

## HYDROGEN SPECIAL REPORT

**Building for the future: One of the reasons I love investing is that you're participating now in the industries of tomorrow. Just have a look at the graphic in our hydrogen report, which shows that global hydrogen vehicles sales are predicted to go from US\$3.3bn to US\$57.9bn over the next eight years. That is phenomenal.**

What I also love is getting a bargain. Our report on hydrogen shows that this is hard to find at the moment, but we give you a ranking of the ASX-listed hydrogen companies, along with an update on our favourite, **Hazer (HZR)** which has recently done deals with the Canadian energy company FortisBC and the Korean steel giant Posco.

The point is that you always need to keep an eye out! This is where Under the Radar Report's team and our wider community comes in. How else could we have picked up the wearable technology specialist **Catapult (CAT)**, which has climbed 50% since we last tipped it in November (Issue 576) and has more than doubled since we first upgraded to spec buy after weakness in April at 68 cents (Issue 543). Find out what we think now.

In our subscriber picks in early 2022 (Issue 484), we first covered the nuclear medicine (aka radio pharmaceuticals) specialist **Telix Pharma (TLX)** at \$7.04. We were a bit nervous because the founders Christian Behrenbruch & Andreas Kluge had sold down, but we liked its potential. There is no doubt that its treatment for prostate cancer – both on the diagnostic side and therapeutic side works. But it's hard to see that it's as game-changing as its \$6bn valuation suggests. I've been watching nuclear medicine for a long time!

This week's subscriber picks focus is on medical technology and includes fellow radio pharma specialist **Clarity Pharma (CU6)** which is also running hard.

We love what we do and our members do too. Our Ask the Analyst webinars are building on the work we do looking at subscriber picks. When you are in an investor community you have much more power than when you're researching alone.



**Richard Hemming**  
Head of Investments

## the issue

### HYDROGEN SPECIAL REPORT

One thing that's clear is that there is demand, but to invest in any stock exposed to hydrogen requires understanding the different technologies used to extract it. In this report we outline the industry fundamentals and the stocks that stand to gain from increasing hydrogen use.

HAZER GROUP (HZR) **HOLD**

### RESEARCH TIP UPDATES

AVA RISK GROUP (AVA) **SPEC BUY**  
CATAPULT (CAT) **▼ HOLD**  
SELECT HARVESTS (SHV) **HOLD**

### SUBSCRIBER PICKS

These are the stocks subscribers ask us about. We run our investment ruler over them and give you our Radar Diagnosis.

### BEST STOCKS TO BUY NOW

These stocks are quality companies that we believe offer great return potential for the risks faced. Check them out online.

**Catapult is living up to its name! The stock has already climbed over 50% since we last tipped it in November (Issue 576) and doubled since we first upgraded to spec buy after weakness in April at 68 cents (Issue 543).**

**Under the Radar Report**

# HYDROGEN ANALYSIS

The commodity is not well understood because there is no transparent market, which affects all producers. One thing that's clear is that there is demand, but to invest in any stock exposed to hydrogen requires understanding the different technologies used to extract it. In this report we outline the industry fundamentals and the stocks that stand to gain from increasing hydrogen use.



Hydrogen benefits from the move away from fossil fuels as a source for vehicles. The Paris Climate Change Agreement is for 15% of global energy use by 2050 to come from hydrogen. California has committed funds for the development of 100 hydrogen refuelling stations to meet its target for 1.5 million zero-emission vehicles by 2025.

SOURCE: Pure Hydrogen, Allied Market Research, California Energy Commission.

## The Big Switch

Hydrogen is already in production but there are big changes ahead. The switch from the current grey, carbon-heavy emissions process to extraction using renewable-powered electrolysis, which produces almost zero emissions is in its early stages. This will be the driver of the trucks in the graph above, but significantly, there is no ASX-listed company that has achieved this.

Hydrogen production is already at 120m tonnes a year, over half of which is used to make ammonia, which is used as a feedstock to make fertiliser and other chemicals. A quarter for petroleum refining. The remainder is used for a wide variety of industrial applications, including methanol and food.

Almost all hydrogen is currently produced from natural gas in the Steam Methane Reforming (SMR) process, which could be termed “grey”, producing heavy carbon dioxide (CO<sub>2</sub>).

# HYDROGEN ANALYSIS CONT.

However, the production of “green” hydrogen using alternative non-emitting processes unlocks substantial new markets as a clean fuel.

## The challenge is Green Hydrogen at a low cost

Investors in hydrogen production will need transparent prices to value investments, which are currently not available. We estimate that gas prices are used as a proxy. On this basis, hydrogen is 3-5 times more expensive per unit of energy than natural gas, when produced using electrolysis from renewable energy.

Although the current price of hydrogen is higher than petrol, fuel cells, which convert hydrogen to electrical power through an electrochemical process, are substantially (2.5 times) more efficient than petrol engines.

## Demand is rising!

Hydrogen fuel prices will evolve as the market expands and technology advances, which is where companies like Hazer come in.

Demand for hydrogen is quickly ramping up (see the graph above), but there are high degrees of complexity in supply meeting demand.

Unlike fuels such as coal or oil, hydrogen rarely occurs naturally and is produced or separated from a variety of sources including fossil fuels, biomass and water. For example, in the case of water or H<sub>2</sub>O, separation is through electrolysis into its constituents, hydrogen & oxygen. Currently, most hydrogen comes from methane (CH<sub>4</sub>). Strictly speaking, hydrogen is an energy carrier rather than a fuel. It takes more energy to produce hydrogen in electrolysis, than the hydrogen provides when it is converted to useful energy.

Hydrogen has the highest energy content of any common fuel by weight (about 3 times more than petrol) but has the lowest energy content by volume as a liquid (about 4 times less than petrol). Hence hydrogen is used for rocket fuel and for electricity on spacecraft.

All fuels incur a cost to produce and transport into a form and location where they can be used. This includes coal, oil, gas and uranium. Fossil fuels also produce greenhouse gases which is an environmental cost. If hydrogen can be produced cheaply enough, it can be used more widely as a fuel.

## Details on the economics of hydrogen production

The costs of producing green hydrogen need to be competitive with grey hydrogen, where costs of US\$0.50-1.70/kg hydrogen are estimated, depending on gas prices. Currently, the cost range for green hydrogen using renewable energy is believed to be US\$3-8/kg. Drivers of lower green energy costs include scale and technology.

The primary means to produce green hydrogen is through the electrolysis of water, which generates hydrogen & oxygen in a 2:1 ratio. Although the water requirement is high (10-11 litres per kilogram of hydrogen) green hydrogen can be produced from desalinated seawater and treated municipal wastewater.

A cheap source of renewable energy is essential: solar or wind backed up by batteries. Typically, about 53 kilowatts/hour of electricity is needed to 1kg of hydrogen.

An efficient electrolyser is also essential, which splits the water into hydrogen and oxygen. Conventional efficiencies have been 70%, but hydrolyser technology is advancing. Potential commercial efficiencies of 80-95% may be possible.

## Another hydrogen: turquoise.

This uses methane as a feedstock but uses a pyrolysis method that produces a solid carbon product instead of carbon dioxide gas. The hydrogen it produces is clean, but does not have the purity of green hydrogen. It may be possible to sell the solid carbon, depending on its quality.

Turquoise hydrogen installations are likely to be relatively small-scale and located at installations where the CO<sub>2</sub> is hard to abate and where the methane feed is cheap or free. Examples include hydrocarbon refineries, LNG import terminals, steel works and sewage treatment plants.

Continued on next page...





## HAZER GROUP

SECTOR MATERIALS

INDUSTRY MANUFACTURING

### Hydrogen Special Report

#### What's New?

Produces turquoise low-emission hydrogen and solid carbon in a Commercial Demonstration Plant in WA using the Hazer process, which uses methane pyrolysis, that it has developed.

Last month signed a binding agreement with the Canadian power producer & retailer FortisBC (similar to Origin Energy) to develop a 2.5k tonnes a year near commercial scale project. Then HZR signed an agreement (not binding) with the Korean steel-making giant Posco to integrate Hazer technology.

Prior to this, HZR raised \$14m @ 50 cents a share.

#### Bull Points

- Successful test runs
- Binding agreement with a big partner

#### Bear Points

- Still early days for Hazer technology
- No certainty of widespread adoption

**Analysis:** Hazer's technology still needs to be proven up at a larger scale and operated commercially across multiple sites. The company's model is a capital-light, generating revenue from licence fees and royalties.

Hazer still needs lots of deals and throughput to get sufficient royalty income.

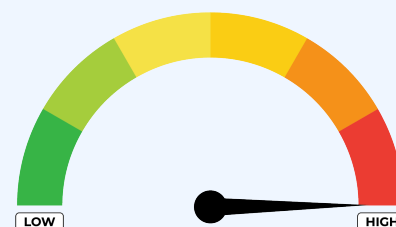
To mid-May the demonstration plant had operated for 100 hours, producing hydrogen and graphite. Hazer produces turquoise hydrogen using methane pyrolysis to produce clean, but not pure, hydrogen and solid carbon instead of the high CO2 emissions from the widely used steam methane reforming process, which produces grey hydrogen. The Hazer process is at low temperature and uses iron ore as a catalyst.

End users are infrastructure, where CO2 is hard to abate, including hydrocarbon refineries and LNG import terminals. The hydrogen is sold as an industry feedstock, as a transport fuel and in other markets. The carbon, depending on quality, may be sold into graphite markets.

**Portfolio Risk Rating:** Has no operating cash flow. Dependent on funding from its partners and continuing equity raisings. No certainty it will be commercially successful on a wide scale.

RADAR RATING: HOLD

#### RISK RATING



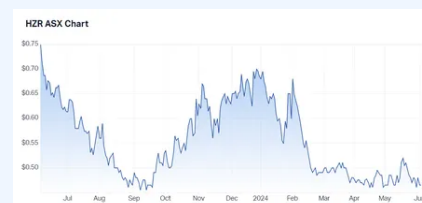
ASX CODE HZR

CURRENT PRICE \$0.465

MARKET CAP \$107M

DIVIDEND YIELD 0%\*

NET CASH (\$M) 11.0M



#### DATA AS AT INITIAL COVERAGE:

DATE 10 MARCH 2019

PRICE (\$) 0.41

**RADAR RATING:** Energy transition appeal as Hazer process removes CO2 and produces hydrogen, but needs more binding commercial agreements. Strong potential but still needs to be fully proven to be commercially viable and will need to raise more money.



## AVA RISK GROUP

SECTOR INFORMATION TECH

INDUSTRY SECURITY DATA SERVICES

### Research Tip Update

#### What's New?

APA's stock has fallen steadily this year from 20 cents to current levels, which partly reflects a \$3m capital raising at 13 cents and the need to grow into its valuation. The money was raised to build on recent contract wins, which included with Telstra.

First-half sales were \$14m, while third-quarter sales order intake was \$6.8m; guidance for second-half revenue of \$16-20m implies FY24 sales of \$35m.

#### Bull Points

- Winning contracts
- Technology for the times

#### Bear Points

- Limited transparency
- Subscale for the opportunity

**Analysis:** FY25 is looking to be the key year and sales are projected to be over \$40m delivering 2 cents in earnings per share. The company is transitioning to sustainable profitability following the sale of its logistics business back in FY22, when AVA paid out 13 cents in dividends – more than its current share price! Cash now stands at \$6m, which should be enough to get the company into profitability.

Operating margins (EBITDA) stand at about 10-12% and the company aims to double this by keeping gross margins consistent at 65% and growing the revenue line. Aim is for revenue of \$70-100m over the next three years through multi-year service contracts, product sales in security, distribution, and partnerships with manufacturers (OEMs). AVA says this will require additional operating costs of \$8-12m to deliver those 25% EBITDA margins.

We continue to believe that the technology can be scaled up from global sales uptake with new management based around the world.

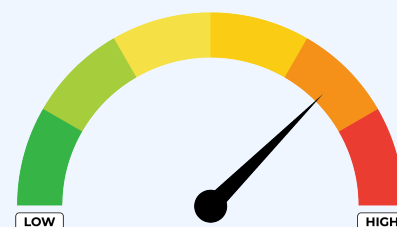
AVA has three divisions. "Detect" generates over half of the sales from a fibre optic sensing technology, which includes its mining industry product Aura-IQ.

"Access" (15% of sales) sells a locking technology and has a deal with the global giant dormakaba, signed late CY21, unlocking US and Europe.

"Illuminate" (25% of sales) develops automatic number plate recognition cameras and perimeter detectors.

RADAR RATING: SPEC BUY

### RISK RATING



ASX CODE AVA

CURRENT PRICE \$0.125

MARKET CAP \$36M

DIVIDEND YIELD 0%\*

NET CASH (\$M) 6M



#### DATA AS AT INITIAL COVERAGE:

DATE 30 JULY 2020

PRICE (\$) 0.18

**RADAR RATING:** This remains a work in progress, but we think that the price has fallen to levels where the company does not have to do much to outperform.

## CATAPULT

SECTOR INFORMATION TECH

INDUSTRY SOFTWARE

### Research Tip Update

#### Downgrade from Spec Buy

#### What's New?

Catapult is living up to its name! The stock has already climbed over 50% since we last tipped it in November (Issue 576) and more than doubled since we upgraded in April at 68 cents (Issue 543). The full-year result to 31 March (FY24) last week demonstrates continued strong growth at the top line, and confirmed the pivot to free cash flow. FY24 revenue was US\$100m, while annualised contract value (ACV) rose 24% at constant currencies to US\$82m.

#### Bull Points

- Strong customer proposition
- Global Opportunity

#### Bear Points

- Limited free cash flow
- Thin balance sheet

**Analysis:** After earnings rebase upwards significantly over the next two years, the rate of increase could be double the long-term revenue growth rate. The stock is not cheap, but it's a high-quality business.

FY24 positive operating cash flow was US\$32m, though management reported only US\$4.2m in earnings ( EBITDA) almost all achieved in the second half. Our confidence is increasing because growth can now be funded internally, with \$4.6m free cash flow crossing an inflection point.

The fundamentals are impressive. The business now banks almost half each incremental revenue dollar and the customer retention rate is 96%. Gross margin increased to 81% from 76%.

Catapult has 3300 professional team customers, and ACV per pro team is about \$25k. In its Performance and Health vertical, including wearables, CAT has won new teams and leagues in soccer in LATAM and EMEA, and new teams and leagues in baseball in the US & APAC. In Tactics and Coaching, including video solutions, new business accelerated its growth rate, delivering future ACV growth. Wins in motorsport and soccer in EMEA and the US were supported after the year end with a new sideline video review deal with a major US college football league. Cross-selling between verticals is a major revenue opportunity. Catapult has successfully expanded its market through new sports and new capabilities, which delivers medium-term growth, but longer term, it needs a bigger market.

**Portfolio Risk Rating:** The balance sheet is quite thin, net current liabilities were US\$29m, although US\$34m contract liabilities are obligations to be satisfied over the next 12 months. We estimate an FY26 cash flow (EV/EBITDA) multiple in the mid-teens, so not cheap, but a high-quality business.

RADAR RATING: HOLD

#### RISK RATING



ASX CODE CAT

CURRENT PRICE \$1.83

MARKET CAP \$450M

DIVIDEND YIELD 0%\*

NET CASH (\$M) 0.6M



#### DATA AS AT INITIAL COVERAGE:

DATE 29 MARCH 2018

PRICE (\$) 1.22

RADAR RATING: FY24 results demonstrated a move to positive free cash flow, and earnings have the momentum to grow rapidly for a few years as maximum operating leverage takes hold from a low base.

## SELECT HARVESTS

SECTOR CONSUMER STAPLES

INDUSTRY FOOD

### Research Tip Update

#### What's New?

The interim result to 31 March reflected a rebound from problems in FY23. First-half earnings (EBITDA) of \$19m was based on 75% of the expected 2024 total.

The result was closely followed by the end of the harvest (before full processing), which estimates almonds in the current six-month period (second half).

#### Bull Points

- High water efficiency
- Barriers to entry

#### Bear Points

- High debt
- Single agricultural commodity risks

**Analysis:** There are signs of improvement but consistent profitability is yet to be achieved. A small \$2m net loss was a vast improvement on the 1h23 loss when volumes fell 40%, and depreciation charges were high, as were interest expenses on significant debt. Most of the third-party processing income and wholesales will be recognised in the second half.

Debt is currently \$238m but is forecast to fall to \$165m by September FY24, which represents 40% debt/equity, against 57% at March. The \$270m facility is sufficient for current needs, but it is disappointing that the debt is still forecast to increase in March 2025 above \$200m. Additional capital will come at a high price until SHV can return to consistent profitability.

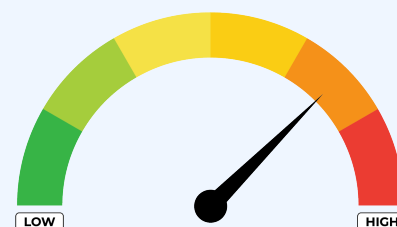
Almond volumes are rebounding and will exceed 29k tonnes, almost at 2022 levels. A favourable crack-out rate (around 30%) may deliver upside for higher-quality products. The 2024 harvest is now complete, with fertiliser and water usage improvements. Excellent crop quality means prices can be maximised.

Almond prices have been below the cost of production for 2-3 years. With the benefit of 10-cent freight optimisation, SHV estimates the 2024 crop will achieve \$7.57, marginally higher than at the half year. But total costs of production were down by 9 cents a kilo due to better weather, lower water costs offset by increased electricity costs. Processing costs were down as third-party processing reduces unit processing costs.

**Portfolio Risk Rating:** The true net asset value of SHV is well above the balance sheet levels, in the form of water rights, the replacement cost of the processing plant, and enhanced land values. We believe SHV can withstand a poor harvest like 2023, if required.

RADAR RATING: HOLD

#### RISK RATING



ASX CODE SHV

CURRENT PRICE \$3.47

MARKET CAP \$404M

DIVIDEND YIELD 0%\*

NET DEBT (\$M) -238M



#### DATA AS AT INITIAL COVERAGE:

DATE 31 MARCH 2013

PRICE (\$) 2.60

#### \*PORTFOLIO

**The Under the Radar Report Portfolio holds 1500 shares, around 4% of the portfolio.**

RADAR RATING: Output and prices are recovering from depressed FY23 levels, which should enable debt reduction.



## Subscriber Picks

These are the stocks subscribers ask us about. We run our investment ruler over them and give you our Radar Diagnosis.

| COMPANY           | ASX CODE | DESCRIPTION                               | MARKET CAP (\$M) | NET CASH / DEBT (\$M) | ENTERPRISE VALUE (\$M) | LATEST PRICE (\$)* | 12-MNTH HIGH (\$) | NOTES  | RADAR DIAGNOSIS  |
|-------------------|----------|---|------------------|-----------------------|------------------------|--------------------|-------------------|--|--|
| BCAL DIAGNOSTICS  | BDX      | Medical technology - diagnostics          | 32.8             | 10                    | 22.8                   | 0.13               | 0.21              | Raising \$10.5m at 10 cents a share in two tranches in a dilutive raising, increasing shares by a third. Blood test based breast cancer diagnostic aid, not yet TGA approved. Replaces mammogram, in theory.   | Cash raising a big positive. High demand but a long way to go. WATCHLIST.                                |
| BLUECHIP          | BCT      | eHealth - tracking tools for laboratories | 5.5              | 0.7                   | 4.8                    | 0.01               | 0.03              | A bar code that can be read in extreme temperatures; catering for laboratories. Burning cash and raising money at very similar rates. Made a drawdown of \$200k loan during period with \$450k in total from R&D Tax Prepayment loan facility of \$600k; interest rate 16% p.a.  | Until the sales line grows, it's hard to see the company being cashflow positive. Debt increases. AVOID. |
| BOTANIX PHARMA    | BOT      | Biotechnology                             | 441              | 17.3                  | 423.7                  | 0.28               | 0.31              | Treatment for skin infections and diseases. Anti sweating drug. Almost a cosmetic drug, but FDA has been working its way towards approval and is licenced in Japan. Now about commercialising in the US.   | Hype in the run up to approval. AVOID.   |
| CLARITY PHARMA    | CU6      | Biotechnology - radiopharmaceutical       | 1601.7           | 152                   | 1449.7                 | 5.15               | 5.67              | Sentiment high on radio pharmaceutical stocks; similar to Telix Pharma (TLX.ASX) which rose on early stage clinical trials. Encouraging data plus there is diagnostic application. Cashed up; has raised \$121m at \$2.55/share.   | A great deal of anticipation in an exciting sector, but also cashed up. WATCHLIST.                       |
| EMYRIA            | EMD      | Biotechnology                             | 22.5             | 0.7                   | 21.8                   | 0.06               | 0.15              | Pioneering use of MDMA (a psychedelic) for treatment of trauma. Positive news in Australia in 2023 when the regulator (TGA) permitted drugs for treatment of some mental health condition. But sales are a long way away. EMD running a clinical trial. Very early stage. Repaid \$2m loan during quarter, but will need more capital. | Only for the believers. WATCHLIST.   |
| LUMOS DIAGNOSTICS | LDX      | Diagnostic tools                          | 17.3             | 5.1                   | 12.2                   | 0.04               | 0.18              | Point of care diagnostics via a digital reader. Received US\$10m (A\$15m) from US women's health company Hologic for development of a pre-term birth product; sales of its own products is about US\$3m a year. Positive cash flow currently, but high uncertainty.  | A lot to like but very early stage. WATCHLIST.   |

**99% of all financial news relates to the 40 to 50 biggest companies.  
So what about the rest? They're Under the Radar.**

**WARNING:** This publication is general information only, which means it does not take into account your investment objectives, financial situation or needs. You should therefore consider whether a particular recommendation is appropriate for your needs before acting on it, and we recommend seeking advice from a financial adviser or stockbroker before making a decision.

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