Path2 Hydrogen AG

Germany / Cleantech
Frankfurt
Bloomberg: PTHH
ISIN: DE000A1A6WB2

Initiation of coverage

RATING	**BUY**
PRICE TARGET	**€ 2.00**
Return Potential	150.0%
Risk Rating	High

BUILDING AN INTEGRATED HYDROGEN CHAMPION

Path2 Hydrogen is a German holding company aiming to create a vertically integrated hydrogen ecosystem to deliver low-carbon energy at record low costs. Its 100%-owned US subsidiary GenH2 develops and manufactures standardised equipment for liquefying and storing hydrogen. Its technology team includes former NASA researchers and developers with decades of experience in engineering and building hydrogen solutions. In the past, the main disadvantage of liquid hydrogen was that during its storage and transfer ca. 30% to 50% were lost. GenH2's cryogenic Controlled Storage solution solves this problem and offers a zero-loss liquid hydrogen storage and transfer, which significantly improves the economics of liquid hydrogen use cases. Its innovative technology is based on NASA R&D and testing of zero-loss methods and is protected by patents. We thus believe that the technology offers a sustainable competitive advantage compared to conventional liquid hydrogen technology and compressed gaseous hydrogen storage. GenH2 also offers hydrogen liquefiers in various sizes (20 kg/day up to 5 tons/day utilising a patented system that does not require liquid nitrogen pre-cooling. GenH2 addresses markets such as heavy duty trucks, mass transport, rail, marine, aviation, and industry.

Following the acquisition of GenH2 in March, Path2 Hydrogen announced in October 2025 that it had entered into an agreement to acquire 100% of ProtonH2, which has patented technology to produce large amounts of low-carbon hydrogen from depleted oil reservoirs at record low costs of ca. 0.75 $/kg hydrogen. Combining the upstream player ProtonH2 with the midstream player GenH2 means that Path2 Hydrogen will be in a position to produce, store, and transfer low-carbon hydrogen at record-low cost. Key customers are likely to be AI data centres, industrial offtakers, logistics and transport companies. In our initiating coverage we base our valuation solely on GenH2 but see significant upside in the future combination of GenH2 and ProtonH2. Our DCF-based valuation yields a €2.00 price target. We initiate coverage with a Buy rating (upside: 150%).

FINANCIAL HISTORY & PROJECTIONS

	2023	2024	2025E	2026E	2027E	2028E
Revenue (€ m)	n.m.	n.m.	1.0	21.4	54.9	98.8
Y-o-y growth	n.a.	n.a.	n.a.	2023.8%	155.9%	80.0%
EBIT (€ m)	n.m.	n.m.	-6.4	-3.1	3.6	7.9
EBIT margin	n.a.	n.a.	-635.6%	-14.2%	6.6%	8.0%
Net income (€ m)	n.m.	n.m.	-7.1	-4.4	1.5	4.8
EPS (diluted) (€)	n.m.	n.m.	-0.06	-0.04	0.01	0.04
DPS (€)	n.m.	n.m.	0.00	0.00	0.00	0.00
FCF (€ m)	n.m.	n.m.	-7.0	-8.6	-3.4	-1.9
Net gearing	n.m.	n.m.	166.5%	328.0%	306.8%	203.4%
Liquid assets (€ m)	n.m.	n.m.	0.4	1.2	0.8	1.9

RISKS

The main risks are: financing, project delays, loss of key personnel, and market acceptance of ist technology.

COMPANY PROFILE

Path2 Hydrogen is a German holding company with a focus on hydrogen infrastructure. Its US subsidiary GenH2 manufactures hydrogen liquefiers and liquid hydrogen storage. In October 2025, Path2 Hydrogen entered into an agreement to takeover ProtonH2, which has the capacity to produce low-carbon and low-cost hydrogen from depleted oil reservoirs.

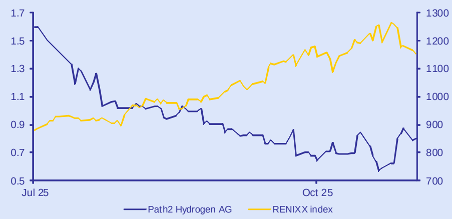
MARKET DATA

As of 11/18/2025

Closing Price	€ 0.80
Shares outstanding	111.52m
Market Capitalisation	€ 89.21m
52-week Range	€ 0.57 / 1.60
Avg. Volume (12 Months)	1,819

Multiples	2024	2025E	2026E
P/E	n.a.	n.a.	n.a.
EV/Sales	n.a.	93.5	4.4
EV/EBIT	n.a.	n.a.	n.a.
Div. Yield	0.0%	0.0%	0.0%

STOCK OVERVIEW



COMPANY DATA

As of 30 Jun 2025

Liquid Assets	€ 0.16m
Current Assets	€ 0.29m
Intangible Assets	€ 1.56m
Total Assets	€ 24.13m
Current Liabilities	€ 6.91m
Shareholders' Equity	€ 12.77m

SHAREHOLDERS

H2E Americas LLC	38.9%
Jong Baik	15.8%
Capana Swiss Advisors	15.0%
Other investors	14.8%
Free Float	15.6%

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INVESTMENT CASE

BUILDING AN INTEGRATED HYDROGEN CHAMPION

Path2 Hydrogen is a German holding company that plans to create a vertically integrated hydrogen ecosystem to deliver low-carbon energy at record low costs. Its 100% US subsidiary GenH2 offers zero-loss hydrogen liquefaction and storage technology, which solves liquid hydrogen's main disadvantage—the high losses (ca. 30% to 50%) during storage and transfer. Following the acquisition of GenH2 in March, Path2 Hydrogen announced in October 2025 that it had entered into an agreement to acquire 100% of the Canadian company ProtonH2, which has patented technology to produce large volumes of low-carbon hydrogen from depleted oil reservoirs at a record low cost of ca. 0.75 $/kg hydrogen. Combining the upstream player ProtonH2 with the midstream player GenH2 means that Path2 Hydrogen will be in a position to produce, store, and transfer low-carbon hydrogen at record-low cost. Key customers are likely to be AI data centres, industrial offtakers, logistics and transport companies. In our initiating coverage we base our valuation solely on GenH2 but see significant upside in the future combination of GenH2 and ProtonH2. We will integrate ProtonH2 into our valuation once the acquisition is completed, which will probably happen in Q1/26.

ZERO-LOSS HYDROGEN LIQUEFACTION AND STORAGE TECHNOLOGY

GenH2's cryogenic solutions offer zero-loss liquid hydrogen storage and transfer, which significantly improves the economics of liquid hydrogen. Its innovative technology is based on NASA R&D and testing of zero-loss methods and is protected by patents. GenH2's technology team includes former NASA researchers and developers with decades of experience in engineering and building hydrogen solutions. We thus believe that GenH2's technology and know-how offer a sustainable competitive advantage compared to conventional liquid hydrogen technology and compressed gaseous hydrogen storage resulting in strong revenue growth in the coming years.

LARGE HYDROGEN MARKET OFFERS AMPLE GROWTH OPPORTUNITIES

Current hydrogen demand amounts to ca. 100 million tons per year. In its hydrogen market report of August 2025, the market research firm MarketsandMarkets estimates the hydrogen market at $209bn in 2024 and expects it to reach $312bn in 2030 (2024-2030 CAGR: 6.9%). Market growth is driven by the rising use of low emission energy solutions for transportation, power generation, and industrial applications. Based on growing global emphasis on decarbonisation, governments and industry are increasingly adopting hydrogen as a key component in achieving net-zero emission targets. As a future integrated hydrogen player, Path2 Hydrogen will be in a position to address all market segments with its low-carbon low-cost hydrogen supply. For GenH2's liquefaction and liquid hydrogen storage solutions, we see heavy duty trucks, mass transport, rail, marine, and aviation as main customers.

SWOT ANALYSIS

STRENGTHS

- **Convincing technology** Path2 Hydrogen's zero-loss liquid hydrogen technology offers significant cost savings compared to conventional liquid hydrogen and pressurised gaseous hydrogen technology, which gives Path2 Hydrogen a clear competitive advantage.
- **Patent protection** Path2 Hydrogen's technology is protected by patents. Its competitive advantage should thus be well defendable in the coming years.
- **Highly qualified personnel with decade-long hydrogen expertise** GenH2 employs former NASA researchers and engineers who have contributed many accumulated years of expertise to the development of hydrogen solutions for energy storage and transport.

WEAKNESSES

- **Small company with short commercial track record** Path2 Hydrogen is a small company with a short commercial track record. It will have to compete with global players such as Linde or Air Liquide, which have strong brands, large client bases, and offer hydrogen technologies which are well-established on the market. It will not be easy for Path2 Hydrogen to gain market share in this environment.
- **Limited financial resources** Path2 Hydrogen has limited financial resources and needs external funds to finance organic and external growth. It may prove to be difficult to acquire these funds depending on investor sentiment and the willingness of banks to lend money.
- **GenH2's past characterised by typical start-up problems** In 2023 and 2024, revenue generation was low at <$1m per year. By the end of 2024, the accumulated deficit amounted to almost $40m.

OPPORTUNITIES

- **Acquistion of ProtonH2** The acquisition of ProtonH2 will give Path2 Hydrogen access to ProtonH2's technology platform, patents, pipeline, and commercialisation roadmap. ProtonH2's patented technology allows production of large amounts of low-CO2 hydrogen from depleted oil reservoirs at record low costs of ca. 0.75 $/kg.
- **Combination of GenH2 and ProtonH2** Combining ProtonH2's upstream business (hydrogen production) with GenH2's midstream business (liquefaction and zero-loss liquid hydrogen storage) will enable Path2 Hydrogen to deliver low-CO2 low-cost hydrogen to offtakers such as AI data centres, industrial companies (e.g. steel, oil refineries, methanol, ammonia, semiconductor), and the transport business (road, rail, maritime, aviation).
- **Further acquisitions to complete the ecosystem** Further acquisitions such as a critical equipment supplier or a hydrogen fuel cell producer would broaden and strengthen Path2 Hydrogen's hydrogen ecosystem.

THREATS

- **Project delays** Liquid hydrogen liquefaction and storage technology is complex and has to comply with high security standards. The execution of projects such as building a hydrogen refuelling station is time consuming and may suffer from delays.
- **Loss of key personnel** If key personnel leave the company it may be difficult to compensate for the loss of know-how.
- **Geopolitical tensions** Path2 Hydrogen plans a global rollout of its technology. Geopolitical tensions and trade wars may impede this.

VALUATION

We calculate the fair value of Path2Hydrogen on the basis of a discounted cash flow (DCF) model. This model values Path2 Hydrogen solely on its 100% share in GenH2. It does not include a potential valuation upside from the planned takeover of ProtonH2.

DCF MODEL

The DCF model discounts free cash flows generated in the future to the present value (PV). We use a three-phase model that estimates phase 1 up to and including 2028E in detail. For phase 2 from 2029E to 2039E, free cash flows are determined based on assumptions about the most important model-relevant parameters (sales, EBIT, depreciation, CAPEX, working capital). The third phase calculates the terminal value.

We use the Weighted Average Cost of Capital (WACC) concept to calculate the discount rate. This determines the discount rate by the weighted average of the cost of equity and debt. We calculate the cost of equity using the capital asset pricing model and add the risk-free interest rate and the market risk premium multiplied by the company-specific risk factor.
We assume 2.6% as the risk-free interest rate. This estimate is based on long-term returns on government bonds that are considered risk-free. The 10-year German federal bond is currently yielding around 2.6%.
We consider the company-specific risk factor in a proprietary model which includes factors such as earnings quality, management strength, financial risk, competitive position, corporate governance, transparency in the publication of financial figures, company size and regulatory risk. We calculate a company-specific risk factor of 2.8 for Path2 Hydrogen.
For the market risk premium, we assume a value of 5.0% determined in scientific empirical studies. This results in a cost of equity of 2.6% + 2.8 * 5.0% = 16.6%.
We assume a debt interest rate of 7.5% for the cost of debt. With an assumed tax rate of 22%, this results in an after-tax cost of debt of 5.9%.
We assume a long-term target capital structure of 30% equity and 70% debt. This weighting results in a WACC of 9.1% which we use as the discount rate.

The assumptions for the first phase (2025E-2028E) are explained in detail in the "Financial History and Outlook" chapter. For the second phase (2029E-2039E) we make the following assumptions:

- Revenue growth decreases from 41% in 2029E to 2% in 2039E.
- The EBIT margin increases from 10.4% to 13.0%.
- The tax rate is 22% throughout.

The third phase calculates the terminal value. This is based on the following assumptions:

- Sales growth is 2%.
- The terminal EBIT margin is 13%.
- The terminal tax rate is 22%.

The following figure shows the determination of the fair value of Path2 Hydrogen.

Figure 1: DCF model

DCF valuation model All figures in EUR '000	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Net sales	**1,010**	**21,450**	**54,900**	**98,820**	**139,411**	**185,106**	**235,004**	**287,463**
NOPLAT	**-6,420**	**-3,053**	**3,216**	**6,559**	**11,755**	**16,334**	**21,368**	**26,717**
+ depreciation & amortisation	87	433	615	817	1,190	1,713	2,398	3,250
Net operating cash flow	-6,333	-2,620	3,830	7,376	12,944	18,046	23,766	29,967
- total investments (CAPEX and WC)	0	-4,666	-5,563	-7,501	-11,823	-15,429	-19,192	-22,807
Capital expenditures	0	-4,076	-4,667	-6,917	-9,277	-11,678	-14,015	-16,150
Working capital	0	-591	-897	-584	-2,546	-3,751	-5,178	-6,657
Free cash flows (FCF)	-6,333	-7,287	-1,733	-125	1,122	2,617	4,574	7,160
PV of FCF's	**-6,270**	**-6,615**	**-1,442**	**-95**	**784**	**1,678**	**2,689**	**3,858**

All figures in thousands	
PV of FCFs in explicit period (2025E-2039E)	56,771
PV of FCFs in terminal period	172,010
Enterprise value (EV)	228,781
+ Net cash / - net debt (pro forma)	-4,382
+ Investments / minority interests	0
Shareholder value	224,399
Diluted number of shares	112,564
Fair value per share in EUR	1.99

Terminal growth:	2.0%
Terminal EBIT margin:	13.0%

WACC	9.1%
Cost of equity	16.6%
Pre-tax cost of debt	7.5%
Tax rate	22.0%
After-tax cost of debt	5.9%
Share of equity capital	30.0%
Share of debt capital	70.0%
Price target	2.00

WACC \ Terminal growth rate	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%
6.1%	4.26	4.36	4.48	4.62	4.81	5.06	5.40
7.1%	3.26	3.29	3.33	3.37	3.43	3.49	3.58
8.1%	2.55	2.55	2.56	2.56	2.56	2.57	2.57
9.1%	2.03	2.02	2.01	1.99	1.98	1.96	1.93
10.1%	1.64	1.62	1.60	1.58	1.56	1.53	1.50
11.1%	1.34	1.32	1.30	1.28	1.25	1.22	1.19
12.1%	1.10	1.08	1.06	1.04	1.01	0.99	0.96

* for layout purposes the model shows numbers only to 2030, but runs until 2039

The present value of free cash flows for the explicit period (phase 1 and 2) is €57m. The present value of free cash flows in the terminal period (terminal value) is €172m. The share of the terminal value in the enterprise value is 75%. The sum of the values from both periods results in an enterprise value of €229m.

To determine the shareholder value, the net debt/net cash position must be deducted/added. As of 30 June 2025, Path2 Hydrogen had a net debt position of €-8.8m. We add €2.4m from the capital increase in July. We expect another capital increase in 2026 (FBe: €2.3m) and add the discounted value to the net debt position. The resulting pro forma net debt position is €-4.4m. Adding this figure to the EV results in shareholder value of €224m. The diluted number of shares including the July and the assumed 2026 capital increases is 112.564k. Our DCF-based fair value estimate is thus €1.99 per share.

COMPANY PROFILE

Path2 Hydrogen AG (formerly: Philomaxcap) is a German holding company listed on the regulated market (General Standard) of the German stock exchange. The company focuses on hydrogen infrastructure. Path2 Hydrogen's main holding is its 100% US subsidiary GenH2 Corp., an equipment manufacturer offering hydrogen liquefaction and liquid hydrogen storage and transfer technology. Path2 Hydrogen's next step will be the takeover of ProtonH2, which can produce hydrogen from depleted oil fields at very low cost. Path2 Hydrogen will thus soon be an integrated hydrogen company with an upstream and a midstream business, which will give the company the opportunity to deliver low-CO2 low-cost hydrogen at scale. Path2 Hydrogen has ca. 30 employees, of which ca. 5 are working for the holding. The company is registered in Munich and has an office in Berlin. Path2 Hydrogen's reporting complies with IFRS standards.

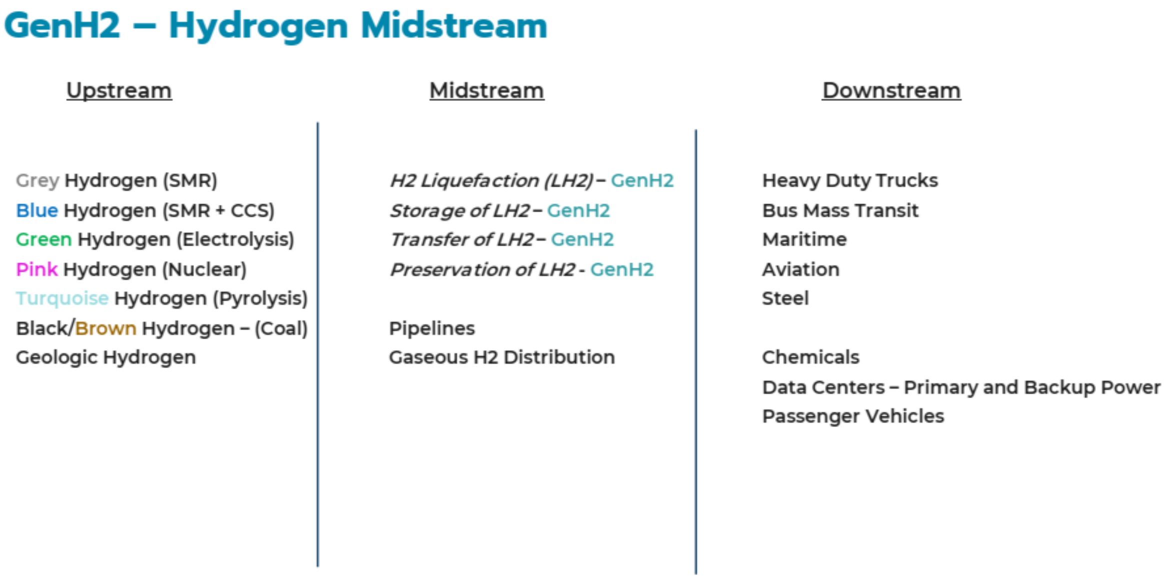
COMPANY HISTORY

In March 2025, Path2 Hydrogen acquired GenH2 via a capital increase in kind. The former GenH2 shareholders now have a majority share in Path2 Hydrogen. Before the reverse takeover, Path2 Hydrogen was a shell company named Philomaxcap. The reverse takeover served to list the formerly unlisted GenH2 on the stock exchange. Path2 Hydrogen's largest shareholder is now H2E Americas LLC with ca. 38%. GenH2 was founded in 2020 and has its headquarters (5,600 sq. meters of office and manufacturing facilities) in Titusville in Florida, USA.

POSITIONING ON THE VALUE CHAIN

GenH2 is a midstream hydrogen company (see figure 2 overleaf). In the midstream segment, companies transport hydrogen from the production location to the consumer. Upstream hydrogen companies are hydrogen producers. Different colours denote the different methods of hydrogen production. Hydrogen produced by the most common production method (steam methane reforming, SMR) is called grey hydrogen. Hydrogen produced by electrolysis is called green hydrogen as its production does not generate greenhouse gas emissions. The downstream segment shows the hydrogen consumers such as transport, steel, and chemicals. As a midstream player, GenH2 is colour-agnostic. Its technology can use hydrogen from all kinds of production.

Figure 2: Positioning on the value chain



Source: First Berlin Equity Research, Path2 Hydrogen AG

PARTNERSHIPS

Path2 Hydrogen forms partnerships to further develop and market its technology. Large industrial companies such as Bosch Rexroth, Taylor-Wharton and Chart Industries, big oil (Shell) as well as universities and government institutions are partners. This is a validation of Path2 Hydrogen’s technology.

In 2023, GenH2 and Chart Industries formed a strategic partnership to market and distribute small-scale hydrogen liquefaction technologies worldwide including the deployment of GenH2’s 1,000 kg/day hydrogen liquefier.

In February 2025, GenH2 formed a partnership with Taylor-Wharton, a subsidiary of Air Water America Inc., a global supplier of cryogenic equipment, to introduce an innovative zero-loss hydrogen storage solution. GenH2’s RS1500 Controlled Storage System incorporates a patented heat lift assembly which is placed into Taylor-Wharton’s liquid hydrogen (LH2) bulk storage tanks.

In April 2025, GenH2 formed a strategic partnership with Bosch Rexroth, one of the leading suppliers of drive and control technologies. The collaboration integrates the GenH2 liquid hydrogen Controlled Storage system with Rexroth’s liquid hydrogen CryoPump platform. The combined solution is a liquid hydrogen refuelling station platform with zero hydrogen losses across transfill, storage, and dispensing.

Figure 3: Partners of Path2 Hydrogen

Source: First Berlin Equity Research, Path2 Hydrogen AG

PATENTS

More than a dozen patents protect GenH2's main products:

- the Brayton-cycle liquefiers that don't require liquid nitrogen pre-cooling;
- the controlled storage, the heat lift assembly and smart tank equipment.

The entire Controlled Storage system is also patented.

ADDRESSABLE MARKETS

GenH2's solutions address heavy-duty trucking, busses, rail, marine, aviation, industry and backup-power. In 2026, the construction of the first zero-loss hydrogen refilling station for heavy trucks is planned in Dallas, Texas, USA, together with Bosch Rexroth and Hyroad.

PATH2 HYDROGEN'S INNOVATIVE HYDROGEN LIQUEFACTION AND STORAGE TECHNOLOGY

Before we explain Path2 Hydrogen's technology, we give an overview of the most important hydrogen properties and the origins of the technology, which was developed and tested by NASA engineers at the Kennedy Space Center.

HYDROGEN PROPERTIES AND MAIN STORAGE OPTIONS

Hydrogen is a colourless, odourless, non-toxic, non-self-ignite gas. In pure form, it occurs as the molecule H_2. Given that hydrogen is ca. 14 times lighter than air it has buoyancy force and volatilises outdoors. It has a very high permeability and is able to diffuse through porous materials or even metals. Hydrogen's chemical features make it an excellent fuel, but it requires careful handling and compliance with safety regulations. Hydrogen is inflammable even at low concentrations ($\geqslant$4% by volume), needs very low ignition energy, and is thus classified as an extremely inflammable gas.

Despite its very high gravimetric energy density of 120 MJ/kg or 33.33 kWh/kg (basis: lower heating value), hydrogen's volumetric energy density is very low (0.01 MJ/l or ca. 0,003 kWh/l) due to its low density (0.08 kg/Nm^3) at standard pressure (ca. 1 bar) and temperature (20°C). For practical handling, its storage density therefore has to be increased significantly either by compression or by liquefaction.

Physical storage using pressure (e.g. in cylinders made of aluminium, steel or composite materials) is still the predominant commercial solution. Compression consumes energy amounting to approximately 5-12% of the energy content of the hydrogen. In the mobility area, storage pressures of 350 bar (buses, trucks) or 700 bar (cars) have been established. Compressed gaseous hydrogen (CGH2) reaches a volumetric energy density of 0.8 kWh/l at 350 bar and 1.3 kWh/l at 700 bar.

The storage of hydrogen in liquid form is a technically mature technology. This requires very low temperatures, as the boiling point of hydrogen is -252.9°C. Liquefaction at -253°C significantly increases the volumetric energy content compared to pressure storage (2.4 kWh/l versus 0.8 kWh/l at 350 bar), which simplifies transport. However, energy losses during the storage process are normally high, at around 30-50%. Special steel tanks with extremely good insulation and cooling units are required for storage, as otherwise the ambient heat penetrates the tank vessel and causes the hydrogen to evaporate, which increases the pressure in the tank. Once the maximum pressure is reached, hydrogen must be released.

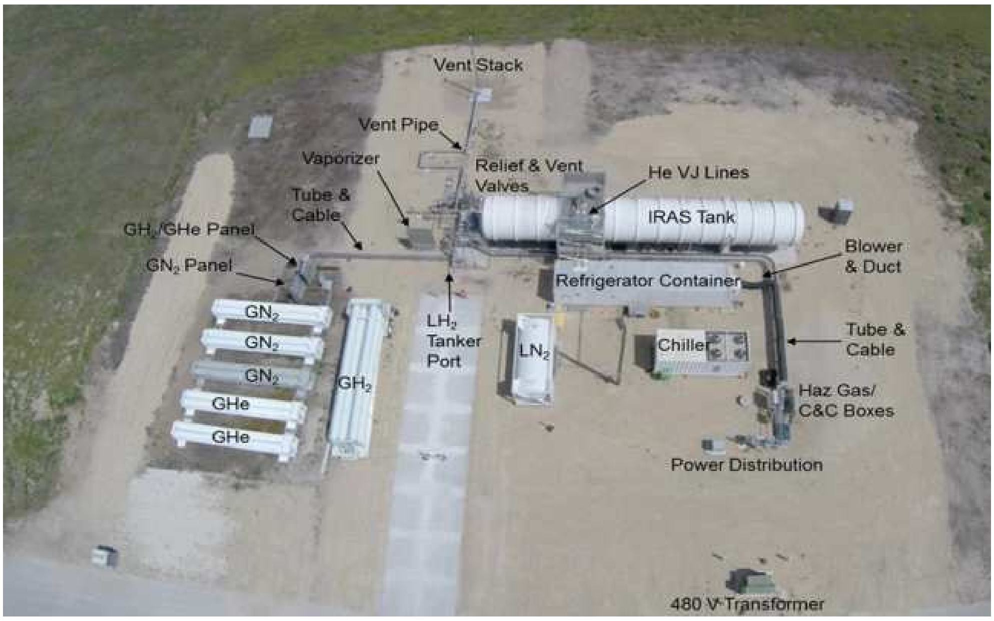
GENH2'S TECHNOLOGY IS INSPIRED BY NASA

GenH2's zero-loss controlled storage solution is derived from proof-of-concept work done at NASA to address liquid hydrogen losses encountered during the space shuttle program. As nearly 50% of purchased liquid hydrogen was lost, NASA developed a Ground Operations Demonstration Unit for Liquid Hydrogen (GODU-LH2) at the Kennedy Space Center (see figures 4 & 5 overleaf) to reduce liquid hydrogen loss and save costs. The system used an Integrated Refrigeration and Storage (IRAS) concept to control the state of the fluid inside the storage tank via direct removal of energy from the liquid by an integrated heat exchanger coupled with a cryogenic refrigerator, a Linde LR1620 capable of 390W cooling at 20K. NASA used a horizontal cylindrical LH2 tank with a vacuum-jacketed, multilayer insulation system and a capacity of 125,000 l. Figure 6 on page 13 displays a simplified functional diagram of GODU-LH2.

Figure 4: Ground Operations Demonstration Unit for Liquid Hydrogen test site

Source: A. M. Swanger et al. (2016): Integrated Refrigeration and Storage for Advanced Liquid Hydrogen Operations. Kennedy Space Center. Conference Paper. International Cryocooler Conference (ICC 19). San Diego, United States, p. 2. The photo is from the Cryogenics Test Laboratory at NASA Kennedy Space Center, Florida. Head & Senior Principal Investigator, James E. Fesmire.

Figure 5: Aerial view of the GODU-LH2 test site



Source: Swanger et al. (2016), p. 3. The photo is from Cryogenics Test Laboratory at NASA Kennedy Space Center, Florida. Head & Senior Principal Investigator, James E. Fesmire.

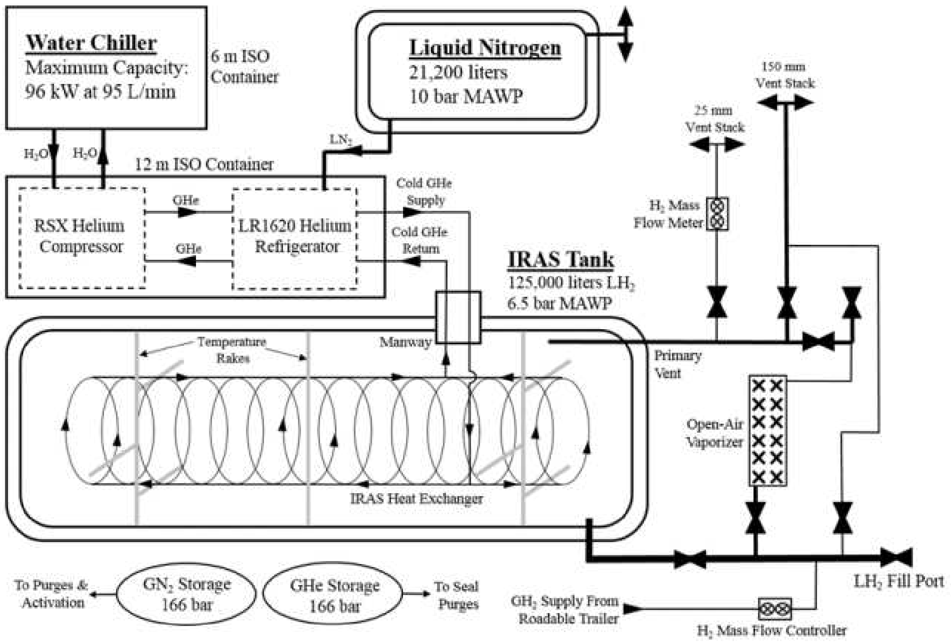
The IRAS concept pursued four capabilities:

(1) zero loss LH2 transfer from tankers into the cold IRAS tank;

(2) zero boil-off by balancing the refrigerator lift and intrinsic tank heat-leak resulting in constant pressure and liquid level. Zero boil-off is defined as the ability to store a cryogenic liquid without venting and product loss for indefinite periods of time.

(3) liquefaction: gaseous hydrogen can be introduced into the IRAS tank and liquefied in-situ;
(4) densification: if the refrigeration lift is greater than the tank heat-leak, the LH2 can be cooled below its normal boiling point, becoming denser as a result.

Figure 6: GODU-LH2 Simplified Functional Diagram



Source: W. U. Notardonato et al. (2017): Zero boil-off methods for large-scale liquid hydrogen tanks using integrated refrigeration and storage. IOP Conference Series: Materials Science and Engineering. 278, 012012, p. 4, https://iopscience.iop.org/article/10.1088/1757-899X/278/1/012012.

In a test series in 2016, the GODU-LH2 system successfully demonstrated zero loss transfer, zero-boil-off, in-situ liquefaction, and densification of hydrogen. This is well documented in the two cited scientific papers, which are publically available. The first paper was presented at the International Cryocooler Conference in 2016 in San Diego (USA) and has the title “Integrated Refrigeration and Storage for Advanced Liquid Hydrogen Operations”. The second paper was published in 2017 by Notardonato et al. in the IOP Conference Series: Materials Science and Engineering under the title “Zero boil-off methods for large-scale liquid hydrogen tanks using integrated refrigeration and storage”. GenH2 has further developed the integrated refrigeration and storage technology for hydrogen.

GENH2’S LIQUID HYDROGEN TECHNOLOGY: ZERO LOSS MAKES THE DIFFERENCE

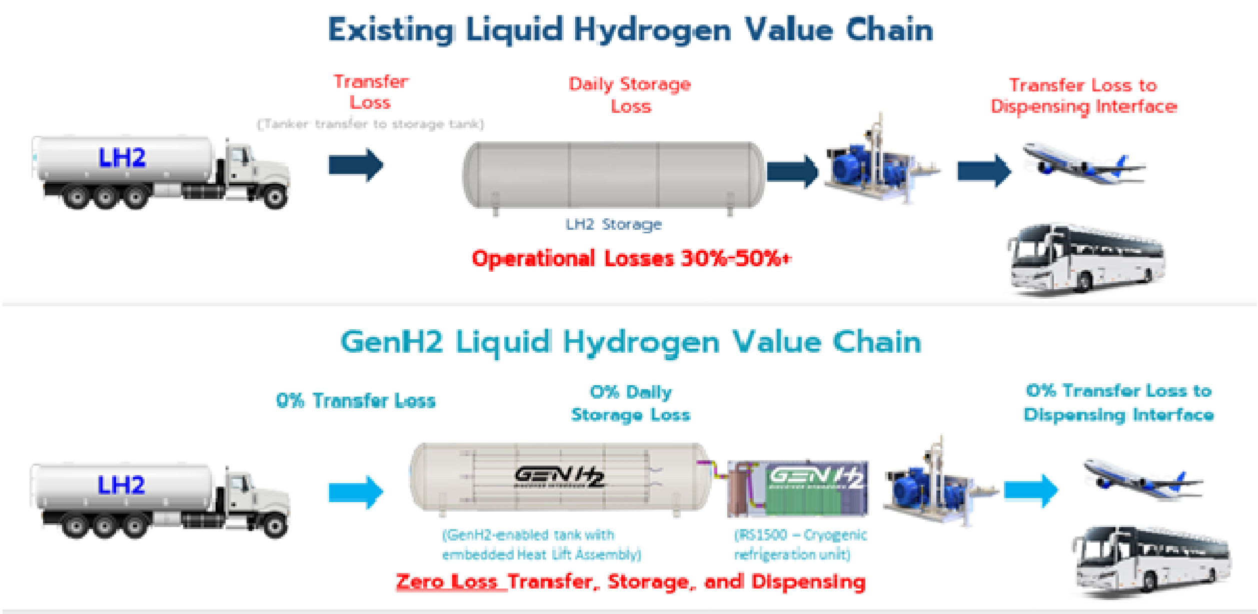
GenH2’s patented liquefiers allow customers to liquefy hydrogen at the point of production or the point of use. Customers can produce their own liquid hydrogen instead of being dependent on expensive liquid hydrogen delivery by large players such as Linde. The liquefiers generate very pure (at least 99.95%) liquid hydrogen from gaseous sources by cryogenically cooling and condensing the hydrogen until it is liquefied. The liquefaction units use a closed-loop cryo-refrigeration process utilising dry helium and do not need liquid nitrogen for pre-cooling. The liquefiers’ compact footprint make them perfectly suited for decentralised hydrogen refuelling infrastructure, fleet and logistic hubs, commercial mobility, remote power systems as well as R&D and testing facilities.

GenH2's patented controlled storage systems are inspired by NASA's IRAS technology. Its refrigerator subcools liquid hydrogen by reducing its temperature. Unlike traditional systems that depend on pressure for ullage gas and temperature control, the refrigerator utilises over 1,000 watts of cooling power at around -253 °C. to create significantly subcooled liquid, and ensure stability during transfer and dispensing (see figure 7). The active cryogenic refrigeration maintains cryogenic temperatures in the bulk storage tank. This prevents vapour eruption, pressure increases and venting of gaseous hydrogen, which usually occurs when cryogenic liquid hydrogen is pumped into a warmer storage tank. GenH2's controlled storage system can also recapture evaporated hydrogen during pumping, achieving unprecedented efficiency in bulk tank filling, storage, and daily dispensing. The result is zero-loss transfer and storage of liquid hydrogen, which solves the main problem of conventional liquid hydrogen technology—the high hydrogen losses of ca. 30% to 50% during transfer and storage.

The main benefits of GenH2's controlled storage technology are:

- Zero-loss tanker transfill of liquid LH2 into the bulk storage tank.
- Zero loss during storage. Conventional liquid storage facilities normally lose 1% per day primarily due to passive heat leak into the cryo-tank (boil-off).
- Zero loss at dispensing.
- Lower pressure, higher efficiency: Liquid hydrogen is stored at reduced pressure, which simplifies tank filling and eliminates the need for venting.
- Cost savings: By minimizing losses, fuelling stations can store and dispense more hydrogen, which enhances cost competitiveness.
- High reliability: The subcooled liquid prevents cavitation in liquid hydrogen pumps, leading to lower maintenance requirements and improved equipment reliability.

Figure 7: Conventional versus GenH2's liquid hydrogen technology



Source: First Berlin Equity Research, Path2 Hydrogen AG

ADVANTAGES OF LIQUID HYDROGEN (LH2) VERSUS COMPRESSED GASEOUS HYDROGEN (CGH2) REFUELLING STATIONS

Although compressed gaseous hydrogen is still the dominant technology for refuelling stations, we expect liquid hydrogen refuelling stations to gain market share as LH2 offers important advantages:

- **Higher volumetric density**: Liquid hydrogen offers 2.4 kWh/l, while CGH2 only 0.8 kWh/l at 350 bar. This is equivalent to three times more energy per litre. Turning hydrogen into a liquid makes it far more compact and easier to transport over long distances.
- **Higher tanker load**: A tanker truck can hold ca. 4,000 kg of liquid hydrogen, while large tube trailers (40 ft) for CGH2 can only transport ca. 1,000 kg of CGH2 at 500 bar. A single truck can thus roughly transport 4x more liquid hydrogen than CGH2. We note that a CGH2 tube trailer can only dispense based on differential pressure effectively reducing the offload to ca. 60% of the transported CGH2. Liquid hydrogen transport costs are therefore at least 50% below the transport cost of CGH2.
- **Better scalability**: CGH2 storage, refills, and dispensing quickly reach technical limits.
- **Higher Safety**: In contrast to CGH2, liquid hydrogen does not require high pressure tanks. These tanks pose severe dangers including explosions, catastrophic ruptures, severe injection injuries from leaks, fires, and the propulsion of deadly projectiles.
- **Higher purity**: Liquid hydrogen reaches a purity of up to 99.999%. Its purity is higher than that of CGH2, as liquefaction is always also a purification process. A high purity is vital for the hydrogen fuel cells performance and durability, as contaminants can degrade performance, damage the fuel cell, or halt operations.
- **Lower CAPEX**: A liquid hydrogen refuelling station requires ca. 40% lower CAPEX, as a large part of the preconditioning takes place in the LH2 production plant. Because liquid storage requires less space than CGH2, commercial property acquisition or leasing costs are lower.
- **Faster dispensing**: Liquid hydrogen dispensing is faster than CGH2 due to the absence of compression delays.

Based on GenH2's zero loss technology, liquid hydrogen refuelling stations can overcome their main disadvantage—the high hydrogen losses. Figure 8 overleaf shows an AI-based rendering of a hydrogen refuelling station using GenH2's technology. We note that refuelling stations with liquid hydrogen storage can also dispense gaseous hydrogen via a vaporiser.

Figure 8: Hydrogen refuelling station using GenH2's technology (AI generated)

Source: First Berlin Equity Research, Path2 Hydrogen AG

Given the above mentioned advantages of liquid HRS, we believe that as hydrogen sales at the filling stations increase—particularly in heavy duty transport—the supply of filling stations and the corresponding infrastructure will most likely be switched to liquid hydrogen once volumes exceed around one tonne per day. Liquid HRS can also include a gaseous hydrogen supply option via a vaporiser.

SIGNIFICANT HYDROGEN REFUELLING COST SAVINGS WITH GENH2'S TECHNOLOGY

A simple calculation shows, how much more revenue a hydrogen refuelling station with GenH2's technology will generate per year by preventing hydrogen losses. We assume that:

- The refuelling station dispenses 3,000 kg LH2 per day.
- The costs of liquid hydrogen delivered are €8/kg.
- The average hydrogen loss is 25%.

The extra revenue amounts to €2,190,000 per year (3,000 kg * 8 €/kg *25% * 365 days).

The extra costs for GenH2's technology are the CapEx and OpEx for the controlled storage system. We assume:

- CapEx of $92,000 p.a. (assumption: lifetime: 25 years);
- OpEx of $210,240 p.a.

Annual OPEX are based on the annual power consumption of the controlled storage system. We assume a capacity of 160 kW and a power price of $0.15 per kWh (160 kW * 24h *365 days *0.15 $/kWh).

Adding CapEx and OpEx, we arrive at extra costs of $302,240 p.a. for GenH2's controlled storage system. Comparing extra revenue generated with extra costs, we arrive at a factor of more than 7. This means that for every $1 spent on the controlled storage system, the operator receives $7+ in extra revenue. The economics of GenH2's controlled storage system are compelling.

FINANCIAL HISTORY AND OUTLOOK

FINANCIAL HISTORY

The H1/25 report is the first report reflecting Path2 Hydrogen's business model and contains GenH2 as a fully consolidated subsidiary. Previous reports do not provide information relevant for understanding Path2 Hydrogen's current financial situation. According to GenH2's 2024 report, GenH2's 2024 revenue was $0.8m (2023: $0.7m), and the net loss amounted to $-9.6m (2023: $-12.4m).

In H1/25, Path2 Hydrogen generated sales of €0.1m. EBIT amounted to €-3.5m due mainly to general administration and sales costs of €1.8m and research & development costs of €1.2m. Interest expenses of ca. €0.3m resulted in a net loss of €-3.9m.
At the end of H1/25, total assets amounted to €24.1m with non-current assets representing the largest line item. Financial assets of €15.1m contain the 48.46% ownership stake in AmeriMark Group (used car dealer), which is a non-core part of the company's business. PP&E amounted to €7.2m mainly reflecting GenH2's production site and machinery. Intangibles were €1.6m. The cash position was €0.2m. Equity amounted to €12.8m, and the equity ratio was 53%. The main liabilities were short-term (€5.0m) and long-term (€4.0m) financial debt.
Operating cash flow amounted to €-1.0m. Cash flow from investing was €0. Cash flow from financing of €1.1m resulted in net cash flow of €0.1m.

FINANCIAL OUTLOOK

P&L: Strong sales growth from 2026E on and break-even in 2027E
For 2025E, we expect low sales (€1.0m) and a net loss of €-7.1m. First sales traction for liquefiers and controlled storage systems in 2026E looks set to generate revenue of €21.5m, reducing the operating loss to €-3.1m. As pricing for liquefiers range from ca. €1m to ca. €8m, depending on size, and storage systems from ca. €2m to €3m, our sales target can be achieved even with a relatively low number of systems sold. For 2027E, we project revenue of €54.9m, a gross profit of €12.1m (margin: 22%) and EBIT of €3.6m. The net result amounts to €1.5m. In 2028, we expect sales close to €100m and EBITDA of €8.6m (EBITDA margin close to 9%, see figure 9).

Figure 9: Strong sales growth and margin improvement from 2026E on

in €m	2025E	2026E	2027E	2028E
Sales	1.0	21.5	54.9	98.8
Growth	*n.m.*	*2023.8%*	*155.9%*	*80.0%*
Gross profit	0.1	4.3	12.1	22.7
Margin	*11.9%*	*20.0%*	*22.0%*	*23.0%*
EBITDA	-6.3	-2.7	4.1	8.6
Margin	*-628.5%*	*-12.6%*	*7.6%*	*8.7%*
EBIT	-6.4	-3.1	3.6	7.9
Margin	*-635.6%*	*-14.2%*	*6.6%*	*8.0%*
EBT	-7.1	-4.4	2.0	6.1
Margin	*-701.0%*	*-20.3%*	*3.6%*	*6.2%*
Net result	-7.1	-4.4	1.5	4.8
Margin	*-699.0%*	*-20.3%*	*2.8%*	*4.8%*
EPS (diluted, in €)	-0.06	-0.04	0.01	0.04

Source: First Berlin Equity Research

Balance Sheet

The acquisition of GenH2 took place in H1/25. For the capital increase in kind Path2 Hydrogen issued 93,036,431 shares at €1.00, valuing GenH2 at €93m. In addition, in a capital raise against cash, Path2 Hydrogen issued 300,000 shares for €1.00 and received liquid funds of €0.3m. Altogether, 93.326.847 shares were issued. In June 2025, Path2 Hydrogen placed 1.184.000 shares for €2.00 per share increasing the share count to 111,518,081. Since this capital increase was registered in July 2025, it was not reflected in the H1/25 figures. Path2 Hydrogen received gross funds of ca. €2.4m, which will be used for working capital and growth financing.

For further growth financing, we have assumed another capital increase in 2026E (1.15m shares at €2.00 resulting in gross proceeds of almost €2.3m). We note that if the takeover of ProtonH2 is concluded as planned another capital increase in kind will take place. For the time being, we model only the GenH2 stand-alone case. The assumption of additional debt complements the growth financing (see figure 10).

Figure 10: Balance sheet development

in €m	2025E	2026E	2027E	2028E
Intangible goods & Goodwill	1.5	2.3	3.0	3.9
Property, plant & equipment	7.1	10.0	13.3	18.6
Financial assets	15.1	15.1	15.1	15.1
Non-current assets, total	**23.7**	**27.4**	**31.4**	**37.5**
Inventories	0.0	1.2	3.5	6.3
Receivables	0.0	0.9	3.0	5.4
Cash and cash equivalents	0.4	1.2	0.8	1.9
Current assets, total	**0.6**	**3.5**	**7.4**	**13.7**
Equity	8.1	6.0	7.5	12.3
Equity ratio	*33.2%*	*19.5%*	*19.4%*	*24.1%*
Financial debt (long-term)	4.0	4.0	4.0	13.0
Financial debt (short-term)	9.9	17.0	20.0	14.0
Net debt	13.4	19.7	23.2	25.1
Net Gearing	*166.5%*	*328.0%*	*306.8%*	*203.4%*
Payables	0.9	2.4	5.9	10.4
Balance sheet total	**24.3**	**30.8**	**38.9**	**51.2**

Source: First Berlin Equity Research

Cash Flow Statement: Positive operating cash flow from 2028E on

We model operating cash flow to improve y/y based on improving net results. First positive operating cash flow (€5.0m) is expected in 2028E. Capital expenditure is rising due to investment in capacity expansion. Negative free cash flows are financed via additional equity and debt (see figure 11).

Figure 11: Cash flow development

in €m	2025E	2026E	2027E	2028E
Operating cash flow	-7.0	-4.5	1.2	5.0
CAPEX	0.0	-4.1	-4.7	-6.9
Free cash flow	-7.0	-8.6	-3.4	-1.9
Cash flow investing	0.0	-4.1	-4.7	-6.9
Cash flow financing	7.2	9.4	3.0	3.0
Net cash flow	0.3	0.8	-0.4	1.1

Source: First Berlin Equity Research

MARKET ENVIRONMENT & COMPETITION

MARKET ENVIRONMENT

In its "*Global Liquid Hydrogen Market Report, 2025 -2034*", Global Market Insights (GMI), a global market research and consulting firm, estimates the size of the global liquid hydrogen market at $42.3bn in 2024. By 2035, the consulting firm projects a market size of $82bn. This corresponds to a CAGR of 7.1%. Liquid hydrogen is used in transportation, chemical, and metal industries. GMI identifies growing decarbonisation efforts and the increasing adoption of hydrogen targets, government initiatives and investment as well as technological advancements as the main growth drivers. The US is the most important market with a market share of ca. 77%. Linde is market leader with an 11% market share, followed by Air Products and Chemicals, Air Liquide, Shell, and Kawasaki Heavy Industries—together comprising roughly 37% of the top five players' market share.

According to the "*Global Hydrogen Review 2025*" by the International Energy Agency (IEA), global hydrogen demand increased by 2% y/y in 2024 to almost 100 million tonnes (Mt). Demand comes still almost exclusively from established sectors such as refining, ammonia, methanol and fossil-based direct reduced iron (DRI), while demand for new applications (e.g. mobility, power) account for less than 1% of total demand.
Momentum for hydrogen offtake agreements slowed in 2024, with new deals concentrated in refining, chemicals and shipping. New offtake agreements signed in 2024 reached 1.7 Mtpa, compared with 2.4 Mtpa in 2023. The total offtake agreement volume rose to 6 Mtpa. Policies to create demand are now being implemented, but at a slow pace. Europe continues to lead in adopting sectoral quotas for hydrogen use for transport and industry under the EU Renewable Energy Directive (RED). India (focused on refining and fertilisers) and Japan and Korea (focused on power generation) have also launched ambitious national programmes. In road transport, heavy trucks remain the only fast-growing market for fuel cell electric vehicles.

Figure 12: Comparison of hydrogen policy approaches adopted across selected hydrogen markets

Category	European Union	United States	China	Japan	India
Targets	2030: 40 GW of domestic electrolyser capacity	-	2025: 100-200 kt green hydrogen production	2030: 3 Mtpa of hydrogen consumption	2030: 5 Mtpa green hydrogen production
Supply	European H_2 Bank IPCEI Innovation Fund	Inflation Reduction Act (45V, 45Q, 45Z, 48C)	Provincial subsidies; roll-out through SOEs	CfD scheme	Financial support for electrolysis, ammonia, manufacturing
Infrastructure	H_2 and gas markets decarbonisation IPCEI; AFIR; CEF	Support for hydrogen refuelling stations	Support for new hydrogen pipelines	Clusters support scheme; CAPEX subsidy for storage	Hydrogen Valley Innovation Clusters
Demand	RED; ReFuel Aviation; FuelEU Maritime; CISAF; IPCEI	Loan guarantees, tax credits, ZEV mandates	Implementation plan for industry; FCEV tax exemptions/subsidies	Hub support; tax credits for industry; FCEV subsidies	Guaranteed offtake through SECI
Certification	Delegated Acts for renewable and low-carbon hydrogen	Clean Hydrogen Production Standard (CHPS)	Clean and Low-Carbon Hydrogen Energy Evaluation Standards	Hydrogen Society Promotion Act	Green Hydrogen Standard
R&D	Clean Hydrogen Partnership	Offices of Energy Efficiency, Renewable Energy, FECM	Demo programmes across the entire value chain	Green Innovation Fund	R&D scheme of National Green Hydrogen Mission

Source: IEA (2025), Global Hydrogen Review 2025, p. 23.

In 2024, hydrogen demand for road transport grew almost 40% y/y to reach ca. 100 kt. This increase was primarily driven by rising demand for heavy-duty trucks. Although trucks made up only 15% of the global hydrogen-fuelled vehicle fleets in 2024, or about 15 500 fuel cell trucks, they accounted for nearly two-thirds of total hydrogen consumption in the sector, as they cover greater distances and have higher energy demands per kilometre than other road transport modes.
The global stock of hydrogen fuel cell buses grew by ca. 25% in 2024. The number of hydrogen refuelling stations in operation worldwide rose 15% to ca. 1,300, including more than 300 stations in Europe.

According to the IEA, the cost for the production of hydrogen from unabated fossil natural gas ranged $0.8 to $4.6 per kg H2 in 2024. Hydrogen produced from electrolysis based on onshore wind or PV hardly reached cost below $4 per kg H2 in best cases, with the upper end of the range being around $12 per kg H2.

EXAMPLES OF THE USE OF LIQUID AND GASEOUS HYDROGEN

In the road transport sector, heavy-duty trucks and buses with fuel cells for electric propulsion have traditionally used gaseous hydrogen. For heavy-duty trucking, a trend towards transitioning to on-board LH2 is emerging.
Daimler Truck has developed the Mercedes-Benz GenH2 truck, which is fuelled with liquid hydrogen. The heavy truck has two 40 kg tanks and can drive more than 1,000 km on a single fill. In July 2024, logistics companies started a one year test phase involving five GenH2 trucks. Together, the vehicles drove more than 225,000 km, and a total of 285 refuelling operations were completed during customer testing, using a total of ca. 15 t of liquid hydrogen. The test phase showed the reliability of the trucks in real-world use.
As a next step, Daimler Truck will produce a small series of 100 GenH2 trucks, which will be tested by customers from end 2026 on. The project is part of a European innovation programme for the development of fuel cell trucks. Daimler Truck received €226m in funding from the German Federal Ministry of Digital and Transport and the federal states of Baden-Württemberg and Rhineland-Palatinate. Daimler Truck's original plan was to start mass production of hydrogen-powered trucks in 2027. However, in July 2025, the company announced that series production of the GenH2 Truck will be postponed until the early 2030s, citing a slower than expected roll-out of hydrogen refuelling stations.
In October 2025, Daimler Truck AG, Hamburger Hafen und Logistik AG (HHLA), and Kawasaki Heavy Industries Ltd. signed a Memorandum of Understanding (MoU) to explore the development of a reliable and cost-effective supply chain for green liquid hydrogen via the Port of Hamburg to the European hinterland.

In California, the Innovative Clean Transit (ICT) regulation requires transit agencies to achieve a full transition to zero-emission buses by 2040. Currently, the state has the largest zero-emission bus fleet in the U.S., boasting nearly 2,000 full-size transit zero-emission buses funded, ordered, delivered, or deployed. The number of fuel cell buses in service amounts to 66 with more than 100 in deployment.

According to the US Environment Protection Agency (EPA), more than 50,000 hydrogen fuel cell electric forklifts are currently in operation in the US. Rapid refuelling and low maintenance make them an attractive option for major retailers to enhance warehouse productivity. Since 2022, Amazon has operated more than 15,000 hydrogen fuel cell forklifts across ca. 70 North American fulfillment centres as part of its pledge to decarbonize its operations by 2040. At most locations, the hydrogen destined for forklifts is produced elsewhere, then liquefied and delivered by truck to a storage and dispensing system on site. Walmart has more than 9,500 hydrogen fuel cell forklifts in operation across its distribution and fulfillment centres.

Hydrogen-powered fuel cell trains have traditionally used gaseous hydrogen. Alstom's Coradia iLint has been used in Hesse, Germany, by the Rhein-Main-Verkehrsverbund (Taunusbahn) and in Lower Saxony, Germany, by Verkehrsbetriebe Elbe-Weser (14 trains) since 2022.

Siemens has delivered seven Mireo Plus H hydrogen fuel cell trains to Niederbarnimer Eisenbahn, which began operating the so-called "Heidekrautbahn" at the end of 2024. Another Mireo Plus H train has been in service with Bayerische Regiobahn in Bavaria, Germany, since late 2024. Siemens also uses a Mireo Plus H for testing in Baden-Wuerttemberg, Germany.

To fulfil decarbonisation targets, the maritime industry shows increasing interest in LH2 as a sustainable energy carrier in combination with fuel cells. In 2023, Linde Engineering commissioned the first ever LH2-system installed on a ferry operating on a daily schedule along the Norwegian coast. This LH2-system comprises a bunkering unit, and an onboard LH2 storage tank system with H2-conditioning. This ensures reliable fuel cell operation to provide electric propulsion power for the vessel.

The aviation industry is developing technologies for LH2-powered systems for drones and small to large aircraft. In January 2025, Turbotech, Safran, and Air Liquide successfully completed ground testing of a liquid hydrogen-fuelled gas turbine engine for light aviation, as part of the BeautHyFuel project in France.

ZeroAvia, a UK-based company founded in 2018, is developing full hydrogen-electric engines and refuelling solutions and executed a first test flight using gaseous hydrogen in 2023. In 2025, ZeroAvia announced the launch of a new consortium backed by UK government funding to develop liquid hydrogen storage systems. The project, known as LH-SIFT (Liquid Hydrogen System Integration & Flight Test), aims to design a lightweight, robust onboard liquid hydrogen tank.

In 2023, the German company H2FLY, a developer of hydrogen-electric powertrain systems for aircraft, announced that it had successfully completed a first piloted flight of an electric aircraft powered by liquid hydrogen.

The South Korean company Hylium Industries offers fuel cell drones propelled by liquid hydrogen. Its HyliumX-H drone features a payload of 3 kg and a maximal flight time of seven hours. The Dutch Space Center Royal NLR has developed the drone HYDRA II, which made its first successful flights in August 2025 using liquid hydrogen as a fuel source.

The US company NEOEx Systems, Inc, provides on-board liquid hydrogen energy storage and fuel cell power system integration services to unmanned aerial vehicle (UAV) manufacturers. In 2023, NEOEx was awarded a $6.4m contract to develop systems that fuel and fly drones for the US Army. Drones, outfitted with NEOEx's on-board storage and power system, can fly up to 20 hours and cover distances of up to 1,000 miles.

Hydrogen is used in a wide range of industries. In the semiconductor sector liquid hydrogen is valued for its intrinsically high purity and is typically applied in regasified form from LH2 tanks. Common applications include the heat treatment of silicon wafers, the production of monocrystalline layers, and ion implantation. Hydrogen is also an input in oil refining, ammonia, and methanol production, as well as in steelmaking. The concrete industry is experimenting with green hydrogen to decarbonise its production processes.

In the energy sector, hydrogen can replace fossil fuels to help minimise greenhouse gas emissions. Fuel cells, motors and turbines utilise hydrogen to produce power and heat. INNIO offers Jenbacher gas motors of different engine power (530 kW – 890 kW), capable of operating on up to 100% hydrogen. Other motor producers such as MTU/Rolls-Royce and MWM/Caterpillar Energy Solutions are developing similar technologies. Major gas turbine suppliers including Siemens Energy, Kawasaki Heavy Industries, and GE Vernova, are all advancing and supplying turbines capable of running on pure hydrogen or hydrogen blends.

COMPETITION

Although – to our knowledge – no competitor currently offers zero-loss liquid hydrogen storage and transfer solutions, Path2 Hydrogen faces strong competition from global players providing hydrogen liquefaction and storage technologies including complete hydrogen refuelling stations. These global players have strong brands, established distribution channels, vast financial means and proven technology.

Linde has decades of experience in the construction of hydrogen liquefaction systems. The company offers liquefiers from small (<3 metric tonne per day, mtpd) to medium (5-30 mtpd) to large capacities (>50 mtpd). For small capacity liquefaction plants up to 3 mtpd, a closed helium circuit supplies the refrigeration necessary to cool the hydrogen. Pure hydrogen gas at approx. 20 bar is fed into the vacuum-insulated cold box and, after a certain degree of subcooling at the end of the refrigeration process, it expands through a Joule-Thomson valve into the storage tank. The helium refrigeration cycle and hydrogen liquefaction are completely separated. Key system components include the helium compressor with oil purification, the cold box with heat exchangers and helium expansion turbines, the liquid hydrogen tank and filling stations for transportable containers.
Linde's LH2-ISO-container can supply a hydrogen refuelling station or a tank at an industrial consumer site for up to 30 days without hydrogen loss. Its long distance LH2-container, equipped with an active LIN-shield, can achieve holding times of ca. 200 days. We note that Linde's technology suffers from transfer losses, while Path2 Hydrogen Controlled Storage offers an end-to-end loss-free storage and transfer solution.
In 2024, Linde Engineering and Daimler Truck inaugurated the first public subcooled liquid hydrogen refuelling station (sLH2 HRS) in Wörth am Rhein, Germany, following years of joint refuelling technology development. The HRS has since been used by selected logistics customers for initial trials with the Mercedes-Benz GenH2 Truck. According to both companies, the new sLH2 technology—compared to gaseous hydrogen—lowers the required investment for hydrogen refuelling stations by a factor of two to three, and operational costs by five to six times. Only one nozzle is needed to fill the tanks, making sLH2 technology easier to handle. Refuelling is faster and takes only around 10 to 15 minutes for a 40-ton heavy-duty truck, carrying 80 kg of liquid hydrogen. With energy consumption of only 0.05 kWh/kg, the Wörth HRS requires ca. 30 times less energy compared to conventional gaseous hydrogen refuelling. The station has a liquid hydrogen storage tank with a capacity of four tons, and occupies a compact footprint of just 50 square meters (not including the dispenser).

Since November 2024, Air Products has been operating a mobile liquid hydrogen refuelling station in Duisburg, Germany. The station supports its client Daimler Truck in testing its Daimler-Benz GenH2 truck.
In 2023, Air Products was awarded several supply contracts from NASA totalling more than $130m to provide liquid hydrogen for several NASA locations including the Kennedy Space Center, Cape Canaveral Space Force Station, and other NASA facilities.

Air Liquide provides end-to-end hydrogen refuelling solutions covering project definition, operation and maintenance support. The company has delivered more than 200 hydrogen refuelling stations worldwide. As part of its liquid-to-gas series it offers a modular station for gaseous hydrogen at 350 bar for heavy-duty vehicles. The system can also dispense gaseous hydrogen using liquid hydrogen as a source.
Air Liquide's HYLIAL hydrogen liquefiers are capable of supplying 600 to 1,500 l/h of liquid hydrogen. The company can supply a complete system, including the liquefier and all the ancillary storage equipment. Each HYLIAL unit is equipped with static gas-bearing turbines, which supply the cooling power via a helium loop that liquefies the hydrogen.

PRODUCTS

GenH2's main products are hydrogen liquefaction systems, and controlled liquid hydrogen storage systems.

HYDROGEN LIQUEFACTION SYSTEMS

GenH2's liquefaction solutions generate liquid hydrogen from gaseous sources by cryogenically cooling and condensing the hydrogen until it is liquefied. GenH2 focuses on innovative light-scale liquid hydrogen technologies and products inspired by research and testing of former NASA scientists and engineers. GenH2 offers three liquefaction products including small-scale (2-20 kg/day), medium-scale (50-100 kg/day), and industrial-scale (1,000 kg/day). In the future, GenH2 plans to offer larger systems with a capacity of up to (5,000 kg/day).

Figure 13: Hydrogen liquefaction system

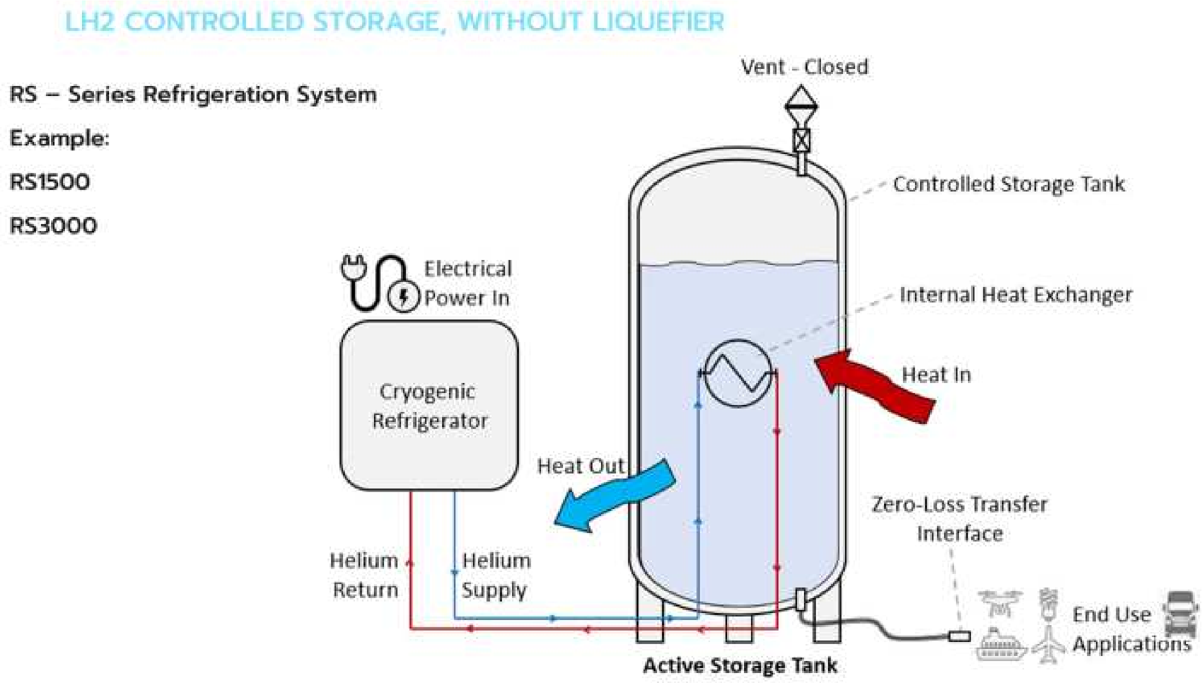
Source: First Berlin Equity Research, Path2 Hydrogen AG

CONTROLLED REFRIGERATED STORAGE SYSTEMS

GenH2's LH2 storage tank system is actively refrigerated functioning both as a storage unit and a cryogenic refrigerator. This design allows the hydrogen to stay liquid while contained and ensures zero-loss operation while rejecting excess heat. Through this process LH2 can be stored indefinitely, transported over long distances, and is available on-demand.

GenH2's patented cryogenic refrigeration system removes heat leakage directly from the liquid region of the LH2 tank via a closed-loop helium circulation for cooling (see figure 14). To maintain the optimal temperature and pressure within the controlled storage system, the helium refrigerant is pumped through an internal heat exchanger that passes through the bulk of the LH2. The system does not need any nitrogen pre-cooling.

Figure 14: Controlled Refrigerated Storage System



Source: First Berlin Equity Research, Path2 Hydrogen AG

Figure 15: Liquid hydrogen tank

Source: First Berlin Equity Research, Path2 Hydrogen AG

MANAGEMENT

CEO

Josh McMorrow serves as the CEO of Path2 Hydrogen AG and as Executive Chairman of GenH2. He is a seasoned executive of public and private global companies in industries including hydrogen, industrial gases, energy storage, specialty chemicals and energy production. In 2021, Mr McMorrow guided the $5bn IPO of Atotech on the NYSE as well as the company's subsequent strategic sale to MKS Instruments in 2022. He has a Bachelor of Science in International Business from Trinity University and holds a J.D., with honours, from The University of Texas School of Law.

Supervisory Board

Chairwoman: Belinda Oakland
Deputy Chairman: Dr. Markus Wiendieck
Members: Sarah Simkiss, Marc Provencher

SHAREHOLDERS & STOCK INFORMATION

Stock Information	
ISIN	DE000A1A6WB2
WKN	A1A6WB
Bloomberg ticker	PTHH GR
No. of issued shares	111,518,081
Transparency Standard	General Standard
Country	Germany
Sector	Energy
Subsector	Energy equipment

Source: Börse Frankfurt, First Berlin Equity Research

Shareholder Structure	
H2E Americas LLC	38.9%
Jong Baik	15.8%
Capana Swiss Advisors	15.0%
Other investors	14.8%

Source: Path2 Hydrogen AG

INCOME STATEMENT

All figures in EUR '000	2025E	2026E	2027E	2028E
Revenues	**1,010**	**21,450**	**54,900**	**98,820**
Cost of goods sold	890	17,160	42,822	76,091
Gross profit	**120**	**4,290**	**12,078**	**22,729**
S&M	0	726	1,408	3,459
G&A	3,140	3,205	3,421	4,941
R&D	2,420	2,512	2,702	3,953
Other operating income	10	200	300	-494
Other operating expenses	990	1,100	1,200	1,976
Operating income (EBIT)	**-6,420**	**-3,053**	**3,647**	**7,906**
Net financial result	-660	-1,307	-1,686	-1,783
Non-operating expenses	0	0	0	0
Pre-tax income (EBT)	**-7,080**	**-4,360**	**1,961**	**6,122**
Income taxes	-20	0	431	1,347
Minority interests	0	0	0	0
Net income / loss	**-7,060**	**-4,360**	**1,530**	**4,775**
Diluted EPS (in €)	**-0.06**	**-0.04**	**0.01**	**0.04**
EBITDA	**-6,348**	**-2,698**	**4,145**	**8,571**
Ratios				
Gross margin	11.9%	20.0%	22.0%	23.0%
EBITDA margin on revenues	-628.5%	-12.6%	7.6%	8.7%
EBIT margin on revenues	-635.6%	-14.2%	6.6%	8.0%
Net margin on revenues	-699.0%	-20.3%	2.8%	4.8%
Tax rate	0.3%	0.0%	22.0%	22.0%
Expenses as % of revenues				
Personnel costs	0.0%	0.0%	0.0%	0.0%
Depreciation and amortisation	7.1%	1.7%	0.9%	0.7%
Other operating expenses	98.0%	5.1%	2.2%	2.0%
Y-Y Growth				
Revenues	n.a.	2023.8%	155.9%	80.0%
Operating income	n.m.	n.m.	n.m.	116.8%
Net income/ loss	n.m.	n.m.	n.m.	212.1%

BALANCE SHEET

All figures in EUR '000	2025E	2026E	2027E	2028E
Assets				
Current assets, total	**561**	**3,454**	**7,447**	**13,680**
Cash and cash equivalents	429	1,239	820	1,912
Short-term investments	0	0	0	0
Receivables	7	940	3,008	5,415
Inventories	26	1,175	3,520	6,254
Other current assets	99	99	99	99
Non-current assets, total	**23,749**	**27,391**	**31,443**	**37,543**
Property, plant & equipment	7,106	9,968	13,313	18,576
Goodwill & other intangibles	1,545	2,326	3,033	3,870
Other assets	15,097	15,097	15,097	15,097
Total assets	**24,310**	**30,845**	**38,891**	**51,223**
Shareholders' equity & debt				
Current liabilities, total	**11,778**	**20,370**	**26,886**	**25,418**
Short-term debt	9,900	17,000	20,000	13,975
Accounts payable	859	2,351	5,866	10,423
Current provisions	158	158	158	158
Other current liabilities	861	861	861	861
Long-term liabilities, total	**4,457**	**4,457**	**4,457**	**13,482**
Long-term debt	3,975	3,975	3,975	13,000
Deferred revenue	0	0	0	0
Other liabilities	482	482	482	482
Minority interests	**0**	**0**	**0**	**0**
Shareholders' equity	**8,074**	**6,018**	**7,548**	**12,323**
Share capital	111,518	112,670	112,670	112,670
Capital reserve	-52,942	-51,790	-51,790	-51,790
Other reserves	0	0	0	0
Treasury stock	0	0	0	0
Loss carryforward / retained earnings	-50,502	-54,861	-53,332	-48,556
Total consolidated equity and debt	**24,310**	**30,845**	**38,891**	**51,223**
Ratios				
Current ratio (x)	0.05	0.17	0.28	0.54
Quick ratio (x)	0.05	0.11	0.15	0.29
Net debt	13,446	19,736	23,155	25,063
Net gearing	166.5%	328.0%	306.8%	203.4%
Equity ratio	33.2%	19.5%	19.4%	24.1%
Book value per share (in €)	0.07	0.05	0.07	0.11
Return on equity (ROE)	-87.4%	-72.4%	20.3%	38.8%
Days of sales outstanding (DSO)	3	16	20	20
Days inventory outstanding	11	25	30	30
Days in payables (DIP)	352	50	50	50

CASH FLOW STATEMENT

All figures in EUR '000	2025E	2026E	2027E	2028E
EBIT	**-6,420**	**-3,053**	**3,647**	**7,906**
Depreciation and amortisation	87	433	615	817
EBITDA	**-6,333**	**-2,620**	**4,262**	**8,723**
Changes in working capital	0	-591	-897	-584
Other adjustments	-640	-1,307	-2,117	-3,130
Operating cash flow	**-6,973**	**-4,518**	**1,248**	**5,009**
Investments in PP&E	0	-3,218	-3,843	-5,929
Investments in intangibles	0	-858	-824	-988
Free cash flow	**-6,973**	**-8,594**	**-3,419**	**-1,908**
Acquisitions & disposals, net	0	0	0	0
Other investments	0	0	0	0
Investment cash flow	**0**	**-4,076**	**-4,667**	**-6,917**
Debt financing, net	4,873	7,100	3,000	3,000
Equity financing, net	2,368	2,304	0	0
Dividends paid	0	0	0	0
Other financing	0	0	0	0
Financing cash flow	**7,241**	**9,404**	**3,000**	**3,000**
FOREX & other effects	0	0	0	0
Net cash flows	**268**	**810**	**-419**	**1,092**
Cash, start of the year	161	429	1,239	820
Cash, end of the year	**429**	**1,239**	**820**	**1,912**
EBITDA/share (in €)	**-0.06**	**-0.02**	**0.04**	**0.08**

Y-Y Growth				
Operating cash flow	n.m.	n.m.	n.m.	301.5%
Free cash flow	n.m.	n.m.	n.m.	n.m.
EBITDA/share	n.m.	n.m.	n.m.	106.8%

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Category		1	2
Current market capitalisation (in €)		0 - 2 billion	> 2 billion
Strong Buy[1]	An expected favourable price trend of:	> 50%	> 30%
Buy	An expected favourable price trend of:	> 25%	> 15%
Add	An expected favourable price trend of:	0% to 25%	0% to 15%
Reduce	An expected negative price trend of:	0% to -15%	0% to -10%
Sell	An expected negative price trend of:	< -15%	< -10%

[1] The expected price trend is in combination with sizable confidence in the quality and forecast security of management.

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Initial Report	Today	€0.80	Buy	€2.00

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