

Green Hydrogen strategy moves forward as Alkaline Water Electrolysis chosen as production technology

Frontier Energy Limited (ASX: FHE) (Frontier or the Company) is pleased to announce the Company has selected Alkaline Water Electrolysis as its preferred technology to produce green hydrogen at the Company's Bristol Springs Solar Project (the **BSS Project**). This technology was selected due to its lower cost and technical robustness compared to other currently available technologies.

In addition, the Company has signed a Memorandum of Understanding (MOU) with global hydrogen experts, Nel Hydrogen (Nel) and ENGV, to support the Company's hydrogen production strategy.

HIGHLIGHTS

- **Alkaline Water Electrolysis (AWE) was selected as the preferred technology for green hydrogen production at the Company's BSS Project**
- **AWE was selected for its technical maturity compared to alternative solutions and due to the modular nature of its installation. This allows for hydrogen production earlier than originally anticipated and for staged future expansion**
- **The Company signed an MOU with leading hydrogen industry experts, Nel Hydrogen Electrolyser AS (Nel) and ENGV, to assist in the development of the green hydrogen production plant and market distribution**
 - *Nel is widely regarded as a global leader in solutions to produce, store and distribute hydrogen. Nel is listed on the Oslo Stock Exchange with a NOK20.3bn (A\$3bn) market capitalisation*
 - *ENGV is a leader in the deployment of hydrogen technologies in Australia with a reputation of delivering high quality, multifaceted projects on time and on budget*
- **The Company remains on track to release both the Renewable Expansion and the complete Green Hydrogen Study by mid-2022**

Managing Director Mike Young commented, "The global transition towards green hydrogen is evolving at an ever-increasing pace particularly in light of current geopolitics.

What is really encouraging is that this will accelerate the evolution of the green hydrogen industry, which is already approaching parity on cost with diesel powered haulage systems.

Given these changes, we are accelerating the development of our Bristol Springs Project as we aim to become one of the first commercial green hydrogen producers in Australia.

The MOU with Nel and ENGV ensures that our green hydrogen strategy is carried out in the most efficient manner".



Assessment of Green Hydrogen Production

An electrolyser is a system that uses electricity to split water into hydrogen and oxygen gases in a process called 'electrolysis'. Green hydrogen is produced when the electricity is supplied through renewable sources such as solar, wind, and hydro.

The hydrogen gas can either be stored as a compressed gas or liquefied, and since hydrogen is an energy carrier it can be used to power any hydrogen fuel cell electric application. Oxygen gas can also be captured for other industrial or medical uses.

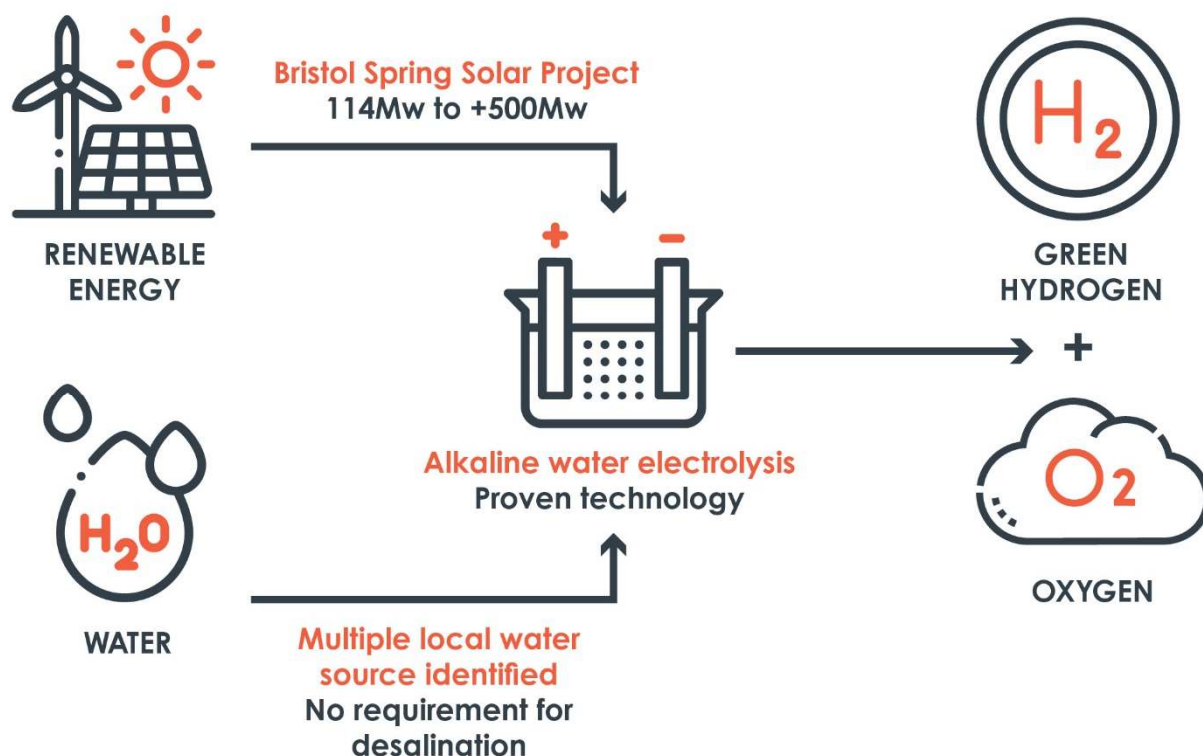


Image 1: Simple flow sheet of hydrogen production

As part of the Company's assessment to produce green hydrogen, sourcing renewable energy from its Bristol Springs Project, the Company's consultants, Xodus Group, performed a technology assessment to determine the most appropriate hydrogen plant design.

Multiple features were assessed, including the timeframe to first hydrogen production, initial plant size and scalability, input power characteristics, electricity cost and the rate of the hydrolyser's technological development.

From this assessment five technologies were initially considered:

1. Alkaline Water Electrolyser (**AWE**),

2. Proton Exchange Membrane (**PEM**) Electrolyser,
3. Solid Oxide Electrolyser (**SOE**),
4. Anion Exchange Membrane (**AEM**) Electrolyser, and
5. Capillary-Fed Electrolyser (**CFE**).

Of these, only AWE and PEM were assessed further due to their industry maturity and their potential for commercial scale. Following this, AWE was selected as the preferred technology, based on its lower overall cost and robustness to produce green hydrogen at purity >99.98%. As hydrolyser plants are modular, the selection of AWE at this time does not lock the Company in to a particular technology in the event of future advances.

Alkaline Water Electrolyser - Overview

AWE is a mature green hydrogen technology having been available at MW-scale for longer than other leading technologies, including PEM. As such, it offers the lowest cost per kW of installed capacity, long-term operational stability and plant life. The reduced price compared to PEM is largely explained by the maturity of the technology and the use of precious metals within the PEM stack.

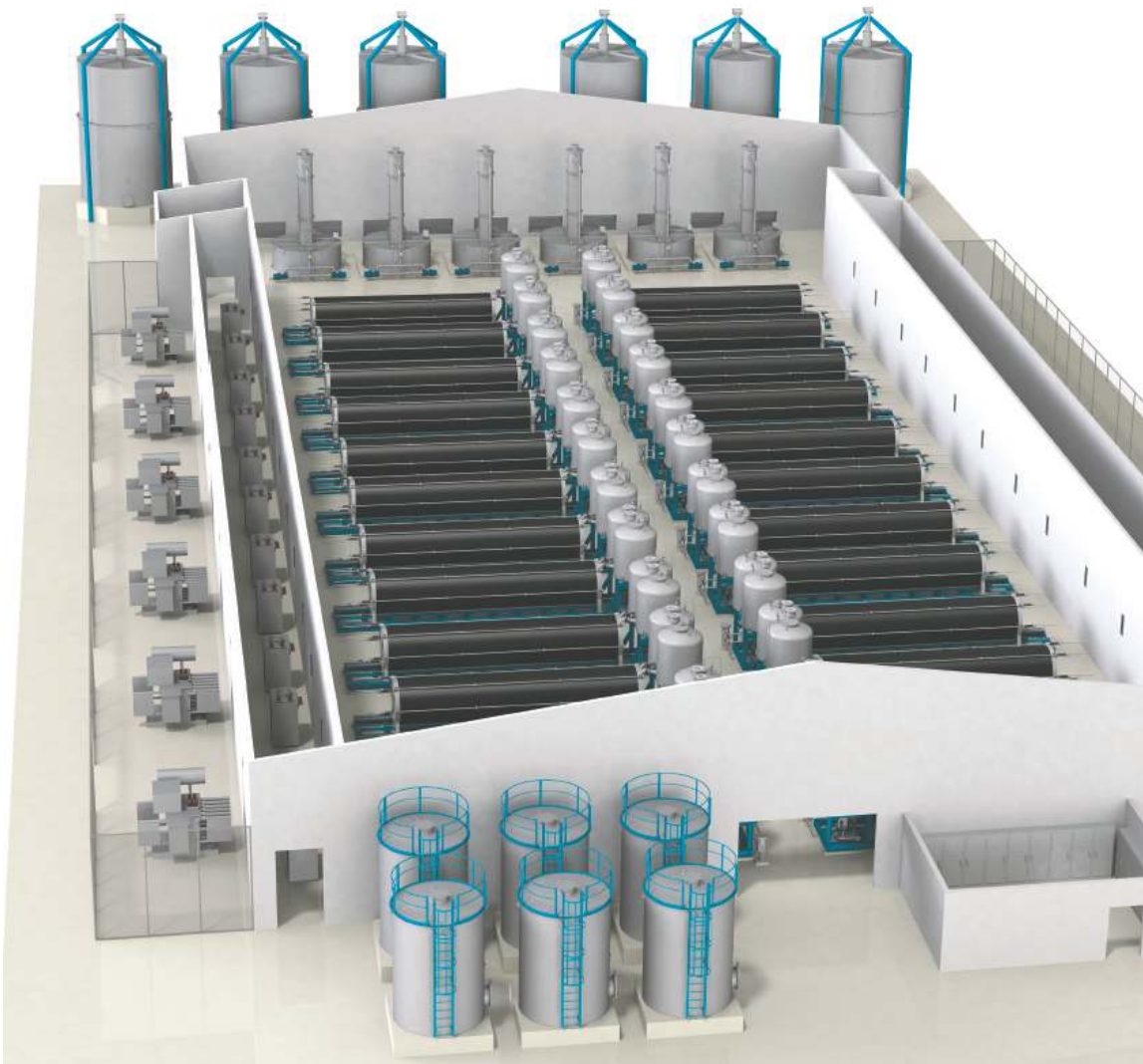


Image 2 – Hydrogen production system (Source: Nel)

Recent advances in AWE technology offer pressurised electrolyzers capable of delivering hydrogen up to 30 barg, with lower minimum loads such that with careful control they can operate with intermittent power supply.

The Company is also assessing measures to reduce electrical intermittency to ensure optimal operation of the AWE plant. As a result the benefit of PEM for faster response time to intermittent energy supply is not as pertinent.

The proposed green hydrogen production facility will consist of electrical systems, electrolyser stacks (series of cells), gas/liquid separation, hydrogen purification and hydrogen export systems.

Xodus proposes that the preferred electrolyser supplier provide a bespoke hydrogen production solution for the requirements of the specific site, based on electricity and water inlet specifications, and hydrogen and oxygen production rates and quality specifications.

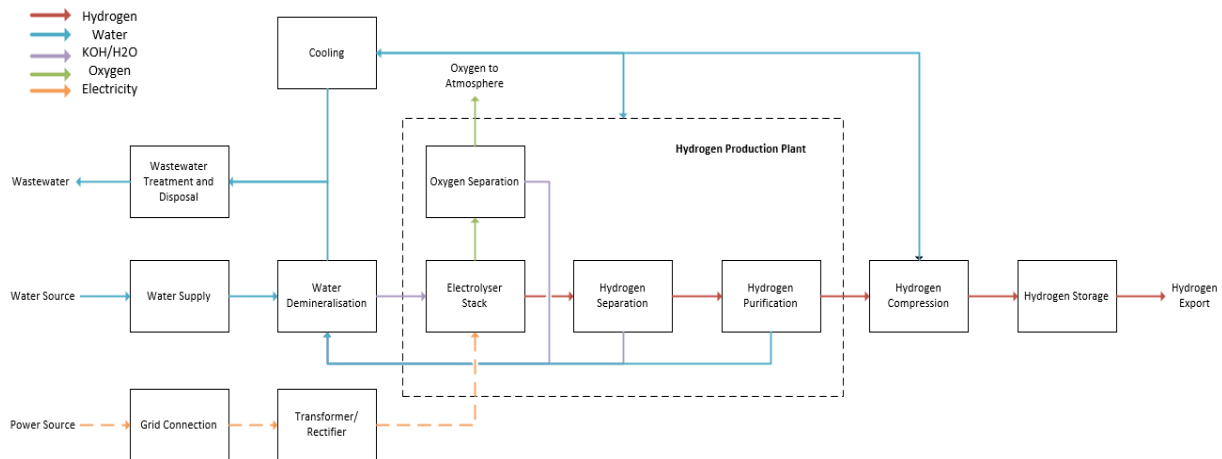


Image 3: Hydrogen production plant and associated systems

Memorandum of Understanding signed with industry leaders for green hydrogen development strategy

The Company has signed an MOU with Nel and ENGV to assist with the advancement of the hydrogen study. This includes furthering the development of the green hydrogen production plant, compression and storage, and distribution to market. Nel will provide the hydrogen technology solutions and ENGV will provide the integration services.

Nel is a global, dedicated hydrogen company, delivering optimal solutions to produce, store and distribute hydrogen from renewable energy. Nel serves energy and gas industry companies with leading hydrogen technology. Nel's roots date back to 1927, and since then it has had a proud history of development and continuous improvement of hydrogen technologies.

ENGV is a leader in the deployment of hydrogen technologies in Australia with a reputation of delivering high quality, complex projects on time and on budget. ENGV's existing

customer base includes large Australian natural gas companies and global OEM technology providers.

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

ENDS

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

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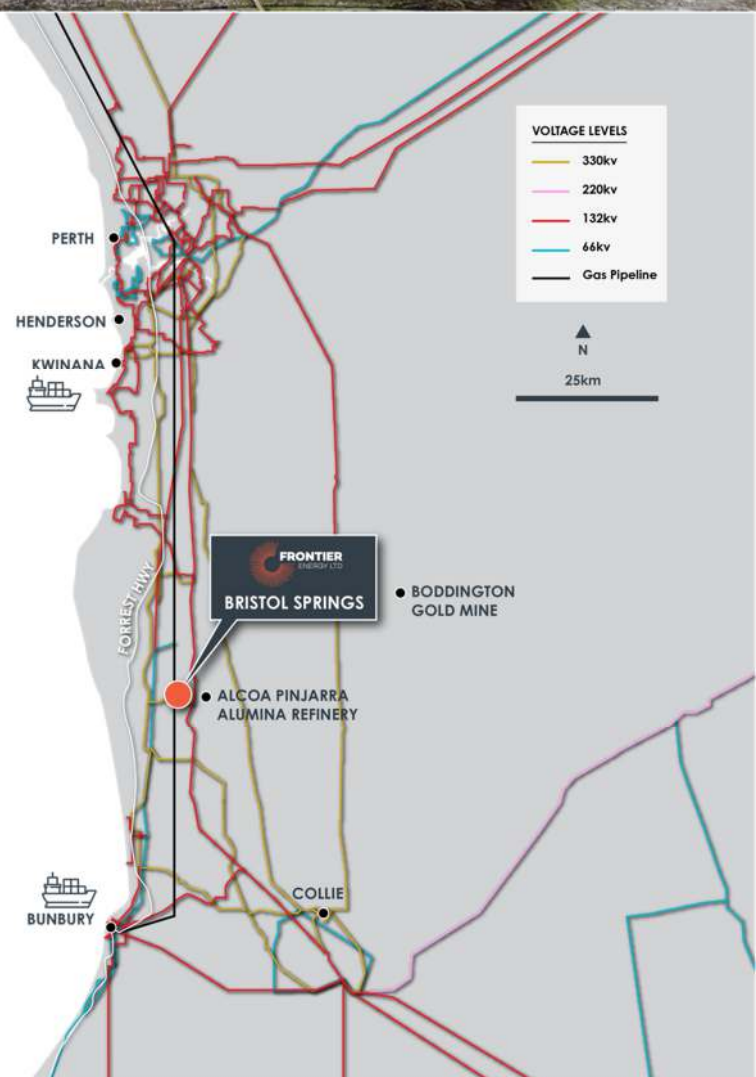


About Frontier Energy

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 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.