

# Building the Hydrogen Eco System

A high growth ESG\* story

**Pure Hydrogen Corporation Limited (ASX: PH2)** 

December 2021

\* Environmental, Social and Governance



# PURE HYDROGEN INVESTMENT SUMMARY – INTERGRATED CLEAN ENERGY

#### **PURE HYDROGEN CORPORATION (ASX:PH2)**



Fuel Cell Technology
Plasma Arc/Pyrolysis
New Technologies
for Hydrogen Production

**TECHNOLOGY** 



Hydrogen Operations
Production, sales,
delivery, storage

Domestic and export projects

**HYDROGEN OPERATIONS** 



Fuel Cell Mobility

Trucks, Buses and commercial

Fuel Cell production

Hydrogen Generators

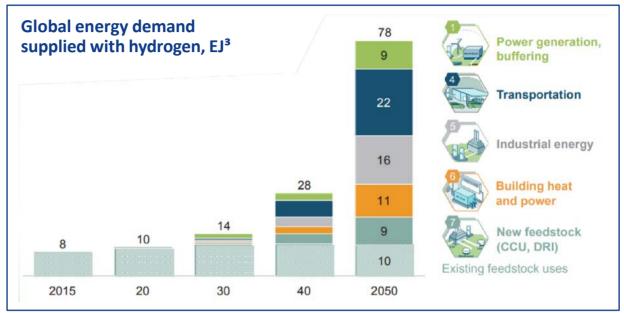
**MOBILITY AND POWER** 

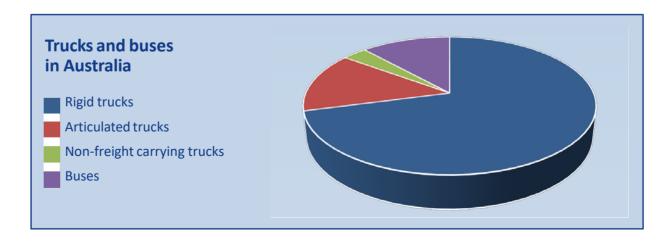
STRONG SYNERGIES ACROSS OUR OFFERINGS



# **HYDROGEN DEMAND COULD INCREASE 10-FOLD BY 2050**

- Hydrogen is the no emissions replacement fuel for Diesel
- Good for Australia as most Diesel is imported
- Hydrogen production is currently experiencing widespread political and business momentum with a number of policies and projects around the world expanding rapidly
- Global demand is forecasted to increase to 100m tonnes by 2030 and exceed 500 million tonnes by 2050<sup>3</sup>
- Hydrogen consumption continually rising in the Asia-Pacific region - largest hydrogen market and is expected to witness the
   fastest industry growth moving forward<sup>4</sup>
- Truck and Buses in Australia (not including light commercial vans and Utes) are about 736,000 about 2% of the global fleet – Pure Hydrogen targets Hydrogen Fuel Cell Trucks and Busses to replace the diesel fleet.
- Reduced emissions and reliance of imported fuels









# HYDROGEN OPERATIONS DOMESTIC AND EXPORT



Image sourced from websites.



# **HYDROGEN OPERATIONS – Focus on Clean Energy Net Zero emissions**



# Domestic Market

Hydrogen plants – Hub and Spoke close to customer 1 to 30 tonnes per day



# Storage and Local Transport

Trailers and Trucks can supply Hydrogen to customers

Hydrogen Powered back to base trucks and buses



## **Large Scale** and **Export**

Large Plants targeting export via ships



#### Gas

Natural Gas
resources will be
used as feedstock to
convert to Hydrogen
and high value
carbon products
including Graphene.



### **HYDROGEN OPERATIONS**

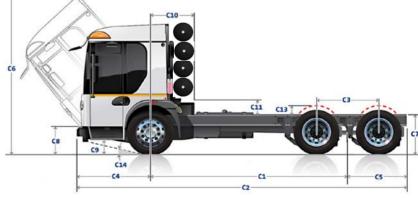
- Pure Hydrogen has a unique offering the first Australian company, and one of the first companies globally covering hydrogen fuel cell vehicles, the supply and manufacturer of hydrogen and delivery systems.
- Pure's strategy is to showcase projects across the full Hydrogen value chain to investors and potential customers.

Pure is currently building the framework for a the hydrogen eco system and value chain including:

- Hydrogen production:
  - Waste to Hydrogen
  - Water to Hydrogen (electrolysis)
  - Methane to Hydrogen (pyrolysis)
- Hydrogen export
- Hydrogen fuel cell electric device manufacture:
  - Trucks and Buses
  - Light Commercial Vehicles
  - Power generation portable

- Hydrogen powered back to base trucks and buses
- Hydrogen transportation & refuelling vehicles and on site hydrogen storage & refuelling systems
- Electricity supply
- Methane Production
- Carbon by-product sales







# WASTE TO HYDROGEN PRODUCTION PLANTS

- First Waste to Hydrogen plant to be built in partnership with CAC H2 near Caboolture, north of Brisbane in Queensland, Australia.
- Under the partnership:
  - Pure Hydrogen funds the loadout and storage facilities.
  - CAC H2 funds the Waste to Hydrogen units.
  - Around 5,000 kgs per day of Hydrogen is planned to be produced initially, increasing to around 30,000kgs per day at each plant over the next few years.
  - 2 additional plants are planned for Sydney and Melbourne
  - Negotiations are currently under way regarding the rollout of additional plants around Australia
- Waste to hydrogen is a true green hydrogen solution with CO2 negative outcomes.







#### **HYDROGEN TRUCKS AND BUSES**

Pure Hydrogen holds 24% of H2X Global with options to increase its stake to 48% – smart way to obtain stake – strong upside potential

- Pure X also established to target supply of H2
   Concrete and Waste Trucks, Buses and Prime movers
- Having competitive priced vehicles is the key for Companies signing up to convert their fleet
- Power Generation units available next year
   potential partnering opportunities
   in the US/Europe
- H2X Warrego to launch in Q2 Quarter 2022





# HOW TO MAKE NATURAL GAS GREEN? MODULAR HYDROGEN MANUFACTURING

1,500KG TO 5,000KG PER
PLANT PER DAY –
4,500 KG TO 15,000 KG OF
CARBON PRODUCTS

On-site modules to manufacture Hydrogen and Carbon products from Natural Gas with no emissions.

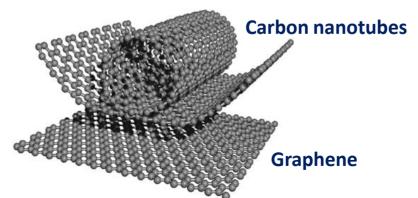
Compact in size, modular units tap into existing natural gas pipelines or colocated biogas resources, to site hydrogen production at the point of use, eliminating the cost and emissions of H2 transportation.

Carbon products include carbon black and the potential for high-value synthetic graphite, graphene flakes and/or carbon nanotubes

The modules are housed in modified 12 metre shipping containers offering easy expansion and fast deployment.

#### **CARBON - THE VALUE DRIVER**



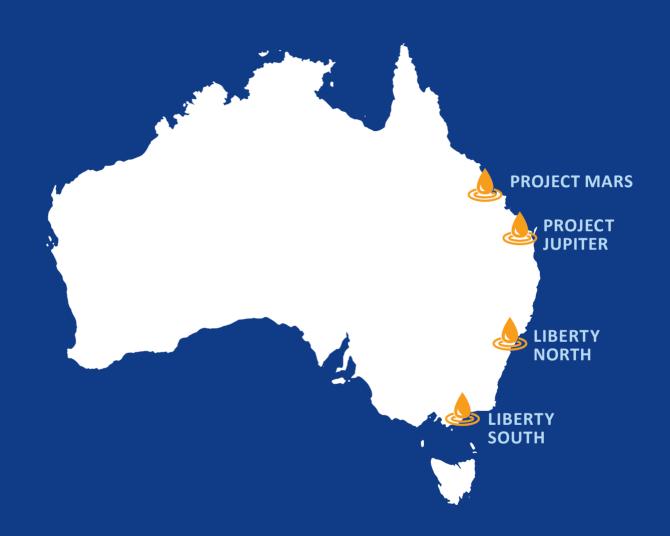




### PURE HYDROGEN INTERNATIONAL

Pure Hydrogen International is planning to develop 4 large scale Hydrogen Plants in different ports on the east coast of Australia.

- Targeting to become one of the largest Hydrogen Producers in in Australia
- The initial 4 projects is planned in Gladstone (Project Jupiter), Mackay (Project Mars), Port of Newcastle (Liberty North) and Port Anthony (Liberty South, Victoria).
- Plans to supply the domestic market first then hydrogen fuel to the Asia Pacific specifically Japan and Korea.





# **HYDROGEN OPERATIONS**PROJECTS

Project Jupiter, Mars, Liberty North and South are being developed as export projects.

- Several discussions with regulatory bodies advancing
- Project Jupiter, earmarked for Gladstone is initially targeting production of 36,000 tonnes, increasing +100,000 tonnes of Hydrogen per year; Expected to be online in 2024
- Project Mars, Mackay is targeting production around 36,000 tonnes of Hydrogen per year
- Other projects planned for Liberty North (Project Mercury) and Liberty South (Project Saturn)

#### Pure Hydrogen International

#### **Projects:**

**Project Jupiter** 

**Project Mars** 

**Project Liberty North** 

**Liberty South** 

#### **Pure Gas**

#### **Projects:**

Methane Pyrolysis

Graphene production

**Project Saturn** 





Plan to convert gas deposits to high value H2 and carbon products

PURE HYDROGEN HAS net 535 BCF 2C AND 14.5 TCF<sup>2</sup> OF UNCOMMITTED DIVERSIFIED GAS PORTFOLIO



100% Project Venus Surat Basin CSG, Queensland

123 Bcf 2C, and 560 PJ in Prospective Resources in the Wallon CSG<sup>1</sup>



100% Windorah Gas Project
- Cooper Basin gas

330 Bcf 2C and 8.8 TCF prospective basin centered gas<sup>3</sup>



51% Project Serowe CSG, Botswana (farmed out)

160 Bcf 2C and prospective 10.7 TCF CSG<sup>4</sup>



### PURE HYDROGEN TEAM



**Les Nelson** General Manager Operations

B.Bus, M.Marketing

Les has over 30 years' experience working in industrial and retail markets.

Prior to Pure Hydrogen Les worked for 20 years for Australia's largest Liquified Petroleum Gas distributor, Elgas Ltd, as General Manager.

Les has extensive expertise at improving customer growth, energy solutions, infrastructure transformation and productivity improvement. He developed and led high performing management teams throughout various roles.



#### **Gareth Forde** Hydrogen Technology Officer

BE(Chem, Hons I) FIChemE PhD MAICD

Gareth has over 20 years experience in hydrogen, oil & gas, water, energy and process engineering.

Gareth is a Registered Professional Engineer of Queensland (RPEQ) in both Chemical and Environmental Engineering.

Gareth brings deep technical and commercial experience to projects in the areas of advanced process modelling, CAPEX/OPEX estimation, design, project management of utility scale renewables infrastructure, procurement, and project execution, through to plant optimisation, efficiency gains, de-bottlenecking and energy / GHG emissions auditing.



### **Brendan Norman**CEO/CMO H2X Global

Previously BMW Group, VW Group, Infinity, Grove - Top Management BMW/ Audi/VW/Infiniti across Australia, Africa, Middle East, Europe. - Riversimple FCEV Leadership Team.

Founder Grove Hydrogen Auto. /Director IGE (Tiger FCET). Head of Strategy for Volkswagen Group Asia for Regional Development Program leading Asia (ex. Japan and China) sales increase from 3000 to 350,000 units within 10 years.

Lead New Operational Start-ups in Korea, Japan, Thailand, UK, Saudi Arabia, Kazakhstan.



#### **Andrew Thompson** Hydrogen Production Technology

B.Eng (Mech), M.Eng.Sc.

Andrew has over 30 years' experience in Minerals Processing, Oil and Gas in Australia, UK and Cuba.

He has held several
Executive positions in
Project Development
and Operations at Arrow
Energy, including General
Manager of surface
facilities development
and Vice-President of high
pressure pipelines from the
Surat and Bowen Basins to
the proposed Gladstone
LNG facilities.

Andrew also has experience in Gas-Fired Power Generation and Carbon Nano-Products Manufacturing using Methane to produce Hydrogen and Graphene.



### **Clint Butler**Sales Manager

Clint has 15 years' experience in the Liquid Petroleum Gas Industry and has been an Executive Director for an Energy Monitoring company for the past 11years.

Clint has worked with numerous Multi-National LPG companies in providing best practice & solutions for the client.

Clint excels in customer service relations and business development – ensuring the client is given what is needed for the scope of works.



Ying Ou Financial Controller B. Arts MBA

Graduated in 2002 with a BA, Ying very quickly advanced to various administration, accounting then management positions at hospitality in different countries including Switzerland, USA, and Australia.

She later achieved MBA in Accounting & Finance, and at present has 15 years' experience of corporate accounting, joint ventures and finance in the Oil & Resources industry, including with public listed companies Mosaic Oil and AGL.



# PURE HYDROGEN CORPORATE AND CAPITAL STRUCTURE



#### Ron Prefontaine Chairman

B. Sc (University of British Columbia, Canada)

Ron has over 40 years of experience in the oil and gas industry and serves Pure hydrogen as an Chairman.

Between 2001 and 2011 he was an Executive and Managing Director of two successful Australian Securities Exchange listed companies, Arrow Energy and Bow Energy.

Arrow Energy was taken over in 2010 for \$3.5 billion and Bow Energy in late 2011 for \$550 million. His strengths are asset growth recognition and the management of corporate growth.



### **Scott Brown**Managing Director

B. Bus, M. Commerce.

Scott has over 25 years' experience as a director and an executive in public companies.

Prior to Pure Hydrogen Scott was instrumental in the listing of several companies on either US or ASX including Real Energy and Objective Corporation (ASX:OCL). Scott was the CFO of Mosaic Oil, a public Australian company with an extensive range of oil and gas production and exploration.

He was also CFO/Finance Director of Allegiance Mining NI and Objective Corporation Limited. He is also a non executive director of Trisil Group Limited.



#### Lan Nguyen Non Executive Director

B.Sc (Mining Engineer-Geology), M.Sc (Petroleum Geology).

Lan has over 25 years' experience in petroleum exploration, development and production in Australia and internationally.

Previously as Managing Director of ASX listed Mosaic Oil, he transformed the company from a speculative petroleum explorer to a successful petroleum production company.



#### **Ron Hollands** Company Secretary

B. Bus, MBA Grad. Dip Corporate Governance (CSA).

Mr Ron Hollands holds a Bachelor of Business, an MBA and a Graduate Diploma in Corporate Governance, and is a member of the Institute of Chartered Accountants, holds a Certificate of Public Practice and is registered tax agent.

Ron is also currently the Company Secretary of Ashley Group Limited (ASX:ASH). He is a Chartered Accountant with over 20 years' experience in accounting, corporate finance and company secretarial matters.

Capital Structure	Shares on Issue
Ordinary Shares on issue - ASX Listed	331,973,906
Ordinary Shares on issue - unlisted	8,094,227
Total Shares on issue	340,068,133
Market Capitalisation (at 52 cps)	\$1 76,835,429

**Options on issue** 

Options expiring various Dates and Prices

28,357,776

If all options exercised the Company would receive over \$20M

Cash (unaudited 6/12/21) \$12,050,000



An integrated Hydrogen operation supporting the Hydrogen eco system

Covering excellent technology,

a talented team,

multiple projects and operations,

gas resources - multi Tcf,

and the determination to make it happen.

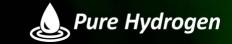
Please see interview of Mr Scott Brown at www.purehydrogen.com.au/news

Contact

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#### **Geological Information**

The geological information in this presentation relating to geological information and resources is based on information compiled by Mr Lan Nguyen, who is a Member of Petroleum Exploration Society of Australia and the Society of the Petroleum Engineers and has sufficient experience to qualify as a Competent Person. Mr Nguyen consents to the inclusion of the matters based on his information in the form and context in which they appear. The information related to the results of drilled petroleum wells has been sourced from the publicly available well completion reports.

Page 12 - Notes 1. As reported in Announcement dated 4 May 2021 – the 1C 87.7 Pj, 2C 130.3 Pj and 157,9 Pj – the remaining prospective resource was 536 Pj

Note 2 - The total of 1.1 TCF 3C AND 14.9 TCF Prospective is a combination of Windorah gas project 770 Bcf and 8.8 Tcf, Venus Gas Project 157.9Pj 3Cand 536PJ Prospective and Serowe Gas Project 200.7 Bcf and 10.072 Bcf best estimate – Pure Hydrogen has a 51% working interest in the Serowe Project.

Note 3 – The Contingent resources is a summary of of 2 reports for the Windorah Gas Project. One estimate prepared by DeGolyer and MacNaughton, a leading international petroleum industry consulting firm in June 2015 in respect of the Queenscliff Area and one estimate prepared by Aeon Petroleum Consultants in respect of the Tamarama area completed in August 2019. The Prospective estimate of 8.8 Tcf is based on the work by DeGolyer and MacNaughton adjusted for the permit that was relished by the Company.

Note 4 – As reported in the Announcement on the 18 November 2021 – the Serowe Project has contingent Resources of 1C 120.4, 2C 160.6 and 3C of 200.7 Bcf and best estimated of 10.07 Bcf – all figures 100%.

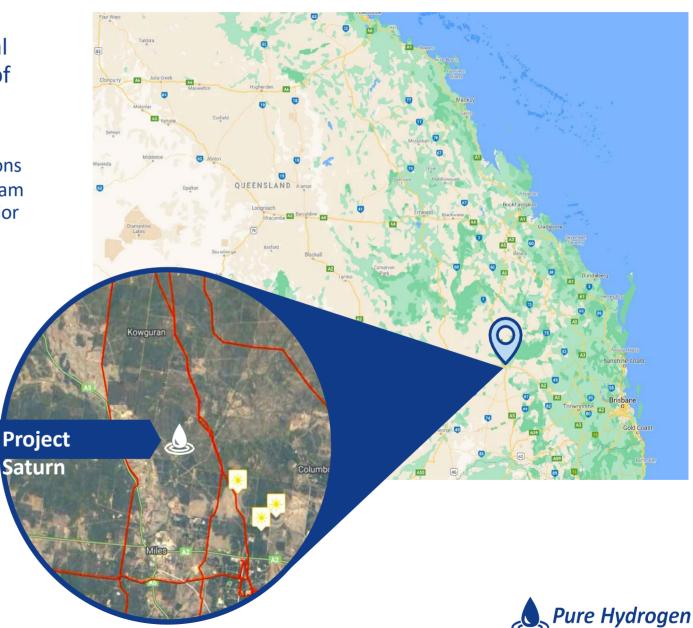
Pure Hydrogen

# PROJECT SATURN - COAL SEAM GAS TO HYDROGEN

Pure Hydrogen is proposing its Hydrogen Plant in Central Queensland near the town of Miles, which is about 3.5 hours drive from Brisbane.

The site is chosen for several reasons – as it sits on the Walloon Coal Seam Gas (CSG) fairway and next to major gas pipelines include PPL74 (APA).

Pure Hydrogen could use gas supply from its natural gas projects.



### SOUTHERN AFRICA HYDROGEN POTENTIAL

Pure Hydrogen/Botala
Energy to become a
significant producer and
distributor of hydrogen for
heavy haulage in Southern
and Central Africa.



#### **Hydrogen By Pyrolysis**

Supplemented by electrolysis where feasible



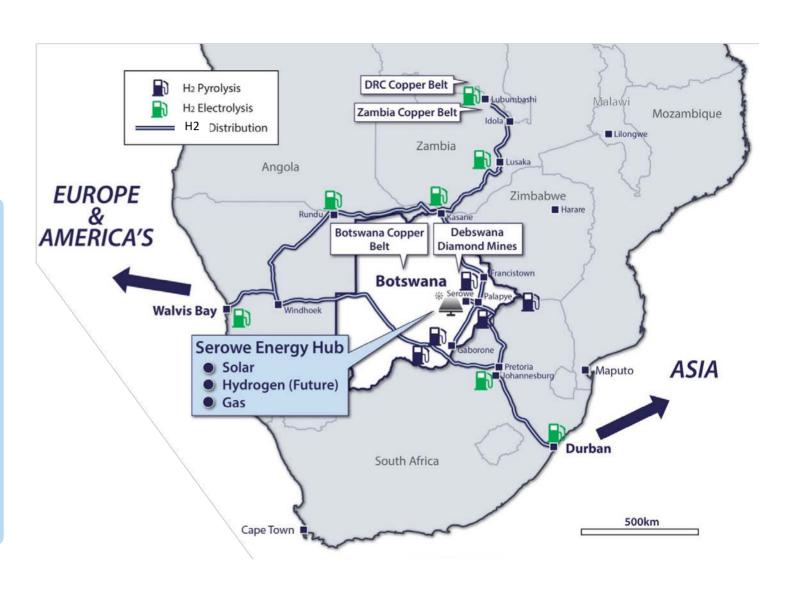
### Significant Truck & Rail Routes

Botswana connects Southern Africa to the ports of Durban and Walvis Bay



#### **Energy Security**

Development of indigenous fuel source reducing reliance on importing



PURE HYDROGEN / BOTALA
ENERGY - HYDROGEN STRATEGY



