



the Chamber

INDUSTRY SPOTLIGHT

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KEYNOTE EXCERPT

**Value with Values:
UK Commitment to
Climate Partnership**
by British High
Commissioner HE Vicki
Treadell CMG, MVO

INDUSTRY EXPERTISE

**Rewiring our thinking
to rewire the nation**
by Paul Currie,
Mott MacDonald, and
Tyson Vaughan

BILATERAL THINKING

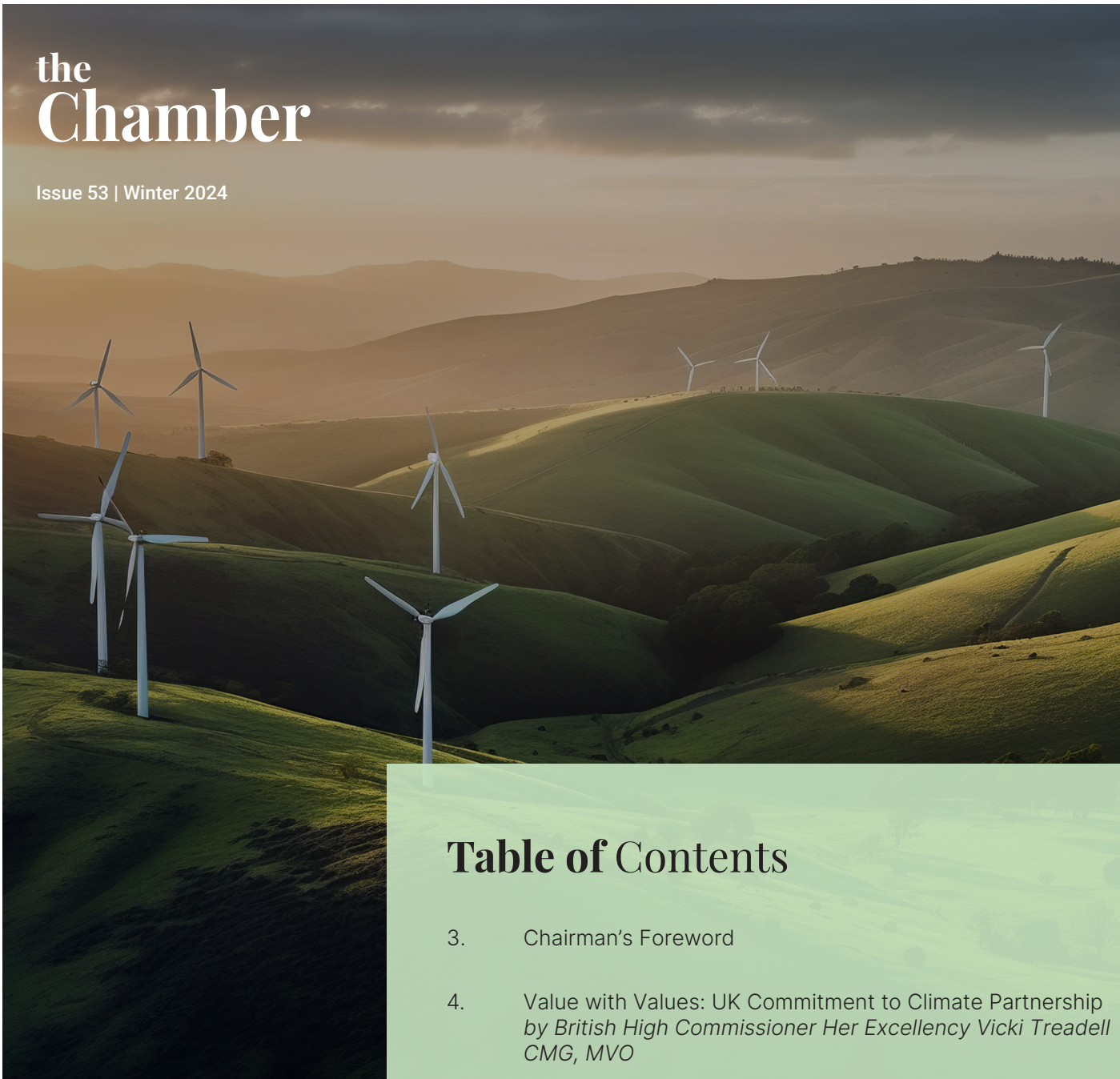
**Lessons from the UK for
Australia's Low Carbon Future**
by Matt Gijselman, Bentley
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NEC Contract Ambassador in
Australia-New Zealand

EVENT GALLERY

**Highlights from our Australian
British Energy Transition and
Investment Summits - Sydney
and Perth**

the Chamber

Issue 53 | Winter 2024



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Opinions expressed in this publication are the views of the article authors and do not necessarily reflect the views of the Australian British Chamber of Commerce.

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CHAIRMAN'S FOREWORD

Welcome to this special Energy Transition and Investment Edition of our Quarterly Magazine

By Andrew Low, National Chairman, Australian British Chamber of Commerce

The energy transition is a defining challenge of our time. It demands a transformation of our energy systems, necessitating innovation, investment, and international cooperation. Australia and the United Kingdom, both endowed with abundant natural resources and a strong commitment to sustainability, are uniquely positioned to lead this global shift.

The Chamber was delighted to bring together leaders from across the energy transition sector for two massive days in Sydney and Perth. Adopting our flagship Catalyst style for full-day events on the east and west coasts, these Energy Transition and Investment Summits laid the groundwork for productive and valuable conversations on investment opportunities, tackling the skills challenge and supply chains.

We were fortunate to hear from the Hon Chris Bowen MP, Minister for Climate Change and Energy; and Her Excellency Vicki Treadell CMG, MVO, British High Commissioner to Australia, amongst a host of other industry experts in Sydney. To open the day, the High Commissioner announced the UK's official endorsement of Australia's bid to co-host COP31 in 2026 in partnership with the Pacific. This was certainly one of the highlights of the Sydney Summit, and echoed our nations' joint commitment to realise the shared ambition of reaching net zero. The

High Commissioner has also provided a piece in this magazine, that I encourage you to read [here](#).

Our Western Australian Summit was headlined by the Hon Reece Whitby MLA, Minister for Energy, the Environment and Climate Change; the Hon Roger Cook MLA, Premier of Western Australia; and Linda Dawson, Deputy Director General Industry, Science and Innovation. We were honoured to host these esteemed speakers and for the opportunity to contribute to a rich and informative dialogue. The Summits were buzzing with ideas, excitement and an urgency to act! Congratulations to Chamber Chief Executive Ticky Fullerton and her team for their hard work in pulling these together.

“Together, Australia and the United Kingdom are uniquely positioned to lead this global shift in energy transition and investment.”

I do hope you enjoy the Chamber's latest edition of our Quarterly Magazine, which, alongside the High Commissioner's address, features a fantastic article from our Principal Sponsor Mott MacDonald's Paul Currie, Energy Lead - Asia Pacific, New Zealand and Australia - another great keynote speaker from our Sydney Summit! The magazine also includes an insightful piece on the learnings Australia should

take from the UK in order to successfully deliver on a low carbon future.

If you were unable to join us at our Summits, you can rest assured that Energy Transition will be focal point in our event calendar going forward. The team is already planning an exciting 2025!



Value with Values: UK Commitment to Climate Partnership

By British High Commissioner Her Excellency Vicki Treadell CMG, MVO

The UK is committed to strengthening the UK-Australia climate partnership and collaborating internationally to tackle climate change and boost energy independence. With rising temperatures and worsened extreme weather events leaving people hungry and forcing them from their homes, these challenges cannot be ignored.

Our new government will prioritise leading international climate action based on our domestic achievements. Secretary of State for Energy Security and Net Zero, Ed Miliband, has committed to lead the UK's climate negotiations within the United Nations Framework Convention on Climate Change (UNFCCC). He has also announced a first-of-its-kind Mission Control for clean power by 2030 and the establishment of Great British Energy, a publicly owned clean power company to take back control of our energy and cut bills.

On 7 May, I addressed key players across industry and government at The Australian British Chamber of Commerce's Energy Transition and Investment Summit. This vital event in Sydney built on the momentum created by the Chamber's successful Catalyst last year in the UK. I shared lessons from the UK's clean energy transition leadership, and our ambition for a thriving green economy founded on affordable, reliable and abundant energy to generate growth, jobs and prosperity.

I was also delighted to publicly announce, with Chris Bowen, Australia's Minister for Climate Change and Energy, present, the UK's endorsement of Australia's bid to host COP31 in partnership with Pacific nations. This builds on our strong climate partnership with Australia and our focus on supporting Small Island Developing States, including Pacific Island Countries, who are on the frontline of the effects of climate change.

In 2021, the UK hosted COP26 which delivered the Glasgow Climate Pact, a global agreement to accelerate action on climate change this decade, and launched the Clean Energy Transition Partnership that Australia joined last year at COP28. We look forward to using our experience of hosting COP26 to support Australia and Pacific nations in their bid to deliver an ambitious COP31 that delivers for the Pacific and for Small Island Developing States. We hope to see this bid confirmed in November at COP29 in Baku.

The UK and British businesses are well-placed to support Australia's energy transition with an impressive track record of net zero commitments. In 2019, the UK became the first major economy in the world to pass laws to end our contribution to global warming by 2050. We have set more ambitious 2030 targets with plans to cut emissions by 68% by 2030. This is more than the EU, Japan, or the US.

We have seen a positive trajectory for Australia's climate change and energy leadership, with the promise of a new 2035 target before the next election. The Climate Change Authority suggests that a 65-75% emissions reduction by 2035 against 2005 levels could be in reach.

We stand ready to assist Australia in reaching these targets. The UK was the first major economy to halve its emissions, cutting them by 50% between 1990 and 2022, while also growing our economy by 79%. In 2012, coal provided almost 40% of UK electricity, but later this year, this will be zero. In fact, renewables now account for more than 40% of the UK's electricity, up from just 7% in 2010.

Critical minerals are an important pillar of our relationship with Australia. To continue moving in the right direction,



Pictured: British Consul General for Western Australia Maria Rennie speaking at the Chamber's Western Australian British Energy Transition and Investment Summit on Monday 17 June 2024

“Critical minerals are an important pillar of our relationship with Australia. To continue moving in the right direction, we must be able to access the critical minerals required for clean energy technologies.”

we must be able to access the critical minerals required for clean energy technologies. Just as iron and coal were central to the Industrial Revolution, critical minerals are essential to our Green Industrial Revolution.

Last April, Australia and the UK signed a joint statement of intent on critical minerals which established a working group of officials to meet twice per year and is focused on supporting investment into strategically important projects that diversify supply chains. This collaboration builds on our countries' shared commitment to growing the sector and our respective expertise to strengthen supply chains, promote economic security and contribute to meeting net zero targets.

International cooperation is key to addressing challenges associated with energy transition, and our Ministers are committed to strengthening the UK-Australia climate partnership. We are already collaborating in areas such as clean hydrogen, offshore wind, and to secure investments required to fund these important projects.

As highlighted by our Consul General for Western Australia, Maria Rennie, in her address at The Chamber's Western Australian British Energy Transition and Investment Summit in Perth last month, "Our success only matters if we are bringing other countries along with us, sharing our expertise, our opportunities and our lessons learned and collaborating."

In Australia, this collaboration extends to each state with its own strengths and opportunities for partnership. In recent years, we have worked to reestablish our presence across Australia to be able to maximise these opportunities. We are excited to have already supported The Chamber's energy summits in Sydney and Perth, and look forward to the lower emissions workshop in Brisbane in August.



Pictured L-R: Ticky Fullerton, CEO, Australian British Chamber of Commerce; Rachael Risucci, VP Australia Gas & Low Carbon Energy, bp; the Hon Roger Cook MLA, Premier of Western Australia; Maria Rennie, British Consul General for Western Australia; Steve Scudamore AM, WA Chair, Australian British Chamber of Commerce.



Pictured L-R: Nevenka Codevelle, Executive General Manager, AEMO Services; The Hon Chris Bowen MP, Minister for Climate Change & Energy; Her Excellency Vicki Treadell CMG, MVO, British High Commissioner to Australia; Lucy Nation, Vice President Hydrogen, Australia and Asia Pacific, bp & AREH Project Director; Louise Cantillon British Consul General Sydney and Deputy Trade Commissioner Asia Pacific (Australia & New Zealand).

Last year, the then UK Government launched a report with Arup highlighting the significant opportunities for the UK to share its offshore wind expertise with Australia's developing industry. While different in scale, Australia and the UK are both island nations blessed with strong offshore wind resources. With feasibility licences recently awarded for Gippsland, Victoria has potential to deliver over 25GW and set up Australia to become a globally significant player in the offshore wind market.

The UK is the world's second largest offshore wind market with 13.7GW of projects accounting for 24% of global capacity in 2022 and making it one of the most important contributors to net zero in the UK. Offshore wind has played an important role in the development of regional economies in the UK too. The sector currently employs 32,000 people but will need to grow to 104,000 people by 2030 to meet the 50GW target. This matches the UK Government's priority to create good jobs in Britain's industrial heartlands, including a just transition for the industries based in the North Sea.

Looking to hydrogen, we will soon be releasing a report by Xodus on the feasibility of hydrogen production in Australia and the UK's ability to contribute. To support hydrogen research and development, the UK and Australia are collaborating on the Renewable Hydrogen Innovation Partnership Programme and at COP28 announced the opening of applications giving UK and Australian organisations the opportunity to apply for funds to work collaboratively.

Australian private investment is backing the UK's green infrastructure. In November, IFM Investors and Aware Super announced a combined £15 billion of investments in areas including energy infrastructure and innovation. Conversely, Scottish companies supporting Australia's energy transition already include Flotation Energy, Wood, and Agrekkko.

The UK-Australia Free Trade Agreement (FTA) promotes these strong existing ties between our countries by enforcing domestic environmental laws and cooperation on trade-related environmental challenges like overfishing and illegal wildlife trade. The FTA has also established the Environment Working Group and the Strategic Innovation Dialogue which have further promoted cooperation in areas such as electric vehicles, offshore wind, and hydrogen.

Whether we are working together at COP summits to deliver 1.5 Paris targets, joining like-minded countries in the Umbrella Group, researching collaboratively, or supporting each other's energy transitions through trade and investment, the UK-Australia climate partnership continues to strengthen.

I am excited to see what we can achieve together, not just for our own nations, but for the global good and our most vulnerable neighbours in the region as well.

BRINGING SYDNEY'S BUSINESS PEOPLE TOGETHER

Since 1851.

For the past 166 years, as one of Sydney's oldest business clubs, The Royal Exchange has been a valuable meeting point for the commercial community. It was formed with the aim of providing a place for businesspeople to meet, interact, and facilitate the 'exchange' of business with one another. Founding members include some of Australia's most well-known and successful business figures, the likes of David Jones, John Fairfax, William Wentworth and T.S Mort. Current members continue to utilise the club's facilities as a place to bring people together. Entertaining clients for lunch, holding meetings and hosting events, along with enjoying the network of reciprocal clubs around the world.

MEMBERSHIP

Today's members enjoy some fantastic benefits by joining the club, including:

Complimentary private boardroom hire

Complimentary exclusive venue hire

Invites to members' events and networking nights

Reciprocal access to clubs around the world

Special offers, gift vouchers & discounts

The Royal Exchange offers members of The Chamber a COMPLIMENTARY 12-month reciprocal membership where you can enjoy all the benefits the club has to offer!

\$35 EXPRESS LUNCH

INTRODUCING OUR NEW EXPRESS LUNCH MENU!

Our brand-new Express Lunch Menu has been designed to cater to your busy schedule, offering a swift and satisfying dining experience, whilst maintaining the highest standards of taste and quality.

Whether it's a client meeting or a colleague catch up, our selections ensure you can enjoy a great meal at an affordable price. Plus, if you didn't know – we're conveniently located in the heart of the city.

You can enjoy a delicious main course paired with your choice of a glass of wine, beer, or a refreshing soft drink, all for \$35 per person.

Our express menu evolves every two weeks, ensuring there's always something exciting and new to explore.



THE ROYAL EXCHANGE OF SYDNEY

Rewiring our thinking to rewire the nation

BY PAUL CURRIE (ENERGY LEAD - ASIA PACIFIC, NEW ZEALAND AND AUSTRALIA), MOTT MACDONALD AND TYSON VAUGHAN (ENERGY AND SUSTAINABILITY POLICY SPECIALIST)

An unprecedented level of energy investment

Recent forecasts assume Australia needs to build more than the current value of electricity network infrastructure over the next few decades.

Australia has the 10th highest per capita carbon emissions in the world.¹ Over 45% of the nation's electricity comes from coal fired power plants.² Almost all (95%) of these will retire within the decade — mainly because they are becoming too old to operate cost-effectively compared to renewables.

As you can imagine, this will leave a sizeable void to fill in Australia's energy supply, made wider by increased demand from electrification, electric vehicles, population increase, and (perhaps) hydrogen production.

To fill this gap and to meet its climate obligations, Australia needs to more than double its electricity

capacity in the next ten years, using renewables. This rapid change to a low carbon electricity system is known as the energy transition.

How big a challenge is the energy transition? Well, it took 40 years for Australia to increase its energy system from around 4 gigawatts (GW) in 1955 to 37GW in 1995 — at an average rate of approximately 0.9GW each year.³ Thanks to concerted efforts by governments, citizens and the private sector, we are now building just over 5GW of new capacity each year.

Governments have established policies and programs to support the transition. Notably, the Australian Government has introduced the Capacity Investment Scheme which effectively underwrites most of the capacity required to 2030.

Despite this, we are connecting new projects at less than half the rate needed to deliver the transition. To reach climate targets and keep the lights on, we need to build around 12.4GW each year — about 2.5 times our current rate.

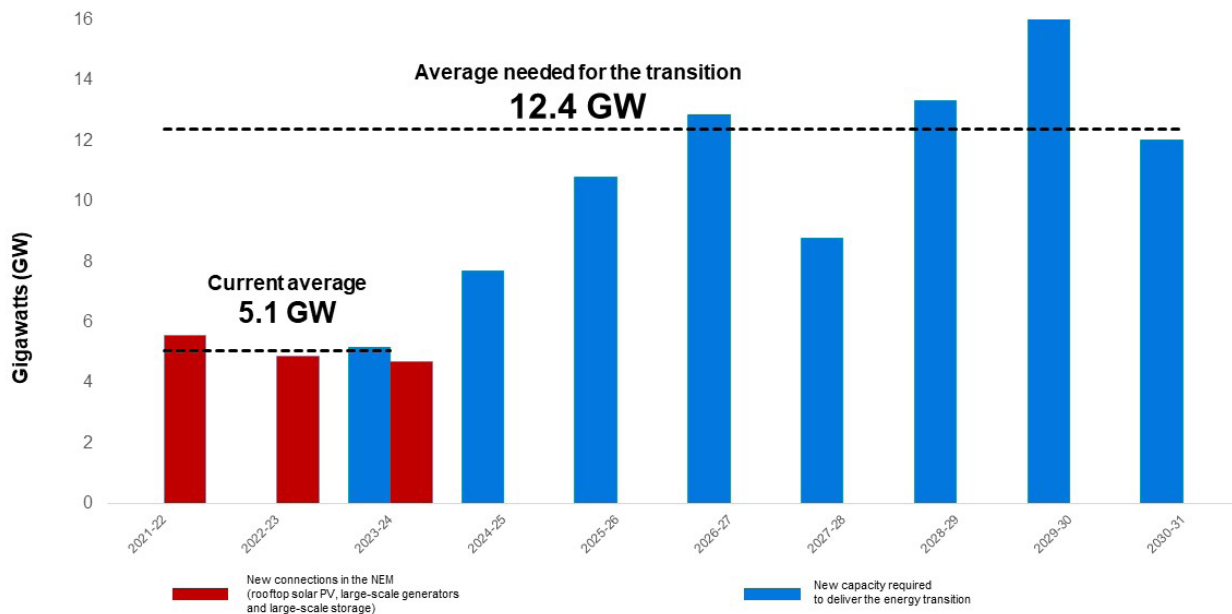
Australian
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Multiple barriers are getting in our way

All countries are trying to decarbonise simultaneously. The resulting increase in demand for energy infrastructure has outpaced current production capabilities, pushing out manufacturing lead times. There is also a corresponding shortage of skilled workers and qualified professionals both locally and internationally.

Finding suitable and accessible land for large-scale renewable energy projects is a lengthy process. Difficulties in obtaining social licence from increasingly resistant communities are delaying projects. The planning approval process and the steps needed to mitigate impacts on the local environment can also slow down project development. All this is reducing investor confidence.

To deliver the transition in time, we cannot rely on incremental efficiency improvements. We must think radically about ways to overcome these systemic barriers.

Our experts at Mott MacDonald have thought about this a lot. These are some of our ideas.

Think big about small

For more than 80 years, interconnected electricity grids typically comprised of a few very large power plants connected to population centres using long transmission wires. Despite significant deployment of small-scale technologies like rooftop solar photovoltaic (PV) panels, support for the energy transition has predominantly focused on replacing large coal plants with large-scale renewables.

We will need large-scale power plants for the transition because some activities, like aluminium smelters, are very energy intensive and cannot rely solely on power generated immediately adjacent to them. Large-scale facilities also benefit from economies of scale: a bigger wind turbine can generate an exponentially greater amount of power than one half its size.

However, large plants require extensive environmental approvals and planning permits and involve transporting bulky equipment like transformers and wind turbine towers and blades to remote areas of the country. They are also increasingly opposed by local communities.

A radical idea to achieve the energy transition is to massively increase the support for small-scale technologies like rooftop solar PV and community batteries.

These small-scale, consumer energy resources (CER) have many advantages compared to their large-scale counterparts. They are quicker to deploy, require less planning and permitting, and are easy to transport.

Some small-scale components, like inverters, are already manufactured locally, and manufacturing could be quickly developed for other components like the PV panels and batteries. They use existing land and infrastructure, like rooftops and car parks, so are less likely to impact biodiversity or demand strong social licence to operate. Situated alongside load centres, they also avoid the need for expensive and slow-to-build transmission infrastructure. In fact, for each of the past three years, we have deployed more rooftop solar PV in the national electricity market (NEM) than all large-scale solar PV, wind and battery assets combined.

Supply chains and collaborative delivery

Modern businesses tend to focus on maximising returns while shifting as much risk as possible onto clients and partners. This leads to combative engagements and environments where parties seek to minimise responsibility. If we are to deliver the energy transition, we cannot afford this wasted effort.

For example, Australian transmission companies usually set out lengthy specifications for bespoke equipment like transformers — sometimes hundreds of pages long. This is partly to meet regulatory requirements, but also to meet atypical requirements that are defined by the transmission company for its network. This approach also seeks to allocate as much risk as possible onto the manufacturer.

To produce this bespoke equipment, manufacturers would need to halt production and retool their machinery just to make a few units. This effort to minimise risks therefore has had the unintended side-effect of dissuading international manufacturers from working in Australia and pushes out delivery times — ultimately increasing risks for the procurement of high-voltage equipment.

Mott MacDonald is encouraging governments and businesses to form genuine collaborative partnerships that act with a common interest and collective efficiency.

We believe the energy sector needs to accelerate the adoption of alliance contracting principles. Networks forming collaborative partnerships with manufacturers can drive cost efficiencies and break down supply chain constraints, through standardisation. This approach is increasingly being adopted in markets like Europe, where networks are standardising their requirements in order to get earlier access to production slots.

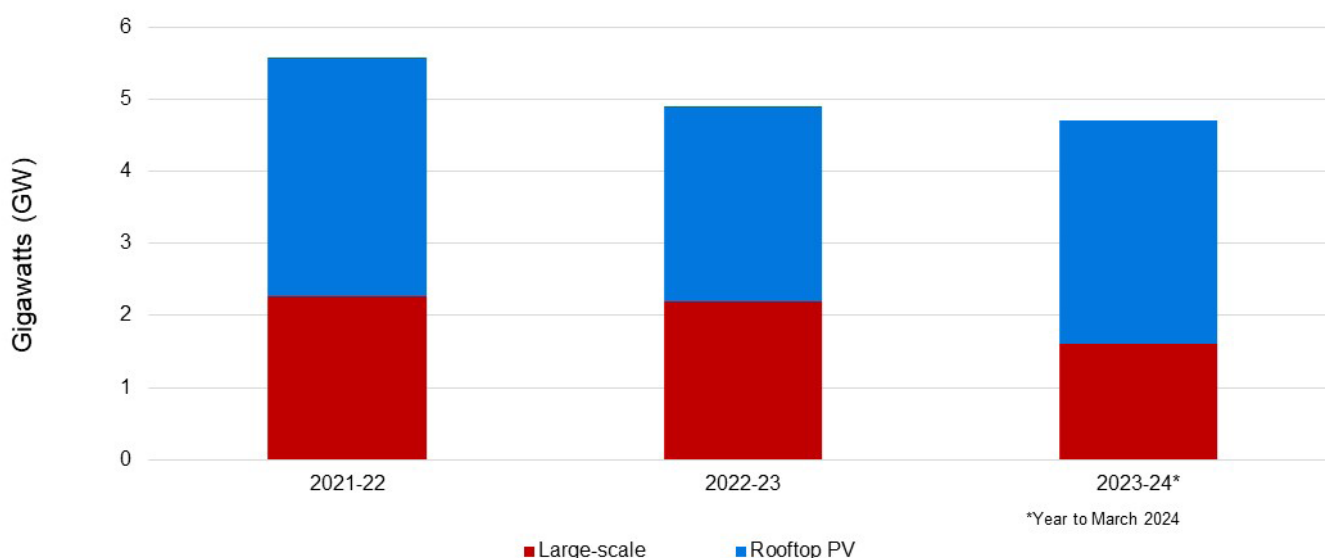
In the same way, governments, businesses and other consultancies can partner with companies like Mott MacDonald to overcome resourcing and specialisation shortages.

The lack of available skilled staff is a major barrier to the transition. It is affecting us as well as our clients in government and industry.

Forming genuine partnerships with clients and other service providers through alliance-style contracting enables us to develop holistic teams, use resources more efficiently and speed up the development process.

“Mott MacDonald is encouraging governments and businesses to form genuine collaborative partnerships that act with a common interest and collective efficiency.”

Total annual new generation in the NEM (Rooftop PV and Large-scale, GW)



Source: Clean Energy Australia 2024, Clean Energy Council; and AEMO Quarterly Energy Dynamics Q1 2024, AEMO.

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The journey towards a sustainable energy future is not just a technical challenge; it's a societal shift that requires a collective reimagining of how we produce and consume power. Mott MacDonald stands at the forefront of this transformation, advocating for a balanced approach that harnesses new ways of thinking and engaging.

References

- ¹Crippa, M., Guizzardi, D., Pagani, F., Banja, M., Muntean, M., Schaaf E., Becker, W., Monforti-Ferrario, F., Quadrelli, R., Risquez Martin, A., Taghavi-Moharamli, P., Köykkä, J., Grassi, G., Rossi, S., Brandao De Melo, J., Oom, D., Branco, A., San-Miguel, J., Vignati, E., GHG emissions of all world countries, Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/953322, JRC134504. Accessed at: https://edgar.jrc.ec.europa.eu/report_2023#data_download
- ²Australian Energy Statistics, Table O Electricity generation by fuel type 2022-23 and 2023, Department of Climate Change, Energy, the Environment and Water, Tuesday 23 April 2024. Accessed at: <https://www.energy.gov.au/publications/australian-energy-statistics-table-o-electricity-generation-fuel-type-2022-23-and-2023>
- ³Frank Brady Dictionary on Electricity p. 5

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NEW AND RENEWING MEMBERS

Helping to build your network

Meet our new and renewing Members of the past quarter. If you would like an introduction to any of these Members, please get in contact with us:

Paul Wright, Chief Commercial Officer
pwright@britishchamber.com

Matthew Joyce, Victorian Partnerships Manager
mjoyce@britishchamber.com

Corporate and SME Members

A&O Shearman
Arup
Aspen Medical
Australian Vanadium
Avalara
BDO
Bechtel
Bentley Systems Australia
Bentleys Australia
BMD Constructions
Brain Partners PTY LTD
CBRE
Construction Specialities Australia
Cowell Clarke Commercial Lawyers
Curtin University
definiti
Deutsch Miller
Estrin Saul Lawyers
Evenbreak
Freshwater Strategy
HKA
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Lynda Neoh, Western Australian Partnerships Manager
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Indicia Worldwide
Invest Northern Island
Kathy Jones Advisory
Lockton Companies
mdp Law
National Australia Bank
Penten
Pilbara Minderals
Queensland Cricket
Radisson Blu Plaza Sydney
Regulatory Services Australia (RSA)
Sherry Design Studios
Tenant CS
The APP Group
The Four Seasons Hotel Sydney
Trade and Investment Queensland
Turner & Townsend
Weir Minerals
WorkL

Individuals

Graeme Salt, Origin Finance
Tom Sargant, Ranfurlie Consulting Pty Ltd
Rev Bill Crews, Rev Bill Crews Foundation



Register

Australian British AI & Tech Summit

Tuesday 27 August | 8:30am - 5:30pm | InterContinental Hotel Sydney

EVENT GALLERY

Highlights from our Australian British Energy Transition and Investment Summits – Sydney and Perth



Highlights from our events across the country

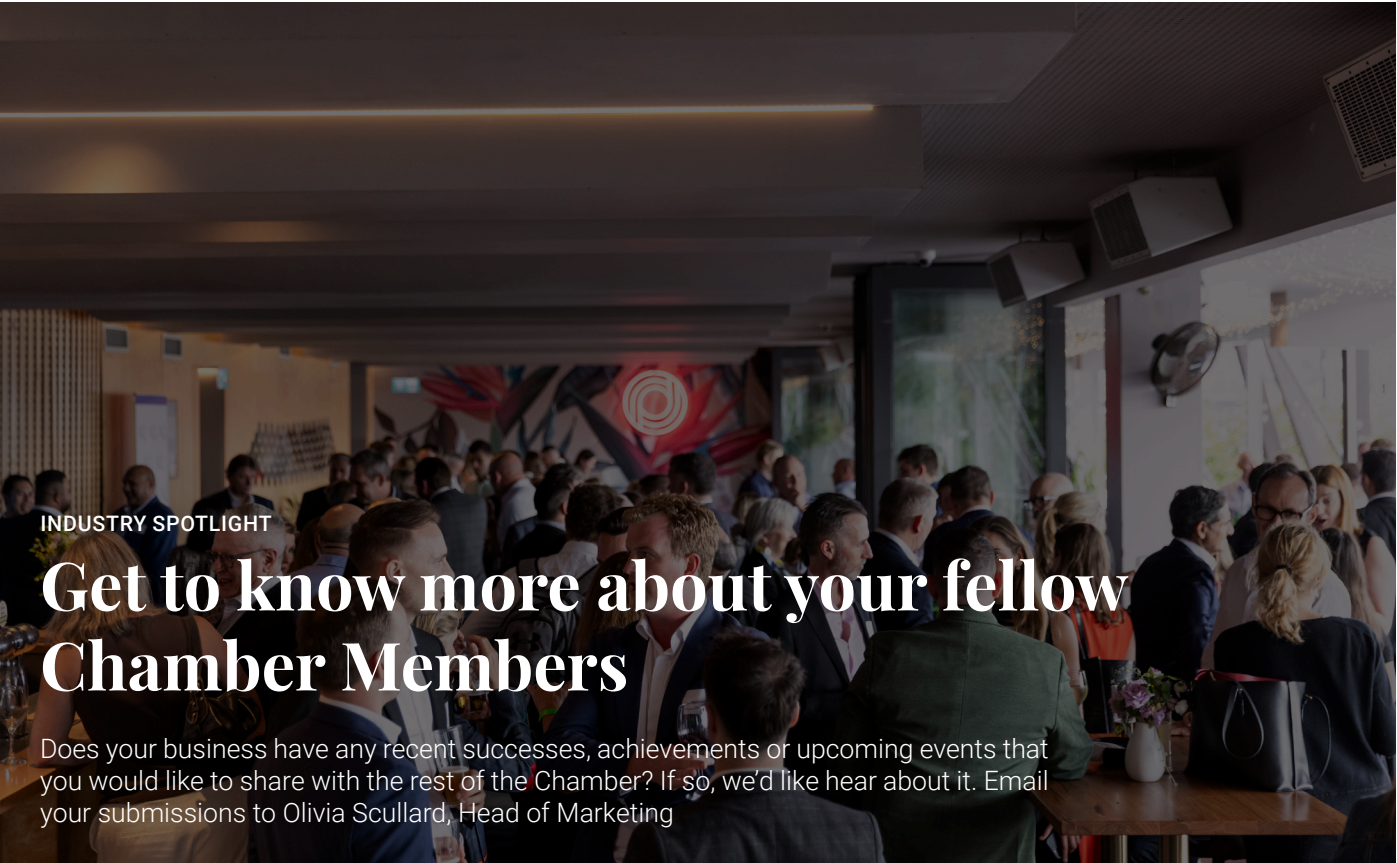
Australian British Energy Transition and Investment Summit Sydney
Tuesday 7 May 2024



Spot a picture of yourself and want to post it on socials?

You can find photos from our previous events on our website - don't forget to tag @BritishChamber in your posts!





INDUSTRY SPOTLIGHT

Get to know more about your fellow Chamber Members

Does your business have any recent successes, achievements or upcoming events that you would like to share with the rest of the Chamber? If so, we'd like hear about it. Email your submissions to Olivia Scullard, Head of Marketing

Summit extract: Lucy Nation, Country President, bp Australia & VP hydrogen, Australia and Asia Pacific, on balancing Australia's energy transition

"The window is closing for us to do our part for the Paris Agreement to keep global temperature rise below 1.5 or even 2 degrees Celsius. Carbon emissions aren't decreasing fast enough, and our energy demands continue to rise. We all know the energy transition is complex. While we need urgent action – this action must be orderly. We require rapid investment in lower carbon energy, but also investment in today's energy system to deliver secure and affordable energy for Australians.

While it's impractical to completely replace coal and gas with 100% renewables in the short-term – there are reliable alternatives to decarbonize our existing energy supply.

For example, gas has an important and ongoing role to play in the energy transition for decades to come. It's needed to support the energy transition by backing-up renewables, processing critical minerals and for manufacturing, not to mention, enabling production of crucial commodities, and supporting our regional partners to decarbonize.

We've long recognised this via the North West Shelf JV which delivers secure LNG to the region today – and we hope to continue this with the proposed Browse development. Alongside our JV partners, we're also assessing carbon capture and storage in the north west, providing a carbon storage solution for domestic industry and our regional partners."

You can see a full extract of Lucy Nation's keynote address here: bp.com/en_au/australia/home/media/speeches-articles/balancing-Australias-energy-transition



Get to know more about your fellow Chamber Members

Law Squared Launches Innovative, Multi-Disciplinary Energy + Infrastructure Practice to Accelerate Land Access for Major Renewable Energy Projects

Law Squared, a global leader in Human Centred Law, proudly announces the launch of its dedicated Energy + Infrastructure practice group. Leveraging innovative technologies and disciplined project management methodologies, Law Squared has reimagined the approach to land access for energy, telecommunications, and infrastructure projects into a multidisciplinary, streamlined but landowner centric process.

Demetrio Zema, Founder + Director of Law Squared, highlighted the significance of renewable energy and infrastructure projects for Australia's future, stating: "The efficient and timely construction of renewable generation and storage, linked by transmission lines, is critical for our energy transition and net-zero objectives. Removing roadblocks and engaging affected landowners and communities effectively is critical to this ambition."

"Law Squared is leveraging new technologies to make the land access and engagement process more efficient and effective. We're excited to bring this new way of working and methodology to energy and infrastructure clients and their projects."

"Without an efficient, effective and transparent land access process, and positive landholder engagement, projects can stall, and landowner trust is compromised, leading to delays, increased costs, and potentially, a more onerous land acquisition process. Our unique approach seeks to significantly increase positive landholder engagement, improve social license adoption, and provide deep insights and analytics on the data captured," says Demetrio.

Australia last conducted large-scale land acquisition for transmission projects more than thirty years ago, and despite technological advances revolutionising project management and operational efficiencies, the standard playbook for land access remains rooted in a purely legalistic approach.

"Leveraging technology is a threshold requirement for most projects with widespread consumer impact today," explains Demetrio of the drivers behind the firm's technology-led approach to landholder engagement.

For more information about Law Squared's Energy + Infrastructure practice, visit: lawsquared.com/energy-infrastructure



Pictured L-R: Law Squared Energy + Infrastructure colleagues, including: Nam Troung, Nino Ficca, Natasha Ozolins-Stubbbs, Alissa Dai)

Get to know more about your fellow Chamber Members



Arup helps DevelopmentWA build Western Australia's renewable energy processing and export hub

We are helping DevelopmentWA turn the 6,400-hectare Oakajee Strategic Industrial Area (SIA) greenfield site into a renewable energy processing and export hub. The site is critical for leveraging Western Australia's world-class natural resources for manufacturing green products and supporting Australia's national hydrogen strategy, which drives the state's position as a significant hydrogen producer and exporter.

Our energy specialists have been advising on this project since 2019, designing future hydrogen planning scenarios, assessing energy yield from wind and solar, reviewing return on investment for developers, upgrading highway infrastructure, and developing a hydrogen waste truck business case for local councils. We are now developing a port masterplan concept, and the industrial site's primary infrastructure.

The mid-west region of Western Australia has world-class wind resources – averaging speeds of 8.6 metres per second measured over a two-year period – comparable to other high-wind resource areas around the globe.

To understand how the Oakajee SIA can harness this opportunity, we researched development scenarios for a clean energy industry over five, ten and 20-year horizons for high, medium, and low cases for hydrogen development. Each scenario detailed the infrastructure, land size and cost requirements for renewable energy generation, hydrogen production and port planning.

To provide evidence-based planning, over two years, we measured the site's wind and solar resource data. Working with Fulcrum3D, we deployed a SODAR monitoring unit to capture a record of solar irradiance and wind speed, direction and inflow angle up to 200m above ground level.

Learn more here: arup.com/projects/oakajee-strategic-industrial-area

Get to know more about your fellow Chamber Members

Aware Super extends reach into energy transition opportunity with Octopus Energy

In early May 2024, Aware Super signalled its confidence in the energy transition opportunity with participation in a \$US370 million (c. £300 million) investment into one of the UK's leading post-transition green energy majors via existing shareholders Generation Investment Management (GIM) and Canada Pension Plan Investment Board (CPP Investments).

The major, Octopus Energy (OE), is headquartered in the UK and operates across energy retail, asset management and technology with products focused on enabling utilities to support customers through the energy transition.

OE currently has more than 8 million retail customers worldwide – with almost 7 million in the UK – and acquired Shell Energy in December last year to become the UK's largest electricity supplier. In addition, it also holds Kraken, a proprietary technology platform which is the world's fastest-growing energy software that currently unlocks transition at scale through 54 million contracted licences, positioning Octopus more than halfway to its target of 100 million customer accounts contracted to the platform by 2027.

GIM, a global sustainable investment manager, secured new backing for this opportunity from Australia's \$A175 billion Aware Super and a large American pension fund. GIM now owns 13% of the Octopus Energy Group. CPP Investments also chose to invest more into Octopus, increasing its stake in the company to 12 per cent.

Aware Super's investment was via a secondary trade alongside GIM and CPP Investments. The deal increases the global energy and technology group's valuation by 15 per cent on the last investment round, totalling \$US9 billion (£7.2 billion).

In announcing the transaction, Aware Super Global Head of Private Equity Jenny Newmarch highlighted the attraction of working alongside GIM and its Private Equity investment strategy of pursuing well-established, private mid-to-late-stage growth companies that are true leaders in sustainability.

"We're thrilled to work with Generation Investment Management to contribute to Octopus Energy's dynamic growth story," she said. Learn more here: bit.ly/awarexoctopus



Energy Transformation: Lessons from the UK for Australia's Low Carbon Future

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Climate change is a pressing global issue that necessitates an urgent transition to sustainable energy systems. While Australia is a global leader in many areas of the energy transition, such as distributed energy systems and large-scale wind; we have much to glean from pioneering advancements of early movers economies such as the United Kingdom.

In the new environment of constrained government budgets increasingly face constraints, what insight can be gleaned from the transition in the UK in terms of low-cost interventions and the attraction of private capital. The UK's investment in digital technologies to enhance energy efficiency, reduce emissions, and build resilient infrastructure has begun to bear fruit.



The role of digital transformation

The adage “a dollar saved is a dollar earned” could not be more accurate than in the energy transformation, where McKinsey have estimated the annualised cost on energy systems will need to increase by more than 50% to AUD 13.6 trillion per annum to meet the costs of the energy transition.¹ A focus on energy efficiency and improved system productivity provides the opportunity to defray the massive capital outlay required by the sector or, as a minimum, smooth the investment peak.

By leveraging a range of digital tools and technologies, from data analytics to artificial intelligence, we can deliver increased efficiency and productivity within the energy industry. These features enable more efficient energy production, distribution, and consumption.² For both Australia and the UK, navigating complex energy landscapes involves harnessing digital capabilities for optimisation and innovation.

In Australia, vast geographic distances and highly centralised populations pose significant challenges for energy distribution. Technology, such as smart grids and Internet of Things (IoT) devices, are crucial to avoiding costly network investments. Smart grids facilitate real-time monitoring and management of energy flow, reducing losses and ensuring reliability. IoT devices provide detailed data on energy usage, helping consumers

and industries manage consumption more effectively. The UK, driven by ambitious net-zero targets, demonstrates the power of leveraging digital transformation. Its integrated energy systems benefit from advanced data analytics and AI, optimising renewable energy generation.

The National Grid Electricity System Operator (ESO) is embedding this approach. The increased volatility of generation, as well as system resilience challenges, has pointed to an expanded role for the use of digital technology to anticipate operational requirements and more proactively and rapidly balance supply and demand, ensuring stability for lower costs.

The increased deployment of digital twins provides the potential for more sophisticated network operational modelling and simulation.³ Digital twins simulate and optimise the performance of renewable energy installations, such as solar farms and wind turbines. These virtual models allow operators to predict operational efficiency in a range of scenarios, allowing operations and maintenance to be optimised to local conditions—increasing the overall efficiency and reliability of renewable energy sources.

Digital twin use in the offshore wind sector has developed efficient operations and maintenance activity in the harsh environment, minimising disruption to the grid and allowing better planning for supply chain inventory and manpower.



“By leveraging a range of digital tools and technologies, from data analytics to artificial intelligence, we can deliver increased efficiency and productivity within the energy industry.”

To guide the development of digital twins across various sectors, including energy, to enhance system resilience and efficiency, the UK's Digital Framework Task Group, an advisory group attached to the former Centre for Digital Built Britain at the University of Cambridge, played a key role in the development of the Gemini Principles. ⁴ Detailed virtual models of the entire energy system allow the UK to simulate different scenarios—from peak demand periods to potential failures—and develop strategies to mitigate risks and improve performance.

While the focus on resilience in Australia has reduced over the past twelve months as the gaze of government has turned to budget repair, the potential costs of climate-related disasters, cyber threats, and a range of natural disasters remain. In fact, they are expected to exceed AUD 35 billion every year by 2050, according to the Insurance Council of Australia. ⁵ The lessons from digital deployment in the UK could help us to be better prepared to avoid these costs by mitigating the impacts of major system outages, as Australia saw in the Black Summer Bushfires, NSW Northern River Floods, and the 2016 South Australian blackout.

Lessons from the UK for Australia

The UK's approach to integrating digital technologies into its energy system offers valuable lessons for Australia. The UK's experience highlights the importance of a coordinated and holistic strategy in achieving energy transformation. Several key lessons can be drawn:

1. Integrated Systems Approach: The UK's success lies in its integrated energy systems, where digital capabilities are not add-ons but core components of the energy network operational strategy. Australia can benefit from adopting a similarly holistic approach.

2. Proactive Policy and Regulation: Australia can learn from the UK's regulatory framework and proactive policy measures, which support innovation while ensuring system stability and security, and create a conducive environment for digital and energy innovations. Establishing clear regulations that encourage the adoption of new technologies while safeguarding against risks is crucial.

3. Collaboration and Knowledge Sharing: The UK's energy transformation is marked by strong collaboration between government, industry, and academia. Australia can enhance its energy strategy by fostering similar collaborations, facilitating knowledge exchange, and undertaking joint innovation efforts. Partnerships between Australian and UK entities—such as the

collaboration between the Australian Renewable Energy Agency (ARENA) and the UK's Department for Business, Energy & Industrial Strategy (BEIS)—should be expanded.

4. Focus on Resilience and Adaptability: The UK's use of digital twins to enhance system resilience highlights the importance of adaptability in energy systems. Australia, facing diverse climatic and geographic conditions, should prioritise resilience in its energy strategy, using digital twins and other technology to anticipate and respond to challenges.

Phasing out coal...and learning from the first movers

The UK's experience with phasing out coal-fired power stations provides critical lessons for Australia. The UK has successfully reduced its reliance on coal through a combination of regulatory measures, economic incentives, and investments in alternative energy sources. Australia's heavy reliance on coal for electricity generation poses a significant challenge to meet our 2050 net-zero ambitions, but the UK's transition demonstrates that a strategic, phased approach can yield substantial environmental and economic benefits.

The potential energy generation, the speed to market, and the cost of wind, solar, and pumped hydro all present opportunities to slingshot Australia's national productivity back to its natural place as energy superpower.

Nuclear energy, while potentially right for the resource-starved UK, is less attractive for Australia. Nuclear energy remains contentious (and potentially

expensive). While it provides a stable, low-carbon energy source that complements renewables like solar, the chief argument against Australia—as one of the world's largest exporters of nuclear fuel—embracing domestic nuclear energy is the cost relative to abundant renewable generation capability and the speed of transition.

While Australia can consider the UK's return to nuclear energy, it is just as critical to take stock of the investment in offshore wind in the UK. The country is a leading developer of offshore wind resources. Approximately 13.9 GW of offshore wind capacity has been fully commissioned in the UK, a fourfold increase on capacity installed in 2012. In addition to this fourfold growth since 2012, an 80 project pipeline, totalling 77 GW, is under construction or planning. This contrasts to nuclear energy, which as of August 2022, the UK's 9 operational nuclear reactors at five locations produce 5.9 GW.

Australia has an immense offshore wind generation capacity can provide up to 84 GW of capacity in the already declared offshore wind areas largely alongside Australia's south-east and southwest population hubs.

“While Australia can consider the UK’s return to nuclear energy, it is just as critical to take stock of the investment in offshore wind in the UK.”

World class average wind speeds, development of larger turbines, and deployment of projects further offshore, potential offshore wind resources in southern Australia could generate upwards of 1000GW of installed renewable energy. Offshore wind developments in Australia are attracting global attention and capital. Proven technology, generation targets and world leading reliable wind resources make the burgeoning sector a key part in Australia's potential renewable energy superpower status.

The role of governments

Governments play a pivotal role in driving energy transformation. The UK's success in energy transformation is underpinned by government policy certainty and robust policy that provides fuel mix clarity and regulatory certainty, as well as supports innovation. Australia can draw lessons from the UK's comprehensive policy framework that includes the below principles.

Investment Certainty

- The UK's Renewable Energy Guarantees of Origin (REGO) scheme and Contracts for Difference (CfD) provide financial incentives for renewable energy projects, reducing investment risks and encouraging the development of clean energy infrastructure.
- Government bodies such as CEFC and ARENA may have a role in supporting initial investment in developing the offshore wind sector ahead of full commercialisation

Regulatory Certainty

- The UK's clear and consistent regulatory environment has been crucial in attracting investment in clean energy. It includes setting legally binding carbon reduction targets and providing long-term policy stability.
- Clarity on the Australian future fuel mix will drive investment towards the most critical assets.
- Predictable environmental approvals will be critical to ensure the industry remains attractive to foreign capital.

Support for Innovation

- The UK government has invested in research and development to support emerging technologies, such as floating turbines, hydrogen and energy storage, which are critical for future energy systems.
- Australia can benefit from similar initiatives that foster innovation and reduce the costs of new technology.
- Floating turbine technology will be necessary for deepwater locations like offshore NSW.

Collaborative Procurement Models

- The UK has pioneered more integrated delivery models bringing together the supply chain and the asset owner.
- The highly inter-dependent nature of the major works packages for offshore wind will require new approaches to managing risk and delivering shared outcomes.
- The incumbent, adversarial; contracting environment in Australia will need to shift to provide greater predictability and certainty to investors.
- International contract standards, such as NEC4, provide a platform for collaboration and certainty.

The path forward

Working towards a sustainable energy future requires more than technological advancements; it demands proven approaches and a willingness to learn from global experiences. For Australia, the UK's integrated and innovative approach to energy transformation offers valuable lessons that can be adapted and implemented. By embracing these lessons, and leveraging digital technologies, Australia can build a resilient, efficient, and sustainable energy future.

The collaboration between Australia and the UK underscores the importance of shared knowledge and innovation in addressing global challenges. Together, our nations can lead the way in forging a path towards a greener, more sustainable world.

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