

# Primary green helium for a hi-tech world.



Drilling confirms  
potential for discovery.

Justyn Wood  
Co-founder and CEO

December  
2023





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No reserves have been assigned in connection with the Company's property interests to date, given their early stage of development. Unrisked Prospective Helium Volumes have been defined. However, estimating helium volumes is subject to significant uncertainties associated with technical data and the interpretation of that data, future commodity prices, and development and operating costs. There can be no guarantee that Noble Helium will successfully convert its helium resource to reserves and produce that estimated volume.

## Competent Person's Statement

The prospective volumes are for helium, which are not hydrocarbons. However, Netherland, Sewell & Associates, Inc. have used the definitions and guidelines set forth in the 2018 Petroleum Resources Management System (**SPE-PRMS**) approved by the Society of Petroleum Engineers as the framework to classify these helium volumes as "prospective". The SPE-PRMS is specifically designed for hydrocarbons, which helium is not, however the principles and methods for hydrocarbon gas resource estimation are directly applicable to helium gas volume estimation.

The prospective helium volumes included in this presentation should not be construed as petroleum reserves, petroleum contingent resources, or petroleum prospective resources. They represent exploration opportunities and quantify the development potential in the event a helium discovery is made. The information in this presentation which relates to prospective helium volumes is based on, and fairly represents, in the form and context in which it appears, information and supporting documents prepared by, or under the supervision of, Alexander Karpov and Zachary Long .

Alexander Karpov is an employee of Netherland, Sewell & Associates, Inc. Alexander Karpov attended Texas A&M University and graduated in 2001 with a Master of Science Degree in Petroleum Engineering, and attended the Moscow Institute of Oil and Gas and graduated in 1992 with a Bachelor of Science Degree in Petroleum Geology. Alexander Karpov is a Licensed Professional Engineer in the State of Texas, United States of America and has in excess of 26 years of experience in petroleum engineering studies and evaluations. Alexander Karpov has sufficient experience to qualify as a qualified petroleum reserves and resources evaluator as defined in the ASX Listing Rules.

Zachary Long is an employee of Netherland, Sewell & Associates, Inc. Zachary Long attended Texas A&M University and graduated in 2005 with a Master of Science Degree in Geophysics, and attended the University of Louisiana at Lafayette and graduated in 2003 with a Bachelor of Science Degree in Geology. Zachary Long is a Licensed Professional Geoscientist in the State of Texas, United States of America and has in excess of 16 years of experience in geological and geophysical studies and evaluations. Zachary Long has sufficient experience to qualify as a qualified petroleum reserves and resources evaluator as defined in the ASX Listing Rules.

Alexander Karpov, Zachary Long and Netherland, Sewell & Associates, Inc. have each consented to the inclusion in this presentation of the matters based on this information in the form and context in which they appear.

# The pitch

A ground-floor investment in the potential discovery and development of the world's largest primary **green helium** reserve.

**01**  
Favourable market



**02**  
Experienced team



**03**  
World class assets



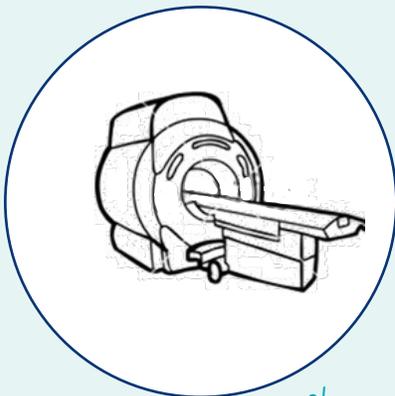
**04**  
Primary Green helium

<sup>2</sup>  
**He**  
Helium

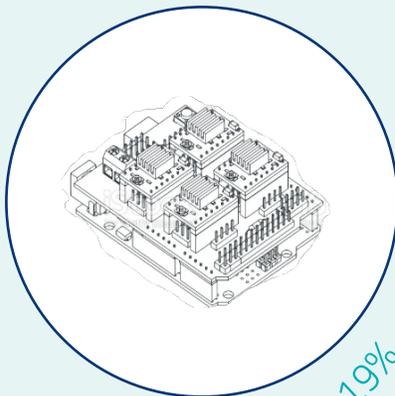


# There's no technology without helium.

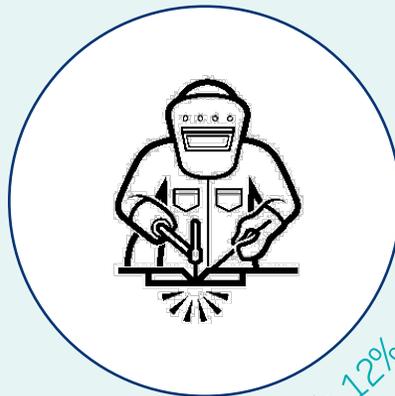
It's an irreplaceable input for many important technologies with significant demand growth from manufacturers of semiconductors used in computers, mobile phones, cars, (even kids' toys).



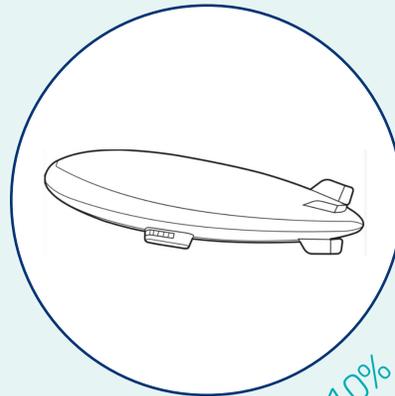
MRI 22%



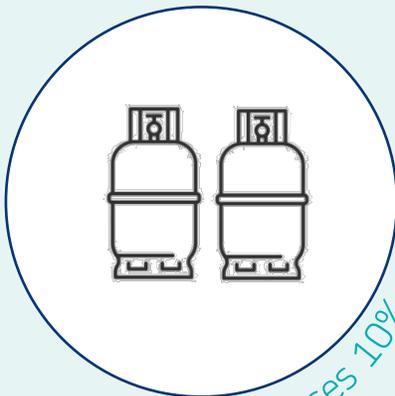
Electronics 19%



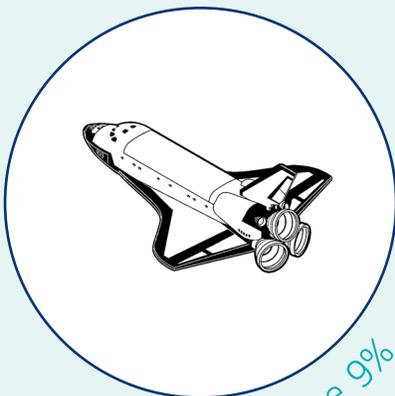
Metal fab 12%



Lifting 10%



Spec Gases 10%



Aerospace 9%

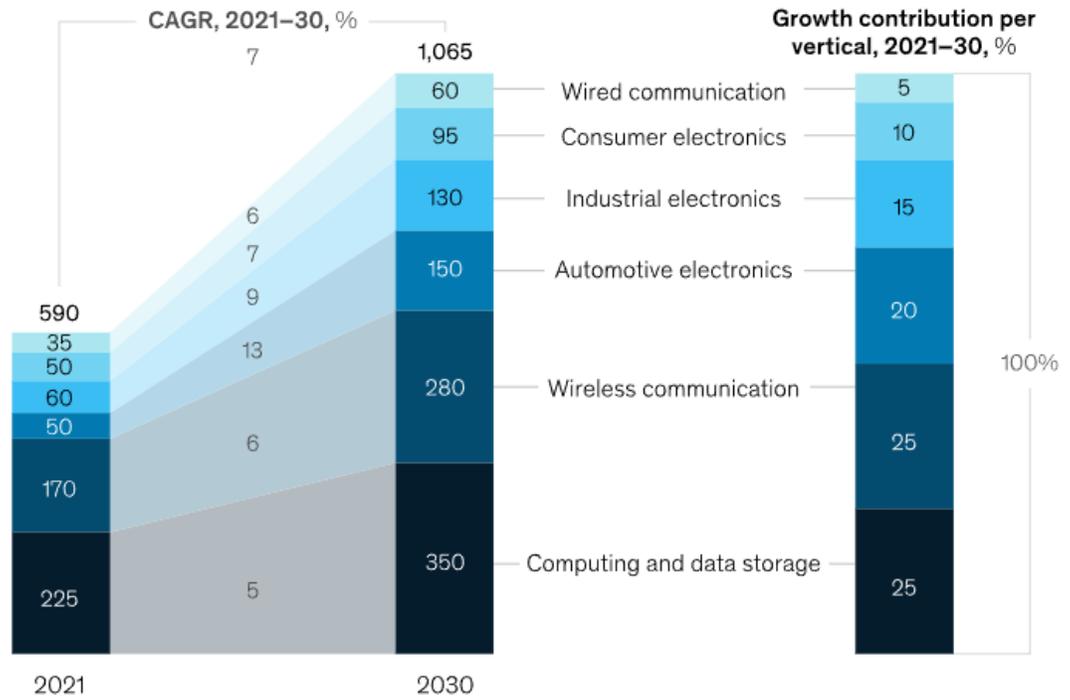
# AI needs computer chips. Computer chips need helium.

Helium is a key manufacturing ingredient required for the computer chips that are the “picks and shovels” of this new AI rush.

McKinsey & Company predicts the global semiconductor market will almost double to US\$1.065 trillion in 2030 from US\$590 billion in 2021.

The overall growth in the global semiconductor market is driven by the automotive, data storage, and wireless industries.

Global semiconductor market value by vertical, indicative, \$ billion



Note: Figures are approximate.

McKinsey & Company

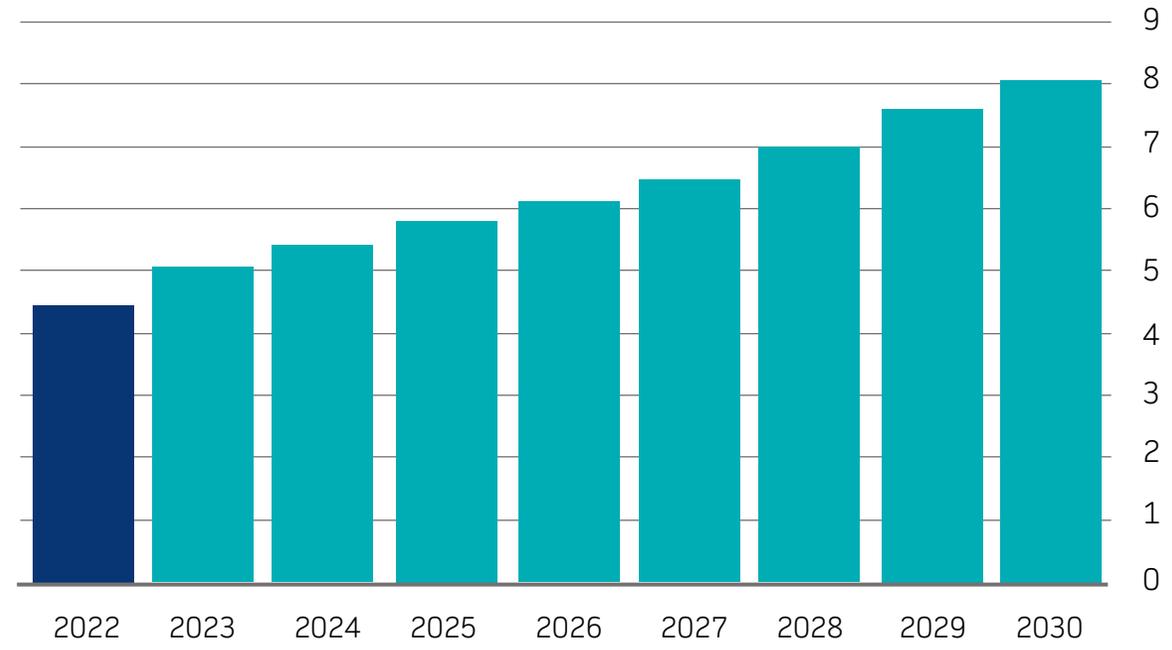
# That's why the value of the global helium market is growing.

The global helium market size is expected to grow from an estimated US\$5 billion in 2023 to over

# US\$8 billion in 2030

Estimated global helium market  
US\$ billions

Actual  
Forecast



Source: The Business Research Company, Helium Global Market Report 2023  
Published January 2023



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## Helium supply is fragile. Very fragile.

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Currently experiencing the fourth worldwide helium shortage since 2006.

 USA - BLM federal reserve depleted

 Russia – around one third of world supply by 2027 but troubled by Amur plant startup fires coupled with growing geopolitical tensions.

 Qatar – 30% of world supply. Embargoed for six weeks in June 2017

 Algeria – normally 8% of world supply; Skikda LNG feed redirected to Europe.

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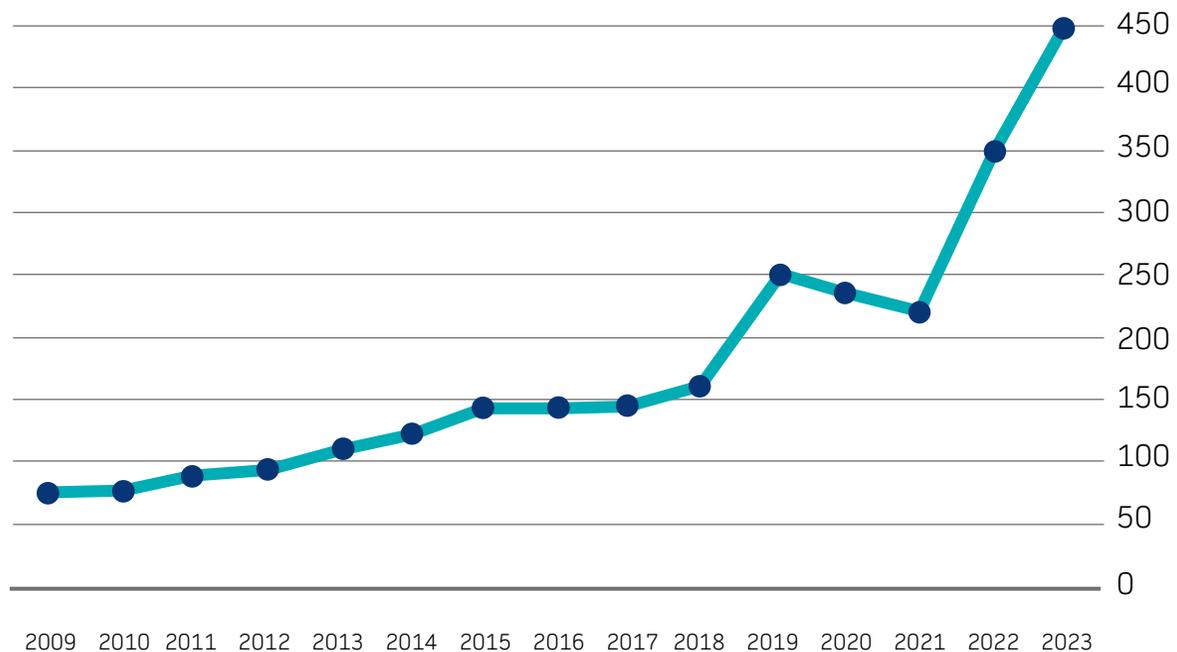
# Decoupling from gas production, and geopolitical diversification is the best solution for a secure global helium supply chain.

The helium price is surging with transition to market pricing and fragile supply.

March 2023 Long-term contract bulk liquid helium pricing

US\$450/Mscf

Historical price of bulk liquid helium  
US\$/thousand standard cubic feet (Mscf)



Source: Kornbluth Consulting LLC

# Noble Helium is led by experienced oil and gas pioneers.



**Shaun Scott**  
Executive Chairman

**Justyn Wood**  
Chief Executive Officer

**Prof Andrew Garnett**  
Non-Executive Director

**Eddie King**  
Non-Executive Director

**Greg Columbus**  
Non-Executive Director

**Kent Masters**  
Anchor Investor

Helped pioneer Queensland coal seam gas industry from “novelty” status to a \$20 billion per year export industry.

As CEO of Arrow Energy Ltd, Shaun led the growth of that business from a \$20m coal seam gas explorer until its \$3.5 billion acquisition by Shell and Petro-China.

Highly experienced independent non-executive director on publicly listed and private company boards. Currently a non-executive director of ASX listed Comet Ridge Ltd.

The Exploration Geophysicist who helped put the East African Rift System on the world oil and gas map.

Justyn has nearly 30 years of E&P industry experience in both technical and management roles at Hardman Resources, Chevron Australia, Repsol Australia and Oil Company of Australia.

Made key contributions to the first oil discoveries in South America’s Guyana margin as well.

Prof. Garnett is currently the Director of the University of Queensland’s research Centre for Natural Gas (CNG), working closely with the main LNG project proponents in Queensland, Australia. Has over 25 years of international experience in senior technical, management and executive roles in the upstream oil and gas sector including with Shell and Schlumberger.

Former investment banker and current director of CPS Capital Group, a stockbroking and corporate advisory firm specialising in small to medium high growth companies. Executive Chairman of Rubix Resources Ltd (ASX: RB6), Executive Director of Ragnar Metals Ltd (ASX: RAG), Non-Executive Chairman of Bindi Metals Ltd (ASX: BIM), Eastern Resources Ltd (ASX: EFE) and Great Northern Minerals (ASX: GNM) plus a Non-Executive Director of M3 Mining Ltd (ASX: M3M), Queensland Pacific Metals Ltd (ASX: QPM)

Over 30 years of experience in Energy, and Oil & Gas including technical, commercial, executive, and non-executive roles. During this time, he has gained valuable business experience in delivering large, complex energy and oil & gas projects and has throughout the course of his career, also demonstrated strong strategic vision in leadership roles. Has also been involved in numerous M&A activities, most recently as the Independent Non-executive Chairman of Warrego Energy.

A core early investor in Noble Helium, Kent is Chairman, CEO and President of Albermarle, one of the world’s largest lithium companies. As former Executive Director of Linde, the world’s largest industrial gas company by market share and revenue (capped at ~US\$160B), Kent held responsibility for the Americas, Africa, East Asia, South Pacific. And helium. He knows his industrial gases and has a network that stretches across the world and includes project developers and off-takers.

# Corporate snapshot.

Share price  
**\$A0.185**

30 November 2023  
 52 week high \$0.29, low \$0.135

Market capitalisation  
**A\$73.5m**

20 November 2023

Debt  
**Zero**

30 September 2023

Shares on issue  
**358m**

30 November 2023

Cash  
**A\$8.1m**

30 September 2023

Total options  
**104m**

30 November 2023

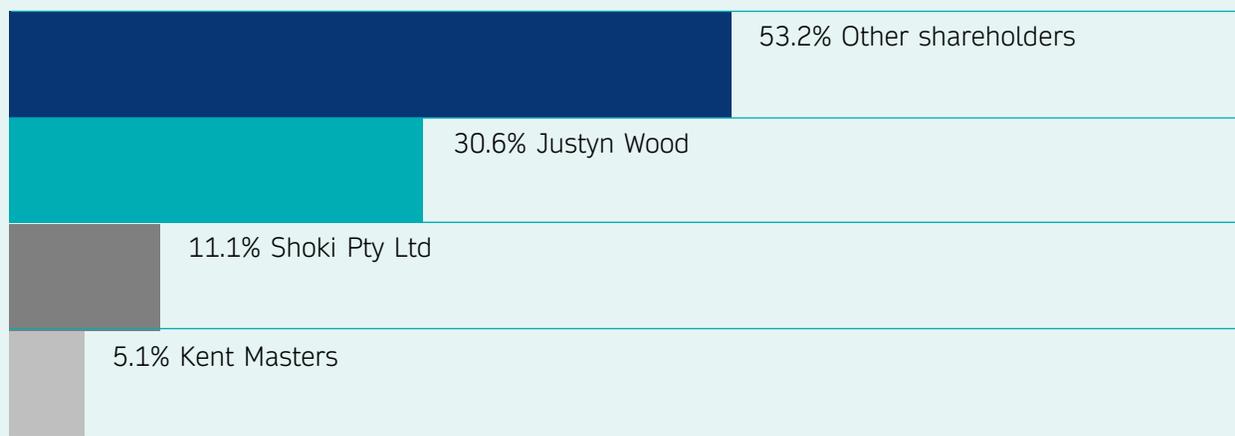
## ASX Share price performance (\$A)

Year to 30 November 2023



## Share register

Figures shown are approximate as at 13 November 2023



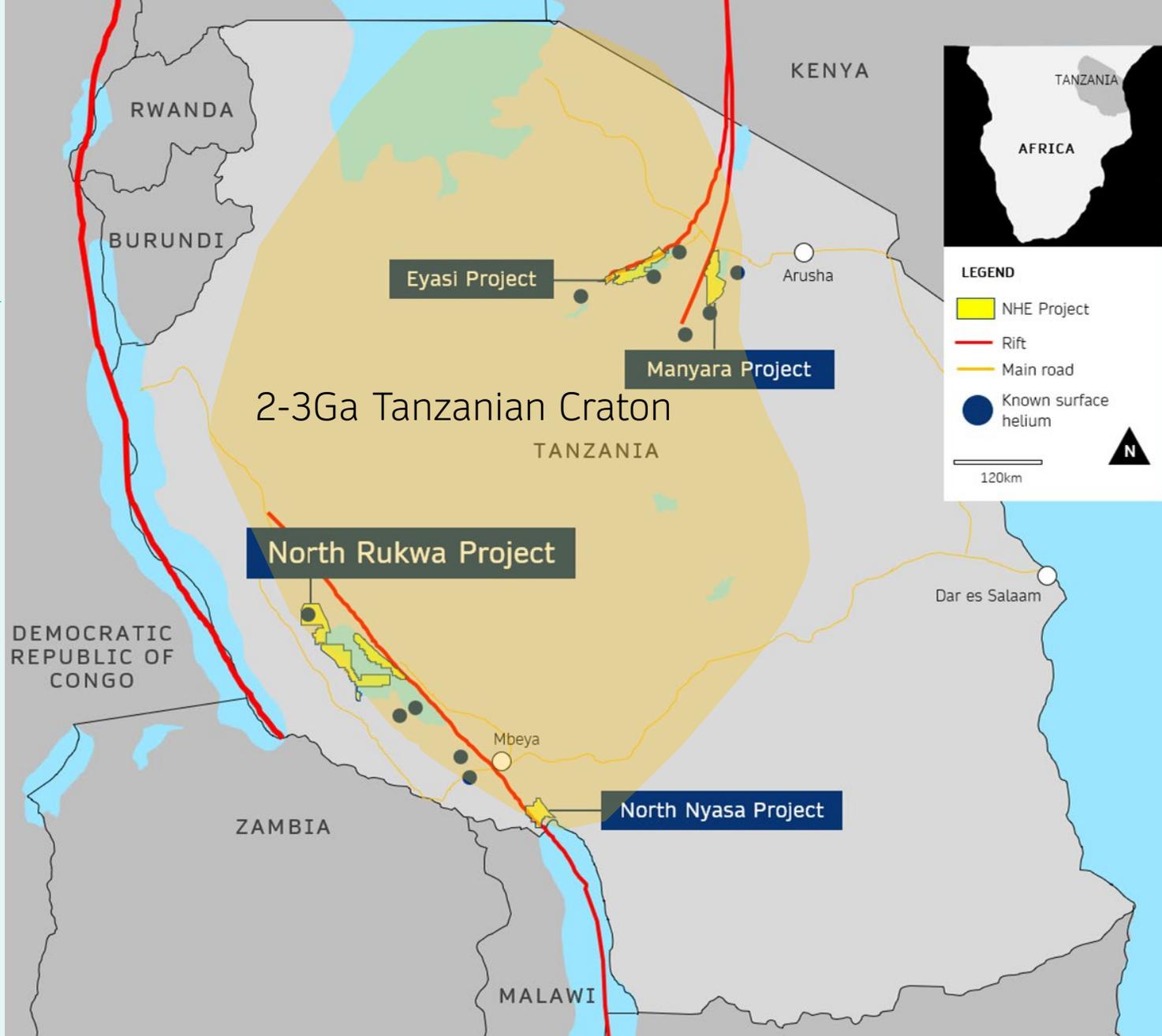
# Four primary helium projects along Tanzania's East African Rift System.

Noble's resource has the potential to be the world's third largest helium resource, and the largest ever primary helium resource

Our projects are located along the East African Rift System (EARS) and are Basin Margin Fault Closure (BMFC) plays.



There is a 100% success rate for EARS oil and gas wells that are BMFC plays.



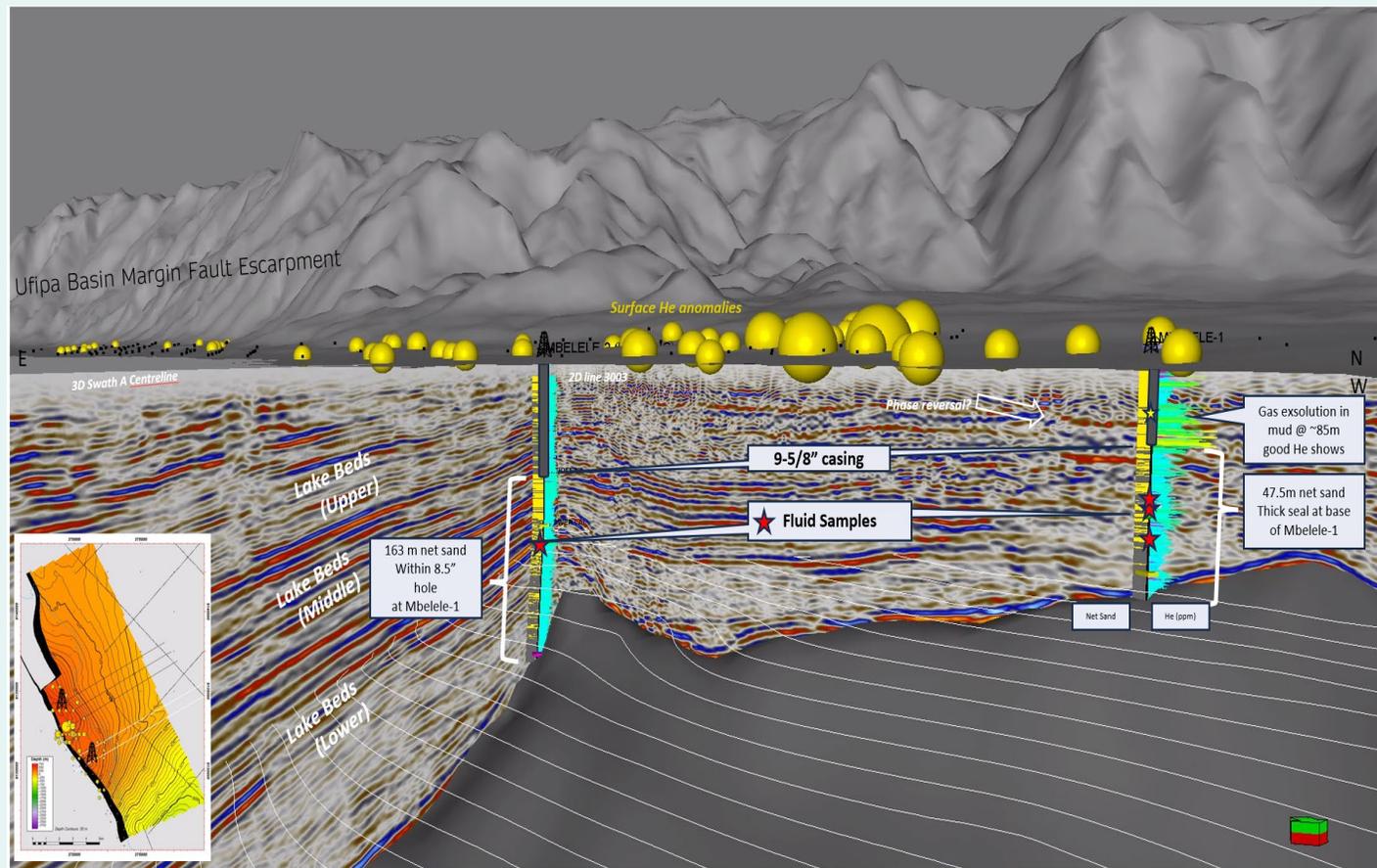
# Mbelele: The story so far

## What we've found at Mbelele

- Probable gas column at crest containing N<sub>2</sub> and high He.
- Better-than-expected, thick, high quality stacked reservoirs with excellent flow potential.
- Estimated air-corrected 2-3% helium exsolved from downhole fluid samples, now enroute for lab analysis.
- A prolific helium system / potential new helium province with enormous upside across basin.

## What's next

- Mbelele-2 now cased and suspended ready for flow test.
- Confirm helium content from lab analyses.
- Drill and test probable gas column at crest.
- Flow test Mbelele-2 in Middle and Lower Lake Beds.
- Continue negotiations for early monetisation strategy.



# Mbelele: thicker, higher permeability reservoirs than expected.

- Reservoir parameters significantly above pre-drill estimates
- Discussions underway with NSAI
  - satisfying SPE requirements to declare a discovery; and
  - data required for early monetization option.
- Petrel reservoir model being updated.
- Working with UQ to model flow potential based on Mbelele-1 & Mbelele-2 data.

**Table 1:** Reservoirs encountered in the Upper and Middle Lake Beds at Mbelele-1 (wireline porosities)

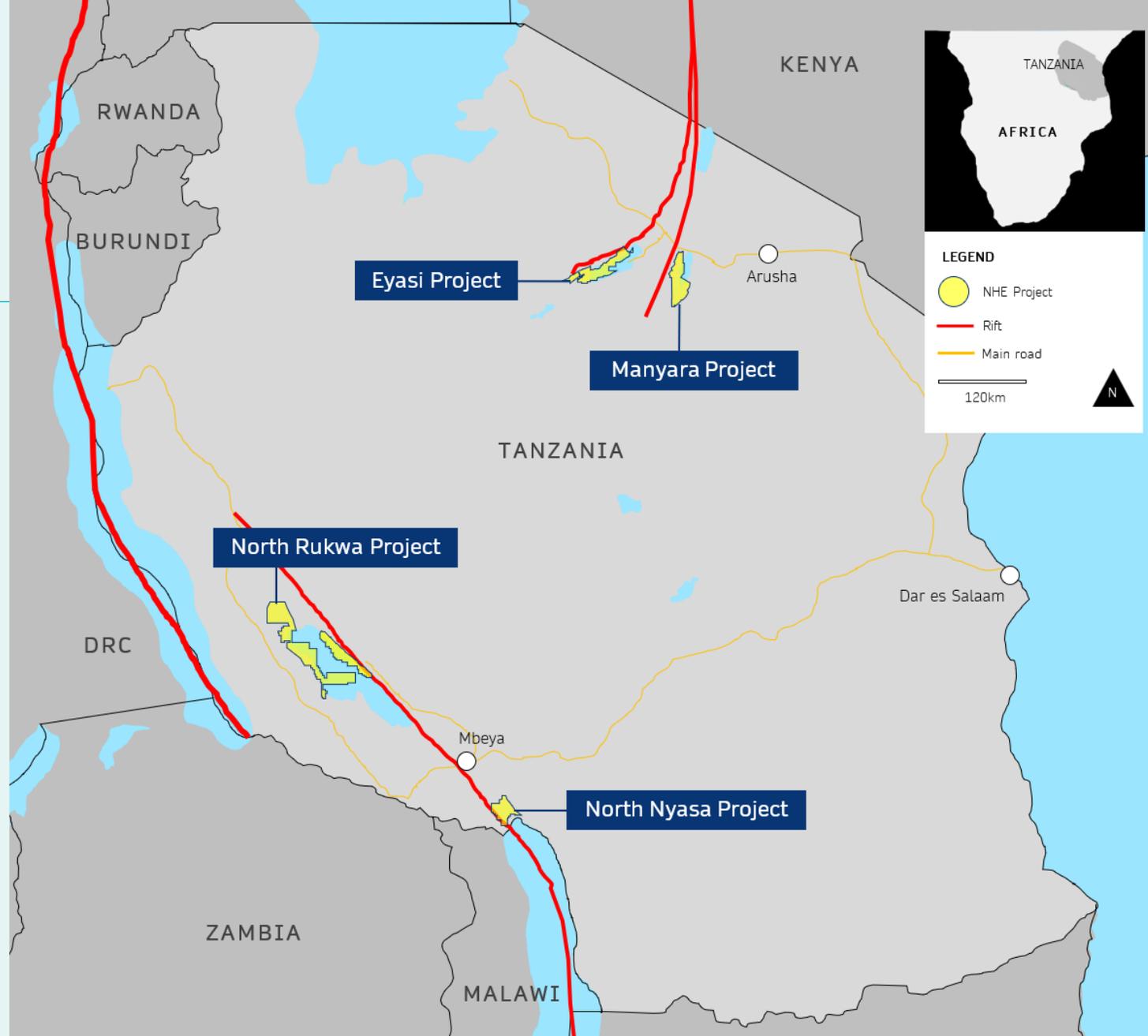
Start MD (mRT)	ZONE	GROSS THICKNESS (m)	NET THICKNESS (PHIE>20%)	N:G (PHIE>20%)	PHIE (%)
135.5	S1	29.9	21.6	72.4	27.0
174.3	S2	15.5	9.1	58.8	24.0
207.5	S3	9.4	5.5	58.4	24.6
221.4	S4	5.8	1.9	32.8	22.0
228.7	S5	10.6	3.4	32.1	23.0
260.4	S6	6.5	4.2	64.7	23.3
370.0	BASEMENT				
<b>TOTAL</b>		<b>77.7</b>	<b>45.7</b>		

**Table 2:** Lake Beds Reservoirs encountered in the 8.5" section at Mbelele-2 (wireline porosities)

Start Depth (mMD)	ZONE	GROSS THICKNESS (m)	NET THICKNESS (PHIE>20%)	N:G (PHIE>8% Vclay<50%)	PHIE (%)
287.2	R1	20.1	18.5	91.9%	18.4%
308.7	R2	34.5	31.6	91.6%	15.9%
345.6	R2	29.6	25.6	86.4%	12.7%
378.6	R4	15.4	14.0	90.8%	14.1%
415.1	R5	40.0	23.3	58.1%	14.1%
476.4	R6	56.2	24.8	44.1%	12.2%
576.0	R7	86.0	25.3	29.5%	11.7%
722.0	BASEMENT				
<b>TOTAL</b>		<b>270.8</b>	<b>163.0</b>		

## Early monetization opportunity

- Leased plant with potential to process circa 180 to 200mmscf per annum.
- Long term off-take ex plant.
- Minimal capex for field development.
- The information gathered so far from Mbebele wells has ticked many boxes, and even at modest flow rates the opportunity is very attractive.
- 0.2Bcf/year production/2Bcf for 10 year contract
- Appraisal, lease and offtake arrangements to be advanced during the wet season.
- Off-taker would truck liquid helium iso-containers on black-top road to Port of Dar es Salaam.



## The maths.

As a gas, helium has similar exploration/production costs per Mscf as traditional oil and gas but requires significantly less capital as much smaller volumes are required for a highly profitable project.

Discovering a 6Bcf recoverable helium resource is a company maker!

## Worked example

To achieve an annual production of

**200,000**

Mscf of liquid helium

The estimated total CAPEX 2024-2025 would be

**AU\$49m**

And the estimated total OPEX (2026) would be

**AU\$11m**

Pricing

**US\$450**

Mscf of liquid helium

Payback

**5 months**

From Gross Margin

First full year production

Line Item	AU\$M @USD65c
Revenue	\$138.50
OPEX	\$10.80
Depreciation	\$14.70
Gross Margin	\$113.00
After 16% FCI	\$95.00



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# Invest in the future of helium.

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A ground-floor investment in the potential discovery and development of the world's largest **green helium** reserve.

**01**  
Favourable market



**02**  
Experienced team



**03**  
World class assets



**04**  
Green helium





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## Contact

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## We're also working with two of the world's foremost helium geoscientists.

Noble Helium commissioned, and has licensed, the world's first 'Helium Atlas' from Global Helium Resources, who's two foremost helium experts – Dr. Jon Gluyas of Durham University and Dr. Chris Ballentine of Oxford – were key in its development.

- A detailed study of all the helium prospects in the world.
- The Atlas has confirmed Tanzania as likely to host the best helium prospects in the world.
- Access to Drs Gluyas and Ballantine and the 'Helium Atlas' will also help Noble Helium in selecting future helium project acquisitions.

We're writing the book on helium. **Literally.**



# Our primary green helium doesn't come from fossil fuels.

Surface gas sampling in and around the Noble's tenements indicate that helium trapped underground is "Primary Helium" (associated with nitrogen rather than hydrocarbon gas).

- 95% of the world's current helium supply is associated with fossil fuel energy production.
- Our helium liquefaction plant will be powered by 100% renewable hydro-electric power
- Critical materials such as green helium has sustainability credentials which are highly desirable.

## Primary and Green Helium

In Tanzania, Primary Helium is being released from basement with Nitrogen and being trapped as a mixed gas in layers of reservoir and seal rocks, just like a conventional natural (methane) gas field.

