

NZ\$25M+
Research funding
since 2022

20+
Postraduate
researchers

100+
Peer reviewed
publications

Top 61
Universities Globally
THE 2025

ABOUT

The Sustainable Energy Research Group (SERG), hosted within the Department of Civil and Environmental Engineering at University of Canterbury in Christchurch is New Zealand's **largest energy systems research group**, bringing together more than 20 postgraduate researchers under the leadership of academics Jannik Haas and Rebecca Peer, supported by an active network of collaborators across UC and worldwide.

As an associated country in Pillar II of **Horizon Europe** since 2023, New Zealand-based researchers can join or lead EU-funded projects on equal terms with European partners, enabling meaningful contributions to international consortia.

RESEARCH CAPABILITY

The Sustainable Energy Research Group (SERG) develops cutting-edge technology assessment, simulation, and optimisation models across four key pillars:

Multi-sector Energy Transition Pathways

National & regional decarbonisation strategies; capacity expansion of generation, transmission and storage; prospective LCA; long-duration energy storage.

Urban and Distributed Energy Systems

Urban energy hubs; spatial optimisation; GIS-based planning; residential demand & behavioural modelling; e-mobility and heat electrification; H₂ integration in cities.

Carbon Negative Systems and Power-to-X

BECCS; carbon-negative geothermal; Power-to-X & synthetic fuels (e-SAF, green H₂, e-methanol); long-duration storage; clean-tech circularity; direct air capture.

Resilience of Energy Systems and Climate Risk

Climate uncertainty & hazard-damage-recovery modelling; smart grids; adaptive system design; Life Cycle Sustainability Assessment (environmental, social, economic).

FLAGSHIP PROJECTS

Derisking Carbon Dioxide Removal at Megatonne Scale in Aotearoa - [Link](#)

MBIE | 2025-2029 | Dempsey D. et al. (inc. Peer R., Haas J.)

Pūhiko Nukutū: a green hydrogen geostorage battery in Taranaki - [Link](#)

MBIE | 2022-2027 | Nicol A., Dempsey D., Adams M., Peer R. et al.

New Zealand-German platform for green hydrogen integration (HINT) - [Link](#)

German BMBF, NZ MBIE | 2022-2025 | Haas J., Peer R. et al.

Mana Tūānuku Research Leader Fellowship to design a resilient, evidence-based energy strategy for Aotearoa.

Royal Society Te Apārangi | 2026-2030 | Peer, R.

Pathways to net-zero carbon buildings and communities

BRANZ | 2022-2025 | Bellamy L, Peer R, McNabb S.

Enhancing risk assessment by understanding cascading failures

Te Hirainga Rū QuakeCoRE | 2022-2025 | Logan T., Peer R., Zorn C.

NZ AS A LIVING LAB

90% renewable electricity

One of the world's most renewable grids, hydro-dominated (60%), with rapidly growing solar, wind, geothermal. Advanced heat decarbonization.

Island / isolated system

Excellent contrast case study to European grids for energy security, remote-region modelling, and long-duration storage needs.

World class geothermal

Volcanic Zones, Carbon negative and geothermal potential; active Carbon Dioxide Removal research programme.

Infrastructure Stress-testing

Multi-hazard testbed for earthquakes, floods, wildfires, volcanoes provide real-world system resilience data for energy infrastructure stress-testing.

Synfuels potential

Active H₂ long-term storage project in Taranaki. Ideal bio-fuels and e-fuels innovation conditions; cheap electricity, biomass, storage geology, land.

Pacific gateway

Active research on 14 Pacific Island nations energy transitions; SERG provides Southern Hemisphere coverage.

PARTNER WITH SERG - HORIZON EUROPE 2026-27

- Co-design, proposal writing, and work package leadership
- Methodological development and technology assessment
- Case study pilot deployment and real-world demonstration opportunities
- Energy systems modelling and simulation (electricity, heat, transport, industry, hydrogen, etc)
- Data analysis, scenario assessment, model calibration and energy pathways
- Policy research, market design and environmental and socio-economic impacts
- Dissemination and stakeholder engagement to maximise project impact and knowledge transfer

Get in touch

Team Leaders
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Global Engagement Specialist
[Belen Silva](#)

[SERG's LinkedIn Page](#)