



Utility-scale and distributed batteries in renewables-dominated power systems: experiences and lessons learnt from Australia

Australia features ultra-high penetration and impressive rates of growth of variable renewable energy (VRE) sources and distributed energy resources (DER) that are Inverter-Based Resources (IBRs). This has led to issues associated with system flexibility, DER visibility, low-inertia system operation and frequency stability, weak networks and voltage instability, converter-driven instability, and so forth, being witnessed and effectively managed basically daily. In particular, battery energy storage systems (BESS) of different sizes and applications, ranging from utility-scale (order of 100 MW) to community batteries (order of MW) to household-level batteries (order of kW) are penetrating the Australian market to provide system security, reliability and resilience services as well as exploit market opportunities due to highly volatile energy and ancillary services prices in a renewables-dominated system.

Speaker Bio

Pierluigi Mancarella is Chair Professor of Electrical Power Systems at The University of Melbourne, where he heads the Power and Energy Systems Group and leads the Melbourne Energy Institute's Energy Systems Programme. He is also Professor of Smart Energy Systems at The University of Manchester and Global Co-director of the USA-UK-Australia Centre "EPICS", with Johns Hopkins and Imperial College London. He holds an MSc (2002) and PhD (2006) from Politecnico di Torino, with visiting roles at NREL, Ecole Centrale de Lille, University of Chile, Tsinghua, and DTU (2024 Otto Monsted Visiting Professor). His research covers low-carbon grid modelling, multi-energy systems, planning under uncertainty, and resilience. He has led 100+ projects, advised energy policy in the UK, Europe, and Australia, and authored over 400 publications. An IEEE Fellow and PES Distinguished Lecturer, he serves as Senior Editor of IEEE Transactions on Power Systems and Convenor of Cigre WG C6/C2.34. He received the 2017 veski Innovation Fellowship and the 2018 Newton Prize, led work for Australia's "Finkel Review", and collaborates closely with AEMO, AEMC, and National Grid ESO on market design, resilience, and planning tools.

Organization

This seminar is organized jointly by the CIGRE Cyprus National Committee and the IEEE Cyprus Section.

Date

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10:00–11:00 | Cyprus/Athens Timezone

Location

ELECTRON room, [Electricity Authority of Cyprus Central offices, Amfipolis 11, Nicosia 2025](#).

Speaker



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