

FEnEx CRC News Update

September 2024

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FEnEx CRC and Department of Foreign Affairs and Trade supporting Timor-Leste's mission to promote workforce capacity.

FEnEx CRC CEO, Professor Eric May, supporting the Timor-Leste Australia Energy Partnership, has accepted a mentorship role to support the knowledge sharing and workforce capacity development aspects of the partnership.

In a recent week-long visit, along with other research academics he delivered lectures to over 400 students and met the team of mentees from the national regulator (National Petroleum and Minerals Authority - ANP) whom he will be working with over the next 12 months.

FEnEx CRC is also proud to support the Society for Petroleum Engineers Timor-Leste Student Chapter by providing scholarships for much needed equipment.

The Timor-Leste Australia Energy Partnership is a joint initiative of Timor-Leste's ANP and Australia's Department of Industry, Science and Resources, aimed at promoting collaborative research initiatives between institutions from both countries, driving innovation and economic growth in the region. Through this partnership, the programme seeks to address key challenges faced by the energy sector, producing a series of research reports related to energy and resources.



A technical, economic and environmental assessment of clean marine fuels options and industries for Australia

FEnEx CRC, The University of Melbourne and the Clean Marine Fuels Institute are undertaking an in-depth study into clean marine fuel options for Australia.

Decarbonisation of the maritime sector is an important part of Australia's and the global effort to limit climate change. Several cleaner marine fuels are currently being discussed for this task, including liquified natural gas (LNG), hydrogen, methanol and ammonia. These fuels can come from fossil or renewable sources and can be used in several different marine propulsion systems. Each of these options performs quite differently to incumbent options and one another in terms of utility, scalability, cost and greenhouse gas (GHG) emissions.

This project has developed an integrated model to assess the technical, economic and GHG emissions of different shipping options. An emphasis was placed on understanding and integrating the main physics that determine ship performance. This integrated model relates the vessel type, deadweight and design speed to the vessel dimensions and hull form, and thus to the hull resistance and the required propulsive power. It allows determination of the maximum cargo mass and volume for specified combinations of fuel, propulsion system and range, as well as the total cost of shipping and the associated lifecycle GHG emissions.

For example, the project team analysed the cost and emissions intensity of a conventional, 250,000-tonne deadweight, iron ore carrier that travels from Australia to China. A similar total cost of shipping could be achieved using a 350,000-tonne deadweight vessel with a reduced but plausible range, lower design speed and fuelled by high pressure, green hydrogen gas. This alternative would not compromise on the cargo mass delivered annually and could plausibly achieve deep abatement for a 'green premium' on the order of 100 \$/tCO₂e or only about US\$2 per tonne of iron ore delivered. This is much smaller than historical iron ore commodity price fluctuations, and similar results also appear achievable with other, low-emission fuels. This suggests that significant increases in shipping costs may not be inevitable as we decarbonise.

The project team plan to extend this integrated model to assess the most prospective combinations of clean energy carriers, marine fuels and propulsion systems for shipping to/from Australia.

Following this, the project team will develop a method for determining the optimal deployment pathways for a fleet of ships, considering the existing fleet and options for both retrofit and replacement.

Results of this work will be published at the end of 2025. Interested parties wishing to engage before the end of the project can contact the [FEnEx CRC office](#).

October Colloquium

Carbon capture, utilisation and storage in Australia-status of the policy landscape and project news



Presented by Rosie Johnstone, Chair CCUS Network Australia

This dynamic update will provide the audience with an update to overview of the policy landscape as it is evolving and project news. The presentation will cover who has been awarded acreage, regulation updates and activities in each state, funding awards and what this all means for CCUS in Australia.

Rosie has over 25 years' experience in both oil and gas exploration and carbon capture and storage (CCS) across Australia, Asia-Pacific and the United Kingdom.

She is a technical authority on CCS in Australia, engaging with federal and state government regulators, research institutions, local communities and emitters.

Rosie's previous work with Shell Australia saw her become the focal point for CCS sink identification in the Australia/Asia-Pacific region where she was responsible for high-level screening to injection site planning in the Petrel Sub-Basin.

Rosie joined Buru Energy's wholly owned subsidiary, GeoVault, as Head of CCS Solutions in 2021 and currently holds the position of Chair of the Carbon Capture, Utilisation and Storage Network of Australia (CCUSNA).

[For more information about becoming a member of CCUSNA, follow this link.](#)

Recent Publications

Our science publications and reports are updated on a monthly basis. Follow the links to see the latest releases:

- [Scientific publications](#)
- [Reports](#)

About FEnEx CRC

The Future Energy Exports Cooperative Research Centre (FEnEx CRC) is an Australian non-for-profit organisation established to future-proof energy exports through industrial-scale research and innovation. Australia has a long and very profitable heritage as an energy exporter. Now, our country has the opportunity to harness its world-class renewable energy resources and leverage the know-how, capability, infrastructure and supply chains of its existing LNG industry to cultivate a new, sustainable and competitive export industry and remain a leading provider of energy internationally.

Established in 2020 the FEnEx CRC is working to help Australia deliver on that opportunity by executing cutting-edge, industry-led research, education and training to help decarbonise Australian LNG while also establishing the capacity to produce and use clean

hydrogen. This CRC bridges the gap between industry and academia through collaborative research projects, PhD scholarships and testing facilities, provides evidence-based advice to inform government policy development, and helps future-proof Australia's future workforce through its education and training program, and micro-credentials and professional development opportunities.

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