need bespoke attention for the different power systems/markets of members

Overview of AU C5

- Currently 18 members
- Representing each Australian state, New Zealand and Singapore
- Members work across 6 existing and emerging markets – plenty to learn from each
- The Panel met in September 2023 as part of the Cairns Symposium. Most members attended in person
- Next AU C5 Panel meeting to be scheduled for mid 2024

Overview of AU C5

- The 2023 meeting:
 - Was a shorter than usual to fit in with Symposium activities:
 - The meeting opened with an introduction to two international members of C5
 - Juan Bogas from Spain and Ricardo Gedra from Brazil who each gave a short outline of C5 related developments in their markets
 - (New) CIGRE Australia CEO Peter McIntyre also met the panel
 - The meeting also noted
 - WG activities and potential topics for webinar (resilience was seen as a useful topic – further work out-of-session to follow
 - Timetable for acceptance of Paris 2024 abstracts
 - Refresh of the arrangements for Paris Technical Discussions, Poster Sessions and the role of Special reporters
 - Alex Cruickshank reported on C5 international activities
- Next AU C5 Panel meeting to be scheduled for mid 2024

C5 Working groups

There were six Working Groups active during the year

- WG C5.31 Wholesale and Retail Electricity Cost Impact of Flexible Demand Response
 - WG C5.34 Electric vehicle charge/discharge flexibility in wholesale energy markets
 - JWG C5/C6.29 New Electricity Markets, Local Energy Communities
 - JWG C5/C1.35 Integration of Hydrogen in Electricity Markets and Sector Regulation
 - WG C5.36 Certification of electricity used to produce hydrogen
 - WG C5.37 Regulatory framework on modernization and extension of useful life of transmission & distribution assets
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- C2 portfolio
JWG C2/C5 Interventions in electricity markets (AU C5 member)

C5 Technical Brochures

During 2022-23 the Study Committee published Technical Brochures produced by completed Working Groups

- TB-897 Carbon Pricing in Wholesale Electricity Markets
- TB-893 Trading Electricity with Blockchain Systems
- TB-877 Energy Price Formation in Wholesale Electricity Markets
- TB-874 Auction Markets and Other Procurement Mechanisms for Demand Response Services

Two current C5 Working Groups expect to complete their work and publish Technical Brochures in the near future

- WG C5-31 Wholesale and Retail Electricity Cost Impact of Flexible Demand Response
- JWG C5/C6-34 New Electricity Markets, Local Energy Communities.

C5 Papers for Paris 2024

- Three synopses from AU C5 accepted.

Characteristics of a resilient market and its regulatory regime
Preparing for the future with moving targets
Emerging markets and forms of markets

Plus a joint paper submitted/accepted through Dutch CIGRE committee dealing with electric system resilience

Large Disturbance Workshop

- Always popular event in Paris Sessions – approx. 450 people in attendance in 2022
- The event grew out of a C2 initiative dealing only with power system events and expanded to market events about 12 years ago
- Australia has been a regular contributor and convenor for a number of yearsA joint undertaking of C5 and C2
- Planning for 2024 Workshop is underway

New Zealand

- NZ market has been successfully operating with real time pricing (time weighted av. of 5min prices same as initial NEM) for 1 year.
- A new market product included to reduce the barriers for load participation in the market - Dispatch Notified Participation product, implemented in April 2023.
- Tight winter capacity situations have been observed over the last 3 years resulting in a number of initiatives to improve information to the market.
- Growing number of non-network solutions are progressing such including both utility scale and distributed battery systems

Assistance from Ramu Naidoo

Darwin – Katherine Interconnected System

- The pace of reform in the Northern Territory has slowed, however, the objectives remain focussed on two major themes
 - Renewable mandate
 - Open access/competition
- The intent is for the NER to be adopted progressively, chapter by chapter with amendments for local conditions - AEMC administers and publishes NT versions of rules for sections that have been rolled into the NER (primarily related to network regulation)
- Economic regulation by AER is operational
- Government is currently assessing a proposal for centralised capacity procurement

Singapore

- Electricity import project from Laos to Singapore [LTMS-PIP] [100 MW] using existing infrastructure [Passing thru Thailand and Malaysia] – Active since **June 2022**
- Conditional Approvals for Large Scale Electricity Imports by 2030s.
 - 1 GW Cambodia [**16 Mar 23**] - Solar, Hydropower & Wind. Supported by BESS and Pumped Hydrogen. Transmitted via subsea cables
 - 2 GW from Indonesia [**8 Sep 23**] – 5 projects (ranging from 0.3 GW to 0.6 GW). Solar and Supported by BESS. Transmitted via subsea cables
 - 1.2 GW Vietnam [**24 Oct 23**] – Offshore wind
- Introduced Market ‘guardrails’ to enhance market stability and energy security
 - Wholesale market: Temporary Price Cap, Centralized Process for Capacity
 - Retail market: Stricter entry and hedging requirements for retailers
 - Natural Gas (NG) market: New GasCo to centralize NG procurement
- *Assistance from Zhenhui Li*

North West Interconnected System (Pilbara) 2023

- Independent System Operator introduced last year is bedding down
- Industry roundtable convened to discuss decarbonisation and electrification in the region, participants agreed the following objectives:
 - new **common use electricity infrastructure** has an important role to play in supporting increased levels of renewable energy and decarbonisation in the Pilbara, and future modelling should inform its development;
 - there is support for the **Pilbara electricity regulatory regime to evolve** to support the energy transition in the areas of security/reliability, energy/settlement and multiuser network assets;
 - as a priority first step, key Government agencies will work together to update existing **land tenure** guidance for common use electricity infrastructure and renewable energy development; and
 - any electricity infrastructure development should **support rights to self-determination and empower** Aboriginal people to realise opportunities from the clean energy transformation.
- The findings of the Roundtable:
 - were used to secure up to \$3 billion of Commonwealth funding through Rewiring the Nation to support major projects.
 - will be used to design the next phase of work in consultation with industry stakeholders and Traditional Owners.

Assistance from Jacinda Papps



Western Australia WEM (SWIS)

- New WEM implemented 1 Oct 2023. Key features:
 - **5 min** dispatch
 - Security constrained economic dispatch co-optimised with ESS
 - **New ESS markets** for contingency and regulation reserve and a world first RoCoF market
 - **Storage facilities to receive Capacity Credits** and participate in the energy and ESS markets.
 - **Network Access Quantity (NAQ)** has been implemented which considers constrained network access in the capacity mechanism.
- WA capacity:
 - Multiple instances of **additional capacity** called for under Non-Co-optimised ESS framework to ensure sufficient capacity to meet both peak demand and minimum demand conditions
 - WEM **investment certainty review** initiated to support firmed renewables
 - **RCM and Benchmark Reserve Capacity Review (BRCP)** to ensure that the RCM will continue to provide adequate incentives for the capacity services that the SWIS requires. Includes potential increases to the BRCP and a new 'flexible capacity service'.
- **Emissions penalties regime** being considered.
- **Significant reform to the access and connection process** to allow for timely connection. Including amendments to the **applications and queueing policy**; an **ROI for new connections** (load & gen) that can contribute \$100k/MW to fund network augmentation; and a **new priority projects** connection process being considered.

Assistance from Jacinda Papps

Australian NEM

- 2023 has been eventful but less so than 2022
- Wholesale electricity and gas prices remained elevated for much of the year but fell as we moved into spring as the ever growing solar capacity dominated
- Customer prices have risen again with double digit rises in default tariffs
- The National Electricity (and Gas) Objective that underpins the market rules now includes emission reduction in addition to reliability, security, price and quality in the long term interest of consumers
- Amendments/proposed amendments have dealt with the role of customer resources (e.g. roof top solar), transmission access and development (ISP, REZ), power system operation (inertia/RoCoF, FFCAS and much more – very busy and broad agenda

Thank You