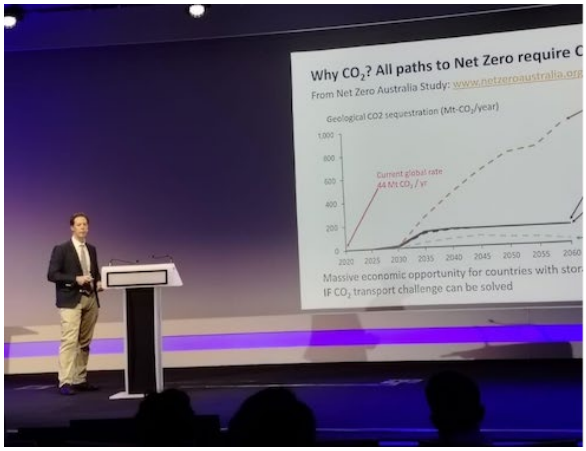
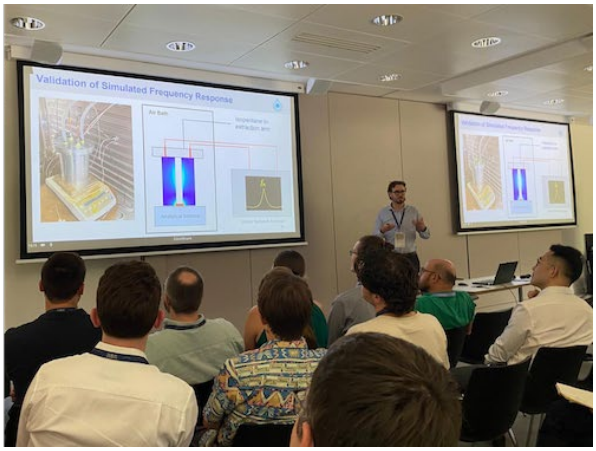
FUTURE ENERGY EXPORTS
Cooperative Research Centre

FEnEx CRC News

June 2026





FEnEx CRC research makes an international impact

From 21-24 June, 11 PhD students and researchers from UWA presented their FEnEx CRC projects at the European Conference on Thermophysical Properties in Gouvieux, France. The presentations included:

- Cool Learnings: how LNG fundamentals are advancing the new energy technologies of liquid H2 & CO2 transport (Plenary Lecture by Professor Eric May)
- Measurements and prediction of diffusion in hydrogen and methane mixtures (Minzhen Li)
- An improved description of hydrogen's refractive index at cryogenic temperatures and high pressures (Gwen Sellner)
- Advanced instruments for measuring fluid mixtures at phase equilibrium (Dr Liam Tenardi)
- A new sensor for monitoring liquid hydrogen boil off (Dr Mark Barwood)
- Measurements and modelling of impurity solubility in LNG (Wanying Wu)
- Measurements and modelling of boil-off in liquid CO2 and liquid N2 (Idoko John)
- ThermoFAST 2.3.0: free software for accurate calculations of impurity freeze-out, hydrate equilibrium and other properties (Dr Peter Falloon)

The conference covered the measurement and prediction of material properties essential to many engineering applications, and provided ample opportunities to hear about the latest developments in the field. Many new ideas will come back to Australia as a result!

Additionally, the highly attended FEnEx CRC talks made it clear how important our research is to the global thermophysical community.

Overall, the conference was a tremendous and highly educational experience. It was also particularly nice to have the opportunity to catch up with scientific collaborators from our International Affiliates at Imperial College London, Ruhr University Bochum, Technical University Chemnitz and Leibniz University Hannover.

Australia is venting a globally valuable resource

As global demand for helium rises, the question remains: why is Australia passing on its opportunity to supply both domestic and global helium markets by extracting helium from existing natural gas operations?

In a 2021 report, we identified that Australia has enough helium to meet 21 years of global consumption, and some Australian LNG plants are likely venting gas with comparable or higher helium concentrations than the feed used by Australia's former helium producer. The findings have since been cited in industry and media coverage, most recently by UNSW Sydney and the ABC.

With helium no longer listed as a critical mineral, Australia currently offers no targeted incentives for its extraction. Reinstating helium on Australia's Critical Minerals list would unlock the tax breaks and investment support required to enable local producers to extract additional value from their resources and rebuild Australia's helium export industry. Given the frequency of global supply disruptions, and the certainty of long-term demand, perhaps Australia should even consider implementing a strategic helium reserve.

Now available: NGEM Workshop Summary Report

On 31 March 2026, FEnEx CRC brought together experts from academia and a range of industries for a workshop to define Australia's future requirements for a dedicated National Greenhouse Gas Emissions Measurement (NGEM) Facility.

The workshop confirmed the need for a dedicated NGEM facility, and a clear consensus emerged that the NGEM facility should prioritise technology qualification, independent verification and operator training. The Kwinana Energy Transformation Hub was identified as the most well-suited location for the facility.

The report is now available on the FEnEx CRC website.

Inaugural Forum for Reducing Australia's Methane Emissions (FRAME) conference

Earlier this month at the FRAME conference, FEnEx CRC Foundation Fellow Bruce Norris, together with St Francis Xavier, showcased our planned National Greenhouse Gas Emissions Measurement (NGEM) facility and the Simulation Facility for Landfill Emissions Experiments Coal (SIMFLEX-COAL) system.

The SIMFLEX-COAL system will conduct a series of controlled methane release campaigns throughout 2027. It will ultimately be operated by FEnEx CRC, and will serve as a complementary piece of infrastructure to the NGEM, enabling a sovereign Australian capability for methane abatement research across Australia's energy sector.

Progress update: Kwinana Energy Transformation Hub

Construction of the Kwinana Energy Transformation Hub continues to make great strides. Stage 1 is progressing to schedule and approaching lock-up. The main building and workshop have both taken shape, with walls, roof and windows in place, and the internal services installed. Stage 2 of the project, the KETH Hydrogen Process Plant, has progressed into the detailed design phase. The KETH Hydrogen Process Plant presents an exciting opportunity for Western Australia by supporting training for future clean energy jobs, boosting the development of a hydrogen ecosystem in WA, and helping to position Australia as a leader in decarbonised energy exports.

Recently, FEnEx CRC Chair Mary Hackett and Foundation Director Chris Clark toured the site with CEO Professor Eric May. They commended Western Projects and Ferguson Architects for the rapid progress made on the project to date, which remains on schedule for completion in October.

Latest Publication

Large Language Models in Model-Driven Engineering: A Systematic Mapping Study

PhD Completion

Congratulations to Ghadir Nazari for completing his PhD this month. Ghadir's PhD, *Efficient ILZ Adsorbent Synthesis for Improved CH4/N2 Separations*, is focussed on improving the production of a novel adsorbent (ILZ) used for gaseous methane–nitrogen separation. This separation is often critical to efficient liquefied natural gas (LNG) production, particularly when the source gas contains significant amounts of N2, because there are strict limits on its allowable concentration in LNG. Conventional methods of CH4/N2 separation are expensive and/or inefficient relative to the use of ILZ.

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