

An aerial photograph of a coastline. On the left, the ocean is a vibrant turquoise color with white foam from waves crashing against rocks. A paved road curves along the shore, with a single white car visible. The land is a mix of light brown, rocky terrain and patches of green vegetation. The title 'THE PERFECT SYNERGY' is overlaid in large, white, bold, sans-serif font with a slight drop shadow.

THE PERFECT SYNERGY

Kym Winter-Dewhirst, Venice Energy, Australia, explores the promising future of LNG in Australia, detailing how combining renewables with LNG could create an ideal amalgamation.

Domestic gas has played a significant role in the Australian energy mix for over 50 years. It is not surprising that the cities with the largest populations on the east coast of the country – in the states of Victoria, New South Wales (NSW), and Queensland – experience the greatest demand.

However, for some time now, warnings of gas shortages have dominated headlines, as significant volumes of gas produced onshore are exported. This is not likely to change any time soon due to strong, legacy contracts between the primary petroleum producers and offshore off-takers.

The issue of increasing onshore production is compounded by political policies that prohibit onshore exploration and production in sensitive communities or agricultural areas. In addition, the cost of exploring untapped, unconventional, or deeper gas reserves in arid regions of Australia is both technically challenging and expensive.

The looming shortage of domestic gas in Australia is expected to continue for several decades to come. In the case of the state of Victoria, 400 PJ of gas is consumed each year, and production is expected to fall by approximately 50% over the next few years.

For Australia, shifting to renewables is a long-term solution that will not come overnight. Gas will continue to play a role in the transition to a renewables landscape that is not yet ready to provide a 100% renewable energy solution. In addition, there is growing public and political pressure in some areas for an acceleration and earlier exit of coal-fired energy from the domestic network, with several recent

announcements confirming some early closures of coal-based power stations.

Australian LNG

Just before the end of 2021, the South Australian government approved the company's first project – an LNG import terminal at the state's major port, Outer Harbour. The government labelled the project as 'critical infrastructure', as it will open Australia to the international gas market, helping the country to meet the demand in gas that currently cannot be met via onshore means.

The AUS\$250 million LNG project will establish a new two-berth wharf terminal to accommodate an LNG carrier, a moored FSRU, and supporting infrastructure to import, store, and re-gasify LNG for delivery of gas to customers.

The project will support existing gas-powered infrastructure and the progressive decarbonisation of South Australia's energy mix.

This will be one of the first terminals of its kind in Australia, and it will help to underpin South Australia's renewables sector by providing firm, dispatchable energy at times when wind and solar are not generating power.

It is anticipated that LNG will be imported from any number of offshore regions, including Singapore and Qatar, and even the US.

Building an LNG terminal did not come as an immediate decision for Venice Energy. The company started with a concept approximately five years ago to build a technologically advanced gas-fired power station. It became apparent that the company could not guarantee that it would be able to secure gas when it was needed. That made the company look at the possibility of importing LNG and the broader benefits it would provide to South Australia and adjacent states.

As an integrated energy company that believes in the global need to decarbonise the energy supply, Venice Energy aims to bring a range of projects to fruition that enable the local (South Australian), growing, renewables sector. The company has committed to ensuring its LNG terminal is powered by renewable energy, and will establish the only terminal of its kind in the world to be powered in this way.

As Venice Energy's first project, the company felt it was important to demonstrate that it is part of the future of energy.

With 60% of South Australia's energy already supplied by renewables, the state has the lowest carbon footprint on mainland Australia and one of the lowest in the world. It makes perfect sense that this direction is added to, rather



Figure 1. Artist impression of Outer Harbour LNG terminal to be built in South Australia.

than introducing an additional carbon load from operating the terminal.

It is estimated that without a renewable energy source, the future terminal would produce approximately 50 000 tpy of carbon. Over its estimated 10-year project life span, around 500 000 t of carbon would be produced. Powering the LNG terminal with renewables cuts those forecast emissions to zero.

The environmental benefits extend further. Now that Venice Energy has been granted approval to construct its LNG terminal, it will undertake a feasibility study into making a key 680 km pipeline bidirectional. The SEAGas pipeline that connects the flow of gas between South Australia and Victoria currently only flows one way into South Australia. Making the pipeline bidirectional would enable the terminal to supply gas to two states – a move that could fast track the decarbonisation of the Victorian energy landscape.

If the gas sent to Victoria is used to displace coal generation, it could displace approximately 3 million t of carbon in Victoria each year. Over 10 years, that is 30 million t.

The company wants to provide a meaningful contribution to reducing carbon at both an operational perspective and more broadly across two states.

The future of LNG and renewables

Recently, there have been widespread reports that coal generation in NSW and Victoria could retire early, leaving a gap in electricity generation within the National Electricity Market. This could potentially lead to blackouts and price increases for consumers, and presents an opportunity for LNG to provide an alternative solution.

Venice Energy's vision is for a diversified mix of projects that support the transition to renewable energy. Approximately five years ago, in the early days of the company, the objective was to look at a gas-fired power station. The company is first to admit that a lot has happened in that time.

Now it believes future investment in power generation will incorporate low- or zero-emission technology. With hydrogen development investment likely to increase significantly over the coming years, future energy generation may be increasingly shaped toward hydrogen.

The vision for the company also includes hybrid solutions in power generation. This includes battery storage development as a user or partner, and branching LNG out into other parts of the world.

There are many parts of the world where the company may consider investing and developing similar types of operations and projects. In particular, the developing world is desperate for access to energy and clean water. Both of these elements are critical for the development of civil societies and helping to lift people out of poverty.

This is a place Venice Energy would like to expand its offerings to in the coming years, as it develops its projects in Australia and improves its knowledge and skill base in the industry.

Work is already underway to source the next potential LNG import terminal location in Africa, Asia, or South America. For now, Venice Energy's LNG terminal in Australia is the primary focus, with construction expected to commence later in 2022, and first shipment of LNG into the terminal and connection to the South Australian gas network anticipated around late 2023 or early 2024. [LNG](#)