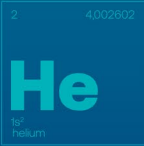


# North Rukwa: A unique, prolific helium producing system.



AGM

26 November 2024





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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.

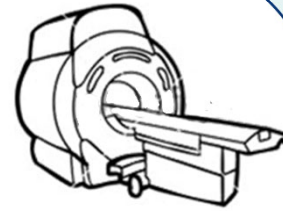
Zachary Long is an employee of Netherland, Sewell & Associates, Inc. Zachary Long attended Texas A&M University and graduated in 2005 with a Master of Science Degree in Geophysics, and attended the University of Louisiana at Lafayette and graduated in 2003 with a Bachelor of Science Degree in Geology. 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.

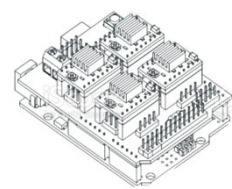


# There's no technology without helium

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).



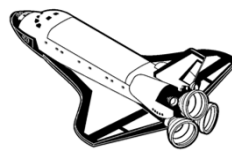
Medical Imaging



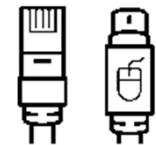
Semi-conductors



Specialty Welding



Aerospace



Fibre Optics



Cryogenics



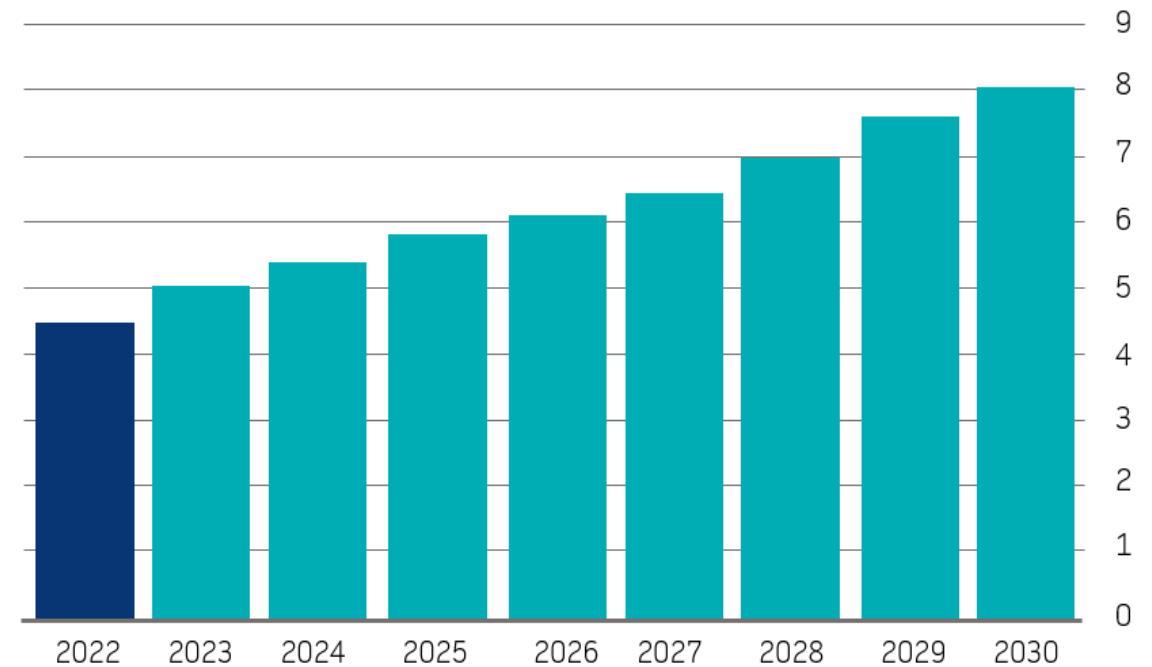
# The value of the global helium market is growing quickly

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

## US\$8.00 billion in 2030

Estimated global helium market  
US\$ billions

Actual  
Forecast



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



# Helium supply is very fragile

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 (50%) redirected to Europe.

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



# North Rukwa / Nyasa Fairway

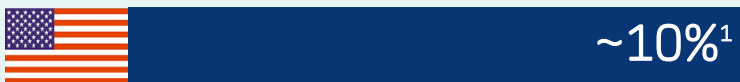
Probably the world's most prolific helium province (100% NHE acreage).

## Average helium percentage

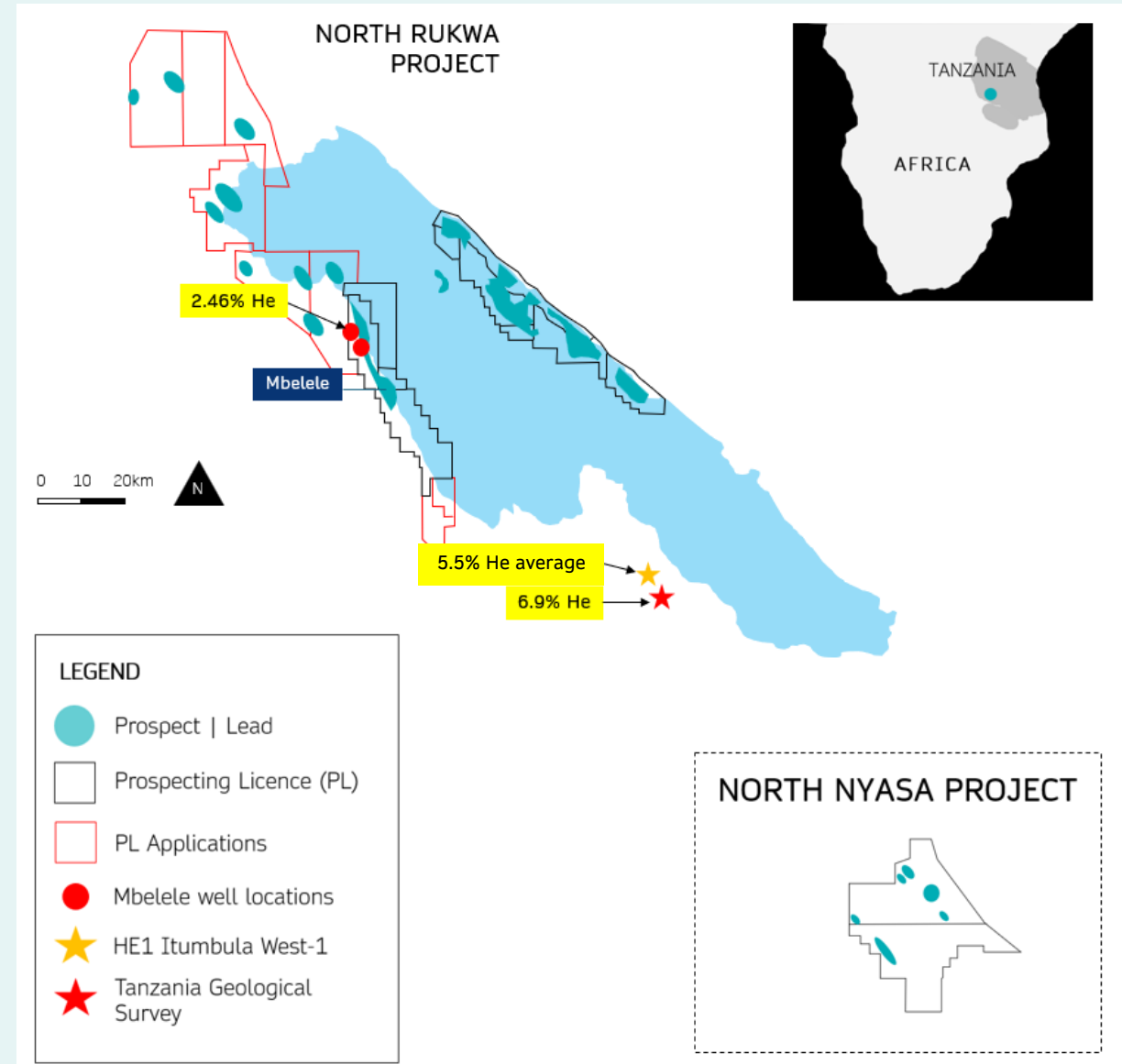


<sup>1</sup> 0.3% is average of all USGS He occurrences (N>16,000). 7.4% is the average of Tanzanian Type-II (crustally derived, minor methane) Helium measurements from Tanzanian hot springs and recent wells.

## Maximum helium percentage



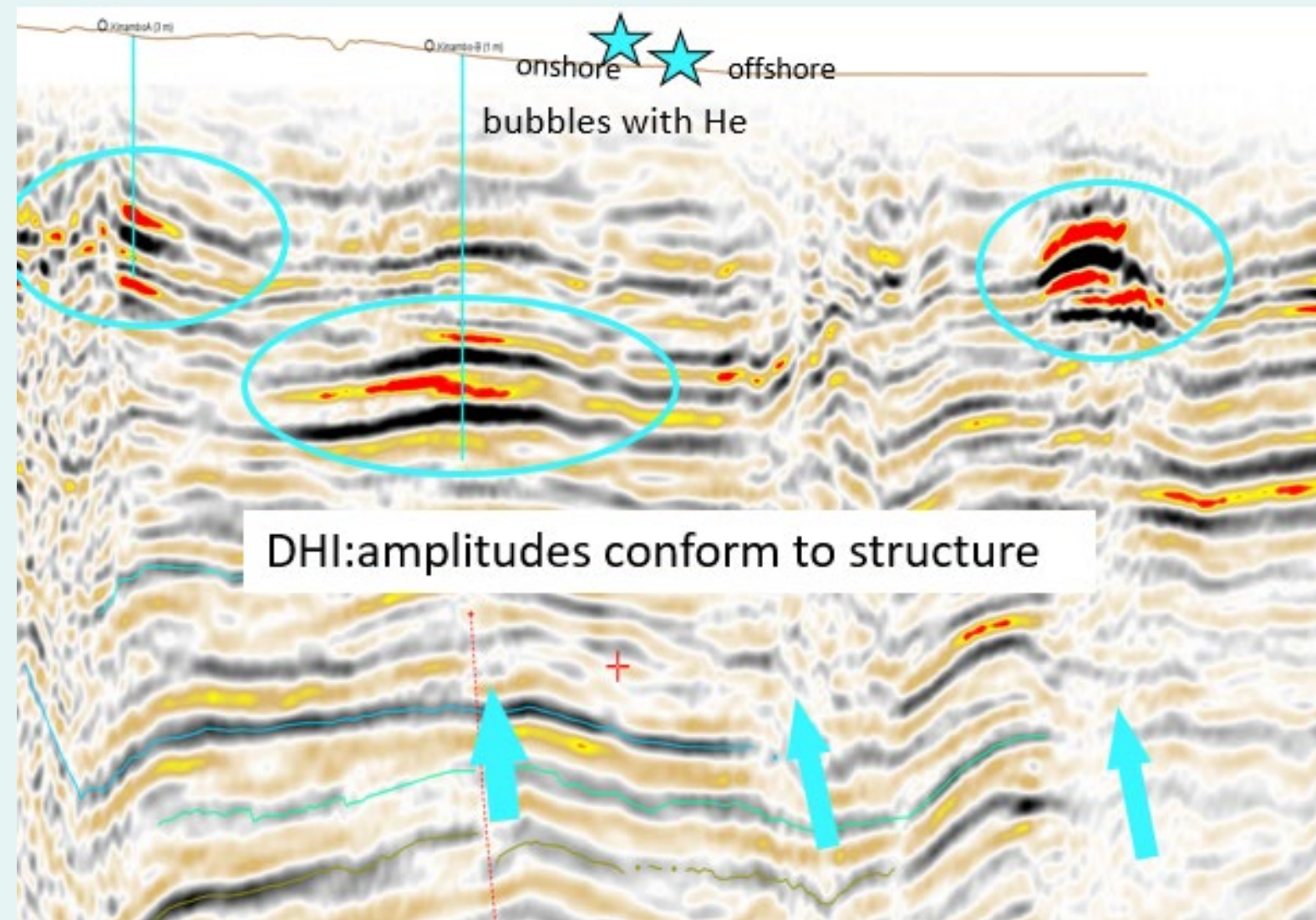
- New, proprietary NHE work indicates very significant increase in He% with depth.
- Natural Hydrogen also seen in high concentrations – two active generation mechanisms identified.





# Kinambo: multiple positive indicators

- Multiple positive helium indicators at Kinambo drill sites:
  - Direct Helium Indicators conformant to structure on 3D and shallow seismic.
  - Gas bubbles in shallows with significant above atmospheric helium concentration.
  - Soil sampling at 9 potential well locations showed significant above atmospheric helium concentration.
- Upgraded access tracks to well sites.
- Landowner arrangements in place.



3D seismic between Kinambo A, Kinambo B and offshore showing potential gas-related brights

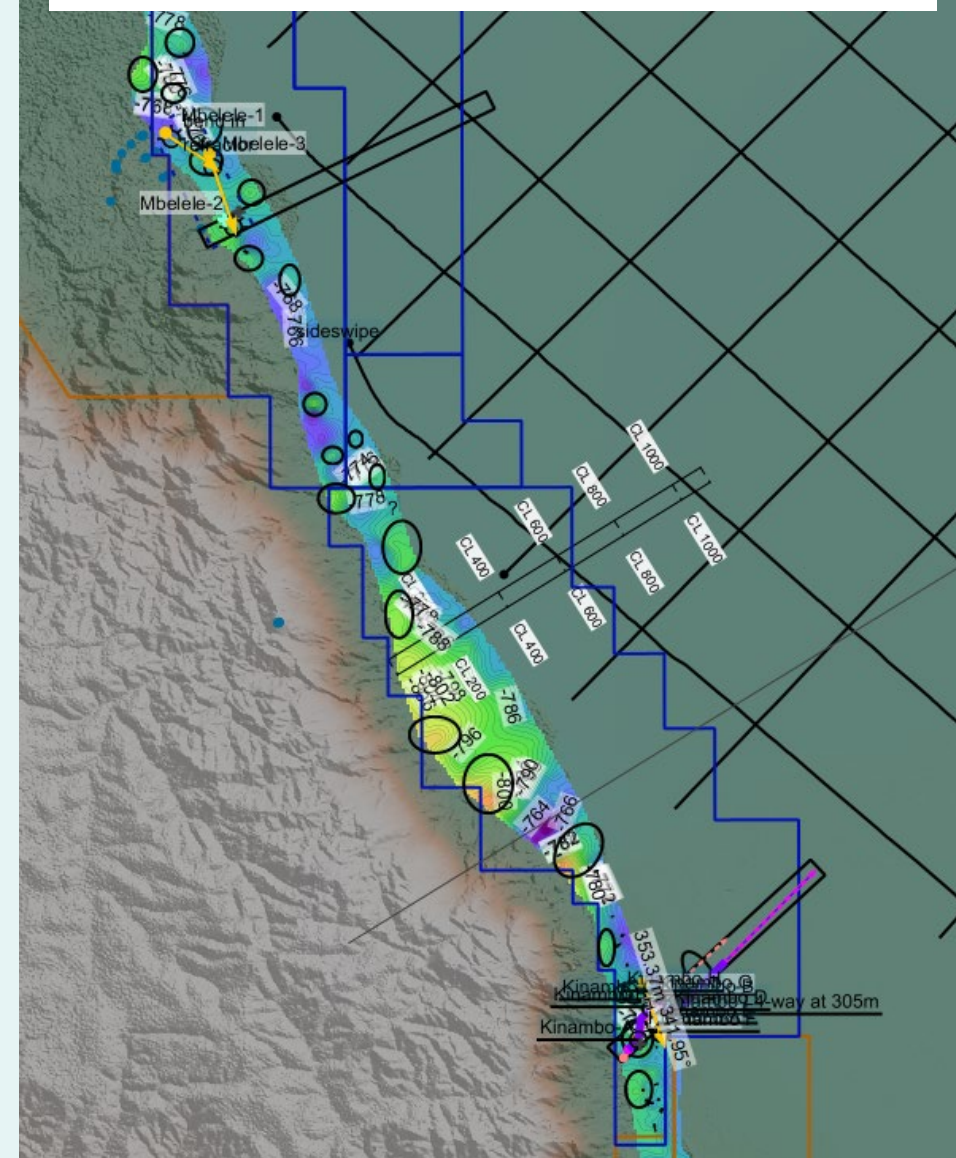


# Drilling and testing of the western margin shallow gas potential

## 25 shallow gas leads now mapped from 271 shallow seismic surveys.

- Initial three targets selected; drilling & testing outcomes will determine next steps.
- Site prep complete, specialised well-heads, drill pipe, drill bits, cement & chemicals all on site ready to start drilling.
- Drilling each well ~2-3 days and 2-3 days de-mob and relocate to next well site.
- Testing estimated at approximately 10 days (off-rig).
- University of Dar es Salaam will undertake on-site testing.
- Gas compositional analysis more comprehensive including natural Hydrogen.
- Drilling contractor BoreXpert has Significant relevant experience, established HSE systems and processes.
- Fixed price mob & de-mob, meterage not day rate for drilling.
- Significant unexpected delays at Kenya/Tanzania border not expected to impact drilling & testing.

25 Mapped leads along western margin from 271 shallow seismic surveys





# Double Hydrogen Potential

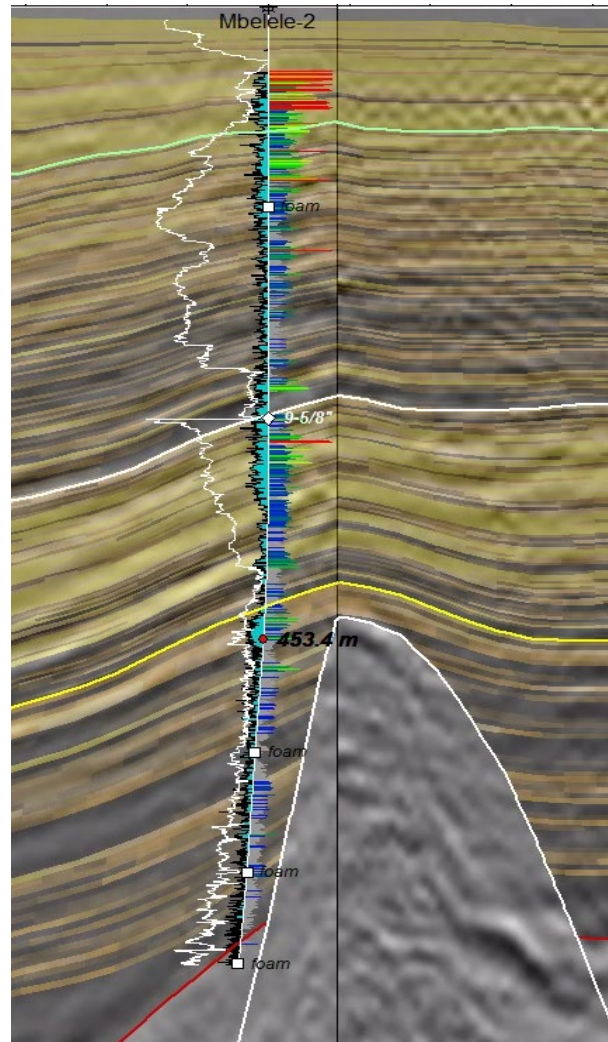
- Very favourable geology for natural or “White” hydrogen.
- Significantly above background Hydrogen readings in both Mbebele 1 & 2 mud-gas.
- Up to 2,000 times atmospheric from (highly diluted) mud-gas readings.
- Highest in permeable reservoirs.
- Precise H<sub>2</sub> percentage unknown.
- Two key mechanisms ...
  - I. Natural Radiolysis<sup>2</sup>.
  - II. Serpentinisation<sup>4</sup>.

<sup>1</sup> HE1 RNS 5/2/2024.

<sup>2</sup> Ref. NHE, Univ. Oxford proprietary basin modelling report

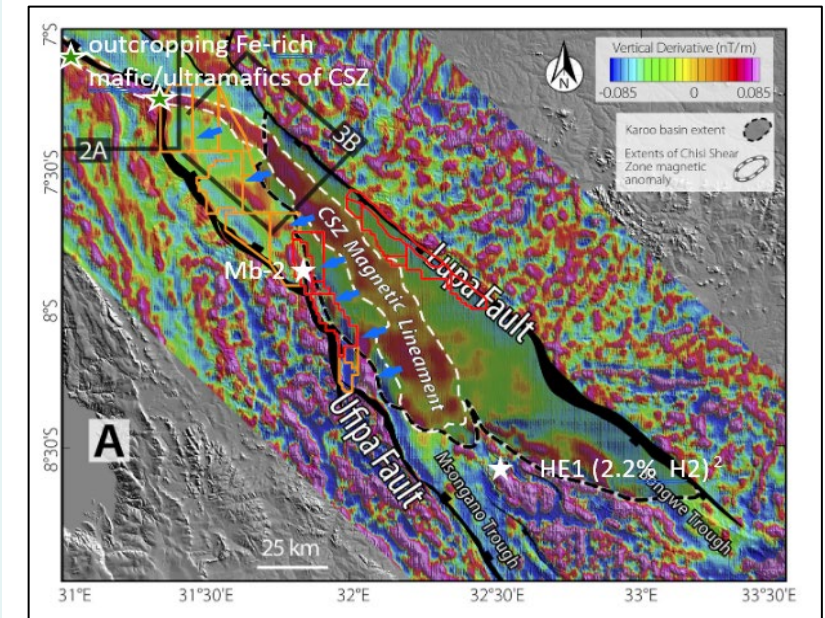
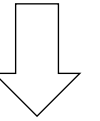
<sup>3</sup> After Kolawole et al 2021. Structural Inheritance Controls Strain Distribution during early continental rifting, Rukwa Rift.

<sup>4</sup> NHE analysis: mafic / ultramafic of the greater Ubendian belt (e.g. Lenoir et al 1994 and others) outcrop confirmed to the north. Magnetic anomaly & shear zone trend into the north of the lake.



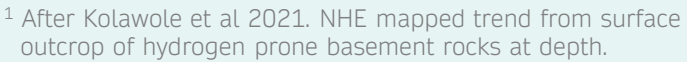
Mbebele-2 mud-gas log - Hydrogen

- ✓ The right basement terrains continue under the modern lake.
- ✓ Ongoing H<sub>2</sub> generation feasible.
- ✓ Active migration focus to *gassy* western lake margin.
- ✓ Local structures and seals.



Magnetic axial anomaly - Chisi Shear Zone<sup>3,4</sup>



[illegible]

## Rukwa-Nyasa Helium Play Fairway Portfolio of opportunities



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