



20 MAR, 2020
GAME ON

The Australian, Australia



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Just four years ago, South Australia looked like a basket case for power transmission when a huge storm devastated supply. Today, it's leading the race to shift to renewable energy



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For much of the past decade, the southern Adelaide suburb of Mitchell Park stood as a bleak reminder of the city's high-polluting, heavy manufacturing past.

On its main thoroughfare, Bradley Grove, a locked gate blocks the old staff entrance to what was first the Chrysler then the Mitsubishi car factory, and which was shut permanently in 2008.

The once-packed Tonsley line — an extension to the city's rail network opened in 1966 to ferry workers to the auto plant — became one of the least patronised routes and was closed last year.

In 2014, the neighbourhood was haunted by its toxic past when the solvent trichloroethene, a degreasing agent known commonly as TCE, was found to have contaminated groundwater under residential homes, an unpleasant legacy from factories long since closed.

Against this unlikely backdrop, Mitchell Park is now emerging, not just as a national but international beacon, in the shift to a clean and modern zero-emission economy.

Gas infrastructure giant Australian Gas Infrastructure Group (AGIG) is embarking on a pioneering project framed around the use of the chemical element that Australia's chief scientist Dr Alan Finkel has identified as the key to a carbon-free future.

AGIG's Hydrogen Park SA is based in the Tonsley Innovation District, the precinct that emerged from the ruins of the car industry which brings together research, business and government to help the state develop a new high-value industrial base.

AGIG just took delivery of a German-built Siemens electrolyser that will use renewable power to split water into hydrogen and oxygen, with the renewable hydrogen gas then being added to the existing gas network. The process will start modestly, with renewable hydrogen set to make up a maximum of 5 per cent of gas in the network when the project starts, powering more than 700 homes and businesses in the Mitchell Park and Clovelly Park area. But the long-term implications are huge.

This is the first project of its kind in Australia: AGIG will spend the next five years developing biogas and hydrogen pilot projects, and the next 20 years reducing carbon dioxide through the blending of biogas and hydrogen into the gas network, along the lines of the Mitchell Park project. Within the next 20 to 40 years, AGIG's goal is the total conversion of entire networks to carbon dioxide-free biogas and hydrogen.

The company has \$8.5 billion invested in gas infrastructure across the country and Hydrogen Park SA is the kind of business which, in his speech last month, the chief scientist hailed as the key to a greener future.

"It's got so many benefits," AGIG general manager people and strategy Craig de Laine told The Deal. "It's a carbon-free gas. We electrolyse water, capture the H₂, and that goes into the network. And if the electricity that we use in the process comes from solar or wind, it is a completely carbon-free product.

"The support we are getting from stakeholders and customers is fantastic. What we are doing at Tonsley is globally significant."

In a state where storage from renewable power has historically proved difficult, the great advantage of hydrogen is that it can not only be stored for those days when the sun doesn't shine and wind doesn't blow, it can also be used to create a new carbon-free energy

export market.

"It creates a whole new market for renewable electricity," de Laine explains. "All of a sudden, if you're in the renewable electricity game, not only are you using your renewable energy to supply businesses directly, you can also use it to make hydrogen.

"We are creating a new market for your renewable energy which means the price of your renewable energy comes down. You improve the economics of renewable energy because, with hydrogen, not only can you store it for winter, you can also export it. If the hydrogen is generated through renewables and then stored, then you are actually exporting energy created from the sun and the wind. And that's why hydrogen is the one thing that brings the energy system together."

The other part of the jigsaw at Tonsley is the creation of the Australian Hydrogen Centre, a \$4.15 million project which received \$1.28 million in Commonwealth funding through the Australian Renewable Energy Agency last December to conduct three significant pilot projects. The project is being spearheaded by an AGIG subsidiary, Australian Gas Networks Ltd, with the long-term aim of fully decarbonising gas consumption in Victoria and SA.

In addition to this federal assistance, AGIG also received a \$4.9 million grant through the SA Energy Plan Renewable Technology Fund for its electrolysis project.

The SA Liberal Government believes that such assistance will return swift dividends, and argues the same has already happened at the consumer level with the use of rebates to households to install solar panels. The rebates have now been withdrawn as market penetration has been achieved. It's the same philosophy that informed the Liberals 2018 pre-election promise of \$100 million in rebates for the installation of home batteries, in the wake of criticisms of the former Weatherill Labor Government for failing to capture and store the energy being created through the state's ambitious push into renewables.

Whatever storage and reliability problems have beset the state, there is no doubt that renewables have officially become the new base load power in SA. When the Liberals came to power in 2018 the state derived 49 per cent of its power from renewables. Today it stands at 55 per cent, with Australian Energy Market Operator (AEMO) predicting it will reach 85 per cent by 2025. When the Victorian interconnector was down for most of February due to a storm, SA was completely cut off from the national grid but generated all its power needs through rooftop solar and gas, while also keeping Portland's Alcoa aluminium plant supplied with power. SA was producing so much solar power that it even turned off its wind farms for fear of overloading the system.

SA minister of Energy and Mining Dan van Holst Pellekaan credits this to the work done under Labor in pushing renewables, but with a strong caveat.

"I give full credit to the previous Labor government for showing how good we can be at generating electricity from the sun and wind in SA," he says. "We are international leaders in that regard. But, to their shame, they did not think about how to connect that generation to customers' needs."

The SA government has a three-pronged strategy to address that weakness — the creation of a second interconnector with NSW with a start-up date of 2022 to provide greater backup; the use of gas and especially biogas to augment baseload power from renewables; and an aggressive push to drive up the installation of home batteries.



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Since its election in 2018, the Liberals have maintained Labor's support for grid-scale battery storage, as per the battery built in the state's mid-north by Tesla founder Elon Musk, who enjoyed a famous bromance with former premier Jay Weatherill. The current Marshall government spent \$15 million to increase the size of that battery by 50 per cent, with an independent report revealing in February that the decision saved SA consumers \$116 million last year by better capturing power that would have otherwise been lost. Van Holst Pellekaan concedes a criticism of the renewable sector has been its inability to stand on its own two feet. But he defends the use of taxpayer dollars on subsidies, saying that as with the initial cost of solar, batteries remain prohibitively expensive for most households, and there is a role for government to give things a kick-start. To that end, the Government's four-year, \$100 million scheme to underwrite the installation of 40,000 home batteries is driving a boom for local battery businesses as uptake begins to surge.

"We used to have taxpayer-funded subsidies for solar panels," van Holst Pellekaan says. "It was to get them moving, get them into the market and get the price down. We don't have them now. You don't need a subsidy for rooftop solar anymore because it pays for itself. Whatever you invest you will recoup relatively quickly.

"We are going through the same process now with household batteries. Right now they don't pay for themselves. So we are subsidising them to get the take-up, to get the benefits, and to get the prices down. In the not too distant future they will pay for themselves and we won't have any more subsidies."

With more than one-third of South Australian homes now with solar panels, the government is hoping for similar penetration with batteries to take pressure off the grid and manage supply and demand. Local businesses such as Suntrix are reaping the benefits, diversifying into both residential and commercial solar installations as well as battery storage.

Founder and managing director Jenny Paradiso is a former librarian who started the company with her husband "around the kitchen table" in 2009 when they were dissatisfied with existing solar businesses. The company employs more than 30 staff and, while it will always be headquartered in SA, it is increasingly undertaking big commercial projects in Victoria and NSW for businesses keen to reduce their carbon footprint.

Paradiso — a passionate renewables advocate who sits on the board of the national Clean Energy Council and SA Climate Change Council — says the reputation of the renewables sector is changing in a very short space of time. She says that when the state's power supply was knocked out in 2016 when a huge storm destroyed transmission infrastructure, sparking a hotly contested ideological debate about whether renewables had played a role in the disaster, rightly or wrongly the sector took a hit to its reputation.

"I remember volunteering to do some work at a trade show around that time and asking people if they had considered solar," Paradiso says. "All these people were walking past saying: 'Ugh, no, renewables are ruining everything'. I was shocked because as someone who works in the industry and knows the benefits it can bring, I only see the good stuff. But that perception has changed now. People realise they can both save money and reduce emissions. They can see the financial benefit and the environmental benefit.

"We are starting to see that with batteries as well. There is definitely a more positive feeling with domestic solar and commercial solar well, and with the big companies looking at buying renewable to manage their own carbon footprint. It's definitely a good time to be in solar." **D**

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**Director of Suntrix
Jenny Paradiso, left;
artist's impression of
Hydrogen Park South
Australia, above; SA
Premier Steven Marshall,
AGIG executive Mark
Beech and Energy Minister
Dan van Holst Pellekaan at
the groundbreaking
ceremony for hydrogen
facility at Tonsley in
December, 2019, right**