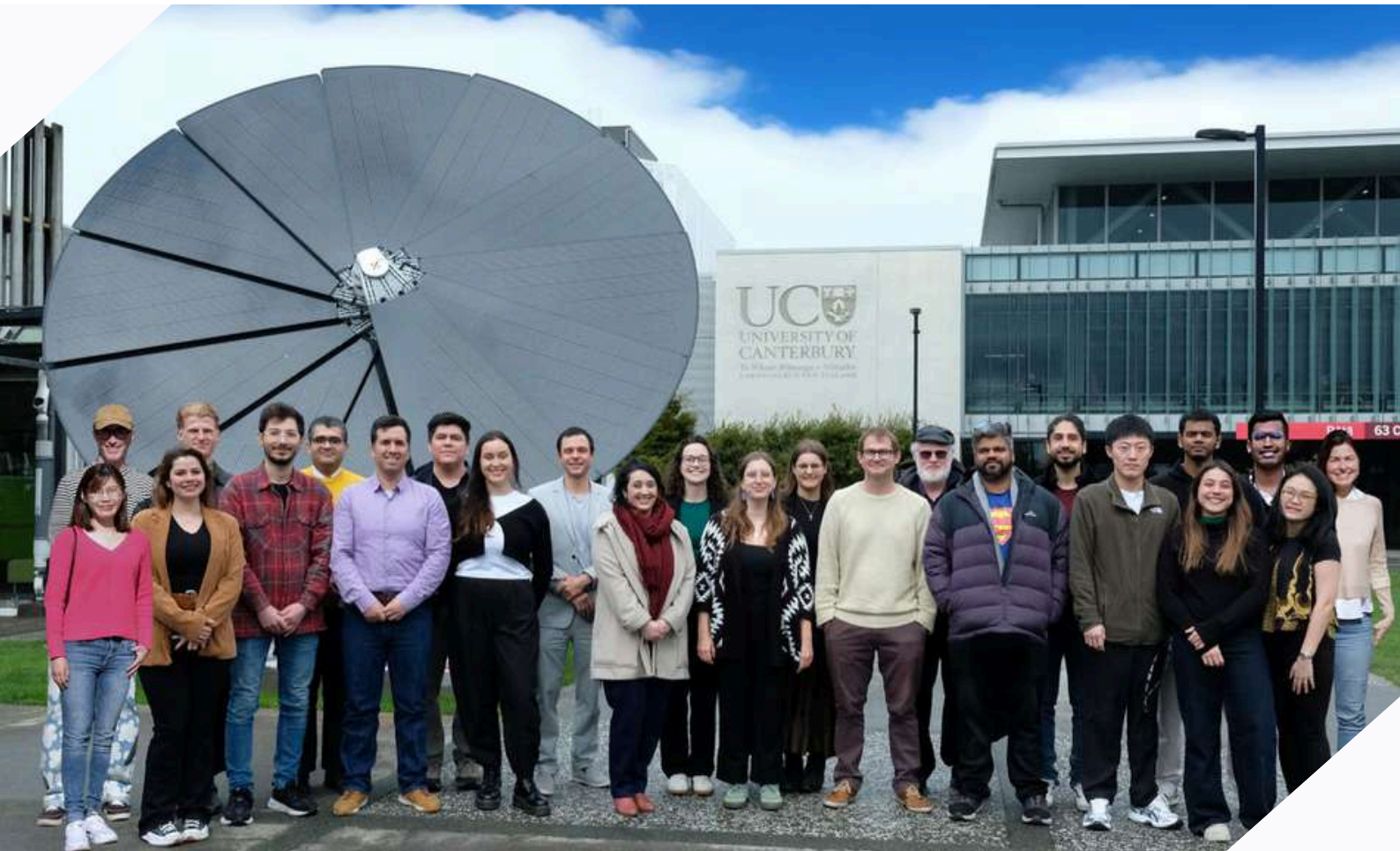


2026

**SE** Sustainable  
**RG** Energy Research Group

**UC**   
**UNIVERSITY OF**  
**CANTERBURY**  
*Te Whare Wānanga o Waitaha*  
CHRISTCHURCH NEW ZEALAND



## Get in touch

 [Global engagement specialist](mailto:globalengagement@serg.co.nz)

 [www.serg.co.nz](http://www.serg.co.nz)

 [SERG's LinkedIn page](https://www.linkedin.com/company/serg-co-nz/)

 [Christchurch, New Zealand](#)

University of Canterbury's Sustainable Energy Research Group (SERG) develops cutting-edge technology assessment, simulation, and optimisation models across four key pillars:

- Multi-sector energy transition pathways
- Urban and distributed Energy Systems
- Carbon Negative systems and Power-to-X
- Resilience of energy systems and Climate risk

# UNIVERSITY OF CANTERBURY



Founded in 1873, the University of Canterbury (UC) is a research-intensive university based in Christchurch, New Zealand's second-largest city. UC is committed to excellence in education, world-class research, and international collaboration, with over **60 partner universities** worldwide and active participation in three **Horizon Europe-funded** projects.



## QS, 2026

- #100 Sustainability
- #30 Environmental education
- #261 World University Rankings
- #100 Civil and Environmental Engineering

## Shanghai, 2026

- #25 Aerospace Engineering

## THE Impact Rankings, 2025

- #61 Universities globally
- #14 Sustainable Cities and Communities (SDG 11)
- #22 Responsible Consumption and Production (SDG 12)
- #32 Climate Action (SDG 13)
- #31 Life Below Water (SDG 14)



# OUR RESEARCH GROUP

Since 2022, the **Sustainable Energy Research Group (SERG)**, hosted within the Department of Civil and Environmental Engineering, has been at the heart of UC's commitment to addressing sustainable development and energy transition challenges.

SERG 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.



[UC Profile](#)



[Researcher ID](#)



[LinkedIn Profile](#)

**Jannik Haas**  
Associate Professor



[UC Profile](#)



[Researcher ID](#)



[LinkedIn Profile](#)

**Rebecca Peer**  
Associate Head of Department  
Senior Lecturer Above the Bar

Our team maintains active research collaborations across the Asia-Pacific region, Europe, North America, South America, and Asia through joint projects, conferences, and researcher exchanges.

This international network includes Stanford University and the University of Notre Dame (USA), ETH Zurich (Switzerland), the University of Cambridge (UK), LUT University (Finland), Politecnico di Milano, Sapienza University of Rome and CMCC (Italy), as well as DLR, BEN, the University of Stuttgart and the Technical University of Berlin (Germany), among many other academic, industry, and government partners worldwide.

We welcome opportunities to host visiting researchers and strengthen **international collaboration** through Horizon Europe and other research and innovation programmes. [Contact: [belen.silvacardenas@canterbury.ac.nz](mailto:belen.silvacardenas@canterbury.ac.nz)]

# RESEARCH CAPABILITY

The Sustainable Energy Research Group (SERG) specialises in four key pillars:



**1 Multi-sector energy transition pathways**  
National & regional decarbonisation strategies; capacity expansion of generation, transmission, storage; prospective LCA; long-duration energy storage.

**2 Urban and distributed Energy Systems**  
Urban energy hubs, spatial optimisation, GIS-based planning; residential energy demand & behavioural modelling (ABM); electrification of transport (e-mobility) and heat; H2 integration in cities.

**3 Carbon Negative systems and Power-to-X**  
BECCS (bioenergy + CCS); carbon-negative geothermal with subsurface modelling; Power-to-X and synthetic fuels (e-SAF, green H2, e-methanol); long-duration energy storage; circularity and recycling of clean techs; direct air capture integration.

**4 Resilience of energy systems and Climate risk**  
Climate uncertainty & hazard-damage-recovery modelling; smart grids and adaptive/resilient system design; Life Cycle Sustainability Assessment (LCSA: environmental, social, economic).

# TRACK RECORDS

**25M NZD**

**FUND RAISED  
SINCE 2022**

Including local government initiatives and international collaborations.

**100+**

**PEER REVIEWED  
PUBLICATIONS**

Check our featured journal publication list in this link:  
[Publications](#)

Our flagship projects demonstrates our multi-partner and international research capacity:

**Derisking Carbon Dioxide Removal at Megatonne Scale in Aotearoa**

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

**Pūhiko Nukutū: a green hydrogen geostorage battery in Taranaki**

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

**New Zealand-German platform for green hydrogen integration (HINT)**

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

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

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

**Pathways to net-zero carbon buildings and communities**

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

**Enhancing risk assessment by understanding cascading failures**

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

# NZ AS LIVING LAB

As an associated country in Pillar II of Horizon Europe since 2023, New Zealand-based researchers and organisations can join or lead Horizon Europe projects and receive funding on equal terms with their European counterparts.

01

## 90% renewable electricity

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

02

## Island / isolated system

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

03

## World class geothermal

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

04

## Infrastructure Stress-testing

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

05

## Synfuels potential

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

06

## Pacific gateway

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



# PARTNER WITH SERG

University of Canterbury's Sustainable Energy Research Group (SERG) is actively seeking to contribute to **Horizon Europe** project proposals under **Cluster 5: Climate, Energy and Mobility for the 2026-27 calls**.

We are interested in joining consortia and contributing through:

- **Co-design proposal writing and work package leadership.** International funding applications, consortium building, leading research activities and coordinate transdisciplinary collaboration.
- **Methodological development and technology assessment.** Advanced modelling, optimisation, and analytical decision-support methods.
- **Case study and implementation.** Southern Hemisphere case studies, pilot deployment and real-world demonstration opportunities.
- **Energy systems modelling and simulation.** Integrated modelling of electricity, heat, transport, industry, hydrogen, and energy systems.
- **Data analysis and validation.** Scenario assessment, model calibration, and evidence-based analysis of energy pathways.
- **Policy research and impact assessment.** Policy analysis, market design, regulatory pathways, environmental and socio-economic impacts.
- **Dissemination and stakeholder engagement.** Collaboration with industry, government, communities, and international networks to maximise project impact and knowledge transfer.

## Get in touch

Please email our global engagement specialist, Belen Silva or our team leaders Jannik Haas and Rebecca Peer, to arrange an introductory meeting and explore potential collaboration opportunities.

 [Global engagement specialist](mailto:globalengagement@serg.co.nz)

 [www.serg.co.nz](http://www.serg.co.nz)

 [SERG's LinkedIn page](https://www.linkedin.com/company/serg/)

 [Christchurch, New Zealand](#)