Smart Energy

AN OFFICIAL **SMART ENERGY COUNCIL** PUBLICATION

Climate: a global concern requiring concerted action

Smart solution to cost-of-living pressures
Smart Energy: an abundance of ideas, actions and technologies
The UN COP meeting: a chance to spotlight Australia
Bob Brown's candid views on renewables and biodiversity
FrontRunners for solar solutions
A shining outlook for rooftop PV
Solar Accreditation Australia

New SEC President Don Henry AM

VOLUME 44 ISSUE 173 AUTUMN 2024

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Smart Energy

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MAGAZINE DESIGN
Mitzi Mann

The Smart Energy Council acknowledges the Traditional Owners and Custodians of the lands on which we work and pays respect to Indigenous Elders past, present and emerging.

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

Smart Energy is published quarterly.

COVER *New SEC President Don Henry calls for timely action on decarbonisation*

SMART ENERGY COUNCIL

SPECIAL FEATURES

INDUSTRY ROUND-UP

ZERO CARBON HYDROGEN AUSTRALIA

SMART ENERGY PARTNERS AND MEMBERS

WELCOME

John Grimes, Chief Executive
Smart Energy Council

AT THE LAST FEDERAL ELECTION a battle to secure the energy transition was won, but not the war.

In the past weeks the leader of the National party has called for a moratorium against solar, wind and transmission projects across the country. The Liberal Party has coalesced around the nuclear option, backing nuclear reactors as the transition path to net zero. And we have been told new vehicle efficiency standards will add $25,000 to the cost of a new car. You could not make this stuff up.

The policy plan for the Liberal and National parties at the next election has come into sharp focus. Destroy social licence for the energy transition in the bush and argue that we need to keep coal in the system until the late 2030s, when nuclear will save the day.

The same outcome on the ground, just a new rationalisation: coal must stay, gas must be boosted, renewables must be held back. CoalKeeper in disguise.

But it is what is missing from their hit-list that is most telling. The LNP has been quick to rule out rolling back rooftop solar. Why? Not because they don't want to, but because they fear that will badly hurt them politically. Telling. This is raw politics on display. It is also the clue to what we must do next. We must make all disruptions to the energy transition as politically costly as opposition to rooftop solar. We need the Liberal and National parties to change. Until they do, we must deliver political damage. Hold them back like they want to hold us back.

The Smart Energy Council will support any political party that supports a timely transition to renewables, a decarbonised society. Just as we supported the Palmer United Party when it voted to save ARENA and the CEFC and backed in the NSW Liberal Government when it proposed major new Renewable Energy Zones. But we will call out and oppose those who do not. The community is way ahead on this stuff. I look forward to the day we stand alongside all major political parties supporting meaningful climate action. Until then we will see you at the ballot box until we win.

IN MY VIEW

Paolo Frankl
International Energy Agency

WELL AHEAD OF COP28 the IEA called on governments to focus on five priority areas by 2030 that are critical to keeping the goal of 1.5° within reach: tripling global renewable capacity; doubling progress on energy efficiency; committing to an early decline in fossil fuel use; driving down methane emissions; and scaling up investments in emerging and developing economies.

The first global stocktake of the Paris agreement has shown that the world is not yet on track towards a global net zero energy system by mid-century, but with four of these five key objectives agreed upon with the historic consensus reached in Dubai, the right direction has been set and recent trends are encouraging.

Global clean energy deployment scaled new heights in 2023 led by renewables; annual additions of solar PV and wind grew 85% and 60% respectively. Capacity additions for these two technologies reached almost 540GW, with China accounting for the majority.

Importantly, this massive expansion of renewable power is set to continue, with the world on course to add more renewable capacity in the next five years, driven by solar PV and wind, than has been installed since the first commercial renewable energy power 100 years ago.

I applaud Australia which is among the highest solar capacity installed per capita in the world.

Under current policies and market conditions global renewable capacity is already on course to increase by two-and-a-half times by 2030, driven by consistent policies and increasingly cost competitive solar PV and wind.

The most important challenge for the international community is in sufficient affordable financing for renewables in most emerging and developing economies.

In advanced and large emerging economies policies need to adapt to the new microeconomic, more difficult environment, and policies need to be longer-term oriented and predictable. Administrative and permitting procedures and social acceptance issues are key barriers in many countries, as is insufficient planning and investment in flexibility resource including storage, smart grid infrastructure and demand side measures which prevent faster expansion of renewables.

I commend the government of Australia and the Smart Energy Council for their focus on renewables and enabling technologies in particular solar, storage, hydrogen and other flexibility resources needed to complement the massive acceleration of global variable renewables such as solar PV and wind.

5B

The 5B Maverick
Energy dense.
Robust. Relocatable.

- The prefabricated Maverick requires 70% fewer labour hours for mechanical installation compared to conventional SAT system of similar size.
- Certified to withstand cyclonic wind speeds (up to 72 m/s) with C4 corrosion resistance.
- 98% more energy yield per unit area (kWh/hectare/annum) than single axis tracker systems and 87% more when compared to fixed tilt structure PV array systems*.

5b.co

*98% average increase, based on DNV modeling of 6 sites, latitudes ranging from -12.5° to +43.6°. Yield benefit ranged from 90-113.8% (prepared 12/2021).

INDUSTRY DEVELOPMENTS

ONE VERY LARGE BATTERY FOR QUEENSLAND: CleanCo is partnering with Tesla and Yurika to deliver a $330 million 250MW/500MWh publicly owned battery at the site of the former Swanbank B coal-fired power station; the site is due to be energised by mid-2025.

The project is CleanCo's first battery storage project.

"It's because of new technologies like this that we will reach the ambitious energy targets put before parliament," Premier Steven Miles said. "Renewables are driving down the spot wholesale price of power below zero, which is why we will continue to invest in them."

The development dovetails with **QUEENSLAND'S BATTERY INDUSTRY STRATEGY,** a $570 million investment for Queensland to deliver clean economy jobs in battery technologies and manufacturing.

The $570 million package includes new funding of $210 million to build capabilities across the value chain, drive development of battery standards, and testing.

Forecasts suggest the state's battery industry could contribute up to $1.3 billion to economy and generate 9,100 clean economy jobs by 2030.

Premier Steven Miles: "As the world moves towards net zero global demand for batteries will increase by tenfold to 2030.

"Our 75% emissions reduction target by 2035 provides the investment certainty to build a battery industry here in Queensland to not just supply Australia but the world."

www.statedevelopment.qld.gov.au/batterystrategy

Read more about Queensland initiatives on page 41.

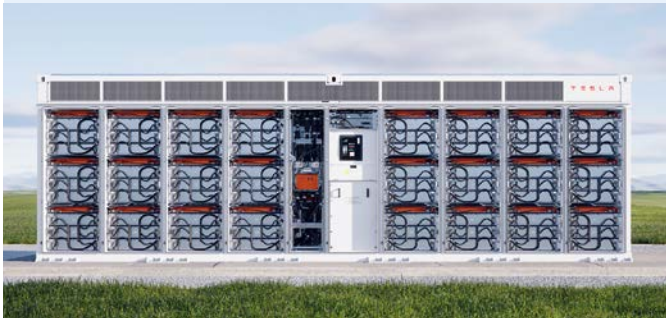


PHOTO COURTESY TESLA

AGL HAS REVEALED PLANS for a 1.2GW wind farm, 300MW solar farm, and 500MW, 2000 MWh battery in Southwest NSW. Planning applications are in place for the Pottinger Energy Park, a joint venture with Someva Renewables, and consultations with the local community and traditional owners are underway.

AGL states the project is critical to the 12GW of new wind, solar and storage proposed over the next decade to replace coal-fired power stations.

PHOTO COURTESY SOMEVA RENEWABLES

A BREAKTHROUGH FOR THE WIND INDUSTRY IN NSW with the approval of the 1.5GW Yanco Delta wind farm in the state's Southwest Renewable Energy Zone, the first wind farm approved in the state since early 2021.

The project being developed by Virya Energy includes the construction of 208 wind turbines, an 800MW/800MWh battery and grid connection infrastructure.

On completion it will be Australia's largest wind farm in Australia, with generating capacity to power 700,000 NSW homes.

Federal Environment Minister Tanya Plibersek said the Yanco project has been approved after careful assessment of the environmental impacts and "is able to proceed with strict conditions to protect nationally protected threatened species including the superb parrot and the plains-wanderer."

MEANTIME VICTORIA'S SECOND OFFSHORE WIND ZONE off the Great Ocean Road has been scaled down from 14.6GW to 2.9GW in response to concerns among environmental groups about whales and other marine wildlife.

Greenpeace and the Australian Marine Conservation Society stressed they continue to support large-scale renewable energy, including offshore wind, as a necessary measure to drive down fossil fuel emissions and reduce global warming.

The Victorian government has set offshore wind capacity targets of 2GW by 2032, 4GW by 2035 and 9GW by 2040.

WAY TO GO, TOMAGO The nation's biggest single energy consumer (8TW hours annually) and biggest aluminium smelter Tomago in Newcastle has launched one very large tender for wind and solar projects to power the smelter, after ruling out the option of 'too slow and too expensive' nuclear energy.

PHOTO COURTESY TOMAGO ALUMINIUM

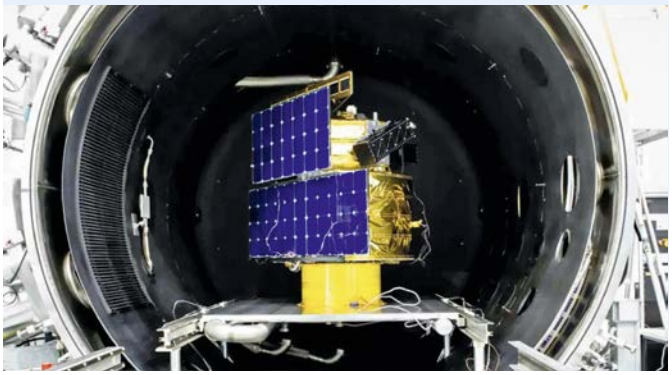
THE NEWS FOLLOWS RIO TINTO'S CONTRACTS for GW scale wind and solar farms in Australia to provide power for its Boyne Island smelter and two alumina refineries in Gladstone: 1.1GW Upper Calliope solar project and 1.4GW Bungapan wind project being developed by Windlab which is majority owned by Andrew Forrest.

Clayton in Melbourne's south east is home to the rather intriguing **SYNCHROTRON PARTICLE ACCELERATOR** which spins electrons in a fixed closed-loop path to near the speed of light. The energy intensive process led to the 'no brainer' decision to build a 1.59MW rooftop solar system, with RACV Solar installing 3,000 panels which will shave $2 million off power bills during the first five years.

Staying in the realm of science **CSIRO'S PRINTED FLEXIBLE SOLAR CELLS** have successfully been launched into space on Australia's largest private satellite, Optimus-1.

Developed on flexible substrates, the perovskite-based solar cells offer significant increase in power-to-mass ratio and advantages compared to silicon-based cells.

CSIRO stated the mission marks a crucial step in harnessing renewable energy in space, complementing recent advancements like Ascent Solar Technologies' CIGS thin-film PV panels set to power NASA's upcoming LISA-T mission.



Smiling faces at Malolo Primary School in Fiji thanks to the PV rooftop system installation arranged by Rob Edwards of Its Time Foundation, website: www.iitime.org

THE SMART ENERGY COUNCIL IS PLEASED TO ANNOUNCE THE APPOINTMENT OF DON HENRY AM AS PRESIDENT

Don is perhaps best known as the long-term chief executive of the Australian Conservation Foundation from 1998-2014 and comes with a long list of credentials.

He is Enterprise Professor of Environmentalism at the Melbourne Sustainable Society Institute, University of Melbourne, and an International Board member of Al Gore's 'Climate Reality Project'.

From 1996-98 Don was based in Washington DC where he served with the World Wildlife Fund as director of the Global Forest program and director of the WWF Asia-Pacific and South Pacific programs. In Australia, Don Henry has held the post of director at both WWF-Australia and the Wildlife Preservation Society of Queensland.

Along the way he has picked up numerous prestigious awards.

In mid-March Don Henry joined the SEC delegation which led a Roundtable discussion on critical minerals with Treasurer Jim Chalmers in the lead-up to the federal budget.

Read more on page 8.

Don succeeds Terri Butler as SEC president. Terri's resignation was necessary due to her acceptance of a role as an Industrial Relations Commissioner in Queensland.

CONGRATULATIONS TO JOHN GRIMES, CEO, SMART ENERGY COUNCIL WHO HAS BEEN ELECTED VICE CHAIR OF THE GLOBAL SOLAR COUNCIL where he will be promoting the Australian renewables industry on the global stage.

The Global Solar Council Board of Directors features representatives from every continent across the world in order to achieve a global perspective.

Global Solar Council chief executive Sonia Dunlop said the composition of the Board is "Crucial in supporting our mission and our mantra is clear: *Solar Can Deliver*, and deliver we will. The new tripling of renewables target together with the transition away from fossils which we secured at COP28 in Dubai is now ours to deliver."

Global Solar Council

INDUSTRY DEVELOPMENTS

SOLAR ACCREDITATION AUSTRALIA The Smart Energy Council in partnership with Master Electricians Australia established Solar Accreditation Australia (SAA) in late February.

Appointed by the Clean Energy Regulator, SAA is the new, independent and separate entity accrediting solar and battery designers and installers.

SAA will work collaboratively with industry, government bodies, and other relevant stakeholders to ensure the accreditation scheme promotes best practice, encourages continuous professional development and supports a growing workforce to deliver smart energy solutions for Australian households and businesses.

"The industry wanted to see a collaborative whole-of-industry approach to accreditation delivered by a separate and independent body. That is what SAA is delivering to support the federal government's ongoing commitment to program integrity," John Grimes said.

"In working together with Master Electricians Australia to establish SAA as the incoming accreditation scheme operator, our aim was to streamline processes, reduce compliance burdens and provide a single-purpose, independent body for addressing industry challenges."

CEC-accredited individuals need to transfer their accreditation to SAA by the end of May to remain eligible for small-scale technology certificates. There is no fee to transition accreditation to SAA and SAA will accept all current CEC accreditation expiry dates and fees paid.

www.saaustralia.com.au

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

TRUTH AND TRANSPARENCY

FAIR AND TRANSPARENT ELECTIONS BILL Independent Senator David Pocock (pictured) is introducing a bill in the Senate that "gives this parliament an opportunity to enact serious and long-overdue electoral reform before the next federal election". Together with crossbench parties the mission is to ban donations of more than $1.5m, reforms to introduce truth in political advertising, a ban on donations from socially harmful industries, and tightening the definition of gifts.

That would mean donations from industries including gambling, alcohol, fossil fuels and tobacco companies would be banned, as would donations from current or potential government contractors.

Michael Mazengarb of Tempests & Terrawatts recently highlighted the practice of fossil fuel companies pouring millions of dollars in gifts into the major political parties, a total of $1.78 million shared by the Labor Party, the Liberals and the Nationals, and from the likes of Adani, Woodside, Santos and Chevron.

The Labor Party collected more than $863,000 in donations from oil, gas and coal producers in the first full year of government while the Liberal Party received $656,477 from its fossil fuel backers (Hancock Prospecting being a significant slab) and National Party donations reached almost $200,000. The Greens did not report receiving any funds from fossil fuel companies.

All strength to 19yo **AUSTRALIAN CLIMATE ACTIVIST ANJALI SHARMA** who is pressing ahead with her goal to have laws enacted that would compel politicians to consider their duty of care to the health and well-being of future generations when considering fossil fuel projects.

"Ultimately, it's young people who stand to bear the brunt of climate change," she says. "And if our interests aren't considered, then we can't be confident that we'll have the ability to enjoy what the world can offer us in the same way that generations before us did."

Cathriona White of Doctors for the Environment commented "We protect our kids from alcohol and drugs but not climate impact."

BRAKES ON Swedish based EV maker Polestar and Tesla are parting ways with Australia's main car lobby the FCAI over its "intolerable" campaign against the federal government's proposed new vehicle emissions standards.

"With transport emissions forecast to be Australia's largest source of emission by 2030, Australia has a clear role to play and must catch up with the rest of the developed world," Polestar wrote "The FCAI's campaign so far really doesn't represent our position at all." Volkswagen Australia has removed itself from the FCAI's policy making committee. A domino effect?

QUICK QUIZ Who asked: "If you think a wind turbine is waving at you, is it polite to wave back?" and in what context? Related, who stated "Hopefully, battery [storage] technology is about to be discovered..."?

Solis: The World's 3rd Largest PV Inverter Manufacturer

S6-EH3P(29.9-50)K-H

Solis Three Phase High Voltage Energy Storage Inverters

TIER 1
BloombergNEF

- 4 Integrated MPPTs with string current capacity of up to 20A，IP66 protection
- Backup port supports 1.6 times overload for short durations, parallel operation of up to 6 units
- Generator connectivity with multiple input methods and automatic generator On/Off control
- Support to work as grid-tied inverter without battery connection during on-grid

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THE BOLD ACTIONS WE MUST TAKE NOW

A warming planet, an energy-dependent population, boundless potential in critical minerals and smart energy solutions ready to mass deploy now. Are local and global leaders bold enough to step up action, and fast enough?

Ocean warming caused by climate change is melting the Thwaites Glacier in Antarctica at an unprecedented rate. Its collapse would cause a drastic rise in sea levels

IN A WORLD that is clearly suffering the impact of today's comfortable lifestyles that we have become accustomed to, it's high time for a reset. We need to pursue policies and practices that both future-proof our existence and lighten the load on the planet; to develop a smarter future.

At the forefront is the need to inspire positive action on climate change and energy solutions to accelerate the transition to net zero, underpinned by well-planned and bold actions.

Every small step helps.

For its small but not insignificant part the Smart Energy Council is focused on addressing the complementary needs of addressing a climate that is spiralling out of control and scaling up renewables while harnessing the enormous potential of critical minerals.

It's all about inspiring vision and positive action by those that can effect change on a grand scale – and in this case that involves a government that is on board with an ambitious federal budget.

In the lead-up to decision making in the federal budget, the SEC gathered leaders in renewable energy systems and processes in a high-level meeting with Treasurer Jim Chalmers to emphasise the importance of the 2024 Budget for the renewables and critical minerals industries. Discussions centred on the rapid decarbonisation of the global economy which presents an unprecedented opportunity for investment, job creation and net exports for Australia throughout this century.

For this to occur a strategic, comprehensive, and coordinated government and industry response that matches the scale of the potential opportunity is necessary and that, says John Grimes is precisely what was discussed during the meeting with the Treasurer.

"The Smart Energy Council delegation which included representatives from Fortescue, 5B, Tesla, Boundless, Redflow, POSCO, New Energy Nexus, Tilt, North Harbour, PowerPlus Energy and Selectronic presented a united front and a range of pragmatic proposals. This included advice to use the tax systems to help all manufacturers and mineral processes, not just pick single winners.

"We also presented detailed proposals on how to encourage local content requirements for renewable projects that are funded by the government in Australia," John said.

"And we encouraged the Treasurer to capitalise on our international relationships to advance Australia's position, whether that's with places like India, Brazil or the United States, and to build on the work we already do with China.

"The Treasurer was very engaged throughout the substantial and detailed discussion which lasted more than 90 minutes.

"We are providing ongoing advice to Treasury about the most efficient mechanisms to help our industry at this important time and the key role of critical minerals so it's about manufacturing solar PV, batteries and all the power electronics with companies like 5B, SunDrive, PowerPlus Energy and Selectronic leading the way, but also the minerals processing part as well."

The SEC agrees with the Prime Minister who declared 'The Government's vision is for Australia to be a renewable energy superpower, which will in turn help us to become an advanced

manufacturing powerhouse. A strong economy makes a better future possible – and energy is the spark that drives it'.

"If we don't make the shift, Australian renewables and critical minerals companies will seek opportunities elsewhere, relocating to areas with the right incentives and strong markets, and we will miss the economic opportunity of a lifetime," John said.

SEC is encouraging the government to develop a US style initiative to crowd in billions of dollars of investment in renewable energy in Australia and plug the capital flowing to the US.

Grand scale and substance

Within a year of its passage in the US the Inflation Reduction Act had generated 280 clean energy projects, 400,000 jobs and $427 billion in investment.

Back to Prime Minister Albanese who when visiting the Hunter Valley declared this the "decisive decade for Australia".

"If all you ever do is get angry about change, or try and make people afraid of it, you render yourself incapable of shaping it… This is the time when we have to get [it] right, the moment that matters.

"This is the biggest and best chance our country will get, to harness the power of global economic change – and put it to work for our people.

"Converting our natural resources into national strengths, and ensuring that, here on the doorstep of the fastest-growing region in the world in human history, we are not just on the outside looking in [but] we are engaged and involved."

Statesman like sentiments, and should Australia indeed flex its muscles and develop into a Renewables and Critical Minerals Superpower, become an exporter of climate change solutions, the effect would be to contribute to a 9% reduction in global emissions.

The roundtable discussion with Treasurer Jim Chalmers to emphasise the importance of the 2024 Budget for the renewables and critical minerals industry

A blueprint for smart foundations

Among the proposals put to federal Treasurer by the Smart Energy Council:

The 2024 Federal Budget, and every Budget thereafter, must lay the foundations for:

- the widespread, accelerated electrification of the economy with renewables
- stimulating the domestic value-adding of our resources, local processing and manufacturing
- exporting decarbonised products, including green iron, aluminium, hydrogen and ammonia, critical minerals and lithium to meet growing global demand; and
- strengthening international partnerships, including with Quad Partners, to diversify global smart energy supply chains.

Key Budget Recommendations

- Smart Energy Advanced Manufacturing Tax Credits to counter the US-Inflation Reduction Act and China's growing dominance and to ensure Australian firms make smart energy products in Australia.
- Critical Minerals Production Tax Credit of 9-10% production tax credit to achieve similar results to the US Inflation Reduction Act and, tied to a path to decarbonisation, facilitate Australia a global export leader in value-added critical minerals, powered by renewables.
- Support for Local Content in government-funded large-scale builds in our energy transition.
- Speedy Delivery of Government Funding, via of energy transition programs, including the National Reconstruction Fund, Net Zero Economy Agency, Rewiring the Nation and the Household Energy Upgrade Fund, in addition to the independent financial expertise and governance of the Clean Energy Finance Corporation, Northern Australia Infrastructure Facility, Export Finance Australia and ARENA, and
- Capital allocation to the Future Fund with a new capital allocation to the Future Fund of $20 billion to take strategic, patient equity investments in support of new Australian smart energy manufacturing and critical minerals mining and refining ventures….to support.
- Companies that are developing strategic resources for Australia and that are committed to adding value within Australia.

Establishing climate friendly economic reform

The ambition complements calls by Simon Stiell, the United Nations' top climate official, who visited Australia in February 2024 to urge political leaders to embrace wholesale economic reform to address climate change.

Not unsurprisingly, the UN agency's annual State of the Global Climate report cited a series of "Heatwaves, floods, droughts, wildfires and intense tropical cyclones wreaked havoc on every continent and caused huge socio-economic losses".

Stiell is calling on Australia to help unlock trillions of dollars necessary to prepare for climate impacts and play a role in leading global efforts to decarbonise economies.

After meeting with Prime Minister Anthony Albanese and Climate Change

Simon Stiell, executive secretary of the United Nations Framework Convention on Climate Change

and Energy Minister Chris Bowen Simon Stiell met with John Grimes.

"Simon is the world's most senior bureaucrat when it comes to climate change and he basically is responsible for delivering the United Nations COP meetings that take place each year," he said.

"My message for Simon Stiell was that Australian industry is standing ready to play a really significant role in highlighting the positive things that are happening in terms of policy and economics… that there is a wave of products and services that help actually fix the problem.

"I also impressed on him that we at the Smart Energy Council are fully supportive of an Australian government bid together with Pacific Nations to host the COP31 in Australia in 2026, and that we want to put industry at the heart of that process.

"To really tell a positive story about solutions and the transformative power of our industry; the idea of storytelling real examples about real changes, real progress in Australia and also the Pacific more broadly."

Stiell was particularly receptive to the range of projects, services and innovation delivered by member companies, there are many impressive technologies that are matched by ambition and desire to scale up, John said.

"He asked me to ensure the SEC plays a prominent role at the COP meeting in Baku in Azerbaijan later this year, so we will be doing that with a real emphasis on practical examples of technological applications.

"We will also be working collaboratively on the COP30 which is being held in Brazil next year, the Smart Energy Council is engaging strongly and much of the efforts are being led by Richard Merzian, our International Director.

"As an industry we try and capitalise on the big moments globally and these COP opportunities give us a really fantastic opportunity to engage, as does my role as Vice Chair of The Global Solar Council."

John also drew attention to the calls by economist Ross Garnaut and former head of the ACCC Rod Sims for a carbon solution levy - a tax on fossil fuel production to help fund Australia's transition to decarbonisation while lowering the cost of living and helping reduce global greenhouse emissions.

"The global transition to net zero is Australia's opportunity," says Garnaut, founder of the Superpower Institute, whose calculations suggest $100bn would be raised in the first year alone which could be used to raise productivity and living standards "after the decade of stagnation".

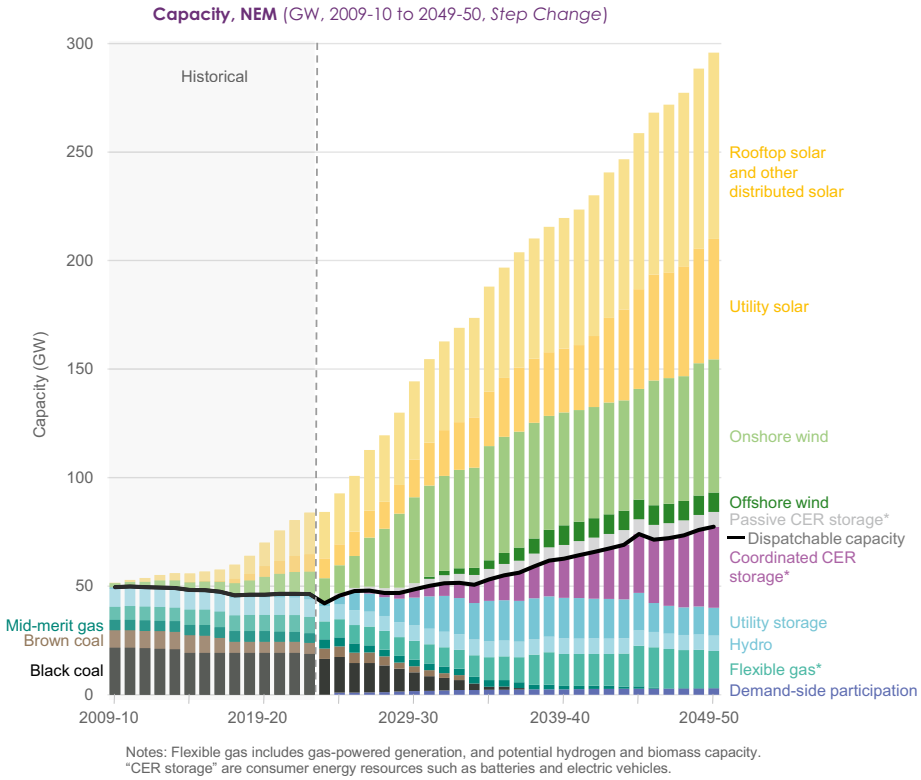
"Basic economics means you must price the damage that fossil carbon imposes on us all," he said. "In the end political judgments will have to be made about whether restoration of rising income standards … and productivity growth and prosperity for the Australian people are more important than preserving the profitability of the oil and gas companies."

Read more on page 18.

Already a major shift in the energy mix is underway, which leads us to the slew of welcome announcements surrounding the federal government's expanded Capacity Investment Scheme seeking 10GW of new wind and solar capacity this year alone, along with 3GW of dispatchable capacity, representing Australia's largest tenders to date.

Capacity building

It's off with the speed of a Ferrari, offers in the first auction of 600MW storage (2,400MWh) in Victoria and South Australia have already closed. Tenders will be held every six months with projects locked in by 2027 and built by 2030, as the nation ramps up to meet



The Australian Energy Market Operator's updated energy plan confirms the lowest-cost way to deliver a secure and reliable grid over coming decades is a renewable grid with hydro, batteries, flexible gas and transmission

its target of 82% renewables by 2030 with an aspirational and additional 32GW new generation capacity: 23GW renewables and 9GW dispatchable capacity (four hours of storage).

To meet timeframes the government's 'Renewable Energy Transition Agreements' between Energy Minister Chris Bowen and states involved in the Capacity Investment Scheme ensure planning approvals which include Environmental, planning and social license approvals are streamlined to enable states to connect renewables to the grid in time. NSW which is home to the largest grid is under fire for lengthy delays for planning approvals and under pressure to accelerate roll-out.

Meantime the SA government has brought forward its ambitious target of net 100% renewables from 2030 to 2027 due to new wind and solar developments and ambitious hydrogen plans. SA already leads the world with more than 71% of annual demand being met by wind and solar.

"In the end political judgments will have to be made about whether restoration of rising income standards… and productivity growth and prosperity for the Australian people are more important than preserving the profitability of the oil and gas companies." ROSS GARNAUT

And on December 31 AEMO declared rooftop solar contributed two-thirds of Victoria's total energy needs.

In the paper *Capital for kilowatts: the (non)-inflationary impacts of the green transition* co-authors Toby Phillips of the Centre for Policy Development and Guy Debelle former RBA deputy governor conclude that any future for Australia "whether it involves a green transition or not" will require significant capital investment to deal with almost 40GW of retiring coal and fossil gas generation over the coming decades.

Rise in investor confidence

Related, and in more good news, investors are more upbeat and confident about Australian climate policy. According to Erwin Jackson of the Investor Group on Climate Change, in 2021 seven out of 10 investors cited policy and regulatory uncertainty as a key barrier in renewable energy investment. In 2023, that had dropped to just four out of 10.

A welcome and timely rise in confidence.

On possible climate solutions, investors see renewable energy as delivering the best long-term financial returns. Around five in 10 investors are currently exploring opportunities to invest in renewable energy.

Investors are also seeking opportunities in a broad range of technologies and options, notably those many where Australia has comparative advantage, including critical minerals and green hydrogen.

Which loops us right back to the concerted campaign by the SEC and members in representations to the Treasurer that we hope will reap dividends.

SMART ENERGY POWERED BY RATIONAL ACTION

SMART ENERGY COUNCIL
CONFERENCE AND EXHIBITION
6-7 MARCH 2024 | SYDNEY

"The people of Australia sent a message in 2022 for government to modernise and to embrace good policies on the climate."

REGULAR READERS of *Smart Energy* know the drill: when the flagship event that is the annual SEC conference packs in 148 guest speakers who are at the top of their game it's impossible to relay the wealth of wisdom and industry insights, analysis and forecasts on just a few pages.

This year's conference was no different: heaving with expert commentators on the energy transition and all mindful of the need to hasten the actions to address dual crises: climate and cost of living.

That message was nailed by **Independent MP Allegra Spender** who is calling for a **People Power Plan** to "get households out of the fossil fuel trap with home electrification and rooftop solar, and permanently lower energy bills." In short: "Homes must be central to the energy transition. The $1,100 or more in annual savings from rooftop PV is a permanent cost of living relief and great for the planet," she said. "Climate action and the cost-of-living crisis must go hand in hand and the people here are critical to this."

The MP also took the opportunity to have a shot at the federal opposition's intransigence and nuclear-first energy stance, stating: "Rather than accepting the science and the economics we have seen the Coalition revert to climate denialism and an energy policy that wouldn't survive first contact with a High School Commerce Class."

A quick recap on the state of the planet: the seventh mass bleaching of the reef, record global temperatures of 1.48 degrees (over pre-industrial times) during 2023, droughts, floods. Just like the previous year only worse.

As cast by **SEC's John Grimes** "1.5 to survive. If dangerous climate change is the problem, what's the solution? How about good policy, supportive community and a successful renewables industry to make a difference."

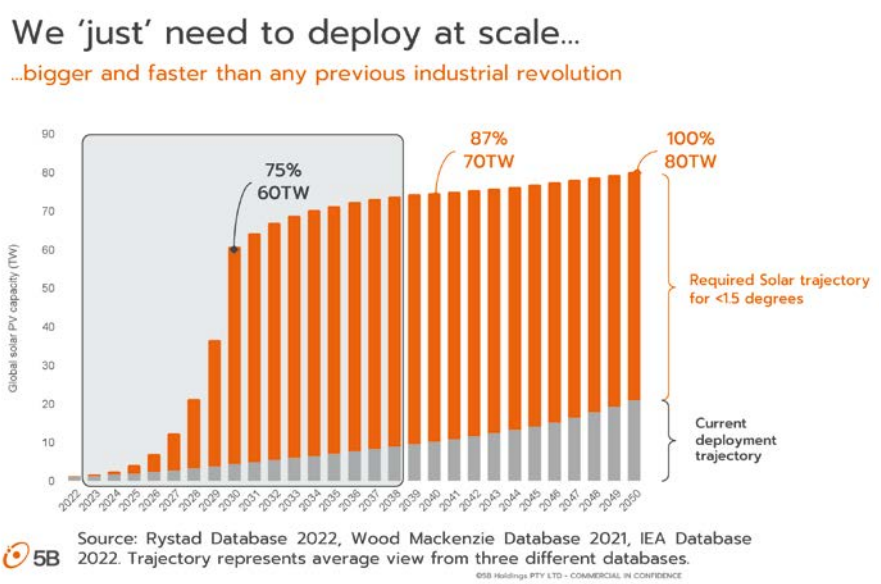
He emphasised the vital role of the small-scale sector – solar, batteries, EVs, heat pumps – which will comprise around half of the mix in the transition.

"The electrification of everything, literally, changes everything. If your business succeeds, the climate succeeds," he said to a sea of nodding heads.

Turning to the bigger picture, in early 2022 global PV installations hit a milestone of one terawatt (1,000 gigawatts).

"That first terawatt took 50 years," John said. "The next is forecast to take less than four

Allegra Spender called for a People Power Plan to permanently lower energy bills



years. By 2030 it will take just one year to add 1TW. So there is hope."

Australia is not tracking too badly with the 'unity ticket' of the federal Labor and state governments and the impetus created by Energy Minister Bowen through renewables and emissions targets.

Not that we can pretend it's all hunky dory.

NSW is lagging due to lengthy planning delays, highlighted by the fact that just one wind farm has been approved in three years, and the draft wind guidelines in the draft Energy Policy Framework fail to set the state on a trajectory to meet 82% renewables or 43% emissions reductions by 2030.

NSW Planning Minister Paul Scully braved a sceptical audience, in part blaming the legacy, but welcomes "constructive comments" from the SEC and others.

For her part **Stephanie Bashir of Nexa Advisory** identifies a renewable energy transition at risk, stating "The delaying of transmission HV power lines is a de facto moratorium on renewables, we need to build 10,000km in seven years but we are not on track and without that new transmission we are reliant on coal."

Meantime calculations by **Simon Corbell of Clean Energy Investor Group** (representing 23 investor companies) identify the importance of long duration storage, in all the need for 19GW by 2030 to meet targets, well up on today's storage which sits at 1.4GW for batteries and 1.6GW hydro. Corbell identified the need for timely access and approvals and full knowledge of all requirements for developers and investor confidence.

"There has never been a more important time for smart energy than right now and the industry needs to grow quickly to be effective in addressing the cost of living crisis and to be the engine room of tackling climate change."

NEW SEC PRESIDENT
DON HENRY

Sliding doors, closing window

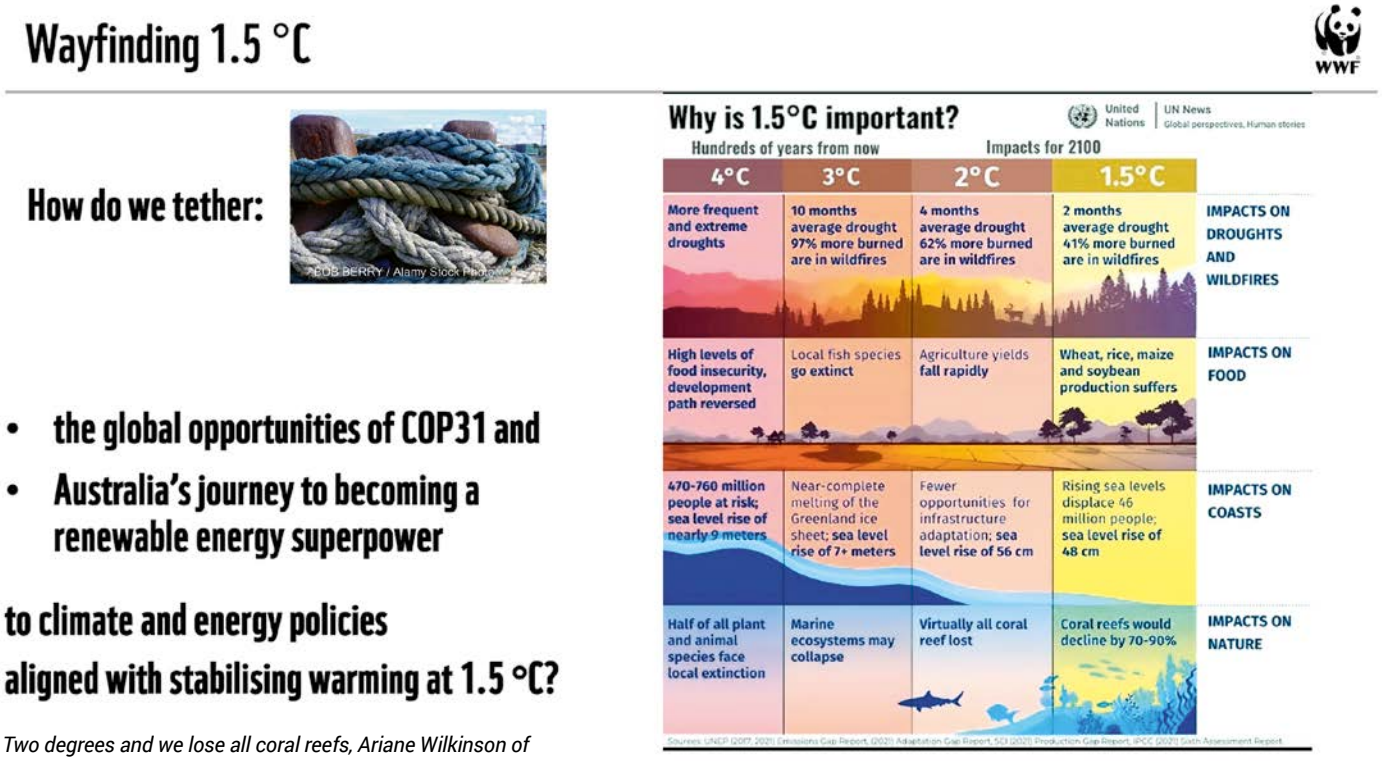
In his trademark animated address **Danny Kennedy** asserted governments need to make the transition happen in the right way, it can't be left to the market. His focus is the nascent opportunities that lie in the lithium supply chain.

"Australia is the big dog here and needs to optimise its role with upstream batteries manufacture," the CEO of California based start-up fund, New Energy Nexus told conference attendees.

And some advice to Australia over the scale of its ambitions: "We must talk in terms of $bn or $trillion, not $m, and single or low digit $bn is just not enough. America has woken up to this and is succeeding, Bidenomics has led the way with the Inflation Reduction Act and we need to catch up.

"The message is to build GW batteries for GW production and retrofit the mining fleet and commercial bus fleets in Australia, build batteries for wheels, and in due course supply batteries to the region, South East Asia, India, Indonesia.

"Instead of earning 1% of a $200 trillion market earn 50% of a market of that scale," Danny recommended to thunderclap applause.



Two degrees and we lose all coral reefs, Ariane Wilkinson of WWF demonstrated

"There is lots of talk about Superpower but a failure in imagination and execution. The investment strategy in battery manufacture is yet to materialise and to capitalise. It's a profound failure, the window is closing, this year and next," Danny said.

"The choices about where Australia's batteries are made will be set in the May budget, the heart and head of the government are shown in May, at the budget."

Minister for changing the energy mix

The very busy **Minister for Climate Change and Energy Chris Bowen** missed out on Danny's advice having taken the time to enjoy a spin around the exhibition floor to view the cutting-edge innovation and products. He opened his address by praising the technical ingenuity on show.

The Minister's address focused on long overdue reform of new vehicle fuel emissions standards, "Australians deserve to access the thousand of dollars in savings in fuel bills for cars they drive, and have paid a big price for the policy failure on efficiency standards due to a lack of courage by the LNP in 2018," he said.

Australians have in fact wasted $4 billion in fuel costs over that time.

NVES is not radical policy, Bowen said, it simply incentivises manufacturers to produce cars that are more economical to run and will save motorists $17,000 over the life of a car based on annual savings of $1,000.

"This is a long-term cost of living relief for households and one that significantly reduces emissions."

[Message to Bowen: We fully get it. It's crazy and misguided to suggest anything menacing about fuel efficiency standards. See page 43]

"We still have arguments to win – we have moved on from outright climate denial by the federal opposition to something potentially even more dangerous, 'it's all too hardism' in having the cleanest cars and now the latest being the call for nuclear because renewables are all too hard.

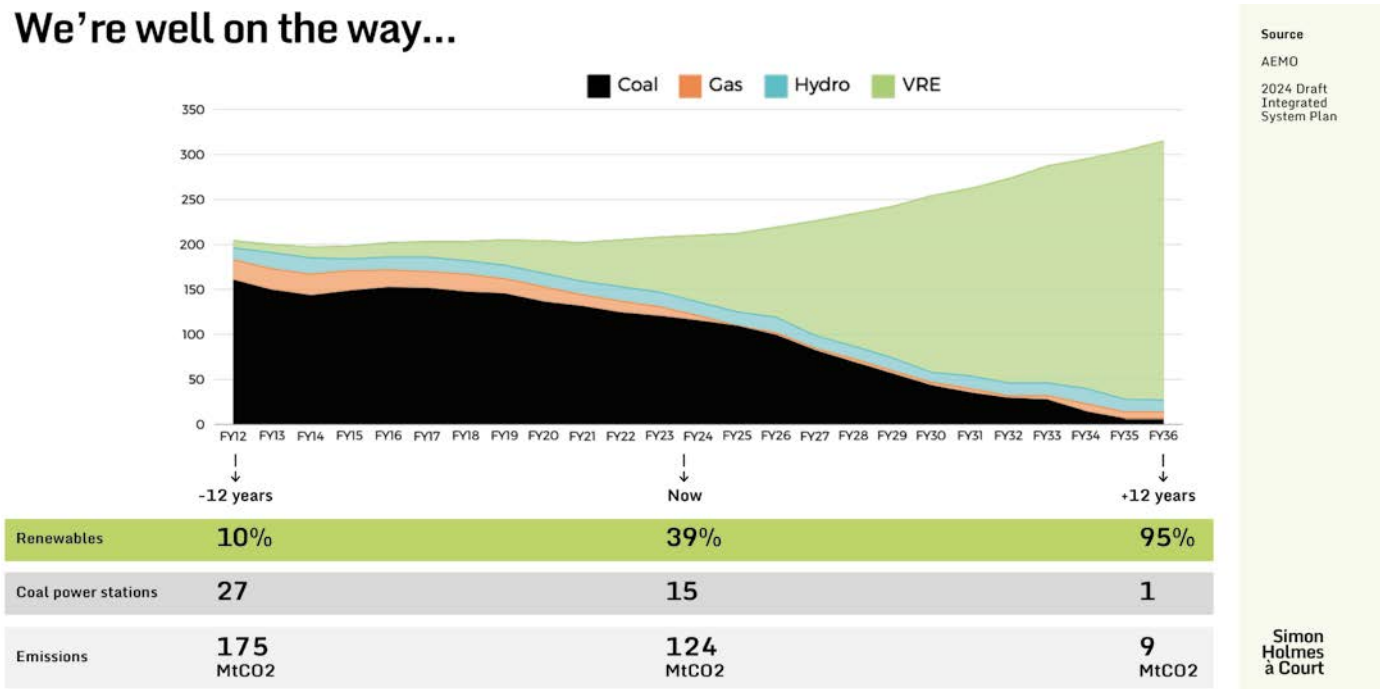
"The reality is nuclear is utterly uneconomic compared to fast cheap renewables," Bowen declared.

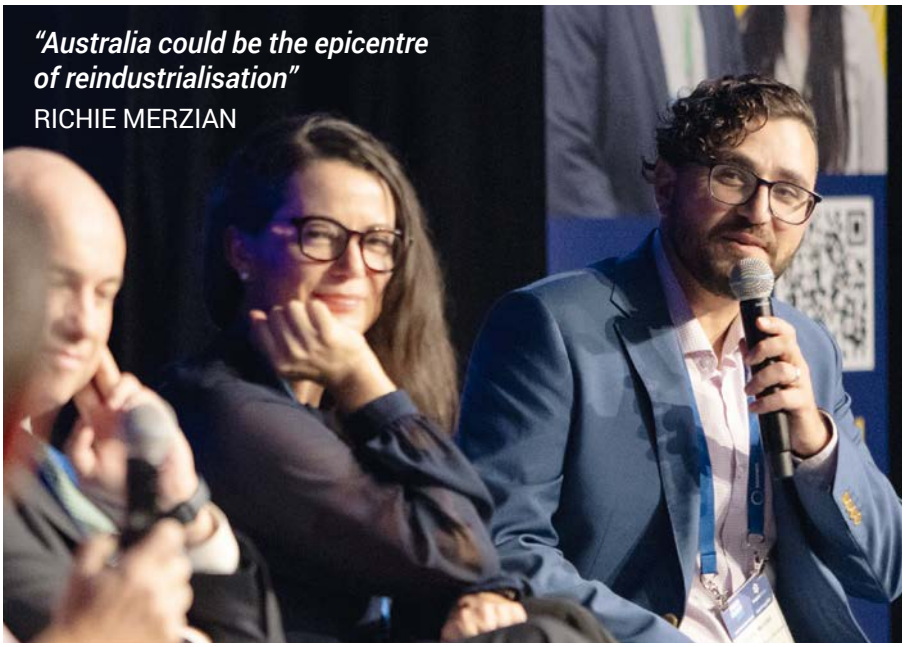
Nuclear fizzer

This was the vexed issue expanded on by prominent energy analyst **Simon Holmes à Court** who was introduced by **Alan Kohler** as "the man who literally changed the country" in reference to the presence of several level-headed climate conscious Independent MPs in federal parliament today.

Simon's address which debunked the myth of nuclear energy was based on his deep interest accompanied by significant global research, discussions and reference to expert studies.

"We are now well into the renewable energy journey, 12 years ago 27 coal-fired power stations provided the majority of power and created megatons of carbon emissions





whereas today Australia sits at about 40% renewables and emissions are down," he explained.

AEMO projections to 2036 put renewables as providing 95% electricity with just one coal power station remaining in operation.

"Nuclear has missed the boat in this country," Simon said, listing the four main barriers including the lack of availability of commercial Small Modular Reactors (SMRs) ("No commercial small modular reactor exists") and exorbitant cost of large nuclear reactors whose build time averages 19 years and is prone to end in tears, bankruptcy, even jail time.

Another reality check courtesy this time of GenCost (collaboration between CSIRO and AEMO) which contrasts technologies' cost and the eyewatering cost of nuclear reactors.

$/MWh comparisons put nuclear SMR at $382-$636, large-scale solar PV at $47-$79 and onshore wind at $66-$109, ie two to seven times cheaper than new coal and SMRs.

The reality? Under a nuclear-powered future households would be forced to fork out an extra $1,300 a year. Proponents would have a lot to answer for, piling on cost-of-living pressures. Well respected former Reserve Bank deputy governor Guy Debelle is on record as stating "The economics of SMRs are pretty bloody clear".

Fantasy debunker Simon concluded that nuclear energy may be an impressive technology but it's not available any time soon, it's uneconomic, the politics are absolutely intractable, and it won't play well in our grid.

"If you want to see the future, look to South Australia's grid," he said. "Let's keep building solar and wind, it's cheap, clean, abundant and popular."

At this point **ABC finance presenter and prolific author Alan Kohler** who chaired the plenary session declared every time I write about renewables I get profoundly depressed because the forecast global temperature based on current world policies is always a bit higher than last time I looked.

"I feel we are doomed, but everyone at this conference – exhibitors, speakers, attendees – is working on accelerating the energy transition, which is a cause for optimism; most people here are genuinely interested to address climate change and save the planet."

That ambition is being played out on a bigger stage, at the UN's COP meetings. Can Australia secure the rights to host COP31 in 2026?

Taking a stand and a stake: The [massive] Global Opportunity

SEC International Director Richie Merzian led the discussion on Australia's potential to drive further action domestically to integrate into the global landscape by hosting COP31 in 2026.

Outlining major advances driven by progressive policies in the US and the EU, Australia risks being left behind despite being endowed with abundant natural resources and renewable energy sources, he said. "Australia could be the epicentre of reindustrialisation, and COP in 2026 is the chance to showcase Australia to the rest of the world."

"The two-week COP meeting can be transformational," Richie said. He was supported in this by **Matt Kean, NSW Shadow Minister for Health** and self-described capitalist who is clearly a man with a soul, drawing attention to traumatised countries and the suffering and mass deaths of native animals caused by more intense and extreme weather.

"Climate change is the biggest challenge we face as a society. We are custodians of

Delivering on all fronts

Among the breadth of topics covered across the two-day conference: A full day on Renewable Hydrogen, two days on Smart Installer with the nation's leading technical experts, a day devoted to Innovation, Manufacturing and Workforce.

And a Smart Energy Solutions session on the Energy Storage Outlook 2024 which delved into how energy storage technology and markets adapt as renewables surpass 50% of our electricity generation, shaping Australia's future grid and our understanding of a Net Zero Grid. The session covered off on the 32GW capacity investment scheme and FCAS, the "golden ticket for energy storage revenue."

Michael Gatt of AEMO stated "The opportunity to disrupt is now", outlining the benefits for consumers under a power system with consumer energy resources substantially contributing to the energy transition and avoiding additional costs through reducing or offsetting the need for grid scale investment.

Other sessions: Smart Transport, Powering Asia, Australia's Renewable Superpower Opportunity and Electrification of Everything with the "programs providing an almost bottomless bucket for the continued growth of renewables in scale, ambition and speed of deployment.

Recommended reading: IEFFA's *"Distributed Energy Resources could provide $19bn economic boost by 2040".*

Most importantly, as was emphasised by Minister Bowen, a renewables-led transition would not be possible without practical technical solutions, brains and innovation Those very solutions were on display in the exhibition hall

Turn to page 58 for a slice of the action in the Expo hall.

our planet and our future prosperity depends on the actions we take today" said the highly regarded former NSW Energy Minister, "Climate risk too is investment risk."

"How we approach climate change defines us as a country, do we want to bury our head in the sand to scientific evidence? Or do we believe in economics and innovation and the power of human mind?

"We need to develop a better vision of what we could be, a renewables superpower, and lead the world in decarbonisation while increasing the prosperity of the nation in ways we have never seen before, provided we secure the right policies," Matt Kean said.

"Let's attract investors, scientists and more to COP in 2026, the world's biggest jamboree and an important step in building the future of our country."

TV personality and staunch environmentalist Craig Reucassel concurred that COP presented a good opportunity to tell the story about Australia's strengths and actions to date and present complex issues to mainstream media, stating "COP creates momentum and change, a transition, and is important for Australia to embrace its superpower opportunity."

David Dutton of DFAT cemented the COP31 message, describing the global gathering as the peak international delegate forum to transition from fossil fuels; a platform for influence and activity; a massive trade fair that stands Australia in good stead.

"We must raise awareness especially of Pacific nations, catalyse local investment, elevate voices of First Nations people" he said, "And, most importantly, galvanise global action, boost ambition in a strategic and practical way that only comes from COP."

Smart words, clear vision.

A nod here to the **Global Nature Positive Summit on 8 to 10 October in Sydney** hosted by Environment Minister Tanya Plibersek that will see a gathering of leaders from business, industry, society, first nations investors and more unite and contemplate actions.

A BIG THANK YOU!

To all our **SPEAKERS** – for your time, sharing your expertise and insights

To all **EXHIBITORS** – for a great display of technical innovation and foresight

and...

To all **ATTENDEES** – without whom we simply don't have a show

Orange-tinged agenda

Across the expo hall was the packed-out, standing-room-only theatre session featuring former **Prime Minister Malcolm Turnbull** in conversation with **Joanna Kay of Zero Carbon Hydrogen Australia**, a division of SEC. The address by Turnbull, who is now Global Chair of GH2, on the Hydrogen Opportunity took an interesting turn with a candid discussion on the foreboding prospect of a Trump-led America, "a guy who has a slogan 'drill baby drill' and thinks climate global warming is a hoax." Driven by such dogmas America will cease being an advocate for renewable energy, [and] it'll be up to other countries to take up that leadership, Turnbull stated.

Closer to home he chided those on the political right railing against electric vehicles, the alternative being to continue to import virtually all the gasoline used, saying "it's perfectly obvious that the electrification of transport, given that we can generate all the electricity we need within Australia, provides enormous energy security."

The coalition's anti-renewables, pro-nuclear position is misconceived, Turnbull asserted. A political dead-end for the party given Australians recognise the enormous value of renewables.

"If you want cheap electricity, build more renewables – and speedily – to decarbonise global economies and address the climate challenge."

We could not agree more, former Prime Minister.

Missed out on some speakers? Visit www.smartenergy.org.au.

Want a glimpse of the action on the expo floor? See page 58.

FORMER PRIME MINISTER MALCOLM TURNBULL IN CONVERSATION WITH JOANNA KAY

NRN National Renewable Network

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> “Incorporating NRN’s scalable solar solution with no upfront installation costs, our motor industry association achieved a 65% energy source from solar, surpassing expectations. NRN’s modular approach allowed easy adaptation, fostering a win-win scenario that not only delivered significant savings but also strengthened our connection with members and the broader community.”

A

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Ross Garnaut and Rod Sims have proposed a $100 billion-a-year fossil fuel tax – and it's a debate Australia should embrace

By Ian A MacKenzie, Professor of Economics,
The University of Queensland

LEADING AUSTRALIAN ECONOMISTS Ross Garnaut and Rod Sims seek to shake up the carbon policy debate in Australia, by proposing a tax on the nation's fossil fuel production. They claim it could raise A$100 billion in its first year and position Australia at the forefront of the low-carbon revolution.

The proposal has been rejected by the federal government and the Nationals, as well as business groups and the fossil fuel industry. The Greens have thrown their support behind the idea.

Garnaut and Sims have characterised their proposal as a 'levy'. But it's essentially a tax, applied to one sector of the economy: exporters of fossil fuels such as coal and gas, as well as importers of oil and diesel.

Australia's recent political history tells us the road to a carbon tax is not smooth. However, as other nations race to restructure their economies in line with a low-carbon future, Australia risks being left behind. Whether to introduce a major, economy-shaping tax on fossil fuels is a conversation Australia must have.

How would the plan work?

The respected economists presented the plan to the National Press Club on February 14. It involves a 'carbon solutions levy' applied to all fossil fuel extraction sites in Australia (around 105 sites), and on all fossil fuel imports to Australia. The tax would presumably be calculated according to the emissions generated when the fuels are burned.

Garnaut and Sims say proceeds in the first year of the levy would be well over A$100 billion. They say the money should be spent on a rapid acceleration of Australia's renewable energy expansion, as well as subsidising the development of low-carbon manufacturing for products such as steel and aluminium.

The proceeds would also be spent on cost-of-living relief for consumers, such as energy bill relief and scrapping the current excise on petrol and diesel fuel.

Garnaut told the National Press Club the global transition to net-zero represents a huge opportunity Australia must seize:

"We can use it to raise productivity and living standards after the decade of stagnation. Other countries do not share our natural endowments of wind and solar energy resources, land to deploy them, as well as land to grow biomass sustainably as an alternative to petroleum and coal for chemical manufacture.

"In the zero-carbon economy, Australia is the economically natural location to produce a substantial proportion of the products currently made with large carbon emissions in Northeast Asia and Europe."

And as Garnaut also outlined in his speech, climate change threatens Australia's economy, which remains heavily dependent on exporting fossil fuels.

Is the levy a good idea?

Carbon dioxide emissions cause global warming, which damages the planet and its people. The purpose of a carbon tax, or levy, is to ensure polluting companies pay for the damage they cause. In theory, the taxes make polluting production processes more expensive than the alternatives, reducing demand for those products.

The world, including Australia, has committed to reaching net-zero emissions by 2050. It's a big task and we need to act fast. Economists broadly agree carbon taxes are the most efficient, lowest-cost way to reduce greenhouse gas emissions. So the proposal makes good policy sense.

Australia had a carbon price, or tax, from 2012 until 2014. It was introduced by Labor but repealed by the Abbott Coalition government. The policy was working: analysis showed emissions in Australia's national electricity market would have been 11 million to 17 million tonnes higher without the measure.

Of course, sound policy ideas do not always come to fruition. After more than a decade of the so-called 'climate wars' in Australia, the term 'carbon tax' remains politically unpalatable.

Unsurprisingly, the plan proposed this week was immediately rejected by Labor and the Nationals. Even less surprising was the strong rebuff

Rod Sims, left, and Ross Garnaut, right, outlined their plan for a fossil fuel levy at the National Press Club which unsurprisingly, Australia's fossil fuel lobby opposes

from business groups such as the Australian Chamber of Commerce and Industry, and the fossil fuel lobby.

The rest of the world got the memo

Putting a price on carbon is not groundbreaking policy. Many countries do it – either as direct taxes or emissions trading schemes.

Notably, from 2026 a European Union tariff on carbon-intensive imports will come into effect. Known as the 'carbon border adjustment mechanism', it means importers will have to report on – and pay for – the emissions created when producing goods such as iron and steel.

The policy is designed to level the playing field for EU manufacturers that must pay a penalty for their own pollution. Imports from countries where a carbon price applies would be exempt from the tariff.

In coming years, we can expect other jurisdictions to implement similar policies to guard their domestic industries. Australia must protect its export revenue by expanding its production of low-carbon goods, or else find itself stuck with expensive, emissions-intensive products that no-one wants to buy.

It's also important to remember Australia is a relatively small economy with little clout in global trade. To remain serious trading partners, we must come to the table with adequate climate policies.

And finally, imposing a carbon levy in Australia would ensure we get to keep the revenue for ourselves. The potential proceeds are enormous, and could be spent raising the living standard for all Australians.

"A carbon levy of the type proposed is an eminently sensible approach to get to net zero. This is a policy debate whose time has come. Let's bring it on."

My only real quibble with the plan is the proposal to set the levy at the level of the EU's five-year average carbon price, currently around $90 a tonne. This puts Australia at the mercy of economic conditions in Europe. We'd be far wiser to determine the price ourselves.

Will such a levy ever happen?

Garnaut and Sims know their policy is a bold one – and will have its detractors. But as the world comes to terms with the economic reality of climate change, Australia risks being left behind.

As Garnaut told the ABC, everyone is a winner under the plan, except fossil fuel companies which, he conceded, "will hate it". That may be true. But climate change is wreaking havoc on human communities, on natural systems, and on the global economy. It's only fair that those responsible pay for the damage.

The political hurdles are high, but not insurmountable. Australia already penalises polluting companies via the safeguard mechanism, which imposes a hard cap on industrial emissions. Ten years ago, such a policy seemed highly unlikely, but we got there.

A carbon levy of the type proposed is an eminently sensible approach to get to net zero. This is a policy debate whose time has come. Let's bring it on.

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COP THE LOT

MISSION IMPOSSIBLE OR ACHIEVABLE?

SEVERAL MONTHS HAVE PASSED since representatives from 198 nations gathered to establish global consensus on the pathway to address climate change. On reflection, was the meeting in Dubai of the UN's Conference of the Parties decision makers yet another talk-fest or a worthwhile event?

According to seasoned COP attendee Richie Merzian, who as Smart Energy Council International Director attended COP along with John Grimes, at no time in the 30-year history of the UN COP climate negotiations have renewables garnered any attention. Until now.

Astonishing.

Tables were turned despite the heavily resourced, cashed up presence of the fossil fuel lobby and, Richie said, "Working the summits as hard as possible to push back low emissions alternative technologies."

Foiled. In a long overdue and welcome change, the key climate culprits were identified with countries committing to transition away from fossil fuels in energy systems in this critical decade.

Not as hard hitting or binding as many would have liked but a step in the right semantic direction that followed much debate over what constituted 'unabated' and the fudging that accompanies it.

"At the start it was a case of mission impossible: can we change the oil curse into a renewables bounty? The best outcome would have been a full phase down and phase out of fossil fuels as soon as possible and a loading in of renewable energy," said Richie Merzian. "But what was finally settled on was a step in the right direction."

And at the eleventh hour, a global breakthrough for renewables advocates who stand alongside climate activists.

Between COP28 sessions in Dubai John Grimes and Michael Liebreich, Founder of Advisory Board of Bloomberg New Energy Finance, were unexpectedly joined by Australian Climate Change and Energy Minister Chris Bowen

Triple treat with the right outcome

All 198 parties to the UNFCC backed the significant tripling of renewable energy capacity by 2030, transitioning away from fossil fuels to achieve net zero by 2050 as reflected in the formal text recognising "the need for deep, rapid and sustained reductions in greenhouse gas emissions in line with 1.5°C pathways".

And that, said Climate and Energy Minister Chris Bowen in Dubai "is why we in Australia are supporting the pledge to triple renewables by 2030.... our expanded Capacity Investment Scheme will help deliver 32GW

"It's been a productive COP with 138 countries signing a pledge to triple renewable energy capacity by 2030. This is important in terms of the message it sends to the world. The world is electrifying everything, and it's being powered by renewables and solar is at the core since it is cheapest way to produce energy. The transformation is going to be extraordinarily rapid."

Smart Energy Council CEO John Grimes

of new renewable generation and storage, providing certainty for renewable investors and cheaper, cleaner energy for households and businesses.

"We must face this fact head on: if we are to keep 1.5°C alive, we must peak emissions by 2025 and fossil fuels have no ongoing role to play in our energy systems – and I speak as the Climate and Energy Minister of one of the world's largest fossil fuel exporters."

A relieved John Grimes declared "The Dubai climate conference delivered an outcome that finally named and shamed the key climate culprit – fossil fuels in our energy system. For the first time nations have agreed on a smart way forward by tripling renewables on the path to achieve net zero by 2050.

"Businesses and investors departed Dubai with a shared direction to invest in accelerated clean and green energy system deployments across the world. Financing these will be a big focus for COP29," he concluded.

Richie Merzian likewise declared it a refreshing change to see an Australian government back the "right kind of energy" at the UN climate conference and hailed the Albanese government's leadership.

With a caveat: "We need to see an end to approvals of new coal and gas. We must phase out the tens of billions of dollars of subsidies sunk into propping up the fossil fuel industry, including, for six decades, the diesel fuel rebate, and reorient that money towards clean energy projects."

The other mission – to secure COP31 on home soil.

Australia-Pacific COP31, yes we can!

John Grimes noted the "strong appetite" for Australia in partnership with the Pacific to jointly host COP31 in Australia in 2026, stating it would crystallise a whole range of local and regional action and could be decisive in the fight on climate change.

The Australian Government must do all it can to lock it in so that it has three years to work, in partnership with the Pacific, to make COP31 here a reality, this is more important than ever – for us and global climate efforts, he said. We need everything, everywhere, all at once, again and again and again.

The SEC has listed COP31 as a key focus, led by Richie chairing a specially tasked Pacific Working Group to explore insights and opportunities to advance smart energy across the region. The remit is all encompassing: government tenders, cooperation on training programs and diplomatic engagement including at the Pacific Island Forum.

Those interested in COP or Pacific work (and are a Gold Member or higher) please contact Richie about the next meeting at richie@smartenergy.org.au

Included in the working group are New Zealand, the Cook Islands, Micronesia, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

"If Australia hosts COP31 It will provide an unprecedented platform to showcase renewables and green commodities, reset our climate reputation and diplomacy, and rebuild trade relations with neighbours based on exporting climate solutions," Richie said.

The Australian government's informative and popular display booth at the pavilion in Dubai set the scene for the government's influential role at COP (noting too Energy Minister Chris Bowen's position as a permanent chair of the umbrella group in UN) and "a microcosm of what Australia could deliver should it host COP31… We could extrapolate this and cater for 100,000," Richie explained.

And a timely reminder to the world: "Our annual solar PV capacity additions must more than quadruple to 630 gigawatts by 2030 to stay on track with the IEA's roadmap to net zero emissions by 2050."

2026 is just two short years away. And beyond that, four years to 2030. The question

"At COP there's this big debate about unabated [carbon], it means the fossil fuels haven't had their emissions somehow buried or dealt with, and the problem here is that the technologies to deal with emissions from fossil fuels often don't offer a full solution and are often used as delay tactics from actually moving away from fossil fuels towards renewables."

Richie Merzian

remains: will pledges made in the spirit of cooperation, albeit amid partial exhaustion, at the tail end of COP28 come to fruition?

Push back was activated with a special name tag hastily produced to identify those NOT affiliated with fossil fuels

Presence and profile: Behind the scenes at COP

Smart Energy Council was a prominent player at COP with CEO John Grimes and Richie Merzian engaging in policy negotiations and addressing several industry panels. SEC also hosted two strategic COP28 networking events, one with Tim Harris of globally successful zinc bromine flow battery maker Redflow, along with newly appointed Queensland Premier Steven Miles. And a gathering in collaboration with Brazil's ABSOLAR and the Global Solar Council attended by Minister Bowen.

With the eyes of mainstream print and electronic media on COP28 John and Richie successfully positioned the SEC as a global voice-piece on renewables by engaging in numerous interviews to share insights and deliver strong messages. Dissemination was heavily bolstered by Twitter, LinkedIn and Instagram.

"The extent of our reach across a range of media highlights the value of having an influential lobby group present at high level events that produce a series of significant outcomes" said Richie Merzian who alongside John also presented updates for interested parties via a series of video addresses from Dubai.

Lost and regained

Day one of COP28 delivered a consensus among nearly 200 countries to set up the loss and damage fund to help the world's poorest and most vulnerable countries pay for the irreversible impacts of climate disaster.

Australia will contribute a foundational $100 million to the Pacific Resilience Facility and will rejoin and contribute $50 million to the Green Climate Fund.

This builds on Australia's contributions to climate and energy infrastructure for the region including $75 million for a program for off-grid and community-scale renewable energy in remote and rural parts of the Pacific.

As a former Australian climate diplomat who worked on the Green Climate Fund, Richie Merzian commented "Australia re-joining the fund even in a modest way will help the region and demonstrate Australia's bona fides as a good global citizen when it comes to climate change."

Estimates of the annual cost of climate damage linked to greenhouse gas emissions vary from US$100bn to US$580bn a year.

In related news, Australia joined 39 or so countries and institutions, including the US, UK, Canada and Fiji, to align international investment strategies with net zero priorities by signing the Statement on International Public Support for the Clean Energy Transition Partnership (CETP).

THE RISE AND RISE OF DUBAI Before the discovery of oil in the 1950s the United Arab Emirate's economy was dependent on fishing and a declining pearl industry. Oil exports took off in the early 1960s, fast propelling Dubai into the wealthy city it is today, known for its soaring skyscrapers. At the pinnacle is the iconic Burj Khalifa – setting for the nail-biting scene in the Mission Impossible thriller where Tom Cruise scaled the dizzy heights to tackle destructive forces and reset the agenda.

Hmm. A few parallels there.

Today, despite year-long solar radiation Dubai still sources almost all its electricity from burning diesel oil and natural gas.

LEFT: Dubai in the 1960s. And the scene that greeted this writer's father, a sea captain who regularly ferried the ruling Sheikh of Dubai around the Arabian Gulf

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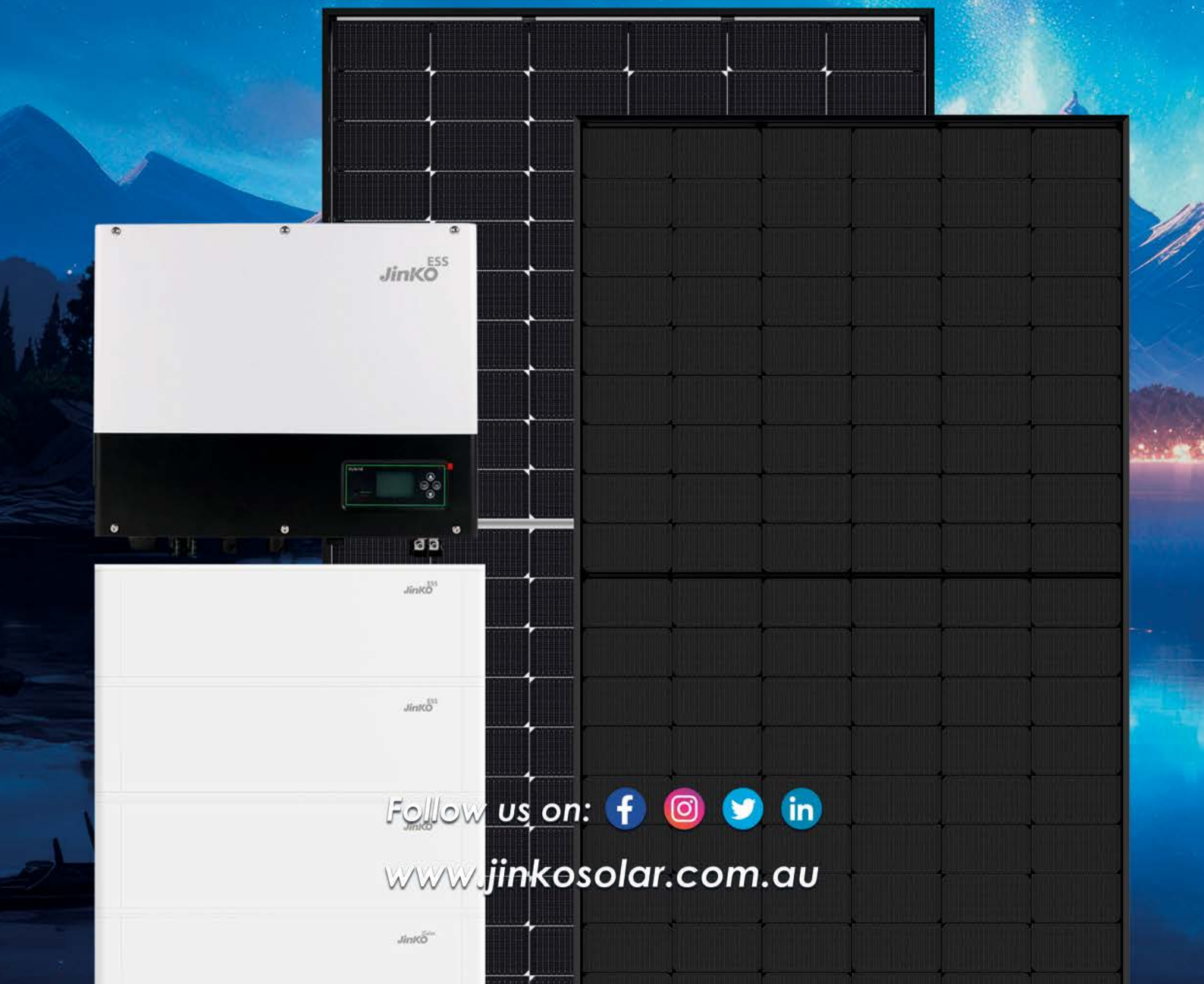

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ICYMI

IN CASE YOU MISSED IT: Among his raft of duties, Climate Change and Energy Minister Chris Bowen is assembling a blueprint for an Australian carbon border adjustment mechanism.

Late last year consultations opened for the design of the CBAM with a review of the scope and definition of carbon leakage risks, and a CBAM alongside other mitigation strategies. A second round of consultations will be held in mid-2024 to seek input on policy design, with the final advice to be provided to the government due by 30 September 2024.

Moulis Lawyers explained the key consultation is the effects of a CBAM, or no CBAM, on Australian industry (especially heavy industries such as steel and cement). "Importantly, this includes the very real risk that industry investment might move to overseas locations because of costs or carbon limits imposed in Australia. The review might also recommend measures that effectively restrict or ban products with embedded emissions over a certain limit, which would be an existential risk for some product lines and for whole businesses," they wrote.

Competition from overseas industries will be a central element of the review and the second stage of consultations.

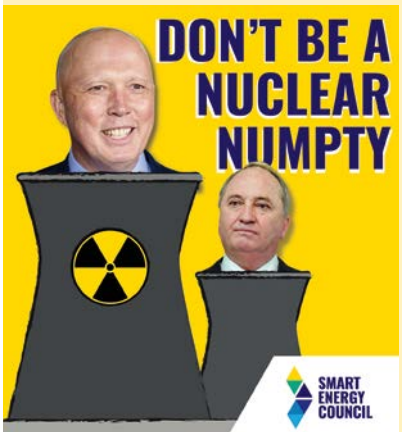
"And as green subsidies in major jurisdictions spectacularly enter the game, Australian industries will struggle to compete, and Australia itself will find it more difficult to realise its renewable superpower ambitions."

AND FWIW: Late last year founder and CEO of SpaceX, Elon Musk declared "it's not hard" and "very feasible" to **power the entire country** with solar because the sun is converting more than four million tons of mass to energy every second and requires no maintenance. "That thing just works. We have a giant fusion reactor in the sky," he declared, and we at SEC can only concur with the man on this score.

The numbers: the amount of solar power the Earth receives in an hour is equal to year-long power consumption globally, each hour the sun provides 430 quintillion Joules of energy, whereas the Earth consumes 410 quintillion Joules of energy in one year.

And an FYI: FWIW = that's for what it's worth, and in the case of the data above, worth relaying to sceptics of renewable solar energy.

GENCOST – an annual collaboration between CSIRO and the Australian Energy Market Operator – has confirmed renewables remain the cheapest form of energy, as the cost of nuclear reactors skyrocket.



It shows utility-scale solar and onshore wind costs including transmission and storage are two to seven times cheaper than new coal and small modular nuclear reactors (SMRs), reflecting Australia's huge natural advantage in renewable resources.

Levelised cost of electricity (LCOE) comparison	($/MWh)
Nuclear SMR	$382-$636
Firmed mixed renewables: (share of renewables)	
Variable Large-scale Solar PV	$47-$79
Variable Onshore Wind	$66-$109

The Draft GenCost report details examples of real world nuclear SMR development – including cost blow-outs of 70%, yet not a single commercial SMR project anywhere in the world. Meantime solar continues to put downward pressure on energy prices, with the recent 71 per cent drop in wholesale prices in a year due in large part to increased rooftop solar.

CSIRO and AEMO will release the final report in mid-2024.

AEMO's roadmap for the future grid – the Integrated System Plan (ISP) released mid-December 2023 also confirmed what readers of *Smart Energy* know – that a renewable grid with hydro, batteries, flexible gas and transmission is the lowest-cost way to deliver a secure and reliable energy grid.

THIRSTY WORK! Blockchain supremo Powerledger's mission to "democratise" power generation by enabling communities to trade excess green power is enabling some customers to trade power for beer.

Yes, really.

With a view to using as much renewable energy possible to produce VB beer, Melbourne's Carlton & United Breweries approached Powerledger to help set up a 'VB Solar Exchange program'.

Voila – participants can track and trade excess solar energy for a slab of 24 VB beer cans or bottles. And the proof is in the drinking – in just 12 months, the program has reduced CUB's carbon dioxide emissions by 5,000 tonnes.

Here's cheers to beers.

THUMBS DOWN to ten of Australia's largest corporations and major emitters in their sector – AGL, Cleanaway, BlueScope Steel, Coles, Origin, Qantas, Rio Tinto, South 32, Telstra and Woolworths – which lack "comprehensive, independently verified and fully costed plan for reducing their emissions" in line with a 1.5°C target.
This is despite having targets to reach net zero greenhouse gas emissions, according to a report by the University of Technology Sydney's Institute for Sustainable Futures commissioned by Climate Integrity.
The lack of scientific alignment with the need to rapidly phase out fossil fuels is particularly concerning... Without commitments to phase out fossil fuels, it is difficult to see how net zero pledges can be fulfilled, the report stated.

TOWARD NET ZERO IN AGRICULTURE An alliance to achieve net zero emissions in Australian agriculture and boost the $70 billion sector has been funded by the Federal Government.

The national collaboration has secured $300 million in funding over 10 years, with the Federal Government's contribution of $87 million making it the largest CRC in the program's history. The Zero Net Emissions Agricultural Cooperative Research Centre – abbreviated to the slightly unwieldy ZNE-Ag CRC – will develop technologies and solutions to reduce emissions in agriculture, mitigating risks to future investment and trade, and securing the economic future of our industry.

The initiative brokered by the University of Queensland and Queensland Department of Agriculture and Forestry involves a consortium of 73 partners across industry, education and government, including 16 major industry groups, all six state governments and the Northern Territory, 10 universities, three Indigenous organisations and many SMEs and grower groups.

The team aims to provide coordinated tools for industry and benchmarks to assess emissions footprints as the first part of a more coordinated and rigorous set of approaches.

STAYING IN THE FIELD Most Aussie farmers cite climate change as the single greatest threat to their business, according to Farmers for Climate Action survey on the Net Zero Sector Plan for Agriculture and Land.

Key findings:

- 89% of farmers have experienced "very unusual" or "somewhat unusual" climate change related events including rainfall events, unpredictable growing seasons and storms in the past three years
- 71% of farmers have already invested their own money into emissions reduction, including solar panels and batteries, electrifying farm equipment, tree planting and such
- 64% are planning to invest in future or additional emissions reduction measures, and
- 55% said climate change was the single greatest threat to the future of farming in Australia, 15% said bureaucracy and red tape, 9% said water security, 8% said increasing costs of insurance, fertiliser and other farm expenses, 1% cited transmission lines on farmland, and 1% big renewable energy projects.

EUROPE'S GREENEST COUNTRY is Norway which boasts the second-highest renewable energy share on the list (and despite having high carbon dioxide emissions per capita).

Austria comes in second as its citizens use public transport the most, and scores the second highest in recycling rates but is sixth for carbon dioxide emissions.

Finland is third, while Iceland and Sweden take fourth and fifth place respectively. Iceland takes fourth place with one of the lowest carbon dioxide emissions rates in the top 10 and the highest rate of renewable energy share of all Europe.

Sweden ranks fifth with its high rate of woodland area and the second-best share of renewable energy use.

ICYMI

FIRST NATIONS PROJECT TRACKER The First Nations Clean Energy Network has launched the First Nations clean energy project tracker which lists 14 significant clean energy projects announced with First Nations equity and participation.

The projects in Queensland, Northern Territory, Western Australia and South Australia include the development of mid-large scale solar and wind, hydro and green hydrogen, battery storage and microgrids.

Karrina Nolan, co-chair of the First Nations Clean Energy Network says the First Nations project tracker highlights a new momentum in Australia and that "Creating meaningful equity partnerships and benefit sharing arrangements with First Nations groups de-risks projects across the project pipeline, enables free prior and informed consent, and creates additional benefits in terms of local employment and intergenerational wealth."

FNCEN co-chair Chris Croker added communities don't want a repeat of the mining industry legacy with all its promises yet no real outcomes.

DOOMSDAY INDEED – a somewhat less than cheery reminder of the state of the planet from the Doomsday Clock which in January was reset at 90 seconds to midnight, the closest the Clock has ever been to midnight. Timing reflects the continued state of unprecedented global dangers. Topping the list: the Russia-Ukraine war and deterioration of nuclear arms reduction agreements; the Climate Crisis and 2023's official designation as the hottest year on record; the increased sophistication of genetic engineering technologies; and the dramatic advance of generative AI which could magnify disinformation and corrupt the global information environment making it harder to solve the larger existential challenges.

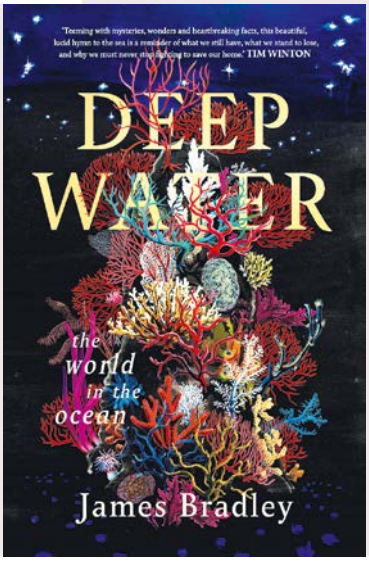
The hands of the clock, created in 1947 by J Robert Oppenheimer and fellow US scientists who had developed the atomic bomb, started at seven minutes to midnight. By the end of the Cold War, in 1991, they had fallen back to 17 minutes to midnight.

JAMES BRADLEY'S PROFOUNDLY ILLUMINATING and in parts terrifying book ***Deep Water*** links science, history and personal reflection to explore the way the ocean connects every living being on Earth, the origins of the environmental catastrophe that is overtaking us and the question of what lies ahead. It is described as "both a hymn to the beauty, mystery and wonder of the ocean, and a reckoning with our complex relationship to the natural world".

Tim Winton tells us "*Deep Water* is a reminder of what we still have, what we stand to lose, and why we must never stop fighting to save our home."

Billy Griffiths, Author of ***Deep Time Dreaming*** similarly stated: "*Deep Water* balances the grief of environmental catastrophe with a profound sense of awe and possibility. There is no false hope here. But there is hope."

Deep Water is in print from April 3.



AND ANOTHER DEEP DIVE

This time ***On the relationship between individual carbon literacy and carbon footprint components***, by Joachim Schleich *et al*. who break down carbon literacy into carbon knowledge and carbon engagement, socio-economic and attitudinal factors; carbon footprints calculated for electricity use, heating, transport and diet, and find carbon footprints are correlated with socio-economic factors and policy orientation.

Overall findings support the notion that fostering carbon engagement represents a more effective strategy for reducing individuals' carbon footprints than enhancing carbon knowledge.

STATES OF ADVANCEMENT

SMARTER APARTMENTS: The Albanese and Allan Labor Government's $16 million Solar for Apartments program will help around 5,000 households including owners and renters in **Victoria save money on the upfront cost of installing solar panels**, slash energy bills by up to $500 a year, improve the value of the apartments and reduce emissions.

The 50 successful applicants for the first round of the program will receive rebates of up to $2,800 per apartment, or up to $140,000 per building.

Be quick though: Round 1 applications close on 15 April 2024.

Victorian Minister for Energy and Resources Lily D'Ambrosio explained "We have worked with organisations across local government, property and technology sectors and apartment residents to deliver a program that meets the renewable energy needs of apartment households."

For more information visit solar.vic.gov.au

This program forms part of the Albanese Labor Government's Community Solar Banks initiative, unlocking access to shared solar for 25,000 homes across Australia.

MEANTIME the Albanese and Minns Governments are delivering long-term cost-of-living savings to over **30,000 NSW households**, with a $206 million package for **energy saving upgrades** in social housing properties and access to solar for low-income renters and apartment residents to help reduce energy bills for tenants and keep their homes cooler in summer and warmer in winter.

Homes in NSW will be eligible for upgrades including solar systems, heat pump hot water systems, ceiling fans, reverse-cycle air conditioners, insulation and draught proofing.

The Commonwealth Government is also investing $30 million to enable low-income households and apartment residents to fund rooftop solar installations on apartments or accessing a portion of a 'solar garden' community energy plot.

The **'Solar Banks' initiative** will deliver rebates of up to 50 per cent of rooftop solar installation costs for multi-unit dwellings.

More than 10,000 households will be able to access the Solar Banks program, which could save households up to $600 a year.

NSW Premier Chris Minns said "We are investing to save people money while also getting NSW's energy transition back on track, and as Minister for Climate Change and Energy Chris Bowen reminded us "the announcement comes on top of our Energy Price Relief Plan, which is supporting 1.6 million eligible NSW households with $500 off their bills."

THE SUNNY STATE OF QUEENSLAND

QUEENSLAND PREMIER STEVEN MILES and Energy Minister Mick de Brenni have devoted significant effort to crafting a greener future for Queensland that will deliver widespread benefits to the community and the environment.

Topping the list is the announcement of the **Clean Economy Jobs Bill 2024 with its timetable for Emissions reduction targets:**

- by 30 June 2030, net greenhouse gas emissions in Queensland are reduced to an amount that is at least 30% below the net greenhouse gas emissions in Queensland for 2005; and
- by 30 June 2035, net greenhouse gas emissions in Queensland are reduced to an amount that is at least 75% below the net greenhouse gas emissions in Queensland for 2005; and
- by 30 June 2050, net greenhouse gas emissions in Queensland are reduced to zero (the 2050 net zero emissions target).

Premier Steven Miles explained he had worked closely with conservation experts, business, unions and industry to develop the strong targets and that "75% by 2035 will create economic and employment opportunities throughout Queensland".

Minister for Energy and Clean Economy Jobs Mick de Brenni is working hard to help ease cost of living pressures and deliver cleaner, cheaper and more reliable power to Queenslanders

"It's only possible because of our **Queensland Energy and Jobs Plan** which will see 80 per cent of energy generated by renewables in 2035," Premier Miles said, adding it will put more downward pressure on power bills, as proven by big recent drops in the wholesale price.

"We're keeping power assets in public hands and taking real action on climate change, it's good for families, good for jobs and good for the environment."

The SEC welcomed the news, saying the legislated target lays foundations for Queensland to be a renewables and critical minerals superpower, while creating jobs and economic opportunities throughout the state and that "Queensland can and will be a powerhouse for smart energy and smart transport manufacturing… this is smart policy for a smart energy future."

Importantly, commitment in law to 75% emissions reduction by 2035 sends a signal to investors to invest and for renewables project developers to develop projects, helping to unlock $62 billion in investment.

Battery Booster program: Effective from February 12, the Battery Booster program offers rebates of up to $4,000 to about 2,000 eligible households to install a solar battery system.

The $10 million program enables homes with a new or existing solar PV system of at least a 5kW to access a rebate of between $3,000 and $4,000 to purchase a solar battery system of 6kWh or more.

A $3,000 cash rebate is available to eligible households with a combined annual household taxable income of $180,000 or less; those with annual incomes below $66,667 may be eligible for the higher rebate of $4,000.

To qualify, homeowners must use an approved installer and an approved battery system.

Minister for Energy and Clean Economy Jobs Mick de Brenni said "Because of our ongoing partnerships with industry and advocates, including the Smart Energy Council and the Power Together Coalition, the Miles Government will always work hard to help ease cost of living pressures and deliver cleaner, cheaper and more reliable power to Queenslanders."

For his part SEC's John Grimes commented "The Smart Energy Council welcomes the strong commitment from the Queensland Government to quality and safety in the Battery Booster program. The focus on qualified people, quality products and quality services will deliver a program with safety and integrity at its core."

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- Lower Degradation
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- Better Low Irradiance Performance

54D40	66D42	66D45	72D42	72D40
1134X1762 (mm)	1134X2278 (mm)	1134X2382 (mm)	1134X2465 (mm)	1134X2333 (mm)

PLANET PRESERVATION BEFORE PROFIT AND PLUNDER

Former Greens leader Bob Brown who now heads the Bob Brown Foundation is well known for his strong stance against logging and other environmental destruction. He remains resolute in his pursuit to protect flora and fauna, whatever the cost – including the threat of arrest. But the world today, he says, is driven by corporate profit and consumerism leaving a trail of biospheric destruction. What or who will it take to salvage affairs?

SMART ENERGY: You are well known for standing your ground for significant environmental causes; let's start back in back in the '80s with the momentous crusade for the Franklin River and your 19-day stint in jail.

BOB BROWN: *The seven years it took to save the Franklin River and its forests and wildlife [from flooding caused by proposed construction of a dam to generate hydroelectricity] became one of the most significant environmental campaigns in Australian history, resulting in project cancellation and World Heritage protection for much of western Tasmania.*

But this is balanced against the losses since seen elsewhere on dam infrastructure and world deforestation. We have seen phenomenal growth of destruction of the planet's biosphere in that time. The global growth economics which is the philosophy in 2024 is simply overrunning environmental campaigns.

SE: What is the status of laws or successful litigation to protect the environment?

BB: *Increasingly there are court cases challenging the legitimacy of environmental destruction but more rapidly still are the laws being written by the corporate sector and governments around the world. The phenomenon of increasing penalties including increasingly harsh jail terms for peaceful environmental protesters has become almost universal.*

It is a crime in Tasmania to peacefully protest; the penalty is big fines or 18 months in jail just for standing in defence of nature.

Back in 1857 Abraham Lincoln warned of corporate overtake of democratic power. That is now full flowering and being used to dampen community enthusiasm for protest.

All polls show a majority of Australians want an end to native forest logging but the main political parties are firmly in the hands of the logging industry and expanding, not reducing, the amount of logging. The mining, logging and coal industry form a powerful lobby while the environmental lobby is smaller than it was 30 years ago.

[Back in 2007 Bob Brown described coal exports as the "energy industry's heroin habit" and presciently recommended the export of alternative technologies be prioritised (a matter the SEC strongly advocates). He also called on then Prime Minister Rudd to set fixed carbon targets, stating it was "obvious" what the outcome would be if Australia was to not set carbon emissions goals; and in 2011 suggested half the Mineral Resource Rent Tax be allocated to future natural catastrophes recognising the impact on climate from the mining sector.]

SE: Back then, could you have foreseen the state of affairs today?

BB: *On reflection, I did not count for the power of the dollar driving politics which has led to loss of most of the world's wildlife and the phenomenal impact of life on earth and global warming that we knew was underway.*

Underestimating the corrupting power of money was a big mistake.

Governments have been overtaken by plutocracy and the rule of the rich; whether it is in democracies or dictatorships, that rule of money has implanted itself and is going to lead to a great deal of cruelty and repression unless it is to be saddled for human good in the future instead of growing wealth of the very small minority who control world affairs.

Plutocracy has been underestimated as taking over the world and we human beings have to get democracy back in control of global affairs. We are a long way short of that.

SE: That is a bleak picture. A decade ago you stated: "It is a fortunate life if a person feels more optimistic than ever before. That's me." Do you still feel the same?

BB: *Yes. Optimism is a very potent force in human endeavour whether that be environmentalism, sport, music or culture but you have to deal with the reality that we are in an existential crisis on planet earth and this one species is destroying the planetary biosphere at an accelerating rate.*

I enjoy being an environmental activist along with intelligent thoughtful people [who recognise] growth economics, which in a finite system, is an absurdity that gets little debate. There is an enormous and potent corporate sector ready to squash anybody who wants to pursue the debate about growth economics versus a sustainable steady state economy.

Increasing consumption by one species is marauding the planet and leading to an extinction rate 100 times greater than would naturally occur. More than a quarter of earth's biodiversity will be lost this century.

You ask the average young person what they think about the future and they are the first generation that feels bleak, robbed of the right to feel enthusiastic and optimistic and it is our job to return that optimism to them and that is about protecting what is left of nature.

SE: How do renewables – wind and solar energy – play out in the steady state economy?

BB: *I'm a great advocate for renewable energy and promoted it as a first alternative to the Franklin campaign. The sun provides for solar and wind energy, 93 million miles away is a great nuclear reactor, the sun. It is the gift to humankind on planet earth.*

However solar power development is being fostered by a growth economy that says we have to use more, not less.

Germany is aiming for a 50% reduction in use of energy while increasing productivity; this approach underscores the prominent role that should be taken by energy efficiency.

We need a combination of renewable energy and energy efficiency while eliminating the burning of fossil fuels and forests. The sooner that is done the better.

Yet the government is opening new gas and coal projects and continuing to burn forests.

We are in the sixth stage of the great extinction, and this is the first caused by a species – humanity – and we have to take this into account.

That is where good government is required, that is to regulate not just for this generation but future generations.

SE: We note the Bob Brown Foundation is opposed to the proposed wind farm on Robbins Island which sits one kilometre off the north-west coast of Tasmania.

BB: *The proposed project is a bird killer. I am in favour of wind farms, but everything has its limits. One-third of Australia's birds will be extinct this century and migratory birds foremost.*

Windfarms should not be installed in areas with such a high density of endemic and migratory birds. The World Wildlife Foundation declares more than 60% of wildlife has been lost since 1970. That is in my adult lifetime and the rate is increasing.

The disturbing 'E' occurrence: Science Advances stated in 2022 that the planet has entered the sixth mass extinction and warned that current anthropogenic trends, particularly climate and land-use changes, could result in the loss of more than a tenth of plant and animal species by the end of the century. Human actions are wiping out vertebrate animal species hundreds of times faster than they would otherwise disappear.

I am proud of our foundation The Bob Brown Foundation which is informing people and stimulating debate. The industrialisation of northern Tasmania is being driven by profit interests. We have strong views too on the proposed Marinus Link which is only going ahead at taxpayers' expense and corporatisation; funding should instead be directed towards hospitals, schools and public transport. We commissioned a report on this by the Victorian Policy Centre.

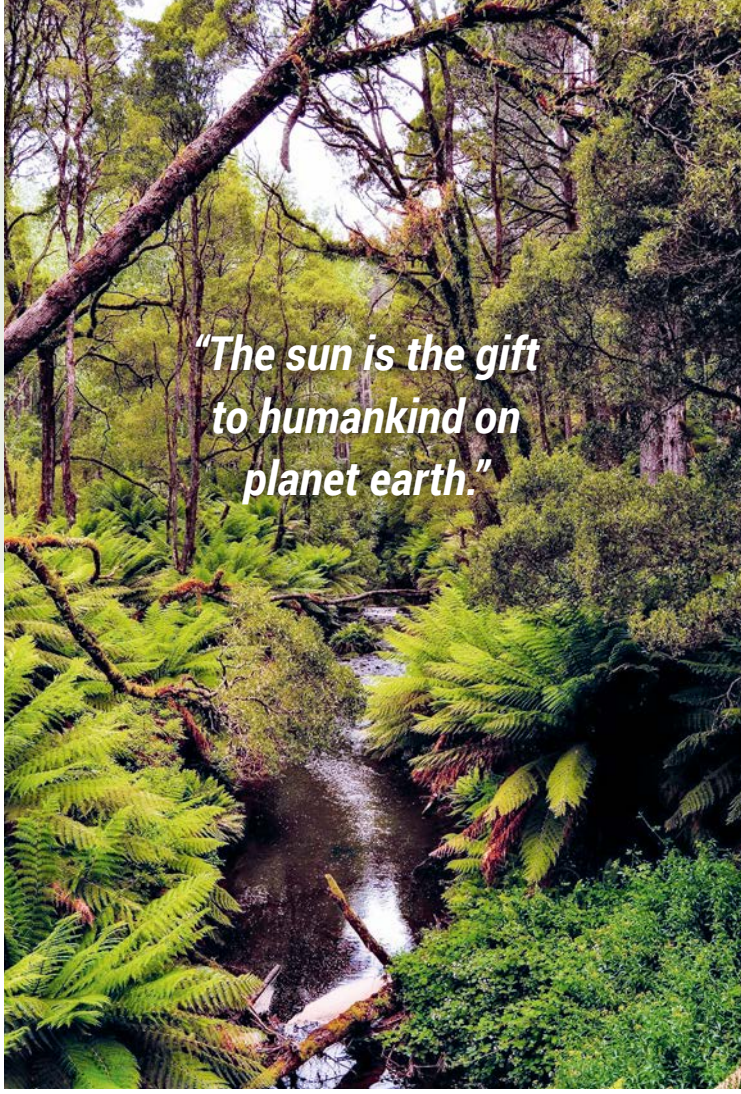
Read more at www.bobbrown.org.au

[Bob co-founded the Bob Brown Foundation with long-term partner Paul Thomas to promote environmental awareness. The foundation is celebrating the Instagram post by Leonardo DiCaprio calling for Swift Parrot protection and an end to native forest logging in Tasmania and Australia. The post reached 62 million people.]

SE: You have covered lots of ground in this very candid discussion, we appreciate your time addressing a breadth of topics and perspectives. Any parting comments?

BB: *We live on a beautiful planet with a wonderful inspirational species of humanity whose art and music and creativity is dazzling, yet all that is being*

In his book *Optimism: reflections on a life of action* (2014) Bob Brown states: *"I am an optimist and I like it; it is also a reasonable option because optimism is a key ingredient for any successful human endeavour and isn't keeping earth viable the greatest endeavour we can ever undertake?"*



overshadowed by the spectre of the end of life on earth if we don't pull our belt in.

That is the one thing economic rationalism does not provide for, pulling the belt in, but we have to do more and that includes sharing with our fellow species on this planet. The simple rule in anything we do should be: 'Will our children thank us for doing this?'

The old dictum is it only takes 5% of people to change the world is important, things can change dramatically by a relative minority becoming active. We are about to see the end of native forest logging in Australia because that is what 80% of Australians want (indeed 59% of Coalition voters want native forest logging stopped).

The balance of power at the next federal election bodes enormously good things: Teals are taking seats off hard-line forest destroying, coal burning extremists and it is a lovely thing to see. Together with increasing support for the Greens the advent of the Teals is a huge positive in Australian politics.

GOOD SPORTS TACKLING CLIMATE CHANGE

AUSTRALIA IS WELL ESTABLISHED as a nation that is both enamoured and transfixed by sporting endeavours. We excel on track, in the field, in pools and in courts and on ovals. However extreme weather caused by climate change is having a deleterious effect: scorching temperatures on tennis courts, bushfire smoke causing match cancellations, flooding of ovals and clubs accompanied by rising insurance premiums. It's a pretty grim picture.

And, as weather patterns become ever more punishing, local sports clubs are those that are most impacted, and powerless to effect change – or are they? Not according to Emma Pocock who co-founded FrontRunners along with her husband Independent Senator David Pocock, and Lachlan Crombie with a mission to expedite climate action among athletes and associations, clubs and governing bodies.

The 2019/2020 Black Summer bushfires were the catalyst for the trio to embark on a program of activities, aided by strategic advisors including former Socceroos captain Craig Foster and the Climate Council's Martin Rice, while also supporting Footy for Climate and Cricket for Climate led by Pat Cummins.

"In a nutshell we do the heavy lifting to explain how sport is threatened by the climate and environmental crises and share that knowledge to mobilise action, adaptation and responses to the challenges we're facing," Emma Pocock told *Smart Energy*.

"Our work involves driving awareness of and actively advocating for climate friendly solutions such as solar rooftops at sports clubs. We reach out to sporting organisations around the country and one of the early conversations we'll often have with them is about how they can decarbonise their own operations – whether that's changes to their energy use, solar and battery installations or switching to renewable energy.

"Collectively, these material changes make a real difference.

"We've loved playing a tiny role in the journey of Cricket for Climate which has led some incredible work in supporting cricket clubs to reduce their emissions and save money in the process."

Emma added she welcomes the prospect of more companies that are involved in the energy transition thinking of sport as a vehicle to tell their story, "To reach consumers and to give back to their community".

It's all about keeping up the pressure, she says, through strategic and concerted campaigns.

Ramping up pressure via Cool Down

A few years ago FrontRunners pioneered the Cool Down campaign which saw almost 500 athletes from 40+ sports calling on the [then coalition] government to lift its climate ambition in the wake of the 2020 Black Summer bushfires.

"Back then I stated if climate action was the Olympics, Australia was not winning gold, or making the finals, and didn't even qualify.

"Our 'Cool Down' campaign was the single biggest act of athlete advocacy in Australia's history and shows just how deeply Aussie athletes care about their communities and what kind of legacy will be left for generations to come," Emma explained.

"Australian athletes are hungry to be part of seeing Australia commit to a net zero target. Alongside the incredible advocacy work of climate groups, businesses, civil society and millions of everyday Australians we have created a platform for athletes to call on the government of the day to commit Australia to a pathway to a safer future."

Research indicates sports fans recognise the challenges wrought by an increasingly tempestuous climate and are calling for more action.

In the ballpark

Key takeaways from the Starting Line survey of sports fans conducted by No2ndPlace revealed 75% of Australians identify as sports fans; 77% of sports fans care about climate change and 87% about environmental protection while 69% are concerned about fossil fuel dependency.

At the same time 93% of fans say sport has a role to play in addressing issues we face, and 69% of Australians believe athletes themselves should be able to talk about issues in society – not just sport.

The study concludes: "Sport is the sleeping giant of social change in Australia, and is uniquely placed to play an increasingly significant role in shaping the future social fabric of the nation."

Findings are bolstered by the eight in ten AFL fans who say climate change is impacting sport in Australia and the majority support action to counter it, according to Monash University research supported by FrontRunners and undertaken with Footy for Climate.

The study found two-thirds of respondents believed clubs had a responsibility to take action to reduce their own footprints, citing on-site renewables and waste management as preferred options.

It's all tracking in the right direction, Emma says.

"As we get sport to shift, we mobilise a really significant part of the culture… fans not only want more action on climate change, they expect their clubs to be taking a lead on this… sport provides an incredible vehicle for both business-to-consumer and business-to-business opportunities.

"Our drive to accelerate sports climate leadership is gaining traction, in the decade that really matters. And we are confident about what we can accomplish; Australians have always punched above their weight on the world stage and it's time to do it on climate… to cut emissions by at least half by 2030 and reach net-zero before 2050."

Together, we can triumph for the future of sport, for the planet, and for the generations to come, she said.

"As Nelson Mandela observed: 'Sport has the power to change the world. It has the power to inspire. It has the power to unite people in a way that little else does."

www.frontrunners.org.au

A GREAT DAY FOR HYDROGEN

"A great day to celebrate an industry that is on the rise and holds unlimited potential" was both the intent and the delivery managed by **Joanna Kay of Zero Carbon Hydrogen Australia** who assembled the who's who of renewable hydrogen to present at the Smart Energy Conference

The day-long session kicked off in style with The Great Race, a top line-up of thought leaders, policy and project drivers in the nascent green hydrogen industry. Among the many highlights, the auditorium heard from **Professor Rod Sims of the Superpower Institute** who conveyed many messages on the potential for green metal to reduce emissions by 6-9%, and, interestingly, how he is not in favour of repeating the "protectionist policies of the US Inflation Reduction Act in Australia".

When quizzed by a delegate on the "missing policy pieces" in green hydrogen development Rod Sims identified early assistance and a price on carbon. Fix these and the industry can flourish, he said. Australia could provide up to 25% of global green hydrogen.

Sam Crafter of SA's Office of Hydrogen illustrated the big shift underway in his state which back in 2007 featured just 1% renewable energy in the mix; by 2023 it had risen to 74%. The state is not short of ambition and delivery: construction commences this year on the mighty 250MWe Whyalla electrolyser that will generate 200MV energy and, when operational from 2026, be the world's largest such plant.

Grand scale

That is before the Central Queensland Hydrogen Project takes shape: 720MW of electrolysers and a large-scale renewable hydrogen production facility near Gladstone, supplying hydrogen to an ammonia plant and a liquefaction plant at the Port of Gladstone.

Steve Quilter of Queensland state-owned generator Stanwell elaborated on the CQ-H2 project which will supply Asian export markets as well as domestic users, and aims initially to produce approximately 200 tonnes of renewable hydrogen daily by 2029 before scaling up to 800 tonnes daily by the early 2030s. Steve revealed the bulk of funding derives from the private consortium of key Japanese and Singaporean energy, gas and trading companies: Iwatani, Kansai, Keppel and Marubeni, with support too from ARENA and the Queensland government.

Big picture thinking continued with **Malcolm Turnbull, Global Chair of GH2** joining Joanna Kay in a conversation spanning energy security to global decarbonisation.

Steve Quilter, Shane Gaddes, Rod Sims and Vanessa Sullivan

Joanna Kay, Scott Hamilton, Zoe Conlin-Williams of ZCHA with Malcolm Turnbull

In the packed-out session he emphasised our "resources are in abundance to deal with climate change… bar time" before elaborating on the massive potential for long duration storage provided by pumped hydro projects.

From there detailed sessions on 'Unlocking Trade Potential' and 'Surmounting Hydrogen Hurdles' and the significance of partnering with First Nation and Indigenous communities took place.

"Over the day trailblazers shared their insights and outlined strategies, opportunities and collaborative efforts aimed at propelling hydrogen trade on a global scale," Joanna Kay stated. "A phenomenal future lies ahead of us if we grasp the opportunity."

Hydrogen Innovation Challenge

Zero Carbon Hydrogen Australia intern **Zoe Conlin-Williams** was thrilled to announce the winner of the **inaugural Hydrogen Innovation Challenge: Swinburne's Aerostructures Innovation Research Hub** which has developed and tested Australia's first hydrogen powered vertical take-off and landing uncrewed aircraft system.

"This technology showcases a huge step forward in the green aviation fuels sector, promising competitive performance against heavy fuels," Zoe acclaimed.

In second place was Endua. Led by Paul Sernia Endua is designing and producing long duration hydrogen power banks with the Proton Exchange Membrane water electrolysis technology which enables over 10 hours of renewable energy storage and can be applied in regional and remote operations.

"Innovation is bravery," said Zoe, the instigator of the innovation challenge.

"Thinking needs to encompass 'outside of the box' which requires creative and playful new ideas… also technical expertise to develop models and prototypes through to reality" she said, congratulating the five finalists.

Innovation Challenge winner Stephen Hardiman of Swinburne's Aerostructures Innovation Research Hub

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GREEN HYDROGEN IN THE MIX

A round up of key developments in green hydrogen and its derivatives.

POWERING THE REGIONS In late January Energy Minister Chris Bowen announced a grant of $200 million to help future-proof regional steel manufacturing, with the first round of the Powering the Regions Fund facilitating BlueScope Steel's upgrade of a blast furnace and reduce emissions at the Port Kembla Steelworks, and Liberty Steel Australia's projects at their respective operations in New South Wales and South Australia.

Liberty has also been awarded $63.2 million towards the purchase and commission of a low carbon electric arc furnace (EAF) to replace the existing traditional blast furnace at the Whyalla Steelworks. The new state-of-the-art EAF will support the manufacturing of green steel and help achieve Liberty's aim of carbon neutrality by 2030.

Joanna Kay of Zero Carbon Hydrogen Australia, a division of the SEC, praised the efforts by Liberty to transition from traditional steel making, which is currently responsible for about 7% of global greenhouse gas emissions. "Green Steel using 100 per cent renewable energy is the only way forward for steel making in Australia and around the world if we want to stop dangerous climate change," she said.

"The green steel announcement follows the South Australian Government's massive investment in a 250 MWe green hydrogen plant… this is what leadership in green steel looks like."

GREEN STEEL Joanna Kay co-authored a paper with Scott Hamilton *Green Steel: Opportunities for Australia* which will be launched in April 2024.

They identify that Australia exports about 900 million tonnes of iron ore each year, but only produces about 5.5 million tonnes of steel. The global green steel market is forecast to undergo extraordinary growth between 2023-2030 with research analysts predicting an approximate valuation of US$47.2 billion by 2030. Other market analysts forecast the green steel market will reach US$364.5 billion by 2032.

"Australia could lead the world in producing low-cost green steel. Large-scale production of green steel requires abundance of suitable iron-ore (magnetite), land, water and very cheap renewable energy, and Australia has all these ingredients," the paper states.

THE 'NEAR-ZERO STEEL 2030 CHALLENGE' The World Economic Forum is calling for businesses globally to commit to producing and purchasing near-zero emissions steel by 2030, with the launch of an innovation challenge during New York Climate Week.

The Challenge will launch on 19 September, and will call for submissions from companies pledging to purchase near-zero steel and companies ready to step up to the challenge of supplying it. The Challenge is sponsored by an alliance of global companies using their purchasing power to create early markets for innovative clean technologies and reduce emissions across 'hardest to abate' sectors such as aviation, shipping, trucking and steel.

Sustainable Industrial Manufacturing Asia Pacific 2024 (SIM-PAC): "An awesome line up speakers, great dialogue and key hydrogen decision makers and influencers. Sustainable manufacturing was covered in some detail."

COOPERATIVE RESEARCH CENTRE – LOOKING TO THE FUTURE

Joanna Kay of Zero Carbon Hydrogen Australia congratulated the Zero Net Emissions Agriculture CRC and the Solving Plastic Waste CRC on their well-deserved victories.

"Despite being unsuccessful in round 24 of the cooperative research centre's program, the Scaling Green Hydrogen (CRC) stands resilient and focused on the future of green hydrogen," she said. "Our bid may not have clinched success but the challenges and opportunities in the scaling green hydrogen industry persist, demanding our continued dedication. As we review feedback from the Department of Industry, Science and Resources we're already gearing up for the next steps in future rounds."

She added the urgency to address industry challenges has only intensified and "we are more determined than ever, with 97 partners and $163 million in support, the collective effort over the past two to three years has been substantial. This is a good reflection of the green hydrogen economy and great for collaboration."

Joanna Kay acknowledged the tremendous work of Paul Hodgson, Michael Goodsite, Christian Doonan and Jeff Kasparian and in the Scaling Green Hydrogen bid and said "let's turn disappointment into determination, the journey continues and together we will lead the way in scaling green hydrogen."

HDF ENERGY, a leading global player in the hydrogen industry dedicated to developing large-scale hydrogen infrastructure and advanced multi-megawatt fuel cell technology is marking a new chapter with the opening of a mass-production facility near Bordeaux, southwestern France. The €5 billion facility aims to reach 1GW annual production capacity of multi-MW fuel cells by 2030.

The fuel cells serve as the cornerstone of the power plants and heavy mobility solutions developed by HDF Energy. Renewstable® power plants deliver non-intermittent renewable, stable and baseload power by seamlessly integrating intermittent renewable energy sources with substantial on-site energy storage in the form of green hydrogen.

Insiders revealed HDF's ambition to build a mass-production facility in Australia to service the APAC region and supplement the US and EU markets, and are assessing interest among the states.

HAZER ADVANCES Clean technology company Hazer Group Commercial Development Plant which has achieved over 36 hours of continuous hot operation of hydrogen and graphite production recently raised $9M and announced a Share Purchase Plan to raise an additional $4M to fund the commercialisation of its low-cost, low-emissions hydrogen technology.

Hazer CEO Glenn Corrie said "Hazer's low cost, proven clean hydrogen technology is shaping the future of the energy transition. We are dedicated to delivering the global commercial rollout of our technology, through tier-1 partnerships, advancing the decarbonisation of hard-to-abate sectors such as steel making, refining and petrochemicals where hydrogen and graphite is increasingly being viewed as a viable climate solution."

HYDROGEN HEADSTART The $2 billion renewable hydrogen program reached a milestone in late 2023 shortlisting six applicants and inviting them to submit full applications to access funding from the program that provides revenue support for large-scale renewable hydrogen projects.

The six shortlisted applicants represent a total electrolyser capacity of more than 3.5GW across various end uses.

Joanna Kay commented that the funding would likely support just two projects and emphasised "the need for additional rounds of Hydrogen Headstart with changes to the merit requirements to include projects below 50 megawatts."

She added "Hydrogen Headstart should also consider merit criteria to foster the growth of supply chains, including considering the manufacturing of electrolysers and fuel cells as part of this program."

This event will feature an assembly of leaders in green hydrogen innovation and projects, and people with a vision of the powerful role hydrogen can play in the national economy and who are driving developments.
More details on the Summit program will be available mid-year.

HYDROGEN HUBS

The federal Government has identified seven priority prospective hub regions: Bell Bay (Tas), Pilbara (WA), Gladstone (Qld), Latrobe Valley (Vic), Eyre Peninsula (Whyalla, SA), Hunter Valley (NSW) and Darwin (NT).

The Hydrogen Hubs funding of $525m is aimed at giving the green hydrogen industry an early-stage springboard to scale, which will help support other industrial sectors in the regions.

The federal and Tasmanian governments are investing $300 million in the **Bell Bay Hydrogen Hub in northern Tasmania** with a view to creating regional jobs and advancing Australia's future as a renewable energy superpower. The hub will generate 45,000 tonnes of renewable hydrogen a year, enough to fuel over 2,200 heavy vehicles for a year.

Up to $140 million of joint state and federal government funding has been locked in to build the **Pilbara Hub in WA**, a potential international gateway to Australian-made green steel and iron, which will help Australia become a renewable energy superpower.

The **Townsville Region Hydrogen Hub in north Queensland** has secured over $137 million of combined investment including $70 million in federal funding. The initial stage of the hub will produce 800 tonnes of green hydrogen per year, enough to fuel over 40 heavy vehicles annually before ramping up to around 3,000 tonnes for domestic supply, and ultimately in excess of 150,000 tonnes for export.

The hub, led by Edify Energy, will feature a 17.6MW domestic production facility with integrated renewable energy generation and battery storage. Construction will begin next year and be complete in 2026, with initial commercial operations scheduled to start in 2027.

SMART ENERGY ACTION AND ADVOCACY

POWER POLITICS

Energy Minister Chris Bowen sat down with SEC's John Grimes and Wayne Smith at Parliament House for a frank and animated discussion on renewable energy policy and politics in a popular event screened via zoom to hundreds of interested SEC participants. The Minister works closely with SEC on policy matters – the jewel in the crown being the Capacity Investment Scheme – and both sides value ongoing collaboration.

Bowen emphasised the need to "acknowledge in good faith all decisions made in terms of community benefit" and condemned the opposition's "reckless anti-renewables rally based on climate science denial and related conspiracies".

John Grimes chimed in: "While the rally was a fizzer... we need our leaders to know that being anti-renewables won't win votes, won't lower bills and absolutely won't reduce emissions."

PLANNING AND MAPPING

"The vision of the SEC Board is to be the most influential and effective organisation in our sector, and that involves expansion in all areas."

Team SEC kicked off the year with Planning meetings to reflect on 2023, "the year that shaped the future of renewables in Australia" and determine key industry priorities for 2024.

Last year was momentous with the country pivoting from coal keeper to coal killer, the pledge to build 32GW by 2030, and Australia's commitment on the COP world stage to triple renewables by 2030. The urgent need to hastily decarbonise is more pressing than ever; the team identified a series of key issues to focus on including SEC's role in the Asia Pacific region, targeted campaigns for large-scale developers, social licence and on certification, consumer/home electrification and securing COP31.

"The opportunity to deliver on Australia's superpower status will be in 2026," SEC International Director Richie Merzian said. And that means shoring up domestic ambitions and delivery in all facets of renewables. Richie is leading a series of conversations across the Pacific on installer training courses and is pursuing wider international opportunities.

Wayne Smith addressing media in Queensland with Premier Stephen Miles

DIARY NOTE – SEC EVENTS 2024

STATE SUMMIT VICTORIA, Consumer Energy
Melbourne, Thursday 30 May

STATE SUMMIT NEW SOUTH WALES, Energy Storage
Sydney, Thursday 25 July

SOUTH AUSTRALIAN HYDROGEN STATE SUMMIT
Adelaide, Thursday 21 November

RENEW AUSTRALIA FOR ALL

The Renew Australia for All (RAFA) campaign kicked off with a soft launch in Canberra on 27 March. The campaign will champion renewables, smart energy exports, electrification and adaptation.

The campaign calls on the federal government to implement and support a range of policies that will assist Australians with building and benefiting from climate solutions, creating new, secure jobs and easing cost-of-living pressures.

The SEC proudly sits on the steering committee with the ACTU, Electrical Trade Unions, Original Power, WWF and the Sunrise Project.

CAN DO

In related moves Climate Action Network Australia (CANA) led a high-level meeting of organisations that aim to protect people from climate change and its impacts, to safeguard the natural environment, and to build a fairer and healthier Australia for everyone. SEC's Richie Merzian played a pivotal role elaborating on the Big Ask campaign, the COP31 bid, SEC's strategic branch office in WA and strong representations for community energy resources.

Policy Officer Connor Woulfe continues to lead brainstorming sessions to advance progressive and timely policies in both small-scale (consumer energy resources) and large-scale policy work. His busy schedule has included meetings with Greenpeace, WA Climate Tech startups, Tesla, mineral resources advisors and DCCEEW staff on a range of subjects, and a detailed submission on the NSW Consumer Energy Roadmap.

In other developments: **Government Relations Manager Leigh Heaney** is collaborating with the QT Group on the mighty 'minerals to megawatts' CRC which would secure $40m to $60m worth of industry support, matched dollar for dollar by the federal government. Leigh's range of industry representations include the content of the National Reconstruction Fund, SEC's Queensland Battery Program (and submission supporting 2500 batteries for households); renewables friendly policies in the ACT Budget and more.

The SEC has formed a strategic alliance with SNEC, the world's largest and most influential convener of renewable energy conventions. SNEC stages events in Mexico, Philippines, Thailand and other areas in Asia, the pinnacle being in Shanghai in June which boasts 3000 exhibitors and 40,000 attendees. SNEC convenor Madame Mi is pictured with John Grimes and Don Henry

UPDATING STANDARDS

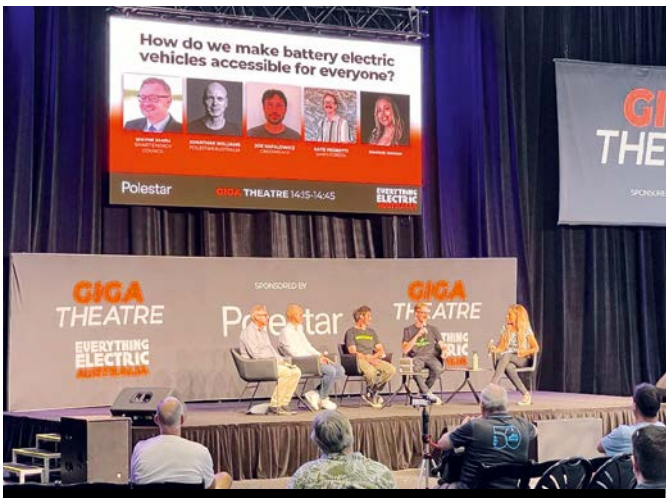
SEC Technical Advisor Geoff Bragg attended a two-day Standards Australia meeting in late March to provide technical input and commentary on the 350 public comments to revisions of AS/NZS 4777 parts 1 & 2 relating to the connection and operation of grid connected inverters..

FUEL EFFICIENCY STANDARDS

In a bid to break the then-impasse over fuel efficiency standards the Smart Energy Council convened an emergency meeting which agreed on a six-point communique, calling for general support and to counter any campaign targeting misleading statements on such standards. In particular the opposition leader's claim of a 'tax on the family car' and a 'ute tax' when the reality is families would save $17,000 on fuel over the life of a new car with Efficiency Standards. *Read more on page 43.*

In related moves the SEC supported the **BYD EV press event** held outside Federal Parliament in mid-February in the bid to expose mistruths spouted by the federal opposition on the cost of EVs and 'cars becoming too expensive to buy'.

Richie Merzian and Director of the Czech PV Association Petr Maule discuss solar accreditation in the Czech Republic and EU with an MOU in mind



Among Wayne Smith's many and various appearances

Keen to keep up with the Smart Energy Council?

Tune in to Twitter at: @SmartEnergyCncl

Titanium, Platinum and Gold members receive regular industry briefings & updates via the special WhatsApp group messages

Scott Hamilton, John Grimes and Richie Merzian met with Julia Souder, CEO of the Long Duration Energy Storage Council and Darren Miller, CEO of ARENA in Sydney in March

Leigh Heaney and Joanna Kay met with Tenaga Nasional, the Malaysia utility that is one of the largest public energy companies in Southeast Asia. During the meeting which was supported by AusTrade the duo briefed the Tenaga delegates on the nature and trajectory of Australia's energy transition

KEY STAKEHOLDER EVENTS

Better futures forum

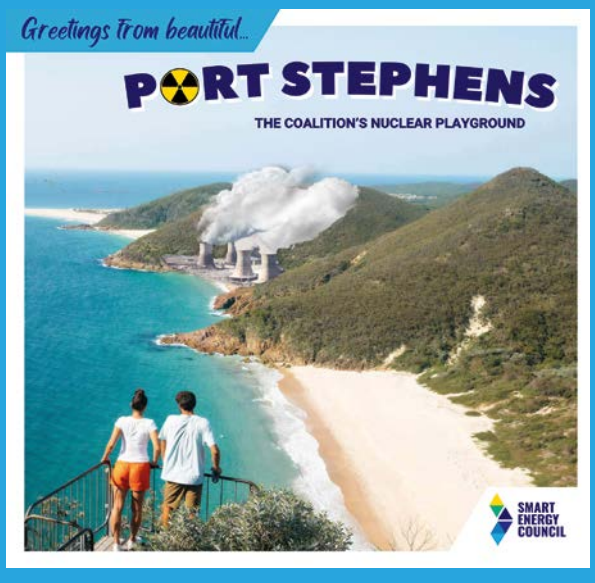
September 9 and 10, 2024, in Canberra and online

The Better Futures Forum unites industry, community, and government in driving impactful climate policies and creating a better, climate resilient future. SEC is signatory to the Better Futures Australia Declaration.

www.betterfutures.org.au/forum

Global Nature Positive Summit (GNPS)

Sydney is hosting the inaugural GNPS on 8-10 October 2024 that puts the spotlight on turning climate and nature ambition into action. The invitation-only Summit will be led by Environment Minister Tanya Plibersek and will accommodate 1,000 global participants.



EFFICIENCY STANDARDS: The journey thus far

** LATE NEWS **

The SEC welcomes the release of the government's New Vehicle Efficiency Standards legislation announced in late March, saying it was imperfect but vital given we have waited decades for this.

Finally Australia will join the rest of the world in implementing New Vehicle Efficiency Standards, John Grimes said. "These standards are the primary means of reducing Australia's soaring transport emissions, Federal Parliament must pass this legislation as soon as possible.

"The Smart Energy Council is disappointed the proposed Standards have been weakened to include some SUVs in the light commercial vehicle category, with the emissions reduction trajectory also weakened."

It has taken a whole lot longer than we would have liked but finally, in early February, the federal government announced the impending introduction of a New Vehicle Efficiency Standard (NVES).

The simple rationale: "Vehicle efficiency standards are common around the world to encourage vehicle suppliers to sell cleaner cars [and] help by: saving money at the petrol pump; presenting more choice about the cars to buy; reducing transport emissions, and improving the air quality."

The government called for comment on the *Cleaner, Cheaper to Run Cars: An Australian New Vehicle Efficiency Standard Consultation Impact Analysis* which sets out three options, including the Government's preferred design, option B (see box on right).

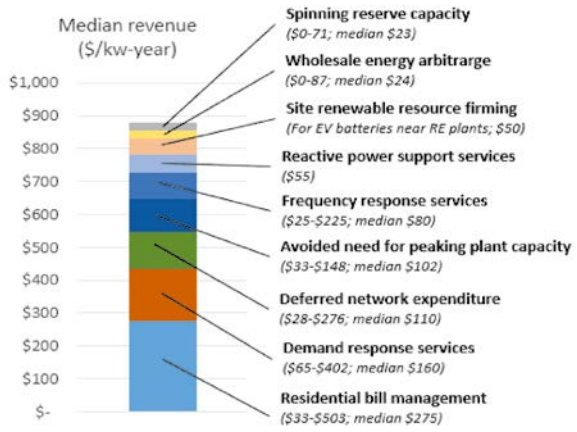
In its submission the SEC expressed strong support stating "With the right policy settings, the NVES will lower fuel bills by $1,000 for each new vehicle by 2028 and will provide Australians with a greater range of more efficient, lower emissions vehicles.

"It is the most important mechanism to slash Australia's soaring transport emissions."

SEC supports Option C, "A strong standard that is ambitious and efficient" that aims to meet US standards around 2026 and exceed these in 2028 and 2029 resulting in a total CO_2 intensity reduction of 74-77% in 2024-2029.

"Option C, our preferred option, strongly hits the cornerstones of timeliness, ambition and integrity."

Figure 1: Median potential revenue from various V2X revenue streams



Source: RACE for 2030 2023

Government's recommended option B: Considering all the available information, analysis and consultation, Option B is the recommended option for an Australian NVES.

The preferred option will deliver:

- around 369 million tonnes of abatement
- around $108 billion in fuel savings to Australians:
  - an average new car buyer in 2028 will cut their fuel costs by around 40% compared to what they pay today
  - an average new car buyer in 2028 will cut their annual fuel costs by around $1000
  - EV drivers could also save around $350 a year in maintenance
  - an average vehicle purchaser in 2028 will save $5,710 over 5 years
  - over the life of the vehicle the preferred option will provide around $17,130 in savings
- around 5.5 billion in health savings and
- improve Australia's fuel security.

The fast-withering FACI which represents some car makers stands behind option A, the 'do nothing' approach which would enable car manufacturers to continue dumping inefficient vehicles in Australia and increase pollution.

Option B, the government's preference, aims for Australia to catch-up to the US standards by 2028 and then continue in-line with these; resulting in a total CO2 intensity reduction of 61-62% in 2024-2029 but fails to provide sufficient urgency.

The SEC also suggested the government consider the benefits realised from services that electric vehicles can provide to the electricity grid, including via vehicle-to-grid or vehicle-to-home (commonly referred to as V2X). "Electric vehicles should be seen as public assets as batteries on wheels, the benefits of V2X are material, and should be included in the NVES cost-benefit analysis."

Elsewhere in this magazine we report on the ludicrous and highly misleading scare campaign of the federal opposition in a bid to retain status quo of a polluting petrol- and diesel-driven fleet.

Heed the words of former PM Malcolm Turnbull linking smart transport with energy security.

Western Australia: enormous potential

The Smart Energy Council has opened a branch in Perth to facilitate Western Australia's destiny as a key player in the global critical minerals market.

NATURAL ADVANTAGES abound in Western Australia. It's warm, sunny, not too overcrowded, still relatively affordable, home to awe-inspiring yet deserted beaches and Ningaloo Reef, as well as the most reliable renewable energy resources. What is less visible are the critical minerals that abound: the earth is rich in cobalt, nickel, lithium, manganese, rare earth elements, tungsten and vanadium; all crucial components in the production of batteries and a range of high-tech applications that drive the economic well-being of the world's major emerging economies.

Although the state holds enormous potential as a critical minerals superpower it lacks the renewables to build the foundations, and little progress has been made in large-scale developments over recent years despite the state being synonymous with 'large scale'. (Think the Asian Renewable Energy Hub, the Western Green Energy Hub, Yara and other projects that could see WA produce in excess of 100GW renewable energy for hydrogen by 2030.)

All in all a less than positive picture, and one that the SEC and its key allies are keen to address, facilitated by the opening of SEC offices in Perth in late January accompanied by aptly named 'Renewables Superpower Drinks' for local industry.

Wilf Johnston who is SEC's General Manager for Western Australia stated "We will be at the forefront of our efforts to support Western Australia's shift into a renewable energy and critical minerals superpower, including downstream metals and minerals processing, particularly green iron.

"Our objectives are to establish a strong presence in WA and to promote the economic and employment opportunities for Western Australia from being a renewables and critical mineral superpower and the policies and programs needed to make this happen." He emphasised the desire to assist other non-government organisations to raise the profile of renewable opportunities in the state, asserting "We want to help the government achieve its target to add 50GW of additional generation by 2040." His words were echoed by popular local Independent MP Kate Chaney who attended the SEC branch opening to spell out her shared vision for WA to develop into a Renewables and Critical Minerals Superpower.

L to R: Independent MP Kate Chaney joined SEC's WA contingent, Wilf Johnston and Connor Woulfe, as well as Canberra-based Wayne Smith at the opening of SEC's Perth branch

Leading the charge

Wilf is well-known in industry circles as the former chief executive of inverter manufacturer Enphase and brings to SEC his significant experience spanning equipment vendors, distribution and solar retail, through to electricity retail, large-scale renewable energy development and engineering, procurement and construction. He currently chairs the Smart Energy Council's Consumer Energy Working Group.

Wilf's side-kick is Senior Policy Adviser and law graduate Connor Woulfe who leads the SEC's Distributed Energy Resources Working Group and Large-Scale Renewables Working Group. Connor has fast gained an industry profile having appeared at numerous Parliamentary Senate hearings to promote a smart energy transition. Significantly too Connor co-authored the 'Unleashing Renewable Energy Storage Report' which informed the Federal Capacity Investment Scheme with its then $10bn investment in renewable energy storage.

Headwinds

The duo recognise the hurdles faced in the state, among them the extent of bias in the public debate tainted by the Murdoch empire's skewed, climate denying version of the world, and the employment clout of WA's extensive oil and gas industry.

Woodside. Santos. Chevron's Gorgon gas project. LNG exports. Accompanied by seismic gas exploration. Costly yet unsuccessful CCS. (Lack of) state royalties from LNG. The Australia Institute once commented: "Ordinary people paying their car registration fees are contributing more to the WA budget than royalties from oil and gas companies – there's no doubt West Australians are getting ripped off."

On the upside the WA government is planning a massive switch to large-scale solar and storage in the grid as part of the vision to build 50GW of new energy capacity by 2040. By late last year WA hit a new peak for rooftop solar with 1.94GW representing 74% of the grid. At year's end more than 500,000 rooftop PV systems had been installed, an impressive 2.5GW since 2001. However that's in contrast with the hurdles in getting large-scale renewables projects over the line

In mid-February the Smart Energy Council's Wilf Johnston and Connor Woulfe welcomed Federal Environment Minister Tanya Plibersek to SEC's new branch in Perth for a morning of constructive conversation

and limited opportunities among established renewables businesses.

The state is unique in other ways, with its own grid, and a state-owned transmission and generation network; just one power station is in private hands. Many of the electricity rules and regulations differ from those of the east coast, so, Wilf explained, in many respects it's like a separate country with regard to electricity. "Some of the national organisations like AEMO and AER are now fully active in WA but for all intents and purposes it's a different set up over here."

Between a slew of industry meetings with like-minded entities, environmental groups, developers, investors, media and others, Wilf outlined his agenda which includes consultations with WA Energy, Environment and Climate Action minister Reece Whitby who succeeded Bill Johnston, and Federal Resources Minister Madeleine King.

Also on the cards is a series of SEC member meetings that will feature top-line speakers, targeted workshops and a roadshow all in a bid to address the broad and differing needs of members whether they be contractors and installers working on predominantly consumer energy, or involved in utility-scale and policy-driven initiatives.

Speaking at the launch of the SEC's operations in WA, environmental campaigner Sophie McNeill declared "As a state with the highest emissions and the lowest renewable energy investment rate in the country and a large fossil fuel exporter I am so looking forward to all the work we can do here together!"

So as they say – stay tuned for more.

Keen to gain a slice of the action in developing Western Australia's potential as a renewables and critical minerals superpower?

Once permanent offices have been established members will be welcome to drop in to say hello to the small but powerful team – aka 'Wilf and Woulfe of the West'.

Meantime email wilf@smartenergy.org.au or connor@smartenergy.org.au

RECYCLE AND REPURPOSE: CHARTING A SMARTER LIFECYCLE FOR SOLAR PANELS

THE SMALL-SCALE MODULE recovery pilot project led by the Smart Energy Council and the State Government of Queensland is entering its second and important phase, with pilot recycling sites currently being within three to five areas in Queensland: metropolitan, regional, regional city and remote areas.

These sites will be actively promoted as accepting used solar panels, providing a destination for dismantled PV systems as well as useful industry data collection.

The latter is important, says SEC Product Stewardship Manager Darren Johannesen, given the pressing need to understand the capacity and capability of the state to manage the upcoming significant uptick in solar modules requiring recycling: some estimate around 4,000,000 PV modules will have reached their end of life by 2030.

A smaller piece of work being undertaken in the program is to understand the potential for reuse of solar modules: how decommissioned solar modules still in perfectly good operating order can be put to good use.

"Currently there are several systemic and regulatory barriers to reusing solar modules but we will undertake a study to better understand the situation," Darren said.

The recycling trial will run for 12 months from June 1, and dovetail with the large-scale project that Queensland's Department of Energy has undertaken with SEC in the bid to create a more integrative study of recovery from large-scale and commercial installations down to small-scale solar installations.

A quick reminder here that Part One of the recycling program undertaken throughout much of 2023 involved consultations among 85 organisations from the product recovery and recycling ecosystem, as well as installers, manufacturers and regulatory authorities who reviewed the dynamics of industry waste to inform the design of the final project.

"This is not a state-wide solution, we are testing the local government areas to understand what a state-wide or national solution might look like," Darren explained.

"The opportunity for us is to start small to assess the risks and costs and issues in recycling… we paused the pilot to understand the learnings and these will be fed into the federal government's national solution."

The pilot is a precursor to a national e-stewardship reform program being considered by the federal government, one that contemplates the development of a likely mandatory solar recycling scheme but is unlikely to be introduced in the near term.

SEC External Affairs Manager Wayne Smith commented that other states and the federal government need to understand the leading work of the Smart Energy Council and Queensland government. He also emphasised the strong relations the SEC enjoys with the state government including Mick de Brenni who is Minister for Energy and Clean Economy Jobs.

SEC recognises stewardship is an important part of the organisation's remit, given that transitioning from fossil fuels to lower cost renewable energy is both akin

to stewardship and the smart thing to do; as is responsible recovery and recycling of end-of-life resources.

Waste arising

Solar modules comprise silicon, silver, recyclable plastics, copper and aluminium, all of which can be easily recovered through recycling processes underpinned by comprehensive regulatory frameworks that encourage people to recycle modules while driving volume and certainty which in turn attracts investment in recycling facilities that can cost up to $5 million dollars to establish.

"As we face material limits on our growth and resources such as rare earth minerals, silver and copper, the establishment of a resource recovery ecosystem is not only critical for manufacturing and energy security but will enable the creation of future industries and drive jobs and growth which is important for all jurisdictions," Darren stated.

"This project will assist in the establishment of more recyclers into Queensland, and the state government should be congratulated on its foresight."

Scaling up

In related news, SEC anticipates the launch of a commercial and large-scale PV recycling program as groundwork for the significant upscaling of resource capacity that will arise in due course. Darren explained end of life in large-scale arises from:

- Damage on installations – representing half to 2% of collection
- Warranty or weather-based damage such as hailstorms, and
- End of commercial life of 20-25 years, which represents the majority of stock.

For now, the vast volume of resource recovery derives from small-scale residential PV systems.

"We are about 10 years away from mass quantities as the majority of solar farm modules have only been in use for less than 10 years," he said.

"Remembering too that systems should still be at 80% operating capacity at 25 years, reuse is a better outcome than recycling, however as noted, Australia's stringent systemic and regulatory barriers prevent reuse."

To learn more, Darren is conducting a detailed investigation into decommissioning by postcode and month; current module recycling forecasts are predominantly hypothetical ie based on assumptions around end of useful life.

Also on the cards is a broadening of SEC's remit so it is regarded as a leader both in energy ecosystems and stewardship, in turn attracting key players to the organisation including battery recyclers and glass, plastics and other materials recovery companies.

POWER UP!

Gender Action Plan activities

The March Smart Energy Conference and Exhibition presented the ideal opportunity for Power Up, the event staged by the Smart Energy Council in conjunction with Australian Women in Solar Energy (AWISE) to address gender action in the workplace.

The dynamic event featured AWISE co-founder **Lily Pejkic** quizzing the panel of **Nick Butler, Dolores Dowdell** and **Dr Renate Egan** (pictured) on the challenges, reflections, changes and actions that have made a difference or could make a difference in their respective workplaces.

Clearly the industry has changed for the better in recent decades, among them enactment of the *Sex Discrimination Act 1984*, greater visibility of women in managerial roles and a shift away from female subservience, greater wage party and more. The vibe was positive but the panel mindful of some residual issues that need to be addressed.

Action stations

Speaking at the event SEC's John Grimes took the opportunity to laud AWISE which formed a few short years ago and is now leading "a real conversation in the industry having set down markers and being led by women and men in the industry that support the process.

"SEC is all in and it is very important as a peak body to set an example which is why we conducted a baseline project on gender across the industry led by Nicolette Boele and have now committed to a Gender Action Plan 'Communities of practice' program to facilitate companies' gender action plans," he explained.

"It's a blueprint to implement in the workforce. It's about moving the dial – everything we do we have to do through a gender lens."

Joanna Kay who now heads SEC's Gender Action Plan was the brains behind Power Up! which was designed to be "transformational, inspirational and set targets."

Joanna cited the IEA report which identifies 76% fewer women than men work in renewables.

"This is a number we need to increase as we push to meet renewables targets," she said. "We also need to be critically aware that men's voices tend to be more dominant; we need to monitor language, it matters significantly, unconscious biases sometimes fall into workplace conversations."

Joanna is on record stating individual leadership strengths arise from qualities such as enthusiasm, empathy and collaboration.

Group sessions

These and related dynamics were the topic of individual table discussions among Power Up! participants who split into groups following the panel discussion. And lively they were!

Joanna commented on the strength of camaraderie and support between colleagues who rarely meet face to face. "Here they were seated together, sharing workplace experiences and it was evident to me that Power Up! participants felt energised about achieving a more balanced and fair workplace," she said.

Better still, outcomes were discussed the following day in a special gathering to mark International Women's Day which was attended by none other than Energy Minister Chris Bowen along with 60 of industry's leading females.

As illustrated in the happy snap of the Minister himself holding the gender parity pledge. speech bubble, another brainchild of Joanna Kay who is now encouraging industry to register for the SEC's Gender Action Plan.

Have you registered?

Registrations for the Smart Energy industry's Gender Action Plan Communities of Practice 2024 are open.

Join industry colleagues to learn how to tackle gender issues head-on, gain skills and build confidence and drive cultural change to make your workplace inclusive of and supportive for everyone.

Visit www.smartenergy.org.au

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A SHINING OUTLOOK

There are few things we at the Smart Energy Council like hearing more other than the strength of the PV market. Happily, prominent industry analysts SunWiz and Green Energy Markets point to the stellar performance of today and the decades ahead.

FIRST TO SUNWIZ which declared 4.6GW of PV installed in 2023 was in Australia, lifting total installed capacity to 33.7GW.

Rooftop PV recorded its second-best year on record, however there were some significant state variations, with Western Australia's market contracting by 7% against Tasmania's growth of 44% and NSW by 24%; both record years.

NSW claimed a whopping one-third – 33% – of the total 2023 PV market.

System sizes: The average system size rose to a new record 9.4kW system in 2023, which SunWiz attributes to the decrease in panel prices making larger systems more affordable, coupled with the economic value in maximising system sizes.

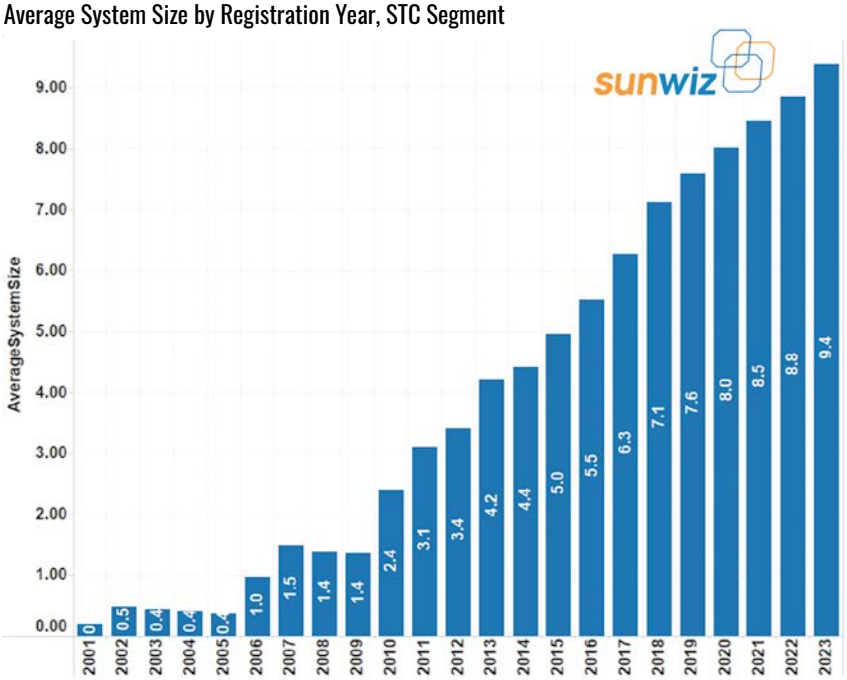
Further, people are planning for the future, increasing consumption with electric vehicles in mind, or 'future proofing' in general.

Commercial market: The SunWiz Australian PV Report revealed the commercial market grew by 25% in 2023, "considerably faster than the residential market's 11% growth", leading to record volumes of 15-100kW commercial systems in 2023.

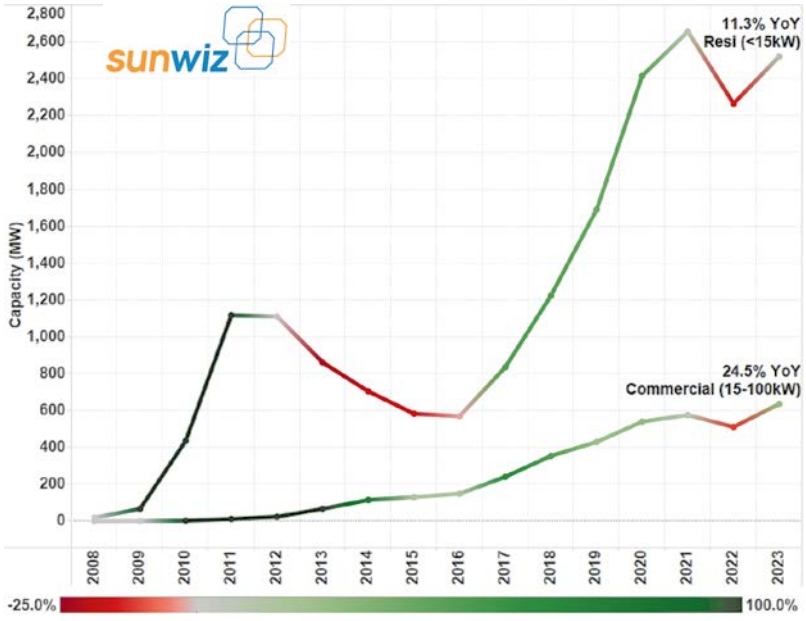
The overall commercial market (15kW-10MW) hit 952MW, 15% above its 2022 tally and outranking its 2021 record, albeit by just 0.4%.

Top of the corporate leader board for commercial PV installations was Woolworths. Bunnings also performed strongly. SunWiz anticipates continued growth in this sector as corporations strive to meet decarbonisation commitments.

Average System Size by Registration Year, STC Segment



National Volume by Registration Year, Commercial vs Residential



Segment	Capacity (MW)
Residential	2,526
15-100kW	640
101-5000kW	245
5-20MW	103
20-100MW	129
100MW+	933
Total	**4,578**

Despite the growth of the residential and commercial segments the overall PV industry contracted due to lacklustre installation of new solar farms.

The 1.1GW worth of systems larger than 10MW energised in 2023 pales against the record of 2.9GW struck in 2022. However large scale is destined to pick up in 2024.

SunWiz supremo Warwick Johnston referred to the forensics involved in determining non-STC data – large commercial projects – which involve scouring LinkedIn, retailers project portfolios as seen on their websites, the LGC Registry, VEECs and more. Painstaking research in other words.

Warwick tells us "A greater amount of rooftop solar power is likely to be deployed in 2024, quite likely setting new records."

SunWiz's key recommendations:

- The STC deeming period should be frozen at current levels for three years.
- PV should be made mandatory on new warehouses and factories.

"4.6GW of solar power is an impressive annual installation figure that will keep Australia on the global stage of leading solar nations."

REASONS WHY ROOFTOP SOLAR WILL GROW TO DOMINATE THE ELECTRICITY MARKET

With an eye on future decades Green Energy Markets has presented some remarkable industry projections to 2050, forecasting a 'staggering' rise of rooftop solar.

So much so it will soon eclipse the collective capacity of coal, gas and hydro in the NEM (main grid) which today sits at about 41GW.

GEM notes the near 20GW of rooftop solar in Australia is likely to more than triple over the next three decades, reaching a minimum of 66GW by 2054. These numbers, they say, represent the most pessimistic scenario.

Meanwhile CSIRO's Progressive Change projection used by AEMO lands on a still significant rooftop solar capacity of 48,000MW by 2053-54.

However under the Step Change and Green Energy Exports scenario, GEM reaches a staggering estimate of around 98,000MW should significant additional new government policies be implemented; that is close to AEMO's blended projection of around 92,000MW by 2053-54.

"So, no matter which way we cut this, these forecasts indicate we are headed for an amount of rooftop solar capacity (taking into account panel degradation) that is close to, or greater than typical average electricity demand," wrote report authors Tristan Edis and Ric Brazzale.

They assert rooftop solar will facilitate Australia's ability to reach climate goals and decarbonise the economy. Something many have been despairing of but now looks increasingly likely.

In other findings:

1) Solar systems last a long time and their capacity steadily accumulates, and it's likely most systems when they reach their end of life will be replaced with a new system. Note too that around 200,000 new dwellings are built each year.

2) Curtailment has minimal impact on the economics of a solar system once it is coupled to a battery. Once a battery is coupled to the solar system it soaks up almost half of the generation that would otherwise be exported to the grid. "The big caveat to this analysis is that it assumes significant reductions in household battery storage system prices, with an expectation they will halve between now and the 2030 to 2035 period," the report states.

3) Distribution networks have demonstrated a capability to manage very high levels of household solar adoption.

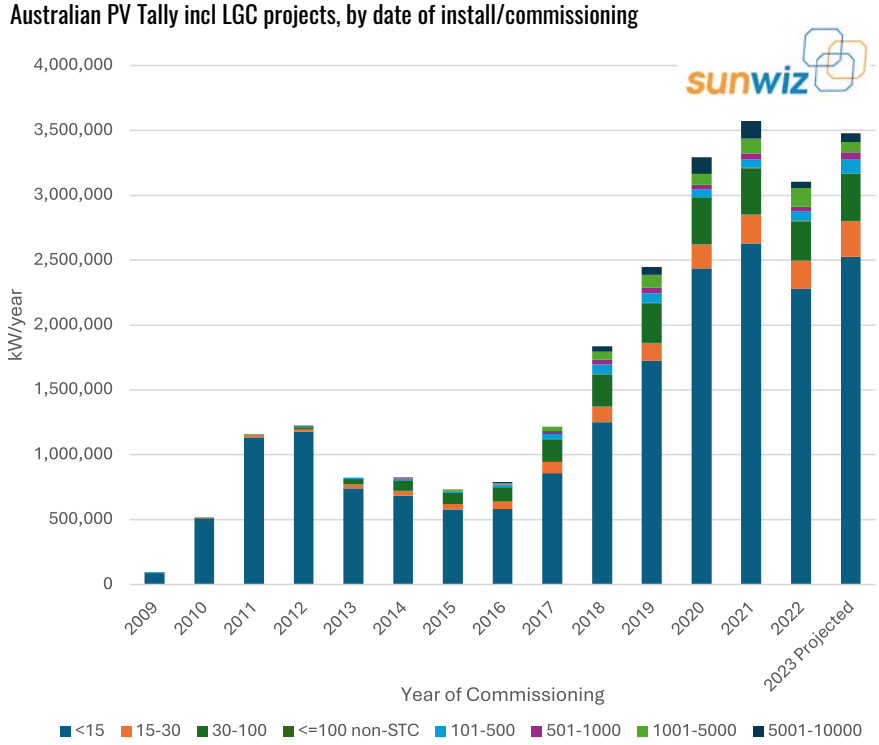
4) The capacity of the typical household solar system is steadily and inexorably growing, particularly in the residential sector. In 2010 almost 70% of solar systems were less than 1.5 kW, by 2019 the market was dominated by systems between 6 and 7kW. Yet during 2023, systems up to 7kW fell to less than half the residential market. "We expect that this ongoing growth in system sizes will ultimately slow due to a range of reasons, however the solar industry is clearly very motivated and very capable of upselling customers to bigger systems," the report stated.

And interestingly: "Rooftop solar, if it is increasingly coupled with battery storage, could be a very valuable tool in decarbonising our electricity sector rapidly and importantly, also injecting greater competition into the electricity market and lowering household energy costs. But we also perceive a risk that it is seen by some policy makers as an uncontrollable, nuisance weed, whose growth needs to be curtailed."

To view the full report visit www.greenenergymarkets.com.au or Tristan Edis on LinkedIn.

Tristan Edis is a Director and Ric Brazzale is Managing Director at Green Energy Markets. Green Energy Markets provides analysis and advice to assist clients make better informed investment, trading and policy decisions in energy and carbon abatement markets.

Australian PV Tally incl LGC projects, by date of install/commissioning



- Batteries should be incentivised. Home energy storage systems facilitate greater uptake of PV systems, by freeing up network capacity and because they lead to higher feed-in tariffs and lower prices of imported electricity.
- Networks should be forced to meet voltage requirements.

For more information visit: www.sunwiz.com.au

ENERGY *IN ACTION*

GLOBAL FORECASTS TO 2026: IEA

Renewables to constitute **>33%** total global electricity generation by early 2025 (overtaking coal), and **37%** by 2026 (growth largely thanks to cheaper solar PV)

Low-emissions energy sources to account for **~50%** world electricity generation by 2026; up from **39%** in 2023

Low-emissions generation to rise at twice the annual growth rate between 2018 and 2023 – up from **30%** in 2023

Fossil fuels/coal energy generation to decline from **61%** in 2023 to **54%** in 2026, average of **1.7%** annually to 2026 (note **1.6%** increase in coal-fired output in 2023)

Global CO_2 emissions from electricity generation to fall **>2%** in 2024 (note **1%** increase in 2023). Further small declines 2025, 2026

Global **electricity demand** to speed up by **~3.4%** average, 2024-2026. **~85%** of global increase in demand arising from India, China and South-East Asia

Source: International Energy Agency report Electricity 2024

US$1 trillion invested globally in fossil fuels 2023, also

US$1.8 trillion global spend on renewable energy transition 2023 **(US$2.8** trillion when including renewable energy supply chains and **US$900** billion in financing)

50% more renewable energy capacity added in 2023: **510GW** reached, **~75%** additions were solar energy

Source: IEA Renewables 2023 report and BloombergNEF

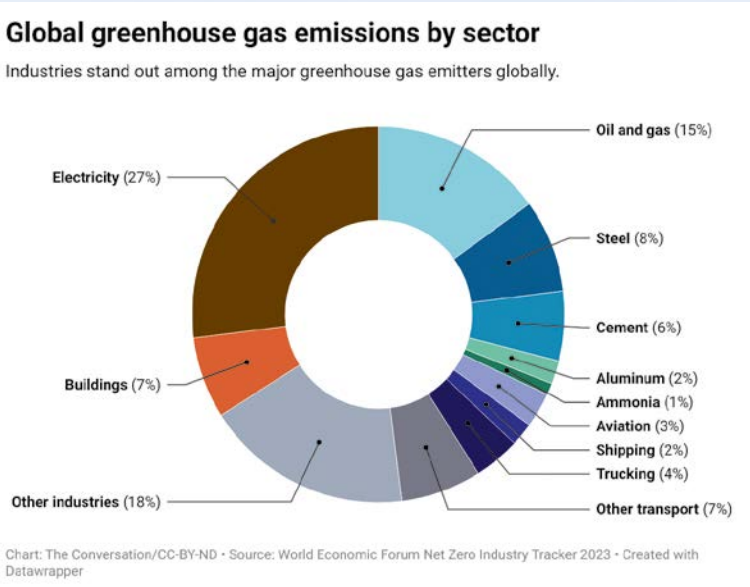
SIZZLER

By late 2023 **average global temperatures** were **1.46°C** higher than preindustrial times;

0.13°C higher than January to November 2016 (hottest year on record)

Culprit: runaway greenhouse gas emissions trapping equivalent of **>25 billion atomic bombs'** worth of energy in the atmosphere over the past 50 years

Source: Copernicus Climate Change Service (C3S)



WOEFUL WOODSIDE

6.1 billion tonnes of carbon to 2070: extent of impact from Woodside's operations *(burning of fossil gas at Burrup Hub projects Scarborough and Browse)*

70 gas wells (400km offshore)

430km pipelines

12 marine parks impacted

54 species threatened

Seismic blasting every **5** seconds for **12** hours a day – deafening whales

Source: ACF campaign "Whales, not Woodside"

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SMART INSTALLER
FROM THE SMART ENERGY COUNCIL

WELCOME NEW SEC STAFF

As the Smart Energy Council continues to grow and extend its influence across all aspects of the renewable energy industry, we welcome several new staff to ensure we meet and service members' and industry expectations.

Lisa Westhaven, Head of Marketing and Communication

Lisa's remit includes emails, social media, the SEC's website, branding and all aspects of marketing material. She also works closely with the SEC's Advocacy team to ensure key wins are swiftly communicated to members and the industry.

Lisa has been working for not-for-profit membership organisations in Australia for more than 12 years, most recently the Clean Energy Council. She began her career working in business-to-business publishing in London before moving to working for a global PR agency on the Microsoft account.

Lisa holds a Bachelor's degree in English and History, a Master's degree in English Literature and has undertaken postgraduate study in management and leadership.

In her spare time, Lisa is renovating a house that should have been demolished, while wrangling a skittish staghound and a surly teenager.

Stephen Smedley, IT Officer

Stephen holds a Bachelor's degree in Business Management with a Minor in Marketing Communications, and also gained a Diploma of Financial Planning.

He is a self-taught programmer and web-developer with a keen interest in technology and has completed numerous short courses online in programming, app development and cyber security. He has spent over a decade training in a variety of technologies and providing technical support in a variety of environments and has a broad range of experience in the private sector in small business.

Stephen spent six years working for a major Australian airline and two years working in the public sector in councils. His experience includes environmental tourism, sales, customer and client service, and disability support.

Connor Price, Policy Officer

Connor supports the Smart Energy Council's Advocacy team by assisting across a broad range of matters and when urgent input is required on behalf of members and the industry. He is committed to assisting industry to ensure an effective and efficient transition to renewable energy solutions in Australia -– and globally – while ensuring sustainable environmental biodiversity.

Connor previously worked as a management consultant for federal, state and territory departments. He completed a Bachelor of Commerce, majoring in Economics and Business Law at UWA and is currently undertaking a Diploma in Project Management at CIT.

Catherine Van Der Merwe, Sales Coordinator

SEC welcomes Catherine Van Der Merwe who as Sales Co-ordinator reports to Alistair McGrath-Kerr. Her focus is on driving positive change by supporting members' business-to-business connections and helping industry innovators to promote their work.

Catherine's education in political relations and experience in the international trade industry in both the public and private sectors has resulted, she says, in a desire to support the renewable energy industry in its next exciting phase within Australia.

Scott Wilkinson, Training Co-ordinator

Scott is passionate about advancing the expertise and technical know-how of those operating in the renewable energy industry, while also ensuring that it is a safe place for all to work for the future.

He's well suited to the role, having most recently worked with State regulators to develop and implement training programs in the energy and solar industries.

Scott. He has prior experience in project management, R&D, and business management and operations and has a strong background in learning and development and holds a degree in Manufacturing Technology and a Master's degree in Business Administration.

Scott will be working closely with industry veteran Geoff Bragg.

Marcela Ferrer, Administration Assistant

With a degree in Sociology and a master's in Climate Change and Environmental Management, Marcela has successfully bridged her two passions: studying society and protecting the environment.

Marcela previously dedicated her efforts to environmental conservation in Argentina, and strongly believes in the transition to a more sustainable and responsible society, particularly through renewable energy. This underscores her deep commitment to the cause.

PUTTING ENERGY INTO ACTION

SMART ENERGY COUNCIL

SUPPORT THE DRIVING FORCE OF SMART ENERGY

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

The **SMART ENERGY COUNCIL:**

- Fights hard for smart energy policy
- Provides actionable market intelligence
- Creates valuable networking and introductions
- Delivers high quality training and professional development
- 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 tri-generation, 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 Antony Sachs Award for Industry Impact

The 2024 winner: Rod Dewar of Fronius

John Grimes welcomed Rod to the podium (pictured), stating Rod was an "extraordinarily talented solar inverter technical specialist who has been at the centre of the standards and electrical safety processes that regulate solar inverters.

"A genuine technical expert who contributes huge amounts of time to make sure the rules that govern our industry are based in technical fact," John said at the ceremony staged during the SEC Expo and Conference in early March. "An extremely valuable ongoing source of technical knowledge on solar inverter standards and safety to our industry which is extremely important for the entire industry."

Congratulations Rod on your outstanding contributions!

The Hall of Fame

The SEC was delighted to induct three prominent industry identities into the Hall of Fame. SEC President Don Henry presented their awards.

First up, long term industry contributor, the unmistakable **Glen Morris of Solarquip**. Glen's expertise in electronics, renewable energy, software development, web hosting and vocational training is near legendary. "Glen Morris is a legend of the smart energy ecosystem," John Grimes said. "His superpower is taking the technically complex and turning it into something everyone can understand, making technology accessible to everyone."

Glen now leads Smart Energy Lab, testing and demonstrating the latest smart energy products. He's contributed to crafting solar standards as a committee member for over 14 years and served on the board of the Smart Energy Council for seven years.

Former Greens leader Christine Milne AO was described by John Grimes as "A formidable advocate for the smart energy industry, and for our environment: a legend to industry and a true hero of our planet". It is largely thanks to Christine and her party that the Clean Energy Package was developed, also the Climate Change Authority, the Clean Energy Finance Corporation and the Australian Renewable Energy Agency. She went on to successfully fight for the survival of the Renewable Energy Target, ARENA and the CEFC. Christine is now calling for a change to the regulatory framework of AEMO and for the renewables industry to align more closely with biodiversity campaigns.

Anson Zhang co-founded One Stop Warehouse in Perth in 2013 which today boasts $600m turnover and recent expansion into the Netherlands, US and Poland.

"The odds of a recent immigrant, packing up and putting a bet on solar in the suburbs of Perth had to be a long shot yet he and business partner Jeff Yu developed a winning formula with a massive investment in IT systems and a relentless focus on business efficacy," John Grimes said.

Today the rebranded OSW is one of the biggest solar and battery distribution businesses in Australia, operating in Western Australia, South Australia, Victoria, New South Wales and Queensland. There's more: in 2018, Anson founded Discover Energy, linking energy management, energy trading and retail billing into a single service. It was ranked No. 7 in the *Australian Financial Review* Fast Global 2023 Top 50 and recognised in IBISWorld's Top 500 Australian Private Companies 2023. In 2021 Anson was named Sydney young Entrepreneur of the Year.

L to R: John Grimes, Anson Zhang, Sam Craft, Rod Dewar, Christine Milne, SEC President Don Henry and (front) Glen Morris

Australia Day Honours

The team at the Smart Energy Council congratulates Hall of Fame Awardee and solar pioneer **Dr Muriel Watt** on her appointment as a Member of the Order of Australia for significant services to the photovoltaic and renewable energy sector.

BEST AND FAIREST IN SMART ENERGY

Thomas Bywater, JinkoSolar

THE ANNUAL SunWiz Industry Awards ceremony at the Smart Energy Conference and Exhibition is for many an absolute highlight of the year.

Stage managed by solar guru aka 'woracle' Warwick Johnston, the 2024 ceremony attracted more than 200 to a packed out room to celebrate the achievements of those who form the engine room of the energy transition.

"For us to decarbonise our energy supply, we need companies that can roll out solar power efficiently and effectively… and each of you deserves acknowledgement. The profound re-shaping of our electricity supply is truly a collective effort," Warwick declared.

"And our social license depends upon each and every one of us doing a decent job, consistently and repeatedly."

Alongside Warwick to present awards was Smart Energy Council chief executive John Grimes who congratulated all winners while presenting the plaque and crystal trophy during the well photographed 90-minute ceremony.

Four award categories were presented: Top Volume Retailers, Best Rated Retailers, Local Solar Heroes, and Top Volume Manufacturers. In all close to 60 winners – too many to list on this page but some of the notables follow.

The six **Local Solar Heroes** were named and applauded: **EcoSmart Solar (Fitzroy region) Solahart (Fraser Coast), Halcol Energy, Solar Pro (Bendigo), Sun Current (Melbourne West)** and **I Want Energy (Hobart area)**.

For its part, **Resinc Solar** (Central Coast, Newcastle and Macquarie) was singled out for the vast number of reviews with excellent ratings taking out #1 **All Star Best Rated Retailer** and #1 **Most Popular Retailer**. A great achievement by any measure.

Arkana Energy and **Solar Safari** were listed as the two 2023 award winning companies that had **improved their ranking** in the twelve months to 2024.

Companies that were **both top volume and top rated** were identified by Warwick as **Perth Solar Warehouse, Lightning Solar (Melbourne), Adam Solar, Sun Current** and **Go Sunny Solar.**

And that brings us to the Number Ones:

- No. 1 retailer Australia overall: **National Solar Energy Group**
- No. 1 commercial retailer: **AGL**
- Top volume and #1 Solar Mounting Manufacturer: **Clenergy** ("A company that could lay aluminium across the length of Australia each year")
- No. 1 top volume Inverter Manufacturer: **Sungrow**, with impressive leadership across multiple industry segments, and
- No. 1 Panel Manufacturer for 2024: **JinkoSolar** which was welcomed back to the stage after the company's big win in 2023. Congratulations Thomas Bywater and team!

www.sunwiz.com.au

National Solar Energy Group


Resinc

Clenergy

Sungrow

Pictured here are some of the SunWiz Industry Award winners for 2024 receiving their awards from John Grimes, Smart Energy Council CEO (left) and Warwick Johnston, founder of SunWiz (right)

Adam Solar

JA Solar

Go Sunny

Trina Solar

GoodWe

Solarhart (Fraser Coast)

SMART ENERGY COUNCIL

CONFERENCE AND EXHIBITION

6-7 MARCH 2024 | SYDNEY

Asset Monitoring

Omnidian monitors your fleet of residential rooftop solar and storage assets, diagnosing problems that require remediation

Customer Care

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Fault Remediation

Omnidian fixes faults, either remotely or in the field. We take on the risk and cost. You pay a fixed monthly fee

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Prominent solar technology company **LONGI SOLAR** unveiled its Solar PV Module: Hi-MO X6 Guardian Anti-Dust during Smart Energy Expo 2024.

The official company release states the Hi-MO X6 Guardian Anti-Dust module 'promises to revolutionise the solar industry with its groundbreaking design aimed at addressing the persistent issue of dirt accumulation on solar panels'.

Brett Robinson, National Sales Manager for LONGi Solar Australia, presented the Hi-MO X6 Guardian Anti-Dust module technology to attendees, explaining the technology features a revolutionary Anti-Dust short-end-frame design which was developed after extensive research and testing to ensure that the module remains clean and free of debris, to maximise performance and longevity.

Robinson explained, "Our Global Customer Satisfaction survey revealed that dirt accumulation was a major concern for solar panel owners, leading to power loss and reduced performance. With the Hi-MO X6 Guardian Anti-Dust module, we have addressed this issue head-on by redesigning the frame to minimise the risk of hot spots and muck accumulation."

Smart Energy Council chief executive John Grimes who attended the ceremony congratulated LONGi on the launch of the Anti-Dust module, stating, "It's all about innovation, and continuous innovation. Innovations like not having to clean your solar panels, well that's a jolly good thing."

www.longi.com/au or contact au@longi.com

Andres Novoa and Schuyler Seaman of LONGi at Smart Energy 2024

Solar and storage company **JINKOSOLAR** has again earned the highest accolade of "AAA" in PV Tech's latest quarterly Q3 ModuleTech bankability report, reflecting JinkoSolar's robust financial performance and its pioneering position in N-type TOPCon technology.

Year-on-year growth has resulted in substantial revenue increases and cumulative shipments greater than 190GW of modules worldwide. Allegedly in the first three quarters of 2023, JinkoSolar shipments of N-type modules reached a mighty 29.8GW.

JinkoSolar led advancements in N-type technology within the photovoltaic industry and rigorous testing and certification by the National Photovoltaic Industry Measurement, and Testing Centre lists JinkoSolar's cell efficiency of N-type TOPCon technology surged to 26.89%; the company's average efficiency of N-type cells reached 25.6%,

This year JinkoSolar again took out the top SunWiz Award at the ceremony held in early March in conjunction with Smart Energy 2024. *(More on page 57.)* *https://jinkosolar.com.au/*

Information, views and technical details on these pages supplied by Smart Energy Council Members

HOME GROWN TALENT: congratulations to rapid solar rollout company **5B** which recently secured a landmark $50m contract to build a US Customs-compliant manufacturing plant in India in partnership with top local panel maker and engineering group Waaree.

Speed of deployment is of the essence says 5B chief strategy officer Nicole Kuepper-Russell who at Smart Energy 2024 addressed 'Australia's smart energy opportunity in ultra-low cost solar' emphasising what's needed to get to net zero by 2050 in terms of carbon emissions mitigation is to deploy at scale "Bigger and faster than any previous industrial revolution".

"And to seize Australia's smart energy opportunity, solar deployment needs to be revolutionised," she said, pointing to 5B maverick roll-out solar which is "defining the next generation of solar deployment".

Nicole explained Maverick's energy density doubles the energy per land unit and can be built on contaminated land.

To date more than 210MW has been deployed or is in delivery worldwide across 100 projects in seven countries with three assembly partners.

Among the largest projects is the 69MW utility scale grid-connected project in the US.

In other news, 5B recently set a new record deploying 1.25MW in just one day.

As they continue to ponder: 5 billion years of sun – how will we use it?

https://5b.co

SPORTING A SOLAR ROOFTOP

Cricket Australia and Cricket for Climate collaborated to install solar power at the National Cricket Centre in Brisbane (pictured).

The project, supported by **LONGi, OSW and Solis**, is projected to save the club up to $50,000 in energy costs in the first year alone and, based on current energy pricing, up to $1 million over the 20-year lifespan of the project and abate close to 400 tonnes of carbon each year: 8,000 tonnes in all.

"Our involvement in the Cricket for Climate initiative is a testament to our commitment not just to sustainability but to the Australian community," said Brett Robinson, National Account Manager with LONGi. "Cricket has a massive global audience; in Australia, it is one of the top three most popular sports followed and played, so it gives us a great opportunity to reach a diverse demographic, demonstrating and educating about the importance of clean energy solutions."

Below from left: Brett Robinson (LONGi Solar Australia); Pat Cummins; Sofia He (Solis Australia); and Eddie Chen (OSW)

Information, views and technical details on these pages supplied by Smart Energy Council Members

Smart Energy 2024 provided the ideal opportunity for **JA SOLAR** to invite staff and supporters to a pre-expo gathering to learn more about their technology and the company's activities in Australia. SEC's John Grimes was pleased to attend the event to address the group where he commended JA Solar's continued commitment to the Australian market.

In the expo halls of Smart Energy, JA Solar exhibited its signature product DeepBlue 4.0 Pro which is based on a rectangular silicon wafer size of 182mm*199mm and was first released to market in May 2023.

Technical specifications advise the product features JA Solar's independently developed high-efficiency n-type Bycium+ passivation contact cell technology, with a cell open-circuit voltage reaching 733mV and a mass production efficiency of 26%.

The DeepBlue 4.0 Pro modules (pictured below) integrate core technologies such as SMBB technology and high-density encapsulation technology to enhance quality and efficiency. The power output of the 72-cell modules in the series could reach 635W, the company states, with a module efficiency of 22.8%, making it the highest power product among the 182 series modules in the industry.

A fully black design is included in the DeepBlue 4.0 Pro series to render the solar system more coordinated and aesthetically pleasing on rooftops. For offshore PV applications JA Solar has launched Oceanblue and Skyblue series with stronger encapsulation materials to address the challenges of various harsh coastal and offshore environments. *www.jasolar.com*

Specialist solar attachments for metal roofs company **S-5!** recently introduced its newest addition to its balance of systems line-up, the MLPE (Module Level Power Electronics) Mount.

The S-5! MLPE Mount™ provides a universal, cost-effective method for attaching module level power electronics directly to solar PV module frames. Designed for use with most solar modules, the MLPE Mount secures optimisers and microinverters along the underside of the module frame at desired locations so wire management is simplified. The company states this provides the versatility needed to better handle module-to-module wire management and electrically bonds the equipment together to easily comply with grounding requirements.

The MLPE Mount is ideal for use with all S-5!'s solar attachments and can be used in rail-based installations or paired with the PVKIT® rail-less solar mounting solution for direct attachment to metal roofs. A unique tab feature makes installation quick and easy, and less likely to rotate during installation, eliminating hassle – one hand can easily position the MLPE device on the frame, while the other hand tightens the bolt to secure it. *www.s-5.com*

Information, views and technical details on these pages supplied by Smart Energy Council Members

GROWATT proudly presented its latest energy solutions at Smart Energy Expo 2024. Among the many offerings on display:

- **MOD 3-10KTL3-XH and APX HV Battery:** Growatt's battery-ready inverter offers flexibility for both residential and small commercial settings. The standard on-grid unit seamlessly integrates with batteries ranging from 5kWh to 30kWh and comes with the APX high-voltage battery with independent module charging, weather resistance and compatibility with old and new batteries.

- **SPH 3-6KTL-HUB with ALP 5-40kWh battery:** an all-In-one solution for residential applications. With an IP66 rating, this system integrates a high-performance inverter, smart meter, and supports a 600V DC panel voltage and 6kW backup power output. Featuring the latest one-click diagnosis function, the inverter automatically checks the installation, locates errors and provides corrections, saving installers time and cost.
- **Growatt's Thor AC EV charger** which supports seamlessly merging with solar power systems, batteries and EV charging. It is compatible with all EV brands, specifically designed for optimal synergy with Growatt inverters and batteries.
- **WIT 50-100K-HU and APX Commercial Battery** can handle up to 100kW with 10 MPPTs for optimal solar energy use. The APX commercial battery ranges from 129kWh to 200kWh. With the advantages of soft-switching connection technology, it facilitates the seamless integration of battery packs with different States of Charge (SOCs) and accommodates both new and old battery packs within a single system.
- **Infinity 1500 and Infinity 1300:** Growatt's portable power stations provide a convenient power source for outdoor activities, emergency situations and beyond. The Infinity 1500 and Infinity 1300 deliver fast charging, enhanced portability, boasting capacities of 1512Wh and 1382Wh respectively.

https://au.growatt.com

Information, views and technical details on these pages supplied by Smart Energy Council Members

Perth based Australian technology solutions provider **iStore** has appointed Eliese De Oliveira as its new CEO. With a decade-long career in the solar industry and a solid background in the electrical wholesale sector, she brings a wealth of experience to her new leadership role.

"Over the past couple of years, iStore has made a name for itself with its innovative heat pumps. Now as the company expands into the solar industry and beyond, I am excited to drive and capitalise on the company's momentum," Eliese said.

Eliese commenced her career in 2011 at Solargain, mastering various roles and steering prominent partnerships with industry giants such as IKEA and Qantas Frequent Flyer. Her extensive experience in the service department and her role as general manager provided a comprehensive view of the solar industry, shaping her leadership approach.

In her new role, Eliese will focus on building a portfolio aligned with Australia's evolving electrification needs. She aims to counter rising living costs and develop a monitoring platform for users to engage with the energy network, ensuring a substantial impact for Australian homeowners and the industry as a whole.

www.istore.net.au

Scientia Professor Martin Green at AIKO's launch in Sydney

AIKO SOLAR announced its strategic entry into the Australian market at Smart Energy 2024 where it showcased its GEN 2 N-type ABC (All Back Contact) modules, including the 'Neostar', 'Comet' and 'Stellar' series, at Smart Energy 2024.

Henry Xia, Vice President of AIKO Digital Energy stated "With a remarkable 25.15% conversion efficiency, certified by TÜV-SÜD, our latest ABC GEN 2 modules are redefining industry standards and emphasise AIKO's dedication to pushing the boundaries of photovoltaic technology."

Scientia Professor and solar industry luminary Martin Green said "AIKO's innovative work on their ABC solar module resonates closely with our vision for the future of silicon photovoltaics, especially in back contact structures."

AIKO has partnered with leading solar distributors including Solar Juice, AC Solar Warehouse, Sol Distribution and Tradezone to deliver 2GW of AIKO's GEN 2 N-type ABC solar modules to the Australian market over the next three years.

https://aikosolar.com/en/

ASIA PACIFIC

~50% of **global low-carbon technology opportunities** will be in Asia Pacific by 2050; area housing **50%** global population, contributing **33%** global GDP

Asia Pacific to maintain a **50%** share of global primary energy demand, and **60%** share of global carbon emissions until 2050

China to achieve a cumulative solar and wind capacity of **2,000GW** by 2030

Low-carbon hydrogen to reach **3.5%** of final energy demand by 2050 (base case) **12%** (net zero scenario and replacing fossil fuels in chemicals, steel, cement, heavy-duty mobility)

Gas demand to increase for 15 years (all scenarios)

By 2050, gas demand is expected to grow from **890** billion cubic metres to **1,285** bcm (base case), fall to **655** bcm (net zero scenario)

EVs: Asia Pacific EV stock to rise from **24** million cars today to **635** million units by 2050 (base case scenario)

Additional **30%** growth in EV stock in the pledges scenario, **60%** increase (net zero scenario)

Source: Wood Mackenzie's Asia Pacific Energy Transition Outlook

Information, views and technical details on these pages supplied by Smart Energy Council Members

PERSPECTIVES

DOWNSIDE

"We've had a decade of drift in climate policy. We've had policies proposed and then abandoned, we've had science acknowledged and then ignored, and we've created a situation where more and more assets and more and more Australian lives, are at risk from climate change than ever needed to be. To me this is the single most irresponsible act that I've ever seen by governments."

MARTIN PARKINSON, former head of Prime Minister and Cabinet, speaking on ABC's *Nemesis*

"The Federal Opposition is opposed to just about everything. It is opposed to cheaper electricity, opposed to new supply if it comes from wind and solar, opposed to the concurrent $40 billion or more that would be invested in regional Australia, it is opposed to AEMO's integrated system plan, opposed to fuel efficiency standards, and at odds with each and every state government."

DAVID LEITCH, ITK Services

"If one stops to think about it, many of the world's problems are caused by the actions of industries when they enter their decline phase. Misinformation, propaganda, negative externalities eg cigarettes, fossil fuels, ICE OEMs."

SIMON O'DELL

"Yup, let's build nuclear at eye watering cost and let's complete it in 25 years' time and then let's put that nuclear generated power into the grid at 5-6 times the cost of firmed renewables. Makes sense."

'RICHARD' (on Twitter/X)

"Anyone who has done their homework knows nuclear is not viable… the alleged boom in small modular reactors is a furphy. It's striking that a party that once prided itself on economic rationalism could embrace a frolic so spectacularly uneconomic."

CHRIS BOWEN, Climate Change and Energy Minister

SUNNYSIDE UP

"The sun is the only safe nuclear reactor, positioned as it is some ninety-three million miles away."

BONNIE RAIT

[Indeed. Each end every day, enough sunlight touches the Earth to provide enough energy for the entire planet for 24 years – almost a quarter of a century.]

"I am confident the Capacity Investment scheme will kill coal power in this country, we have transitioned from coal keeper to coal killer."

WAYNE SMITH, SEC

"We must accelerate finances for clean energy resources, this is absolutely the least cost fastest way to drive new supply, deflation and decarbonisation."

TIM BUCKLEY, Climate Energy Finance

"The critical and urgent work ahead lies with bringing together those who wish to invest in [renewables/decarbonisation] solutions and those who are working on them, all while creating regulatory and enabling environments that make collaboration easier and faster."

AUDREY ZIBELMAN, Senior advisor to Pollination and Squadron Energy, former CEO of AEMO and vice president at Google's X moonshot factory

REALITY CHECK

"We are digging our own graves by burning, drilling and mining deeper. We face a stark choice: either we stop it — or it stops us. It's time to say 'enough'. Enough of brutalising biodiversity. Enough of killing ourselves with carbon. Enough of treating nature like a toilet."

ANTÓNIO GUTERRES, UN Secretary General

"Will it take 200 years for the Murdochs to come to grips with the cruelty – economic as well as environmental – of enslaving future generations with an Earth super-heated by greenhouse gases which could have been so readily kept in the ground in our own times."

BOB BROWN of the Bob Brown Foundation and former Greens Leader, and

"For me, joining Barnaby Joyce at a rally for farms and wildlife would be like joining Vladimir Putin at a rally for peace or Donald Trump at a rally for respecting women. Count me out."

"Politics shouldn't be about the next election — it should be about the next generation … the government should be required to consider the impact that laws will have on future generations before they are passed."

DR MONIQUE RYAN, Independent MP

"The future depends on what we do in the present."

MAHATMA GANDHI

SMART ENERGY COUNCIL CORPORATE MEMBERS

FOR FULL LISTING OF SMART ENERGY COUNCIL MEMBERS SEE **WWW.SMARTENERGY.ORG.AU**

LEAD MEMBERS

Supply Partners – Doing business better

CQ-H2

TITANIUM MEMBERS

LG Energy Solution

North Harbour Clean Energy

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Power+

istore – Air to Energy

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OSW – One Simple Way

selectronic – Power On

redback technologies

AKCOME

GOODWE – Smart Energy Innovator

Fronius

CAPRAL Aluminium

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Sustainable Energy Commitment

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CWP Global

Solar Cutters

RECLAIM Energy

flow power

UGL

NRMA

SMA

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smartestenergy

ARECOR

Fortescue Future Industries

SUNPOWER – From Maxeon Solar Technologies

SIGENERGY

GOLD MEMBERS

GROWATT

risen

Institute for Energy Economics and Financial Analysis – IEEFA.org

redflow

ASTRONERGY

TW SOLAR

weatherzone business – a DTN company

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camco – Clean Energy

Panasonic

SUNGROW – Clean power for all

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Allume – Share the Power

Dyness

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Lithgow City Council

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EV Maritime – a better ferry future

RAYSTECH – Your Trusted Solar Partner

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If you want your company details to be seen by the people who matter – PV installers, retailers and wholesalers, project designers and suppliers involved in residential, commercial and industrial developments – *give Alistair or Marianne a call.*

Alistair and Marianne are committed to helping companies increase their exposure through the magazine as well as at Smart Energy webinars and conferences.

Despite the challenges of the past two years, Australia's renewable industry sector continues to thrive so it has never been a better time to showcase your products and services to the widest possible targeted audience.

MAGAZINE REACH: *Smart Energy* magazine is read by more than 20,000 industry professionals, spanning solar PV designers and installers, large-scale solar project contractors, industry consultants and trainers, manufacturers, suppliers and wholesalers, energy retailers, and thought-leaders.

So, if you want to reach thousands of people in all sectors of the smart energy industry, call Alistair, Catherine or Marianne.

CONTACT

Alistair on +61 (0) 499 345 013 or alistair@smartenergy.org.au

Catherine on +61 (0) 488 021 999 or catherine@smartenergy.org.au

Marianne on +64 211 824 699 or marianne@smartenergy.org.au

SMART ENERGY COUNCIL

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™** logo.

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.

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.*

POSITIVE QUALITY™
Continuous Quality Assurance

By displaying the Positive Quality™ logo solar companies convey high standards in panel manufacturing to industry and consumers

Solar JinKO

Contact Positive Quality™ Manager Alistair McGrath-Kerr on 0499 345 013, email alistair@smartenergy.org.au or visit www.smartenergy.org.au

AUTUMN 2024 ADVERTISING CONTENT

ADVERTISER	PAGE	WEB ADDRESS
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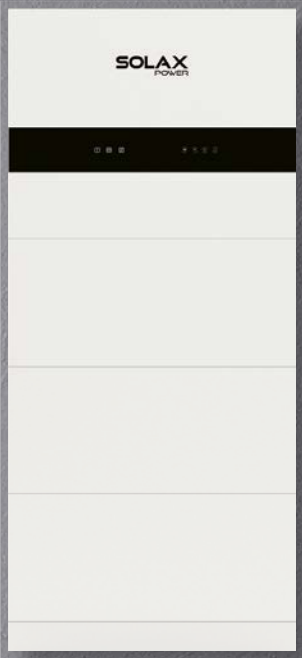

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- Support smart scene function, intelligent loads management (e.g., Heat pump, EV charger)
- Support Wireless meter solution
- IP65 protection level

X3-ULTRA
15kw/19.9kw/20kw/25kw/30kw

- Maximum 36A input current per MPPT
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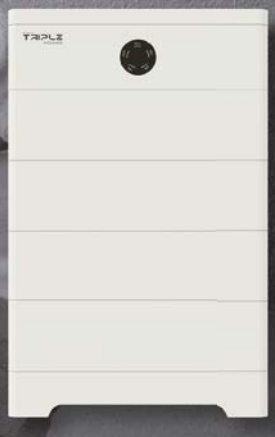
- Dual independent battery ports
- Switchover time<10ms, up to 200% EPS output for 10s
- Three phase 100% unbalanced output
- AC&DC SPD type ||, AFCI optional
- Support smart scene function, intelligent loads management (e.g., Heat pump. EV charger)

T-BAT-HS3.6



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- Products are built for Australia's harsh environment

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