



TAKING THE GRID GREEN A TALE OF TWO MARKETS

Contrasting attempts to boost renewable electricity in Australia and the UK show dramatic progress... and tougher challenges to come

Key takeaways:

- Despite the need to modernise Australia's grid infrastructure and regulation, rapid advances in renewable tech make near-total green electricity a credible 10-to-15-year prospect
- Major corporates can choose from a widening range of deals to support clean power, including renewable PPAs
- Capacity in the grid will remain a key factor for renewable power projects and utilities through the 2020s
- The UK continues to focus on installing newer and larger capacity interconnector cables with the grids in surrounding countries to make the most of the available renewable energy being produced

Given current global momentum behind green policies, it is striking how quickly notions of generating the bulk of national electricity from renewable power have moved from activist pipe dream to pragmatic environmental planning. The days when the received wisdom was that power grids could only cope with a small slice from fluctuating renewable sources are rapidly fading from memory. But is the goal of taking power generation 100% renewable a realistic 10-year aspiration as the logistical challenges and laws of diminishing returns pile up? A cursory glance at the contrasting experiences of the UK and Australia offers fuel for both sides of the debate, providing much cheer given the progress of the last five years, while highlighting harder miles ahead.

The UK, of course, is for many a poster boy for green energy having de-carbonised its electricity supply more quickly than most European counterparts, with carbon emissions having fallen 44% since 1990. That success had a large helping of bi-partisan political support, with the landmark 2008 Climate Change Act under a Labour government establishing a cause that was soon embraced by the following Conservative administration. The UK government underlined this political consensus in 2019 when it announced ambitious net zero targets for 2050 and again in November 2020 issuing what it dubbed a "10-point plan for green industrial revolution". This direction of travel was illustrated at a corporate level in March when National Grid unveiled a £18bn shake-up that will see it entirely exit the UK gas market in a bid to slash its carbon emissions.

Moving early to begin phasing out coal – the UK went two months without burning coal for electricity during 2020, a feat not managed since 1882 – offshore wind power has been the main contributor to the UK's falling emissions. With ideal conditions for offshore wind – plenty of wind, plenty of coast with shallow surrounding waters – the UK has rapidly become a world leader in the sector and is attracting huge investment. The UK generated around a quarter of its electricity in 2020 from wind, against 4% from solar, a figure set to substantially rise as a new generation of offshore wind sites with larger turbines come online through the decade.

Blessed with one of the most resilient grids in the world and plunging costs starting to make even solar viable for the notoriously cloudy nation, the UK is well set on its path towards emissions-free electricity, barring long-term uncertainty about its nuclear strategy.

'A really strong signal'

The situation is more complex in Australia, which shares the UK's blessing of plentiful renewable power sources, at this point in time primarily solar, but not the same wide ranging benefits of European countries that can easily

“It’s inevitable that large-scale battery storage will become viable because it’s just going to be essential. Whether it’s Tesla or someone else, it’s going to happen.”

shift electricity between national grids to smooth peaks and troughs. Australia has additional challenges in the huge variation in levels of renewable power across regions with South Australia already generating more than half its electricity via renewable sources, thanks in part to dramatic increases in solar power output in recent years.

Nationally, more than a fifth of Australia’s electricity comes via renewable sources. The Australian Energy Market Operator (AEMO) last year said that technical capacity already exists to run its grid with three quarters of the country’s electricity from renewables. But as Jo Garland, an energy and decarbonisation expert at HFW’s Australian arm, notes, Australia will need major upgrades to its regulatory regime and potentially also grid infrastructure to make good on its green aspirations. “We’re on the way but to get there a few things need to happen. The underlying regulatory regimes are designed for old school power and gas and they need to change to better accommodate renewables, distributed energy resources and new technology. The other thing that would be important here, where we don’t have other markets to call on, is sufficient battery storage.”

The dated infrastructure struggles to cope with fluctuating supply, poorly handling the growth of distributed power sources, exactly the kind of generating capacity that a state spread over a vast landmass should be cultivating.

Perhaps most damaging is that ‘grid congestion’ has repeatedly forced major solar farms to operate at reduced capacity for months, playing havoc with the economics of solar farms and discouraging the kind of investment needed to take electricity generation green. “Network access is a big issue – there are a lot of people who want to deliver renewable electricity to the network but the network can only handle so much at once,” says Garland. “There’s little use in having a solar power station if you can only get 50% of your capacity through at one time.”

AEMO itself noted last year that it will be increasingly forced to limit the contribution of renewable power without major changes to Australia’s markets and regulatory framework. Yet doubts remain as to if there will be the long-term vision needed to realise full decarbonisation of the grid. Garland says that 100% renewable electricity by 2030 is “achievable but I’m not sure it will happen”, citing the impact of changing state politics. Aside from boosting investment in green energy, moves to modernise power infrastructure would help allay grid security fears that are sometimes (rightly or wrongly) blamed on renewable power. Given the central

role of the power-intensive sectors in the Australian economy, it barely needs saying that any questions over energy security are a major concern for business.

A more flexible market with better incentives would moreover support current innovations in the large battery facilities needed to store renewable power, technology that can also be deployed to join multiple small sites into a ‘virtual power station’. Such operations, can co-ordinate multiple distributed power sources to be controlled as a single unit that can charge up power or discharge into the grid.

HFW partner Richard Booth highlights the current momentum in developing industrial-scale storage to support renewable power, both via large battery sites and more creative responses like using electric vehicle batteries to store grid power on a distributed basis. “It’s inevitable that large-scale battery storage will become viable because it’s just going to be essential. Whether it’s Tesla or someone else, it’s going to happen.”

If the current political climate is uncertain for Australian business, Garland says energy markets are already providing credible options for corporates to slash their emissions. “If you are a large energy user, now is a good time to look at some of these really interesting products that are being developed. You might get paid to take electricity at a certain part of the day. You might put a battery and solar panel on your premises and become part of one of these virtual power stations and receive extra benefit because you’re providing a network service. The days of a large energy user just getting a tariff and paying it are gone.”

One of the most practical approaches for corporates are renewable power purchase agreements (PPAs), which allow companies to buy a share of available clean power. This sees a corporate directly support investment in renewables and show material reductions in carbon emissions in their environmental disclosures. One of the largest such deals saw mining giant BHP in February sign a 10-year contract to source up to 50% of the power for its Nickel West Kwinana Refinery in Western Australia from the Merredin Solar Farm. Garland sees such projects as “a way to support renewable development and it helps with decarbonisation efforts”, adding such deals are “a really strong signal of consumer preference dictating where their energy comes from”.

For now, Australian stakeholders face a period of uncertainty while the regulatory and infrastructure issues are addressed (or avoided). But with governmental co-operation growing on decarbonisation, and green energy

tech leaping forward, a 15-year timescale for the vast majority (and perhaps all) of Australia's electricity to be sustainable is a credible forecast.

Noting the importance of a green grid in supporting other connected decarbonisation efforts such as electric vehicles and emissions reductions in industrial processing, Garland concludes: "Renewable energy will obviously not only be the cheaper solution, but also the better solution, once you get the infrastructure and market issues sorted. You've got to look for a whole of grid solution. If you can get it working properly with the intermittency, storage, market incentives and your technology products, it's a win-win."

For more information, please contact;



RICHARD BOOTH

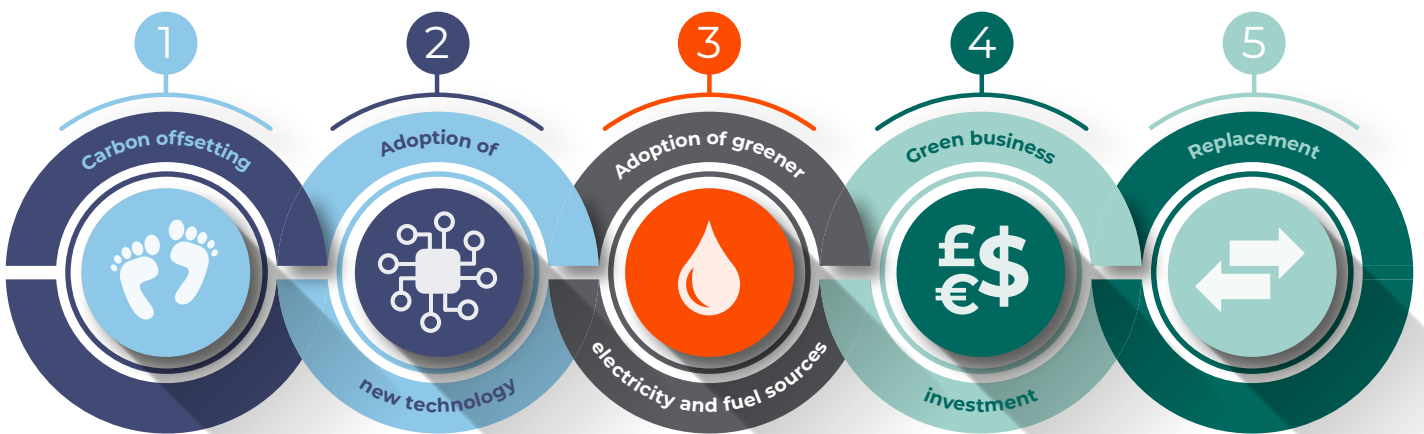
Partner, London
T +44 (0)20 7264 8385
M +44 (0)7824 416194
E richard.booth@hfw.com



JO GARLAND

Partner and Energy
Transition Lead, Perth
T +61 (0) 8 9422 4719
M +61 (0)428 598 615
E jo.garland@hfw.com

Find out more about energy transition by clicking below.



We are committed to using our legal and sector expertise, networks and corporate responsibility initiatives to enable sustainable practices across all of our operations and the industries that we service, and to drive meaningful and lasting change. Please visit our dedicated sustainability hub www.hfw.com/Sustainability-hub.