Gold Hydrogen

Developing naturally occurring Australian Hydrogen Resources

Non-Deal Roadshow | September 2022

Important Notice & Disclaimer

This presentation is not a prospectus, disclosure document or offering document under Australian law or under any other law. It is for informational purposes only. This document does not constitute, and should not be construed as, an offer to issue or sell or a solicitation of an offer or invitation to subscribe for, buy or sell securities in Gold Hydrogen Limited ABN 74 647 468 899 (Gold Hydrogen).

Any material used in this presentation is only an overview and summary of certain data selected by the management of Gold Hydrogen. The presentation does not purport to contain all the information that a prospective investor may require in evaluating a possible investment in Gold Hydrogen nor does it contain all the information which would be required in a disclosure document prepared in accordance with the requirements of the Corporations Act and should not be used in isolation as a basis to invest in Gold Hydrogen. Recipients of this presentation must make their own independent investigations, consideration, and evaluation of Gold Hydrogen. Gold Hydrogen recommends that potential investors consult their professional advisor/s as an investment in Gold Hydrogen is considered to be speculative in nature.

Statements in this presentation are made only as of the date of this presentation unless otherwise stated and the information in this presentation remains subject to change without notice. Reliance should not be placed on information or opinions contained in this presentation.

To the maximum extent permitted by law, Gold Hydrogen disclaims any responsibility to inform any recipient of this presentation on any matter that subsequently comes to its notice which may affect any of the information contained in this document and presentation and undertakes no obligation to provide any additional or updated information whether as a result of new information, future events or results or otherwise.

No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions or conclusions contained in or derived from this presentation or any omission from this presentation or of any other written or oral information or opinions provided now or in the future to any person.

To the maximum extent permitted by law, neither Gold Hydrogen nor, any affiliates, related bodies corporate and their respective officers, directors, employees, advisors and agents (Relevant Parties), nor any other person, accepts any liability as to or in relation to the accuracy or completeness of the information, statements, opinions or matters (express or implied) arising out of, contained in or derived from this presentation or any omission from this presentation or of any other written or oral information or opinions provided now or in the future to any person.

This presentation contains "forward looking statements" concerning the financial condition, results of operations and business of Gold Hydrogen. All statements other than statements of fact or aspirational statements, are or may be deemed to be "forward looking statements". Often, but not always, forward looking statements can generally be identified by the use of forward looking words such as "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", "outlook", and "guidance", or other similar words and may include, without limitation, statements regarding plans, strategies and objectives of management, future or anticipated production or construction commencement dates and expected costs, resources or reserves, exploration results or production outputs. Forward looking statements are statements of future expectations that are based on management's current expectations and assumptions and known and unknown risks and uncertainties that could cause the actual results, performance, or events to differ materially from those expressed or implied in these statements. These risks include, but are not limited to price fluctuations, actual demand, currency fluctuations, drilling and production results, commercialization, reserve estimates, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal, and regulatory developments, economic and financial market conditions in various countries and regions, political risks, project delay or advancement, approvals, and cost estimates.

Statements in this presentation as to gas and mineral resources has been compiled from data provided by Gold Hydrogen's Chief Technical Officer, Mr. Luke Titus. Mr. Titus' qualifications include a Bachelor of Science from Fort Lewis College, Durango, Colorado, USA, and he is an active member of AAPG and SPE. Mr. Titus' has 25 years of relevant international exploration and development experience in industrial rocks and minerals, precious metals, conventional and unconventional hydrocarbons, and associated gases, including hydrogen and helium. Mr. Titus has sufficient experience that is relevant to Gold Hydrogen's resources to qualify as a Reserves and Resources Evaluator as defined in the ASX Listing Rules 5.11. Mr. Titus consented to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Presenting Today

Neil McDonald
Founder & Managing Director

- 20+ years of extensive commercial experience from greenfield exploration to early development.
- Operated across multiple energy and minerals sectors in Queensland, Northern Territory and South Australia
- His works for resources companies has led to over $230M+ raised for projects and over $20M in R&D credits plus government grants
- Strong legal grounding in commercial and regulatory compliance of the resources industry including the acquisition, commercialisation and monetisation of assets
- Strong non-partisan relationships at the highest political levels at both Federal and State levels
- A qualified Lawyer and a Graduate of the Australian Institute of Company Directors

Luke Titus
Founder & Chief Operating Officer

- 25+ years of relevant international resources exploration and development experience
- Experience includes a diverse portfolio of energy and hard rock geology resource plays
- His exploration activities for resources companies has led to multiple reported discoveries realising over $180M in capital raised and $50M in R&D credits
- Founder of Gold Hydrogen, Byrock Resources, Natural Hydrogen Australia, White Hydrogen and co-founder of North Central Gold and affiliates
- Reserves and Resources experience to qualify as an evaluator under both SPE-PRMS guidelines and JORC codes
- Bachelor of Science from Fort Lewis College, Colorado, USA

Executive Summary - Low cost, low carbon Hydrogen

Title over reported natural hydrogen prospective resource occurances	Certified Prospective Resource for natural hydrogen with an unrisked Best Estimate of 1.3 billion kilograms (refer Slide 11)
Flagship project, exploration permit granted	Ramsay Project (green on map) is 100% owned by Gold Hydrogen. Other locations under application
Near term value inflection point	Stage One exploration drilling programme is expected to commence as early as Q3 CY2023 on the Yorke Peninsula
Enabling arrangements with leading global hydrogen experts	Strategic supplier arrangements with Schlumberger, Total Seismic, Xcalibur Aviation and a leading Commonwealth scientific organisation
Significant commercial and environmental competitive advantage	As a replacement for carbon based fuels, naturally occurring hydrogen offers significant cost and emissions advantages relative to other sources of hydrogen production

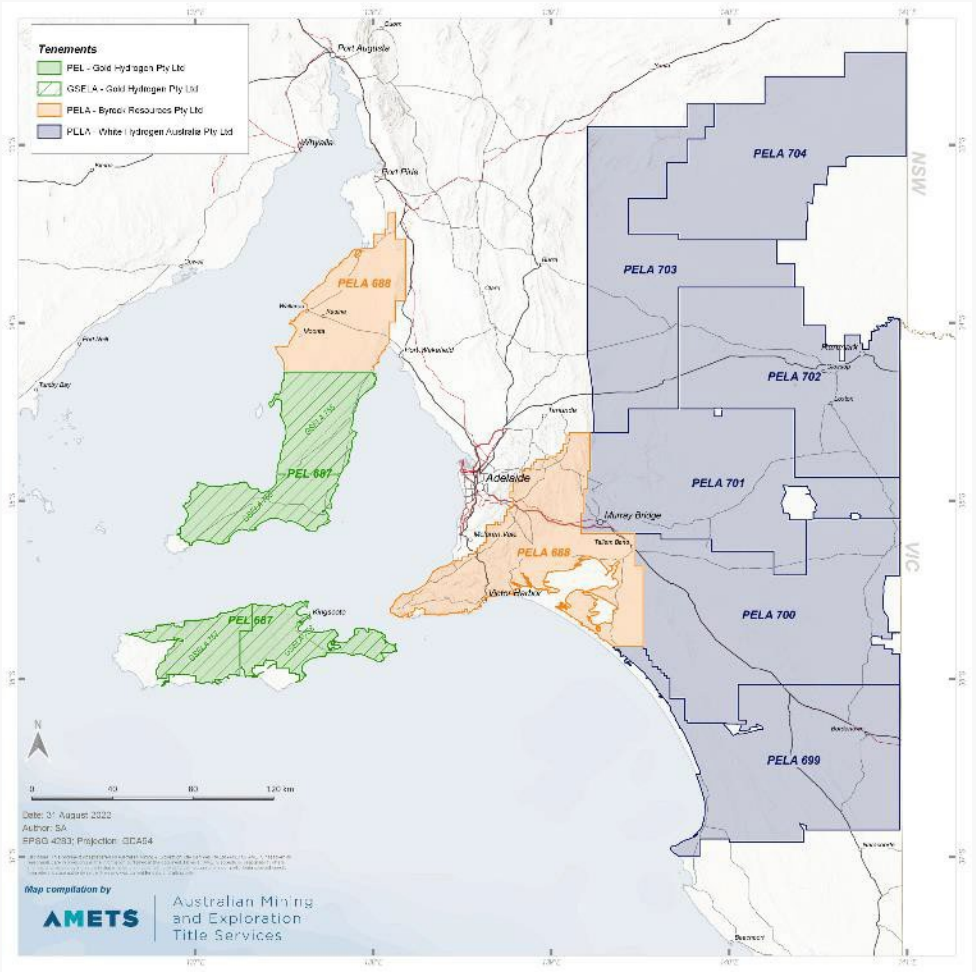


Figure: Overview of Gold Hydrogen tenements

Industry Overview

Gold Hydrogen

Global Hydrogen Forecast

Substantial investment laying the foundation for hydrogen use

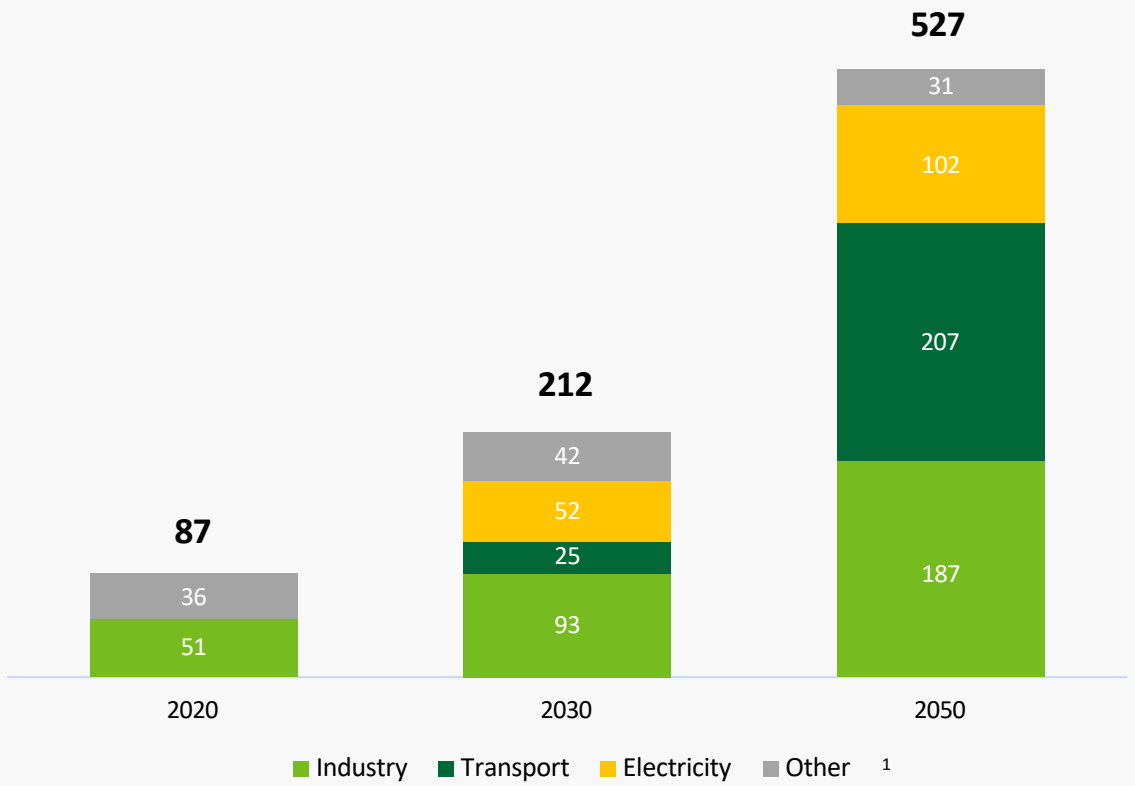
A$629B
Projected annual investment on hydrogen projects in 2050

A$184B
Projected annual investment on hydrogen projects in 2030

ESG push to decarbonise industries and economies is underpinning demand for hydrogen

Natural hydrogen as a low-carbon, low-cost source presents a very attractive opportunity to facilitate decarbonisation

Global Hydrogen Demand by Sector, Net Zero Emissions Target Scenario (Mt)



Source: International Energy Agency, Oct-2021
1. Other includes buildings, agriculture and refineries

Key Trends Driving Hydrogen Adoption

Most hydrogen used today is in the production of ammonia and steel, or by oil refineries

Future growth projections are based on a number of key trends that are driving adoption

ESG investment and country policies push to decarbonise

Technological advances across the hydrogen value chain

Hydrogen enhances flexibility of grids and industrial applications

Use of hydrogen as transport fuel or heat source alternative

Project Overview

Gold Hydrogen

Gold Hydrogen's Ramsay Project

Granted natural hydrogen exploration permit	Gold Hydrogen has a 100% ownership of the flagship Ramsay Project covering 7,820km^2 on the Yorke Peninsula and Kangaroo Island in South Australia
Australia's only proven naturally occurring hydrogen accumulation	Certified unrisked Prospective Resource of 1.3 billion kg hydrogen and drill ready prospects (refer Slide 11)
Significant upside potential	Historic wells resulted in the discovery of >80% natural hydrogen gas at depths of ~500m. Potential exists for deeper hydrogen sources and reservoirs in the untested depths from >500m to 4,500m
Pathway to commercial extraction	With a 'natural hydrogen system', gas can be extracted using modern drilling techniques

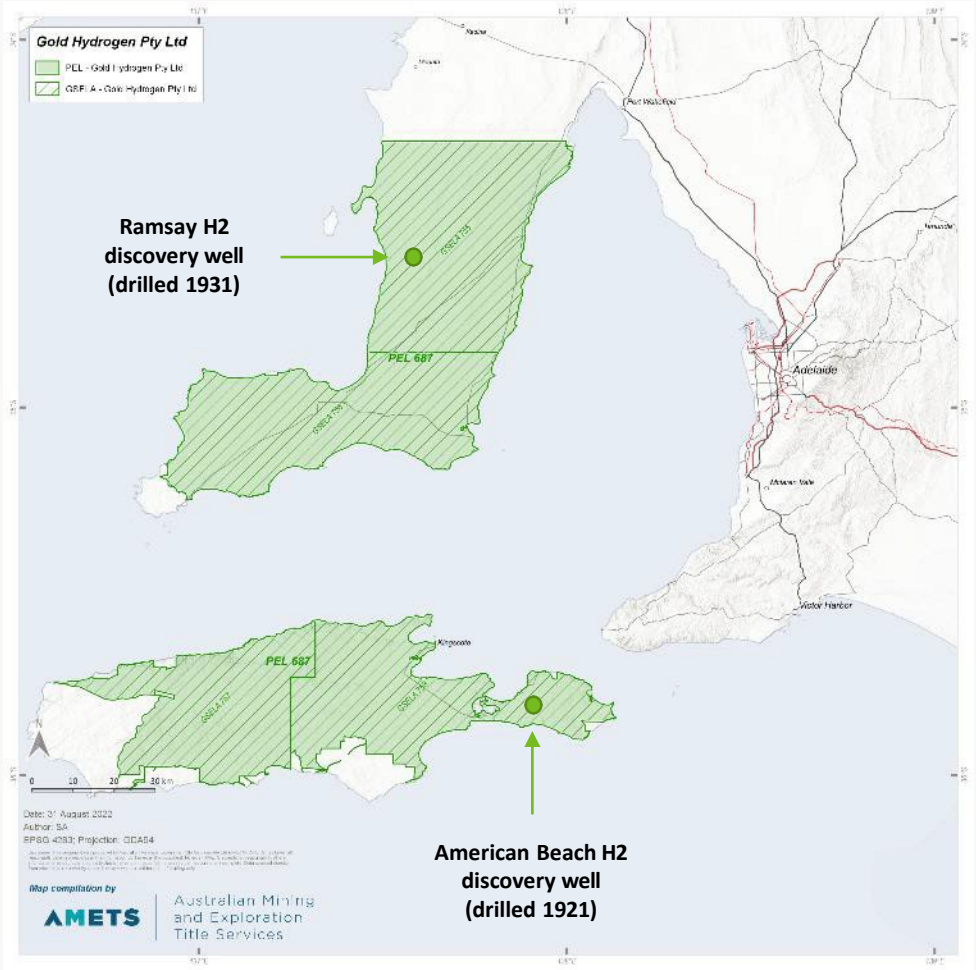


Figure: Gold Hydrogen's Ramsay Project tenements

Historical Drilling Encounters Hydrogen

- Notable increase in natural hydrogen richness with depth, 90% H2 composition (air corrected) circa 500m
- Other known natural hydrogen occurrences in Australia average < 5% of the total gas composition
- Existing discovered hydrogen composition is comparable to commercial play in Mali (>90% hydrogen)

Historical drilling

	American Beach discovery well		Ramsay discovery well		
Depth (m)	187.4	**289.5**	240.8	262.1	**507.8**
H2 (%) – sample composition	51.3	**68.6**	76.0	64.4	**84.0**
H2 (%) – air corrected values	65.6	**83.3**	76.0	73.1	**89.3**

Independent analysis estimates a prospective Hydrogen resource of circa 1.3bn kilograms

- Best Estimate Prospective Resource calculated only to 750m
- Deeper source, reservoirs, and hydrogen accumulation yet to be tested >500 to 4,500m
- High Estimate of 8.82 billion kilograms, may only represent 5% of the accumulation that extends to untested depths of >3,000m

NOTE – the estimated quantities of Natural Hydrogen that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both a risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially recoverable Natural Hydrogen.

Unrisked prospective hydrogen resources, PEL 687 ('000 tonnes)

	Low estimate	Best estimate	High estimate
Prospect	165	1,135	8,050
Lead	42	178	770
Total	**207**	**1,313**	**8,820**

Key Success Factors

Ramsay Project ticks the boxes in respect of the key attributes for the Formation and Accumulation of Natural Hydrogen

	Key Success Factor	Ramsay Project	
Source & Generation	The optimal geological conditions for the natural formation of hydrogen gas revolve primarily around the hydrolysis and radiolysis reactions in old rocks	Ramsay Project is ideally located at the Gawler craton of South Australia, where radiolysis and hydrolysis reactions of iron-rich rocks are ongoing creating naturally occurring hydrogen	✓
Seals & Traps	The entrapment of the naturally formed hydrogen is essential to find commercially viable accumulations	Ramsay Project contains seals in the Cambrian stratigraphy including tight limestones that overlie the basement source rocks. These seals were penetrated by the historic wells that discovered hydrogen	✓
Structure	Ideally the host rocks for formation of hydrogen gas are located along major structural boundaries in an extensional geological regime where natural fractures exist	Ramsay Project located on major lithospheric boundary and bend in the Tasman line of the Delamerian orogeny. Additionally it is within the setting of the tectonically active horst-graben Adelaide extensional rift	✓
Reservoir	The commerciality of a resource is a function of its reservoir type, volume (size), depth (accessibility), extraction rate and quality of the natural hydrogen content	Ramsay Project extends >5km in depth with discovered flows of up to 84% natural hydrogen, with additional discovered flows of up to 89% natural hydrogen which overlie the basement source rocks	✓

Source and Generation

- **Hydrogen generating source rocks:** Ramsay Project is located at the Southern end of Olympic Dam iron-oxide-copper-gold + uranium
- **Naturally occurring hydrogen:** Source rocks mixing with large volumes of oxidized ground and sea water causes hydrolysis and radiolysis of these minerals which generates natural hydrogen and accumulations
- **Source:** Unlike petroleum generated from a carbon-based source, hydrogen can be generated continuously over a longer timeframe and a wider temperature range, which means that hydrogen systems can renew
- **Work program planned:** Source rock lab analysis and gas composition analysis will better support the understanding of natural hydrogen gas source and generation

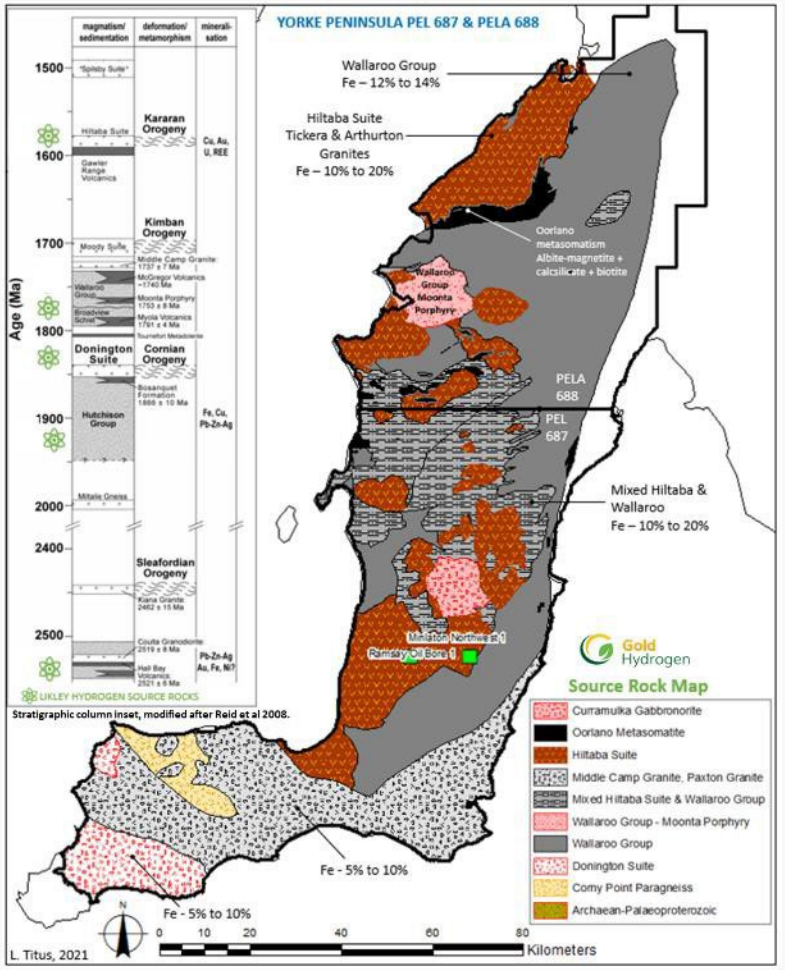


Figure: Ramsay Project source rocks at Yorke Peninsula

Seals and Traps

- **Entrapment of the naturally formed hydrogen:** The stratigraphy of the Cambrian Stansbury Basin of PEL 687 formed 500 million years ago creates an impermeable seal above the massive fractured basement (MFB) trapping the hydrogen in the fractured system

- **Work program planned:** Further drilling and lab analysis of rocks in the Ramsay Project will support a better understanding of trap and seal potential

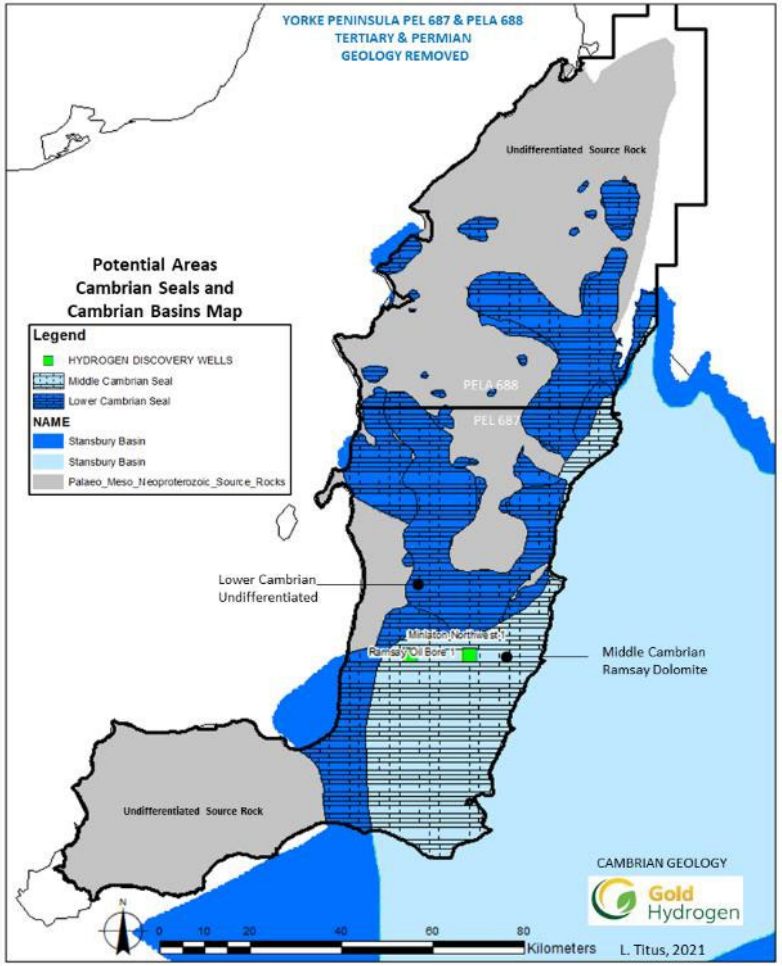


Figure: Ramsay Project location of potential seals

Structure

- **Structure:** Ideally the host rocks for formation of hydrogen gas are located along major structural boundaries in an extensional geological regime where natural fractures exist

- **Ideal location:** Ramsay Project is located on major lithospheric boundary, with a suggested massive-fractured basement play that would have open sets of microfractures, fractures and joints

- **Work program planned:** Additional airborne survey (planned for early 2023) will assist in better understanding the onshore structure and basement source rocks of the Ramsey project

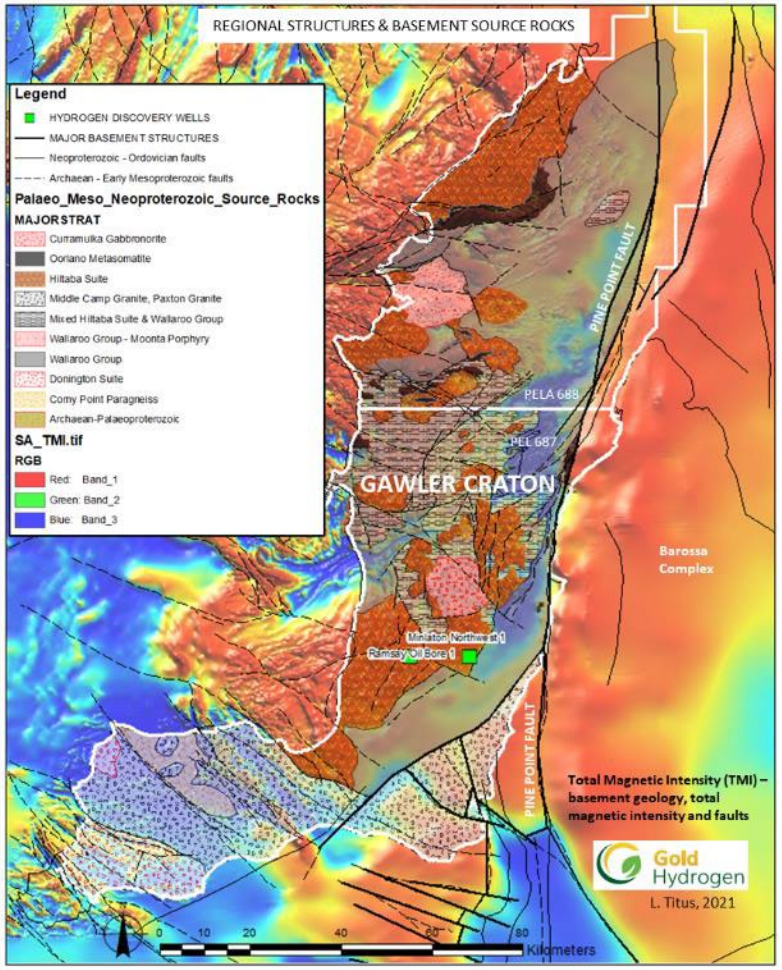
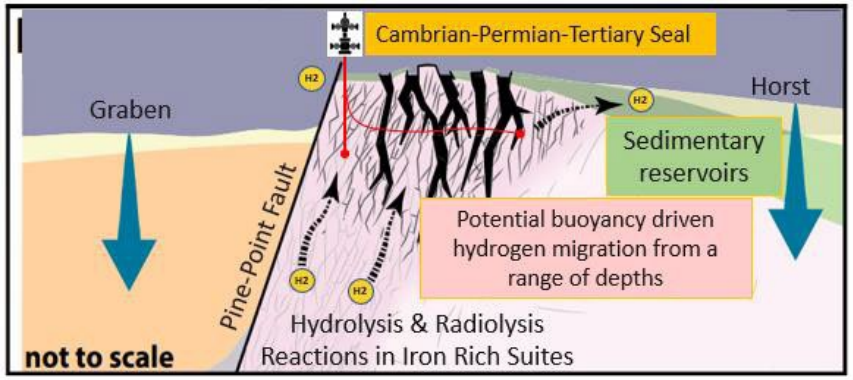


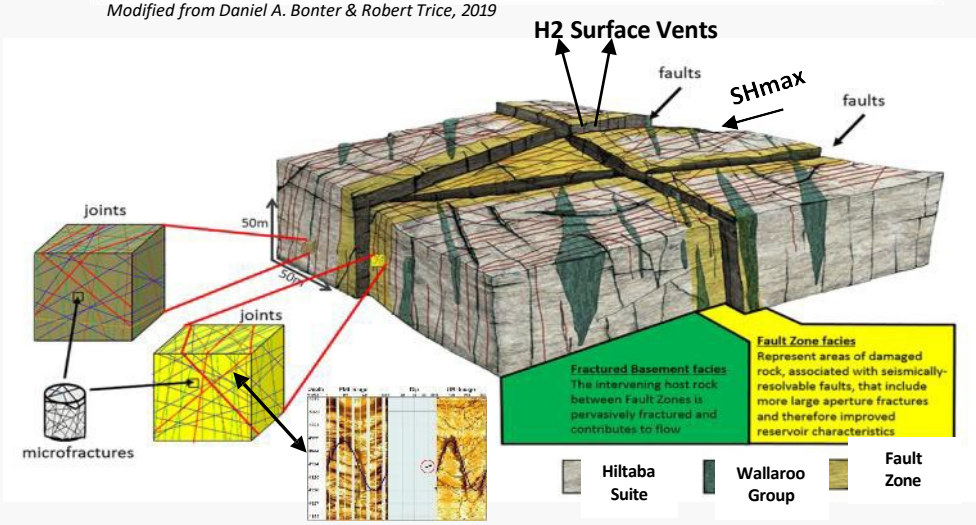
Figure: Ramsay Project basement structures

Reservoir

- **Multiple reservoir targets:** Two potential reservoirs for hydrogen, MFB, the primary target; and Cambrian limestones and sandstones, the secondary targets
- **Fracture system traps hydrogen to accumulate:** MFB has been natural fractured by earth movements, providing a suitable reservoir for hydrogen has that has been generated from the surrounding iron rich rocks
- **Fractured basement plays are common:** The Bach Ho oil field discovered by Mobil Oil Co. in the Cuu Long Basin offshore Vietnam, and Lancaster and Whirlwind fields owned by Hurricane Energy in the West of Shetlands region of the Continental Shelf
- **Work program planned:** Drilling and lab analysis of rocks at the Ramsay Project will enable a clearer understanding of the reservoir



Modified from Daniel A. Bonter & Robert Trice, 2019



Modified from Daniel A. Bonter & Robert Trice, 2019

Growth Plan

Gold Hydrogen

Key Objectives

Gold Hydrogen's core business objectives over the next two years are:

To initially validate the natural hydrogen occurrences of the 1920s and 1930s, and prove that natural hydrogen is present in PEL 687

To demonstrate that natural hydrogen is present in sufficient volumes to be extracted for commercial use

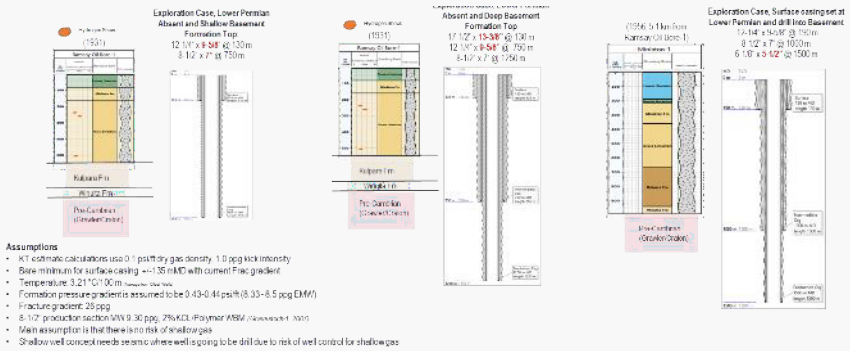
Enabling Engagements in Place

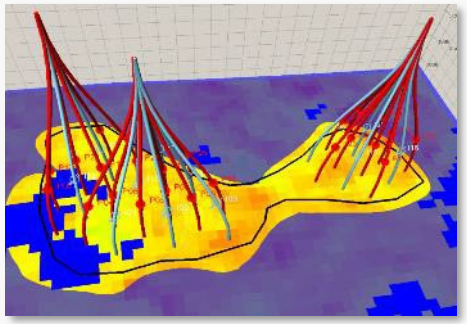
Commonwealth Scientific Organisation	Schlumberger	TOTAL SEISMIC	Xcalibur Airborne Geophysics
Develop new techniques and processes to accurately identify and effectively extract natural hydrogen gas	Assist with and commence workflows including subsurface characterisation; wellbore design; and development of a downstream production model	Vertical-seismic-profile (VSP) to support the future pilot	High-definition airborne survey over 18,203 line-kms at 500-metre line spacing over the Yorke Peninsula and Kangaroo Island blocks
Agreement in Aug-2022	Master Service Agreement in Jun-2022	Contract in Jul-2022	Contract in Aug-2022
Work program to Mar-2024	Drill testing from Q4-2023	Ongoing to Sep-2023	Program commencing Feb-2023 and report in Jun-2023

Completed Work Programs

Considerable technical and non-technical workflows have been progressed and completed that underpin Ramsay Project maturation include:

Wellbore-1 concept selection	Stage 1 digital subsurface database modelling
Completed Aug-2022	Complete by Dec-2022
• Offset wells analysis completed • Preliminary list of risks summary and control measures • SME Metallurgist discussion • Rig sizing and well control equipment sizing • Well testing and completion • HSE • Project estimate cost (AFE)	• Generated ground up static and dynamic subsurface models • Validated volume of hydrogen (H2) resources in place • Determined the optimum number of H2 producer wells for maximum energy generation • Evaluated the feasibility of subsurface H2 storage to match supply and demand variations

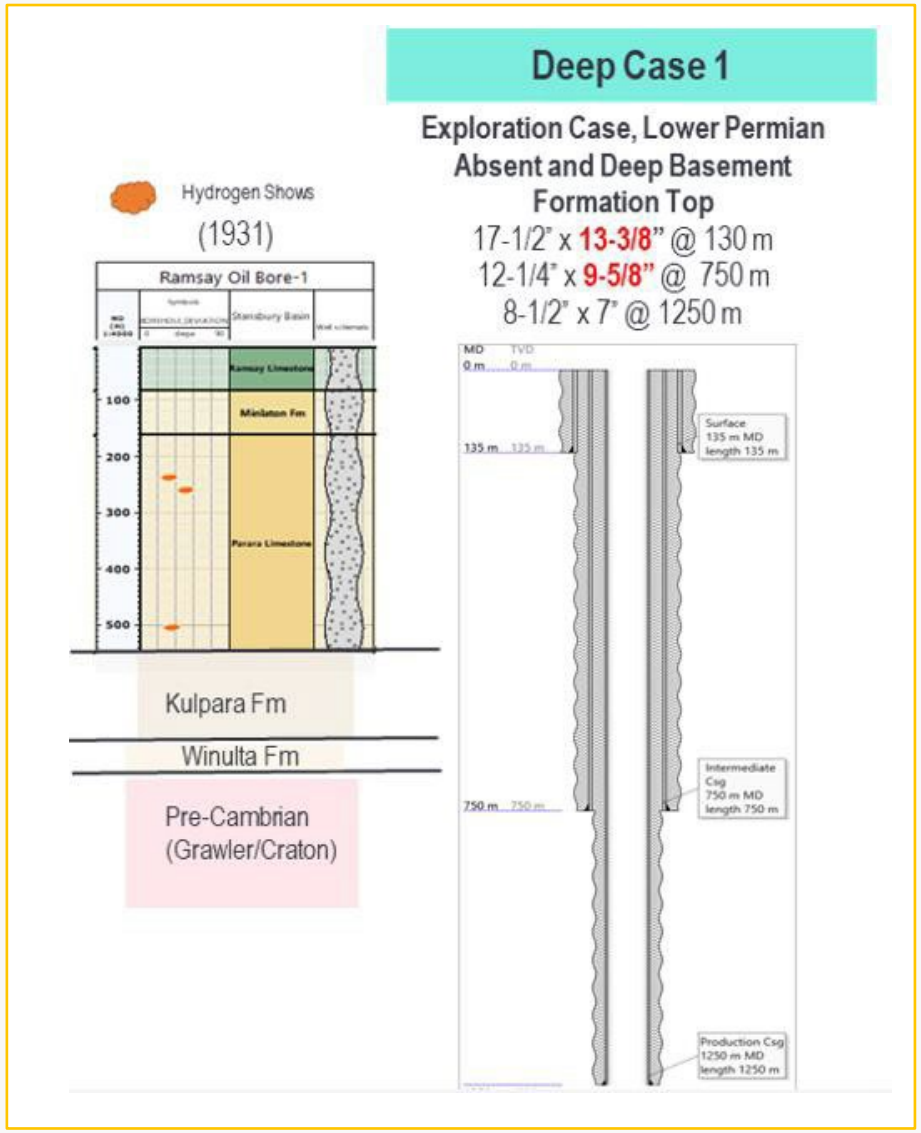




Planned Work Programs

Key Milestones for drilling the first well in the Ramsay Project include but not limited to:

- Complete basis-of-design for Exploration Well-1: **Q1-CY23**
- Complete procurement for Exploration Well-1: **Q2-CY23**
- Wellbore-1 testing: **Q3-CY23**
- Resource Update: **Q4-23**
- Commence workflows for Exploration Wells 2 & 3: **Q1-CY24**



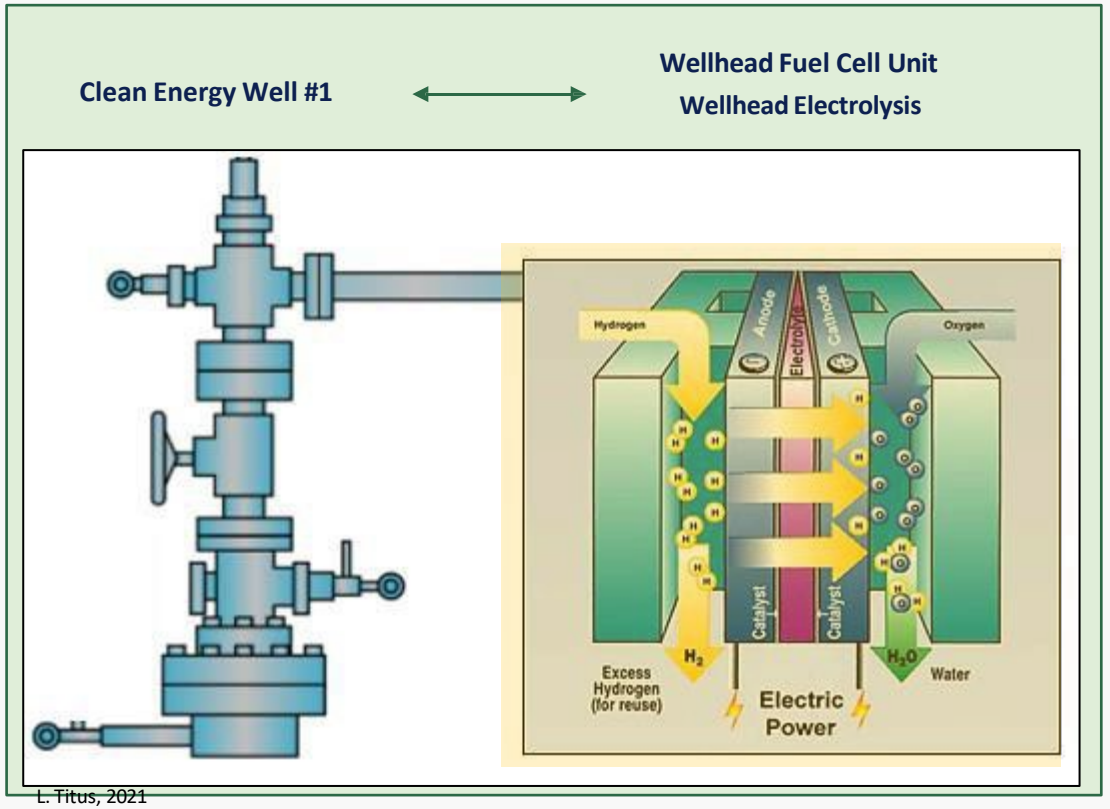
Indicative Schedule

		Q4 CY22	Q1 CY23	Q2 CY23	Q3 CY23	Q4 CY23	Q1 CY24	Q2 CY24	Q3 CY24	Q4 CY24
Project development	Continued community & stakeholder engagement									
	Environmental approvals and land access									
Land Science & Survey workstreams	Stage 1 – Gas Soil									
	Stage 1 – Lab analysis									
	Stage 2 – Gas Soil									
	Natural hydrogen research and studies									
	Airborne survey and processing									
Schlumberger workstreams	Downstream – production and sales scenarios									
	Upstream – 2D Seismic repro and dynamic model									
	Well design									
Yorke Peninsula drilling program	Exploration well 1 - permitting									
	Exploration well 1 - drill testing									
	Resource update						▲			
	Exploration wells 2 & 3 – permitting									
	Exploration wells 2 & 3 - drill testing									

Stage 1: Commercialisation: Initial Wellhead

Using existing technology and infrastructure to convert hydrogen Resources to Reserves

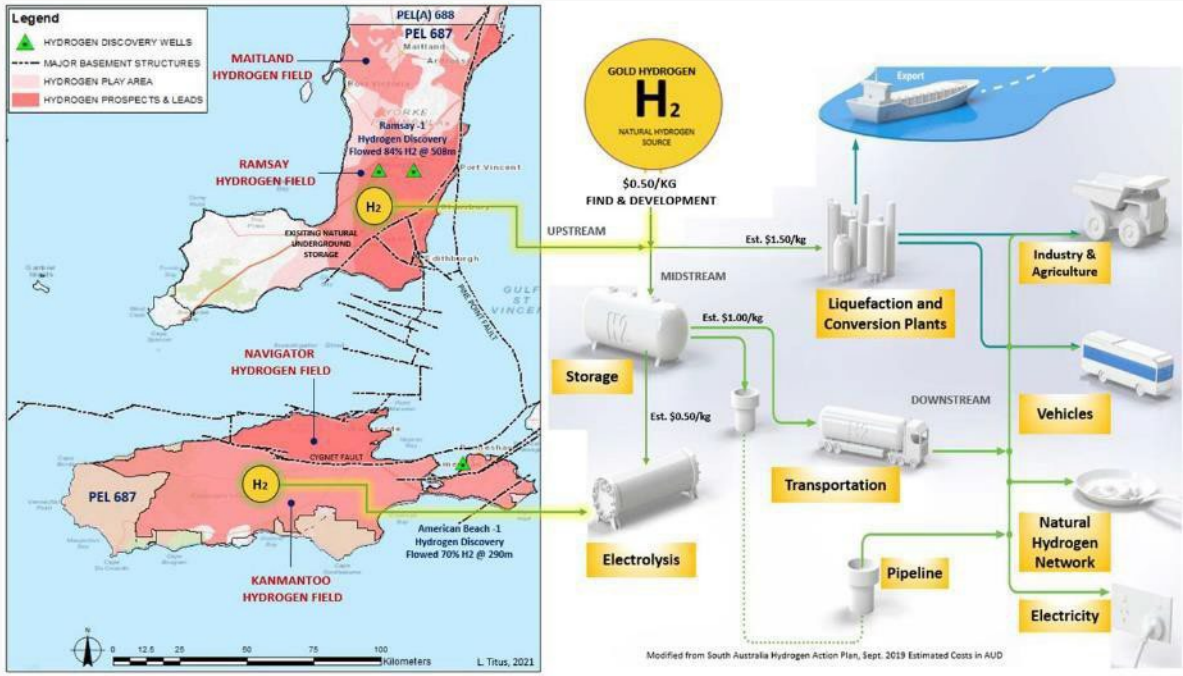
- Exploration drilling in Q3 CY23 on Ramsay prospect
- Install wellhead fuel cell unit (proof of concept)
- Scalable to meet peaks in demand and provide reliable and stable power supply with option for onsite battery storage
- Pure water as by-product of hydrogen as a fuel



L. Titus, 2021

Stage 2: Large Scale Commercialisation

- Early opportunities to support local transition from carbon-based energy sources to natural hydrogen sources
- Received interest for MOUs for natural hydrogen sales
- Aligned to South Australia and National Hydrogen Action Plan
- Ideally located supply for domestic and international market off-takers



Key Board and Management

Neil McDonald
Founder & Managing Director

Luke Titus
Founder & Chief Operating Officer

Alexander Downer
Independent Non-Executive Chair

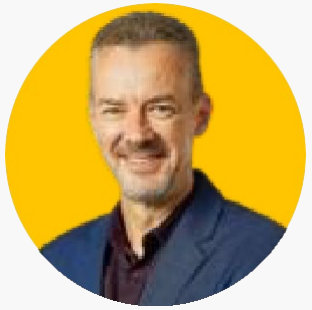
- One of the country's best known politicians and diplomats incl. as leader of the Liberal Party, Minister for Foreign Affairs and High Commissioner to the UK
- Chair of the International School of Government (Kings College, London), Chair of Policy Exchange, and Trustee of International Crisis Group
- Advisor or board member to Hakluyt & Company, Cappello Capital Corp, the Adelaide Symphony Orchestra, Huawei in Australia, Ironbark Zinc (ASX:IBC), and Yellowcake plc (LSE:YCA)

Katherine Barnet
Independent Non-Executive Director

- A financial professional and Chartered Accountant (Fellow, MCom FCA) with a 25+ year career in professional services
- Partner at Olvera Advisors, a boutique Sydney-based consultancy having worked on some of Australia's largest corporate matters in particular for renewable energy, resources, retail, property and construction

Roger Cressy
Executive Director, Commercial & Operations

- Over 35 years of experience in resource industries, predominantly in gas exploration and production, and also in minerals processing and materials handling
- Held CEO, COO and other executive roles on upstream and downstream operations across Australia, as well as in PNG, Indonesia and Uganda



Karl Schlobohm
Company Secretary & Chief Financial Officer

- A Chartered Accountant with 30 years experience across a wide range of industries
- Held positions as CFO, Company Secretary and / or Non-Executive Director of DGR Global Ltd (ASX), Sol Gold Plc (LSE / TSX), IronRidge Resources (LSE:AIM), Agenix Limited (ASX), Discovery Metals Limited (ASX), and a range of other ASX listed companies

Summary

Title over reported natural hydrogen prospective resource occurances	Certified Prospective Resource for natural hydrogen with an unrisked Best Estimate of 1.3 billion kilograms (refer Slide 11)
Flagship project, exploration permit granted	Ramsay Project (green on map) is 100% owned by Gold Hydrogen. Other locations under application
Near term value inflection point	Stage One exploration drilling programme is expected to commence as early as Q3 CY2023 on the Yorke Peninsula
Enabling engagements with leading global hydrogen experts	Strategic supplier arrangements with Schlumberger, Total Seismic, Xcalibur Aviation and a leading Commonwealth scientific organisation
Significant commercial and environmental competitive advantage	As a replacement for carbon based fuels, naturally occurring hydrogen offers significant cost and emission free advantages relative to other sources of hydrogen production

Neil McDonald
Director
neil@goldhydrogen.com.au
+61 0 421 331 933

Luke Titus
Technical Director
luke@goldhydrogen.com.au
+61 0 488 012 122

goldhydrogen.com.au