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VICTORY AT LAST!

- Labor's win heralds a new smart energy and climate action agenda
- Escalation of battery storage; the 2022 Smart Energy Show; advances in green hydrogen; business planning and more



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is published by the SMART ENERGY COUNCIL ABN 32 006 824 148

Smart Energy ISSN 2206-1673 www.smartenergy.org.au



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Smart Energy was first published in 1980 as Solar Progress. The magazine aims to provide readers with an indepth review of technologies, policies and progress towards a society which sources energy from the sun rather than fossil fuels.

Except where specifically stated, the opinions and material published in this magazine are not necessarily those of the Smart Energy Council. Although every effort is made to check the authenticity and accuracy of articles, neither the Smart Energy Council nor the editors are responsible for any inaccuracy. Smart Energy is published quarterly.

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The ALP's Powering Australia plan
The growing presence of battery storage
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Renewable hydrogen gathers pace

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FRONT COVER Anthony Albanese at Smart Energy 2022 commits to a stronger focus on renewables. Relief and

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ONCE THE EUPHORIA of the election result recedes we will fully appreciate the scale of the energy transition before us which is truly monumental.

As I write this, the lunacy of making gas Australia's transition fuel is now fully apparent. Gas prices are pushing electricity prices up to new highs. A gas fuelled recovery anyone? A gas led insolvency more like...

John Grimes, Chief Executive Smart Energy Council

Now is the time to launch a national 'cut the gas' campaign. Households and businesses across the nation should be urgently investing in heat pumps for hot water and space heating and cooling, induction cooktops and cutting their gas connections for good.

Economically it would save tons of money over the long-term. Environmentally it extinguishes the carbon bomb going off in every gas-connected house and business across the country. And sending everyone broke.

This is all happening while we need to transition all petrol and diesel fuel transport to renewable electricity. While we bring the percentage of renewable energy up over 85 per cent by 2030. While we establish a renewable energy export industry, producing



renewable gases, chemicals and energy intensive embedded products (think refined zinc) to the world.

Doing this does not happen by chance. Much of it will be really hard. We will quickly hit skilled worker constraints. New transmission takes a long time to plan and build, even if you want rapid improvement.

But what a great problem to have. This is where we need to bring a whole-ofgovernment approach. To harness both the commonwealth and the states on a whole-of-government transition plan. To use the brightest minds in the country to projectmanage the transition.

I have long said the smart energy transition will be as big as the industrial revolution. It will just happen ten times quicker.



THE WORLD IS CURRENTLY experiencing an energy price and supply shock. Coal, oil and gas prices around the world have reached record high levels.

The impact of high international gas and coal prices is feeding through to Australia's National Electricity Market which is now seeing extremely high wholesale electricity prices. They've risen 141 per cent since Q1 last year.

These high prices are filtering through to customers' bills with the Australian Energy Regulator increasing default market offers by up to 20 per cent nominally. High energy prices will also filter through to the cost of goods and services.

There is going to be pain in the short term. Businesses and households will suffer bill shock.

As long as Australia relies on coal and gas we will be exposed to international price fluctuations in these commodities. Johanna Bowyer is Lead Research Analyst – Australian Electricity, IEEFA

To reduce exposure to volatile fossil fuel prices Australia must decarbonise its energy system.

The Federal Government's *Powering Australia* plan targets 82 per cent renewables by 2030, up from 31 per cent renewables in 2021. This appears to be in line with the Market Operator's Step Change Scenario in its Draft 2022 Integrated System Plan (ISP).

A key part of the *Powering Australia* plan is \$20 billion for the Rewiring the Nation Corporation to upgrade the grid. The newly established Corporation is expected to focus on transmission to enable the buildout of the Integrated System Plan.

This investment will help unlock the full potential of the renewables sector.

The *Powering Australia* plan also aims to remove taxes from low emissions vehicles, develop a National Electric Vehicle Strategy, and install 400 community batteries and 85 solar banks.



The plan needs to be detailed further, but nonetheless marks a turning point for Australia's energy decarbonisation journey.

Australia now has two major factors driving decarbonisation efforts forward: the huge need to reduce dependence on currently extremely expensive fossil fuels, and a Federal government supportive of renewables, storage and transmission.

By 2050 the NEM needs to grow large-scale renewables capacity by nine times, distributed PV capacity by five times, storage capacity by twenty times and manage an orderly exit of all coal-fired generators – according to the ISP Step Change Scenario.

The hard work begins now.





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FEDERAL ELECTION 2022

AND THE WINNER IS ... Climate action

Australians have, at last, voted in a government that prioritises climate action. And it is clear that Anthony Albanese and his Labor Party are determined to set the nation on a far more realistic path.

Renewables will be facilitated, not hindered, as the nine-year toxicity around energy and emissions is replaced by balanced, well-informed debate. The Coalition's catastrophic loss was renewables' gain, and the



at Smart Energy 2022

contrast was evident from get-go with newly minted Prime Minister Albanese taking the world stage at the Quad meeting in Tokyo. Speaking with the leaders of Japan, India and the US he honed in on concerted climate action and stated "We will act in recognition that climate change is the main economic and security challenge for the island countries of the Pacific."

With 77 seats in federal parliament the ALP has the numbers to effect change, and perhaps too the crossbench which has taken on new and significant meaning with the unprecedented success of seven staunchly pro-climate action Independents. They are joined in the House of Representatives by three Greens whose climate ambitions eclipse those of the ALP.

Blessed relief. Australia now has at its helm an environmentally responsible and economically progressive government. And, in the stirring soundtrack of Nina Simone, there's a *New World Coming*.

See page 13 for more.



Climate action is the undisputed winner of the federal election.

Labor leader Anthony Albanese has been sworn in as prime minister, but climate action is the true winner of this election. Millions of Australians have put climate first... the winds of change have blown right across this country.

So says a much-relieved Tim Flannery of the Climate Council.

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It's been a bumpy ride with the perfect landing for Climate 200 founder and Smart Energy Council Director **SIMON HOLMES À COURT** who fended off smear campaigns and staked his belief in the community independents' movement. The support and success that followed was the stuff of legends. Simon said "We're a donor group, and not a party, we were unencumbered by factional loyalties and legacy thinking. For years Kooyong citizens gathered outside [then Treasurer and former emissions reductions minister] Josh Frydenberg's office urging him to act on climate... he ignored them." The community replaced its recalcitrant representative with Independent Monique Ryan who declared "We've changed Kooyong's climate forever."

She is joined by six like-minded Independents who read the mood of the electorate and bring fresh vision and hope to Australia. Congratulations and welcome Zoe Daniel, Allegra Spender, Kylea Tink, Sophie Scamps, David Pocock and of course Zali Steggall.



Three of the successful Independent candidates – Allegra Spender, Zali Steggall and David Pocock – pictured with Saul Griffith and the Smart Energy Council's John Grimes at the recent Smart Energy Show.



DR JOHN HEWSON (pictured) slammed the aggressive actions of media in the run up to the election by highlighting "the lack of professionalism and blatant bias that characterised the media's role in this one". The Smart Energy Council Patron and former

Liberal leader also wrote "the claims by the

likes of the Sky News monsters that constitutional recognition of First Australians and tackling climate change are left-wing themes completely ignores the election outcome. These are important Australian issues with great international significance."

Likewise, **PROFESSOR PETER DOHERTY** posed "Have people really gone to 'the left'? Action on climate change has nothing to do with L vs R, it's basically responding to the evidence we can all see and understand. We are signed on to the IPCC process. Requiring integrity from our politicians is nothing to do with L vs R".

In his 2022 post-election briefing 2022 **BLUEPRINT CEO DAVID CROSS** wrote: "The Liberal Party has abandoned voters in its heartland by tacking to the right and treating the great challenges of our time, such as climate change, with contempt. The strategy to offset vote losses in 'teal' seats with gains in outer-suburban seats has failed spectacularly.

"[But] Key climate seats went to the Greens or independents, not Labor. This shows Labor has more to do on climate."

Energy think tank **EMBER** reminds us of the sorry state of Australia which has the highest coal power emissions per capita among the world's major economies. In 2021 it was ranked the top polluter in both the G20 and OECD. Shameful.





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INDUSTRY DEVELOPMENTS

SPIRALLING ELECTRICITY PRICES Retailers and consumers are being hard hit by the sharp rise in the wholesale energy market, and it's set to get worse on the back of increasing costs of pole and wire services, geopolitical uncertainty and greater demand over winter.

Bruce Mountain of the Victoria Energy Policy Centre notes the 141 per cent increase in wholesale power costs in the year to the end of March has already impacted many smaller electricity retailers. The decrease in competition could result in a doubling in electricity costs. Such is the legacy of a nine-year pro-fossil fuel administration.



DISCOVER ENERGY has launched its new smart Super Charge EV charger program that enables homeowners to access smart EV chargers at a significantly discounted price with inexpensive charging rates.

It's made possible through a strategic partnership with Ausgrid and Discover Energy's direct negotiation with the electricity grid on behalf of customers.

The brains of the system is the Application Programming Interface enabling the charger to communicate with electric vehicles and users to charge at the best times and rates.

Customers will receive JET Charge's ChargeMate smart charger; an

OCPP (Open Charge Point Protocol) compliant charger which features a universal socket that is compatible with all EVs sold in Australia to power EV charging at home.

The day after the launch Allegra Spender addressed the Smart Energy conference and attendant media on the importance of renewable energy.



Discover Energy's Co-CEO and Co-Founder, Jeff Yu (2nd from L) pictured with Independent MP Allegra Spender, John Grimes and homeowner Jonathan Pepper at the launch in early May

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RECYCLED CONTENT RENEWABLE ENERGY FOREST MANAGEMENT CHLORINE FREE MANAGEMENT SYSTEMS CARBON NEUTRAL CERTIFICATION AUSTRALIAN MAD

WOOLWORTHS CONDER in the ACT is the 150th Woolworths supermarket in the country to be fitted with solar panels; the system comprises 222 high efficiency solar panels spanning around 500 square metres with the capacity to generate more than 145 megawatt hours of electricity each year. Woolworths aims to cut total emissions by 63 per cent by 2030 based on 2015 levels and has already slashed them by 27 per cent.

From July, Woolworths Group will begin drawing on additional green energy from the Bango wind farm in Yass under a partnership with CWP Renewables, enough green energy to power more than 100 supermarkets.



NO LONGER THE COLOSSAL FOSSIL The

ALP's bid for the 2024 COP in partnership with the Pacific could shift Australia's reputation from climate laggard to regional leader, says the Australia Institute. Richie Merzian (pictured) stated the shift should be accompanied by substantive changes to Australia's climate policy, including Australia's



climate aid and re-joining the UN Green Climate Fund. He added that hosting a COP would deliver a range of economic, diplomatic and security co-benefits. And that sounds like a win-win.

COMMUNICATION NOT CUTTING THROUGH? Prior to the federal

election a group of Victorian visitors to Newcastle observed coal miners wielding placards asking "What's the [post coal] Plan?"

Much of the answer lies in the development of the Renewable Energy Zone in the region which has attracted multi-billiondollar interest by clean tech investors and will significantly boost employment. Cue the support by NSW for battery energy storage development at ACEN Australia's New England Solar Farm east of Uralla that will support more than 500 jobs during construction.

The first 400MWac / 520MWdc stage of the solar project is due for completion in 2023. When the entire 720MW project is complete, it will produce around 1,800,000MWh of clean electricity each year.

The 50MW/one hour BESS is supported by a \$12.5 million state government grant, and will be built alongside the 720MW New England Solar Farm, in the heart of Barnaby Joyce territory!

"Don't work for climate wreckers" advises UN secretary general **ANTÓNIO GUTERRES** to university graduates. "You will have plenty of opportunities to choose from. My message to you is simple: Don't work for climate-wreckers. Use your talents to drive us towards a renewable future... you must be the generation that succeeds in addressing the planetary emergency of climate change."





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WELCOME CHANGE, welcome Team Albanese and crossbench!

The community has voted. People want change, in particular they want movement on things that matter most to them: climate action and political integrity. They want a more progressive society driven by a trustworthy federal administration. The ALP is poised to deliver on all fronts and will be both supported and challenged to do more by the strong presence of teal Independents and the Greens.

AUSTRALIANS WOKE UP TO A NEW

GOVERNMENT on Sunday May 22, and the majority felt an overwhelming sense of relief and calm after an unsettling election campaign that was preceded by nine years of obstruction and obfuscation.

Much has been written and said of the climate denying LNP that had lost its moral compass on a range of issues from energy to integrity and gender. This, while enthusiastically throwing billions of dollars at emissions laden fossil fuels: \$11.6 billion in 2021-22 at last count, the TAI calculates. That's \$22,139 per minute, and up \$1.3 billion (12%) on 2020-2021, and ever more billions of dollars in all-but-mythical carbon capture and storage while gleefully accepting wads of cash from the fossil fuel industry.

A new era of socially progressive parliamentarians who are prioritising action on climate and emissions reductions will be delivering a more rational and humanitarian administration that reflects community values.

In a Roy Morgan Snap SMS survey conducted 11 weeks prior to the election, Labor's Anthony Albanese, Penny Wong and

The ALP has set the path to accelerate renewables and transform Australia from its much-maligned international status as a climate laggard into an energy superpower.

While visiting exhibits at the Smart Energy Show, PM-to-be Anthony Albanese emphasised the need to maximise Australian jobs and growth by commercialising scientific breakthroughs



Tanya Plibersek were listed the nation's most trusted politicians and Adam Bandt featured in the top six. The three least trusted were Scott Morrison, Peter Dutton and Barnaby Joyce, with Angus Taylor and Josh Frydenberg also in the bottom ten. The survey clearly signalled widespread disaffection among the electorate.

What will the ALP deliver on renewables?

Key planks in Labor's *Powering Australia* plan are net zero emissions by 2050 and a 43 per cent cut in emissions by 2030. To get there, the party will upgrade the electricity grid to allow it to handle more renewable energy, decrease the cost of electric vehicles, and install community batteries and solar banks around the country.

These and other aspirations including modernising steel and aluminium production mirror those of the Smart Energy Council.

The ALP touts more than 600,000 new jobs will be created under Labor's plan. Private investment will get a shot in the arm.

ALP leader Anthony Albanese and then Shadow Energy Minister Chris Bowen shared their thoughts and strategies in person at Smart Energy 2022 in early May during the gruelling election campaign.

There, Albanese declared "Australia sits on the cleanest and cheapest electricity in the world and if we don't capitalise on that... all opportunities have been lost.

"Labor has a plan for a better future," he said, mindful of the lack of vision by the then incumbent Coalition that was lampooned on the COP26 stage in late 2021. "Our *Powering Australia* plan will result in the electricity grid being 82 per cent renewables by 2030 and will create 604,000 new jobs. Our policy will be landed; it will make a difference."

He added that five of six jobs will be in regional Australia and, on viewing exhibits at the Smart Energy Show, emphasised the need to maximise jobs and growth by commercialising scientific breakthroughs driven by UNSW and ANU and others.

"Seizing economic opportunities sits at the core of the agenda in the renewable energy transformation. Australia can be a renewable energy powerhouse. Labor has a plan to work with private sector and business," Albanese said, emphasising strong support for Labor's plan from the Business Council of Australia, ACCI, AIG, National Farmers Federation and ACTU. "Net zero should not be controversial... it is the basic bare minimum essential framework or destination to avoid destruction." CHRIS BOWEN

At long last, climate a top priority

"This is a chance to end the climate wars because major business, farming and union groups have lined up to support the party's climate policy," Albanese told *Smart Energy* delegates and the large media contingent.

"We need to provide business certainly to invest and bring the electricity grid into 21st century – the threat of climate change presents massive opportunities through economic growth opportunities and our *Powering Australia* plan addresses these. (More details on page 13.)

"We will bid to host a COP meeting and send a message to the world that Australia is under new management when it comes to the climate."

For his part, Chris Bowen welcomed the SEC's strong views in the energy debate, and stated "Net zero should not be controversial... it is the basic bare minimum essential framework or destination to avoid destruction.

"There are some simple facts: renewable energy is the cheapest form of new energy... it will cut costs, unlock jobs and drive investment.

"Good climate policy as we know is good environmental policy for the cities and the regions... that will be the signature of the Albanese government. It's time to put delay and denial behind us," Bowen stated forcefully at the Smart Energy Show.

Welcome words to Smart Energy Council external affairs manager Wayne Smith who was among the throngs celebrating the May 21 victory.

"The Smart Energy Council is thrilled by the outcome" he said with a croaky voice the day after the Coalition was wiped out.

Sharing market intelligence

The Smart Energy Council briefed Chris Bowen when he assumed the shadow energy portfolio in 2019 and has since helped inform the ALP on renewables opportunities.

The SEC also staged a series of strategic events in the lead up to the federal election by advising Independent candidates including Kylea Tink; assisting in the launch of the Greens' Battery policy in the seat

of Ryan; developing the political content of the SECE program with the very welcome appearance by Anthony Albanese and Chris Bowen at a packed out media conference, the addresses by Zali Steggall and Independent aspirants Allegra Spender and David Pocock, and assistance in their solar installation events that gained widespread media coverage (read more on pages 30-31).

"We have also been working closely with Chris Bowen and federal Labor to help the party develop clear policies and their messaging around climate action and renewables, emphasising the economic and job opportunities arising from stronger emissions targets," Wayne Smith said.

"It's very rewarding. It's been a long hard battle and we have finally triumphed. We will continue to advocate for ever stronger renewables polices and targets."

The messaging will be amplified by the seven pro-climate action teal Independents and the Greens who are riding on a high with the success in 'Greensland' and the 'greenwave' sweeping across Australia.

The Greens' Plan includes grants for householders and business owners of up to \$25,000 and loans of up to \$100,000 to get homes and businesses off gas by electrifying; and grants of up to \$10,000 and loans to \$50,000 for solar batteries for families and businesses.

The Greens fully costed measures are expected to deliver an investment of \$17.1 billion into electrifying Australian homes, \$14.8 billion into electrifying small businesses and \$12.6 billion into installing small scale batteries in homes and businesses over the decade. The Greens, of course, do not hold the majority in parliament but represent a powerful voice in the Senate.

Teal Independents - energising the electorate

The power of the independents rose to the fore thanks to mass community engagement and action in each separate electorate. Many were supported by Climate 200 with its strategically savvy campaign staff, the millions of dollars that flowed in from more than 11,200







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Come and see it for yourself and meet our team at one of the Smart Energy Council Installer Roadshow events across Australia in July and November!

Visit www.goodwe.com.au/roadshow for all coming events!







donors, and the street-pounding, leafletwielding efforts of thousands of committed volunteers, this writer included.

Team Teal Independents who ran on a ticket of climate and integrity managed to unseat seven 'moderate' Liberal MPs and catapult Dr Monique Ryan into Kooyong (toppling a somewhat stunned Treasurer), Allegra Spender (into Wentworth, shunting out Sharma), Kylea Tink (North Sydney, Zimmerman yesterday's man), Zoe Daniel (Goldstein, Wilson wipeout), Dr Sophie Scamps (Sydney seat of MacKellar, farewell Falinski), David Pocock (ACT, the end for Zed Seselja), all of whose climate ambitions are somewhat higher than those of the ALP.

Addressing the media on May 22 Dr Monique Ryan, who - against early odds took on and defeated the high-profile Treasurer, declared there is momentum for change driven by a grass-roots movement across Australia. "Our doorknocking of 55,000 households revealed climate was the single most important issue, yet the Coalition had failed to provide any vision. No aspirations, no policies.

"This number of Independents in parliament is unprecedented and it will change the tenor of debates. The first thing I will do when I get to Canberra is talk about climate change and how we can address that," said Monique to thunderous applause from her elated volunteers.

Volunteer Manager Rob Baillieu told Smart Energy "Victory in the election is not victory for climate change... that is what comes next. Climate change is number one for Monique Ryan, then an anti-corruption commission and a long list thereafter."

The son of a former Victorian Liberal Premier, Rob is a product of his climateconscious generation, taking leave from the military to mastermind the marshalling of the troops in Kooyong to great effect.

At this juncture we also need to acknowledge the crucial role played by former CEFC chief executive Oliver Yates in the 2019 election where he stood as independent candidate for Kooyong.

Paving the way

Donning a teal t-shirt Oliver was a constant presence in the Monigue Ryan campaign, his high regard among the local community helping garner votes.

We caught up with Oliver during Monique Ryan's victory speech (though her predecessor was still struggling to concede his loss), and he commented that back in 2019 many residents felt there was little they could do to effect change

"The incumbent [Josh Frydenberg] sat on a 16 per cent margin and the seat had not been held by anyone other than a Liberal since Federation. But when I stood we managed to reduce that margin to 6 per cent so success was more within striking range this time around," said Oliver who is a prominent SEC Board member.

An indication of the plunge in respect for the then sitting member was evident on more than one billboard, with the words 'ICAC NOW' spray painted in red across the man's face.

"Door knocking and listening to people's views were pivotal in the success of Monique's campaign," Oliver said. "This is an intelligent community and they care about climate change and see the lack of integrity in government. You cannot fool them forever."

A similar scenario played out with teal independents in other jurisdictions.

Asked about the Teals' aspirations for 60 per cent emissions by 2030 Oliver said it was eminently achievable.

"Given how fast renewable energy can be built in this country and how much technology is being adopted both within battery and

2030 EMISSIONS REDUCTIONS **ASPIRATIONS**

GREENS: 75% **TEAL INDEPENDENTS: 50-60%** ALP: 43% LNP: 26-28%

demand measurement measures I think increasingly these types of renewables can be easily adopted and then the carbon emissions reductions are achievable.

"Intelligent people will look at the target and determine to set it where it makes sense. Reductions targets can clearly be higher than what have been set... the Labor party's target is significantly lower than that of the teals and the Greens so that needs to be up for discussion with the ALP and members of the crossbench"

Some other pressing concerns also need to be thrashed out.

Red flags

During the election campaign Labor did not rule out coal exports or support for new coal mines, with a few qualifiers.

"If coal mines stack up environmentally, and then commercially, which is the decision for the companies, then they get approved," Albanese told reporters in April.

Clearly there will be some hurdles navigating these and other issues, mindful of the filling of Labor's coffers by the fossil fuel lobby.

That aside, given the impetus set by progressive states and the business community, the stars are aligned.

Or to frame it in the terms of the new Prime Minister: "It's the end of the climate wars."

The nine year battle has ended, peace has descended, and Australia's future seems a lot brighter and smarter.

The last word goes to industry stalwart Giles Parkinson of RenewEconomy who observed "Scott Morrison wasn't the least bit interested in climate change or energy, and his office and advisors were controlled by the former bosses of Australia's most powerful fossil fuel lobby, the Minerals Council of Australia."

During his induction into the Smart Energy Council Hall of Fame in early May, Giles implored delegates to "vote the b-----s out". He got his wish, along with two-thirds of Australia's population.

The nation is re-energised with good, smart energy and good, smart leadership. Rejoice!



LABOR'S POWERING AUSTRALIA PLAN

- Upgrade the electricity grid to fix energy transmission and drive down power prices.
- Make electric vehicles cheaper with an EV discount and Australia's first National Electric Vehicle Strategy.
- Install 400 community batteries across the country.
- Roll out 85 solar banks around Australia to ensure more households can benefit from rooftop solar.
- ✓ Invest in 10,000 New Energy Apprentices and a New Energy Skills Program
- Create 604,000 jobs, with five in six created in regions
- ✓ Spur \$76 billion of investment
- Allocate up to \$3 billion from Labor's National Reconstruction Fund to invest in green metals (steel, alumina and aluminium); clean energy component manufacturing; hydrogen electrolysers and fuel switching; agricultural methane reduction and waste reduction.
- ✓ Support measures that improve energy efficiency within industries and develop new industries in Regional Australia through a new Powering the Regions Fund.
- ✔ Restore the role of the Climate Change Authority

The ALP assumes the acceleration of clean technologies will result in 80 per cent renewables by 2030 and nine in ten new car sales being EVs.

www.alp.org.au

"Australians deserve a plan to secure our nation's future, to maximise the benefits of new technology, cheaper energy, new job opportunities and cheaper low-emissions vehicles."

THE GREENS ASPIRATIONS ARE SOMEWHAT STRONGER: POWERING PAST COAL AND GAS

In their plan the Greens have proposed:

- · A rapid transition to 100% renewables, creating jobs, industries and innovation
- A climate and energy plan to fight the climate crisis, grow jobs and repower the economy with net zero emissions by 2035
- 700% renewables leading to a renewable energy superpower
- A 75% reduction on 2005 emissions levels by 2030
- Support households and small businesses to get off gas and switch to electric alternatives with grants of up to \$25k and loans up to \$100k
- · Kickstart a household battery boom, with grants of up to \$10k and loans up to \$50k
- Ban gas in new housing developments
- Create a non-profit publicly owned retailer to push down power bills and increase take-up of green energy
- Develop low cost, green energy to rebuild manufacturing industry, support new green export industries and jobs
- Establish the Manufacturing Australia Fund to help local manufacturers move off coal and gas and expand into new sectors, and quite a bit more. They will be pushing for more action on all these and other fundamental, material aspects.

www.greens.org.au

Homing in on home energy storage

If ever there was a moment in history to fast-track the energy market, it's now. Gas and electricity prices are sky rocketing and consumers are bracing for worse. At the same time the community is more than ready to embrace home energy systems with storage. Here, some thought leaders pitch their concepts on what will or could drive the market.

FIRST THE NUMBERS: although Australia boasts the world's highest number of rooftop PV systems per capita due to the more than three million rooftops, currently fewer than 140,000 of those homes have a complementary battery system to store energy.

But interest is bubbling in the community, and research by renewables financier Brighte finds 70 per cent of customers want a battery; all that is holding them back is affordability.

"The price point is the biggest challenge," says Brighte chief executive Katherine McConnell, adding "We can and should do better."

She cites AEMO's Integrated System Plan which identifies more than two-thirds of detached homes should have rooftop solar by 2050 and most of these systems should also have a battery.

These batteries should, along with hydro, contribute to a significant 45GW of new energy storage in the grid with nearly three-quarters of this coming from distributed sources like batteries in homes, she said. "To meet this, we need new battery installations in around 100,000 homes each year for the next 10 years. When you consider this is more than three times what is installed today, it's clear that AEMO's target needs us to reassess how to increase access, lower costs and other barriers, and, importantly, build a viable industry to enable it."

Among Katherine's recommendations for more accessible residential batteries: adopt the plan put forward in Helen Haines' *Cheaper Home Batteries Bill* and extend the existing small-scale renewable energy scheme with small-scale technology certificates made available to solar systems that are coupled with batteries.

Bruce Mountain concurs with Katherine's views on the pent-up demand and revealed he finds behind-themeter battery storage – and in particular the growth of VPP offerings – somewhat fascinating.



The director of the Victorian Energy Policy Centre told *Smart Energy* "Home energy storage and participation in VPPs will become far more prominent and enticing over time, there will be substantial self-supply using solar as a primary resource and battery as a storage resource.

"And being able to obtain a wholesale price for batteries when there is grid energy scarcity is a fantastic model.

"Various retailers are offering zero cost upfront retail and will otherwise fund the whole installation so in many cases the customer gets the whole home storage package for no capital outlay, and with no cost after a period of around seven years.

"I think those are absolute winners, it's only a matter of time before they take off in an enormous way."

The efficacy of industry channels

Retailers signing up installers for bulk installations receive a fantastic advantage, hence the ability to provide competitive offerings to customers.

"If you have a business model that does not entail heavy marketing exposure its scale of economy and battery installation will see the same cost curve as solar panels. And from the customer view it's an absolute

"We need new battery installations in around 100,000 homes each year for the next 10 years."





"The price point is the biggest challenge," says Brighte chief executive Katherine McConnell

winner, we will see a dramatic acceleration in behind-the-meter storage in the next two to three years," Bruce said.

"I think it is waiting on effective marketing... and although home storage is still a bit of a novelty customers just need to take a leap of faith."

Evergen is a significant driver in the space. Chief executive Ben Hutt whose ambition is to kill coal plants by enabling the transition to "resilient renewable decentralised systems of the future though the VPP promise" outlined his market leading software business that is well regarded locally and internationally as a 'VPP enabler through storage assets'.

"We have the next three years to deliver reform and finance at DER scale," Ben Hutt told delegates at the Smart Energy Show.

The end plan is neatly expressed as: "To make assets perform financially". His aspirations are matched by those of Discover Energy and Powow who present the compelling case for home storage and participation in the VPP market. (More on pages 40 and 42.)

Bruce Mountain observes it does not take much storage policy to tip the scale for these things, and "if there is wide uptake in home storage, and I don't doubt that, it will have massive implications for the electricity system".

Rethinking costly transmission upgrades

Along with lower costs of grid-scale batteries and growth of home storage it becomes less necessary to ship energy generation from one state to another given the ability to store energy closer to power generation sources.

"Investing in battery storage [both at small and large scale] works out a lot cheaper than multi-billion dollar transmission lines, and that scenario will only continue to play out," says Bruce Mountain.

"If the government's goal is to promote the cheapest energy solution, batteries will almost certainly win. Every way you look at it, our challenge is storage, not transmission."



Shifting focus

For its part the Institute for Energy Economics and Financial Analysis believes state governments should shift their focus from largescale renewable energy projects to the "immense decarbonisation opportunities" available in leveraging the \$25 billion spend-to-date by households and businesses on distributed energy resources including rooftop PV, batteries, electric vehicles and smart appliances.

IEEFA's recent report *Cheaper Faster Decarbonisation – What State Governments Can Do to Support Distributed Energy Resources* details how state governments can leverage an expected \$150 billion consumer investment in solar and EVs during next 10 years to speed up cheaper decarbonisation.

"All forecasts point to distributed energy resources playing a major role in the future electricity supply, demand response and grid services," said report author Gabrielle Kuiper.

Australian households have spent more than \$15 billion on rooftop solar alone, over \$1 billion on 110,000 batteries, and expenditure on electric vehicles is growing rapidly.

IEEFA notes that by 2050, rooftop solar is expected to provide about a quarter of electricity consumption, or about 75GW. At that time, about



Powow is geared up to accelerate home battery storage and VPPs

three-quarters of all dispatchable ('on demand') electricity capacity will be distributed.

Kuiper says state governments are critical to integrating distributed energy resources across the building, planning, transport and technology portfolios, and lists 10 recommendations to lower the overall cost of the energy transition to enable cheaper, faster decarbonisation.

The newly minted Labor government has plans of its own, and delivers a fresh new set of aspirations which are outlined in the *Powering Australia* plan (see page 13). Part of the grand plan includes investment of \$200 million in 400 community batteries installations and 85 solar banks around the country.

And, although their influence on policy setting remains to be seen, the Greens want to raise the bar by subsidising each battery by up to \$5,000 for households (\$10,000 for small businesses), and providing up to \$10,000 in low interest loans (\$50,000 for small businesses).

"Subsidies of this scale can render a battery a profitable investment for millions of households and businesses, kicking off a boom and creating thousands of jobs in battery installation and manufacturing," says Greens Leader Adam Bandt.

Such a plan is, of course, music to the ears of the greater renewables industry.

A more progressive composition of the energy market is unfolding before us and we like what we are hearing.

"If the government's goal is to promote the cheapest energy solution, batteries will almost certainly win. Every way you look at it, our challenge is storage, not transmission."

BRUCE MOUNTAIN



EVO Power's energising agenda

Everyone loves a local success story, especially one involving innovation, manufacture and employment. Add smart turnkey BESS systems for commercial. industrial and utility scale projects and strong industry connections to the mix and you have a recipe to triumph. Such is the story of EVO Power, co-founded by Jamie Allen.



ASK JAMIE ALLEN of EVO Power what he's up to these days and he reels off a long list of upcoming energy storage projects involving hospitals, schools, aged care homes, distribution centres and more. The nature of customers, he says, illustrates the growing demand for storage in the C&I segment, particularly for systems sized 500kW to 2MW. EVO Power is poised not only to deliver but also exploit ever greater opportunities as the market matures.

It means developing the optimal sized solutions at the right time, and last year saw the launch of the NEO series, which is a scalable turnkey BESS from 100kW to 5MW which is suitable for councils, shopping centres and communities.

To date the largest system configured by the EVO Power team is the 4MW/10MWh (Usable AC) storage battery at the Narellan shopping centre in Sydney's southwest, developed by CEP Energy and installed by RACV Solar.

"As far as we know this is the largest behind-the-meter battery energy storage system in Australia," says Jamie, hence the fanfare surrounding it.

"This project is pretty unique due to its many different connection points; our product was ideal for this property as it is flexible in power and energy capacities to suit the various 500kW to 1MW connection point needs."

This system is typical of the opportunities emerging in the market, hence EVO Power's gravitation toward the commercial, industrial and small utility space with storage solutions sized 100kW and up.

And when it comes to pitching for projects, it helps that key staff including Olivier Fevrier and Deepak Nayak have been in the industry for decades.

"Existing relationships help immensely," said Jamie who is constantly expanding his staff of mechanical, electrical and software engineers and anticipates doubling the team by end of year, around the time the serial innovator plans to launch EVO Power's largest BESS, the NEOPlus AMP Series.

The future beckons, he says.

Market dynamics

"I welcome the closure of coal plants and as more big coal power stations come offline there will be greater need for significantly more renewables with battery storage of all sizes.

"Renewables play a major role. We need to produce more smart solutions and it's making financial sense now, conversely it's costing more to maintain coal plants than it is to produce new solar plants so we are heading in the right direction.

"I think the government and the market recognise this dynamic and the importance of storage in grid stabilisation. Trading energy from battery storage systems will become more vital over time, that is why many EVO Power systems are VPP ready.

"There are many big players – retailers, global players, developers – entering the market realising there are financial returns in this segment, and developing real business models for commercial, industrial and utility scale systems."

Target markets

For its part EVO Power is eyeing an emerging trend: the number of 5MW solar farms that are currently being "clipped" due to negative daytime prices.

"This is a problem that we hope to alleviate with BESS systems so solar farms can charge batteries during the day and use them at night; DC Coupling is one of the solutions," Jamie explained.

"There are a lot of distressed assets out there with developers and owners losing money, they need energy storage systems."

www.evopower.com.au

Power, politics and perseverance

This year marked the 60th Smart Energy Conference and Exhibition that puts the spotlight on the abundance of opportunities across the renewable energy industry. Innovation was on full show across the exhibition floor with the more than 80 exhibitors showcasing their products and services that are contributing to a better world. A world which supports decarbonisation through smart energy systems in all their forms: battery and solar PV, EVs, hydrogen, large scale wind and solar. Here we present some of the key trends, messages and aspirations presented during the conference.

"The SEC Exhibitions are always full of energy, market updates and future developments. It refreshes our enthusiasm for the industry, and encourages us to give a fresh look at our future planning. Thank you SEC for all the overwhelming effort you put into the wellbeing of the renewable energy industry." RONAK SHAH

ASE

WHAT BETTER WAY to kick off a conference with a vision and the aspirational title *Agenda of abundance*. Such was the tone of the address by the 'king' of electrification and rewiring the grid **Saul Griffith**, who says we have just 20 years to get to net zero.

His plan to electrify homes and suburbs helps take us there.

In a nutshell: "If we electrify the two cars in the average household, we put oversized solar on their rooftops, we electrify their water heaters, electrify the kitchen and electrify any space heating in that household by 2030, we'll be saving them \$5,000-\$6,000 per year."

The founder of Rewiring Australia (Rewiringaustralia.org/community) told delegates: "All households need a plan, from cooking to heating, cars, batteries and solar systems, and we need policies to support the moves, and more green power from grid.

Slides specifying household changes and consequences depict an undeniable win for the grid, the environment and residents with average household energy use/consumption reducing from 102 to 37kWh a day.

"There is opportunity for economic renewal in Australia and this is how we can turn our suburbs into the power plants of the future and do good for the community.

"The good news is no state is starting from zero, all the states have made some movement in this direction [electrification] and have pretty good policies, with the ACT marginally ahead of others with their rooftop

GOODWE

solar, battery policy and EV rebates," Saul Griffith told *Smart Energy*.

"Tasmania is coming up strong but we are not doing all the things we need in one place yet so that is what we are championing. It would be a win in Australia if we did a total electrified suburb in every state so you bring all the polices in one location to prove the technology and economics works."

ACT resident **David Pocock** who two weeks after the conference was voted in as an Independent senator proposes a "suburb zero" pilot in concert with Saul Griffith, saying it was all about "turning challenge into opportunity... the transition is coming whether government likes it or not".

Independents' sensible solutions

Fellow pro-climate independent candidate **Zali Steggall** emphasised the need to step up the pace of transition and took the podium to promote Five Steps to Net Zero and set Australia on a positive trajectory and benefit from the profound economic opportunity ahead of us. "Independents will drive change," she said.

1. Pass the Climate Change Bill – a proven model that delivers certainty through a framework.

2. Decarbonise energy with 80% renewables by 2030 and support REZs, a future transmission fund to decongest the grid, community batteries, no coal keeper (which extends the life of power stations) or gas fired recovery.



 Clean up transport and aim for 76% new vehicle sales EVs by 2030 (we are on track for just 30%) and address vehicle emission standards, build more charging infrastructure especially in apartment blocks.
Modernise industry (accounting for 40% emissions) and tighten the safeguard mechanism, with an Electrifying Industry Fund, and assess climate risk which is also employment risk and the wellbeing of communities. "We have no national risk assessment despite successive droughts and bushfires and climate refugees which is disrupting our way of life," she said.

5. Agriculture, those on the land are at the forefront of climate impacts and we need to future proof agriculture and regenerate Australia. The easiest way is to plant trees, at least 8 million hectares of trees by 2030. Stop deforestation. Put a value on sustainable land use and address the 30% emissions in that sector.

"The biggest con is that we are safeguarding communities by holding on to fossil fuels – they are absolutely leaving them high and dry in the transition," Zali Steggall told Smart Energy 2022 delegates.

"My fellow Independents echo this sentiment. We need a roadmap to victory. To delivering. I firmly believe we can reduce emissions by 60% by 2030. It's the pathway to a safer stable future. Go from laggards to leaders, be at the forefront. Australians like to be winners.

"Three degrees warming is not a responsible policy"

Fellow teal Independent **Allegra Spender** whose name translates to 'joyful' presented a somewhat bleak image of the trajectory in the absence of climate action and realistic targets: double the heatwaves and annual coastal floods, 99% reduction in coral, and obliteration of the barrier reef.

We need to address the economy too, and optimise Australia's four million square kilometres of land that offers quality and complementary solar and wind resources, she said.

"This is the future we need to be getting behind – and how we realise it. We just need a national unified approach for decarbonisation. Ambition and policy certainty. Look to the future. End fossil fuel subsidies. Reduce emissions, support EVs."

Even the ALP lacks the ambition the business community wants, she warned.

"We will listen to experts and the business community, and hold the major parties to account based on the science and the economy and what the community seeks."

Felicity Wilson, NSW government parliamentary secretary to Matt Kean, cited the floods as evidence that "science and logic demand change, it's an economic imperative". Addressing this, the climate conscious conservative NSW parliament has drawn up a 20-year roadmap to create multi-MW of renewables by 2030 to replace coal closures and lower the cost of electricity. "REZ's are modern day power stations, acting as a magnet for mammoth investment... attracting billions of dollars in investment and developing NSW into a hydrogen superpower," Wilson said at the Smart Energy show.

In a speech peppered with proposals and visions all wanted to hear she listed the scale of ambition in the hundreds of proposed projects.

"We are poised to prosper in a decarbonised economy," Wilson said. But the fact remains other fundamental aspects need to be addressed.

Call for a full review of the Emissions Reduction Fund to restore integrity and confidence

Ben Oquist of the Australia Institute put the spotlight on the lack of integrity and ambition in carbon credits.

"Carbon pricing [introduced by the Gillard government and which came into effect in 2012] to 2014 reduced emissions by 2% and the economy grew 5%, no towns were wiped out," Ben said, listing all the benefits.

"Then the policy was axed and replaced by Direct Action policy with the government buying emissions reductions through the Emissions Reduction Fund.

"The ERF – Australia's only legislated climate policy and entire carbon credit scheme – is in crisis and in need of reform. It completely lacks integrity," Oquist stated.

"It's a problem for the future government, and for taxpayers forking out millions of dollars, it's a waste of public money... those participating in good faith are now accused of greenwashing.

"Despite its name the ERF has not only failed to reduce emissions but the foundations have started to crumble.

"Half the \$4.5 billion funding allocated has been committed to 217 million tonnes of abatement – less than half the annual emissions created in Australia.

"Now there are questions as to whether the abatements data is real. It's been revealed 80% of the carbon credits lack complete integrity.

"If carbon credits are too readily available and affordable they will be used as a 'get out of jail' card. Instead of enacting systematic changes to lower emissions they will simply purchase cheap carbon credits which enables polluting technologies."

There is a role for a carbon credit scheme but it needs to be specific and well used, such as in hard-to-abate sectors in a genuine effort to reduce emissions, to incentivise additional and permanent carbon credits with other climate mitigation policies, he said.

"The current system is letting down participants. We need to assess its success and ask the fundamental question of whether it's sufficient to reduce emissions.

SMART ENERGY ON SHOW



"Carbon capture and storage and 'clean' CCS hydrogen are the headline false solutions currently. Legitimate climate action is undermined by false solutions," Ben Oquist concluded.

"We are at a tipping point in the low carbon story"

Leonard Quong, Head of Australia Research, BloombergNEF presented a comprehensive global overview of renewables over the past decade in which solar, wind and energy storage, in particular battery technologies, have experienced enormous change.

Market data reveals an 80% fall in the cost of solar panels and lithium batteries since 2010 and wind turbines by 59% driven by manufacturing economies of scale.

"For every doubling of capacity manufacturers get better, more efficient and more experienced supply chains become more robust, and prices fall proportionally as a result... our calculations suggest that for every doubling of solar capacity the cost of modules falls by about 29%, the cost of wind turbines about 14% and the cost of the lithium ion batteries by about 18%," he explained.

SMART ENERGY COUNCIL

"In the foreseeable future it will be cheaper to build new wind and solar than to operate existing coal and gas assets."

MAGES: EVAN MACLEAN

"Of course it gets harder and harder over time to double capacity and therefore the rate of change in cost is expected to slow, something I think we've already experienced.

"But we are already at an important tipping point in the transition story in the impact of these technologies on global systems.

"By our calculations about three-quarters of the world's population and roughly the same in terms of where GDP is created now lives in a country where wind and solar are the cheapest form of new generating technologies, now out competing coal and gas.

"This is the first important economic tipping point in a low carbon transition story. But it only matters if you build them."

A decade ago most of the world was building more coal, hydro and gas than any other form of generating technology, it now looks completely different. Since 2013 the world has been building more zero carbon electricity generating capacity than anything else, particularly carbon intensive thermal fossil fuels.

Since 2017 wind and solar alone have represented more than 50% of all new electricity generating technologies being built.

It took us about two decades of effort, Quong said, but at the start of this decade the world had installed over 1.5 terawatts of wind and solar capacity... that's a pretty incredible transition from 20 years ago, when these technologies were very nascent cottage industry and fairly immature, to today where we can fill conference halls with people to talk just about renewables.

In 2020 wind and solar accounted for about 9% of total electricity supply around the world, coal generation has likely peaked in both absolute and proportional terms in global electricity supply since 2018, Quong said.

Rising costs, disruption

But now the cost of building new solar on average across the world has risen on the back of geopolitical uncertainty, the pandemic and the rising price of polysilicon used for solar wafers.

These, with rising steel prices, disruptions in supply chains and shipping costs mean we have seen an increase in the cost of wind turbines being bought and sold.

Battery metals have also seen enormous inflationary pressure from primary feedstocks of nickel, lithium, manganese and cobalt... we're now seeing battery prices rise for the first time.

"This might not be a great news story for low carbon transition and is particularly challenging if your job is to build lowest cost technology solutions for the market but across the board consumers are facing higher prices at the bowser, in gas and electricity bills too."

Quong was unable to say with certainty when there will be some price relief across the board in these energy systems but expects many challenges will begin to be resolved over time.

"Perhaps not fundamentally this year, although in many cases the worst is behind us.

"We expect wind and solar costs for building new generating capacity will continue to fall and the gap between them and other forms of supply like coal and gas will continue to widen. In the foreseeable future it will be cheaper to build new wind and solar than to operate existing coal and gas assets."

Read more in New Energy Outlook, www.about.bnef.com

Taking the helm

As reported earlier, **Anthony Albanese** and **Chris Bowen** commanded great attention during the conference while delivering some powerful



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(and very welcome) messages: Net zero should not be controversial, and some simple facts: renewables are the cheapest form of new energy, they cut costs, unlock jobs and drive investment.

The ALP's permanent plan to introduce EVs into the market includes fast chargers. To accelerate decarbonisation ALP will adopt the safeguard mechanism put forward by the BCA and will adopt BCA's recommendations which are also supported by ACCI and AIG.

"It's time to seize opportunities and make the runs on climate policies, it's good for the economy and takes obligations seriously... we can create jobs and investments across the economy," Bowen said.

"Labor has a plan for a better future and for Australia to develop into a renewable powerhouse."

Powering past coal

Greens leader **Adam Bandt** spelt out a practical plan for electrification and to pull out of coal and gas, stating "Based on polices that are consistent with science... we need to reach net zero by 2035.



"Labor has a plan for a better future and for Australia to develop into a renewable powerhouse."

"We need to replace fossil fuel exports with new industries as we track toward 700% renewables exporting energy. Restore manufacturing. Green metals and green steel fund. Electrify homes and businesses – more solar and batteries in businesses and homes. Replace gas in homes and have an EV in garage.

"There is lots to do to unlock tremendous opportunities. Our safety and security rely on it," Bandt declared.

"Australia can show the world what's possible. Become a model for the future for everyone. A global market for new energy.

"It's time to power past coal and gas."

Bandt's vision which appears in more detail on page 13 was wholeheartedly saluted by **John Grimes** who stated "No group has strived more or been more consistent to acknowledge and respond to science and recognise more the opportunities in the transition. Or shown such commitment and passion."

John Grimes also commented on the wave of goodwill and uplift in morale and energy following two long years of restrictions under the pandemic, saying "Industry is poised to deliver ever more for households and businesses through ever smarter energy technologies that reduce electricity prices and the carbon footprint.

"The community has never been better informed of the benefits and is ready to take advantage."

"Turbocharge energy storage"

Bruce Mountain focused on matters underpinning key advances. He has long maintained the challenge in keeping the lights on is not interconnection, it's storage – it is essential to decarbonise and the only way to get rid of fossil fuel is to store the surplus.

"This needs to be the prime focus of policy, not transmission," said Bruce from Victoria's Energy Policy Centre.

"AEMO's step plan stated by 2050 we need 20 times more from 16GW of new storage to be built and 3MW of variable wind and solar for 1MW storage, ie a three to one ratio."

As for long storage (hydro power) "It's not needed, that is a challenge for tomorrow, if it ever arises," Bruce said.

"Solar is driving down prices to very low levels... but you still need a dispatchable resource, right now it's gas, so to keep the lights on you replace gas with storage."

In similar vein **Tristan Edis** of Green Energy Markets notes we are heading for a flood of solar energy supply in the daytime and emphasised the need for storage in the 'sun drought' early evening period.

"That is the market ahead... we desperately need batteries to take off to rapidly upscale to manage this sunburnt country... we expect batteries will take off in scale and solar will almost always be coupled with batteries is the future.

Given the price peak during 4-6pm versus negative prices around noon "That is the opportunity awaiting batteries," Edis said.

"But we have to see prices plummet – they are not a financially attractive option to consumers yet; they represent a fantastic opportunity but prices must fall."

Smart Energy 2022 – where enthusiasm and vision meet innovation. John Grimes and Greens leader Adam Bandt discuss 5B's Maverick technology







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SMART ENERGY ON SHOW



Spotlight on Luminaries

"As a nation Australia is home to enormous capacity and innovation and the Smart Energy Hall of Fame, instituted in 2012, recognises the significant impact of individuals over the years towards advancement of industry," John Grimes said.

2022 inductees to the Hall of Fame were:

- Giles Parkinson, prolific writer and the engine room of smart insightful written commentary on all facets of renewable energy. www.reneweconomy.com.au
- Steve Blume, architect of Australia's first reverse auction and significant contributor to ACT renewable energy policies. "The bedrock of the industry," John Grimes said.

GEM anticipates slow growth of batteries to the mid-2020s after which the market will take off and by decade's end most solar systems will have a battery.

And in more upbeat news "There will be a huge improvement in battery economies due to EVs and scale of uptake."

Recordings of key addresses can be accessed at www.smartenergy.org.au

Other insights and aspirations

Harnessing the power of wind: **Naomi Campbell** of the 2.2GW Star of the South project presented a fascinating wrap on the global offshore wind market in which turbines are becoming ever larger, more efficient and sustainable. "Pending all approvals and environmental assessments (by 2024 – lots of technical studies and enviro impact statements in the complex approval process and we are confident we can do it) construction will commence mid-decade and will be in full power by the end of the decade."

Victoria needs 15 times today's renewables installed capacity to decarbonise. The Victorian government pledges \$7m for

- 'Truth teller' **Nigel Morris** of Solar Analytics who "Always approaches things with good customer outcomes and integrity in mind". Nigel said "it is a monumental privilege to be inducted into the Hall of Fame... I am incredibly grateful to all my peers who have helped me along the way and to be recognised this way is truly humbling." Nigel's advice to industry: "Take one step, make it normal, move on to the next..."
- Professor Renate Egan of UNSW, renewable energy innovator and entrepreneur, advances in PV. (In Renate's absence the award was collected by Kathleen Ryan, described as "Gold – the heart and soul of the industry.")

offshore wind and commitment to targets of 9GW by 2040," Naomi said.

Australia currently boasts at least 17 offshore wind projects with a potential to generate 20GW offshore energy. **Ken Baldwin** of ANU: 3000% renewables is achievable given Australia's capacity for generation and storage in the form of batteries, pumped hydro and hydrogen. **William Edmonds** of BloombergNEF: "As of today there are 205 EV models available in China (which has vehicle emissions standards) versus Australia's paltry 31.

In Australia by 2040 two-thirds of new car sales will be EVs yet just 28% of the fleet will be EVs due to existing petrol driven cars' lifespan of around 15 years.

Audrey Quicke of TAI spelt out the lack of a federal EV strategy [under the Coalition] and delays in simply producing a consultation paper but notes stronger state government ambitions despite the absence of mandatory fuel efficiency standards. The lack of fuel security is concerning as is the lack of an EV budget, especially in light of the \$11.6b in fossil fuel subsidies during 2021. Australia would do well to follow Norway's lead, she said: "Tax what you don't want and incentivise what you want to encourage." **Anthony Broese van Groenou** of the Good Car Co: Transport contributes 7.3 billion tonnes CO₂ emissions or 5% of the total and Australia risks being the dumping ground for ICE vehicles.

Now for something rather different

Hypothetically speaking..."It's the year 2030 and Penny Wong is PM!" kicked off the novel Hypotheticals session, ably led by Scott Hamilton of the Smart Energy Council (channelling Geoffrey Robertson c.1985).

And the world has moved on. Simon Holmes à Court is now head honcho of the Business Council of Australia and he tells us the last coal-fired power plant has closed. Australia is powered 99% by renewables and the last gas supply is being phased out within five years. Green steel came to fruition by 2025 and the first in-scale plant was built, and Australia's certified green aluminium is being exported... steel is created and exported using renewable energy and therefore avoids costly carbon border taxes, Australia boasts seven large export facilities in NW WA, with terminals for clean hydrogen and ammonia. The Minerals Council of Australia shut down in 2023 (!) which left the market open to sensible discussion on decarbonisation, and the Independent coalition - the largest party in Australia – is on board!

Such was the upbeat tenor of the lighthearted but seriously ambitious session in which 'Treasurer' Richard Denniss declared: "By 2030 there are more people employed in dog grooming than in fossil fuel gas. And because the gas industry paid virtually no tax it's had no impact on the economy or budget" and "People who profit from the status quo never want change".

"By ceasing to subsidise the fossil fuel industry with \$11 billion each year, investment in renewable energy was adopted far more quickly," Denniss declared in his vision of 2030.

'Chief Scientist' Professor McGill, 'Senator' and 'Environment Minister' Jano Caro and Karrina Nolan of Original Power and the First Nations Clean Energy Network added to the levity with their take on a golden future.

Planet Earth does not get a vote

Now for a change of pace: **John Bell** of the Bell Shakespeare theatrical company relayed some profoundly thoughtful reflections.

The abridged version: "I am Planet Earth, the oceans you swim in, the land you live on.



The mountains you climb, the soil you till, the air you breathe - I am changing right now. My poles drip sweat, my seas are rising, my waves attacking the shore, fires burning ... storms are strong, floods ever deeper and more frequent. Corals bleached, forests falling, changing very quickly right now. For 70,000 years we managed well. For 70 years the temperatures have been rising - I am Planet Earth and I am changing, the doomsday clock at 120 precious seconds to midnight. My species grown smaller, I am Planet Earth and I don't get a vote, but you do. Think wisely."



Two of our favourite Smart Energy Show testimonials

"Excellent event! Great to see Green, Independent and Labor politicians attend... a real opportunity to learn the truth and witness the groundswell for real action on climate change."

"We learnt, we met, we experienced how fast this space is evolving and who the key players are. Anyone concerned with Australia's future should be at the Smart Energy Conference."

The Smart Energy Council wishes to thank Titanium and Platinum partners who helped make this year's event the great success it was.





As the largest 100% renewable energy company with no fossil legacy in the world, ACCIONA Energía has over 11.2GW of installed capacity across 17 countries.

ACCIONA Energia are looking for the best professionals who are passionate about designing a better planet.

ACCIONA was a Top Employer in 2022 and are currently looking for people to join the growing team in Australia.

When it comes to renewable energy in Australia, the company has made significant investments in the sector, with a total installed wind capacity of 435 MW. This figure is set to triple in the next five years as new projects come online.

Investing in the planet has never been more important, and ACCIONA Energía is excited to be delivering sustainable solutions with the best talent. We have plenty of opportunities so come and join us.

www.acciona.com/our-purpose/work-with-us



acciona.com.au



RENEWABLE HYDROGEN GATHERS PACE



In mid-April **PANASONIC CORPORATION** commenced operations at its new H2 KIBOU FIELD facility in Japan, built as a demonstration of a Panasonic renewable energy solution, known as RE100 (Renewable Energy 100%).

It is part of a self-sustaining power system that combines generation from both pure hydrogen and solar sources, and the first such demonstration in the world to make full-scale use of hydrogen fuel cells toward a 100% renewable energy manufacturing site.

The hydrogen fuel cell generators (495kW) and photovoltaic generators (approx. 570kW) as well as lithium-ion storage batteries (approx. 1.1MWh) will store surplus power.

The system will fully power the fuel cell factory in Kusatsu.

The integration of storage batteries enables the system to achieve a stable supply of electricity required for operations by managing the power supply from the fuel cell generators and the storage batteries, even at peak consumption, the company said in a statement.

Additionally, the integrated control of multiple 5kW type pure hydrogen fuel cell generators enables an ample supply of high power through a flexible layout tailored to the site's buildings and for flexible operations by managing generation according to demand.

The move follows Panasonic's launch of the 5kW Type Pure Hydrogen Fuel Cell Generator late last year, which claims an efficiency rate of 56 per cent. The system generates power through a chemical reaction with high purity hydrogen and oxygen in the air. It has been released for commercial use in Japan.

PWC AUSTRALIA'S INTEGRATED INFRASTRUCTURE TEAM

recently assessed the critical success factors for Australia's hydrogen export industry, including forecasts over production costs in the coming years.



Getting H2 Right considers the critical success factors in order for Australia to service growing international and domestic markets: getting the price right, establishing infrastructure and supply chain, navigating policy and regulation, and making it bankable through partnerships.

The PwC Australia report forecasts green hydrogen production costs in Australia

will decline rapidly by 2040 and become the joint-lowest cost globally, on par with that of key export competitors.

Year and \$A cost per kilogram of green hydrogen

2025: \$5.70 - \$6.10 2040: \$2.00 - \$2.45 (the holy grail) 2030: \$4.10 - \$4.50 2050: \$1.65 - \$2.05

"With abundant land and high-capacity factor renewable energy, Australia has the building blocks to produce globallycompetitive clean hydrogen to service growing domestic and international markets," said PwC Australia's Lachy Haynes.

According to PwC's analysis, Australia currently has a pipeline of over 90 hydrogen projects, which would require a conservative estimated investment of over \$250 billion.

Among PwC Australia's recommendations: set formal emissions targets to drive demand signals and attract investment; develop a Guarantee of Origin scheme to provide transparency and consistency; implement safety standards to boost community confidence and social licence; and establish a skilled and capable workforce for the hydrogen transition. *www.pwc.com.au*



Panasonic has built a large demonstration facility at its Kusatsu site, equipped with a power generation system that combines 99 5-kW pure hydrogen fuel cells



DELIVERING SA'S HYDROGEN JOBS PLAN South Australia's

Labor Government is calling for designs and delivery concepts for the construction of its new hydrogen facility in Whyalla.

Interested parties can obtain further information or submit proposals through the SA Contracts and Tenders website. The market sounding process closes on 15 July 2022.

The government also intends to develop new dedicated hydrogen legislation to license and regulate the production of hydrogen in South Australia, covering manufacturing of all forms of hydrogen, including green hydrogen manufactured from renewable energy, and (unfortunately) blue hydrogen manufactured from methane in conjunction with carbon capture and storage to permanently sequester the associated carbon dioxide emissions. (Good

luck to SA on that score.) Premier Peter Malinauskas (pictured) said

"South Australia's Hydrogen Jobs Plan is deliberately ambitious. We are building a globally significant hydrogen facility that will keep South Australia at the forefront of the hydrogen industry.



"Through fit-for-purpose regulation, South Australia will be able to provide efficiency and certainty to industry."

SA Energy Minister Tom Koutsantonis added "Just as the Hornsdale Power Reserve has paved the way for four new grid scale batteries to be built in South Australia, with a fifth on the way, the Hydrogen Jobs Plan will help accelerate the state's hydrogen industry."

South Australia currently boasts around eight hydrogen projects, a notable being the 200MW hydrogen power station and storage facility at Whyalla. The \$593 million project includes 250MWe capacity of hydrogen electrolysers and use of excess renewable energy to produce hydrogen as well as a hydrogen storage facility for up to 3,600 tonnes.







ARK ENERGY has completed the purchase of Epuron Holdings in a bid to become a world class green independent power producer and green hydrogen business. The purchase includes 4.2GW early-stage utility-scale wind and solar projects and possible additional pipeline of 4.8GW.

IMAGE COURTESY ARK ENERGY

Ark Energy is building a 1MW electrolyser at its Townsville zinc refinery to service its trucking fleet and harbours ambitions for green metals.

Over in the West **FRONTIER ENERGY** is tapping into alkaline water electrolysis to produce green hydrogen from renewable energy supplied by the proposed 114MWdc (and potentially 500MW) Bristol Springs Solar project commencing in 2023 near Waroona south of Perth.

A battery energy storage system is proposed along with the development of green hydrogen production using energy from the project.

In a move aimed at preventing greenwashing, **SWISS BASED GREEN HYDROGEN ORGANISATION** has defined green H₂ as "hydrogen produced through the electrolysis of water with 100% or near 100% renewable energy with close to zero greenhouse gas emissions (\leq 1kg of CO₂e per kg H₂ taken as an average over a 12-month period)".

The definition also imposes environmental, social and governance (ESG) obligations on producers ranging from engaging with local communities and stakeholders on projects and adherence to international standards of human rights in the development and operation of projects.

Under the guarantee of origin producers will be assessed by Independent Assurance Providers accredited by GH2 and who will subsequently report to GH2's Accreditation Body – not unlike the model established by Hydrogen Australia, the division of the Smart Energy Council.

Projects meeting requirement can display the label "GH2 Green Hydrogen" and obtain and trade GH2 Green Hydrogen Guarantee of Origin certificates, tracked by GH2's official registry.

THE HYDROGEN STREAM AT THE SMART ENERGY CONFERENCE in early May

was a resounding success with its informative commentary.

Among the strong line-up of speakers: Florence Lindhaus of the German-Australian Chamber of Industry and Commerce who presented a powerful overview of the relationship between Germany and Australia on hydrogen and some of the ambitious German programs. She was joined by Alana Barlow of Sumitomo who, in her address *Revitalising Gladstone* posed: What do you think of when you hear Gladstone?

Jonas Moberg spelt out the activities of the Green Hydrogen Organisation in setting a standard, a most important matter in the international landscape, commented Max Hewitt, Division Manager for Hydrogen Australia.

Brendan James Founder and Executive Chairman, LINE Hydrogen, enthralled delegates with his description of a tangible hydrogen project, as did Emma Stilts who heads the development of the Manilla Community [owned] renewable energy project with a hydrogen production element.





Scott Hamilton, Matt Harkness, Andrew Clayton (Motherson) and Max Hewitt visiting Tonsley Innovation District in Adelaide – leading-edge research and education institutions, established businesses and start-ups, business incubators and accelerators

THE SMART ENERGY COUNCIL THROUGH ITS HYDROGEN AUSTRALIA

division is working with Platinum partner SMR Motherson, a major automotive manufacturing company based in Adelaide to diversify into renewables. Motherson will be manufacturing PV inverters at its plant in South Australia and Hydrogen Australia is helping identify new opportunities in the booming renewable hydrogen sector. "This is exactly the sort of advanced manufacturing we want to see happen here in Australia. This not only helps Motherson decarbonise its operations but will help Australia and the world thrive in a zero carbon future," said Hydrogen Australia senior advisor Scott Hamilton. For more intel on renewable hydrogen manufacturing opportunities, contact division manager Max Hewitt. max@smartenergy.org.au

THE RENEWABLE HYDROGEN OFFTAKE FORUM of June 23 staged by Hydrogen Australia conveyed a raft of strategic market information for producers. Among the presenters: Trent Litchie of Everwind Fuels, Laura Luce of Hy Stor Energy, Tim Buckley of Climate Energy Finance, Neil D'Souza Energy Economics and Policy, Asia-Pacific and The Middle East, Argus Media and Tanya Denning of Baker McKenzie.

The Domestic Offtake session examined key projects in Australia from a range of speakers from BP Australia, Scimita Ventures, Ashurst; and Alex Hewitt, Chair of the Hydrogen Catapult was on hand to deliver international perspectives.

More details in Spring Smart Energy.



THE CONVERSATION ON FIRST A NATIONS AND RENEWABLE ENERGY

HOW CAN ABORIGINAL COMMUNITIES BE PART OF THE NSW RENEWABLE ENERGY TRANSITION?

THE NEW SOUTH WALES GOVERNMENT'S ROADMAP to transition from

coal-based electricity to renewable energy involves the creation of five 'renewable energy zones' across the state.

These 'modern-day power stations' will use solar, wind, batteries and new poles and wires to generate energy for the state. They're part of a broader plan to meet a legislated target of 12 gigawatts of renewable energy and 2 gigawatts of storage by 2030.

These renewable energy zones include measures to deliver regional benefits such as engagement, jobs and benefit-sharing with local Aboriginal communities. This is a first for an Australian renewable energy program of this scale.

However, two things are needed to maximise this opportunity for Aboriginal people.

First, Aboriginal land councils need greater support and resources to participate effectively in delivery of the renewable energy zones.

Second, there should be a program to facilitate the development of renewable energy projects on Aboriginal-owned land.

Through these actions, the government can help develop partnerships that can deliver revenue and jobs for Aboriginal communities as the state transitions to clean energy.

Maximising opportunities for First Nations communities

There are some cases of renewable energy projects delivering for Aboriginal communities, such as solar farms engaging unemployed Aboriginal workers. But overall the benefits have been limited to date.

However, legislation requires the NSW government bodies and renewables projects in the renewable energy zones to comply with 'First

Nations Guidelines' currently under development. The guidelines will require:

- regional reference groups
- an engagement framework for renewable energy projects, and
- a document reflecting community interests developed with the input of local Aboriginal organisations (land councils and Traditional Owners under Native Title) in each renewable energy zone.

Projects bidding for a 'long-term energy supply agreement' from the NSW government – which will guarantee a minimum price for their output – have to comply with the Indigenous Procurement Policy. This includes ensuring a minimum 1.5 per cent Aboriginal workforce and 1.5 per cent of contract value to Aboriginal businesses.

These First Nations guidelines will form part of the tender evaluation, creating incentives for projects to increase benefits for First Nations communities.

The inclusion of these First Nations guidelines in the renewable energy projects is a first for Australian renewable energy. It's likely to significantly improve economic outcomes for Aboriginal communities. So far, so good.

However, there are also some missed opportunities.

First, if renewable energy projects and the First Nations guidelines are to work well, greater resourcing and capacity-building is needed for local Aboriginal land councils so they can participate effectively.

In addition, the NSW government should develop an Aboriginal-led local and regional level clean energy strategy so communities can identify what they want from this momentous change.

A study by the Indigenous Land and Justice Research Group, based at the University of Technology Sydney, revealed local Aboriginal





land councils are eager for renewable energy. This would improve opportunities to live and work locally, boost energy security, lower costs, enable care of Country and create wealth.

However, the study found these communities had little or no knowledge about renewable energy options or how they could benefit.

Only one Local Aboriginal Land Council in the pilot renewable energy zone had prior dealings with renewable energy operators. All were uncertain about how their land assets could be mobilised.

More opportunities needed for Aboriginal-owned land in NSW

There are currently no measures to encourage and facilitate renewable energy projects on Aboriginal-owned land in NSW.

Work by Indigenous Energy Australia and the Institute for Sustainable Futures found the best outcomes often occur from 'midsized' renewable energy projects on Indigenous-owned land. Examples include:

- The Ramahyuck Solar Farm (Longford, Victoria), which is wholly owned and operated by the Ramahyuck District Aboriginal Corporation. Following government funding, debt financing was secured for construction. The profit generated from the development will be redirected to Aboriginal education and health programs
- The Tuaropaki Geothermal Power Station in New Zealand, which is 75% owned by the Māori, Tuaropaki Trust and 25% by Mercury Energy (a large energy company). The Tuaropaki Trust was developed through financial partnerships and government

support. These developments produced long-term income for community programs and other commercial ventures

The Atlin Hydro Project in Canada, a 100% Indigenous owned and operated project. Government support was critical in establishing the project. Once established, revenues were distributed based on joint clan meetings for health programs and a land guardian program.

Developing projects on Aboriginal-owned land would take more time to identify a workable model, ensure there is support within the land council and local community and develop local capacity. But done well, it can deliver greater benefits for Aboriginal communities.

A government program developed in parallel with the roll out of the renewable energy zones could develop opportunities for renewable energy developments in partnership with local Aboriginal land councils.

Support for meaningful, Aboriginal-led renewable energy projects on Aboriginal land has the potential to make real progress towards the long-hoped-for benefits of land restitution for First Peoples in NSW

The time for action is now.

Authors: Heidi Norman, Professor, Faculty of Arts and Social Sciences, and Chris Briggs, Research Director, Institute for Sustainable Futures, University of Technology Sydney.

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SMART ENERGY in action

The big-ticket item on the SEC calendar in recent weeks was the Smart Energy Conference and Exhibition; here we check in on other important events that put the spotlight on critical matters of enormous consequence.

Emergency Fuel Security Summit

In late April the Smart Energy Council hosted an Emergency Fuel Security Summit where John Grimes emphasised the gravity of the situation, stating if Australia's supply routes are blocked, the nation would run out of petrol and diesel in just three weeks.

"Australia's fuel security is an absolute disgrace," John Grimes said. "We desperately need a national fuel security policy and a national energy policy."

He added Australia needs to be investing in electric vehicles and zero emissions transport, renewable energy and renewable hydrogen, creating the jobs and industries of the future.

His call for national leadership on this critical issue was echoed by Independent candidates Zali Steggall, Allegra Spender and Kylea Tink who said they would be pressing the next federal government for strong national vehicle standards and reduced dependency on overseas energy sources.

"We can improve people's lives in this country, both from a health point of view, and from a cost of living point of



Emergency Fuel Security Summit speakers: Behyad Jafari, Allegra Spender, Zali Steggall, Chris Barrie, Kylea Tink, John Grimes and Richie Merzian

view, if we make an effective transition to electric vehicles," Allegra Spender said.

Zali Steggall strongly advocates for 76 per cent electric share of new vehicle sales by 2030, well up on the 27 per cent Australia is tracking towards.

The Emergency Fuel Security Summit was staged at the Hilton Hotel in Sydney prior to the federal election in a bid to prompt greater discussion and action.

Emergency Pacific Climate Security Summit

Eminent speakers at the Pacific Climate Security Summit staged by the Smart Energy Council in mid-May highlighted the urgent need for the Australian Government to tackle climate change and work with Pacific nations to address the impact of climate change.

Chair Gabrielle Kuiper noted the unanimous agreement on the need to significantly increase the use of renewable energy across the Pacific.

Then Shadow Minister for International Development and the Pacific Pat Conroy reminded summit attendees of Australia's address to an empty room at COP26 in Glasgow last year. It set the pace for the Summit, namely the need to address the lack of any sincere efforts to date.

Anote Tong, Former President of Kiribati presented a powerful address. "Superpowers aren't the greatest threat to Pacific communities, climate change is," he said. "Our survival is on the line; islands will continue to go under water unless real action is taken.

"My hope is the global community becomes more moral and responsible on the climate crisis caused by emissions." Australia has the capacity to be a superpower but needs leadership to overcome obstacles, he said, citing the power and influence of the fossil fuel lobby.

"I know that it is an open secret that the fossil fuel industry is very much involved in the lobbying process, but it's always been my hope that our first loyalty as leaders would be to the people, rather than the very few who might benefit from the fossil fuel industry," Tong said.

Admiral Chris Barrie AC, former Chief of the Australian Defence Force and member of the Australian Security Leaders Climate Group listed two existential threats: nuclear war and climate change. "Mother nature is teaching us about our inadequate preparations... we need to give hope to island nations," he said. The first duty of a responsible government is security for its people. Being smart about energy is vital to our future."

For his part, Samson Vilvil Fare, High Commissioner for Vanuatu has seen fit to take strong action by applying to the International Court of Justice to take serious action on climate change.

Trevor Sofield, the Former Australian High Commissioner to Solomon Islands who was famously tackled by the then PM's security force when out on election hustings, declared Australia had been "missing in action" on climate issues.

Prof the Hon Bob Carr, former Australian Foreign Minister and former NSW Premier slammed the "Grotesque failure of government and Australia's resistance to action on decarbonisation" branding the Liberal National Coalition "bedazzled by carbon capture and storage" despite its proven failure. "CCS is not working anywhere in the world," he said, "That, and Australia's support for gas, is deeply contemptuous behaviour."

Ending on a bright note Bob Carr said: "If there is a change of government with a team that takes climate action seriously things will change overnight and change the relationship in the Pacific."

Rounding off the Summit were words of wisdom mixed with impassioned pleas from Richie Merzian of the Australia Institute; Barbara Elliston, Director, NZ Pacific Solar and Storage Council; Rob Edwards OAM CSP, Founder Its Time Foundation; Janaline Oh, Diplomats for Climate Action; and Eddy May, Managing Director of NRG Solar.

> "Being smart about energy is vital to our future."



Lifeline makeover

Lifeline Canberra's book warehouse in Mitchell recently underwent an upgrade with a doubling of the capacity of the rooftop solar system to 11.36kW, a new 10kW inverter, tilt racks and reorienting of existing panels for optimum efficiency, and full LED lighting.

GoodWe kindly donated the 3-phase 10kw GoodWe inverter through Supply Partners and the racking was supplied by Sunlock.

The Smart Energy Council helped stage a celebratory event with local suppliers, EPC Solar and then ACT Independent Senate candidate David Pocock.

Lifeline provides crisis counselling to people experiencing extreme pain and anguish and its annual Bookfair raises vital funds to support the helpline.

"Each year, Canberrans spend around \$950 million on energy and fuel bills." David Pocock said. "Through my proposal for a worldfirst Canberra-based 'Suburb zero' trial, and then a territory-wide electrification program, we could save the average household more than \$5,000 each year in bills and create up to 5,500 jobs."

"Fundamentally, my policy is about creating jobs, saving people money and ensuring ACT households, as well as business and charities reap the benefits of the smart energy transition that is already underway. In this case, it can help Lifeline find savings to focus on their core business. Lifeline saves peoples' lives, and it is fantastic they can focus on helping people rather than worrying about their power bills."

EPC Solar Managing Director Daryn Stocks reiterated the cost saving benefits of transitioning to renewable energy solutions.



Delivering solar power

Prior to the federal election, then Independent candidate for Wentworth Allegra Spender, who is a staunch advocate for renewable energy, delivered a 15-panel solar array to Wentworth's not-for-profit Holdsworth Community Centre in Woollahra.

The system was kindly donated by Jinko Solar, Redback Technologies and Clenergy, and R.L.E Electrical managed the installation.

John Grimes of the Smart Energy Council commented "Every kilowatt hour produced by solar is a saving that the Holdsworth Community Centre can invest in the services it provides to the people with disabilities and their families. This is a great achievement for the local community."



John Grimes addressed the issue of poles and wires at the Enlit conference in March



GoodWe's Dean Williamson and SEC's John Grimes at the launch of GoodWe's custom designed Roadshow vehicle

"Let us develop the resources of our land, call forth its powers, build up its institutions, promote all its great interests, and see whether we also, in our day and generation, may not perform something worthy to be remembered." W. SOMERSET MAUGHAM

Solar PV Array Design Resolution

The Smart Energy Council worked hard to find a resolution to the short circuit design calculation issue that may affect some inverter and panel combinations.

The way forward

Inverter manufacturers will need to make a declaration to their customers around the safe short circuit current operating parameters of their product.

The manufacturer should confirm that the equipment has been tested and shown to be



capable of withstanding the maximum short circuit current.

The manufacturer should then reflect that new tested rating in its data sheet. Manufacturers should note that designers/ installers will rely on this statement to justify their design decisions.

Remain engaged with the issue

While there is no mechanism to allow an official ruling to be made on this issue, the Smart Energy Council has liaised with relevant stakeholders who are supportive of the resolution outlined above.

The Smart Energy Council will continue to monitor this issue and update members with any future changes.

We need to fix this hot mess

The regulation of distributed energy resources, like solar panels and inverters, and the Standards process for them is broken. It must be fixed!

The Smart Energy Council is absolutely committed to reform in this area.

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PUTTING ENERGY ACTION

The SMART ENERGY COUNCIL is the

peak body of the smart energy sector in Australia. We are a not-for-profit, membership-based organisation with around 1,000 members nationwide, consisting of companies and individuals operating in this rapidly expanding industry.

We are passionate and independent. Our deep understanding of and connections with our members and industry ensures that we deliver results for the smart energy industry and the community.

"The Smart Energy Council has the key people, experience, demonstrated effectiveness, and industry and government network and relationships, to rate as one of the top industry bodies in Australia and globally."

– John Hewson, Former Liberal Party leader, financial and economic expert

SUPPORT THE DRIVING FORCE OF SMART ENERGY

SMART ENERGY

The SMART ENERGY COUNCIL:

- Fights hard for smart energy policy
- Provides actionable market intelligence
- Creates valuable networking and introductions
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- Promotes your business and brand

We represent companies across the Smart Energy spectrum including: solar, solar hot water, storage, energy management, electric vehicles, hydro, wind energy, bioenergy, ocean energy, geothermal, hydrogen, co- and trigeneration, and hybrid and enabling technologies.

We also represent smart energy customers and consumers and provide expert advice to governments and the public.

As the national voice for smart energy, the Council is committed to high-quality, long-term smart energy solutions for all Australians.

BECOME A MEMBER TODAY

Don't sit on the sidelines. Become a Member and play an active role in driving industry quality, safety, and smart national energy policy.

For further information please contact: ALISTAIR McGRATH-KERR, Sales Manager Email: alistair@smartenergy.org.au T: 0499 345 013

The *busy, happy* life and times of KATHLEEN RYAN

Q&A



Kathleen is well known to many in the industry. She's an identity without peer: fabulously friendly, utterly vivacious and a wizard with introductions. The queen of vitality and conviviality – hear more from the enduringly popular Kathleen Ryan.



Kathleen during the early days at BP Solar

You are one of the 'pioneers' in the renewable energy industry... what and when was your first foray?

Kathleen: It all started on February 19, 1995. I was on maternity leave as I had a 2-monthold daughter and my former boss from Unisearch, UNSW rang me and said he needed help at Pacific Solar as he had been appointed the MD and received a grant for \$45 million to research thin film! I said I would be there at 9.00 sharp the next morning! And thus began my solar career. I worked at Pacific Solar until 2003 and had another daughter in that time.

What were your impressions of the then fledgling industry?

Kathleen: One of my jobs was Secretary of the weekly Management Meeting and I watched the development of the thin film and then worked with the Plug&Power (a solar kit) sales team. I rarely had time to think as I was so busy. I knew I was on a tidal wave of something very big. Everyone I knew was aware that I was doing the most wonderful job and thus I didn't have to help out at school tuckshop or at the school because I was saving the planet!

In your view, what have been some of the more memorable occasions or technological advances over the years, also, conversely, the biggest disappointments?

Kathleen: I remember the first time the sales team sold a 1.5kW Plug&Power system, I did a lap of the whole building telling everyone how incredible it was that we had sold a system! There was a lot of joy actually selling this solar kit. But the first time I ever personally sold a solar kit the homeowners phoned me the next day to say they wouldn't proceed! I was devastated; it was pretty much the end of the world for me! Then when BP Solar closed that was heartbreaking. To have worked so hard again and then have it shut down made me question the meaning of my life. I then left the solar industry for three months.

How have things panned out for you in your career, could you have foreseen the path you have followed working with Winaico and in your current role at Solar Analytics?

Kathleen: Because I felt that I had found my calling, it was easy to turn up every day with enthusiasm. After being retrenched from Pacific Solar, I went to work in advertising.

It was tough! I had no real purpose anymore as I really wasn't aligned to selling advertising space... I could hardly get out of bed to go to work. Then luckily Nigel Morris recruited me for a job at BP Solar and once again I found my purpose. Strangely I have fitted in very well with the solar industry. Not being a technical person, you would think, would be a drawback, BUT there has always been a role for me because I love relationships and I very easily remember life stories. I also genuinely care for my very many friends in the solar industry. Also, a lot of the time I do what I'm told to do!

Would you like to list some of the key 'influencers' you have worked alongside?

Kathleen: I have been very lucky and worked with all the industry greats! The industry is full of the most amazing people, some of whom scale a 40-degree roof and install solar panels – a good installer is my unsung hero!

You know and have followed many industry luminaries, how do you remember all the names?



"I knew back in 1995 that I was on a tidal wave of something very big..."




"A wonderful man who did so much for the industry" - Kathleen pictured with Govind Kant

Kathleen: I'll let you into a little secret... everyone is one of 'my dears', so if I have forgotten someone's name they are always 'my dear' or 'my friend'! I find it very easy to introduce people to each other. Surprisingly, I'm very bossy and if I see a lost soul I just know they must be introduced to someone who will be just delighted to meet them. There are many vital solar stories out there that need to be shared with someone new!

You have attended many, many industry events over the years... what stands out?

Kathleen: Every solar event is just another party to me, it's so exciting to see all those delightful friends and catch up on their news. But as we all say: "What happens on tour, stays on tour!"



Alongside a Winaico panel and Blair Pester in downtown Sydney

Given your ubiquitous presence I think people would like to know where you find the stamina!

Kathleen: I developed some new rules for the last few years, such as staying off sugar and limiting alcohol, and I only eat small amounts. It sounds boring, but I can keep up my energy. I can't wait for the next solar event, I live for them - the solar industry is my extended family!

Your zest for life is infectious, does it ever fade, what in the world makes you cross?

Kathleen: I have had the most wonderful life! I have everything I need and the icing on my cake is that I come to work and do a job that I love with people that care for me. I am very happy.

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AIR CONDITIONING

STRATEGIC PLANNING It's not just buzz words

HAVING EMERGED FROM THE LOCKDOWNS

and the complex trading conditions over the past two years, it is likely that business was thinking that the worst challenges were behind them.

However, now instead of the lockdowns they are facing supply chain and labour force issues. Yet more hurdles to overcome on the path to success.

How you prepare for challenges in your business will impact on how you overcome them. Even more important is how you prepare your team and your stakeholders for opportunities or adverse conditions.

It is no secret that many businesses do not have a written business plan. It is common for business owners to focus on production and generating income and to put short to medium term planning on the back burner. This leads to reactive decision making and crisis management. There may be moments of brilliance where an idea or opportunity is seized upon and put into action, but the potential of the organisation is not reached as there is no underlying strategy to the business.

Even if you think you have a plan, ask yourself these simple questions:



Benjamin Manera believes William Buck can help your business develop or revise a strategic plan Australian Business Advisory William Buck



1. How old is the plan?

- 2. Is the plan written down and if so, where is it?
- 3. Do your staff and stakeholders know the plan?

If you are unsure of any of these answers it is time to reset and review.

A strategic plan will articulate your Vision for the business. It is like planting a flag on a hill and letting people know, "this is where we are going."

From there you develop strategies to implement the Vision and most importantly an Action plan to achieve it. The action plan forms the basis of your business plan.

Developing the Strategic Plan – Where to start?

Where to start with your plan depends on your business's operating and ownership structure. If you have multiple owners or shareholders in your business, alignment is essential.

An alignment exercise will review where you are in the business and how each stakeholder is feeling about areas such as finance, staff, clients, opportunities and succession. The exercise will highlight where you are aligned and importantly where opinions may differ.

Success is contingent upon the alignment of the stakeholders.

If the Vision for the business is not supported by all key stakeholders, the plan will

fail. Ensuring support is key and maintaining it is the challenge. Communication and listening to others' points of view is essential to this process.

Developing the Plan

Strategic planning is a process, not an event. It is dynamic and changes over time. It involves identifying where your business wants to be – the Vision – then you take stock of where it is now and from there you formulate actions to bridge the gap.

The vision should be clear, concise, achievable, and visible from all directions.

All areas of your business need to be considered to achieve the vision. This includes the staff, clients, processes, innovation, and the financial aspects of the business.

It is important that your strategic planning should include action points to implement the vision. These action points are a kick-start to change. Change comes from articulating a clear vision, providing resources and incentives to achieve it, and supporting the process, even when it becomes challenging. Importantly, like any journey, the strategic plan should be flexible and if you take a wrong turn, you can reassess and reposition.



Monitoring your progress

Evaluating and monitoring your progress is key to analysing whether the goals set remain relevant and achievable. It is also beneficial when changes happen in your environment. For example, a competitor may start servicing customers in a location with your key demographic. This does not mean you are on the road to failure, you may just need to re-evaluate your original targets. It is important to be adaptable and stay light on your feet. Prepare for change, because change is a key driver of growth.

When should you invest in strategic planning?

It is never too late nor too early to adopt a strategic approach irrespective of size or the business current life cycle. Without a plan, it is difficult for the business to have direction. Strategic planning provides that roadmap and action to drive the business to be profitable and sustainable.



William Buck can assist your business to reach your flag on top of the hill by helping to develop or revise your strategic plan. Our team can conduct a strategic planning day tailored to your needs where we will guide you through various exercises to refine your vision and

-

provide you with the necessary planning tools to execute your goals.

For more information, please contact us on 07 3229 5100 or email Ben at benjamin.manera@williambuck.com, www.williambuck.com



Solis Upgrades Smart Energy Storage Solutions For Homeowners And Installers in Australia



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Virtual power plants and real benefits

Demand response at small scale is a hot topic and one in which Discover Energy's **Chris Cormack** is leading the charge.

EVERYONE LIKES A REWARD and Discover Energy

likes being the provider, delivering benefits to Virtual Power Plant customers who shift electricity demand to alleviate pressure on the grid. Everyone's a winner.

And that was the topic of Chris Cormack's address at the Smart Energy Conference in May in which he presented the bright future for the community and the grid as VPPs become more widespread, and how small-scale networks like Discover Energy's have the smart technology to manage responses while providing alternative generation sources.

It's a future that could not be too far off, given AEMO's projections that half of all Australian households will have distributed energy resources by 2030.

"If that does materialise we will be pretty happy," said Chris who across two decades has held senior roles at AGL Energy and AEMO at the cutting edge of the energy transition.

He's now overseeing the drive to position Discover Energy at the forefront of the market, and his enthusiasm for all things storage and VPPs is palpable. The company's VPP program currently boasts more than 2,000 customers across the mainland states and, since its 2018 launch, has enjoyed a meteoric rise with month-on-month growth averaging 23 per cent and year-on-year growth at a phenomenal 539 per cent.

One of the biggest selling points in the VPP experience is the increasing value of solar and battery storage counterbalanced by the decreasing value of feed in tariffs as experienced by customers across the board, Chris said. "Getting a battery actually makes sense these days but then by being able to trade excess capacity, households are getting a better return on investment, and those who work with companies like Discover Energy and become part of a VPP can pay off the battery sooner."

Importantly they are also providing services to the grid, he said "FCAS (frequency control ancillary service) is an important service that effectively keeps the grid running at those really important times when there are interconnector issues, and voltages and frequency drops.

"So VPP participants are getting paid while also providing a social good – a social service. "This is the future for the industry."

How it works

Discover Energy runs a similar model to One Stop Warehouse (both entities founded by Anson Zhang and Jeff Yu) by relying on a wide network of independent installers to present the case and close sales of the solar and battery system, and facilitate the finance associated with that.

The Discover Energy VPP model's energy plan includes the ability to manage trading using sophisticated algorithms and integrations with inverters, with a 50:50 profit share.

"The VPP is effectively open to a number of different technologies, about 80 per cent of the inverter and battery brands on the market integrate with our API (application programming interface), this is the software that talks from 'our side' to the actual battery inverter," Chris explained.

"Although we've developed a way to integrate with the majority of brands on the market we're also trying to be an open source by allowing our customers to bring their batteries and we provide





the VPP plan and effectively allow them to trade the

capacity of their battery. "The algorithm discharges the battery down to the minimum set by the battery owner and the rest can be traded, or customers can trade energy on their own behalf.

"We are now optimising things like network tariffs and working with different distribution networks around Australia so batteries can charge or discharge from the network when it makes [financial] sense," he said.

Demographics

The VPP community is quite diverse, he said, and becoming more widespread with most of the big retailers now operating some sort of VPP.

"Our customers are more energy engaged, generally these are people who have probably had solar for a while and who then made the big step of installing a battery and want to play a part in that kind of energy transition."

Cost curves

Discover Energy is working with battery manufacturers to reduce costs, and collaborates closely with One Stop Warehouse to facilitate the downward trend.

"We are keen to see battery prices fall and that is slowly starting to occur but it needs to accelerate for the investment to make more sense for consumers," Chris explained.

The team also works with a network of installers and finance partners to put together attractive offerings for consumers to hasten the transition, and is exploring opportunities to bring more customers on to FCAS.

More to come

Discover Energy has also turned its sights to the role of electric vehicle chargers (see page 6) and beyond that is focusing on EV charging demand response for hot water, heating, pool pumps and more.

"We are really integrating much more of what are controllable flexible assets and in terms of that being the future it is conceivable that 20 or 30 per cent of consumers would have large enough flexible assets to want to be part of something like a VPP," Chris said

We canvassed his opinion on the short-term outlook for the industry under the ALP.

"Their electric vehicle policy is a bit more expansive and we definitely support the proposal for more community batteries and are working on several such projects right now," Chris said.

"In all I believe the renewable energy transition will accelerate much more quickly under Labor."

www.discoverenergy.com.au







POWOW: Unlocking the solar battery market

DURING THE SMART ENERGY CONFERENCE in May several presenters spruiked the imminent rise in uptake of residential battery storage as the future of the solar industry. With electricity prices rising and feed in tariffs declining, that future is coming quicker than we thought. Alex Georgiou calls this Solar 2.0 – a world where solar providers can offer whole home panel, battery, and virtual power plant solutions for less than customers are currently paying for grid electricity.

Powow is a new, disruptive player aiming to unlock that future for solar companies across Australia. The Powow offer involves a storage battery system purchase made easy through plans and options to participate in a virtual power plant to maximise income and savings.

Alex is a strong advocate of VPPs given their ability to provide ondemand battery power to support the grid and generate extra savings for participating homeowners.

"Virtual power plants are key to unlocking battery sales at scale across Australia because they cut down the payback time while generating community grid benefit," he said. "If you don't have a VPP, you're going to have a hard time selling batteries in the future."

Powow's VPP offering that operates across the eastern states is built off the back of proprietary software developed in house.

An offer too good to refuse?

During his powerful presentation on how to use the Powow PPA and VPP to sell more batteries to Powow's target market – existing solar panel installers – at the Smart Energy Show in Sydney in May, Alex said "We are helping solar businesses supercharge their business – to go out and confidently sell batteries by bringing everything they need to sell batteries in one place. It's an industry toolkit to help companies, organisations and businesses increase their battery adoption, and a way we can provide tools to installer companies to be able to roll out home energy systems beyond PV panels.

"The Powow VPP can develop into one giant people's power plant that can knock off the need to build more gas power plants and facilitate shutdown of others."

Homeowners benefit from participating in the Powow VPP, the optional extra that could glean up to \$200 annually based on excess power at 45c/kWh additional earning stream in VPP.

"There are no upfront fees and homeowners can choose whichever electricity retailer they want, while still being on the Powow VPP and





Powow plans to unlock the home battery storage market

earning 0.45/kWh for any battery power sent back to the grid during VPP events.

"Importantly, we can replace coal and gas power with sustainable, renewable energy powered by the people."

Blackouts

A recent consumer electricity survey conducted by the government revealed one in three households had blackouts in the past six months.

"We found this surprising, it shows the grid is not as stable as many think, it is not handling demand well enough especially on hot days, so the VPP that we offer can help by delivering power from the ground up," Alex said.

It's also better for the grid [network] as there is less demand for upgrades to poles and wires for the one event, for example during a surge in use during hot summer days.

The VPP is working behind the scenes and reduces peak hour power prices, taking the edge off the spike in costs, he said.

The grid is already struggling to handle more daytime solar power as it is overloading the system but with batteries in the VPP you get around this by storing the extra daytime power for later.

Energy regulations and rules will increasingly hurt households with just solar panels – things will get worse for them. This year many customers will have a 1 cent feed in tariff. By 2025 they may be charging those who export to the grid when it's not needed, Alex explained. The rules are changing, and those with batteries will benefit from these changes.

"Solar 1.0 is dying and Solar 2.0 is emerging on the back of batteries and VPPs."

Challenges ahead?

"Breaking the perception that batteries are too expensive – that is what's holding back the industry," Alex said. "Things will get better for those with batteries, they will be favoured."

www.powow.com.au

"Solar 2.0 is emerging on the back of batteries and VPPs."





4

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SUSTAINABLE ENERGY COMMITMENT A commitment for change



CLIMATE CHANGE HAS BEEN A SUBJECT of global debate for decades, but the world's governments have only now been jolted into action as climate-induced weather events are acknowledged as a threat. The threat needs to be addressed now rather than in future generations!

Most Australian businesses recognise that we must keep the 1.5-degree goal alive or risk permanent climate change. As a result, many businesses are now on the journey towards Net Zero or 100 per cent renewable energy.

Fact - 72 per cent of global emissions come from energy!

Australian business, **Maximum Energy**, has identified this as the single biggest opportunity to make real change, not only to the energy sector but to businesses and communities.

- The energy market must decarbonise, but on reflection there are significant risks and challenges attached, specifically, the existing energy network isn't built to fully decarbonise
- Energy users cannot rely on traditional energy retailers to solve the problem
- Carbon offsets are not the pathway to Net Zero
- Businesses recognise the need to participate and change but lack the knowledge or resources to quantify targets and implement the associated roadmap.

In response to this, Maximum Energy now provides and implements the Sustainable Energy Commitment, the benchmark for achieving the pathway to a Sustainable Energy Future for businesses and communities alike.

What is a Sustainable Energy Commitment (SEC)?

SEC is a leading-edge, governance-driven framework and methodology for commercial and industrial energy users to achieve real Zero Energy, Energy Resilience and Circularity, operating within the confines of the current energy system to accelerate the transition to a decarbonised, distributed energy era.

Why is SEC so important?

Currently, governments and businesses are committed to 2050 targets, but the science clearly indicates that more immediate and aggressive decarbonisation must occur by 2030, to help limit global warming to under 1.5°C.

Failure to meet this target could see catastrophic advancement of interrelated climate risks, including severe heat incidents, loss of plant and animal species, oceanic acidification, reduced inhabitability of low-lying areas and rises in sea levels leading to disastrous, global humanitarian crises.

Why businesses should make a Sustainable Energy Commitment

There are three key reasons for businesses and communities to make the Sustainable Energy Commitment:

Firstly, it targets urgency on climate action to prevent a 1.5°C temperature increase. This is achieved by setting realistic targets, configured around the specific organisation, to align with global pre-2030 targets and support the establishment of new systems and processes, reducing reliance on traditional energy suppliers and infrastructure.

Secondly, a leading-edge methodology has been developed which addresses each company's Environmental, Social and Governance (ESG) factors, which includes development of sustainable goals as well as viability of new technologies and innovation.

Thirdly, the Sustainable Energy Commitment considers energy transition complexities. Maximum Energy collaborates with clients to

"For most organisations, energy contributes to a major component of their total emission output. The Sustainable Energy Commitment provides a clear and straight forward 'how to' guide for companies committed to achieving a net-zero energy footprint. This comprehensive framework considers how organisations can build a competitive advantage through energy and importantly take the risk and guesswork out of the transition to a sustainable energy future." JOHN GRIMES, MAY 2022



achieve energy management resilience and a Real Zero target; 100 per cent renewably sourced energy – no offsetting scams or creative paperwork.

The SEC can set up organisations to be a part of a Circular Energy Economy, a 'community group' which produces and shares its own renewable energy, while also contributing significant amounts to the grid.

How does SEC work?

The Sustainable Energy Commitment provides businesses and communities with a comprehensive assessment, exploring and evaluating their Environmental, Social and Governance (ESG) factors.

Maximum Energy works with clients to create sustainable, measurable and achievable goals, enabling a successful transition towards sustainable energy organisation.

Maximum Energy remains involved throughout this process to provide accountability as well as ongoing governance.

What SEC delivers

The Sustainable Energy Commitment criteria addresses the energy transition challenges as whole.

It provides a framework to help organisations achieve economic benefits and address Environmental, Social and Governance (ESG) factors throughout the transition.

The SEC has been developed to accelerate the uptake of renewable energy and decarbonisation of the electricity network (grid). This methodology guides businesses and communities to develop defined targets that align with global climate change agreements, while addressing the challenges of decarbonising the grid, in the context of each organisation's market and existing systems and processes.

Upon completion of the SEC, an organisation has a clear plan and most importantly strategies in place for the transition to sustainable energy and development, which addresses the key areas of Environmental, Social and Governance impact.

These include putting strong policies in place and effective strategies for energy and emissions management and resilience. Measurement and reporting tools are achieved through real-time energy and emissions data, on the drive towards achieving Real Zero Energy status.

For more information contact Chris Galletti, National Business Development Manager, 0421 822 338, www.maximumenergy.com.au, 1300 884 281.

Sustainable Energy Commitment in action: Bowhill Engineering

Testimonial from Jodie Hawkes, CFO Bowhill Engineering

Bowhill Engineering is a multi-generational family business located in the South Australian Riverland town of Bowhill. We are specialist fabricators of heavy and complex structural steel. We strive to transform communities and our people by optimising and building structures that matter, that way we live our purpose of 'Together we Thrive'.

At Bowhill Engineering we are constantly looking to improve our circumstances. We look for win/win solutions and in this case, the key was finding an opportunity that didn't cost the company more. The opportunity needed to be economically viable and address our sustainability concerns.

Like many Australian businesses looking to transform to a more sustainable future, there were significant challenges.

Where to start? We didn't know exactly where we were placed as we didn't have the resources or data to find out where we sat with our sustainable footprint.

We have worked with different solar companies and different energy companies in the pursuit of accurate data, however this has proved challenging.

This is where we engaged Maximum Energy. They treated us extremely well and clearly explained where we stood with our Renewables and Net Zero commitments as well as our vision for the future.

Maximum Energy made the process easy to follow. We loved the opportunity to be guided in this space, as we didn't understand what we didn't know. Maximum Energy has led and driven the process from the start, keeping us updated and informed along the way, with a suite of reports and dashboards.

We are now on the Renewable Energy pathway and have set a Sustainable Energy Target of 100 per cent renewables by 2028. We have a roadmap with a live dashboard of our current energy usage and



carbon emissions and have started our Community Energy Program by sharing renewable power.

The Community Energy Program is yet to be launched to the Bowhill Community, it will be a big-ticket item for not only our Bowhill Community, but also our region. We are extremely excited to publicly launch this initiative and gain momentum. It is a massive win in the sustainable energy space without any economic cost to our business and peoples' jobs.

As Chair of Regional Development Australia – Murraylands and Riverland, I see huge scalability potential within our region with its major food manufacturing facilities and whose contributions to this program would be massive.

Now that we are on the road to 100 per cent renewables, I would thoroughly recommend the Sustainable Energy Commitment. We all have our part to play. Just like our business, many don't know how or where to begin.

SEALING A DEAL: REC GROUP AND AC SOLAR WAREHOUSE

Prominent European solar panel manufacturer REC Group has entered a distribution partnership with Queensland-based AC Solar Warehouse to facilitate access to its products among commercial and industrial clients across Cairns, Brisbane, Sydney, Melbourne, Adelaide, and Perth.



CWP RENEWABLES which runs power purchase agreements with several corporations including Sydney Airport, the ACT Government, Commonwealth Bank and Woolworths Group, recently inked a tenyear PPA deal with Fujitsu Australia.

It's a first for Fujitsu, which will source enough renewable electricity from the **CWP Renewables 270MW Sapphire Wind Farm** to power around 40 per cent of its NSW data centre load, all up close to one-third of Fujitsu's annual Australian electricity consumption.

Graeme Beardsell, Chief Executive Officer, Fujitsu Australia and New Zealand, said "As a large energy user in Australia, we want to use that scale to support renewable energy generation and the NSW regional economy.

"Data centres are energy-intensive to run and by increasing our sourcing of renewable energy our data centre customers will also benefit from a reduction in their own carbon footprints, specifically their scope 3 emissions."

From commencement in late June, the PPA will offset around 30,000 tonnes of Fujitsu Australia's annual carbon emissions.

Jason Willoughby, Chief Executive Officer of CWP Renewables said Fujitsu is contributing to the transition to net zero emissions as well as supporting AC Solar is now distributing REC's latest panels including the Australian market-first lead free panel the Alpha Pure and patented half-cut and split junction box technology TwinPeak 4. The panels are guaranteed under REC's 25 year ProTrust warranty when installed by a REC Certified Solar Professional.

Paul Scerri, REC Group's Country Director, Australia and New Zealand, explained "It is REC's mission to empower people with clean solar energy worldwide. As such, continuing to broaden REC Group's partner program is an opportunity we are really looking forward to.

"AC Solar Warehouse provides extensive technical expertise in all aspects of solar installation. Through the partnership, we are confident that REC solar panels will continue to be installed across multiple commercial and industrial sectors, further supporting Australia's commitment to a sustainable future of solar energy."

Grant Behrendorff, Managing Director of AC Solar Warehouse, said "For more than a decade, AC Solar Warehouse has been working with leading equipment manufacturers from around the world to provide solar installers across Australia with high-quality solar power equipment solutions."

Welcoming REC to the fold, he added "REC Group has an enviable reputation in the solar industry for innovation, quality, and service, and AC Solar Warehouse is excited to be working with a like-minded company to further accelerate the adoption of solar power by home and business owners throughout Australia."

www.acsolarwarehouse.com

Paul Scerri, REC Group's Country Director, Australia and New Zealand with Grant Behrendorff, AC Solar Warehouse MD (L)

ongoing regional investment, which Sapphire Wind Farm provides through jobs, community investment and sponsorships.

CWP Renewables currently has more than 750MW of renewable energy projects in construction and operations and more than 3.5GW of projects in the pipeline.

www.cwprenewables.com



CWP Renewables 270MW Sapphire Wind Farm in NSW

Information, views and technical details on this page supplied by Smart Energy Council Member



GOODWE TAKES TO THE ROADS Prominent inverter and energy storage systems manufacturer GoodWe Australia has invested \$250,000 on a roadshow vehicle that doubles as a mobile sales showroom and training facility.

One side of the custom-designed Ford Transit opens out into a walk-on showroom and training facility powered by GoodWe inverter and battery products, showcasing a safe demonstration of how energy storage products keep essential loads powered up in the event of a power outage.

The first of its kind vehicle for the solar industry in Australia and New Zealand will be showcased throughout 2022, including Smart Energy Council solar installer roadshow events* and the popular Home Show consumer events in Melbourne, Sydney and Brisbane.

GoodWe Australia also plans to use the vehicle as an education tool for schools to promote renewable energy technology in the bid to reach Net Zero by 2050.

The vehicle was unveiled by Dean Williamson, Country Manager for GoodWe Australia, during an atmospheric function in the company's premises east of Melbourne.



And the winner is... **TRINA SOLAR** recently picked up the 'Oscar of Design' Red Dot Product Design Award for its Vertex S ultra-high performance rooftop module.

The Vertex S modules were selected from nearly 10,000 entries from more than 60 countries.

The sleek looking Vertex S module is designed for residential rooftops with aesthetics in mind and comes with several design options, including the all-black appearance with its black cells, ultra-fine busbars, together with a black frame and back-sheet.

Recently, Trina Solar announced that its Vertex series, which uses 210mm diameter wafers, has been upgraded with a power increase of up to 30W per module, and a module conversion efficiency of up to 21.5 per cent.

Trina Solar joins the likes of Apple, Audi and Porsche who are past winners of the Red Dot Design Awards announced in Germany.

www.trinasolar.com



After commenting on the challenges of recent years and prohibition of gatherings, Dean noted the thirst among the solar industry and the general public to resume face-to-face events in a safe manner.

"We wanted something innovative that both the industry and consumers could enjoy, learn and benefit from, in the form of a roadshow vehicle that we can take around the country, he said.

"We are really proud of the end result and the attention to detail in all aspects of the design and delivery which maximises our capabilities in showcasing our smart energy technologies."

In 2020 Wood Mackenzie ranked GoodWe storage inverters No. 1 globally, with > 15% market share. IHS Markit ranked GoodWe one of the world's Top 10 inverter suppliers.

John Grimes of the Smart Energy Council was special guest at the unveiling. He congratulated GoodWe on the vehicle, stating "This is a commitment to the Australian market, this is innovation at work.

"The idea to use this vehicle to educate, not just installers, but school children and people across the country is absolutely fantastic.

"People know that this is a brand that people can depend on and if you pick up the telephone you will have a technical expert solve your problem locally. Good work, GoodWe!"

*View the calendar of roadshow events at www.goodwe.com.au



VAST SOLAR'S WORLD-LEADING SOLAR THERMAL PROJECT

In late April Vast Solar received up to \$110 million in concessional finance to support the development of a 20MW CSP project in South Australia.

The innovative modular tower solar array combines molten salt towers and parabolic trough systems to deliver low cost dispatchable, renewable energy for hot, dry climates. Industry followers will recall Vast Solar's modular tower CSP Pilot Plant in Jemalong, New South Wales where the technology was trialled and proven.

The Port Augusta plant will generate clean, low-cost, reliable power, and catalyse an export-focussed renewables manufacturing industry creating hundreds of direct and indirect jobs.

The world-leading facility will produce dispatchable renewable electricity "available on demand for eight hours of more" which is a goal of the Australian Government's Technology Investment Roadmap.

In a company statement Vast Solar commented on the ideal location of Port Augusta for CSP due to its quality solar resource, strong electrical grid and sizeable and growing local demand complemented by enduring support for all renewables including CSP from the local community.

Craig Wood, CEO of Vast Solar, said "This project is great news for South Australia and for the country's transition to net zero... it will become a global benchmark for long duration clean energy storage.

"Concentrated solar thermal technology is the missing piece of the energy puzzle as Australia transitions to net zero as it complements wind and solar by generating low-cost, clean electricity for 12+ hours when the sun isn't shining and the wind isn't blowing.

"The project will be the catalyst for a concentrated solar thermal technology export industry that brings jobs and billions of dollars in export revenue, and helps Australia become a clean energy superpower."

The International Energy Agency forecasts global CSP will increase ten-fold to 73GW by 2030.

www.vastsolar.com



Vast Solar's CSP uses turbines similar to those found in coal and gas power plants. The project will provide opportunities for skilled local workers displaced by the closure of fossil-fired power plants



FRONIUS has achieved top rankings for the third time in a row at the annual Energy Storage Inspection by the Berlin University of Applied Sciences (HTW). First place went to the Fronius Primo GEN24 6.0 Plus in the 5kWp reference case, while the Fronius Symo GEN24 10.0 Plus came in second in the 10kWp reference case.

The Energy Storage Inspection conducted by HTW Berlin is an industrywide study carried out annually by independent institutes to compare household PV storage systems. This year, 19 energy storage systems from 14 manufacturers were assessed, with Fronius pipping the post.

"We bring sunshine into the lives of our customers and we were able to demonstrate this once again in the Energy Storage Inspection," said Martin Hackl (pictured), Global Director of the Business Unit Solar Energy, Fronius International GmbH.

www.fronius.com

Information, views and technical details on this page supplied by Smart Energy Council Member



GenInsights21: Core energy transition challenges

IN MID-DECEMBER 2021 the 622-page *GenInsights21* report was released. The report Incorporates 28 discrete 'deep dive' appendices, with *GenInsights21* exploring many different aspects of the transition of Australia's National Electricity Market (NEM) by reviewing in considerable detail what has actually been happening.

This analysis highlights numerous cases where the facts are different than what seems to be popularly believed – in some instances substantially different.

In early April the primary authors provided a 60-minute presentation to an audience of hundreds organised by the Smart Energy Council. An annotated recording can be found at: https://wattclarity.com.au/ articles/2022/04/geninsights21-the-energytransition-grappling-with-the-challenges/ Here we present some key insights.

The Schism appears to be permanent

It's clear now that the NEM is developing an 'us and them' schism' – between:

- 'Anytime/Anywhere Energy' evolving by virtue of the form of support for wind and solar generation;
- Leaving the declining residual volume of energy supplied by other generation types to supply a collection of 'Keeping the Lights on Services'.

'Aggregate Scheduled Target' (Appendix 15)

Because Non-Scheduled and Semi-Scheduled supply options are not required to meet their Dispatch Targets most of the time, in Appendix 15 we focused specifically on how the requirement for supply from fully Scheduled units has changed over the 23-year history of the NEM.

This analysis was simplified to look on a NEM-wide basis (ie to avoid complexities, confusions and politics about regional comparisons). The following trend of aggregate statistics was presented on p327 (see Figure 1 above). In simple terms:

- Peak requirement for supply from these types of units remains stubbornly high, and it is becoming more uncertain and weather dependent.
- At the same time the average, median and minimum requirements are dropping, and perhaps this drop is accelerating. This has many implications, one being

that the aggregate energy represented in this trend (ie the 'area under the curve') is dropping substantially, which calls into question the ongoing viability of an energy-only market as the only means for supporting capital cost.



We emphasised to readers of *GenInsights21* (and is important for readers of *Smart Energy* to acknowledge) that this statistic is 'fuel type' agnostic. Although fossil fuel fired units currently supply most of this service, the challenges will remain (and will likely be more extreme) into the future as this capacity is replaced by batteries, hydro and other flexible dispatchable options.

'Forecast Convergence' (Appendix 16)

We then looked at the same metric (ie Aggregate Scheduled Target), but analysed how difficult this was for AEMO to predict 24 hours in advance of the point of dispatch.

Although this Appendix contains many other details, the key point for readers to understand is that the task is becoming increasingly difficult for AEMO – and, by extension, for all market participants – as highlighted in the chart presented at p365 (see Figure 2 below).

Note the significant increase in the 'Underlying Trend' from 2020 onwards. This challenge has several implications, including:

The challenge of dispatching this plant to keep the lights on

- Economic challenges in terms of risk and uncertainty (which will only increase in difficulty with the introduction of more batteries and pumped hydro); and
- Market design implications (eg in terms of how a day-ahead market would actually function, and be sustainable into the future).

Taken together

Taken together with all the other factors discussed in *GenInsights21* it left the authors with the clear conclusion that the major challenges to be confronted in relation to this energy transition are almost always related to the 'Keeping the Lights on Services' provided by these Scheduled units.

It stands to reason that this is where the major share of attention and support should be focused. Readers of *Smart Energy* might ponder whether the appropriate bodies involved in redesigning the market for the future are sufficiently aware of these challenges.

Further information about GenInsights21 can be found on WattClarity®: https://wattclarity.com. au/deeper-insights/generator-insights-2021/



Figure 2. NEM Cleared scheduled supply actual - predispatch forecast difference range (95%-5%)

Waterlogged and isolated

Dramatic images of flood affected regions earlier this year gripped the nation. The devastating inundation spared few homes in a region that is otherwise known for its solar resources and popularity of rooftop PV.



BRISBANE-BASED SOLAR PV INSTALLER Steve Lee was in the thick of things during the deluge that engulfed swathes of southeast Queensland and northern NSW during late February 2022. His rain gauge in the city's western suburbs registered levels of 700ml over four days. The amount of rain was highly unusual and unsettling for all, he said.

"Had the ground been dry much of the water would have soaked in but the ground was already waterlogged so it ran off, straight to rivers and streams," Steve said. The four days of rain saw water levels in the local dam rise from 55-60 per cent to 180 per cent, causing widespread inundation.

The region that is normally blessed with sunshine has one of nation's highest uptakes of solar PV which meant thousands of inverters were destroyed during the floods, as illustrated on this page.

What to do

Forewarned is forearmed and PV system owners need to take necessary steps when heavy rain and likely flooding is forecast.

Basically you want to shut the system down, said Geoff Bragg of Sunman Solar who runs the Smart Energy Council Installer roadshows.

"In which case follow the shutdown procedure that's written next to the inverter. There'll be a sign there that indicates shut down and you know if it's safe to do so. Also, if there are rooftop DC Isolators next to the solar panels, and it is safe to do so, turn them off. Only people experienced at getting on a roof should do this, and never get on a wet roof. If there are any doubts, get an industry professional.

"I've seen worrying pictures of people sheltering on a roof waiting to be rescued during a flood, right next to a solar array. Always be careful around solar panels as they contain dangerous voltages, especially when there's water everywhere." Today there are so many combinations of household energy systems, some with batteries, so there may be different shutdown procedures, Geoff said, noting too that new industry Standards do not require the DC isolator to be on the roof.

"There are many different system variations so you can't just give a general statement to turn off the DC isolator because there might not be one. That is why it's best to follow the shutdown procedure that's written on that system."

Where to for those with damaged systems?

When equipment is wrecked, the first port of call is the insurer, it's not the problem of the inverter manufacturers, Steve Lee said. However in some cases manufacturers have kindly donated a new system, for example where insurance was absent and homeowners were in financial strife.

"Following the last flood, insurance premiums in flood prone regions were significantly bumped up, in many cases by 20 per cent, which made it unaffordable for some," Steve said.

PV systems are generally written off once submerged, they are not designed for that, he said.

"Though they have a high water rating you don't expect the junction boxes to be submerged and suffer water ingress," Steve said.

"PV panels form part of the building insurance (rather than contents) and I tell people to specify replacement for the full value, that is taking into account the government grants."

He concluded by commenting on the frequency of the 'highly unusual once-in-one-hundred year events' that now occur every few years.

"I accept that weather patterns have always been cyclical, but what we are doing is not helping, we need to address wider factors relating to the causes of climate catastrophes which means tackling emissions."

Most mains switchboards and inverters prominently feature a notice of shutdown procedures which are reasonably straight forward and as depicted here



SMART ENERGY COUNCIL

48 WINTER 2022



Women in solar pack a punch!

The AWISE group recently convened to reflect on progress to date and ambitions for the future. Here **Sam Craft** explains the grand plan.

"The AWISE verdict? The outlook for women in solar energy is BRIGHT!"

The AWISE Founding Committee: Bobbi McKibbin of Solar Integrity; Sam Craft of National Renewable Group; Christine Kennedy, Total Solar Solutions Australia; Keshia Noronho, Fronius Australia; Lily Pejkic, Sydney Solar and Batteries;

and Sophie Wright, Velocity Solar. **FROM OUR SMALL BEGINNINGS** less than two years ago, AWISE is proving a resounding success! There has been a strong level of interest and support for women in the industry, and we have been overwhelmed with the amount of support and opportunities presented to the group in the 24 months since inception.

This was reflected in our 'sell out' AWISE Brunch in May, made possible by the Smart Energy Council and Supply Partners. It was wonderful seeing so many enthusiastic and inspirational people and hearing from a range of fantastic speakers with different experiences and pathways.

Here's a glimpse of the line-up:

- Tracey Burnton from Supply Partners described her journey into the renewable energy sector and the support she's received from her peers and colleagues.
- **Tammy Allsop from Solaray Energy** shared her experiences and growth in her role and called for more women to work together and convene in their respected States.
- Debjani Sarkar, who is a board member of Biyani House – Revesby Women's Shelter, spoke about how the solar system that AWISE was able to provide for one of their emergency houses has made a huge impact on their electricity bill.
- Nigel Morris from Solar Analytics spoke from the perspective of being a man in the industry for three decades and how just starting a conversation with female colleagues can make all the difference. He also mentioned Escape Bags, the Australian registered charity distributing 'Escape Bags' for victims fleeing domestic and family abuse. https://escabags.org/

Tapping into female talent

Many businesses are committed to growing their teams to prepare for the next wave of investment and innovation in the renewable energy sector and women are at the forefront of minds.

How to attract and hire female talent and most importantly how to continue to support them once they are in their workplace are among the issues that businesses want to discuss.

Our advice? – **start the conversation**. Sit down with the women in your lives and workplaces and listen to their stories, what they need, what they desire in the job and work with them to create a culture that will benefit all!



The AWISE group chats with the now Prime Minister Anthony Albanese and Energy Minister Chris Bowen during the 2022 Smart Energy Conference and Expo

On the AWISE agenda...

It's no secret we are very much focused on continuing to drive interest in, and numbers of, women in solar.

The AWISE plan to build momentum covers a range of activities:

- Installations of solar and battery systems on women's shelters across Australia
- Building strategic relationships to open more opportunities for women
- Encouraging women seeking apprenticeships and jobs in our sector
- Networking and educational seminars for women and men in our industry
- Supporting and creating awareness for good mental health in our industry, and
- Mentoring opportunities
 However, we do need more help!

We are close to welcoming nominations for our official AWISE Committee. We need women and men across all States and Territories to help us achieve our goals.

Please keep an eye on our socials (Facebook and LinkedIn) and our website for updates.

- https://www.awise.com.au/
- FB PAGE https://www.facebook.com/Australian-Women-In-Solar-Energy-AWISE-106695687831538
- FB GROUP https://www.facebook.com/groups/ awisegroup
- Linkedin https://www.linkedin.com/company/ australian-women-in-solar-energy-awise/



OSW LAUNCHES NEW PRODUCTS AT SMART ENERGY 2022

The opening of Smart Energy 2022 saw **One Stop Warehouse** launch a range of new products including EV chargers, inverters and solar storage batteries, says **Timm McVaig**h. **OUR NEW PRODUCTS** help solar installers and retailers bring the latest innovations offered by the smart energy revolution. For example, EV chargers are the vital link that allows electric vehicles quick and easy charging, making it easier to take advantage of the benefits that electric cars offer both as green transport and in managing the emerging VPP space.

EV chargers are crucial in making the switch to smart energy easy.

Usama Aslam, OSW product manager, commented, "At OSW we are always exploring opportunities to increase revenue streams for our customers, with more than 20 thousand EVs sold last year (300 per cent year-on-year growth) we believe it is the right time to add the EV Product in our portfolio.

"OSW partnered with industry leading companies to build a solid foundation and trust in the technology to grow the companies together. With our physical footprint and reach in the market, we plan to disrupt the space.

"OSW along with its partners will be providing technical training and support to customers for

smooth adaption to the technology and serve as a One Stop Solution.

"To begin this revolution One Stop Warehouse has launched 3 EV charger brands to the OSW product family: Wallbox, Star Charge and Delta EV charger.

"With pre-sales started at Smart Energy 2022, OSW will start delivering products to the market from July 1, 2022."

Wallbox

Wallbox, a Spanish company with its Australian head office based in Melbourne has taken a leading position in the European market. Wallbox has offices in nine countries and customers in over 80 countries. Its goal is to expand EV adoption worldwide. Their residential lead product Pulsar Plus is, a smart and powerful home EV charger, available with various charging cables and power supplies. It can charge any electric car up to 22kW.

The second in the range is the Wallbox Copper SB charger which guarantees EV drivers' satisfaction thanks to its integrated socket, enabling EV charging for any electric vehicle on the market. Businesses



Team OSW were all smiles for the camera!

Information, views and technical details on this page supplied by Smart Energy Council Member



can control who accesses the charger with the RFID card reader and easily connect to the charger with the myWallbox app.

Positioned in the business space is the Wallbox Commander 2, which is more than a charger; it becomes a business solution that provides the easiest and shortest path toward smart electric vehicle charging for businesses at the best price. Combined with myWallbox for businesses, included at no additional cost, this EV charger allows companies to reduce their overall investment in installation and power demand thanks to features like intelligent load management, lifetime operation support and activating charging as a revenue stream.

Star Charge

OSW also launched a new EV charger from Star Charge, the largest EV charger maker in China. Star Charge is an EV operator at the forefront of daily charging. There are nearly 4,000 self-built charging equipment terminals on the platform, and the daily charge exceeds two million charges per day.

OSW presented the Star Charge Artemis Charger 7kW/11KW – an attractive and versatile charger used in residential and commercial applications. Those looking for a fast, reliable charge or a charger that can power their vehicle and pair it with an existing solar system through OSWs proprietary software for remote on-site and off-site controls, Star Charge has you covered.

Delta

Delta is a well-known and respected brand in the Australian inverter market. Their products are some of the most reliable and efficient in the market. Now OSW is carrying their latest EV charge, AC Max which offers a reliable charge for business or one that can power the home; Delta offers a single charger which serves both 7kW and 22kW segments.

There's more...

It wasn't just chargers that captivated the attention of OSW customers. Visitors to the Smart Energy Show stand would have seen the H2 Hybrid Solar Inverter and B2 Lithium Battery, which are new from SAJ.

The inverter ranges from 3-6kW in single-phase and 5 to 10kW 3

About One Stop Warehouse

Listed among the top 500 privately listed companies and recognised as one of Australia's fastest growing 100 companies in the *Australian Financial Review* Fast 100 list 2018, One Stop Warehouse (OSW) is Australia's largest Solar Distributor.

Stocking everything from PV panels, inverters, solar storage options to racking, components, and all electrical needs, it is the ONE STOP for all solar needs.

Sharing the dream of many Australians – to reduce the carbon footprint, drive sustainability and create saving, our motto is 'Be Clean - Be Green'. As one of the fastest growing wholesalers we have made great progress in this dream, receiving multiple awards and commendations. Most recently being awarded as Australia's top PV supplier 2018 for customer choice, and distribution of modules and energy storage from one of Europe's top Research companies-EuPD Research.



David Toh Head of Sales APAC flew in from Singapore to help OSW customers learn more about the Star Charge Artemis series EV charger

phase, which features an attractive design with an LED board inside the light ring, a simplified and concise UI highlighting the human-device interaction, with icons showing the operational status of the device. The SAJ B2 battery is easy to install with its B2 battery's modular design.

OSW was also delighted to display the much-anticipated SolarEdge Home Battery, which teams with the award-winning SolarEdge Energy Hub inverter and the Genesis range.

Solplanet has also joined the OSW family; their stand stood next to the OSW stand, hosting a range of Design Award-winning inverters.

Although not new brands, One Stop Warehouse was pleased to show off two exclusive all-black panels: the Jinko Tiger N-Type 415W Black Frame with 25 year product warranty and 30 year performance warranty; also the JA 390 Deep Blue light all-black mono PERC 54 cell module with high power output and lower LID degradation. Both panel brands are excellent choices for installers looking for the popular allblack solution.

With these new EV chargers, inverters and panels, the company is looking to expand its reach into this growing sector with an expanded portfolio of products that offer an attractive proposition for installers, retailers, and homeowners alike.

To learn more about these new products, talk to an OSW account manager. They can tell you all about what OSW has on offer and answer any questions you may have.

OSW has offices in five states throughout Australia, with the head office in Crestmead, Queensland.

www.onestopwarehouse.com



Timm McVeigh (L) interviewing Wallbox Country Manager Australia Reece Davis

THE SUSTAINABILITY OF SOLAR PANELS

Lorraine King who is Head of Marketing for Risen Energy Australia discusses some of the factors contributing to a solar panel's sustainability credentials. **THE BENEFITS OF SOLAR POWER** as a clean and critical part of our future energy mix is a no brainer, however there is no shortage of debate on how green or ethical solar is in terms of its supply chain and asset lifecycle.

Most leading manufacturers today are just as focused on improving ESG (Environmental, Social and Governance) factors as they are on developing new technology and enhancing performance. Indeed, public companies are held accountable by stakeholders for their impacts on ESG, being required or expected to produce annual sustainability reports.

As a manufacturer of modules and developer of large-scale solar assets, Risen Energy's sustainability impact can be broken down into four broad areas, each of which has numerous considerations. Our understanding of our materiality in each area continues to develop.

Production Stage

This stage comprises all facets of the supply chain that contribute to the manufacture of solar panels and their ancillary components.

Each supply chain is carefully analysed, selected and developed by Risen Energy based on ESG factors, from the ethics of raw material acquisition and processing to the merits of the manufacturing techniques. We evaluate emissions, chemical pollutants, water use, and recycling/waste management.

Improving manufacturing processes and supply chains to reduce the embodied energy of panels such as using alternate materials and methods is one area we are constantly researching.

Another important focus is preventing exploitation of people along our supply chains and we are frequently re-identifying and understanding the risks of modern slavery across our global operations.

Construction or Installation Stage

The development of a solar farm involves the evaluation of several aspects including transportation, land preparation, the construction of foundations, panel install, fencing, cabling and so on.

We consider the credentials of our development partners in this process and ensure their values are aligned with ours.

For rooftop solar, Risen assesses the transportation methods and the qualifications of our installation partners.

Use Stage

The longer a solar panel is in use, the lower its emissions across its useful life. Increasing our product







warranty to 25 years demonstrated our confidence in the quality of Risen Energy panels and their durability.

Across its useful life, we also look at the impacts of panel maintenance: cleaning, repairs and replacements. Solar panels are very robust and defects are rare. If they do occur, repair is usually possible. If not, they can be replaced individually as needed. Good quality panels will minimise the need for the latter two.

End-of-Life Stage

This stage considers decommissioning, recycling/reuse, disposal and transportation.

Underpinning Risen's solar farms are detailed decommissioning and land rehabilitation plans to ensure the safe management of products at

end-of-life and the re-establishment of the land to a productive state. The industry is striving for zero waste and with the numerous rare and precious metals in solar panels there is huge potential in solar panel recycling but as panels have a 25-year life this market is still developing.

To support the development of this subsector, we're partnering with a local Australian company to progress the sustainable handling and processing of recyclable and waste materials from panels that have reached end-of-life. Leaching of toxic chemicals from quality panels is very rare.

Sustainability is a constantly evolving area and we are always learning. It requires a commitment to the continuous evaluation of materiality and a determination to keep improving.

www.risenenergy.com.au



The 100MW Merredin Solar Farm in WA

TOWARD A NET-ZERO FUTURE

AUSTRALIA'S ROOFTOP PV MARKET continues to evolve and the government's greater attention on building a smart energy future demands innovative solutions and technologies.

SolaX Power, one of the earliest enterprises to deliver hybrid inverters to the Australian market, has been committed to selfdeveloping and innovating PV and energy storage technology for more than a decade.

The company has continued to invest in the Australian market and has been active on many fronts including contributing to Australian VPP programs and teaming with local partners to provide feed-in-tariffs to residents.

SolaX has also maintained the pace in R&D to spawn a series of new products. The latest generation of energy storage systems, X-ESS G4, was recently released into the Australian market.

The new energy storage system has an elegant and appealing look with its futuristic grey modular design.



The X-ESS G4



In addition the X-ESS G4 delivers many advances on the previous generation:

- 1. Higher max. DC input current 16A to satisfy large power solar panels
- 2. Micro-grid function available
- 3. Compatibility with diesel generators
- 4. On & off-grid parallel connection to increase system capacity
- 5. All-in-one solution with Matebox to save installation time, and
- Automatic warm up function for T30 LFP batteries which keeps the system running normally during cold winter days. SolaX aims to set up an intelligent

household ESS ecosphere that offers a greener lifestyle to residents.

One small step to realising this goal is the development of the SolaX adaptor box, a device matching the X-ESS G4 to supply surplus power to a heat pump to increase household self-consumption rates.

This function is to be expanded to a new generation of SolaX on-grid inverters soon.

Also during 2022, SolaX will be releasing its own EV charger which will be fully compatible with the SolaX energy storage system and monitoring platform.

The EV charger has built in type-A RCD protection and 6mA DC protection, integrated RFID function and multiple working modes to fit different situations.











Joey Zhang, GM of SolaX Power

VPPs

In further developments, SolaX has been supplying Virtual Power Plant (VPP) solutions globally and teams up with multiple domestic partners such as Reposit Power, SwitchDin, Evergen and GreenSync to work on VPP programs, linking its self-developed Triple Power LFP batteries to smart networks.

SolaX provides practical solutions in accordance with Australian demands and market impacts from blackouts due to bushfires or flood.

Currently the SolaX R&D team is assessing further possibilities in the micro-grid field beyond VPPs.

In the on-grid inverter field, SolaX has just released the latest generation of three-phase on-grid inverters: MIC G2 from 3KW-15KW with 2 MPPT, PRO G2 from 8KW-30KW with max 3 MPPT which is smaller, lighter and has a wider power range than the previous generation.

With advances of the energy storage industry in mind, SolaX laid out a series of strategic plans which included establishing local service teams in each state and territory to provide quick and professional responses to every corner of the nation.

The SolaX R&D team conducts rigorous tests in labs to ensure all products and solutions are reliable enough under harsh conditions.

John Grimes of the Smart Energy Council recently commented: "SolaX was the first company to bring the hybrid inverter into the Australian market... and best of all, SolaX provides strong technical support right here in Australia."

Joey Zhang, general manager of SolaX Power's Australian office, explained "We've established the partnership with VPP providers like Reposit Power, SwitchDin, Evergen, GreenSync. And we provide 12 years warranty for single-phase string inverters.

"It's a good solution for a good cause. SolaX is devoted in researching and developing the core technology of photovoltaic systems. After more than 10 years' practice and innovation, SolaX continues to explore solar power developments as the front line with a calling to achieve a clean and sustainable future."

www.solaxpower.com



POSITIONED FOR THE FUTURE, PELIO COMES AS THE GIFT FROM THE SUN

Why Pelio? Unveiling more functions of Pelio

High Energy Density

Pylontech's self-development of high-energydensity cells makes for light weight but high capacity.

Combined with the remarkably slim and stunning design, it delivers an impressively compact footprint to the product. At about 0.1sqm, the maximum installation capacity is 20kWh, which is comfortable for the typical household's electricity usage demands. The space efficiency of Pelio is at a remarkable level.

High Power Efficiency

The Pelio has up to 4kW continuous power performance and up to 10kW peak power performance per module. Thanks to the autonomous built-in BMS, during multiple modules operation, the system's level power performance can scale up, without derating or constrains from an external battery management system.

Sufficient power supply for essential appliances during critical periods is always front of mind during product innovation. With its inheritance from the US series product, the power performance of Pelio is extraordinary.

High Thermal Conductivity

The cell to module integration concept and optimal component deployment enables the thermal conductivity of Pelio to leap 35 per cent on the previous generation of 48V batteries. This means Pelio can maintain vigorous power for even longer than before and empower homeowners' everyday lives.

During critical moments of grid energy shortages, Pelio is an indispensable asset.

Strong Capacity Scalability

The Pelio battery has a storage capacity of 5.12kWh and can extend to a 20-device configuration to reach a capacity of 102.4kWh. No external devices are required for the synchronised control of the battery module during capacity expansion.



Pylontech launched its sleek new residential BESS Pelio at the Smart Energy Conference and Exhibition in May



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"With our new residential energy product 'Pelio', we want to express our faith in a sustainable future and to inherit the valuable spirit of devotion and bravery. The name 'Pelio' is taken from the image of Helios in Greek mythology, which represents light and power."

GEOFFREY SONG VP OF PYLONTECH

High Inverter Compatible Flexibility

By retaining the same CANBUS and the RS485 communication protocol design, Pelio is compatible with the majority of its 48V partners' inverters products and can fulfil different applications in varying situations.

More Application Scenarios

Pelio has been designed to be installed in the garden, backyard or on the farm, if there is no suitable indoor area for a battery module installation.

Paired with a hybrid inverter and EV charger this presents the future picture of renewables. Pelio enables imaginative installation concepts through its robust structural design.

Intelligent Monitoring Platform

The intelligent Monitoring Platform is another step forward for end users, and illustrates increasing versatility. Monitoring energy production and consumption in real time, and integrating remote upgrade features enable optimal use of the system.

Top Safety Certification

Thanks to the vertically integrated production chain, Pylontech can control the product quality from the very beginning of the raw material, to the battery module delivered to customers.

Such progress has been proven for many years by rigorous international safety standards including IEC62619, VDE2510-50, UL1973 and UL9540A. These robust standards will be met by Pelio before it is delivered for peace of mind and proven safety.

DIY and unleash your creative talents!

On the side of Pelio, we reserve a space for owners to express their creativity with a design that coordinates with their home decor.

DIY your style with Graffiti. Enjoy

Ned.yu@pylontech.com.cn http://en.pylontech.com.cn

the fun of creation!



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KEYS TO STAFF RETENTION

Attracting and retaining great staff is the 'silver bullet' to running a successful and sustainable business over the long term, says Grant Behrendorff, Managing Director of AC Solar Warehouse. Here he shares the approach his business has taken to finding and developing some of industry's best talent.

AC SOLAR WAREHOUSE has enjoyed more than a decade of sustained growth in the highly competitive wholesale sector of the solar energy industry, and this success is largely due to our focus on building a great team of enthusiastic and highly motivated staff members.

Our strategy is based on the principal that by developing roles that are rewarding and enjoyable, staff are more likely to stay for the long term.

How do we create a rewarding role? There are a few common characteristics such as providing work that is challenging and meaningful, with clear, documented measures of success.

This is vital because a shared understanding of what success looks like in any role is fundamental to being able to achieve it!

It's also important to provide appropriate recognition when agreed outcomes are achieved.

The final component to ensuring a role is rewarding, and the one most often focused on, is providing financial incentives and benefits. Our approach is to consider this from a short, medium and long-term perspective.

Rewarding staff

Short-term rewards are a salary or commission paid weekly or fortnightly. Common staff benefits include flexible working hours and the use of a company car on weekends. However another good example that we have implemented is a subscription to Perkbox – an App that provides staff with discounts at numerous national retailers as well as a wide range of local restaurants and businesses. The objective is to focus staff on coming to work and carrying out their role in the short term.

Medium-term benefits include quarterly or half yearly bonuses linked to personal and company performance, and these can be used to provide medium term targets for staff to consider and work towards.

Long-term benefits aim to align staff behaviour and decision making with the best long-term interests of the business.

Employee Share Ownership Program

At AC Solar Warehouse we chose to implement an Employee Share Ownership Program (ESOP) meaning all staff are actual shareholders in the business and benefit financially from the long-term success of the company.

Formal ESOPs may not be appropriate in all situations, but there is a wide range of virtual share ownership programs and other financial mechanisms.

These can be used to help focus the attention of staff on the long-term success of the business and encourage a positive 'ownership' mindset.

Implementing some or all of these factors goes a long way towards making a role rewarding, but making a workplace enjoyable is a different challenge again.

Very few jobs are a joy from start to finish every day, and in my view it's critical that when employees reflect on a week, or a month, or a quarter, they should 'on balance' feel that their workplace is enjoyable.



A happy team is a loyal and productive team: AC Solar Warehouse staff enjoy an outdoor excursion



Happy workplaces

AC Solar Warehouse has developed a culture where it is OK to have fun at work, and breaking boundaries between work and leisure is a great way to achieve an enjoyable workplace.

Among our diverse staff we have groups that enjoy activities like running, hiking, swimming, sailing, basketball, volleyball and yoga.

Not everyone wants to join our basketball team or do yoga before work on Friday mornings, but by supporting a wide range of activities we provide opportunities for staff to participate in initiatives that may be of interest to them.

If we combine these year-round staff-led activities with a range of company initiatives like an annual all-staff retreat, regular lunchtime BBQs, a generously appointed amenities room and 'welcome' morning teas whenever a new staff member joins us, we have the foundations of a positive workplace culture. This makes it easier for us to attract and retain great staff.

Employer of choice

Maintaining AC Solar Warehouse as a rewarding and enjoyable place to work and an employer of choice is an ongoing challenge but it's not one that is the sole responsibility of management.



Some of the best ideas we've implemented have been put forward by staff themselves and we are always open to new suggestions on ways we can have fun while we progress our business objectives.

Supporting staff activities that foster a positive culture and make for an enjoyable workplace comes at a financial cost, but this is offset by expenses associated with ongoing staff recruitment and training.

In our case the investment we make in initiatives aimed at making our workplace and our roles rewarding and enjoyable is returned many times over through the benefits of having an engaged and motivated workforce committed to the long-term objectives of the business.

www.acsolarwarehouse.com

The Next Generation PV inverter is here



Introducing our compact and powerful single phase inverter series.

Featuring 3 MPPT's with up to 150% oversizing for a more flexible PV array design, a 10-year warranty and compliant with the latest Australian inverter security standards.

This new generation of commercial and residential PV inverters come as a result of dedicated research, design and development based on our deep knowledge in the field of photovoltaic technology for over 15 years, we've also been manufacturing products for brands you trust such as SMA or Zeversolar. You can rest assure we've got your back.

Contact our local team: E. sales.au@solplanet.net T. +03 9098 8674



Now available in 6, 8, 10 kW Single Phase



SOFARSOLAR'S NEW INTELLIGENT RESIDENTIAL ESS

SOFARSOLAR'S NEWLY LAUNCHED 'All-in-one' residential energy storage system solution the SOFAR PowerAll is now available for pre-booking in Australia.

This new system seeks to realise high compatibility with all components and features high safety, unparalleled efficiency and easy installation.

The smart lithium-ion battery is composed of a low-voltage battery pack, Battery Management Unit (BMU), and Power Control Unit (PCU). Through the PCU, it can independently adjust the output voltage and current, and automatically balance the capacities between battery packs according to the battery SOC (state of charge).

The SOFAR PowerAll adopts a full modular design and can be stacked in any combination. With deep integration with lithium battery and inverter, the system can monitor the real-time status of PV panel, lithium battery, grid power and load, and automatically control the power flow direction with a smart energy management strategy to achieve the optimisation of system power distribution.

Meanwhile, the system can quickly switch between system battery charging and discharging demands and shorten the response time to be within 100 milliseconds.

"Innovations in energy storage have never been more exciting and necessary than they are today," said Yin Rongfang, President of SofarSolar.

"As part of our ongoing commitment to provide top-notch solar and storage solutions for homeowners, SOFAR PowerAll boasts new features that not only meet the needs of energy-conscious homeowners but also support broader sustainability goals."

To pre-order SOFAR PowerAll in Australia, contact the service team at: service@sofarsolar.com.au



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ALL IN ONE REPOWER EVERYTHING

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Intelligent Residential Energy Storage System ESI 3~6K-SI-HA 1~6

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Scan the QR code to Downloa the White Paper of SOFAR PowerA

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DELTA ELECTRONICS CHARGING TOWARD AUSTRALIA'S GREEN ELECTRIC VEHICLE FUTURE

World-leading power supply provider **Delta Electronics** offers localised Electric Vehicle (EV) charging solutions to electrify Australia's drivers. **SOARING FUEL PRICES** and lower operating costs of EVs is making e-mobility an attractive choice for Australian drivers. According to the Electric Vehicle Council, EV sales in Australia have tripled since 2020 to reach 20,655 in 2021. EVs now make up 2 per cent of all vehicles sold nationally and many consumers are waiting months or longer for some popular EV models.

Yet, with more and more EVs on our roads, we'll need a lot more chargers to allay drivers' range anxiety and support nationwide electrification. In a 2021 Savvy survey, 17 per cent of respondents were most concerned about charging station availability when making an EV purchase. Savvy reports that Australia currently has just over 3,000 EV public charging points to cover 7.692 million square kilometres.

Founded in 1971, Delta Electronics is a global provider of power and thermal management solutions. Delta products power much of the electrical equipment and devices used every day including electric vehicles themselves. With R&D, manufacturing and sales networks spanning the globe, Delta builds on



its expertise in power conversion and efficiency to develop parts and EV chargers (both on-board and offboard) for top car manufacturers.

Delta's localised EV charging solutions for Australians

Over the years, Delta Electronics Australia has offered EV drivers a wide range of AC and DC chargers for both home and public charging that operate reliably in Australia's tough and varying environmental conditions.

In May, Delta Australia announced a first-of-its-kind partnership with Australian EV charging software company Everty. Australian EV drivers can now access realtime information around charger condition and maintenance, and select charging at off-peak periods for significant cost savings. Everty's intuitive software also offers billing management for Delta EV Chargers to support the multitude of Charge Point Operators in the broad market.

At Smart Energy 2022, Delta Australia showcased a range of existing, new and upcoming EV charging solutions including:

- The new Delta DC Wallbox 50kW: Designed for high-efficiency commercial charging featuring over 96% charging efficiency and simultaneous charging with a maximum output of 50kW of DC power from two charging plugs. IP55 weather resistance and IK10 impact rating, an ultra-slim 25cm profile, and the ability to be mounted on a pedestal makes it an ideal choice for urban sites including roadside parking, parking lots, department stores, commercial and office buildings.
- **Delta DC City Charger**: This flexible DC fast charger available in 50kW, 100kW and 200kW

versions offers simultaneous dual charging and dynamic load distribution that optimises use. With IP55 weather resistance and IK10 impact rating, it is suitable for fleets, commercial applications and charging networks.

- Delta AC MAX: Compact and powerful, the AC Max is available in 7kW, 11kW and 22kW versions. It is a perfect fit for home use, semi-commercial applications like cafes, malls and apartments, and for fleet charging. IP55 weather resistance, IK09 impact rating, and wall mount/stand installation options make the Delta AC Max adaptable to all sorts of installations in residential or commercial buildings.
- Upcoming Delta V2X Charger: Those attending Smart Energy 2022 got a first look at the innovative Delta V2X Charger that will make Vehicle-to-Grid charging a reality, providing bi-directional power conversion with max. 11kW output and 95% peak efficiency for charging/discharging EVs.

Delta: Your partner for worldclass EV charging solutions in Australia

Australia's growing EV community can look forward to getting their hands on more exciting Delta EV charging solutions developed globally and domestically.

In addition, Delta Australia offers local service and support to operators far beyond installation, and is dedicated to their long-term success as a reliable partner. Delta is committed to ensuring the availability of spare parts to service and maintain public chargers' uptime.

To find out more on Delta's range of EV charging solutions, visit www.deltaelectronics.com.au





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Power price shocks

RESIDENTS ACROSS AUSTRALIA are facing sharp increases to electricity bills and will be forced to look more closely at their daily usage in a bid to reduce costs, especially those living in one star 'leaky tents' with gas ducted heating that evaporates overnight.

In a timely move the Climate Council is calling for greater minimum energy standards as a means of reducing emissions and improving quality of life.

Its latest report *Tents to Castles: Building Energy Efficient, Cost-Saving Aussie Homes* states an increase in minimum energy efficiency standards for new homes from six to seven stars would dramatically cut household emissions, reduce energy bills in the region of \$450 annually, and improve people's health and wellbeing.

"No more damp, draughty, ice cold in winter and stifling in summer... highly expensive to run and more polluting than they need to be," the report says.

The Council is asking its followers to send copies of their *Tents to Castles* report to the relevant minister in their state, urging them to commit to a minimum 7-Star energy efficiency rating for new homes by the end of 2022.

Adding an extra star to each new home being built in Australia would mean 25 per cent fewer emissions compared to homes at the minimum standard now and, with 1.1 million homes expected to be built across the country over the next five years, the sooner we take action, the bigger the impact we can have on Australia's emission reduction efforts, the Council wrote.

Heating and cooling emissions saved from building 7-Star homes out to 2030 would deliver total savings of 7.7 million tonnes; equivalent to a 12 per cent reduction on 2019 national residential emissions.

The economic benefits of avoiding these emissions over a ten-year period is as much as \$90 million and up to \$3.5 billion, depending on the cost of carbon factored in.

Among the Climate Council's recommendations is the phase-out of gas from new housing developments by 2025 and to explore opportunities to incentivise the replacement of all residential gas appliances.

The report is released as state and territory ministers prepare to meet in July to review 11-year-old regulations that govern minimum energy efficiency standards in new home builds.

CCLIMATE

TENTS TO CASTLES: BUILDING ENERGY EFFICIENT, COST-SAVING AUSSIE HOMES



Time is of the essence

The next opportunity to update the National Construction Code will not arise until 2025, and delaying this action by three years will lock in higher bills and add 9 million tonnes of emissions this decade.

"Any delay in introducing new standards will lock in higher bills and emissions," the report states. An independent analysis from Australian Sustainable Built Environment Council and ClimateWorks (2018) found that a delay in implementing new standards could mean 1.1 million homes (including townhouses and apartments) will be built to a poorer standard; adding \$2 billion to

residential energy bills and \$720 million in additional network costs.

The same analysis found a delay would also add nine million tonnes of emissions this decade making it more difficult for states and territories to reach their climate targets. This would be the equivalent of forcing one of Australia's larger coal power stations to operate for an extra, unnecessary year.

www.climatecouncil.org.au

In related news, President of the Energy Savings Industry Association, Rod Woolley, slammed the Coalition's poor public policy practice that left leading energy efficient lighting and environmental certificate creation businesses in the dark.

This was in response to the former federal government's decision to halt eligibility of commercial and public lighting upgrades for Australian Carbon Credit Units under the Emissions Reduction Fund, a snap decision that was made without consultation and was not well publicised or communicated.

"The case remains strong to provide incentives for energy efficient lighting retrofit upgrades. They are not business as usual," Woolley said.

"We need only look to those states where there are no energy savings schemes to see that large retrofits at scale are not happening. To reduce emissions at scale, financial incentives are still required."

He added continuing delays on mandatory disclosure standards for commercial and residential properties for sale and rental was not helping the retrofit market transition to energy efficient lighting.



CATALYSTS FOR CLIMATE ACTION

66

The biggest con is that we are safeguarding communities by holding on to fossil fuels – they are absolutely leaving them high and dry in the transition. Let's make the 47th parliament the disruptor... it's time to change the climate in Canberra. We need a roadmap to victory. To delivering.

ZALI STEGGALL, Federal Member for Warringah

Australia would do well to follow Norway's lead on electric vehicles... tax what you don't want and incentivise what you want to encourage.

AUDREY QUICKE of the Australia Institute

We face two existential threats: nuclear war and climate change. The first duty of a responsible government is security for its people... being smart about energy is vital to our future.

ADMIRAL CHRIS BARRIE AC, former Chief of the Australian Defence Force, addressing the SEC's Emergency Pacific Climate Security Summit

> Good climate policy as we know is good environmental policy for the cities and the regions. CHRIS BOWEN (Minister for Climate Change and Energy) addressing the Smart Energy conference

Renewable Energy Zones are modern day power stations, acting as a magnet for mammoth investment.

FELICITY WILSON, Parliamentary Secretary to Matt Kean, NSW Minister for Energy and Environment, addressing the Smart Energy conference

There's a huge pipeline of green energy and industry projects – led by billionaires and equally deep pocketed international investors, encouraged by some smart state governments, even Coalition ones – that will likely dwarf those of the fossil fuel industry. And they will have long-term prospects, and benefits, both in terms of investment, economic gains and environmental improvements. And, of course, in jobs.

GILES PARKINSON of RenewEconomy and recent inductee into Smart Energy Council's Hall of Fame



Climate activists are sometimes depicted as dangerous radicals. But the truly dangerous radicals are the countries that are increasing the production of fossil fuels. **UN Secretary-General ANTÓNIO GUTERRES**

It is perverse that Australian governments continue to subsidise fossil fuel production and consumption while communities across the country are bearing the costs of disasters exacerbated by fossil fuel use. This is bad economics and even worse climate policy. We are witnessing Australia's flood-stricken communities trying to pick up the pieces while fossil fuel interests are cashing in to the tune of over \$22,000 a minute.

ROD CAMPBELL, Research Director at the Australia Institute

Shifting power to the home is a bit like stocking the pantry. It's a bastion of resilience that brings, into the home, essential resources to keep the lights on. KATHERINE McCONNELL of Brighte

Portable potable water

CONVERTING SEAWATER to drinkable water involves the construction of a multi-million-dollar desalination plant over many years, right? Well, yes in most cases, however researchers at Massachusetts Institute of Technology have developed a compact portable seawater desalination system.

The key to the device is the absence of high-pressure pumping and repeated maintenance, instead the field-deployable desalination system comes with a multi-stage electromembrane process with two-stage ion concentration polarisation and one-stage electrodialysis.

That's enough to successfully convert brackish water and seawater to drinkable water (as defined by WHO guideline), with the energy consumptions of 0.4-4 (brackish water) and 15.6-26.6 W h/L (seawater), respectively.

The process reduces suspended solids of around a factor of 10 from the source water, resulting in crystal clear water, even that with turbidity higher than 30 NTU (nephelometric turbidity units – now there's a word to add to the vocabulary).

The fully integrated prototype consisting of a controller and pumps is packaged into a battery powered portable unit about the size of a cabin bag and weighing just over 9kg that pumps out a third of a litre an hour.

MIT developers Junghyo Yoon and Jongyoon Han say this could help communities on small islands or crews of seafaring cargo ships, as well as refugees fleeing natural disasters or soldiers in remote regions.



We're not sure the smart compact desalination device has hit the market just yet but given the hi-tech gadgetery and cables in the package we're also doubtful how successful anyone would be getting it through airport scanners...

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SOLAR INDUSTRY Positive Quality™

THE SMART ENERGY COUNCIL'S Positive Quality[™] program sets rigorous standards that ensure manufacturers who achieve and maintain high standards are singled out and recognised.

Prominent panel maker **JinkoSolar** meets those high standards and proudly displays the Positive Quality[™] logo, a symbol of manufacturing excellence, which sends a signal of confidence to consumers.

Participating manufacturers are fully recognised, consumers enjoy peace of mind and the industry's reputation is strengthened, delivering **Positive Quality™** for all. Australian consumers and businesses can have confidence in the quality of the solar panels they are installing by looking out for the **Positive Quality™**.

The Smart Energy Council developed the program because the generic appearance of panels makes it difficult to determine good from bad, unless an identification mark denotes otherwise. A logo that signifies superior quality.

The **Positive Quality™** program admits and endorses manufacturers that are independently tested and verified through plant visits. The initial assessment consists of a company's entire manufacturing processes undergoing independent and intensive inspection and testing.

This is carried out by the Smart Energy Council's specially appointed **Positive Quality™** specialists in a three step process: Certification check and compliance with IEC and Australian standards; Factory inspection with a 60-point check; and a Product quality check: appearance, IV, EL, Hi-Pot, and leakage current.



Positive Quality™ participants' premises are then inspected at random every 12 weeks to ensure the continuity of those high standards. All solar PV manufacturers of high quality can participate.

JinkoSolar was awarded the 'Top Brand PV Australia 2021' by specialised European research firm EuPD Research.



By displaying the Positive Quality™ logo solar companies convey high standards in panel manufacturing to industry and consumers



Contact Positive Quality™ Manager Alistair McGrath-Kerr on 0499 345 013, email alistair@smartenergy.org.au or visit www.smartenergy.org.au

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