Queensland Decarbonisation Hub

Research Showcase Program – 2 July 2026

9-9:15am	Arrival + tea and coffee
9:15-9:20am	Seating
9:20-9:50am	Introduction, Welcome and Acknowledgement of Country
9:55-10:55am	Session 1: Regional Dimensions of Queensland's Energy Transition Presenters: Jeremy De Valck (CQU) & John Rolfe (CQU)
10:55-11:15am	Morning Tea
11:15-12:15pm	Session 2: Designing Renewable Systems for Environmental Sustainability Presenters: Adland Pradana (Griffith) & Sebastian Hoefer (JCU)
12:15-1pm	Lunch
1-2pm	Session 3: Difficult-to-Abate Land Sector Emissions: Measurement and Mitigation Approaches Presenters: Gareth Chalmers (UniSC) & Naoya Takeda (QUT)
2:05-3:05pm	Session 4: Carbon Sequestration and Alternative Carbon Pathways Presenters: Mehdi Serati (UQ) & Mohan Jacob (JCU)
3:05-3:20pm	Afternoon Tea
3:20-4:30pm	Industry engagement session
4:30pm	Event Close

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Session 1: Regional Dimensions of Queensland's Energy Transition

Chair: Sarah McInnes, UQ

Hub researchers Jeremy De Valck and John Rolfe will present their research examining how Queensland's energy transition is unfolding across regional communities and industries. This session brings together analysis of region-based energy transition preferences and research into renewable energy job growth, project size and project location to explore how social, economic and industrial conditions shape renewable development across Queensland.

Jeremy De Valck: This project examines region-based trends in Queensland's energy transition preferences and associated differences in socio-economic, demographic and industrial contexts. The study also analyses the impact of several factors on public preferences for energy transition policies.

John Rolfe: This project analyses the validity of projected solar and wind job growth, and examines the relationships between project size and status, job creation, and location of projects.

Session 2: Designing Renewable Systems for Environmental Sustainability

Chair: Felicity Deane, QUT

In this session, Adland Pradana and Sebastian Hoefer will present research exploring how renewable energy systems can be designed and deployed within broader environmental and landscape contexts. Combining work on renewable microgrid optimisation with research investigating biodiversity within and adjacent to solar developments, this session examines renewable system coordination, land-sharing approaches and the interaction between renewable infrastructure and ecological systems.

Adland Pradana: This project tests the potential for coordinating Queensland's varied renewable energy sources to build net zero microgrids, including the optimisation of grid imports, exports, battery dispatch and PV curtailment.

Sebastian Hoefer: This project assesses the biodiversity of a solar farm and adjacent habitats, examining the variations in vertebrates and vegetation in the area and the implications for land-sharing strategies on solar facilities.

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Session 3: Difficult-to-Abate Land Sector Emissions: Measurement and Mitigation Approaches

Chair: Chris Norman, CEO Natural Resource Management Regions Queensland

Gareth Chalmers and Naoya Takeda will present their research examining greenhouse gas emissions within agricultural and natural land systems. Bringing together work investigating peatland carbon dynamics, emissions and environmental drivers with research developing optimised approaches for measuring on-farm nitrous oxide emissions, this session explores methods for improving emissions measurement and understanding across complex land-sector environments.

Gareth Chalmers: This project investigates the impact of fire, water tables and clearing on peat dynamics, maps peatlands within SEQ, measures carbon stores and GHG emissions and explores health risks associated with peat smoke.

Naoya Takeda: This project develops and tests an optimised measurement strategy for on-farm N_2O emissions, through integration of high-frequency N2O datasets, a biogeochemical model, and data-driven approaches.

Session 4: Carbon sequestration and alternative carbon pathways

Chair: Andrew Chamberlin, Queensland Farmers' Federation

Hub researchers Mehdi Serati and Mohan Jacob will present emerging research investigating alternative approaches to carbon sequestration and low-carbon material systems. The session combines work assessing the CO_2 sequestration potential of dunite in concrete with research examining the environmental and techno-economic performance of converting hemp biomass into biochar, bio-oil and syngas through microwave-assisted pyrolysis.

Mehdi Serati: This study investigates the feasibility of using dunite, an ultramafic rock which locally occurs in Queensland, as a sustainable aggregate in shotcrete and concrete to evaluate the CO_2 sequestration potential to support low-carbon construction practices.

Mohan Jacob: This study investigates the environmental and techno-economic performance of microwave-assisted pyrolysis for converting hemp biomass into biochar, bio-oil, and syngas, focusing on greenhouse gas emissions, carbon sequestration potential, and economic feasibility.

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Dr Sarah McInnes is a Postdoctoral Research Fellow at the University of Queensland's Net Zero Observatory, where she examines how trust, climate misinformation, and conspiracy beliefs shape the success of the climate transition. Sarah's research sits at the intersection of psychology, sustainability, and behavioural science, with a focus on identifying the cognitive and social drivers of pro-environmental behaviour with the aim to develop interventions that foster meaningful climate action.

Dr Jeremy De Valck is an environmental economist at CQ University with a background in agriculture and forestry and natural resource management. His research interests span a wide array of topics, including food, sustainability, environmental management, regional development, and geographic information systems.

Professor John Rolfe, OAM is a resource economist and Professor of Regional Economic Development in the School of Business and Law at the CQ University at Rockhampton. He specialises in non-market valuation, regional development, environmental, resource and agricultural economic issues, agricultural adoption, and economic impact assessment in regional areas.

Professor Felicity Deane is a researcher specialising in the intersection of law, economics, and climate policy, with a particular focus on how legal frameworks shape and are shaped by environmental and economic systems. Felicity is a Professor in the School of Law at QUT and a member of the Hub's Research Committee.

Dr Adland Pradana is a Research Fellow in the School of Engineering and Built Environment at Griffith University. His research focuses on the implementation and uses of renewable energies within power supply systems, electric vehicles and grid connectivity pathways.

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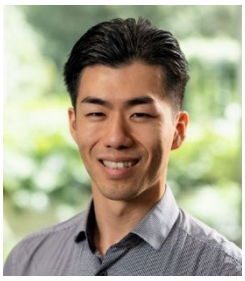
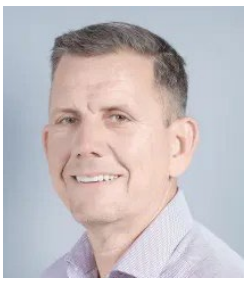
Dr Sebastian Hoefer is a Postdoctoral Researcher at James Cook University. He is a wildlife biologist with a particular interest in the behavioural ecology and conservation of reptiles and amphibians. Currently, his work focuses on ecoacoustics in terrestrial environments and monitoring the presence of mammals through the use of AI technologies.

Chris Norman is the CEO of Natural Resource Management Regions Queensland, the peak body for the 12 regional NRM organisations across the state. He has led a diverse range of initiatives throughout his role, building the profile and impact of the NRM sector in Queensland. Chris is a member of the Hub's Advisory Committee.

Dr Gareth Chalmers is a Senior Lecturer in Earth Sciences in the School of Science, Technology and Engineering at the University of the Sunshine Coast. His research focuses on novel approaches to understand the complexity of carbon storage in sedimentary environments that encompass the subdisciplines of geochemistry, hydrology, geophysics and coastal sedimentary processes.



Dr Naoya Takeda is a Research Associate in the Sustainable Agroecosystems program at the Centre for Agriculture and the Bioeconomy. His expertise lies in agronomy, soil and environmental sciences with research experiences in rice, sugarcane, grain, cotton and pasture systems. His research focuses on carbon and nitrogen cycling in agroecosystems.



Andrew Chamberlin is the Queensland Farmers' Federation's Project Manager for Energy, overseeing the federation's energy project portfolio and delivering initiatives that support Queensland farmers to improve efficiency, sustainability and resilience. With a background in environmental science and town planning, Andrew brings extensive experience across sustainability, property, and agriculture.

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Dr Mehdi Serati is a Senior Lecturer in the School of Civil Engineering at UQ. His core research expertise is in the design and setup of advanced equipment and experiments to test rocks and brittle composites. His area of work is analytical and experimental methods of geotechnical problems, materials testing, rock mechanics, and rock fracture mechanics.

Professor Mohan Jacob is an expert in electrical engineering and materials science, with a focus on sustainable technologies and advanced materials. He leads pioneering research in plasma-based material fabrication, polymer coatings, nanomaterials, and microwave-assisted waste processing systems.

Dr Liz Young is the Research Director of the Queensland Decarbonisation Hub and an applied researcher focused on climate transitions, sectoral decarbonisation, and policy innovation. She brings over 20 years of experience in the Queensland Government, including more than a decade in senior leadership roles shaping environmental and climate policy.

Dr Angela Elvery is a Postdoctoral Research Fellow with the Queensland Decarbonisation Hub. She is a criminologist with interests in firearms policy, the use of AI and automated decision-making systems in criminal justice systems, trauma-informed approaches to policy and organisational interactions, and understanding the role of cross-sectoral collaboration for decarbonisation activities.