

Green Hydrogen and Renewable Energy Expansion Studies underway

Frontier Energy Limited (ASX: FHE) (Frontier or the Company) is pleased to announce the commencement of a Renewable Energy Expansion Study (Expansion Study) at the Company's **Bristol Springs Solar Project (the BSS Project)**. This Expansion Study will assess opportunities to increase power capacity beyond 500MWdc.

In addition, a Green Hydrogen study (Hydrogen Study) has also commenced. The Hydrogen Study will incorporate future clean energy production from the BSS Project with potential Green Hydrogen production utilising the BSS Project's location and surrounding world-class infrastructure. Both studies align with the Company's long-term strategy to become an Australian focused, integrated clean energy company.

HIGHLIGHTS

- **Frontier has commenced a Renewable Energy Expansion Study that will assess opportunities to increase power capacity at the BSS Project beyond 500MWdc**
 - *The Expansion Study will assess the optimisation of solar production, wind energy as well as battery storage*
- **A Green Hydrogen Study has also commenced. This Study will assess Green Hydrogen production using future energy from the BSS Project whilst leveraging the BSS Project's location**
 - *Accessing infrastructure for Green Hydrogen exportation (power transfer, gas pipeline, ports) and usable water are two of the major barriers for Green Hydrogen production and exportation*
- **The Western Australian Government aims for WA to become a global leader in the production and export of Green Hydrogen with a target to match its significant current market share in LNG production by 2030 (in 2021 Australia was the world's largest exporter of LNG with WA accounting for more than half)**
 - *WA currently produces no commercial green hydrogen; however, the value of WA's LNG sales in 2020-21 was \$15.8 billion ¹*
- **Both studies are being completed by highly regarded, global energy consultancy Xodus Group with targeted completion by 3Q22**

1 – Western Australian Government LNG Profile (November 2021)

Managing Director Mike Young said, "The Development of our Bristol Springs Project is well advanced, but the current Project (114Mw dc) is only the first stage of our long-term vision. With vast opportunities for solar expansion as well as other renewable energy solutions, we believe there is future potential to increase the power capacity at the Project to in excess of 500MWdc".

"These studies will be led by experienced consultancy Xodus Group, who will consider a range of clean energy scenarios as well as the potential for Green Hydrogen production. With the Western Australian Government's plans for Green Hydrogen to match LNG market share by 2030, having an early mover advantage in this sector is essential".

“We look forward to the outcome of these techno-economic studies as we continue to enthusiastically advance the development of Bristol Springs Project to potentially have Stage One under construction by this time next year”.

Work commences on Renewable Energy Expansion Study

The initial stage of the Company's clean energy strategy comprises development of Stage One of the BSS Project with construction expected to commence in early 2023.

Stage One of the BSS Project will have an installed capacity of 114MWdc and will be connected to the South West Interconnected System (SWIS). Stage One of the BSS Project has received Development Approval from the WA Regional Development Assessment Panel, and an electricity connection application (ETAC) is in progress with Western Power.

In addition to Stage One, the Company has commenced multiple work streams around solar, wind and battery energy storage, to assess increasing power capacity at the BSS Project to more than 500MWdc as outlined below.

Solar Optimisation Study

In addition to Stage One, the Company has identified additional land acquisition opportunities that could allow an increase in solar power generation of up to ~490MWdc. The solar optimisation study as part of the Expansion Study will firstly assess this expansion scenario then expansion beyond 490MWdc.

Solar energy is dominated by rooftop solar in WA, but according to RenewEnergy.com.au, there are currently only five industrial solar projects (200MWdc total capacity) connected to the SWIS in Western Australia (WA). The BSS Project Stage One alone would account for approximately 36% of this production by 2024 based on current projections.



Figure 1: BSS Project with animated solar panel array

Wind Energy Integration Study

The Company will complete a preliminary wind resource assessment combined with a concept design and cost modelling. Specifically, the study will assess scenarios for incorporating wind to determine the optimal solar / wind mix at the BSS Project.

Battery Energy Storage Optimisation Study

The Company will evaluate incorporating an onsite battery energy storage system (BESS) for the Stage One, 114MWdc solar farm and future expansion scenarios with and without wind. The study will review appropriate and emerging battery technologies and develop high level cost estimates. The battery study will also evaluate energy arbitrage opportunities and optimise grid stabilisation and feed-in controls as these options can add significant value to the project economics.

Green Hydrogen Study Underway

A component of the Company's future strategy is to consider the development of Green Hydrogen production using clean energy from the BSS Project. The Western Australian Government has highlighted the need for WA clean energy projects and hydrogen manufacturing capability to help meet the WA Government's plan to produce and export green hydrogen by 2030 to achieve the same market share as LNG now produced for export. The Company believes it can play an important role in this new energy market and that this is an ideal opportunity for the Company.

The planned work programs include a hydrogen market assessment, along with a distribution analysis that will drive the techno-economic evaluation for the production, storage, and export of green hydrogen produced by the Company using clean energy from the BSS Project.

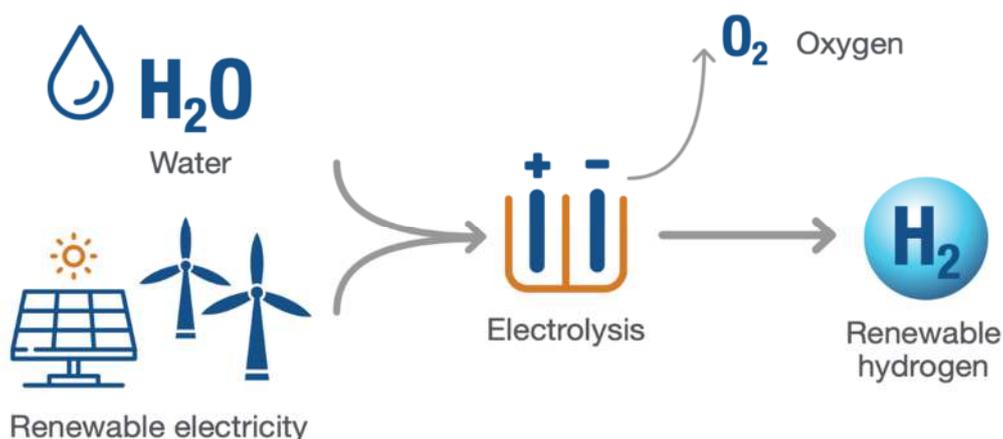


Figure 2: Typical pathway for hydrogen production (source: WA Renewable hydrogen Strategy)

The preferred case will then be carried forward to the techno-economic study where electrolyser options (PEM, alkaline, solid oxide etc), storage options, feedstock (water) requirements will be used to determine optimal hydrogen production rate and storage vessel sizing.

In parallel, the Company will complete a hydrogen market assessment to identify potential offtake partners and market prices for green hydrogen.

The assessment will consider domestic demand (power, transport and industrial) as well as international export markets and other global opportunities. The optimum commercial pathway for large-scale hydrogen production, including location of infrastructure will be defined during the study phase.

Federal and State Government Hydrogen policies

Developed in 2019, the Australian Federal Government outlined a National Hydrogen Strategy¹, which sets a vision for a clean, innovative, safe and competitive hydrogen industry that benefits all Australians. It aims to position Australia's industry as a major global player by 2030.

This Strategy combines considerable analysis, consultation with experts, industry and the public, and an extensive body of original research. It is designed to be a 'living document' – updated and revisited as the industry develops.

In total, Australia's national strategy identifies 57 joint actions, themed around national coordination, developing production capacity, supported by local demand; responsive regulation; international engagement; innovation and research and development (R&D); skills and workforce; and community confidence. The actions consider hydrogen in relation to exports, transport, industrial use, gas networks, electricity systems, and cross-cutting issues such as safety, skills, and environmental impacts.

In addition, the Western Australian Government also adopted its own Renewable Hydrogen Strategy² which aims to harness WA's competitive advantages, including world-class renewable energy resources, vast land mass and proud history of exporting energy to international markets.

Launched in November 2020, the WA Renewable Hydrogen Roadmap is the next step on WA's renewable hydrogen journey and identifies 26 initiatives the WA Government is driving and supporting to realise the WA Renewable Hydrogen Strategy's vision, mission and goals.

WA Strategic Focus Areas³

- **Export:** The global market for renewable hydrogen is expected to grow significantly over the coming decades. WA is well placed to capture a significant share of this market due to its excellent renewable energy resources, skilled oil and gas workforce, proximity to Asia and export infrastructure.
- **Remote applications:** Renewable hydrogen can reduce reliance on diesel for remotely located industries and communities.
- **Hydrogen blending in natural gas networks:** Blending low concentrations of hydrogen into natural gas networks provides an opportunity to partially decarbonise WA's gas sector.

¹ <https://www.industry.gov.au/sites/default/files/2019-11/australias-national-hydrogen-strategy.pdf>

² https://www.wa.gov.au/system/files/2021-01/WA_Renewable_Hydrogen_Strategy_2021_Update.pdf

³ <https://www.wa.gov.au/government/publications/western-australian-renewable-hydrogen-strategy-and-roadmap>

- **Transport:** Fuel cell electric vehicles present an early opportunity for hydrogen utilisation for mobility and freight transport.

Goals to achieve by 2022

- A project is approved to export renewable hydrogen from WA.
- Renewable hydrogen is being used in one remote location in WA.
- Renewable hydrogen is distributed in a WA gas network.
- A refuelling facility for hydrogen vehicles is available in WA.

Goals to achieve by 2030

- WA's market share in global hydrogen exports is similar to its share in LNG today.
- WA's gas pipelines and networks contain up to 10% renewable hydrogen blend.
- Renewable hydrogen is used in mining haulage vehicles.
- Renewable hydrogen is a large fuel source for transportation in regional WA.

Authorised for release by Frontier Energy's Board of Directors.

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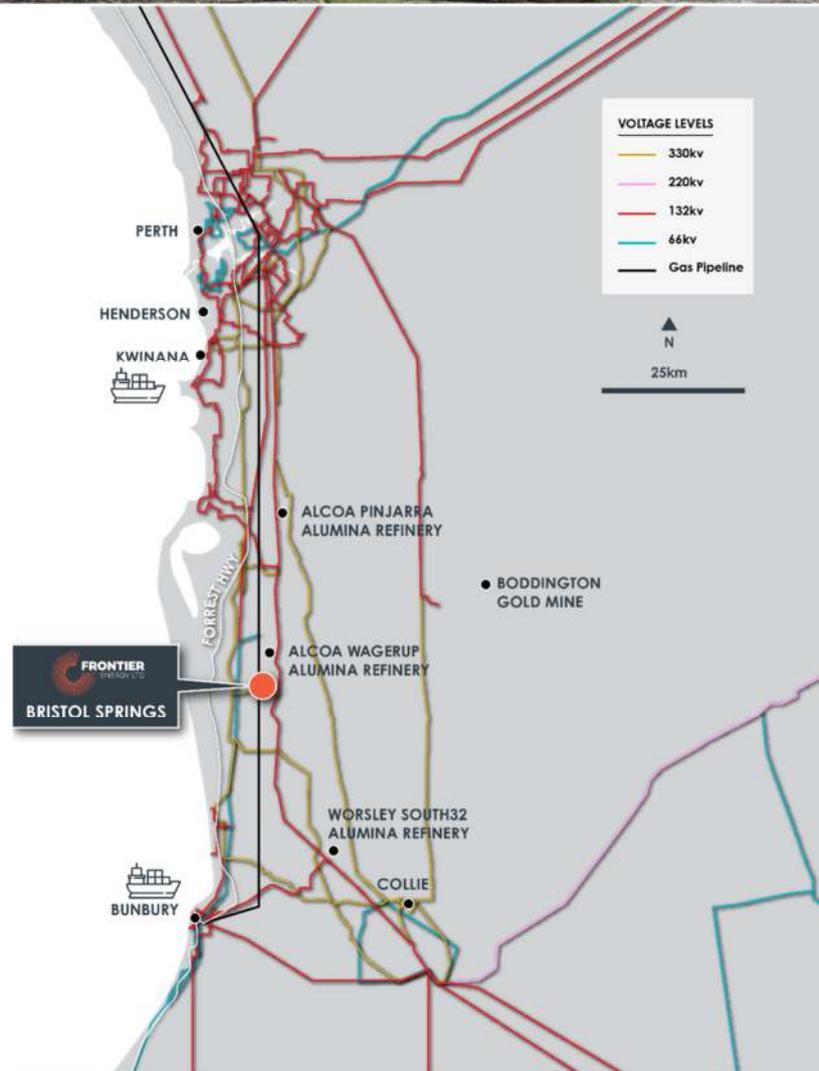


About Frontier Energy

Frontier Energy Ltd (ASX: FHE) is a clean energy company developing the Bristol Springs Solar Project (BSS Project) near Waroona in Western Australia.

The BSS Project will provide enough power for 45,000 homes and abate 180,000t of CO₂ emissions per year.

The BSS Project is located 120 km south of Perth, and importantly is within the “Golden Triangle” of Kwinana-Bunbury-Collie, which provides both supporting infrastructure and potential offtake customers.



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For a comprehensive view of information that has been lodged on the ASX online lodgement system and the Company website, please visit asx.com.au and frontierhe.com, respectively.