

# FINANCIAL REVIEW

## Opinion



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## Carbon capture technology for a clearer future

There is big potential in delivering a CCS system that works, is reliable and helps bring net emissions to zero. This is how some ASX-listed companies are progressing.

[Carbon capture and storage \(CSS\) technologies](#) and their adoption in Australia have had a chequered history. Some see them as a serious option for reducing our nation's greenhouse gas emissions, while others believe they divert attention from the main goal of generating energy from renewable sources.

Many a game of political football has been played, with upwards of \$4 billion ploughed into the sector, yielding underwhelming results.

CCS has seen a rebirth as a potential solution to Australia's emissions problems – it is an important pillar of the \$18 billion energy technology road map unveiled late last year by Energy Minister Angus Taylor.



Chevron's Gorgon LNG plant in Western Australia hosts one of the world's biggest carbon capture projects. The response has been mixed. Proponents point to overseas adoption, particularly in Europe, and the fact that Australia already has the world's largest CCS project at Chevron's Gorgon gas facility.

On the other hand, outspoken critics, [including former prime minister Malcolm Turnbull](#), see the technology as a time-wasting money pit, pointing out that the Gorgon project, which gained approval in 2009, has been plagued with problems resulting in continued carbon dioxide leakage.

But technologies are evolving, and with the continued support of governments both locally and overseas, the prize of delivering a CCS system that works, is reliable and helps bring net emissions to zero, is a big one. Research projects the industry to be worth more than \$US6 billion by 2027.

Some ASX-listed companies have their eye on the CCS prize. This is how they are progressing in helping to reduce our carbon footprint.

## Calix

[CLX](#) focuses on a wide range of industries including water and batteries. However, it took its patented direct separation technology from Australia to the European cement and lime industry, which required a solution to help it meet carbon reduction targets.

The first low-emissions intensity lime and cement pilot project (LEILAC-1) to prove CO<sub>2</sub> mitigation was possibly went very well. Recently the company announced that CEMEX, one of the world's largest cement companies, has joined as a partner in the LEILAC-2 full-scale production project due to be completed in 2024.

Further, discussions continue with the European Union and other nations on the potential of the technology such as the recently-announced joint venture with Swedish firm SaltX to pilot CLX's kiln technology in a salt-based energy storage system. While results of the 200kW system are over 20 months away, it further validates its technology with potentially other projects to come.

## Zeotech

[ZEO](#) has developed a proprietary zeolite mineral-processing technology. Zeolites are traditionally used as a substitute for phosphates that are harmful to the environment when released into waterways. But zeolites also have strong absorbent capabilities and academic research literature has been published concerning zeolites' propensity for CO<sub>2</sub> absorption.

The company has recently engaged with the University of Queensland to evaluate the performance of synthetic zeolites in carbon capture. The hope is that a cost-effective synthetic zeolite-centric carbon-capture solution can be delivered to market on a commercial scale.

## Hazer Group

HZR has patented technology that allows the production of hydrogen gas from methane (natural gas). The [“blue hydrogen”](#) is created with carbon dioxide emissions that are captured and repurposed into the co-production of a high-purity graphite product.

The company recently started site works at its first commercial demonstration plant at Woodman Point, 30 kilometres south of Perth. The completion date for the plant is October 2021, with the company reaffirming timelines and budgets in its latest quarterly statement. The intention is the facility will produce 100 tonnes a year of low-emission hydrogen, proving that the Hazer process can be deployed within a full integrated and commercial setting.

*Note: Companies such as Santos, Orica, Origin Energy, BPH Energy, Vulcan Energy and others that are seeking to incorporate CCS within their current processes have been excluded. The intention of this article is to focus on those looking to commercialise their technology as a priority.*

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