

ASX Release

22 May 2023

North Rukwa Project Operational Update

Highlights

- Targeting Completion of Farmout by end of May
 - Sofori contract ready for signature, rig in yard preparing for mid-June mobilisation to Tanzania
 - SLB (formerly Schlumberger) engaged to provide integrated services
 - New 3D seismic volume provides high degree of confidence in helium discoveries
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Noble Helium Limited (ASX:NHE) (“Noble Helium” or “the Company”) is on track to drill its first campaign at its North Rukwa Project in Tanzania in Q3 2023.

Farmout

As announced 1 May¹, the Company has signed a non-binding HOA to fully fund the Q3 drilling campaign. The Company continues to work with Prime Energy to finalise the transaction and is targeting completion by the end of this month.

Rig contract finalised

The contract for Sofori’s Drillmec HH102 rig has been negotiated, ready for execution. The rig is currently undergoing maintenance and upgrades in Sofori’s yard in Sfax, Tunisia, in preparation for mobilisation to Tanzania from mid-June. Under a co-operation agreement to share costs, Rukwa basin neighbours Helium One (AIM:HE1) will use the rig first to drill a well in August, before Noble Helium drills its first wells, Mbelele-1 and Pegere-1, in September and October respectively.²

Drilling preparations on track

Preparations for the Company’s maiden drilling program are proceeding according to plan. Following site surveys, the Mbelele well location has been finalised and pegged for site preparation by our local civils contractor, with landholder compensation finalised. The Pegere well location is still to be finalised. Meanwhile a Master Services Agreement with SLB (formerly Schlumberger) for integrated third-party services is being prepared for signatures.

¹ Refer ASX release dated 1 May 2023 *Preferred Bidder Selected for North Rukwa Farmout*

² Refer ASX release dated 23 March 2023 *Noble Helium to test two “company-making” targets in maiden drilling program in Q3 2023*

The two North Rukwa wells will be drilled onshore with simple, vertical designs to ensure minimal execution risk, aiming to demonstrate the Basin Margin Fault Closure (BMFC) as an effective trap within this prolific helium producing system. With success, these wells can be expected to open the Rukwa basin for development and further exploration, with significant additional targets and structures already identified. Along with the other prospective Tanzanian rift basins already under licence or application by Noble Helium, Tanzania has the potential to be a new, globally significant helium province.

How to test the world's most prospective, yet untested, helium province?

Tanzania's Rukwa Basin, which hosts the North Rukwa Project, lies within the East African Rift System (EARS). In Uganda and Kenya, the EARS basins have demonstrated an 80% success rate from nearly 40 exploration wells drilled since first oil was discovered through CEO Justyn Wood's exploration program for Hardman Resources in 2006.

This success rate increases to 100% for oil and gas wells drilled into BMFCs - 14 drilled with 14 discoveries. The Mbelele-1 and Pegere-1 wells are both BMFC plays.

Additionally, the 14 BMFC discoveries in the EARS to date have presented as a "String of Pearls", made up of multiple successful wells along a trend.

Mbelele, Pegere and Kachinga Prospects (Figure 1) are just three of ten structures identified by Noble Helium along two "Strings" - one on each side of the North Rukwa basin where multiple BMFCs have been mapped from historic and new exploration data (Figure 4).

These first three "Pearls" on the western margin of the North Rukwa host a company-estimated combined mean helium prospective resource of 39 billion cubic feet of helium, approximately US\$18billion in the ground at the current long wholesale term bulk pricing of US\$450/Mscf.

High-quality geotechnical data vindicates BMFC targets

Figure 1 below is from the Company's fully georeferenced Petrel™ subsurface model and visualises the elements of the Helium System, which are all present and in the correct sequence to host helium accumulations in the North Rukwa. The eastern side "String of Pearls" is similarly expected to emerge with the interpretation of the recently delivered Chilichili 3D seismic data from BGP.

The investment by the Company to acquire these high-quality data including 3D swaths over each lead has significantly upgraded confidence as we head into our drilling program.

The relatively uncompacted, high porosity Neogene sediments of the Rukwa Basin, as evidenced by legacy oil wells drilled by Amoco in 1987, have been independently modelled as acoustically responsive when saturated with a gas. Further, leading-edge charge modelling carried out for the Company by the University of Oxford predicts gas-phase helium in all scenarios in the western North Rukwa BMFCs. The gas is expected to be composed of nitrogen and up to ~5% helium, which is consistent with the independently certified mean Prospective Resource estimates provided to the Company by NSAI. There is no evidence of methane or CO₂ to date.

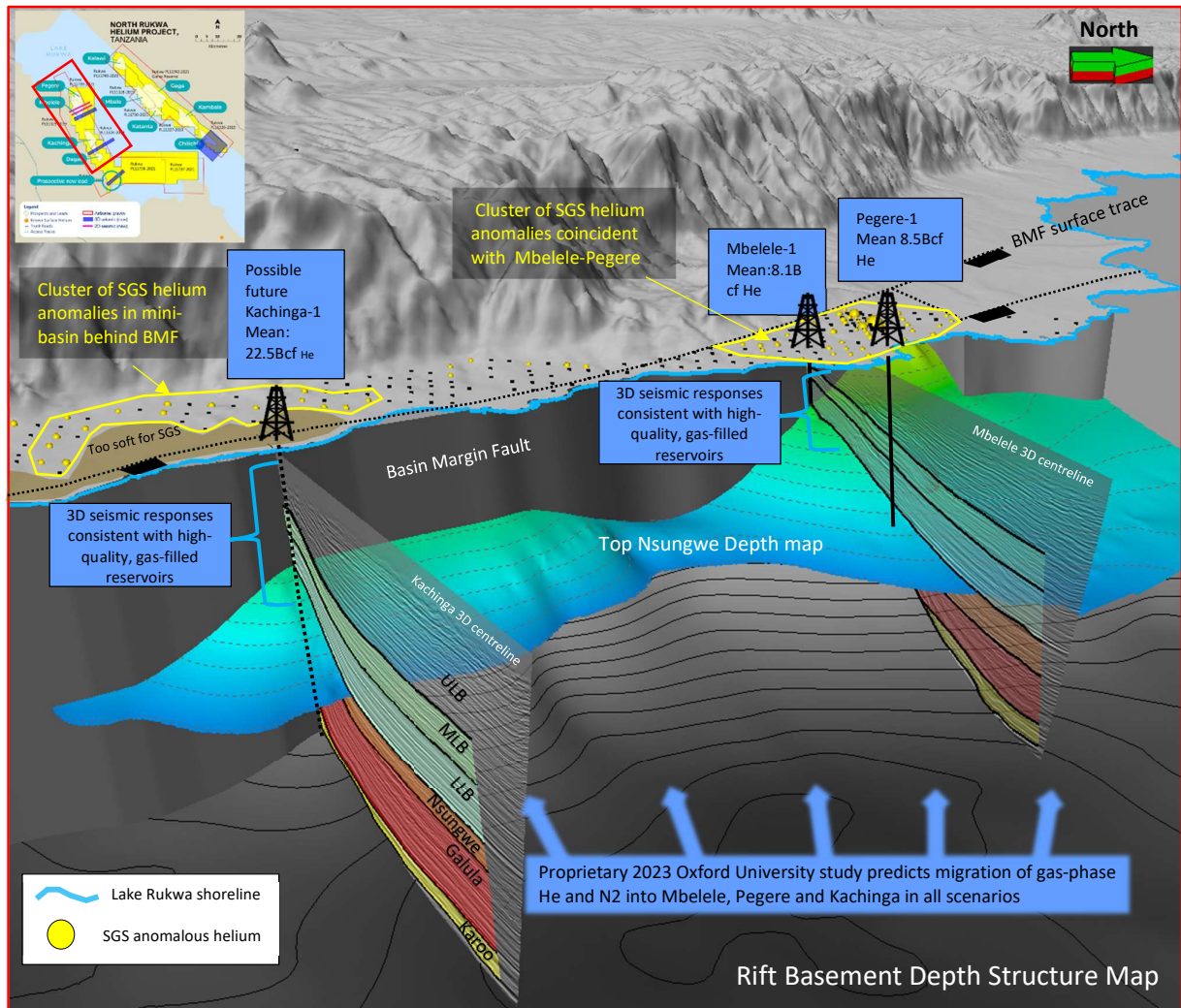


Figure 1. 3D Perspective Summary of Western Prospectivity to date. Since the first oil discoveries in 2006, 14 BMFCs have been drilled in East African Rift Basins with a 100% discovery rate for oil and gas.

With the benefit of new amplitude-preserving processing, the Mbelele 3D depth volume is now clearly demonstrating multiple, laterally persistent, horizontal amplitude shutoffs in Neogene sediments within the BMFC, as annotated in the 3D Spatial Stack of Figure 2. Such seismic responses are consistent with independent gas-water contacts at multiple levels.

This scenario is analogous to the first BMFC discoveries in Uganda in 2006 as shown in Figure 3. If correct, the widespread helium anomalies in the overlying soil gas samples may suggest helium within the gas trapped within the BMFC micro-seeping to surface. This micro-seepage of helium into the soil leading to above background atmospheric concentrations of 5.2ppm can *only* be coming from the subsurface.

Further, soil gas helium anomalies in the Rukwa Basin have been shown to be at levels comparable to those over a reservoir at 1200m depth in the Harley Dome gas field in Utah, USA which contains 7% helium³.

³ Dr Chris Ballentine abstract, 2017 Goldschmidt Conference, Paris

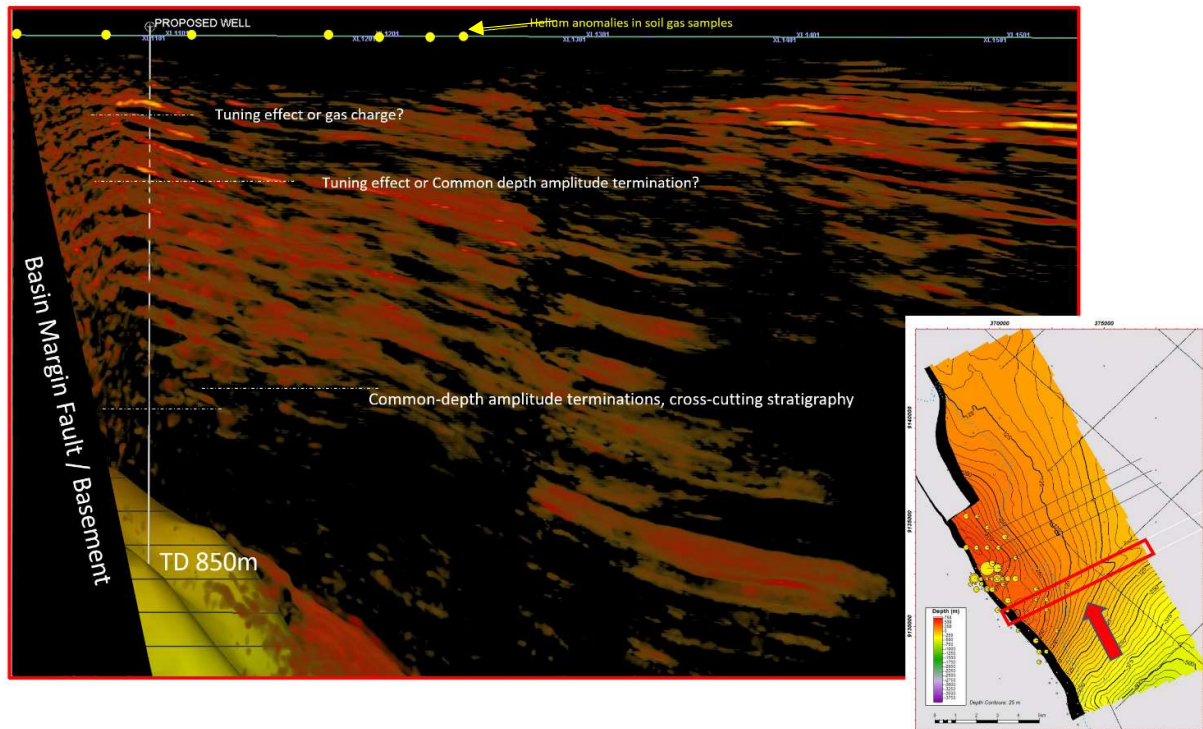


Figure 2. “Spatial Stack” of positive reflectivity within the Mbebele Prospect from newly processed, amplitude-preserved Mbebele 3D PSDM seismic volume. Potential gas responses include horizontal amplitude shutoffs consistent with multiple gas-water contacts within the sedimentary layers against the Basin Margin Fault.

The combination of BMFCs, with their unbroken success rate in the EARS, and the confirmational exploration program outcomes, is providing the Company with a high degree of confidence of success in discovering gas phase helium (and nitrogen). During its upcoming drilling campaign, in Q3 2023, the Company will test the thesis that Tanzania’s rift basins may host a globally significant primary helium resource. The question the upcoming wells will answer may have progressed from **“is there helium trapped in these BMFCs?”** to **“what concentration of helium will we discover?”**

Path to market post discovery

As previously noted, the requirements to develop a project are largely already met with existing road, water and electricity infrastructure at or in close proximity to the North Rukwa. The required liquification equipment is well proven and available. The helium market is in short supply, in particular of supply not tied to LNG production within politically stable jurisdictions. The Company continues to receive inbound enquiry from potential off-takers and is working to develop early monetisation options post discovery as a steppingstone to larger medium term production options, including lease or tolling arrangements of rental or existing liquification production plant that could be quickly mobilised to site.

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

“It has been a rewarding exploration effort for everyone involved, with each new dataset supporting the thesis of helium trapped in the subsurface. Confidence has continuously increased each step of the way in developing our first two drill targets.”

“The Company has a high degree of confidence in the potential of our first two exploration wells to discover gas-phase helium in the subsurface of the Rukwa Basin, one of Tanzania’s East African Rift System basins, and arguably the world’s best untested helium system. The basin has the potential to be the world’s third largest helium reserve behind USA and Qatar and the largest primary reserve.

Background

In 2006, the exploration effort at Hardman Resources (then ASX:HDR), led by Noble Helium Co-Founder Justyn Wood, resulted in the first two oil discoveries in EARS, overturning 68 years of a petroleum industry mantra that the EARS was too mobile and leaky to trap any oil and gas in the subsurface.

The Mputa-1 and Waraga-1 wells both tested BMFCs at the edge of the Lake Albert Basin in western Uganda – a play type the Hardman team identified and developed as a way to test and prove the effectiveness of the Petroleum System without the expense of a marine drilling rig (Figure 3).

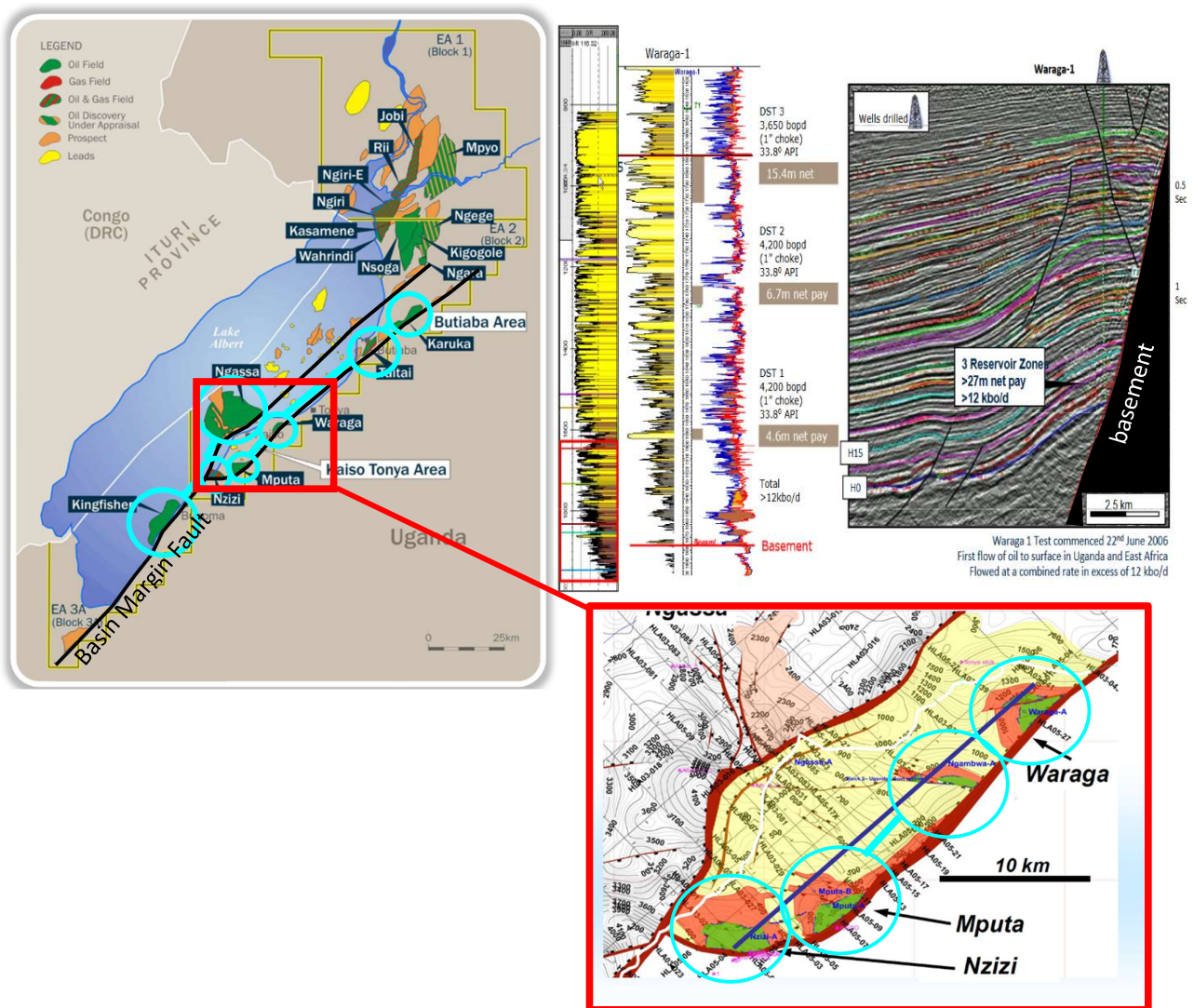


Figure 3. Hardman Resources' 2006 Waraga-1 BMFC seismic and well result, which catalysed Tullow Oil's AU\$1.48b takeover in 2007. Tullow Oil Prospects, Leads and Fields 2010 - note Lake Albert "string of pearls" with 100% discovery rate in the Basin Margin Fault Closures. Images courtesy Tullow Oil.

At the time, these frontier-opening wells were considered to have a high trap integrity risk. However, Mputa-1 tested at 1,000 bopd and Waraga-1 flowed 12,000 barrels of oil per day from 3 zones (Figure 3). Hardman’s partner in the project, Tullow Oil acquired them six months later in 2007 for \$1.48b.

The hundreds of millions of dollars of investment in oil and gas exploration that flowed into the EARS subsequently unlocked billions of dollars of value. Nearly 40 exploration wells proved more than 4 billion barrels of oil and gas in two EARS basins - the Albertine Graben Uganda and South Lokichar Basin, Kenya, with an overall discovery rate of greater than 80%. Of these exploration wells, 14 tested BMFCs, with a 100% discovery rate – the only example known to the Company where a “String of Pearls” actually resulted in a “String of Discoveries” (Figures 3 and 4).

The North Rukwa Basin shares the same “Strings of Pearls” opportunity with BFMCs on both sides of the Basin, hosting an unrisks summed mean Prospective Helium Resource of 138Bcf of the total 175.5Bcf (NSAI, 2022). The Company has been executing an exploration program in the North Rukwa Basin that leverages the founder’s experience, knowledge and success in the northern EARS basins, aiming for maximum probability of success in demonstrating high-concentration helium in gas phase when we drill and test what may be the world’s best untested helium system in Q3.

With success in its upcoming wells, Noble Helium will have made significant progress toward its mission of securing the global helium supply with a large, primary helium deposit from this globally unique geological setting.

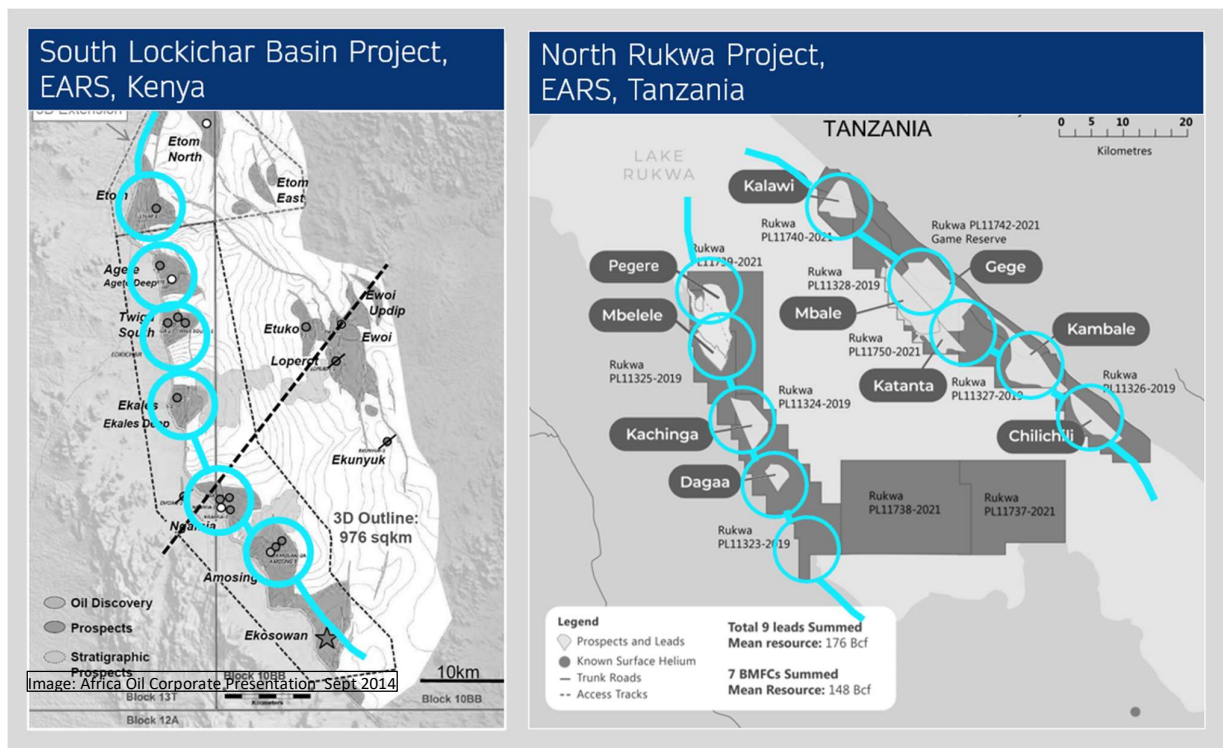


Figure 4. East African Rift System gas discoveries often present as “String of Pearls” play

This announcement has been authorised for release on ASX by Noble Helium's Board of Directors.

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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.

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 176 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.

