



Australian Government
Australian Renewable
Energy Agency

ARENA

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ARENA submission on the Sustainable Liquid Fuels Strategy - Consultation paper

ARENA has supported several projects from which we have information and insight relevant to the Queensland Government's Sustainable Liquid Fuels Strategy consultation paper. Our submission lists examples of those projects and extends an offer to meet with officials and provide further insight.

Hydrogen and electrification have taken the lead so far on the pathway to decarbonise in Australia. However, for some sectors, such as aviation and marine transport, there are still some tough challenges when it comes to meeting decarbonisation targets due to their specific fuel requirements.

ARENA's involvement in sustainable fuels has predominantly been on accelerating the deployment of hydrogen refuelling stations, some of them in Queensland, and releasing the Sustainable Aviation Fuel (SAF) funding round, which was opened for applications on 3 July 2023 with \$30.23 million in grants available. The intent of the SAF funding round is to:

- Support technology commercialisation,
- Understand the investment requirements, and
- Identify requirements across the supply chain (feedstock supply to end-use).

Hydrogen and electrification will drive decarbonisation of transport in the short term

Fossil fuel use for transportation is significant, representing half of the overall energy consumption in Australia. Over time, we expect users will transition to a mix of sustainable liquid fuels, renewable electricity, and hydrogen. Until 2035, increasing demand for sustainable fuels (eg green ethanol, hydrogen and electricity) will come primarily from road transport, with aviation playing an increasingly important role thereafter ([McKinsey](#)).

The Queensland Government's Zero Emission Vehicle (ZEV) Strategy 2022-2032 has a target of 50 per cent of new passenger vehicles sold to be zero emission vehicles by 2030. However, it is expected that aviation, marine, construction, mining, agriculture and other 'hard to abate' sectors will rely on liquid fuels in the long term.

Sustainable liquid fuels ([McKinsey](#)) are projected to be the most expensive fuel option in the long term. However, the use of 100 per cent renewable diesel could play a role in decarbonising transport faster and in a more economical way, by avoiding the necessary vehicle replacements when decarbonising fleets using zero emission vehicles.

Proposed fuel efficiency standards, announced as part of the National Electric Vehicle Strategy to lower emissions of new vehicles, help provide a glide path for lower carbon fuels and cleaner fuel sources. Although we have seen the first commercial flight successfully demonstrated to fly on 100 per cent SAF in 2021, current production rates of approved SAF technologies only meet a small fraction (<1%) of fuel demand from commercial airlines.

ARENA-funded heavy transport projects

Use of hydrogen in heavy transport is recognised as an area where hydrogen could be cost-competitive with existing transport fossil fuels. This potential is borne out in the heavy vehicle sector, where refuelling times are comparable to those of conventional diesel vehicles. To date, ARENA has contributed \$30.23 million to hydrogen transport projects, two of which are in Queensland. Renewable energy producer Ark Energy and hydrogen producer BOC are two recipients being supported through ARENA's hydrogen strategic priority:

- Phase 1 of Ark Energy's [Renewable Hydrogen Demonstration for Heavy Transport](#) will deploy a 1 MW electrolyser that will produce renewable hydrogen to fuel five ultra-heavy 140 tonne rated Hydrogen Fuel Cell trucks in Townsville.
- The [Renewable Hydrogen Production and Refuelling Project](#) aims to demonstrate renewable hydrogen production at a commercially viable scale. BOC has installed a 100-kW solar array and a solar powered 220 kW PEM electrolyser at its Bulwer Island facility. BOC will also install a hydrogen refuelling station in Brisbane, to fuel a fleet of Hydrogen Fuel Cell Vehicles. BOC's project was officially opened on 18 August 2023.

ARENA has also funded two other heavy transport projects in other states:

- The [New Energies Service Station Geelong Demonstration Project](#) by Viva Energy is a hydrogen refuelling station located in Geelong, Victoria, to support the uptake of hydrogen fuel cell electric vehicles in heavy fleets.
- The [Toyota Ecopark Hydrogen Demonstration](#) project transformed part of Toyota Australia's decommissioned car manufacturing plant in Altona, Victoria, into a renewable energy hub to produce renewable hydrogen for both stationary energy and transport energy uses.

We are happy to meet with QLD Government staff to provide our insights from these projects.

Other ARENA Projects relevant to a sustainable fuels strategy

Some of the other ARENA-funded projects that may be relevant to this strategy include:

- a) Green Methanol production by Vast Solar as part of the HyGate funding cooperation with the German government;
- b) Green ammonia production by a number of different projects, including Project Yuri by Engie and Yara, in the Pilbara, and the Gibson Island conversion project by Incitec Pivot and Fortescue Future Industries; and
- c) Research and development projects that involve the novel production of various types of green fuels, including ammonia and methanol, from a range of feedstocks.

The Funding Agreements for each of these projects obligate the recipients to deliver a range of detailed knowledge sharing deliverables to ensure that the lessons learned are accessible for purposes such as the development of this strategy by the Queensland Government.

About ARENA

The Australian Renewable Energy Agency (ARENA) was established in 2012 by the Australian Government. ARENA's function and objectives are set out in the *Australian Renewable Energy Agency Act 2011*.

ARENA provides financial assistance to support innovation and the commercialisation of renewable energy and enabling technologies by helping to overcome technical and commercial barriers. A key part of ARENA's role is to collect, store and disseminate knowledge gained from the projects and activities it supports for use by the wider industry and Australia's energy market institutions.

Please contact Adrian Salinas, Knowledge Sharing Manager (adrian.salinas@arena.gov.au) if you would like to set up a meeting to discuss any aspect of ARENA's submission.

Yours sincerely



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