

Northern Territory Low Emission Carbon Capture Storage and Utilisation Hub

Policy and legislation settings

CSIRO has published a review of carbon capture utilisation and storage (CCUS) and hydrogen policies in Australia and selected international jurisdictions.

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

It summarises the CCUS and adjacent policy frameworks that have been implemented across Australia and within the Northern Territory, and compares these with other policies implemented in other jurisdictions.

The report identifies key policy levers that can be implemented to drive emissions reduction through the use of CCUS, and discusses the role that communication and engagement can play in the successful development and implementation of such policies.

The low-emission opportunity in the NT

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. These include including sector coupling and renewable electrification.
- Tasks 10 and 11 of this project reviewed CCUS and hydrogen policies in Australia and identify policy gaps that may hinder the development of the NT CCUS Hub.
- Additionally, the policy and legislation settings report showcases examples of best practice, drawn from both Commonwealth and state-level policies and includes an assessment of international CCUS and hydrogen policy frameworks.

Why policy matters for the success of the NT CCUS Hub

The realisation of a CCUS Hub in the NT is dependent on the development of viable business models that mitigate commercial risks and ensure financial sustainability.

Like any other decarbonisation approach, successful implementation of a CCUS Hub business model will require a variety of policy levers to be used by governments at both the national and state/territory level.

These policy levers are wide ranging and might include: high level strategies, legislation, regulations, financing, incentivisation, support for technology development, innovation, and public engagement and communication.

In order to inform future policy discussions aimed at ensuring the long-term success of the NT CCUS Hub, this review identifies existing fiscal, legislative, and regulatory gaps, as well as examples of how such gaps have been addressed elsewhere.

These insights provide a foundation for both domestic and transnational policy development, including frameworks to enable cross-border CO₂ transport, secure storage, and the export of low-carbon fuels to Australia's key trading partners.

Results and key findings

The report offers a number of reflections that can guide future policy directions and support not only Australia's domestic decarbonisation goals, but also the climate ambitions of its international trade partners. These include:

- CCUS vs hydrogen policy – CCUS regulations in Australia are relatively mature but lack the strong financing, incentives, and communication strategies that have driven hydrogen development.

- Role of innovation – retaining hard-won CCUS skills and expertise in Australia will require sustained investment across both R&D and the CCUS value chain, from pilot projects to large-scale deployment.
- Value of a clear strategy – a dedicated CCUS strategy with a clearly articulated vision, similar to the Hydrogen Strategy, would give stakeholders long-term policy certainty and reduce investment risk.
- International lessons – successful hubs overseas use a mix of finance mechanisms like grants and concessional loans, alongside incentives such as carbon pricing and tax incentives, to reduce costs and encourage early investment.
- Existing funding opportunities – national programs such as the Future Made in Australia Fund, Infrastructure Investment Program, and Northern Australia Infrastructure Fund could help fill CCUS policy gaps and provide mechanisms for financing – although eligibility must be clarified and close cooperation across governments would be required.
- Policy delivery models – different approaches exist globally, from market-led models to government-run enterprises; each has distinct benefits and risks for CCUS deployment.
- NT-specific needs – enabling legislation for CO₂ transport, a clear local strategy, and strong community engagement will be essential for developing the NT CCUS Hub.



The Northern Territory Government's proposed Middle Arm Sustainable Development Precinct. Source: Northern Territory Government (2024).

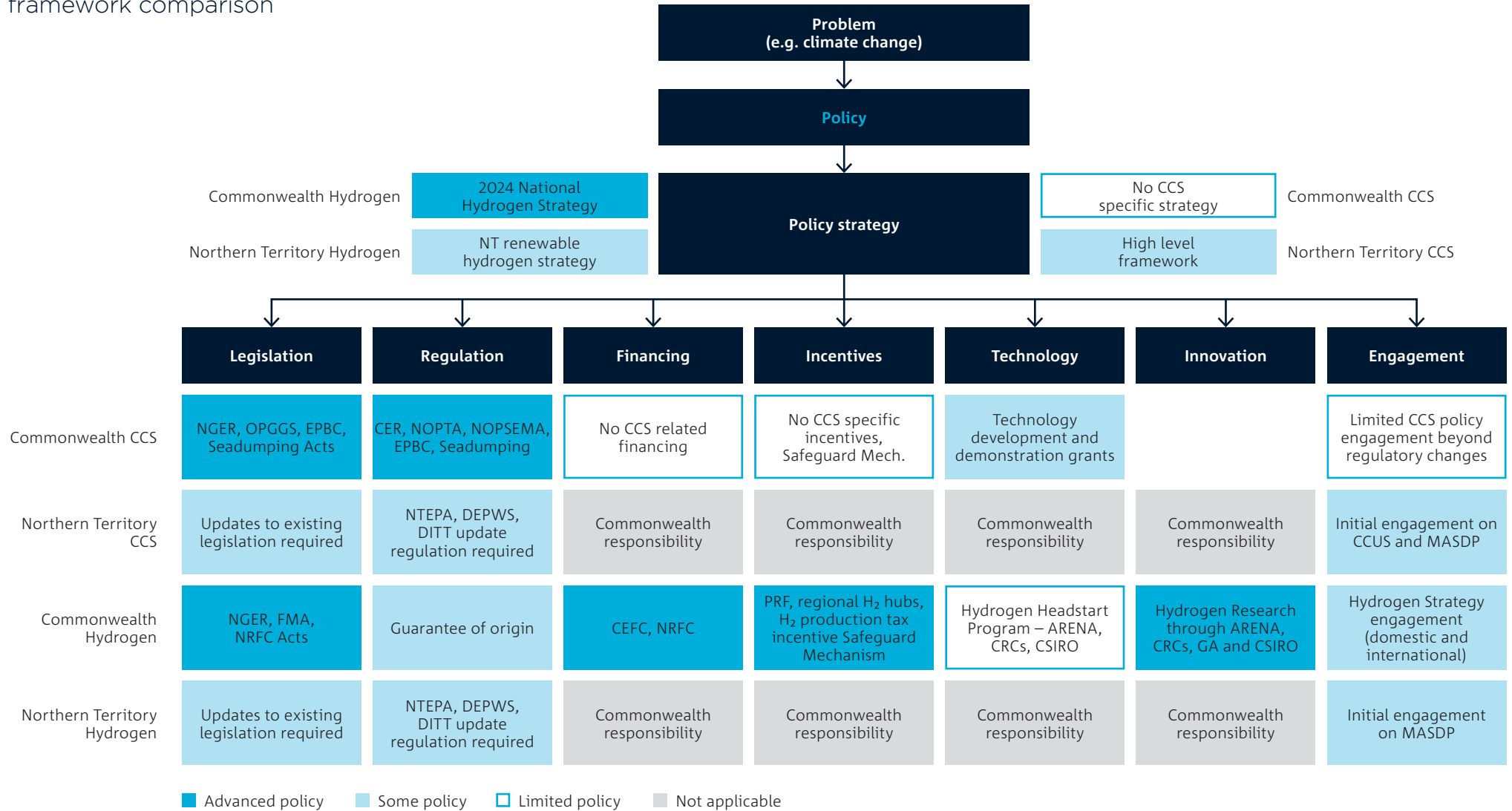
The CCUS business case project includes inputs from the wider Northern Territory Low Emissions Hub (NT LEH) collaboration group, whose current members include the Northern Territory Government, Xodus, INPEX, Santos, Woodside Energy, ENI, Total Energies, SK E&S and Tamboran Resources. Although CSIRO has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

More information

[Read this report](#)

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

Australian CCS and hydrogen policy framework comparison



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