JADE ROAD

ESG Insights

November Focus: Exciting Environmental Projects
This Week: The Asian Renewable Energy Hub (AREH), Pilbara W. Australia

- *Australia aims to become a renewable energy export superpower*
- *The project provides abundant wind and solar energy to produce green hydrogen products for Australia and the wider Pan-Asian region*
- *The project will position Australia as the most cost-competitive green fuels provider in the near future and will diversify the Western Australian economy*

OVERVIEW

Vast quantities of coal and gas have been shipped from Australia to fuel Asia's rapid growth for decades. However, with rising global concerns over climate change, investors and the current government are now backing plans to build a renewable energy export industry to help diversify Australia's economy. Canberra has granted "major project" status to the Asian Renewable Energy Hub ("**AREH"),** a US$36 billion renewable energy project, which aims to build the world's biggest power station and export green hydrogen from the remote Pilbara desert region in the outback to Asia.

Green hydrogen has multiple applications. It is made by using electricity from renewable energy to electrolyse water, separating the hydrogen and oxygen atoms. It produces no greenhouse gas emissions when it is burnt as a fuel and can be converted into ammonia for easy storage and shipping. The first hydrogen-powered vehicle dates to the 1960s, but until recently, hydrogen has struggled to compete with fossil fuels due to the high production costs and the complexities surrounding this still somewhat "infant" technology. But cheaper renewable energy has prompted a surge in interest in developing green hydrogen, which can be used in fuel cells or combustion engines to power cars, ships and even spacecraft.

CASE STUDY

The Asian Renewable Energy Hub, a project backed by industry renowned multinational companies *Vestas*, *Intercontinental Energy*, and *CWP Renewables*, commenced in 2014. The project site in the East Pilbara region in Western Australia has world-class solar and wind resources. The region is exposed to the most hours of sunshine a day in Australia, and experiences high wind speeds. This enables competitively priced and consistent renewable electricity output, 365 days a year.

The Asian Renewable Energy Hub will generate 26 gigawatts ("GW") of renewable energy in Western Australia. Up to 3GW of its generation capacity will be dedicated to large energy users in the Pilbara region, which could include new and expanded mines and downstream mineral processing. The bulk of the energy will be used for large-scale production of green hydrogen products for domestic and export markets, helping to diversify the economy away from reliance on fossil fuels.

The proposed project includes:

- 26GW of wind and solar generation
- At least 3GW of generation capacity for Pilbara energy users
- Up to 23GW of generation for production of green hydrogen and green ammonia
- Up to 100 terawatt-hours ("TWh") of total annual generation
- A design life of 50+ years

Construction is expected to start in 2026, with first exports planned for 2027/2028.

OPPORTUNITY

The Asian Renewables Energy Hub would build on Australia's strengths as an energy exporter while cutting emissions. With the falling costs of wind and solar power, carefully selected locations and the vast scale of the Hub's facilities, it is likely that Australia can produce green fuels that are cost-competitive with fossil fuels. There would be a huge global demand for green hydrogen and ammonia products, particularly in high-emitting industries such as steelmaking and transport. Australia would be cost-competitive in green fuel production by the end of the decade, according to the *Institute for Energy Economics and Financial Analysis*, an esteemed global thinktank.

The scale of this project will enable the creation of new supply chain facilities for the manufacturing and assembly of equipment for wind and solar generation and for hydrogen production, which would create new, local, high-value jobs. Approximately 20,000 jobs would be created during the 10-year construction period, with 3,000 jobs created for the 50+ year operational period. Supply chains used to manufacture and assemble some of the equipment associated with wind and solar generation and hydrogen production equipment will further diversify the Western Australian economy.