Pure Hydrogen

ASX Announcement

Pure joins with Synergen to produce Hydrogen and Carbon Products

- **Term Sheet agreed between Synergen Met Pty Ltd and Pure Hydrogen to form a 50/50 Joint Venture (JV)**
- **The JV to use Synergen Met's plasma pyrolysis modular design technology to manufacture hydrogen and solid carbon products from Pure Hydrogen's 11 TCF of methane resources and other gas resources.**
- **Carbon products include carbon black and the potential for high-value synthetic graphite, graphene flakes and/or carbon nanotubes**
- **The modules are housed in 12 metre standard shipping containers offering easy expansion.**
- **First CSG-to-hydrogen hub in the world - to be installed adjacent to Venus CSG pilot near Miles, Queensland.**

Sydney: 6 April 2021, Australian clean energy company, Pure Hydrogen Corporation Limited (ASX: PH2 or 'Pure Hydrogen'), is pleased to announce a Term Sheet with Synergen Met Pty Limited ('Synergen') has been endorsed where the parties will establish a 50/50 Joint Venture ('JV') to manufacture 'turquoise' hydrogen gas and value add carbon products from methane using Synergen's designed and built methane decomposition modules.

Synergen's modular plant technology uses a propriety plasma pyrolysis process which decomposes natural gas (methane) into hydrogen and solid carbon products. If the process uses electricity from renewable sources, there are essentially no greenhouse gas emissions produced to manufacture the hydrogen.

The Term Sheet contemplates 2 stages – the first stage will involve building a prototype - a shipping container sized module design that is capable of producing about 1,400kg of hydrogen and 4200kg of value-add carbon product running 24/7. Stage 2 would piggy back on the first stage which would focus on the development of the carbon products, if feasible, which would include **synthetic graphite, graphene flakes and/or carbon nanotubes** and thereby potentially adding substantial value to Pure Hydrogen's 11.1 TCF of methane resources in Queensland and Botswana.

Each methane decomposition module will be housed in a standard 12 metre (40-foot) shipping container and therefore can be fully operational very quickly. Importantly, being standard shipping container size and design, the JV can build and install extra modules almost anywhere there is an adequate supply of methane to support the growing domestic and international hydrogen markets.

The Term Sheet is subject to customary Condition Precedents including both Pure Hydrogen and Synergen signing off on the module design and formalise agreements for the first module which is targeting 1,400 kg of Hydrogen per day starting in second half of 2022. The current plan is to install the first module immediately adjacent to Pure Hydrogen's 100% owned Venus CSG Pilot near Miles in Queensland. This project could be the first low to no emissions CSG-to-hydrogen hub in the world.

Power will be sourced from combination of grid, solar and/or site generated electricity. If grid and solar electricity are used and the grid is from renewables, the entire methane to hydrogen and value add carbon manufacturing process would result in no greenhouse gas emissions.

The JV with Synergen is in line with Pure Hydrogen's stated strategy of having a diversified hydrogen technology and production methods. The JV will also continue Pure Hydrogen's strategy of building a network of hydrogen storage and distribution hubs to supply and sell hydrogen.

Pure Hydrogen's Managing Director Scott Brown said, *"This is a very promising commercial development for Pure Hydrogen and for Synergen as we are combining proven technology with a methane resource to produce hydrogen and solid carbon products, which potentially adds another valuable revenue stream to Pure Hydrogen's business and an exciting technology angle to Pure's Strategy. "*

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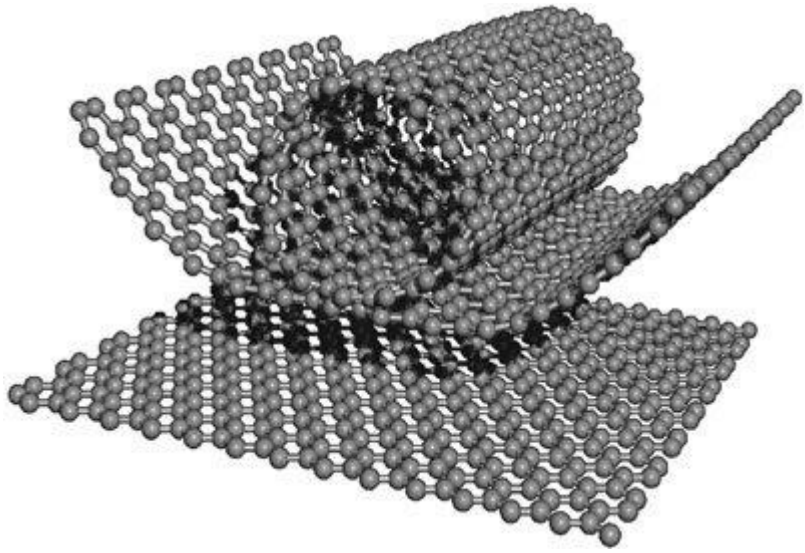
About Pure Hydrogen Corporation Limited

Pure Hydrogen is an Australian east coast focused Energy Company with Hydrogen and Gas businesses. The Company has 5 Hydrogen projects under development and 3 gas projects, Windorah Gas Project in the Cooper Basin, Australia's most prolific onshore producing petroleum basin, Project Venus CSG in the Surat Basin in Queensland and the Serowe Project CSG in Botswana.
For further details www.purehydrogen.com.au

About Sygnergen Met

Sygnergen Met was formed fifteen years ago to initially develop the technology for a modular sodium cyanide process plant, the Sygnergen NaCN Plant, invented by Dr Geoff Duckworth. The Sygnergen NaCN Plant is a world-first technology, developed in conjunction with the Department of Chemical Engineering, University of Queensland, that has been invented, developed and tested from the ground up to meet the precise needs of the world's gold, silver and base metal mineral processing operations. The first plant of its kind trialed at a mine in Australia has undergone more than six years of rigorous development and testing. The Sygnergen NaCN Plant is a modular, stand-alone production plant for the manufacturing of sodium cyanide. Each plant is the size of a standard 40-foot shipping container and is readily transportable. Subsequently, Synergen has adapted the technology to produce other products including acetylene, hydrogen and carbon black. Further developments have enabled Synergen Met to develop technology for the concentration and destruction of PFAS and related chemicals. The plant's technology has been through the PCT patent process and full patents have been granted in Australia, USA, Europe, Mexico, South Africa and the two African patent regions of OAPI and ARIPO. Patents are under final review in Canada.



Carbon Nanotubes

Nanotubes are the expected value add carbon product in Stage 2 of the JV

Both Pure and Synergen believe the Stage 2 modules most likely value add carbon product will be carbon nanotubes. Carbon nanotubes are cylindrical molecules that consist of rolled up sheets for graphene. Nanotubes can be single-walled or multi-walled.

Carbon nanotubes are well-suited for virtually any application requiring high strength, durability, electrical conductivity, thermal conductivity and lightweight properties compared to conventional materials.

Carbon nanotubes can also be spun into fibres, which not only promise multiple possibilities for ultra high strength textiles and other materials but may also help realise a particularly utopian project – the space elevator.

Carbon nanotube enabled composites have received much attention as a highly attractive alternative to conventional composite materials due to their mechanical, electrical, thermal, barrier

and chemical properties such as electrical conductivity, increased tensile strength, improved heat deflection temperature, or flame retardant.

These materials promise to offer increased wear resistance and breaking strength, antistatic properties as well as weight reduction. For instance, it has been estimated that advanced Carbon nanotubes composites could reduce the weight of aircraft, spacecraft and other vehicles by up to 30%.

Nanotubes also have the capacity to store hydrogen safely, effectively and compactly which can massively improve Pure Hydrogen's storage and transportation costs.

Nanotube composite materials already find use in:

- sporting goods(bicycle frames, tennis rackets, hockey sticks, golf clubs and balls, skis, kayaks; sports arrows)
- yachting (masts, hulls and other parts of sailboats)
- textiles (antistatic and electrically conducting textiles ('smart textiles'); bullet-proof vests, water-resistant and flame-retardant textiles)
- automotive, aeronautics and space (light-weight, high-strength structural composites)
- industrial engineering (e.g. coating of wind-turbine rotor blades, industrial robot arms)
- electrostatic charge protection (for instance, researchers have a developed electrically conducting and flexible CNT film specifically for space applications) and radiation shielding with CNT-based nanofoams and aerogels.