



Northern Territory Low Emission Carbon Capture Storage and Utilisation Hub

Potential market analysis

As part of the Northern Territory CCUS Business Case Project, CSIRO has assessed the market demand for low-emissions energy and chemical products that could be produced in the NT.

This report has been delivered as part of the Northern Territory Low Emission Carbon Capture Storage and Utilisation (CCUS) Hub Business Case project.

The report builds understanding of current and future demand for low-emissions products, and identifies the key demand drivers in the major Northern Territory trade partners: Japan, South Korea, China, Singapore and Taiwan.

The low-emission opportunity in the Northern Territory

The Northern Territory's abundant natural gas, solar resources, and CO₂ storage potential, along with its proximity to international markets, make it a key player in energy exports and decarbonisation in Australia and the region.

The NT Government has adopted a 2050 net-zero emissions target and is seeking ways to rapidly decarbonise existing energy supplies and attract future zero-emission industries.

Capital city Darwin, a gateway to South-East Asia and the location of globally significant liquid natural gas (LNG) export and industrial activity, is the proposed site for a large-scale Low Emission CCUS Hub. Led by CSIRO, a collaboration is underway on a business case project assessing the Hub's viability on the Middle Arm Peninsula.

If realised, the NT CCUS Hub could be one of the world's largest multi-user, multi-access hubs. One of the aims of the business case project is to identify transition pathways for industry in the region by sharing knowledge and experience that will help improve the likelihood of success. By taking a collaborative and regional view, an accelerated and sustainable industry transition can be explored.

The Northern Territory CCUS business case project

- CSIRO is working to identify decarbonisation and transition pathways for existing and potential future industries that may be established in a Low Emissions Hub in the Darwin region of the NT.
- We are working collaboratively with the NT Government and industry on the business case project to assess the viability of a large-scale low-emission CCUS Hub on the Middle Arm of Darwin Harbour.
- This project is also investigating other decarbonisation opportunities as well as CCUS including sector coupling and renewable electrification.
- Task 3 of this project was an initial market assessment to establish an understanding of potential demand from major trading partners for chemicals that could be manufactured in the Northern Territory.
- The outcomes of this research can inform decisions around investments and regulatory structures that support the growth and emergence of a low emissions economy.

What are low-emissions products?

Low-emissions products minimise the release of greenhouse gases over their life cycle by incorporating principles of a circular economy, energy efficiency, renewably sourced electricity, and carbon management practices including CCUS.

They include fuels such as low emissions hydrogen and methanol, manufactured goods based on recycling of plastics, and building materials that incorporate captured CO₂ in their manufacture.

For this report, researchers focused primarily on hydrogen and hydrogen derivatives such as ammonia and urea, and chemical feedstocks. These products present the most significant opportunities for decarbonising and expanding existing industries in Darwin and serving major export markets in the region.

By reducing the entire lifecycle of emissions, low-emissions products reduce the need for offsets and abatements in energy intensive and hard-to-abate sectors. Development pathways that focus on conversion to low-emissions products can achieve high levels and rates of decarbonisation for both the domestic economy and in overseas markets.

Understanding demand for low-emissions products

This report explores a number of drivers for the development of low-emissions products, including:

- carbon pricing and markets
- policy levers such as tax incentives
- grants and low interest financing that support investments in enabling technologies
- direct government investment in renewable energy infrastructure.

Focusing on the NT's major overseas trading partners – Japan, South Korea, China, Singapore and Taiwan – the report assesses demand drivers from the electricity generation sector, iron and steel sectors, cement, primary chemicals and sustainable aviation fuels.

The size of the demand for low-emissions products in trading partner markets has been estimated using four different International Energy Agency scenarios.

The estimates of low-emissions product demand have shown that under all IEA scenarios there is strong demand from key Northern Territory partners in both the near term (2030) and long term (2050).

The scale of demand, current levels of energy imports, and natural resources available indicate that there will be significant opportunities for Northern Territory exports of low-emissions products.

Taking advantage of these opportunities will require the acceleration of commercialisation and adoption of new technologies; realisation of industrial efficiencies through process intensification and sector coupling; and potential policy and regulatory adjustments.

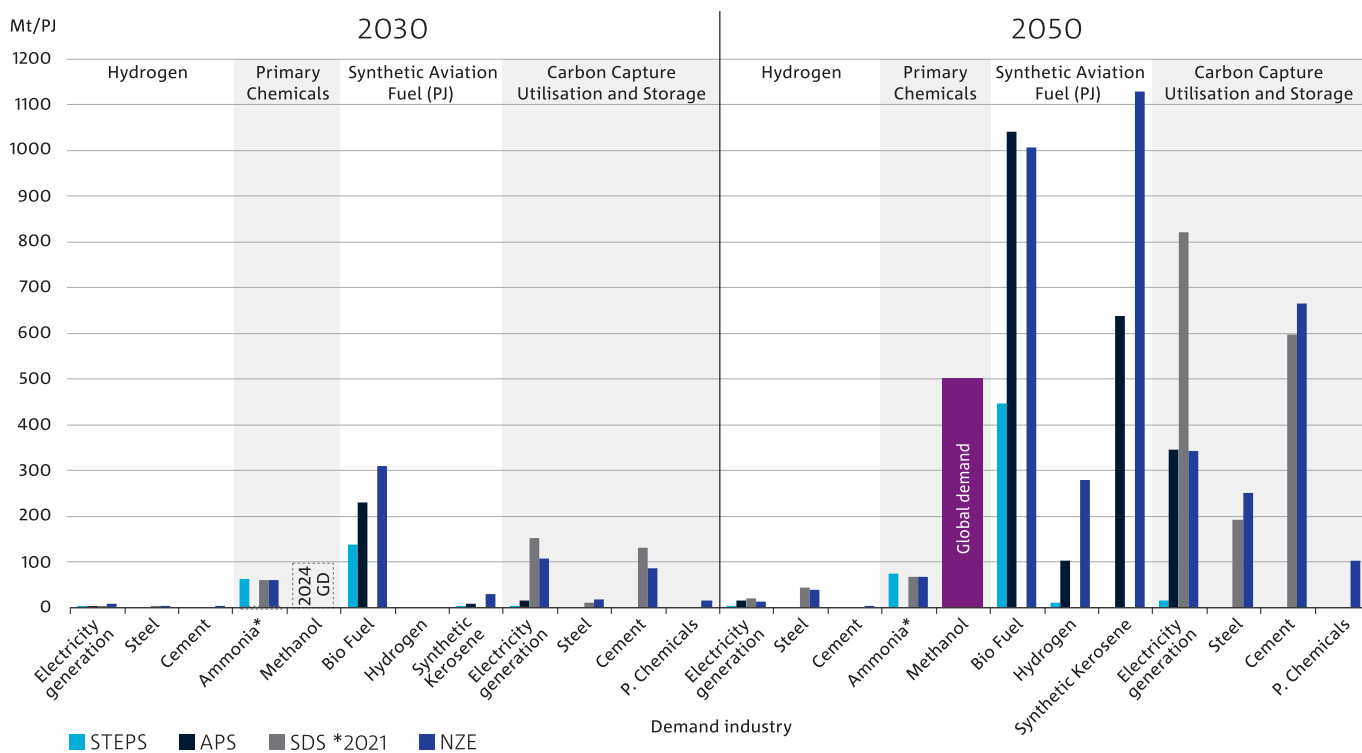


Figure 1: The size of the demand for low-emissions products in trading partner market.

The CCUS business case project includes inputs from the wider Northern Territory Low Emissions Hub (NT LEH) collaboration group, whose current members include the Northern Territory Government, Xodus, INPEX, Santos, Woodside Energy, Eni, Total Energies, SK E&S and Tamboran Resources. CSIRO has sought feedback from government and industry on the technical content of the report, CSIRO has sole discretion on including such feedback.

More information

[Read the report](#)

Learn more about the [NT Low Emission Hub Research](#)