

## programme

### workshop agenda overview

Tuesday 27 January (EPICS leads only) afternoon	Wednesday 28 January full day	Thursday 29 January full day	Friday 30 January morning + afternoon
<b>12:00-17:00</b> EPICS leads team discussions	<b>9:00-17:00</b> T100RE modelling and integration of IBR (T2) System services (T5) keynotes, presentations, panel discussions	<b>9:00-17:00</b> T100RE techno-economic principles (T3) pathways to net-zero (T4) keynotes, presentations, panel discussions	<b>9:00-15:00</b> student training/tutorial workshop
	<b>17:00-18:00</b> poster session	<b>17:00-18:00</b> CSIRO Energy Centre site tour	
<b>18:00</b> EPICS leads dinner	<b>19:00</b> workshop dinner Merewether Surfhouse 5 Henderson Street, Merewether	<b>19:00</b> informal dinner (pay your own way) location TBC	

Tuesday 27 January 2026

EPICS leads only

12:00	lunch
13:30	<b>EPICS leads team meeting</b>
15:30	afternoon tea
15:45	<b>EPICS leads team meeting</b>
17:00	end of EPICS leads team meeting
18:00	EPICS leads dinner

## Wednesday 28 January 2026

### day 1 – all attendees

8:30	registration and sign in on arrival
9:00	<b>workshop open, welcome, overview</b> <b>John Ward (CSIRO), Ben Hobbs (John Hopkins University), Mark O'Malley (Imperial College London), Pierluigi Mancarella (University of Melbourne)</b>
9:30	<b>keynote – the meaning of system strength, nonlinear oscillations and everything</b> <b>Ian Hiskens (University of Michigan)</b>
10:30	morning tea
11:00	<b>T2 session - T100RE modelling and integration of inverter based resources - stability</b> <b>Behrooz Bahrani (Monash University), Sijia Geng (John Hopkins University)</b>
13:00	lunch
14:00	<b>keynote – system security planning in Australia's energy transition</b> <b>Mohammad Mohammadi (AEMO)</b>
15:00	afternoon tea
15:30	<b>T5 session – system services</b> <b>Pierluigi Mancarella (University of Melbourne), Mark O'Malley (Imperial College London)</b>
17:00	<b>poster session</b>
18:00	end of workshop day 1
19:00	workshop dinner  location: Merewether Surfhouse, 5 Henderson Parade, Merewether (level 2, access via stairs on left of building or lift from top level restaurant)

## Thursday 29 January 2026

### day 2 – all attendees

8:30	sign in on arrival
9:00	<b>day 1 recap and day 2 overview</b> <b>Ben Hobbs (John Hopkins University), Mark O'Malley (Imperial College London,) Pierluigi Mancarella (University of Melbourne)</b>
9:30	<b>keynote – some storage and uncertainty challenges for market design and models</b> <b>Ben Hobbs (John Hopkins University)</b>
10:30	morning tea
11:00	<b>T3 session - T100RE new techno-economic principles</b> <b>Yuri Dvorkin (John Hopkins University), Ben Hobbs (John Hopkins University)</b>
12:00	lunch
12:30	<b>keynote – developments in Australian energy system modelling: an energy economics perspective</b> <b>Paul Graham (CSIRO)</b>
14:00	afternoon tea
14:30	<b>T4 session – pathways to net-zero transition</b> <b>Pierluigi Mancarella (University of Melbourne), Slieman Mhanna (University of Melbourne)</b>
16:30	end of workshop
17:00	<b>CSIRO Energy Centre site tour</b>
19:00	informal dinner (pay your own way) location: TBC

## Friday 30 January 2026

student training/tutorial workshop – students and all interested attendees

8:30	sign in on arrival
9:00	<b>distribution network optimisation tutorial session</b> <b>Fred Geth (University of Queensland), Laura Zhang (University of Sydney), Gregor Verbic (University of Sydney), Julio Braslavsky (CSIRO)</b>
10:30	morning tea
11:00	<b>distribution network optimisation tutorial session</b> <b>Fred Geth (University of Queensland), Laura Zhang (University of Sydney), Gregor Verbic (University of Sydney), Julio Braslavsky (CSIRO)</b>
12:30	lunch
13:30	<b>distribution network optimisation tutorial session</b> <b>Fred Geth (University of Queensland), Laura Zhang (University of Sydney), Gregor Verbic (University of Sydney), Julio Braslavsky (CSIRO)</b>
15:00	end of tutorial workshop

## keynote speakers:



### keynote 1: Prof. Emer. Ian Hiskens – The Meaning of System Strength, Nonlinear Oscillations and Everything

As power systems transition from centralized to highly distributed generation profiles, evolving forms of dynamic behaviour are calling into question the concepts, tools and techniques that underpin system analysis. Traditional definitions of stability-related phenomena are no longer adequate. Existing tools and techniques have trouble replicating newer forms of behaviour. The talk will consider a variety of challenges, including definitions for system strength, subtleties arising from rigorous hybrid dynamical system modelling, and nonlinear analysis of sustained sub-synchronous oscillations.

**Ian A. Hiskens** is Vennema Professor Emeritus in the Department of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor. He has held prior appointments with the Queensland electricity supply industry, and various universities in Australia and the United States. His research interests lie at the intersection of power system analysis and systems theory. Dr. Hiskens is Editor-in-Chief of IEEE Transactions on Power Systems and a member of the Editorial Board of the Proceedings of the IEEE. He is a Life Fellow of IEEE and a Fellow of Engineers Australia. Dr. Hiskens is a Chartered Professional Engineer in Australia, and the 2020 recipient of the M.A. Sargent Medal, the highest award of the Electrical College board of Engineers Australia.



### keynote 2: Dr Mohammad Mohammadi – System Security Planning in Australia’s Energy Transition

Australia’s energy system is undergoing a rapid transformation as coal fired generation retires and renewable energy, across both utility scale plants and residential rooftop solar, along with energy storage, becomes increasingly prominent. This transition is reshaping power system behaviour, as traditional sources of essential system services decline and new challenges emerge, including faster system dynamics, reduced operational demand, and more complex operating conditions.

This presentation will outline key transition points in the power system to maintain system security through Australia’s energy transition. It will also explore the role of grid forming technology, how its performance is being assessed, and how system services such as synthetic inertia can contribute to the secure operation of a future power system during periods of high renewable contribution.

Mohammad Mohammadi is a Senior Engineer in the Future Energy Systems group at the Australian Energy Market Operator (AEMO), specialising in sector coupling, power system analysis, and planning studies. His recent work involves contributing to system security transition planning and leading several programs to assess the performance

of grid-forming (GFM) battery energy storage systems (BESS), as well as quantifying system services like synthetic inertia from GFM BESS to support the transition to a low-carbon future. Mohammad holds a PhD in Electrical Engineering from the University of Melbourne (UoM). In addition to his industry work, Mohammad is actively involved in collaborations with the research community, including serving as a topic lead in AEMO's research priorities on modelling and interconnection of large loads and CSIRO's AR-PST. His research has been published in over 20 journal papers and book chapters, and he has received several awards, such as Young Power Engineer of the Year (2025) from the Electric Energy Society of Australia.



### keynote 3: Prof. Ben Hobbs – Some Storage and Uncertainty Challenges for Market Design and Models

This talk is in two parts. The first is on the practical challenges to market software to adding battery storage to a system amounting to one-third of the system peak (17 GW in California), including market power, technical constraints, and interaction of arbitrage and reserve functions. The second is on the challenges of using large-scale optimization to plan grids while considering the value of diversification and adaptability under a profoundly uncertain future. There is crucial research to be done by EPICS and the power systems & economics community on these topics

**Ben Hobbs** earned his PhD from Cornell University, where his thesis was on models of network-constrained oligopolistic competition among electric generators. He has been at JHU since 1995 in the Department of Environmental Health & Engineering, and has served as chair and deputy chair of that department. He is the Theodore & Kay Schad Professor of Environmental Management. He was previously on the faculty at Case Western Reserve University and a staff researcher at Brookhaven and Oak Ridge National Labs (US). He is a Life Fellow of IEEE and Fellow of INFORMS, and received a Presidential Young Investigator Award from President Reagan.

He has been a member of the California power market's surveillance committee since 2002, and now serves as its chair. From 1995-2002, he was a consultant to the Office of the Economic Advisor of the Federal Energy Regulatory Commission.

Dr. Hobbs is a Global Director of EPICS, a NSF Global Climate center within the JHU Robert O'Connor Sustainable Energy Institute on managing renewable-dominated power systems. EPICS is a partnership with the University of Melbourne, CSIRO, and Imperial College London. Previously, he directed the JHU Environment, Energy, Sustainability & Health Institute (E2SHI) and was JHU director for the Yale-JHU Solutions for Energy, Air, Climate & Health (SEARCH) center.



## keynote 4: CSIRO Chief Economist Paul Graham – Developments in Australian Energy System Modelling: an Energy Economics Perspective

This presentation explores the key periods of cost increases in electricity generation in Australia and how CSIRO and the broader Australian modelling community responded to provide new modelling tools to explore the drivers of those cost increases and options for minimising costs in the future as the sector transitions to a higher renewables, greater customer-owned generation and lower emissions overall.

**Paul Graham** is Chief Economist at CSIRO's Energy research unit and has been working in the field of energy economics for 30 years. His most high profile work is the GenCost project which provides annual updates and projections on the cost of generation, storage and hydrogen technologies. This is a key input to Australia's electricity system planning. More broadly, he is responsible for providing advice on the economic drivers and outcomes for the energy sector as it meets new challenges and for leading projects of national significance in partnership with industry and government.

## posters

1.	Tim Kopka	quantifying resource adequacy risk in Australia's energy transition
2.	Isaac Lyon	weaving country into Australia's energy future: a relationship-based framework to support first nations self-determination in the renewable energy transition
3.	Andres Avila Rojas	using behind-the-meter reactive power to enhance residential operating envelopes
4.	Pablo Ivan Matias Apablaza Donoso	strategic energy infrastructure investments under uncertainty: coordinated planning for Australia's electricity & gas systems
5.	Huy Duong	transient stability of grid-forming inverters
6.	Shibei Li	black-box impedance identification and stability analysis of grid-connected inverter under multiple operating points
7.	Sohail Ali	what makes a good grid-forming inverter?
8.	Dang Nguyen	data-driven frameworks for model identification in IBR-dominated power systems
9.	Supun Meethiyagoda	distribution-connected electrolyzers with partial loading limit and power response characteristics
10.	Ridma Wijethunga	modelling and analysis of scaled-up hydrogen electrolysis plants
11.	Pourya Shahparast	data centre: modelling, opportunities, and considerations: overview of data centre dynamics
12.	Ashkan Khashei	emergency PV backstop mechanism
13.	Amalie Bullen	fault ride-through requirements of utility-scale data centre
14.	Chatum Aloj Sankalpa Wijethunga Gamage	context-aware stochastic modelling of consumer energy resource aggregators in electricity markets
15.	Muhammad Zubair Iftikhar	optimal planning of inverter-based resource (IBR)-dominated power systems
16.	James Russell	network secure aggregator operating regions with flexible dispatch envelopes in unbalanced systems
17.	Muhammad Yasirroni	system operation insights based on production cost modelling
18.	Jiawei Zhang	dynamic network prices for hosting capacity management

19.	Chen Rui Geach	research 1: are electric vehicles are viable alternative to home batteries? an Australian case study research 2: Network aware prosumer-centric management of residential electric vehicle charging
20.	Andrey Gorbunov	dynamic passivity multipliers for plug-and-play stability certificates