

# Carbon-free helium, geopolitical-free helium

## An interview with Noble Helium

By Rob Cockerill

**O**ne could be forgiven for thinking there's a feeling of 'we told you so' in the air at Australia's Noble Helium right now. For many years, the company has warned of the geopolitical risk

associated with traditional helium supply chains.

In fact, the company was founded in early 2017 with the ambitious mission to procure a global-scale, independent helium supply to counter

the geopolitical risk that was set to emerge by 2024/5 from Qatar-Russia-Algeria supply dominance.

While many looked forward to a comparative glut of new supply flooding into the market in the years

ahead, others such as Noble Helium looked on with caution, concerned about a potential newfound market dominance of more than 60% of supply from just three countries. Three countries that, some might say, are at risk of geopolitical tensions or instability more than others.

It's a long-term concern that appears to have been proven well-founded in recent months, if the currently precarious situation with Russia is anything to go by.

When helium markets tightened up during the second half of 2021 due primarily to a four-month maintenance outage of the US Bureau of Land Management's (BLM) crude helium enrichment unit, the industry consensus was that Gazprom's Amur project would begin pumping large quantities of helium into the market by the fourth quarter (Q4) of 2021, averting another extended period of short supply.

However, after briefly producing helium for a few weeks in September, **gasworld** reported earlier this year that the Amur helium plant in Russia was taken down to complete construction punch-list items. While it was shut down, the natural gas processing plants that produce feed gas for the first of three helium plants experienced a fire on 8<sup>th</sup> October and a second explosion/fire on 5<sup>th</sup> January that will delay Amur's helium production until at least Q3 of 2022.

How long it will take to restart helium production from Amur remains to be seen, eminent helium expert Phil Kornbluth (Kornbluth Helium Consulting) explained to **gasworld**, with speculation ranging from the most optimistic late Q3 to more pessimistic predictions that Amur will produce little, if any, helium before 2023.

This may be one thing, with such high hopes placed against this new

realm of supply, but the subsequent invasion of Ukraine by Russia is quite another. It is too early to know how things will turn out, how long the war will last, whether it will spread beyond Ukraine, whether additional sanctions will be implemented, or how long sanctions will last. It should also be noted that over the near term, the crisis in Ukraine should have minimal impact on helium supply – save for the re-routing of logistics from Orenburg (Russia) or the empty helium containers sat idle at Gazprom's Helium Hub near Vladivostok.

Nevertheless, the longer-term impacts of the Ukraine invasion are likely to be more significant, as **gasworld** has previously reported. Gazprom's Amur project and Irkutsk Oil Company's (INK) Yaraktinsky and Markovsky projects have significant reliance on foreign expertise and imported equipment from countries that are participants in the sanctions on Russia. Then there are the concerns around the impact of sanctions on the viability of helium sales and purchase agreements, international payments, carrier logistics, and overall import/export trading.

All of which underline the emerging fragilities surrounding Russian helium supply; or potentially that of any other nation, in Noble Helium's view. Even if it isn't saying 'we told you so' considering these tragic events in Ukraine, the company can certainly say with confidence that it was previously taking a position of leadership in this discussion from day one, a conviction now arguably proven right.

At the same time, Noble Helium is conscious of the other side of helium's traditional supply chains – as a by-product of natural gas extraction and processing. Like so many others emerging in the helium industry, the company is concerned about that



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Co-Founder of Noble Helium

sense of sustainability in global helium production too.

### Carbon-free, geopolitical-free helium

The aim at Noble Helium is to diversify the helium supply chain and 'insulate' it from the disruption and market manipulation risk that will emerge in the sourcing of this critical raw material'.

It's a bold objective shared by other new entrants in the global helium business in recent years, or 'new age helium-focused explorers' as Co-Founder Walter Jennings describes the company and its peers here in an exclusive interview with **gasworld** for its Specialty Gas Zone.

From a Noble Helium point of view, the company represents a ground-floor investment in the potential discovery and development of the world's largest global-scale primary helium reserve, targeting a market share of 16% (1Bcf per annum). That reserve is in the Rukwa Basin in Tanzania, part of the famous East African Rift.

The company has spent the past five years exhaustively examining both the global helium market and the Rukwa Basin itself and is now confident and ready to set about achieving a globally successful outcome.

"Tanzania remains the standout as potentially the largest resource of pure play helium in the world," Jennings explains. "Our prospects in the Rukwa basin have been certified summed Pmean Helium Prospective Resource of 176Bcf NSAI (30 years →



→ global demand based on current demand."

"In terms of applications, the size of the helium market is deceptively small, but its critical and unique enabling abilities affect trillions of dollars and thousands of jobs in global commercial enterprise."

So why talk to **gasworld** now? What's new with Noble Helium since we last caught up with the company in January 2021, still in the first 12 months post-Covid?

As we discover, there exists a number of hot topics on the lips of everyone at Noble Helium right now. "We want to highlight our leadership in carbon-free helium exploration and to bring attention to our positioning from day one of various geopolitical risks, now confirmed by the Russian situation," Jennings explains.

"We also want to talk about climate change, the other massive concern that few people seem to be considering in helium. Currently 95% of helium sourcing is from LNG gas fields in the US, Qatar, Algeria and in the future, Russia."

The other big update at Noble Helium concerns its funding ability to push forward with its ambitious plans. Back in March 2020, when the Noble Team were really getting their teeth into realising the company's objectives, the arrival of Covid interrupted funding negotiations that were 'well on the way' to positive outcomes. Investors needed to address their changing operational priorities to minimise damage, protect staff, and figure out how to communicate and manage through this undefined global pandemic.

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Jennings estimates the company lost six months before negotiations resumed, and a topsy-turvy global economic and investment climate has largely prevailed since. The company enjoyed a long-awaited breakthrough with a successful ASX IPO on 8<sup>th</sup> April (2022) and now has the funding in place to set about the next phase in its growth and development - and the fruits of that geopolitical and carbon-free helium.

Here he provides an update on all of these talking points and more, exclusively for **gasworld** readers.

#### On the rise of carbon-free helium...

"If you Google where does helium come from, the answer is always 'as a tiny by-product of natural gas extraction in a few gas fields' or words to that effect. Thus, no one was motivated to go and find what we call pure play helium," Jennings says of the growth in the last decade or less of 'new age' helium exploration.

"This 100-year assumption held back helium exploration, with now clear evidence that helium can and is being found where the carrier gas is nitrogen."

"Before, helium was left to gas explorers, until around a decade ago. It is only since the closure of the BLM and the onset of the Qatar embargo that helium-specific exploration really gained interest. The **gasworld** Helium Summit in 2017 (Life Beyond the BLM) also got the ball rolling, in our view."

"It's a very different market now," Jennings enthuses. "The charge to balance helium resources is underway, with an alternative to helium being sourced so exclusively as a captive by-product in a handful of natural gas fields now firmly on the horizon. The proof is already evidenced in North America, where companies such as North American Helium is just one example."

"New age helium-focused explorers such as Noble Helium are thriving in these exploration projects where nitrogen is the dominant carrier gas, and we will be able to boast zero CO<sub>2</sub> (carbon dioxide) emissions."

#### On the overlooked issue of climate change...

Another concern for Noble Helium is the steep acceleration in the clean energies transition in recent years, certainly since the widely accepted stimulus in sustainability strategies and action since the onset of the Covid pandemic.

Not that the company is against the energy transition it should be pointed out; quite the opposite in fact, and it is already active engaged in that model of carbon-free helium supply. Its concerns are more around the potentially overlooked consequences of a rapid shift away from fossil fuels, and the need to invest in overcoming these impacts alongside that investment in clean energy.

"Realistically, the close out of fossil fuels is at least two decades away," Jennings calms. "If we are to achieve Net Zero by 2050, however, we must bring helium resource into balance now with outdated natural gas-only source areas for helium assumption."

"This not only would bring supply into balance, but it would also meet the need to transition away from fossil fuels - and that's a cause we all feel passionately about."

"This would at least avoid a catastrophic global climate event that could shut down LNG facilities, which would in turn take with it all helium supply. As things stand, that would stop MRI (magnetic resonance imaging) machines operating and semiconductors being produced; these are just two examples of the knock-on effects."

"That's very much a worse-case →

# The Noble Helium Advantage

Noble Helium has exclusive rights to the only Global Helium Atlas identifying all prospective helium geology.\*

\*New generation helium focused explorers such as Noble Helium develop exploration projects where nitrogen, as the dominant carrier gas, can be vented to the atmosphere with zero CO<sub>2</sub> emissions.

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→ scenario, a catastrophic case scenario, we might say - but the point is, we're not moving quick enough to protect supply and transition out of natural gas field dependence to meet the coming threat of climate change, or even a tipping point that could force the closure of LNG plants earlier. Sir David Attenborough's warning, let alone the scientific evidence, is proof enough that this is coming."

#### **On the unseen risk of Russian supply...**

Jennings is keen to point to other potential geopolitical risks associated with significant stock set aside to Russian helium supply going forward.

According to Noble Helium's understanding, there are permafrost concerns attached to the logistics of operating in such a harsh climate as Eastern Siberia, which could also be exacerbated if mankind's climate damage continues to deepen.

Permafrost is widely defined as ground or terrain that continuously remains below 0°C for two or more years, whether on land or under the ocean. Rising global temperatures are causing permafrost to thaw and not only release long-held greenhouse gases to the atmosphere but destabilise the ground itself and affecting infrastructure such as roads, pipelines and buildings.

This is a particular challenge in much of the Arctic land surface and Jennings says, "What very few people know is that the thawing of the permafrost in Siberia is causing massive disruption to roads, and infrastructure now. So even if Russia gets back into business, the geopolitical danger will simply escalate and return."

"Should climate change go beyond the tipping point, it could

also ultimately make it impossible to operate in the Arctic."

#### **On the importance of the Rukwa Basin...**

These are all clearly interwoven topics, all converging on one another in various potential scenarios. For Jennings and the team at Noble Helium, it only reinforces their objectives and their collective determination to realise them. It also underlines the importance of sites such as the Rukwa Basin in Tanzania.

Jennings sets the scene, describing the company's exclusive rights to the global 'Helium Atlas' study. "Noble Helium commissioned and has licensed the world's first 'helium atlas' from Global Helium Resources, who's two foremost helium experts - Dr. Jon Guyas of Durham University and Dr. Chris Ballentine of Oxford - were key in its development," he says.

"Basically it's many years of research into a detailed study of all the helium prospects in the world. The Atlas has confirmed Tanzania as likely to be the best helium prospects in the world."

Access to these experts and the 'helium atlas' will also help Noble Helium in selecting future helium project acquisitions."

Noble Helium CEO Justyn Wood is himself a highly experienced geophysicist who brings significant East African Rift System experience. He played a key role in opening the region's geology with breakthrough exploration success in 2006, with Hardman Resources. Just six months post-discovery it was purchased by its farm-in partner for \$1.5bn.

For 70 years, the East African Rift System basins that Noble Helium is operating in were considered too high risk for oil and gas exploration. That was until the first oil discovery

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in 2006 proved otherwise. Hardman made the first East African Rift basin discovery in Uganda - and Wood was the exploration geophysicist for that discovery. "He knows the ground Noble Helium is working with," Jennings affirms.

"Since then, the East African Rift System has become home to some of the largest, most consistently successful onshore African oil and gas discoveries - a very impressive 80% success rate from 30 wells between 2006 and 2018."

#### **On Noble Helium's key takeaways for readers...**

In closing, we ask Jennings for the key takeaways for *gasworld* readers, as Noble Helium sees them. Amidst the swirl of information and conjecture that surrounds helium security and supply scenarios, it's very much a recap of the fundamentals that the company believes is critical.

Jennings concludes, "It's worth emphasising that helium is a scarce, depleting resource having no known substitutes, while demand for helium to support cutting-edge technologies is growing rapidly. And there is no multi-lateral agreement among helium consumers on helium conservation."

"The point is that currently all helium is extracted from processing natural gas, to the extent that variability in natural gas production can impact the helium supply. But to avoid risk of confusing the reader, helium is not a substitute burner fuel. It is better for the stability of helium supply to create new, free-standing sources of helium independent of natural gas. That's our ultimate takeaway here." 