JADE ROAD

ESG Insights

November Focus: Exciting Environmental Projects
This Week: The Australia-Singapore ASEAN Power Link

- *Being the world's second-highest per-capita solar resource, Australia has a unique opportunity to export large volumes of renewable energy*
- *Due to its low cost, renewable electricity demand in Southeast Asia is increasing at an average of 6% per year and is forecast to grow 60% by 2040*
- *The Australia-ASEAN Power Link combines the world's largest solar farm and battery storage facility in Australia, with a 4,500km transmission system, to supply Singapore and other ASEAN markets with renewable electricity*

OVERVIEW

Australia receives an average of 58 million petajoules (PJ) of solar radiation per year, approximately 10,000 times greater than its total energy consumption. Australia is the world's second highest per capita solar resource, which gives the country a unique opportunity to export large volumes of renewable energy. Electricity generation is increasing in response to government policies, notably the *Renewable Energy Target*, and as a consequence of the advancement of technologies through research and development programmes. In 2020, 27.7% of Australia's electricity was generated from renewable sources, a 3.7% increase in comparison with 2019. The solar sector added over 3 gigawatts per hour (GWh) of new capacity, recording its fourth consecutive record-breaking year. Currently, solar power makes up 35.8% of renewable energy generated in Australia.

Electricity is a major input to the highly industrialised Singapore economy. Accessing low cost, reliable electricity is critical to the country's long-term planning and economic competitiveness. Singapore is currently reliant upon gas for approximately 95% of its electricity generation. The main challenges to the island nation's transition to renewable energy are its land constraints and local weather conditions. Furthermore, energy demands in Southeast Asia are growing 6% annually and are forecast to grow 60% by 2040. The increase in demand for renewable energy is due to it being cheaper and more reliable than fossil fuels.

CASE STUDY

The Australia–ASEAN Power Link (AAPL) is an estimated US$16 billion electrical infrastructure project developed by *Sun Cable*, which aims to transmit bulk renewable energy from the Northern Territory, Australia, at first to Singapore and subsequently to other ASEAN countries. It integrates the world's largest solar plant (10GW) and battery storage plant (up to 30GWh) with a 4,500km transmission line. *Sun Cable* plans to manufacture *Maverick* solar array systems in Darwin (Northern Territory), so they can be easily transported and installed onsite at the 12,000-hectare solar farm. The transmission line used by the AAPL will have a total length of 4,500km, of which 800km will be an overhead power line between the project site and Darwin, and the remaining 3,700km a submarine cable between Darwin and Singapore. The project will use high-voltage, direct-current (HVDC) transmission. The project is expected to begin in mid-2023 and be completed by late 2027. This initiative by *Sun Cable* was granted "major project" status last summer by the Australian government to accelerate its construction. Despite its enormous cost, the economic forecasts predict that it will be profitable throughout its life.

OPPORTUNITY

The AAPL could provide around 20% of Singapore's electricity, with no carbon dioxide generation. Once up and running, it is estimated the project will export US$1 billion dollars' worth of solar electricity each year. Eventually, solar power could be exported through the AAPL to other countries in Southeast Asia, or to other parts of the world. The development of the AAPL project will establish Australia, Singapore and other ASEAN nations as regional renewable energy hubs and create significant economic and sustainable energy opportunities for decades. This project will facilitate the electrification of new and existing industries, supporting large-scale economic development whilst reducing greenhouse gas emissions. Moreover, it will create 1,500 job opportunities during construction and 350 jobs once operational, stimulating opportunities for local businesses and suppliers.

As demand for renewable energy continues to expand over the next few decades, the sector is set to remain one of the market's top growth industries. This suggests the booming market may lead to positive results not only for the planet, but for investors' portfolios as well.