Helium Resources Limited

Should we explore for Helium in Oxfordshire?

Neil Ritson, Director, HRL and Chairman, Vanguard Energy Limited
Familiar Headlines?

Why the world is running out of helium

Recycle more or lose MRI scans and cheap mobiles, warns expert

Helium is in short supply, hitting balloons and scientific research

Helium supplies are tightening up again
UK self-sufficient in helium; safeguarding hospitals and world-leading research

Following ground-breaking work by UK entrepreneurs based in Oxfordshire, and supported by the Department for Business, Energy and Industrial Strategy. The Times can today report that the UK is for the first time self-sufficient in the helium it very urgently needs to support the NHS, as well as industry and researchers all over the country who depend on this rare gas.

Chris Matchette-Downes, the chief executive of Helium Resources Limited, confirmed that helium was now flowing from the company’s newly commissioned liquefaction plant north of Oxford and supplies of helium had been successfully delivered to industrial and other users in what is known as the UK’s cryogenic cluster.

Helium is vital for manufacturing optic fibers, mobile phones and much more. The NHS, which has over 700 MRI scanners used in the diagnosis of cancers, has been increasingly concerned about the worldwide shortage of helium and the very major increases in price. Security of supply has been a major issue for all users of helium, including at Harwell.
• Who are Helium Resources Limited?

• What is happening in international helium markets?

• Why is this important to the UK?

• Is exploration in the UK worthwhile?

• HRL’s Oxfordshire project?

• What are the next steps?
**History of HRL**

- The **founders of HRL** identified a potential helium deposit in Oxfordshire and have assembled the data, analysis and technical capability to pursue the opportunity.

- **Technical expertise** in helium geochemistry and exploration has been engaged through the expert teams at both Oxford and Durham Universities.

- **Financial and technical support** has been obtained from Vanguard Energy Limited.

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**4He Resources**

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<th>Founder</th>
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<td>Chris Matchette-Downes</td>
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<td>Chris Atkinson</td>
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<td>Mike Bilbo</td>
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**Expert Teams**

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<th>University</th>
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<tr>
<td>University of Oxford</td>
<td>Chris Ballentine</td>
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<td>Durham University</td>
<td>Jon Gluyas</td>
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**Supporter**

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<th>Company</th>
<th>Neil Ritson</th>
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<td>Vanguard Energy</td>
<td>Executive Chairman (former Chairman of Solo Oil plc)</td>
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Essentially helium is
- in short supply
- largely non-substitutable
- in growing demand

As a result, price pressure is increasing rapidly

Algeria, Qatar and Russia can’t increase supplies without also growing LNG demand

US policy will ensure the BLM Strategic Reserve is off-line by 2021

EU has recently added He to its “commodities at risk”

Price and supply security are now very serious concerns

Pure helium is selling at prices in excess of US$280/mcf and some reports are circulating of prices over US$800/mcf being paid for “time critical” deliveries in the USA
Strategic Significance for the UK

- HRL’s project lies in an area with a large number of hi-tech cryogenic businesses dependent on helium
- **UK imports all its helium**, mostly from the USA and Qatar
- Annual helium importation represents a **£60+ million deficit on the UK’s balance of trade** and this will increase sharply
- **Security of supply** will be a key consideration for researchers, business users, and also the NHS
- Increased recycling and the reduction of wastage are necessary, but are not sufficient.
- **New sources of helium are urgently needed**
Origin of the Project

- Drilling for water in the early 1900’s discovered natural gas in the Calvert area.
- Subsequent drilling by BP confirmed the presence of gas and identified helium as a component of that gas.
- Soil and waste methane vent gas geochemistry (~100 sites) conducted by HRL with assistance from Oxford and Durham Universities and MIT has confirmed widespread helium presence.
- Helium concentrations are comparable to US analogues and fully support exploration drilling.
Project Outline

- Three to five test wells need to be drilled to ~180-200 metres
- No fracking is involved
- Existing wells show pressures are very low (less than 150 psi), so well management is simple
- Drilling can be completed in a few hours with coiled tubing deployed from lightweight tractors, as used for mineral and water wells
- Environmental footprint is very small
- The social acceptability of helium exploration is considered extremely high
- Economics for small scale helium liquefaction are well established
- Buyers already exist for both helium and for any associated methane
Next Steps

- HRL has the technical capacity to operate a targeted helium exploration programme in the UK and have successfully completed initial reservoir, source and geochemical studies
- Helium exploration is clean, socially acceptable and has a small environmental footprint
- Providing a UK sources of helium is becoming of national strategic importance
- **HRL now needs a licence to explore, granted by the UK Oil and Gas Authority**
- In **August 2016 and again in 2018** HRL applied to the OGA for a licence and held numerous meetings to explain the case and its significance
- OGA sought guidance from the Department of Business Energy and Industrial Strategy
- Helium underpins much of the innovation and technologies promoted by BEIS in the 2017 UK Industrial Strategy; especially clean energy and world leading research capability; however,
- Despite all the evidence to the contrary BEIS has indicated they “**do not see a pressing need for a domestic source of helium**” (letter from Rt Hon Claire Perry MP, 18 December 2018)
- In the national interest we believe that pressure needs to be brought to bear on BEIS to better reflect the significant and growing concerns of helium users in the UK; **in order to encourage much more urgent action**
Your assistance please ....

- HRL are keen to better understand the UK market and provide that data to BEIS to aid their decision making

- We have prepared a simple questionnaire which is available in your delegate pack and on our table

- Please take the time to complete a copy whilst you’re here today and return it to our table, or one of the HRL team, or email a scanned copy to neil@4he-resources.com

Thanks for listening

Any questions?