ASX Announcement

5 May 2021

Embracing the energy market disruptor: green hydrogen

Lion at a glance

- ASX listed company exploring green hydrogen opportunities in Australia and an oil and gas company with conventional PSC's in Indonesia.
- Focus on conventional oil and gas production and development, appraisal and step out exploration risk opportunities
- Net production of around 40bopd from the Seram PSC which also contains the 1.5TCF Lofin gas/condensate discovery.
- Leveraging synergies in conventional assets and access to both infrastructure and markets.
- Executive team and strategic investors with impressive track records for value creation in Asia.

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Release of Hydrogen Strategy

Lion Energy Limited ("Lion" or "Company"; ASX: LIO) is pleased to announce the release of its detailed green hydrogen strategy and the registration of the business name "*Lion H2 Energy*".

Lion is positioning itself in the production of green hydrogen at the critical juncture of resources, markets and technology.

The strategy overview is attached to this release and it highlights the following provisional roadmap:

1. The establishment of a team of hydrogen experts, which will form a Hydrogen Advisory Board.
2. The appointment of experts to systematically analyse optimal electrolyser locations in Australia.
3. The securing of land rights, subject to available renewable energy supply and hydrogen or ammonia market potential
4. The determination of best value and fit for purpose solar, wind and electrolyser technology.
5. The appointment of a feasibility study consultant with appropriate experience.
6. Establish joint ventures with global players to build large scale solar/wind farms and relevant energy storage facilities to produce green hydrogen at lowest cost for domestic and export markets
7. The potential co-investment in the downstream to enable H2 markets such as the distribution of H2 to heavy vehicles.

Tom Soulsby, Lion's Executive Chairman, said "*we are excited to venture into green hydrogen to participate in the energy transition and to leverage Australia's comparative advantage in renewable energy. We are actively working on delivering against our objectives stated above and will make further announcements in due course*".

ENDS

This ASX announcement was approved and authorised for release by the Board of Directors.

Embracing the energy market disruptor: green hydrogen

May 2021

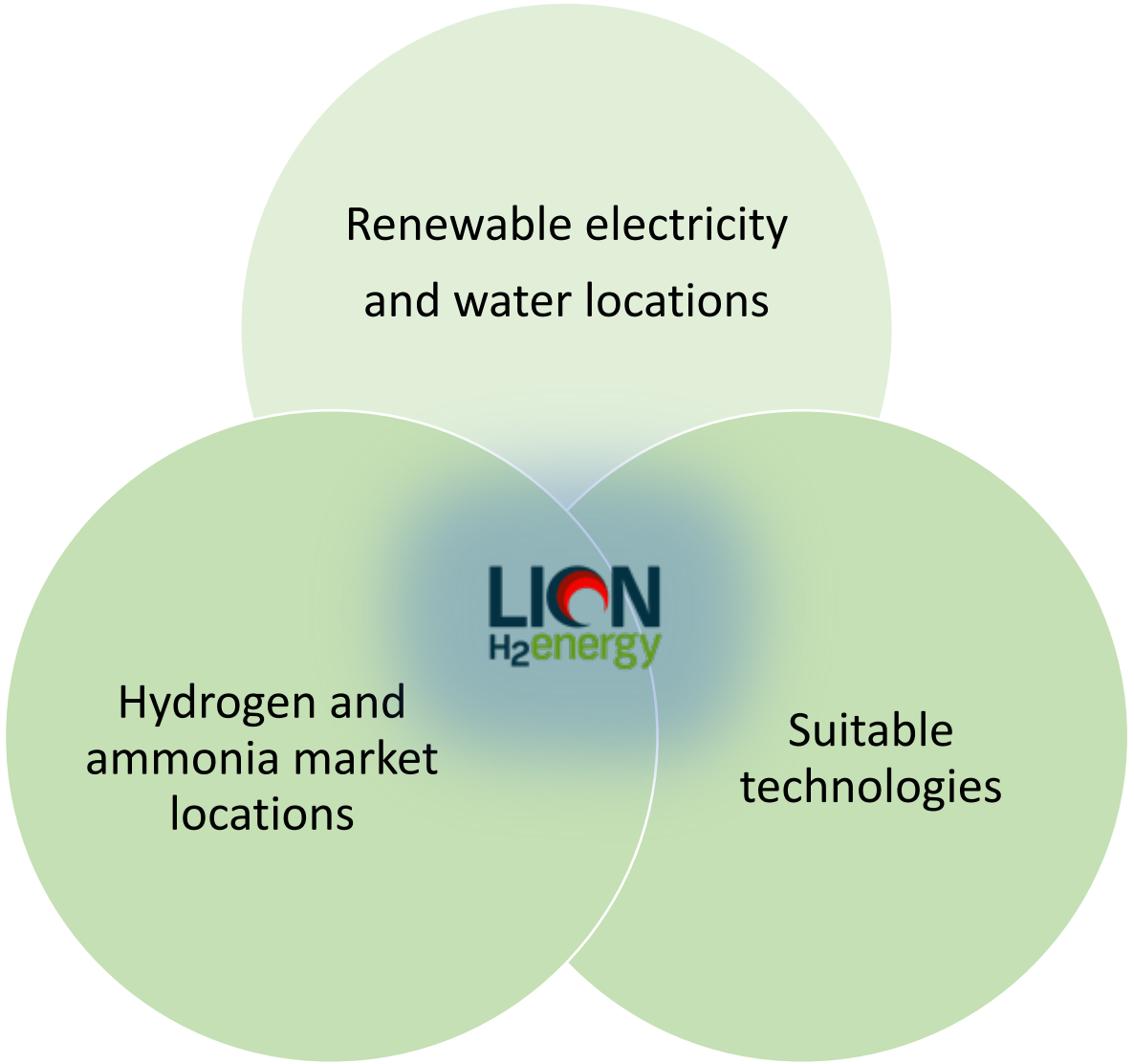
LION H2energy

Lion’s green hydrogen roadmap

1. Establish H2 advisory team, work with relevant experts to systematically analyze optimum electrolyzer locations in Australia and secure relevant rights factoring in H2 or ammonia market potential
2. Determine best value solar, wind and suitable electrolyser technology – work closely with technical subject matter experts and establishing MoUs and R&D investment with best-in-class Australian universities
3. Prepare and fund feasibility study with quality engineering groups with appropriate experience
4. Establish joint ventures with global players to build large scale solar/wind farms and relevant energy storage facilities to produce green hydrogen at lowest cost for domestic and export markets
5. To help enabling H2 markets, invest in pilot hydrogen projects including in H2 distribution and hydrogen fuel cell heavy equipment and vehicles.
6. Ensure a safe and sustainable business model that is scalable, while remaining socially and environmentally responsible

Positioning at the juncture of resources, technology and markets

- Lion is being positioned at the optimum juncture
  - Renewables: Australia has a robust resource base in wind and solar. However, where is the best location given markets and available technologies?
  - Market: Markets exist in refineries and ammonia plants, but what about heavy equipment diesel displacement including trucks, buses, ships and heavy fleets etc?
  - Technology: matching the right technologies in wind, solar and H2 production



1. BloombergNEF: Hydrogen Economy Outlook Key Messages (Mar 2020)
2. Hydrogen Council: Path to Hydrogen Competitiveness: A Cost Perspective (Jan 2020)

Our pathway to green hydrogen

- 2019-20 marked an awakening of interest amongst countries and large industrial MNCs across hydrogen (H2), H2 fuel cell, electrolyser technology, and carbon capture & storage (CCS)
- From 2021 onwards, Lion Energy will work towards becoming an internationally recognised Australian green H2 company
- While H2 is still in its nascent stages, volumes and revenue are expected to grow exponentially in the coming decade
- Our 2021 direction provides a pathway for Lion Energy to participate in the emerging low carbon/emission energy transition
- Our Indonesian conventional oil & gas portfolio will continue to provide Lion Energy exposure to international energy price upside and exposure to the Asian growth story

Image credits:

1. Top: Starfish Hill, Cape Jervis SA, Australia – Photo by Alex Eckermann on Unsplash.com
2. Bottom: Crystal cascades, Cairns, Australia – Photo by David Clode on Unsplash.com

Rationale for venturing into green hydrogen

Buoyant macro outlook and sentiment

- Global hydrogen production to more than double from 71 MTPA in 2020 to 168 MTPA by 2030F[1]
- Green H2 being touted as the 'holy grail' as virtually emission-free in production and in combustion
- Growing scale in solar and wind energy poised to drive costs lower, accelerating commercialisation

Significant tailwind from governments …

- 18 countries that account for 70% of global GDP (including USA) have signed up to develop H2 strategies[2]
  - USA pledged to halve emissions by 2030, and be net-zero emissions by 2050
  - EU to scale up renewable hydrogen projects and invest EUR470B by 2050
  - China to develop its hydrogen industry, focusing on green H2 and H2 breakthrough technologies

… with the private sector joining the chorus

- Large MNCs in transport & commodities the most vocal on promoting a low carbon, zero-emission future
- Even after a knock-out 2020, commodity traders are seeding ventures and forming partnerships with industrial groups on H2, CCS and other low-carbon initiatives to preserve their social license to operate
- Financial investors see H2 as a key pillar of the emerging disruptive innovation investment strategy

H2's wide ranging industrial application

- High density-to-weight ratio makes it suitable for use in higher energy industrial vehicles than lithium-ion
- Burns at high temperatures, suitable for use in hard-to-decarbonise industries (steel, cement, heavy transport)

Australia's comparative advantage in renewables

- Australia's abundant renewable resources position the country for becoming one of the lowest cost green H2 producers, especially for the Asian market
- H2 could offer fresh opportunities for export, replacing declining coal exports over the next few decades

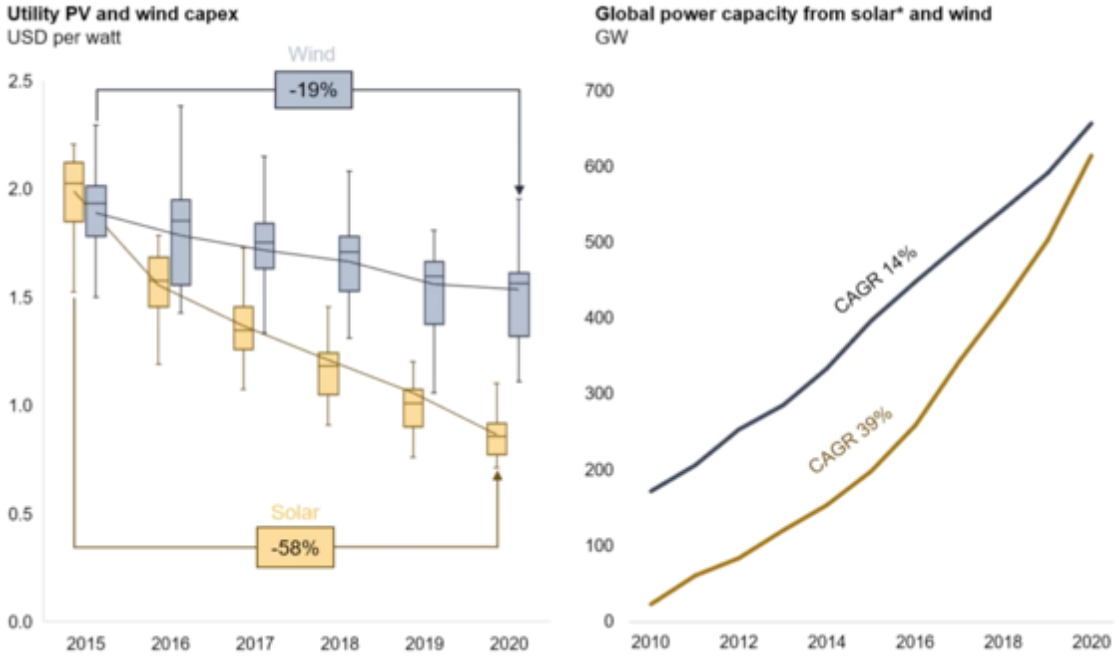
Unprecedented momentum in the zero-emission H2 underpins our early positioning into Australian green H2

1. Frost & Sullivan: Hydrogen Production to Double by 2030 as the World Advances towards a Sustainable Energy Economy (Nov 2020)
2. Hydrogen Council: Path to Hydrogen Competitiveness: A Cost Perspective (Jan 2020)

Buoyant macro outlook and sentiment for green hydrogen

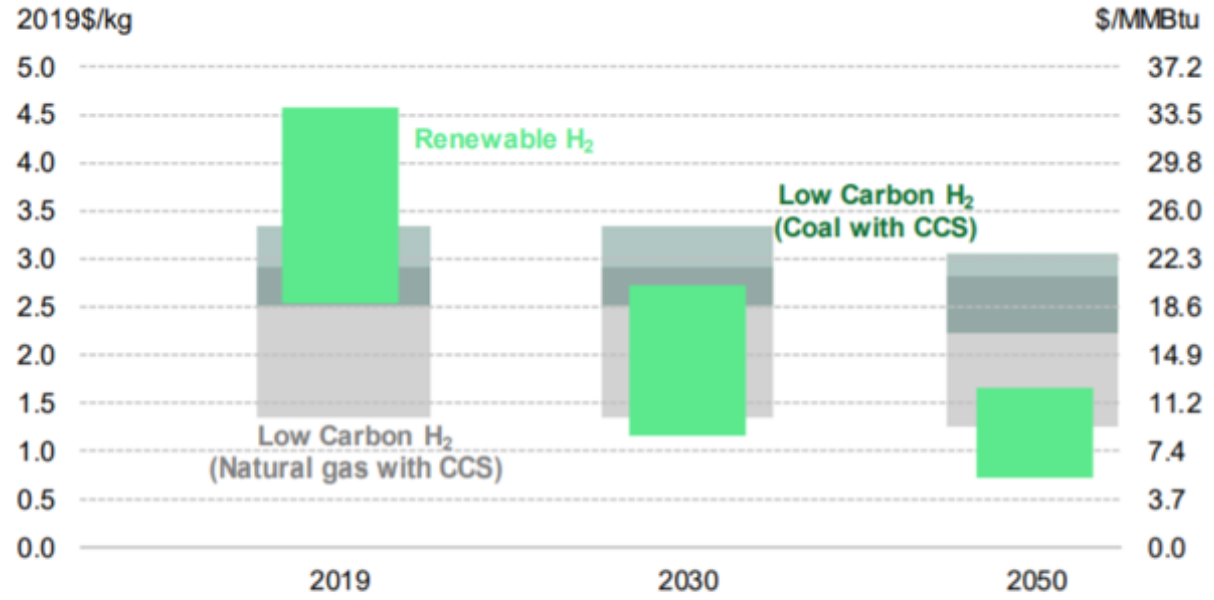
- Green H2 is widely touted as the 'holy grail' – virtually emission-free and able to cut 34% of GHG from fossil fuels and industry at a manageable cost
- Green H2 production to increase at a CAGR of 57% p.a. between 2019 and 2030, rising from 40KT to 5.7MT[2]
- Growing scale in solar and wind energy is expected to drive costs of green H2 progressively lower, which will drive commercialisation

Amid policy push, falling costs spawning as massive ramp up in renewable capacity…



Source: Rystad Energy, RenewableCube

Forecast global cost of hydrogen production from large projects

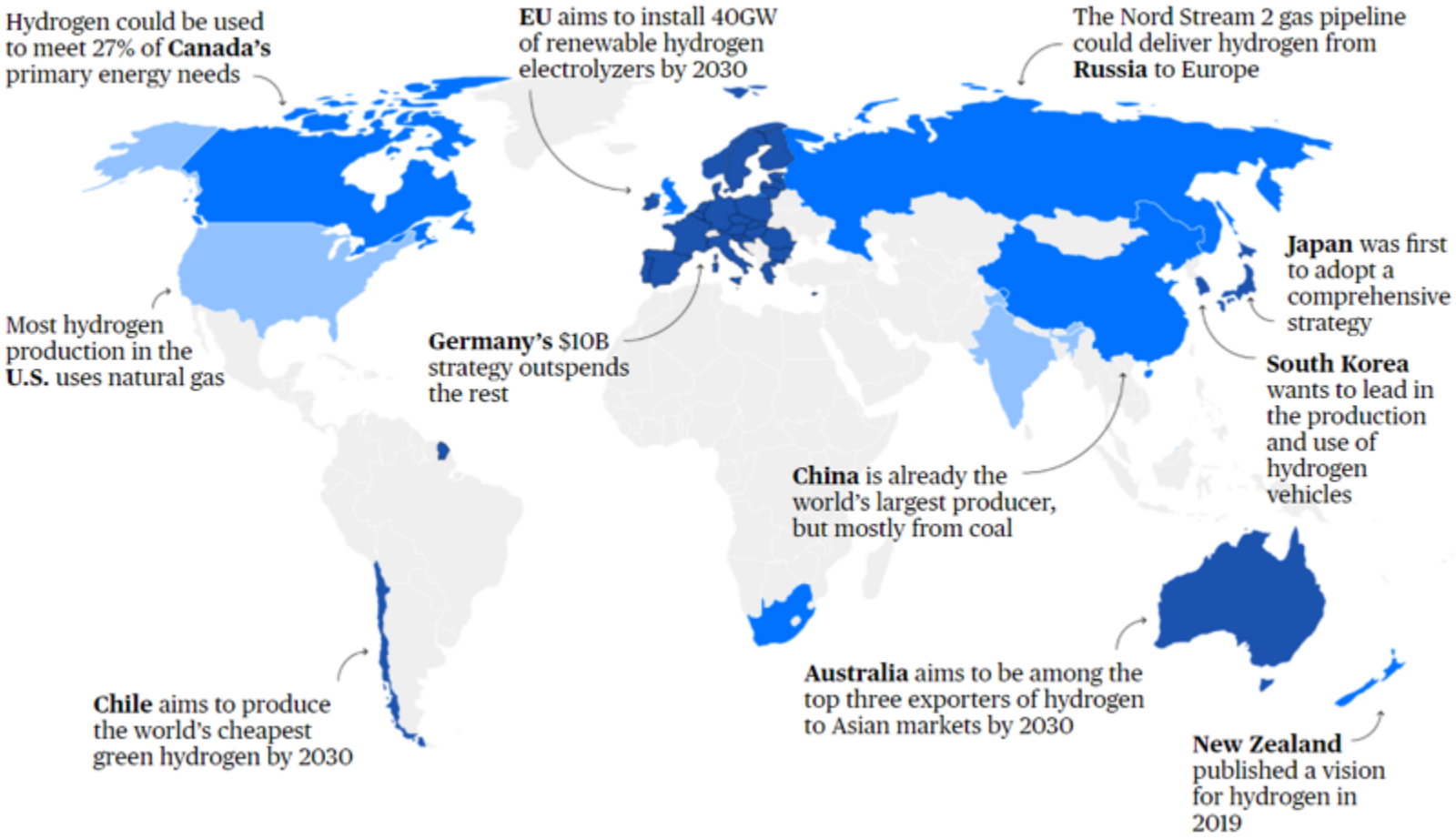


Source: BloombergNEF. Note renewable hydrogen costs based on large projects with optimistic projections for capex. Natural gas prices range from $1.1-10.3/MMBtu, coal from $30-116/t.

Significant tailwinds from global decarbonisation policy push

- Achieving cost competitiveness won't happen without new government targets and subsidies
- In European markets alone, BloombergNEF estimates green H2 will require $150B subsidies by 2030 and $11 trillion by 2050 for the fuel to meet 24% of the continent's energy demand by 2050[1]
- 18 countries that account for 70% of global GDP (including USA) have signed up to develop H2 strategies[2]
- EU announced plans to scale up renewable hydrogen projects and invest €470B by 2050

National hydrogen strategies, more robust plans



Sources: Eurasia Group; International Energy Agency; Bloomberg
Note: Black outlines demarcate EU countries, and don't necessarily indicate a national strategy exists.

1. BloombergNEF: Hydrogen Economy Outlook Key Messages (Mar 2020)
2. Hydrogen Council: Path to Hydrogen Competitiveness: A Cost Perspective (Jan 2020)

Private sector giants join the chorus

- Even after a knock-out 2020, commodity traders are seeding ventures and forming partnerships with industrial groups on H2, CCS etc.
- Driven by the need to preserve their social license to operate and satisfy increasingly ESG-focused investors/financiers
- Financial investors see H2 as a key pillar of the emerging disruptive innovation investment strategy
- Origin and H2U have recently attracted Japanese corporates in S. Australia to enable it to become a major energy exporter to the rest of Australia and the world

Large MNCs in transport & commodities are increasingly vocal in promoting a low carbon, zero-emission future

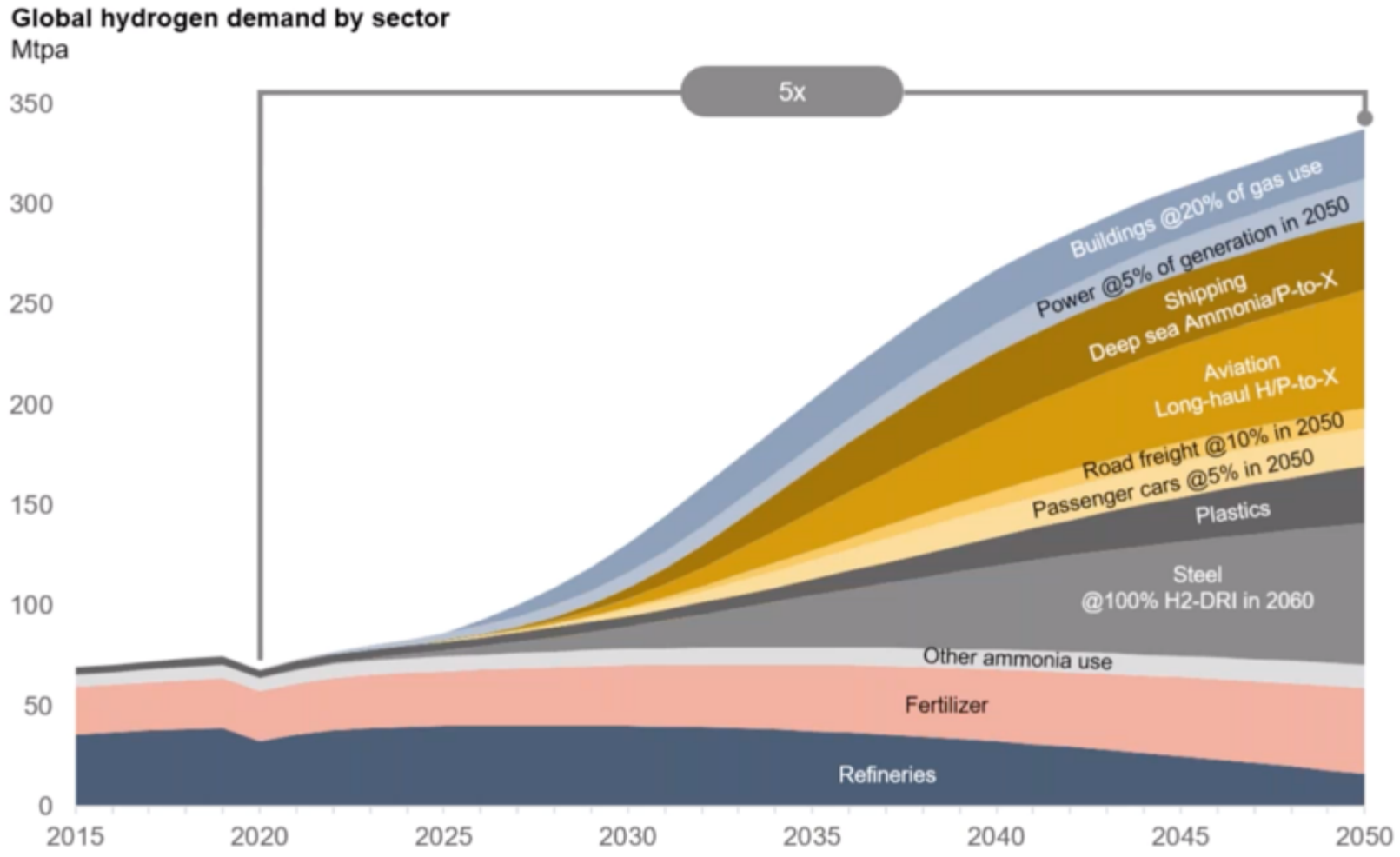
Vitol	▪ Apr 2021: Acquired 10% in Gen2 Energy, a Norwegian producer of green H2
TRAFIGURA	▪ Dec 2020: Invested US$62m in H2 Energy Holding AG (fuel cell trucks)
	▪ Mar 2021: Commits US$500m in CCS, renewables , H2 & ammonia
SK PLUG POWER	▪ Jan 2021: SK acquiring a 10.2% stake in Plug Power (H2 fuel cell systems, fuelling stations and green H2 generation) for US$1.5 Billion
FMG Fortescue	▪ Nov 2020: Fortescue Future Industries commits $1B towards backing 235 GW of installed capacity, focusing on green H2 & ammonia
origin	▪ Apr 2021: Signed MoU with Port of Townsville and Kawasaki Heavy Industries on 300MW early export project to product 36.5KT of green H2 using renewable energy and sustainable water
THE HYDROGEN UTILITY™ H2U MITSUBISHI HEAVY INDUSTRIES	▪ Nov 2020: H2U attracted Mitsubishi Heavy to partner on A$240m Eyre Peninsula Gateway project at Port Bonython, a 75MW electrolysis plant in S. Australia to supply hydrogen for 400KTPA of green ammonia

Sources: MergerMarket, Company Reports

H2's potential for wide ranging industrial application

- Hydrogen is a versatile energy carrier, can be produced from almost all energy resources,
- Today's use of H2 in oil refining and chemical production is dominated by H2 from fossil fuels, with significant associated CO2 emissions
- High density-to-weight ratio makes it suitable for use in higher energy industrial vehicles than batteries made from lithium-ion
- Burns at high temperatures, suitable for use in hard-to-decarbonise industries (steel, cement, heavy transport)

Hydrogen demand to increase 5x by 2050

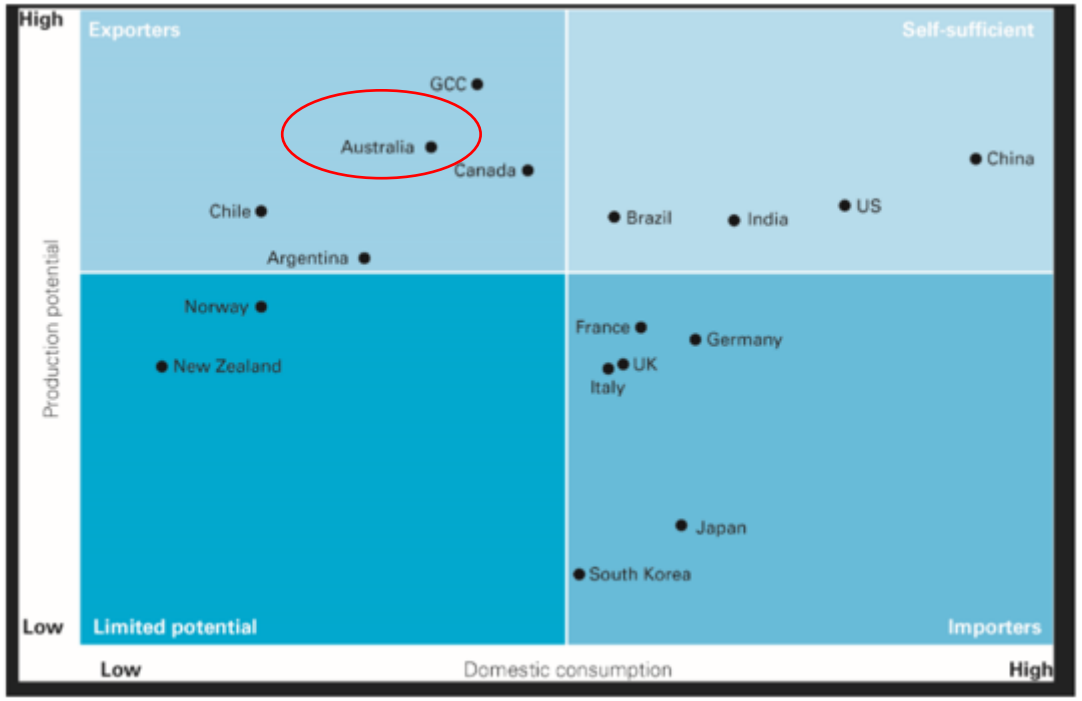


Source: Rystad Energy, HydrogenCube beta

Australia's comparative advantage in renewable resources

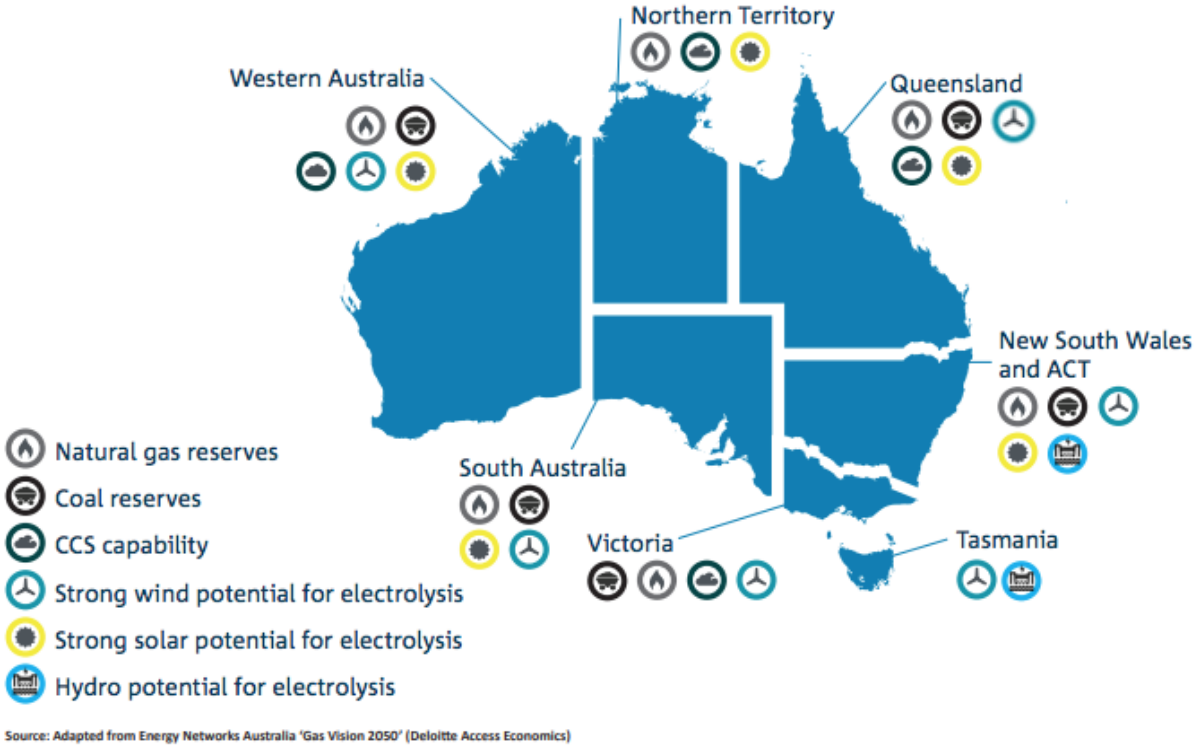
- Australia's abundant renewable resources position the country for becoming one of the lowest cost green H2 producers, especially for the Asian market
- H2 could offer fresh opportunities for export, replacing declining coal exports over the next few decades
- Australian Govt investing A$275M in clean H2 and A$265M in CCS to help its manufacturing sector decarbonise

H2 could offer fresh opportunities for export for Australia



Source: PwC[1]

Energy resource options for producing hydrogen across Australia



Notes:

1. Source: "The dawn of green hydrogen: Maintaining the GCC's edge in a decarbonized world" by Strategy&/PwC (2020)

Existing listed company focus

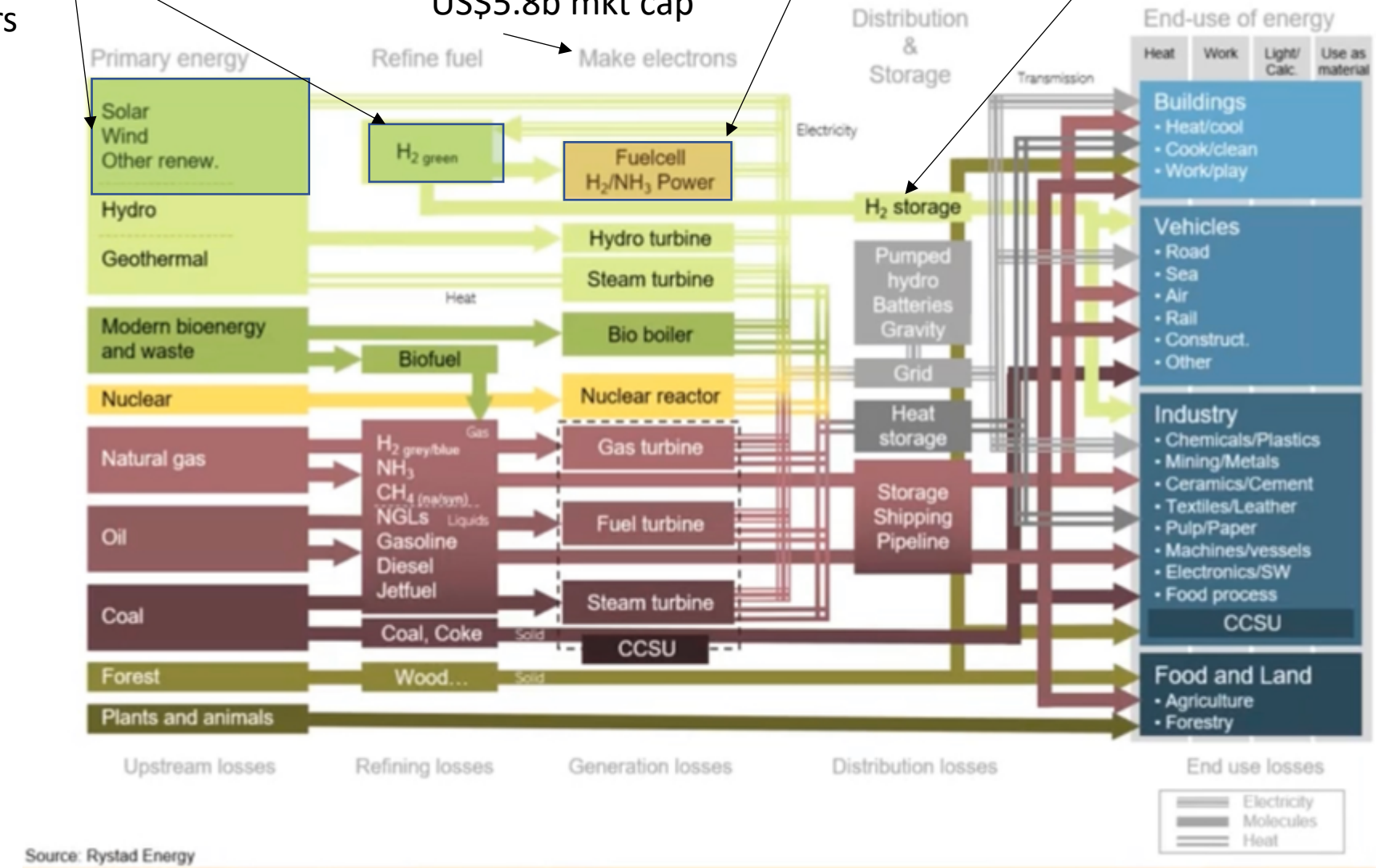
Fuel cells and electrolyser makers dominate the listed space

No listed players

5 companies, US$5.8b mkt cap

9.companies, US$45b mkt cap

2 companies, US$0.4b mkt cap



Source: Rystad Energy

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LION H2energy

Thank you

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