

Helium One Global

2021 drilling programme derisked Rukwa’s helium potential with Phase 2 Exploration to come

Tai drilling campaign has provided several positive datapoints

Helium One’s share price has fallen heavily after reporting in August that the Tai drilling campaign failed to make a commercial helium discovery, the major reason for which was due to issues with the rig rather than the geology. Given this was the first helium exploration well in a large frontier basin in which it holds 3,500sqkm of acreage, there were plenty of reasons to be positive and encouragement for future exploration. In particular, HE1 has proved that there is an active working helium system in the basin with multiple helium shows, reservoir seal and trap over multiple horizons with charge and the data confirming the presence of a thick seal, removing one of the key pre-drill risks. A helium show in this virgin basin is highly significant as it proved the existence of helium in the subsurface for the first time. Management has been prudent with its spending, opting for a low cost rig but ultimately that proved an issue when attempting to test the deeper targets.

Helium market remains tight and corporate activity at high levels

The helium market has tightened up recently in 2021 with several plant outages such as in Algeria and with the shut-in of the BLM storage facility in the US for safety reasons. In terms of new capacity Russia’s Amur plant seems unlikely to have any impact in 2021 given delays and Qatar’s new capacity is likely to only ramp up slowly. Helium pricing into the key import markets remains healthy with pricing well above our conservative long-term assumption of US\$250/mcf which we use for modelling. Investor appetite for helium companies has been strong in 2021 with strong share price performance, several capital raises and new companies coming to market.

Phase 2 exploration: 2D seismic, geophysical investigation and shallow drilling

Despite the curtailment of the current drilling campaign, there remains several catalysts for the stock. There is a two-pronged approach focusing on shallow and deep targets. Near-term there is the potential to use simple geophysical techniques (magneto telluric, ground penetration radar, conductivity surveys), which could identify gas in situ in the shallow Lake Bed structural and stratigraphic traps, where high-grade helium shows have been encountered. This could lead to a shallow drilling campaign with a low-cost water rig (at a cost of just ~US\$50-100k per well) drilling between 10-20 wells initially to around 200m. HE1 has ~40bcf of unrisked prospective resources in shallow targets. HE1 is looking to mobilise a 2D seismic survey to better image under the top seal in the main Karoo target formation with the intention of getting started ahead of the wet season. We estimate a cost of around US\$1-2mm and this should help with HE1’s well placement for the deeper targets next year. HE1 is likely to bring in a bigger rig to drill some of the Karoo targets around end-April 2022 with the wells likely to cost ~US\$3-5mm each. We also expect HE1 to carry out seismic on its other acreage in Eyasi and Balangida in 2022.

Valuation: maintaining our risked NAV of 25p/sh

Although the drilling campaign was negative for sentiment with the lack of a discovery, we believe that there were clear positives that came out of the drilling campaign to derisk future exploration including helium shows, a thick seal and good quality reservoir. Indeed, it is rare for a frontier basin to see commercial success with the first well and the exploration potential remains substantial, hence we are maintaining our 25p/sh risked NAV. Management has exercised strong cost control over its drilling campaign and its cash burn rate remains low with G&A of ~US\$100k per month. With the low-cost exploration planned for the rest of 2021, the company remains fully funded. It has ~US\$14mm in cash, which means it could also drill a deeper well next year or it could look to farm-down to fund a more material campaign. A simple way to look at the current valuation is that based on our NPV12 of ~US\$60/mcf, HE1’s EV of ~US\$65mm is pricing in 1bcf of helium being discovered, relative to its unrisked prospective resource of 138bcf. Our risked NAV of 25p/sh is the equivalent of a ~5bcf helium discovery once fully derisked.

GICS Sector Energy

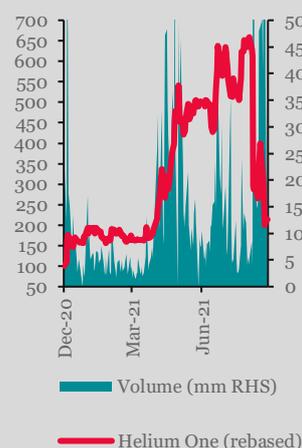
Ticker LN:HE1

Market cap 7-Sep-21 (US\$m) 75

Share price 7-Sep-21 (GBP) 9

NAV summary (p/sh)

Asset	Unrisked	Risked
Deep targets	125	22
Shallow expl.	5	1
Cash/other	2	2
Total NAV	132	25



H&P Advisory Ltd is a Retained Advisor to Helium One. The cost of producing this material has been covered by Helium One as part of a contractual engagement with H&P; this report should therefore be considered an “acceptable minor non-monetary benefit” under the MiFID II Directive.

Anish Kapadia

Research Analyst

T +44 (0) 207 907 8500

E anish@hannam.partners

Jay Ashfield

Sales

T +44 (0) 207 907 2022

E ja@hannam.partners

H&P Advisory Ltd

2 Park Street, Mayfair
London W1K 2HX

Valuation and NAV

A simple way to look at the valuation of HE1 is that based on our NPV12 of ~US\$60/mcf, the current EV of ~US\$65mm is pricing in 1bcf of helium being discovered relative to its unrisks prospective resource of 138bcf. Our risked NAV of 25p/sh is the equivalent of a ~5bcf helium discovery once fully derisked.

Valuation per share sensitivity to size of helium resource and chance of success

		Helium volume (bcf)				
		1.0	10.0	50	100	138
Chance of Success	10%	0.5p	5.3p	26p	53p	73p
	25%	1.3p	13p	66p	132p	183p
	50%	2.6p	26p	132p	265p	366p
	75%	4.0p	40p	199p	397p	548p
	100%	5.3p	53p	265p	530p	731p

Source: H&P estimates

NAV

Asset	Gross bcf	Interest	Net bcf	NPV US\$/mcf	Unrisks US\$m	Unrisks £/sh	Geo./techn. CoS	Comm. CoS	Well cost US\$m	Risks US\$m	Risks £/sh
Kasuku (Rukwa)	5.2	84.0%	4.4	\$58	\$257	£0.28	28%	85%	\$1	\$62	£0.07
Itumbula (Rukwa)	5.4	84.0%	4.6	\$58	\$267	£0.29	19%	85%	\$1	\$45	£0.05
Mbuni (Rukwa)	7.0	84.0%	5.9	\$58	\$342	£0.37	20%	85%	\$1	\$58	£0.06
Tai (Rukwa)	5.9	84.0%	5.0	\$58	\$290	£0.31	15%	85%	\$1	\$38	£0.04
Lake Beds (Rukwa)	1.0	84.0%	0.8	\$58	\$49	£0.05	25%	85%	\$1	\$11	£0.01
Current cash					\$14	£0.02				\$14	£0.02
Options proceeds					\$5	£0.01				\$5	£0.01
G&A	@	2.0x			-\$4	£0.00				-\$4	£0.00
Total NAV					\$1,220	£1.32				\$229	£0.25

Source: H&P estimates

We have updated our NAV to factor in the cash spent year to date, the options that have been exercised and we have added in some value for the Lake Beds that are likely to be drilled later this year. We conservatively only include 1bcf of prospective resource which we see as worth 1p/sh risked or 5p/sh unrisks. Our risked NAV is unchanged at 25p/sh, which implies 150% upside from the current share price. In our base case scenario, we use a helium price of US\$250/mcf long-term flat from 2021 and a 12% discount rate from 1/1/2021. On an unrisks basis, we have a NAV of £1.26/sh or >10x upside. Further to this are the follow-on prospects that are not included in our NAV and its other exploration areas. A US\$50/mcf increase in the helium price would increase our risked NAV by 6p/sh and unrisks by 33p/sh.

NAV sensitivity to helium price and discount rate

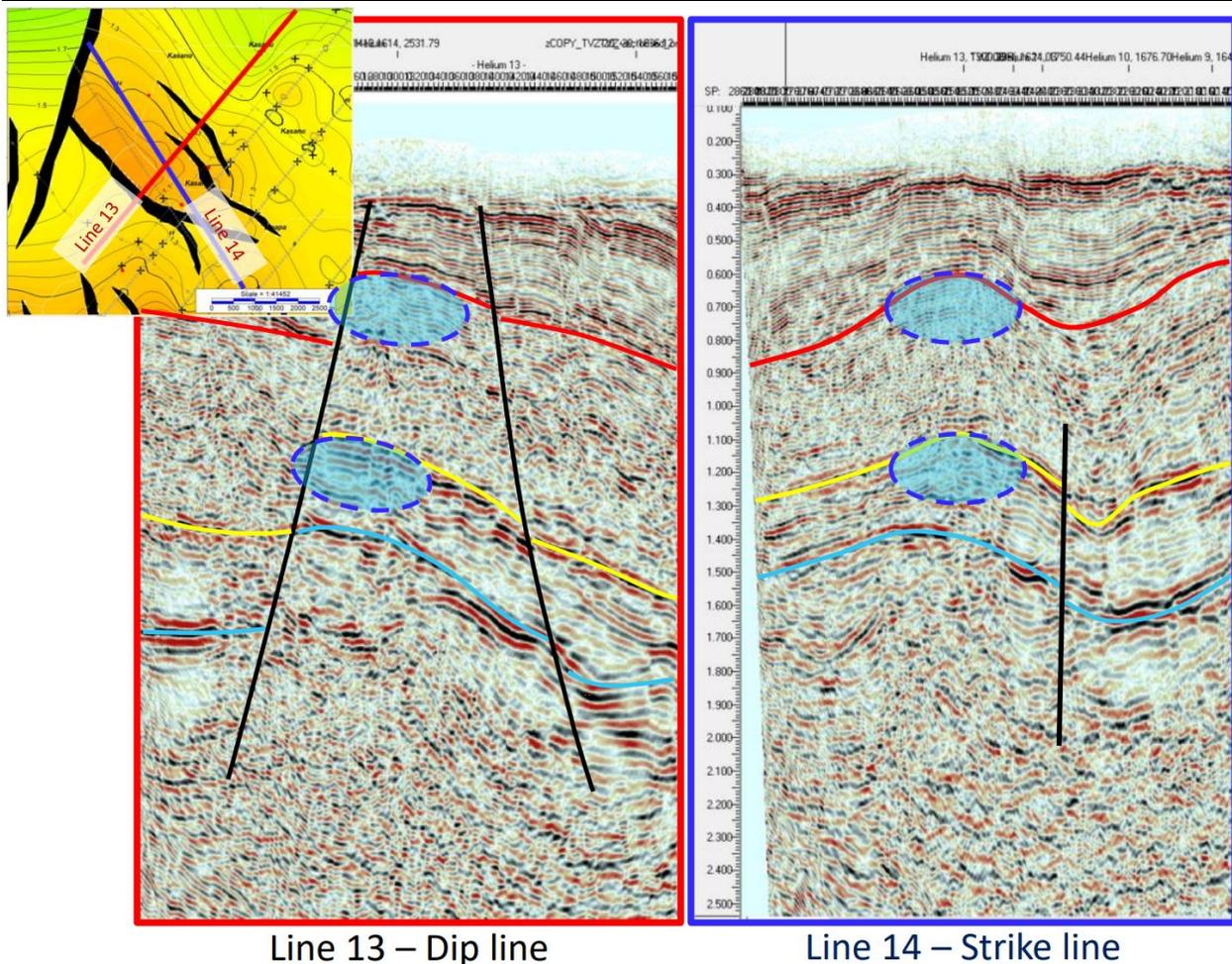
Risked		Helium Price (\$/mcf)				
		\$100.00	\$175.00	\$250.00	\$325.00	\$400.00
Discount rate	8%	8.8p	20.2p	31.5p	42.8p	54.2p
	10%	7.6p	17.7p	27.8p	37.9p	48.0p
	12%	6.5p	15.6p	24.7p	33.7p	42.8p
	14%	5.6p	13.8p	21.9p	30.1p	38.2p
	16%	4.8p	12.2p	19.6p	26.9p	34.3p

Unrisks		Helium Price (\$/mcf)				
		\$100.00	\$175.00	\$250.00	\$325.00	\$400.00
Discount rate	8%	41p	106p	171p	236p	301p
	10%	33p	92p	150p	208p	266p
	12%	27p	80p	132p	184p	236p
	14%	22p	69p	116p	163p	210p
	16%	17p	60p	102p	145p	187p

Source: H&P estimates

Tai well result review

Tai prospect seismic analysis



Line 13 – Dip line

Line 14 – Strike line

Source: Company data

HE1 completed an extended 200km 2D seismic shoot in early May over a 310km² area (roughly 8.8%) of its Rukwa Licences. This survey focussed on areas of known prospectivity at the basin margin which were at shallow depth and could therefore theoretically be tested with a slim-line mineral rig. Modern seismic data was of a higher quality than earlier work, resulting in a better understanding of the subsurface and reassessment of geological risk across its portfolio. The initial data interpretation upgraded and expanded the Tai prospect, which had only been poorly defined on legacy seismic data, but now clearly demonstrates a faulted 3-way dip closure concurrent with a gravity high.

Helium shows

The Tai-1 well was spudded on 12th June and, on 19th June, at a depth of 70.5 metres, a helium show of 2.2% concentration was detected in the drilling mud. This show was encountered over an interval of 4-6 metres, below a 20m thick sealing shale sequence. This helium-bearing interval was encountered earlier than expected in the secondary target Lake Bed Formation. The upper section of the Lake Bed Formation is comprised of poorly consolidated fluvial-deltaic sands. The unconsolidated nature of these shallow reservoirs means it is not possible to perform a drill stem test on any pay zone in this interval as the side wall of the well may collapse during testing.

A second gas show was identified in the Red Sandstone Formation at a depth of 552 meters. The gas show, which was supported by indications of gas visually identified as bubbles in drilling mud returns at surface, continued to increase over a thickness of 9 meters at which point drilling was halted due to parted drill-pipe. The Red Sandstone Group was previously considered to be of low prospectivity due to a lack of effective sealing units. The gas show occurred beneath a thin clay horizon and demonstrated a working helium system where gas shows may be identified beneath even marginal sealing units.

A further five helium shows with a cumulative thickness of 91 meters were identified within the Karoo formation. Of these, one show occurred within thinly bedded sandstones in the Top-Karoo claystone, while the other four occurred in thicker and cleaner sandstones of the main Karoo reservoir. Frustratingly, due to poor and deteriorating hole conditions including large washouts across much of the Karoo, only the uppermost show within the sealing unit was tested with wireline and was indicated to be associated with saturated brine. However, the main reservoir units with thicker, better developed sands in the deeper Karoo were not able to be logged due to poor and deteriorating hole conditions. Therefore it was not possible to assess the helium gas-bearing potential of the deeper, thicker, reservoir intervals with demonstrated helium shows.

Due to various drilling difficulties, shows in the Lake Bed, Red Sandstone and main Karoo Formation reservoir units were not tested, meaning Tai-1 remains inconclusive for the identification of free-gas in the subsurface. **However, a major objective of the well was achieved, in that it identified helium shows within all three target formations, including five helium show intervals identified in the primary Karoo targets, as well as secondary targets in the Lake Bed and Red Sandstone Formations.**

Helium shows demonstrate that the subsurface system is working and that reservoir, seal and trap are capable of storing helium in this basin. This is a key indicator in a basin that has never been drilled for helium before. We think it is important to distinguish between helium shows in this basin and an oil and gas show when drilling a hydrocarbon exploration well. A helium show in a virgin basin is highly significant as for the first time it proves the existence of helium in the subsurface. Only a relatively small volume of helium is required for commercial production as it is a high value gas. Also, we think that it is relevant that helium shows were detected directly below claystone sequences as it demonstrates that the helium is being trapped by traditional siliciclastic sediments which are found throughout the Rukwa sedimentary sequence.

Thick seal encountered and good quality reservoir

The well was also able to demonstrate the presence of a high quality 130m thick seal in the uppermost Karoo. One of the key unknowns pre-drill was whether there are sufficient sealing units to trap and store helium in the subsurface and this risk has been significantly reduced. HE1 could identify the seal in 2D seismic and shows that thickens towards the basin centre and thin towards the basin edge. **This is a key indicator for future exploration, derisking a key component of the helium system and giving a clear direction for future exploration work targetting the Karoo Formation.**

The Karoo reservoir had good potential with porosity levels of 15-20% in thinly bedded sands within the upper Karoo claystone sequence, and above the better developed, thicker sandstone units of the Karoo Formation. Petrophysical analysis presented no clear indications of free gas within the Top-Karoo seal. However, the main reservoir targets with thicker, better developed sands in the deeper Karoo were not able to be logged due to poor and deteriorating hole

conditions. Therefore it was not possible to assess the reservoir characteristics of the deeper, thicker, reservoir intervals with demonstrated helium shows

The rig used by HE1 was a low-cost rig that drills slimline wells, which enabled HE1 to gather a large amount of data to de-risk the play at a total cost of only ~US\$2mm despite the longer than expected time to complete the well.

Shallow well on Tai

The Tai-2 well was completed without identifying helium gas in the Lake Bed stratigraphy. The well, drilled 20m from Tai-1, was targeting a shallow interval in which 2.2% helium was identified in Tai-1 in sandstone. However, the logging data identified clay in Tai-2 over the same zone, which suggests that the reservoir pinched out against clay, which acts as both lateral and vertical seal. The improved understanding of closure and sealing mechanism on shallow trapping structures from Tai-2 is key given that existing seismic data is not sufficient to accurately map traps at shallow depth. This was a low cost well given it took a week to drill.

Shallow trapping styles are an interesting result to come out of Tai drilling. Prior to drilling, shallow Lake Bed targets were considered as secondary targets as poorly consolidated shales would not be competent enough to act as seal against a helium gas phase. **The identification of high-grade helium shows with good indicators of free gas beneath siliciclastic sealing units turns this theory upside-down and opens the door towards low-cost exploration and development of near surface deposits.**

Phase 2 exploration

HE1 is in the process of formulating its forward drilling plans dependant on the result of low-cost geophysical surveys. There is the potential for HE1 to test some of the shallower prospectivity that showed up at Tai with a smaller rig in the near term. However, for future wells in the basin targeting the key deeper Karoo play it may make sense to bring in a rig capable of drilling wider diameter holes to avoid the drilling issues encountered in the Tai-1 well.

The go forward plan is to use low-cost geophysical techniques (magneto telluric, ground penetration radar, conductivity surveys) to test over known shallow targets in the Tai area, before deployment over a wider area in the basin. The upcoming seasonal rains from November have to be taken into account, but a light-weight water-rig possibly opens the option to conduct drilling operations on the shallow targets over the wet-season. This is a low cost exploration route and if extensive shallow trapping structures are identified could provide a cost effective path into development.

For the deeper targets Helium One will aim to mobilise infill seismic before November so that it can then design a deep drilling programme for 2022. HE1 has identified a number of deeper large structures, northern extensions of the Itumbula and Tai, identifiable on Falcon Gravity Gradiometry data as well as recent and legacy seismic data.

Helium One is well funded with a current cash position of £10mm and remains focused on cost-effective exploration. Management plan a return to geophysics, which is a cheap and efficient way to leverage knowledge gained from drilling to further derisk the basin without diluting existing shareholders. The shows a prudent approach to exploration with a focus on phased development and cash conservation.

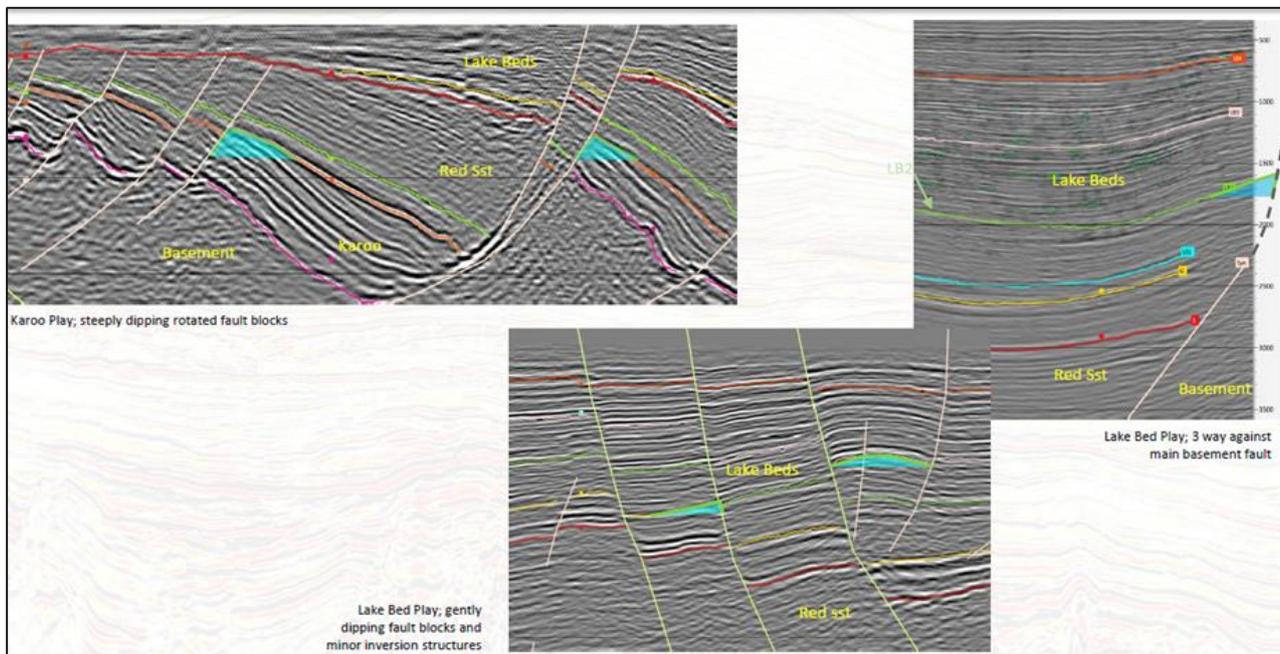
The work undertaken so far in 2021, whilst not making a commercial helium discovery, has demonstrated a working helium system and derisked the

exploration by demonstrating seal, reservoir, and trapping geometries as well as identified a charge mechanism in the basin away from known surface seeps.

Helium prospectivity

Helium migration can be halted by seals or traps. If trapping structures are present on the migration pathway, a gas phase can accumulate. The trap will be filled with helium-rich gas until full and then spill. The excess spilt fraction if not trapped further up in the system will escape at surface seeps. Intraformational seals identified in the Lake Bed and Red Sandstone formations are likely to be marginal – ie a thin or poorly consolidated seal will leak helium over geological time. The presence of helium shows in these horizons suggests a high level of charge where helium coming into the base of the system exceeds helium being lost to the surface through marginal seals. **The presence of helium in Tai-1 at multiple stratigraphic levels and beneath marginal sealing units suggests that the Rukwa Basin system is fill-to-spill.**

Rukwa Rift trapping styles



Source: InSeisive

Helium can be trapped at the top of the Red Sandstone by lacustrine shales at the base of the Lake Beds and anywhere within alternating sand/ shales throughout the Lake Bed sequence. In the Karoo play, beneath the thick Top-Karoo seal identified in Tai-1, the dominant trapping geometry is rotated extensional fault blocks creating 3-way dip closures with fault seal in the 4th direction. The trapping style within the Lake Bed play is more varied than for the Karoo: there are gentle 3-way closures against faults as tested by the Ivuna-1 well and minor inversion structures, low relief 4-way traps, stacked low-relief 3-way traps against the fault. Stratigraphic trapping may also be present within the rift.

Disclaimer

This Document has been prepared by H&P Advisory Limited ("H&P"). It is protected by international copyright laws and is for the recipient's use in connection with considering a potential business relationship with H&P only. This Document and any related materials are confidential and may not be distributed or reproduced (in whole or in part) in any form without H&P's prior written permission.

By accepting or accessing this Document or any related materials you agree to be bound by the limitations and conditions set out herein and, in particular, will be taken to have represented, warranted and undertaken that you have read and agree to comply with the contents of this disclaimer including, without limitation, the obligation to keep information contained in this Document and any related materials confidential.

This Document does not represent investment research for the purposes of the rules of the Financial Conduct Authority ("FCA Rules"). To the extent it constitutes a research recommendation, it takes the form of NON-INDEPENDENT research for the purposes of the FCA Rules. As such it constitutes a MARKETING COMMUNICATION, has not been prepared in accordance with legal requirements designed to promote the independence of investment research and is not subject to any prohibition on dealing ahead of dissemination of investment research.

The information contained herein does not constitute an offer or solicitation to sell or acquire any security or fund the acquisition of any security by anyone in any jurisdiction, nor should it be regarded as a contractual document. Under no circumstances should the information provided in this Document or any other written or oral information made available in connection with it be considered as investment advice, or as a sufficient basis on which to make investment decisions. This Document is being provided to you for information purposes only.

The distribution of this Document or any information contained in it and any related materials may be restricted by law in certain jurisdictions, and any person into whose possession this Document or any part of it comes should inform themselves about, and observe, any such restrictions.

The information in this Document does not purport to be comprehensive and has been provided by H&P (and, in certain cases, third party sources) and has not been independently verified. No reliance may be placed for any purposes whatsoever on the information contained in this Document or related materials or in the completeness of such information.

The information set out herein and in any related materials reflects prevailing conditions and our views as at this date and is subject to updating, completion, revision, verification and amendment, and such information may change materially. H&P is under no obligation to provide the recipient with access to any additional information or to update this Document or any related materials or to correct any inaccuracies in it which may become apparent.

Whilst this Document has been prepared in good faith, neither H&P nor any of its group undertakings, nor any of its or their respective directors, members, advisers, representatives, officers, agents, consultants or employees makes, or is authorised to make any representation, warranty or undertaking, express or implied, with respect to the information or opinions contained in it and no responsibility or liability is accepted by any of them as to the accuracy, completeness or reasonableness of such information or opinions or any other written or oral information made available to any party or its advisers. Without prejudice to the foregoing, neither H&P nor any of its group undertakings, nor any of its or their respective directors, members, advisers, representatives, officers, agents, consultants or employees accepts any liability whatsoever for any loss howsoever arising, directly or indirectly, from use of this Document and/or related materials or their contents or otherwise arising in connection therewith. This Document shall not exclude any liability for, or remedy in respect of, fraudulent misrepresentation.

All statements of opinion and/or belief contained in this Document and all views expressed and all projections, forecasts or statements regarding future events or possible future performance represent H&P's own assessment and interpretation of information available to it as at the date of this Document. This Document and any related materials may include certain forward-looking statements, beliefs or opinions. By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future. There can be no assurance that any of the results and events contemplated by the forward-looking statements contained in the information can be achieved or will, in fact, occur. No representation is made or any assurance, undertaking or indemnity given to you that such forward looking statements are correct or that they can be achieved. Past performance cannot be relied on as a guide to future performance.

This Document is directed at persons having professional experience in matters relating to investments to whom Article 19 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 ("FPO") applies, or high net worth organisations to whom Article 49 of the FPO applies. The investment or investment activity to which this communication relates is available only to such persons and other persons to whom this communication may lawfully be made ("relevant persons") and will be engaged in only with such persons. This Document must not be acted upon or relied upon by persons who are not relevant persons.

This Document is not intended for distribution to, or use by any person or entity in any jurisdiction or country where such distribution or use would be contrary to local law or regulation. In particular, the information contained in this Document is not for publication, release or distribution, and may not be taken or transmitted into: (i) the United States or its territories or possessions, or distributed, directly or indirectly, in the United States, its territories or possessions or to any U.S. person as such term is defined in Regulation S of the Securities Act; or (ii) Australia, Canada, Japan, New Zealand or the Republic of South Africa. Any failure to comply with this restriction may constitute a violation of United States, Canadian, Japanese, New Zealand or South African securities law. Further, the distribution of this document in other jurisdictions may be restricted by law, and persons into whose possession this Document comes are required to inform themselves about, and observe, any such restrictions.

H&P may from time to time have a broking, corporate finance advisory or other relationship with a company which is the subject of or referred to in the Document.

This Document may contain information obtained from third parties, including ratings from credit ratings agencies such as Standard & Poor's. Reproduction and distribution of third party content in any form is prohibited except with the prior written permission of the related third party. Third party content providers do not guarantee the accuracy, completeness, timeliness or availability of any information, including ratings, and are not responsible for any errors or omission (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such content. Third party content providers give no express or implied warranties, including, but not limited to, any warranties of merchantability or fitness for a particular purpose or use. Third party content providers shall not be liable for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees or losses (including lost income or profits and opportunity costs or losses caused by negligence) in connection with any use of their content including ratings. Credit ratings are statements of opinions and are not statements of fact or recommendations to purchase, hold or sell securities. They do not address the suitability of securities or the suitability of securities for investment purposes, and should not be relied on as investment advice.

In H&P's view this material is considered as "acceptable minor non-monetary benefit" under MiFID II as it is either: (i) "non-substantive short-term market commentary"; and/or (ii) making a brief reference to existing H&P research and, as such, is in-and-of-itself non-substantive; and/or (iii) paid for by a corporate issuer or potential corporate issuer as part of a contractual engagement with H&P.

H&P Advisory Ltd is registered in England No.11120795. Registered Office: 2 Park Street, London W1K 2HX. H&P Advisory Ltd is authorised and regulated by the Financial Conduct Authority (Firm Reference Number 805667).