



ABN69 009 196 810  
(Incorporated in Western Australia)

Level 2, 30 Richardson Street  
West Perth, WA 6005  
PO Box 1786, West Perth WA 6872  
T+61 8 9321 9886 F+61 8 9321 8161

8 June 2021

ASX Limited  
Company Announcements  
Level 4, 20 Bridge Street  
SYDNEY NSW 2000

## **Patriot Hydrogen Investment Update & Corporate Presentation**

Prominence Energy NL ACN 009 196 810 (**PRM** or **Company**) is pleased to provide the following update on activities.

### **Patriot Hydrogen Investment –**

A binding term sheet has been signed with the owner of Patriot to acquire 20% of Patriot Hydrogen Pty Ltd. The acquisition is subject due diligence and PRM shareholder approval of issue of the consideration shares<sup>1</sup>. PRM has continued with due diligence on the Patriot business and provides the following summary of the business model.

### **The Patriot Hydrogen Business**

Patriot Hydrogen is developing a scalable hydrogen production modular system which will deliver a compressed green Hydrogen gas and clean Biochar, from a biomass input feed, the first unit is expected to be in commercial operation by early 2022.

As opposed to the large scale Hydrogen from electrolysis production facilities, Patriot Hydrogen has packaged a decentralised modular pyrolysis system for the production of Hydrogen, which utilises smaller modular, cost effective, remote Hydrogen production units. A typical P2H unit is expected to pay back the investment capital within 12-18 months.

The Patriot Hydrogen P2H units are branded “Patriot Hydrogen P2H Units” and are approximately the size of a 40-foot container. The cost of the units are approximately AU\$2.9M plus annual licensing fees, depending upon the location.

Each Patriot Hydrogen P2H unit can expect to produce the following:

- Input of 24 tonnes a day of woody biomass feedstock
- Output of approximately 4 tonnes a day of BioChar (Depending on moisture)
- Output of approximately 2 tonnes a day of Syngas (Depending on Feedstock)
- Output of approximately 1 tonnes a day of Green H2 (Depending on Syngas make up)

The Patriot Hydrogen P2H units produce a Hydrogen rich gas that can be utilized to produce electricity or to produce green hydrogen and biochar that can be sold to domestic and export clients.

Patriot Hydrogen have a highly experienced management team that have a deep knowledge of gasification and pyrolysis. The team has over 20 year’s experience with multiple types of biomass units, various feedstock inputs and outputs that have been tested and evaluated.

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<sup>1</sup> The Consideration for 20% of Patriot is 25 million PRM shares, \$250,000, and 3 million PRMOB options see ASX release of 31 May 2021 for further details.

The Patriot Hydrogen business model is to have Patriot P2H (Patriot to Hydrogen) modular units in many locations across Australia and the World.

Patriot Hydrogen has two revenue models:

- Patriot Hydrogen establishing locations for P2H Units: Patriot Hydrogen will set up P2H units at priority and high revenue locations. Patriot Hydrogen will earn revenue from feedstock gate fees and the collection and sale of the Biochar, Hydrogen or Power.

and:

- Patriot Hydrogen directly selling P2H Units: Patriot Hydrogen will sell the P2H modular units outright to a purchaser. Patriot Hydrogen will earn revenue from collecting the technology licence fees, service and training fees and a gross sales percentage fee of the sale of the Hydrogen, Biochar and Power. The purchaser will earn revenue from the production and sales of Hydrogen, Biochar and Power.

P2H units use advanced technology licenced from Clean Renewable Technology Pty Ltd. for the processing of sustainably sourced woody and waste biomass, waste residues and any other clean waste product to produce a Green Hydrogen.

Biochar is a highly valued commodity with uses from the carbonisation of soils to high value health and beauty applications. The recent budget announced a \$200M agriculture support package to look at issues that Biochar can help solve. Read more here: <https://www.Agriculture.Gov.Au/Ag-Farm-Food/Climatechange/Australias-Farming-Future/Soil-Carbon>

Commenting on the news Alex Parks Managing Director of PRM said *“Over the last couple of months the Patriot business has been progressing very strongly, the industry interest in the P2H units is high and the two revenue stream model will allow Patriot to use revenue from P2H unit sales to assist in funding the development of its own units to produce hydrogen, which will be good for the value of PRM’s investment assuming we proceed as planned”*.

Mr Alexander Parks, Managing Director, has authorised this document to be given to the ASX.

Yours faithfully,

Prominence Energy NL



Anna Mackintosh  
**Company Secretary**

**A model of the Patriot Hydrogen - P2H Unit internals.**



Please see [www.patriohydrogen.com.au](http://www.patriohydrogen.com.au) and the attached Patriot Corporate Presentation for further information.





**PATRIOT  
HYDROGEN**

# **A Commercial, Scalable Hydrogen Production Plant**

**Investor Presentation**

**June 2021**

[www.patriothydrogen.com.au](http://www.patriothydrogen.com.au)





# Turning Biomass Into Revenue

Pyrolysis for Biochar & Green Hydrogen



**Patriot Hydrogen has the exclusive Australian licence for a scalable Containerized Hydrogen production System capable of delivering compressed Hydrogen and Biochar in Australia by late 2021 /early 2022.**



The modular Hydrogen units are scalable and can operate on multiple different feedstocks enabling them to be deployed over a range of different industries.

The **(Clean Renewable Technology Pyrolysis Units) CPU's**, referenced herein uses the process of Pyrolysis, to convert waste materials into syngas (or aka: hydrogen rich product gas or pyrolysis gas) and carbon Biochar, providing two high value revenue streams. Biochar can be sold at a value of up to \$600 per tonne depending upon volume lots.

Several locations in NSW, Victoria, Queensland and WA have been identified for plant locations.

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Patriot Hydrogen has two revenue models:

- **Patriot Hydrogen establishing locations for P2H Units:** Patriot Hydrogen to set up P2H units at priority and high revenue locations. Patriot Hydrogen will earn revenue from feedstock gate/input fee's and the collection and sale of the Biochar, Hydrogen or Power.

and:

- **Patriot Hydrogen directly selling P2H Units:** Patriot Hydrogen will sell the P2H modular units outright to a client/purchaser. Patriot Hydrogen will earn revenue from collecting the technology licence fees, service and training fees and a gross sales percentage fee of the sale of the Hydrogen, Biochar and Power. The client/purchaser will earn revenue from the production and sales of Hydrogen, Biochar and Power.

Typical P2H unit/module has a return of investment within 12-18 months.



**Exclusive** Australian licence for **proven, scalable technology** capable of turning waste into revenue



**Strong & growing market demand** due to multiple waste feedstock options across a number of industries



**Significant pent-up demand** for hydrogen production from **renewable sources**



**Multiple value accretion gates** on path to production

## Mike Haywood

### Director

30 years experience in the waste management field beginning with Pacific Waste Management in 1992. Joined ResourceCo as Business Development Manager, becoming General Manager and a Member of the Management Board for 13 years. Founded Mike Haywood's Sustainable Resources Solutions in 2010 to consult to the waste and recycling industries as well as Local Government and Regulators.

As a practitioner in all the waste management disciplines, he has a thorough and proven working knowledge of the current waste management sector with its nuances, legislative policies, opportunities and challenges added to this he is recognised as a visionary and sound thinker in waste management strategy, direction and implementation.

## Mark Ranalli

### Director

Mark Ranalli's energy utility and alternative energy business and project development experience spans more than 30 years. His experience, in corporate and entrepreneurial settings, includes twenty years in the electric and gas utility industry with Niagara Mohawk Power Corporation and affiliate Niagara Mohawk Energy – Distributed Power Group.

Mark received his BS in industrial management from Purdue University. In 2003, Mark established Allegiance Energy Systems, LLC. as an energy consulting, project development and enterprise development firm specializing in distributed generation and alternative energy technologies and applications.

Mark has served on the Board of Directors for Auburn Cayuga Development Corporation and Greening USA; is a co-founder of Cayuga Wind Turbines, LLC. - an intermediate wind turbine manufacturing and project development enterprise, and Auburn Bio-Diesel Corporation.

Advertisement

## FINANCIAL REVIEW

Companies Energy

— Exclusive

### Peter Coleman calls time on big new LNG projects

The days of big new greenfield LNG projects are now over in Australia and the future is green hydrogen, says the former Woodside Petroleum chief.

**Jennifer Hewett**

Apr 23, 2021 - 12.00am

Investor concerns about climate change and the risk of stranded assets mean the era of massive new LNG projects is over for Australia, according to Peter Coleman, former head of the country's biggest oil and gas producer, Woodside Petroleum.

"It's difficult for me to see a Gorgon happening again," the industry veteran says, referring to the massive Chevron project off north Western Australia. "Huge greenfields projects that cost \$US50 billion are not where investors want to be today."

Peter Coleman, ex CEO of Woodside Petroleum stated *"The real future growth option for Australia is hydrogen – mainly green hydrogen powered by renewable energy – as the world increasingly turns against the use of fossil fuels."*



### Australian Government announces \$500m hydrogen hub and carbon capture package to support greenhouse targets

By Imelda Cotton - April 23, 2021



**VIEW**

### Australia pledges A\$275.5m for clean hydrogen hubs

By Joanna Sampson on Apr 21, 2021 | Translate

Australia will invest a further AU\$275.5m (\$212.8m) in new clean hydrogen hubs, Prime Minister Scott Morrison confirmed today (21<sup>st</sup> April).

The funding comes in the run up to the Australian Government's looming May Budget and ahead of US President Joe Biden's virtual climate summit, which Morrison will attend.

It will be used to accelerate the development of four additional clean hydrogen hubs in regional Australia and implement a clean hydrogen certification scheme.



### Coalition told it must hugely increase clean energy investment beyond hydrogen, carbon storage promise

Experts' assessment comes on eve of US-hosted climate summit pressing countries for bigger commitments and deeper cuts to emissions

Adam Morton and Katharine Murphy

Wed 21 Apr 2021 19:40 AEST

# The Market Opportunity

Pyrolysis for Biochar & Green Hydrogen

## Biomass Inputs



**Biowaste**

Biowaste, Sawdust and Wood Chips are fed into the PTE pyrolysis system.

Wood waste materials are byproducts of timber and sawmill operations. These biomass feedstocks can quickly be turned into multiple revenue-generating products.



**Woody Biomass**

## Pyrolysis Process



- The PTE Pyrolysis system is continuous feed, producing valuable products; biochar and syngas
- uses a portion of its syngas to power the process, reducing energy costs.

## Output



**Biochar**

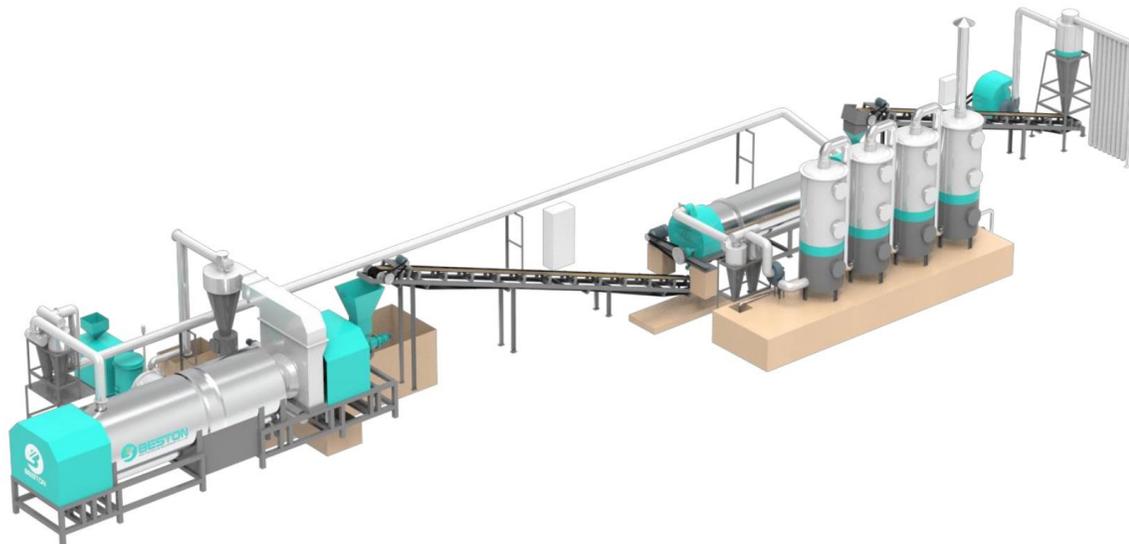
Biomass is reduced to a carbon dense substance called Biochar, which is highly valued for agriculture and construction. There is already a strong global market for this product.

The syngas produced from the pyrolysis is hydrogen dense. The pressure swing adsorption allows for the recovery of hydrogen, which is sold both domestically and internationally as 'Green Hydrogen'.



**Hydrogen Rich Syngas**

**Our experience will allow for the seamless installation and maintenance of the biomass carbonization equipment needed.**



## Specifications & Cost

We will deliver our 24 tonne/day model for operations. This equipment allows for the processing of up to 1,000kg/hr of feedstock (e.g. dry woody biomass). An integrated drying system allows for moisture control, which can increase total output.

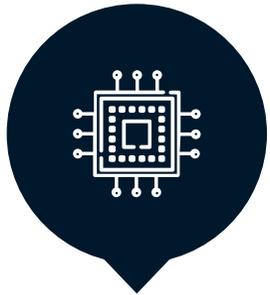
Using biomass with a 10%, to 15% moisture content, a module will co-produce with Syngas 200-300kg of biochar per hour.

The produced syngas is utilised for both:

- primarily for processing to extract/produce green Hydrogen at 50-100kg per hour
- generating combined heat and power for either feedstock processing or pyrolysis, to reduce operational costs; and

Initial system module installed cost is AUD\$2.9M plus License Fees.

# Facility To Service Pent-up Demand



Ultra-modern  
Technology



Accommodates  
scalable multi-  
units hydrogen  
production



Optimized  
production  
workflow



Convert waste to  
energy and  
Optimize stock &  
supply chain  
management



Scalable  
capacity to meet  
demand

- Industries the units can be deployed
  - forestry management
  - integrated waste management, (woody biomass, Processed Engineered Fuels (PEF))
  - end of life tyre processing
  - reactivated carbon
- Uses for syngas - hydrogen
  - green hydrogen (transportation fuel)
  - fuelling combined heat and power combustion engine applications
  - fuelling fuel cell battery
  - fuel cell combined heat and power applications
- The uses for biochar
  - soil amendment
  - fertilizer adsorption and release
  - air and water purification
  - activated carbon applications

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HYDROGEN**

# **Patriot Hydrogen Pty. Ltd.**

**ACN 645 102 781**

**[www.patriothydrogen.com.au](http://www.patriothydrogen.com.au)**

**Level 33, 52 Martin Place,  
Sydney. 2000 NSW**

