



Hydrogenus Energy Limited

Company Profile

June 2026

“Zero Carbon Electricity, On Demand at a lower cost”

Market Opportunity

- Renewable energy lacks inertia, placing grid stability into question, running the risk of a blackout
- Legacy transmission infrastructure is creating curtailment (waste)
- Long-term, 3 plus hours, energy storage is expensive
- Large parts of the economy are dependent on diesel generators – remote location

Our Solution delivers

- Dispatchable zero-carbon energy
- Inertia into the grid providing the grid stability to support the renewable energy transition
- An internal combustion engine that is well understood in the market, easy to scale and can be located in most locations
- Uses curtailed energy to produce hydrogen for immediate fuel use. Ammonia is used for long-term storage
- Final product will be a 1 Mw transportable power station, contained in a 40-foot shipping container

Target Industry Verticals

- Grid Forming/Grid Syncing
- Remote location distributed energy
- Microgrid applications for the built environment

Executive Team

Mark Smith – Non- Ex Chair
Pieter Bruinstroop – Ex Director
Marcus Clayton – Ex Director
Shay O’Brien – CEO
Earle Harper - CCO

Hydrogenus Energy (“HYE”) has developed Internal Combustion Engine (“ICE”) Intellectual Property (“IP”) for grid synchronisation, grid-forming, and microgrid applications. Hydrogenus Energy’s competitive advantage is that HYE engines can use hydrogen of virtually any purity as a fuel to deliver dispatchable, zero-carbon power.

When combined with complementary IP, HYE will be able to take curtailed renewable energy and store it on-site as hydrogen for immediate fuel use, or, for longer term, even perpetual energy storage needs, HYE will use ammonia as our energy capture solution, resulting in a more affordable and safer alternative to Battery Energy Storage Systems (BESS) for long term storage of renewable energy, making Hydrogenus Energy the ideal solution for our renewable energy transition.

Market in which Hydrogenus Energy operates

HYE operates in large, growing global markets where HYE can play a critical role in the renewable energy transition. Key markets identified are:

- Grid Forming:** HYE provides critical inertia to the grid, maintaining the frequency of the grid and mitigating the potential for blackout. The intermittent nature of renewables and the lack of physical mass are major headwinds in the renewable energy transition.
- Long Duration Energy Storage:** Storing renewable energy as ammonia delivers a long-term renewable energy solution, significantly cheaper than existing BESS systems.
- Remote location:** Diesel replacement is a major priority for most governments, organisations and communities. HYE provides a practical, actionable solution with zero-carbon, dispatchable energy at an affordable price.
- Built environment:** HYE provides an affordable and practical backup power solution for organisations that are required to have energy assurance. HYE offers an actionable path to help an organisation meet its ESG (net zero) obligations. Industries under consideration include data centres, public infrastructure such as hospitals and buildings.

Progressive Demonstrations to the final product

Commencing in the June Qtr. 26, HYE will demonstrate the first of its kind zero-carbon grid-forming application in Ballarat, Victoria.

- In the first of a three-phase demonstration, HYE will use bottled green hydrogen as its only fuel to demonstrate the ability to add load directly into the Australian National Energy Market (NEM), while providing the grid-synchronisation and grid-forming functions.
- The second-phase demonstration, scheduled to commence in the late June quarter of 2026, will introduce an electrolyser. The demonstration will enable HYE to acquire surplus renewable energy that would otherwise be curtailed to produce hydrogen and store it on-site for the short term. Hydrogen (the energy store) will be used as a fuel to provide inertia to the grid and enable otherwise wasted renewable energy to be used during peak demand.
- The third-phase demonstration, scheduled to commence before the end of 2026, will introduce on-site ammonia production. The demonstration will enable HYE to convert surplus hydrogen into ammonia for storage in tanks. When fuel is required, HYE will crack ammonia back into hydrogen at the point of injection into the engine via an ammonia cracker. Success in phase three will demonstrate that renewable energy, stored as ammonia, can be stored indefinitely at a price point far lower than any BESS, and that, given ammonia’s relative ease of transport, renewable energy (fuel) can be moved to areas of need within the NEM.

This is, in effect, 24/7 green renewable energy!

The HYE final product will be a 1 MW transportable power station contained within a 40-foot shipping container. HYE projects the transportable power station to be ready within 12-18 months.

Provisional Patents

Australian Provisional Global
Patent Application No.
2024900658

Office Location

Block Arcade, Suite 324
96 Elizabeth Street
Melbourne VIC 3000
Australia

Company Background

Hydrogenus Energy Limited, ACN 163 460 884, was established in November 2019, as Bennett Clayton Hydrogen Engine Systems (BCHES), to leverage the expertise developed by Bennett Clayton Pty Ltd, ACN 131 702 522, in developing Internal Combustion Engines (ICEs) to operate safely, effectively and efficiently using fuels other than conventional hydrocarbons.

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ACN 163 460 884

Hydrogenus Energy - Business Model

HYE addresses many of the immediate headwinds facing the renewable energy transition. The HYE business model includes:

- **Fuel source:** Using curtailed energy to produce hydrogen for fuel. This will be for immediate energy applications, such as grid-forming and meeting peak energy demand.
- **Energy Storage:** Surplus hydrogen will be converted into ammonia for long-term, perpetual storage as a price point significantly cheaper than BESS. As ammonia is easily transportable, renewable energy can be moved over long distances, even internationally, reducing or even mitigating the need for excessive transmission lines.
- **Energy production:** HYE-ICE produces dispatchable, zero-carbon fuel for energy production. When applying ammonia, HYE will have an ammonia cracker attached to the HYE-ICE genset that converts the ammonia to hydrogen, which is then injected directly into the genset as fuel. The byproduct of HYE-ICE combustion is pure water, which has its own value across a range of applications.

Hydrogenus Energy - Revenue Model

HYE has 5 potent revenue streams from projects using the HYE-ICE, these being:

1. margins on the cost of equipment supplied.
2. management fees for ongoing operations (Annual Recurring Revenue).
3. returns to capital providers.
4. a share of the difference between costs and revenues, and
5. a share of any available "green" benefits.

The long-term business objective is to become the owner of projects, enabling HYE to participate in the Energy-as-a-Service business model.

Market Validation

HYE is currently engaging multiple organisations across the grid-forming, remote location (Island), and physical infrastructure markets. The move to conditional purchase orders will be dependent on the successful outcome of the first demonstration.

The Hydrogenus Energy Advantage

HYE delivers a practicable and actionable solution, which is:

- **Affordability:** the HYE solution is price competitive.
- **Long duration, even perpetual renewable energy storage:** Using ammonia as a long-term storage capture solution allows HYE to defer the time and location of energy generation.
- **Fuel efficiency:** Does not require pure Hydrogen, giving a much lower fuel cost. HYE is 15%-20% more efficient and more adaptive to load changes than a comparable engine.
- **Low-pressure injection:** Genset operates under low-pressure hydrogen, avoiding the need for exotic materials and compression. This means lower capital and maintenance costs.
- **Provides inertia:** Capable of zero carbon dispatchable power suitable for grid synchronisation, grid forming and microgrid solutions. Responsive to changes to grid load.
- **No carbon particulates:** Emissions are pure water. There is zero CO₂, Zero particulates, zero NO_x, zero SO_x.
- **Ease of maintenance:** HYE is an adaptation of an existing diesel engine so that it will be familiar to mechanics. Plus, zero carbon leads to lower maintenance, less wear and no bore glazing, resulting in lower maintenance requirements and longer mechanical life.