Major milestone as water access confirmed for green hydrogen production

Frontier Energy Limited (ASX: FHE; OTCQB: FRHYF) (**Frontier** or the **Company**) is pleased to announce the Company, in consultation with Water Corporation, has agreed on the preferred pathway to deliver water to the Bristol Springs Renewable Energy Project (the "**Project**") to enable green hydrogen production. The preferred pathway is through the existing Stirling Trunk Main pipeline (scheme water).

Accessing an existing water solution is a major milestone for the Company as we progress our green hydrogen strategy. The Company expects to finalise the terms and conditions with Water Corporation in the coming months.

Water is an essential element for green hydrogen production with around nine litres of water required for every one kilogram of hydrogen produced. Without access to suitable water, a desalination facility would be required, which would add significant capital, additional environmental studies and regulatory approvals.

HIGHLIGHTS

- **The Company in consultation with Water Corporation has agreed on the preferred option to access water, which is through the existing Stirling Trunk Main pipeline (scheme water). This pipeline is 3.5km from the Project**
    - *Water Corporation is the principal supplier of water, wastewater and drainage services throughout Western Australia, and is owned by the Western Australian government*
- **The proposed capacity is 1,250 Kl/day. This is sufficient for an 150MW electrolyser, some four times the size proposed in Stage One (36.6MW) to ensure expansion potential in the mid-term**
- **Both the consumption cost (operating costs) and initial capital cost are in line with the Pre-Feasibility Study[1] costs associated with water**
    - *The total unit cost[2] (inclusive of capital) for hydrogen production was forecast at $2.83 per kg of hydrogen produced*

Executive Chairman Grant Davey commented: *"The location of our Bristol Springs Renewable Energy Project has again given the Company a significant advantage compared to our peers in more remote locations.*

Accessing suitable water, one of the two critical elements for green hydrogen production (the other being renewable energy), via the existing water pipeline network means the Company does not require the development of a desalination facility. This not only saves the Project millions in capital development costs, but also reduces the time to first production as additional approvals and environmental studies are not required."

[1] *ASX Announcement – 4 August 2022*
[2] *Total unit costs = (total operating costs direct (annual) / annual production) + (total initial capital + total sustaining capital /life of operation production)*

Agreement with Water Corporation for water access

The Project is located in the South West region of Western Australia and is approximately 120km from Perth and 8km from the town of Waroona. The Company's Stage One strategy is to develop a 114MW solar farm to power a 36.6MW alkaline electrolyser. This will produce approximately 4.4 million kilograms of green hydrogen per annum. The Company's long-term target is to generate renewable energy in excess of 1GW.

Water is one of two key elements required to produce green hydrogen, with the other being renewable energy (solar energy). Given the Project's location, the Company had four options to source water, with three from existing networks/solutions. These included:

- Accessing scheme water via the Stirling Trunk Main pipeline
- Yarragadee freshwater aquifer – one of the largest aquifers in Australia
- Bunbury Wastewater Treatment Plant, and
- Developing a stand-alone desalination facility.

The Yarragadee freshwater aquifer and Bunbury Wastewater Treatment Plant are feasible options and superior to the alternative of developing a stand-alone desalination facility (the only option available to remotely located hydrogen projects). However, accessing the existing pipeline was the clear standout given its minimal cost (capital and operating), simplicity and timing as well as environmental and regulatory considerations.

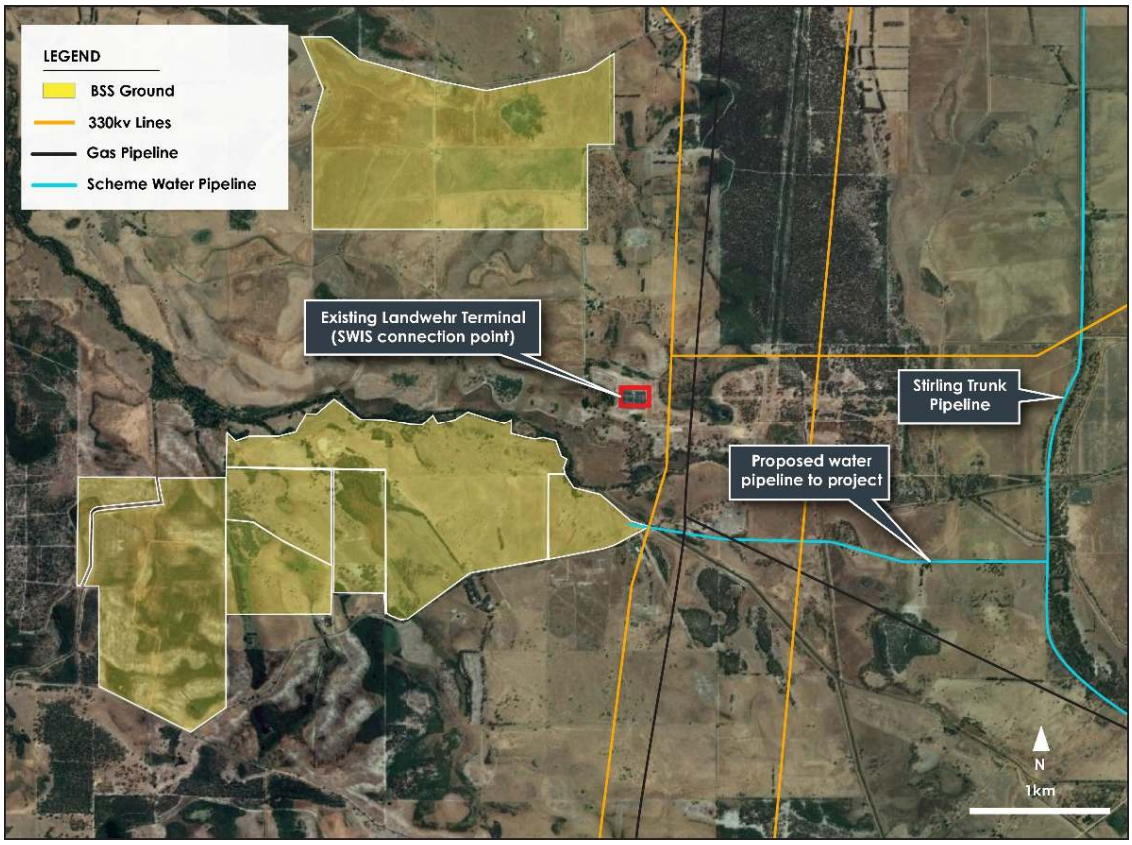

Image 1: Location of the Stirling Trunk Main pipeline and BSS Project

The connection will be off the Stirling Trunk Main which conveys water from the Southern Dams and the Southern Seawater Desalination Plant to the Integrated Water Supply System (IWSS). The IWSS delivers 303 billion litres of water each year throughout Western Australia.

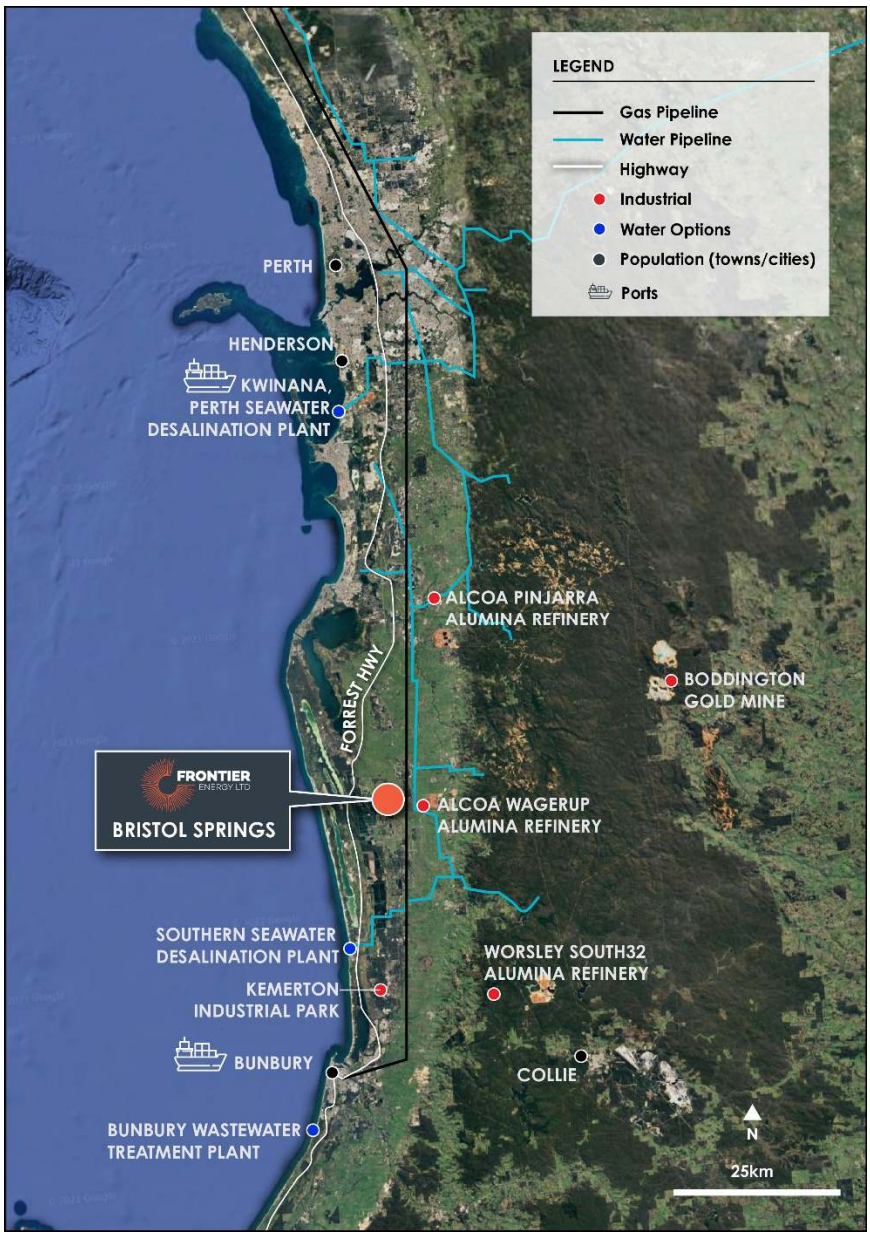

Image 2: Water network in SW Western Australia

The indicative usage for Stage One is 750kL per day. The pipeline connection proposed by the Water Corporation will however have capacity for 1,250kL per day, which is sufficient for an electrolyser of 150MW. This is four times larger than the facility proposed in Stage One (36.6MW facility), however this aligns to the Company's mid-term expansion strategy.

The indicative cost for water usage is in line with the assumption of $2.5/Kl (inclusive of fixed charges) assumed in the Pre-Feasibility Study[3]. The Company anticipates finalising the agreement with Water Corporation later this year.

[3] *ASX Announcement – 4 August 2022*

Water Corporation

Water Corporation is the principal supplier of water, wastewater, drainage and bulk irrigation services in Western Australia (WA) to hundreds of thousands of homes, businesses and farms. Water Corporation directly employ more than 3,600 people across Western Australia, providing a high level of expertise and strong commitment to communities.

Water Corporation is owned by the Western Australian Government and accountable to the Minister for Water Hon Dave Kelly MLA, for the delivery of services.

What is desalination?

Desalination is a process that extracts salt and other minerals from seawater to produce freshwater. The technology is used widely in Australia.

The process works by moving seawater through a filter to remove large particles using a process called reverse osmosis. Under extremely high pressure, the seawater goes into a semi-permeable membrane used to purify the water, taking salt and impurities out. Reverse osmosis involves high capital costs including initial construction and maintenance.

There are six large-scale drinking water desalination plants in Australia – two in Western Australia, and one each in Queensland, New South Wales, South Australia and Victoria. In WA the desalination facility in Kwinana was constructed in November 2006 with a total project cost of $387m while the Southern Seawater Desalination Plant (stage one) required an investment of $955m and was completed in 2011.

A new desalination facility proposed in Perth's northern suburbs at Alkimos, which is due to be completed by 2028, will reportedly cost approximately $2 billion[4].

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

To learn more about the Company, please visit www.frontierhe.com, or contact:

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[4] *https://www.yanchepnewsonline.com.au/alkimos-to-be-home-of-was-new-desalination-plant/#:~:text=A%20NEW%20desalination%20plant%20to,water)%20would%20be%20%242%20billion.*

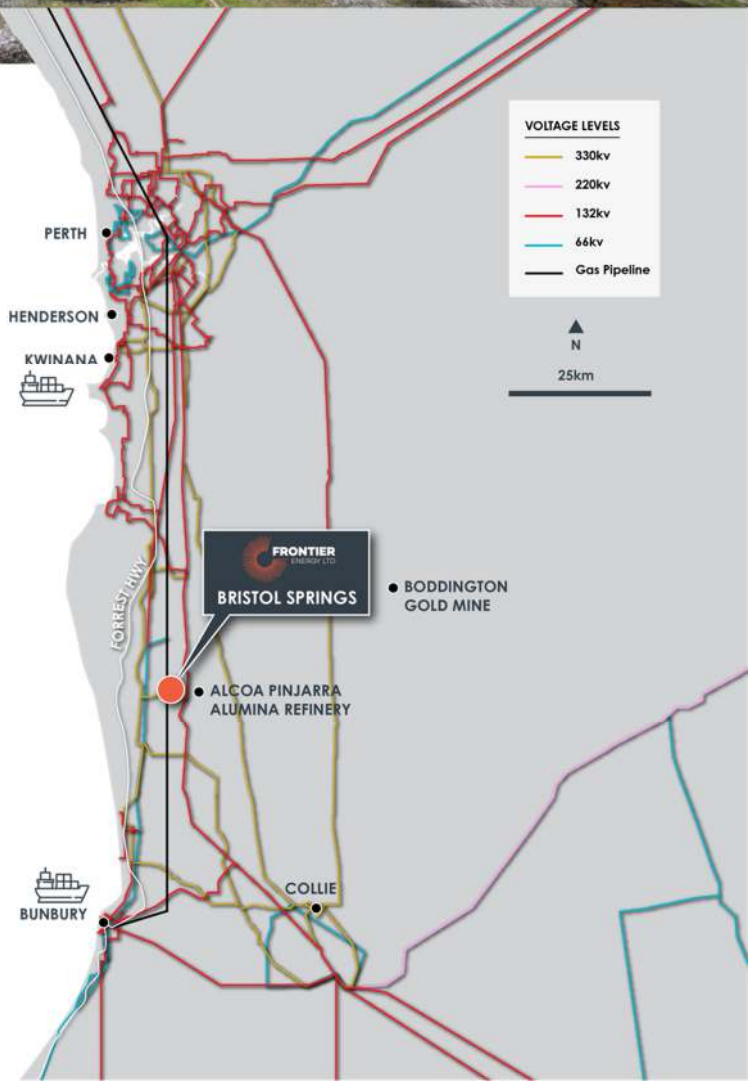
About Frontier Energy

Frontier Energy Ltd (ASX: FHE; OTCQB: FRHYF) is developing the Bristol Springs Green Hydrogen Project (the Project) located 120km from Perth in Western Australia.

The Company recently completed a Pre-Feasibility Study[1] that outlined the Project's potential to be both an earlier mover and one of the lowest cost green hydrogen assets in Australia.

The Project benefits from its unique location surrounded by major infrastructure. This reduces operating and capital costs compared to more remote hydrogen projects, whilst also being surrounded by likely early adopters into the hydrogen industry in the transition from fossil fuels.

[1]ASX Announcement 4th August 2022



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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.