

## ASX Release

20 April 2023

# Noble Helium matures another large BMFC Lead as “String of Pearls” play emerges

### Highlights

- Recent seismic and geophysical data confirms Kachinga and Dagaa are one, large Basin Margin Fault Closure (BMFC) Lead with a Company-estimated summed unrisks mean Prospective Helium Resource of 22.5Bcf
- Another large BMFC added to the North Rukwa potential Drillable Prospect Inventory
- A new Lead identified in the south of the basin continues to build analogy to other “String of Pearls” plays previously discovered along the East African Rift System

**Noble Helium Limited’s (ASX:NHE) (“Noble Helium” or “the Company”)** investment in quality exploration data has found that the separate Kachinga and Dagaa leads (Figure 1) along the project’s south-western flank are a single, much larger BMFC (Figure 3) with a combined Company-estimated, unrisks, summed mean Prospective Helium Resource of 22.5Bcf (refer Table 1).

Interpretation of the new 3D data demonstrates the full North Rukwa Basin sedimentary section within closure at the enlarged Kachinga/Dagaa BMFC (Figure 2).

Recently completed geophysical modelling of the Lower Lake Beds shows that the new, quality seismic data is likely to display anomalous responses to the presence of gas, and has further identified possibly anomalous responses in the Lower Lake Beds at both Mbelele (Figure 3) and Kachinga/Dagaa (Figure 4). Evidence to date is that any such trapped gas would most likely be composed predominantly of nitrogen and helium, representing “Primary” or “Green” helium deposits.

At the Company’s Mbelele and Pegere Prospects where two wells are due to be drilled in the September quarter, the Company estimates an unrisks summed mean Prospective Helium Resource of 16.5Bcf. The Company now expects Kachinga/Dagaa to mature into a Drillable Prospect status in the near-term, bringing the Company-estimated, unrisks, summed mean Prospective Helium Resource of the Drillable Prospect Inventory to 39.0 Bcf.

In all cases, the Company has used parameters consistent with the NSAI estimates to ensure comparability.

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In addition, an entirely new lead has been imaged by the southernmost 3D seismic survey over the western side of the North Rukwa permits, which adds weight to the thesis that the North Rukwa Project is analogous to other “String of Pearls” plays found previously along the East African Rift System (EARS) (Figure 5).

Lastly, the Company has now begun interpretation of the new 3D seismic data over the Chilichili lead, which forms the southernmost Lead in a second String of Pearls within its eastern Prospecting Licences.

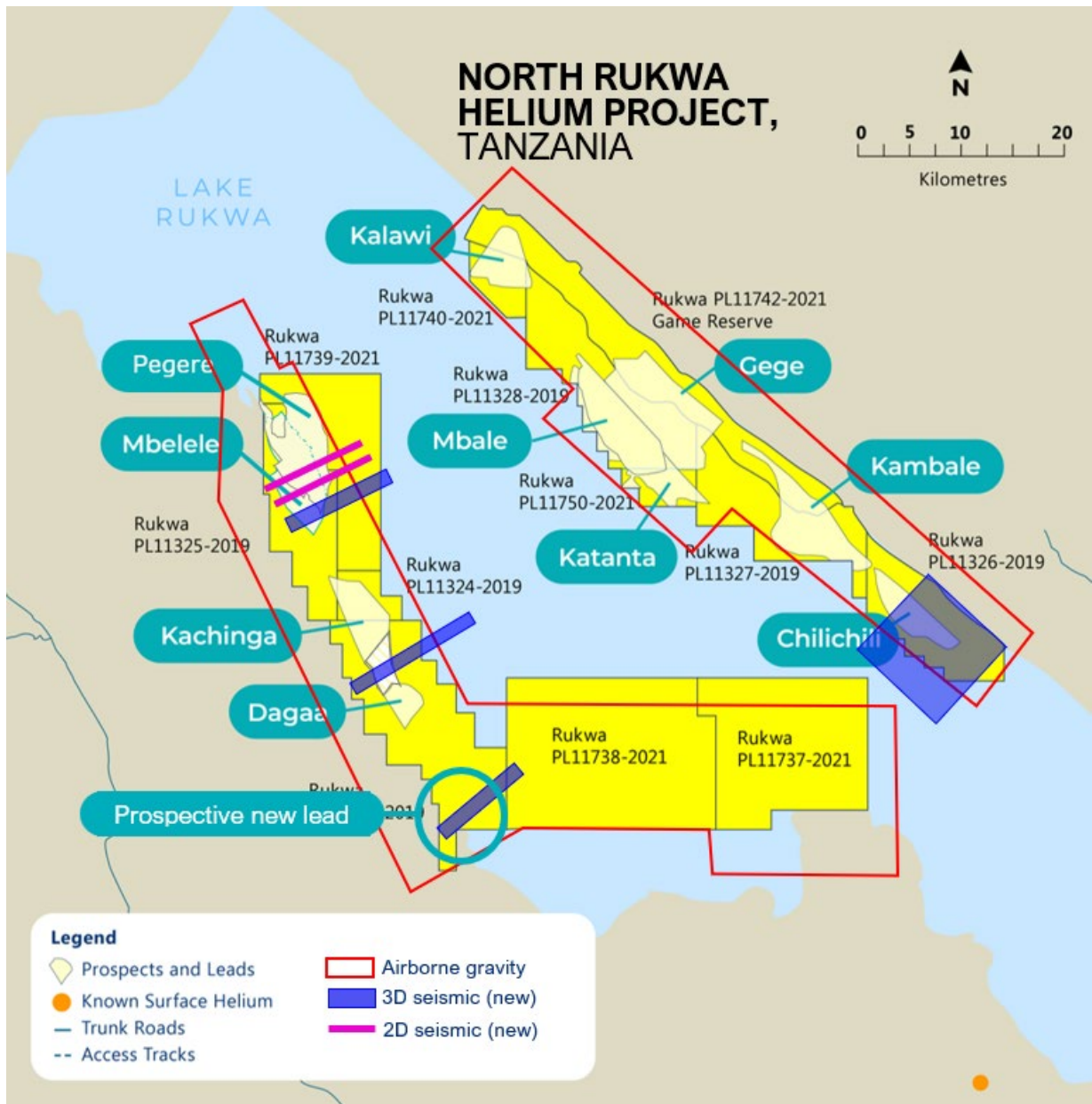
**Noble Helium Chief Executive and Co-founder, Mr Justyn Wood, said:**

*“The new exploration data has demonstrated its value with our interpretation showing Kachinga, Mbelele and Pegere to be much larger than originally interpreted from the legacy seismic data.*

*“Ahead of drilling our first two exploration wells at North Rukwa next quarter, the Kachinga lead now presents a large potential target for drilling in 2024.*

*“The identification of the new lead in the south of the basin further supports our thesis that the North Rukwa is analogous to other string of pearl plays within the East African Rift system in Uganda and Kenya.”*

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**Figure 1.** North Rukwa Project showing primary helium prospects and leads, and new 2022-23 data acquisition.

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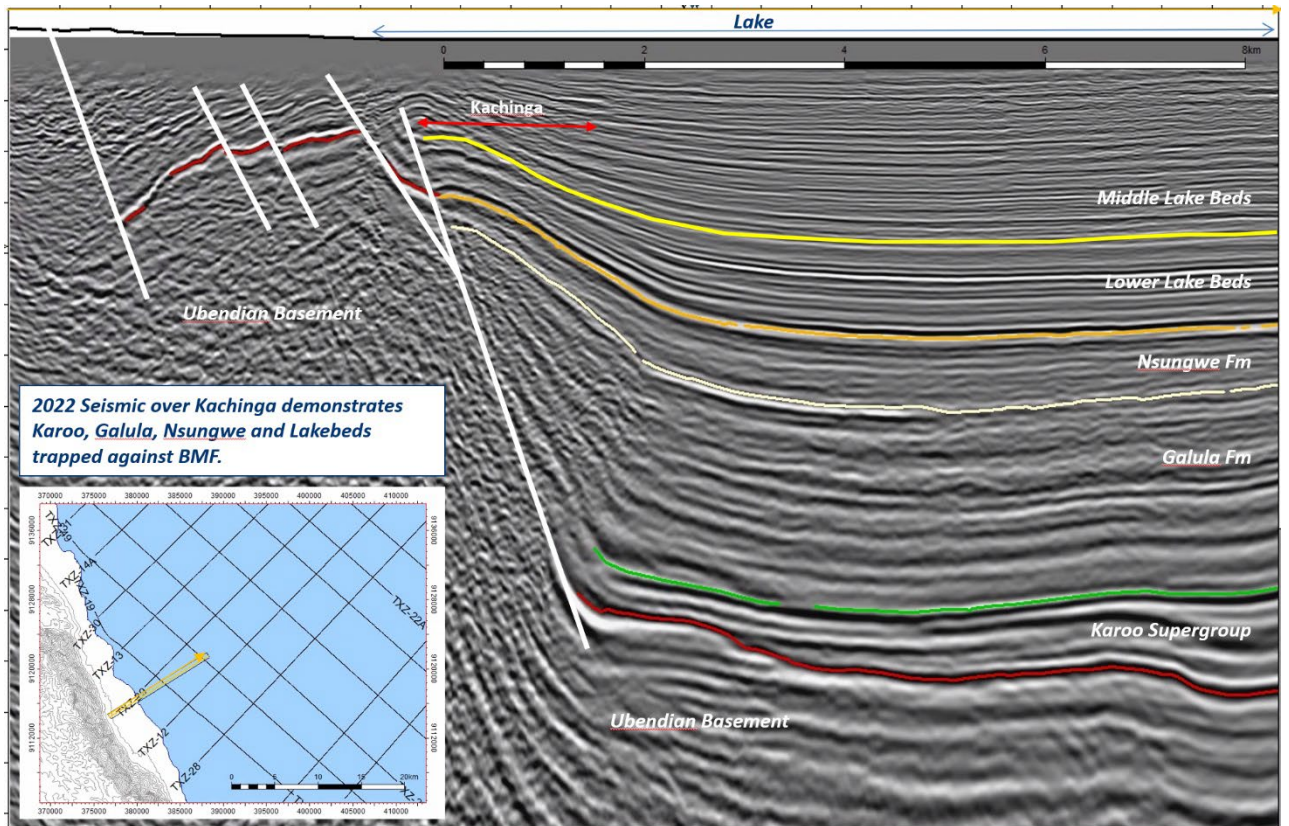


Figure 2. Kachinga Prospect 3D Seismic Profile

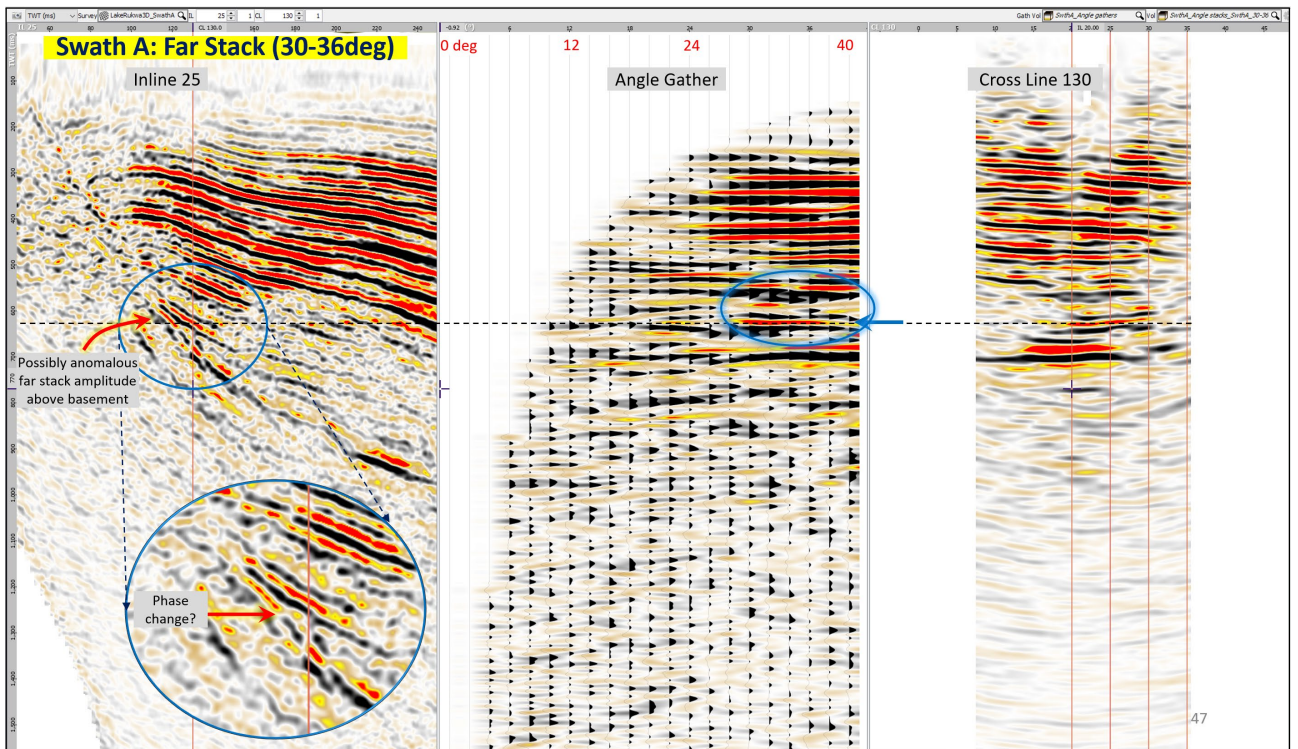
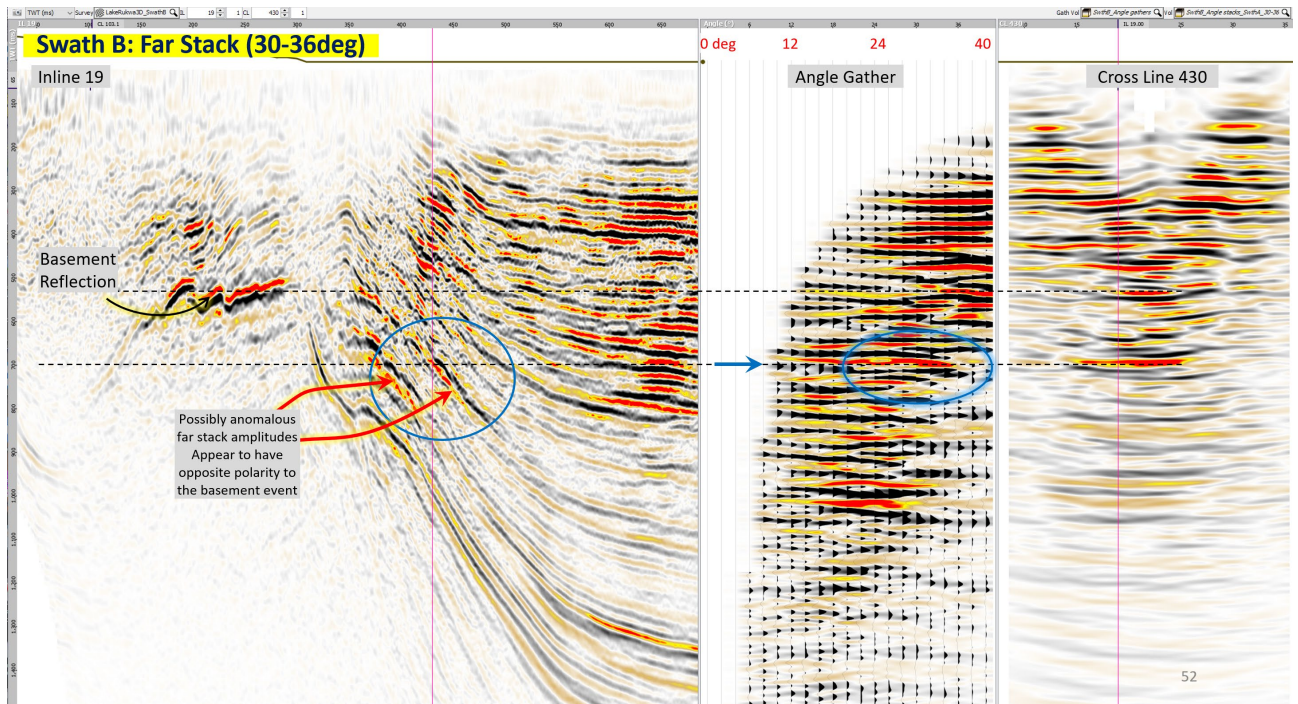


Figure 3. Mbelele preliminary rock physics review in the new 3D seismic demonstrates possibly anomalous far stack amplitudes and potential phase change with offset, consistent with the modelled response of gas-charged Lower Lake Bed reservoirs within the basin

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**Figure 4.** Kachinga/Dagaa preliminary rock physics review demonstrating possibly anomalous far stack amplitudes, consistent with the modelled response of gas-charged Lower Lake Bed reservoirs within the basin.

Kachinga Lead 2023	Recoverable Helium in gas phase (Bcf)			
	<i>P90</i>	<i>P50</i>	<i>Mean</i>	<i>P10</i>
Formation				
Lake Beds*	1.7	4.3	<b>5.6</b>	23.0
Nsungwe	1.2	6.3	<b>8.2</b>	17.2
Galula	1.6	6.4	<b>8.7</b>	19.4
Karoo	Present but not yet estimated			
Combined			<b>22.5</b>	

\* Lake Beds modelled as between 1 and 4 reservoirs, reflecting stacked pay potential

**Table 1.** Company-estimated *Kachinga Prospective Helium Resource range - 2023*

For reference, global annual helium production is currently approximately 6.6 Bcf and helium is selling on long-term, Tier 1 wholesale contracts at circa US\$450 per thousand standard cubic feet (Mscf), or approximately 50 times the price of LNG.

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“String of Pearls” Play

Tanzania’s Rukwa Basin, which hosts the North Rukwa Project’s potentially world-scale helium resource, lies within the East African Rift System (EARS). In Uganda and Kenya, the EARS has demonstrated an 80% success rate from nearly 40 exploration wells since first oil in 2006, including a 100% success rate in BMFCs for oil and gas wells (14 from 14).

The EARS BMFC discoveries have presented as a “String of Pearls” play made up of multiple successful wells along a trend within 2 basins to date in Uganda and Kenya.

Another EARS company, Africa Oil Corp, hit a “String of Pearls” in 2012 when a successful result from its first lead was replicated along a string of leads (Figure 5). The same result was achieved by Tullow Oil and partners drilling BMFCs in the Lake Albert Basin, Uganda.

Noble Helium’s exploration to date has demonstrated up to 10 leads along two “Strings”, one on each side of the North Rukwa Project where there are multiple BMFCs.

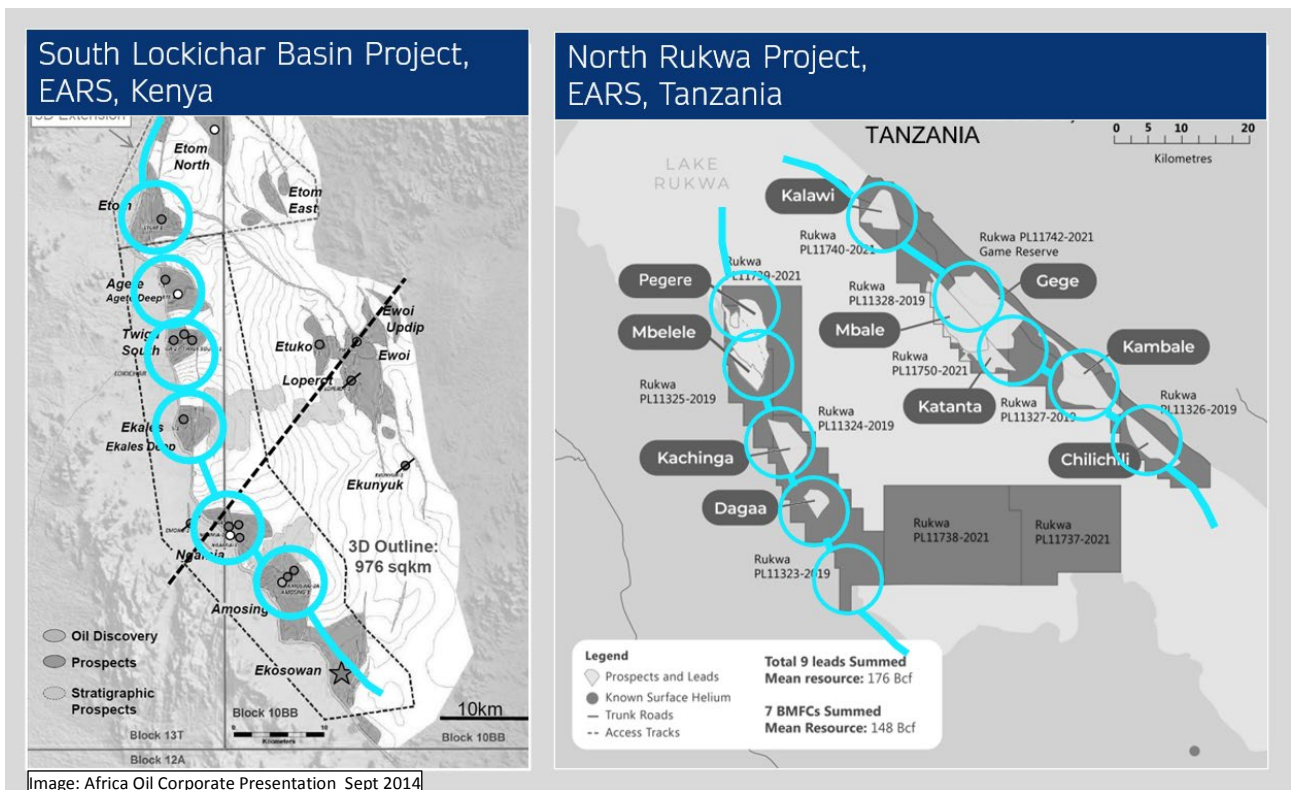


Figure 5. East African Rift System gas discoveries often present as “String of Pearls” play.

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***This announcement has been authorised for ASX release by Noble Helium's Board.***

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#### **Forward-looking statements**

This announcement may contain certain "forward-looking statements". Forward looking statements can generally be identified by the use of forward-looking words such as, "expect", "should", "could", "may", "predict", "plan", "will", "believe", "forecast", "estimate", "target" and other similar expressions. Indications of, and guidance on, future earnings and financial position and performance are also forward-looking statements. Forward-looking statements, opinions and estimates provided in this presentation are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward-looking statements including projections, guidance on future earnings and estimates are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance.

#### **Competent Persons Statement**

The technical information provided in this announcement has been compiled by Mr. Ashley Howlett, Exploration Manager, Professor Andrew Garnett, Non-Executive Director, and Mr. Justyn Wood, Chief Executive Officer, all of Noble Helium Limited. The resource estimates have been prepared in accordance with the definitions and guidelines set forth in the Petroleum Resources Management System, 2018, approved by the Society of Petroleum Engineers.

Mr Howlett is a qualified geologist with over 20 years technical, and management experience in exploration for, appraisal and development of, oil and gas resources. Mr Howlett has reviewed the results, procedures and data contained in this announcement and consents to the inclusion in this announcement of the matters based on the information in the form and context in which it appears.

#### **Cautionary Statement for Prospective Resource Estimates**

With respect to the Prospective Resource estimates contained within this report, it should be noted that the estimated quantities of gas that may potentially be recovered by the future application of a development project relate to undiscovered accumulations. These estimates have an associated risk of discovery and risk of development. Further exploration and appraisal is required to determine the existence of a significant quantity of potentially moveable helium.

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## Green helium for a high-tech world.

Noble Helium is answering the world's growing need for a primary, ideally carbon-free, and geo-politically independent source of helium. Located along Tanzania's East African Rift System, the Company's four projects are being advanced according to the highest ESG benchmarks to serve the increasing supply chain fragility and supply-demand imbalance for this scarce, tech-critical and high-value industrial gas.

Our flagship North Rukwa Project has an independently certified, summed unrisksed mean Prospective Helium Resource of 175.5 billion cubic feet (equivalent to approximately 30 years' supply). The project lies within the Rukwa Basin, which has the potential to be the world's third largest helium reserve behind USA and Qatar.

Priced at up to 50 times the price of LNG in liquid form, helium is now essential to many modern applications as an irreplaceable element in vital hi-tech products such as computer and smartphone components, MRI systems, medical treatments, superconducting magnets, fibre optic cables, microscopes, particle accelerators, and space rocket launches – NASA is a major consumer. Rising demand and constrained supply are fuelling growth prospects within the global marketplace, particularly for cleaner "green helium" sourced from non-carbon environments. At present, more than 95% of the world's helium is produced as a by-product of the processing of hydrocarbon-bearing gas.

Additionally, Noble Helium has commissioned the first ever Helium Atlas, with an exclusive five-year agreement allowing the Company to identify additional prospective areas to target for diversification. The Atlas uniquely positions Noble Helium as a world leading helium explorer.

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