

# RISK MANAGEMENT

## LEADERSHIP & ANALYSIS



## Supporting and Sustaining Australia's Renewable Future

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**Australia has seen rapid deployment of renewable energy projects and record-breaking levels of investments over the past five years.**

At the end of last year, the National Electricity Market in Australia reported record-breaking levels of investment in renewable energy – in November 2019, renewable power briefly hit a peak of 50.2% of the power to Queensland, New South Wales, Victoria, Tasmania and South Australia for a short period during the day.<sup>1</sup> Meanwhile, Bloomberg recently reported that Australia is set to add a record amount of renewable power in 2020 – stating that wind and solar developers are being lined up to replace the Liddell coal plant in New South Wales, which is due to close by April 2023.<sup>2</sup>

Although coal is still the largest provider of electricity on the energy grid, these statistics clearly illustrate the production and use of renewable energy is growing. **However, is Australia suitably prepared for the logistics and distribution of electricity generation from renewable energy sources?**

When the wind blows and the sun shines, renewable energy is an excellent alternative to fossil fuels, but if Australia's clean energy initiatives are to have a sustainable future, renewable energy companies must understand the risks and challenges across the life cycle of a renewable project. Australia has the four unique challenges of **size, scale, skills** and **supply**.

### Size

With only 10% of the country habitable, it goes without saying that many renewable energy sites in Australia are located in remote locations. Given it can take days to reach some sites, maintaining regular inspections and conducting maintenance works can be extremely difficult. It is possible to monitor the technologies remotely, however, activities such as grass cutting, panel washing, routine inspections, maintenance (planned or unplanned) and testing of equipment and fire systems requires physical attendance at site.

The size of Australia is also problematic when it comes to transmitting energy over a long distance. Up to 10% of electricity can be lost due to resistance during the transmission and distribution to end users.

### Scale

As renewable projects become bigger and more complex, meticulous planning is required to transport the new generation of huge wind turbines and large quantities of solar panels to these remote locations. The logistics of renewable energy bring their own challenges as outlined [here](#).

### Supply

Historically, the backbone of Australia's transmission assets were built on the concept of large centralised coal and hydro generators sending power to the load centres. The addition of large-scale renewable generation, especially in remote areas where transmission networks are weak, could ironically overwhelm the ageing electricity infrastructure

With new renewable generation developments outpacing the current transmission capacity, connecting new renewable generations to the grid is proving a challenge. There had been instances where the output of several solar and wind farms was curtailed due to grid stability concerns. This presents the need to improve the robustness of the grid by modernising the existing transmission assets and strengthening the connections between the renewable energy-rich areas.

Adding data analytics (particularly - Artificial Intelligence) into the mix will be essential. Artificial Intelligence can help efficiently combine renewable and fossil fuel supplies. Using information such as power quality, meteorological data, consumer demand behaviour

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and historical supply-demand curves, we can better predict the required energy mix and to strike the right balance for an efficient and effective grid operation. That said, the use of Artificial Intelligence in energy management is still in its infancy. Stakeholders must find common ground in sharing critical and sensitive information to make the complex algorithms work.

Additionally, solar and wind power are often at the mercy of Australia's natural perils such as cyclones, bushfires, floods and hail. These risks can normally be assessed using natural catastrophe maps showing the likes of rainfall intensity, depth of flood plain, bushfire areas, windspeed, etc. However, when locations are remote, these natural catastrophes may not have been mapped correctly.

**Skills**

As more renewable energy projects come to market, the industry faces a major challenge in creating a pipeline of people to fill these new jobs. However, this challenge creates an exciting opportunity for the industry, government and education sector to work together to invest in training, skill programs and post-graduate career pathways that support the future requirements of the sector. Australia could look to lead the way globally and define what an attractive career would look like over the next few decades. An exciting new industry can evolve involving skills such as data and Artificial Intelligence, heavy lift, logistics, natural catastrophe risk reduction, manpower planning, and government relations.

**Australian solutions**

As the use of clean energy in Australia increases, renewable energy projects are becoming increasingly more complex, leading to higher levels of operational risk. Allied World is one of the few insurers in Asia with the regional expertise and experience to equip clients with the right advice to build and maintain the resources to deliver reliable and affordable energy.

- 1 <https://www.theguardian.com/environment/2019/nov/07/renewables-meet-50-of-electricity-demand-on-australias-power-grid-for-first-time>
- 2 <https://www.bloomberg.com/news/articles/2020-01-21/australia-may-add-record-amount-of-renewable-power-in-2020>

**ABOUT THE AUTHORS**

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Paul Houston has over 30 years of experience in the Risk Management and Insurance industry, working as an underwriter, captive manager, broker and risk manager. Paul brings an expert understanding of the global supply chain industry, having held global roles with DHL and Excel Logistics. Currently based in Singapore, Paul leads a team of over 10 risk engineers and industry specialists, supporting Allied World's construction, property, cargo and casualty lines of business. Paul has lived and worked in the UK, Bermuda, Belgium, Thailand and Singapore. He holds a BA in Risk Management from Glasgow Caledonian University and is a Chartered Insurance Risk Manager.

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Yuen Cher is a Mechanical Engineer by training and has over 8 years of experience in property and machinery breakdown loss control with a specialism in power generation facilities. Prior to joining the insurance industry, Yuen Cher built his technical expertise as a Commissioning Engineer in turnkey combined-cycle power projects in Singapore, Argentina, Australia, Vietnam, England and Brazil.

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