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Energy

Share Price



Major Shareholders

Primary Index	LSE
Next Key Announcement	IPO Q3 2021

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Georgina Energy - game changing helium

Rare opportunity in helium

Georgina Energy is an Energy company offering investors exposure to an increasingly supply-constrained commodity - helium.

Helium is an important industrial gas with applications in medical, industrial and technology industries (details on p2-4). There is a limited global supply of helium, with growing demand and no direct substitute available. The imbalance of supply and demand is becoming increasingly acute, and the US government has placed restrictions on exports to conserve supplies for domestic use.

Georgina Energy will seek a listing on the Standard Board of the LSE during 2021 in order to raise the necessary capital to proceed with two or more helium projects which are being pursued in Australia. The company has engaged ETX Capital as broker to the company for the purpose of this listing.

Two helium projects in Australia

Georgina Energy is working on two projects, SPA HUSSAR and EP155, which have combined potential resources of 180 BCFG of helium (P50 estimate). This has an in-situ value of around US\$50bn at current market prices. Both projects also have potential to host considerable volumes of naturally occurring hydrogen in subsalt reservoirs. Consideration is being given to negotiations on additional projects with similar or greater potential in Australia.

SPA HUSSAR

The SPA HUSSAR project lies within the Officer Basin in Western Australia, consisting of 46 blocks totalling c.3,600 square kms. The property includes a previously existing natural gas exploration well sited on a 200 square km seismically defined structural closure which offers a potential initial route via re-entry for new exploration of deeper subsalt reservoirs.

Independent consultants have identified potential resources of 105 BCFG of helium (P50), as well as potential SPE PMRS (recoverable) Resources of around 4.2 TCFG of recoverable natural gas (P50). These studies have also identified potential resources of hydrogen which could offer an additional revenue stream.

EP155 – Mt. Winter

The EP155 project is in the Amadeus Basin in the Northern Territory. Gas samples from the Amadeus Basin have yielded helium concentrations of 4-9%, which is very high compared to other sources global. Georgina Energy holds (through a 100% controlled subsidiary) a Farm-in with Mosman Oil & Gas to earn up to 90% interest in the project, with management control. As with SPA HUSSAR, a pre-existing natural gas well offers a low cost initial entry point.

Independent consultants have identified SPE PMRS potential (recoverable) resources of 75 BCFG of helium (P50 estimate). These studies have also identified potential SPE PMRS resources of around 1.5 TCFG of P50 recoverable hydrocarbons, and also potentially 11% hydrogen, which could be extracted and sold for additional revenue.

Value to shareholders

Although it is too early to produce a definitive valuation of the helium opportunity in these two projects, we offer a valuation scenario analysis (p10) around different helium prices and DCF discount rates, and we arrive at as base-case Net Present Value of £250mln. We argue that Georgina Energy offers investors attractive exposure to the ongoing supply squeeze in global helium.

Anthony Hamilton, executive director - Managing partner, Westmarket Capital PLC, is a Fellow of the Institute of Directors in London and is an accountant by profession with more than 35 years of extensive experience in international business, from investment advice to oil & gas, exploration and production of gold, diamonds, base metals and property development

Mark Wallace, executive director - A managing partner at Westmarket Capital PLC, he holds a Bachelor of Economics & Accounting. He is a chartered accountant and has more than 25 years' expertise in the global financial markets having held positions with internationally renowned investment banks and advisory firms including Standard Chartered Capital Markets, Cantor Fitzgerald and Credit Lyonnais in London and Natwest Capital Markets in Sydney.

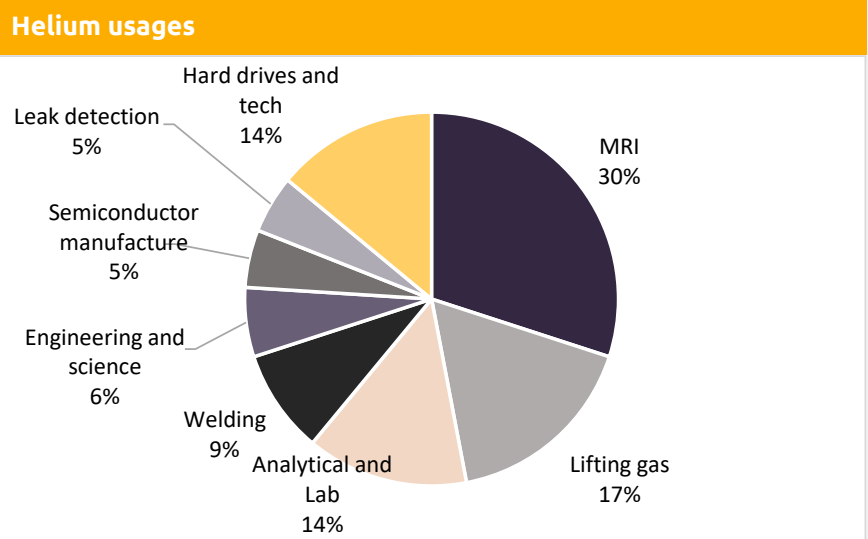
High tech, fast growing applications across diverse industries

The helium market

Helium is an essential industrial gas, with numerous critical applications. These include (percentages from the US Geological Survey):

- **MRI scanners - 30% of global demand.** In medical MRI scanners, liquid helium is used to cool the super-conducting coils. There are no currently used alternatives to helium, and the demand for these devices continues to grow strongly, particularly in emerging markets such as India and China.
- **Lifting gas - 17% of demand.** Helium is used in lighter-than-air systems such as aerostats for weather monitoring. Hydrogen can be used as an alternative, but its flammability is prohibitive for many applications.
- **Analytical & Laboratory - 14%.** For example, helium is used as an inert 'carrier' in gas chromatography.
- **Welding - 9%.** Prevents hot metals from reacting with elements in the air.
- **Others - Engineering and science 6%, Semiconductor manufacture 5%, Leak detection 5%, Hard drive & Tech 14%.** For many of these applications, substitution of helium with other gases is difficult. For example, in engineering the use of helium as a coolant in space rockets is designed-in for these craft, meaning that a substitute may be theoretically available but the cost is prohibitive.
- The use of helium as a cooling medium in the latest design generation of pebble bed nuclear reactors as well as nuclear as well as applications in cooling the latest generation of rocket engines in planned hypersonic aircraft and missiles may also represent additional markets.

The following chart illustrates these applications as a proportion of total helium consumption globally.



Source: US Geological Survey

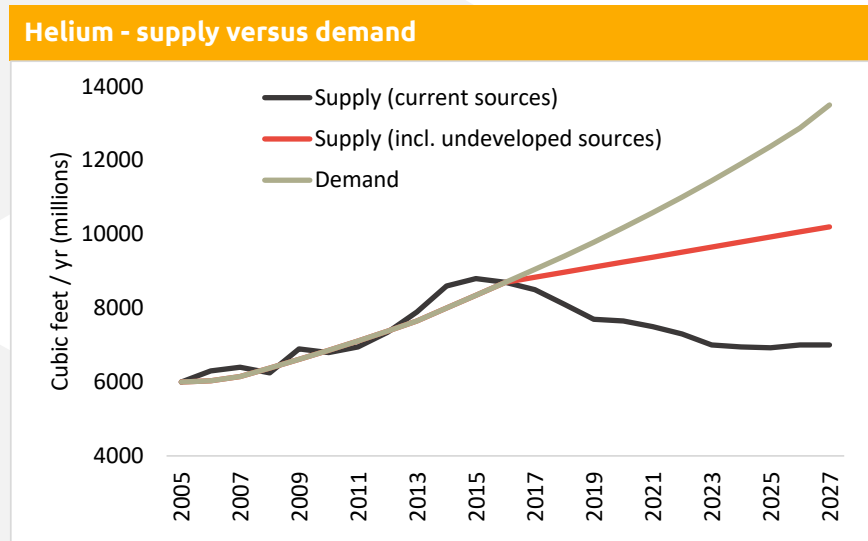
Helium is therefore an important industrial gas, and is difficult/impossible to substitute in many applications.

However, global supply of helium is limited, and some of the major existing supply sources are becoming depleted. Evidence of a supply squeeze includes:

- The most recent global auction of helium set a price of 28 cents per cubic foot, an increase of 135% over the previous year.
- The US government has imposed a blanket restriction on the export of helium, to conserve supplies for domestic use. The US is the (currently) world's biggest producer.
- The American Medical Association has proposed that the US government should go further, by restricting the use of helium by application even within the domestic market, to protect medical applications.

Current sources of supply systematically unable to keep up with demand

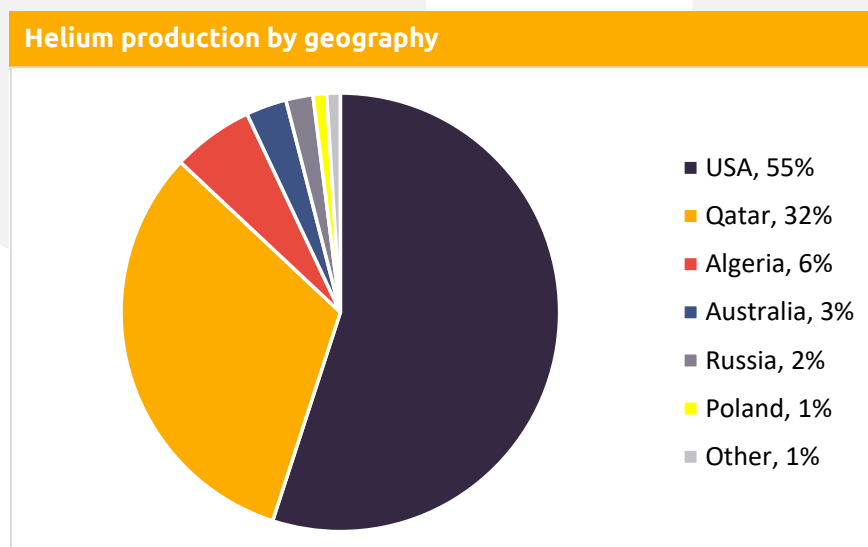
The following chart shows the growing imbalance of global supply versus demand for helium, according to the US Geological Survey.



Source: US Geological Survey

Other than via successful exploration and development, there is no obvious solution for finding a major additional source of helium.

The following chart shows the current production of helium by geography.



Source: Helium One

Qatar produces helium as a by-product, from very low concentrations within natural gas. There is no way of 'squeezing out' more helium from these sources. The position is similar for Algeria and Russia.

The USA, by contrast has some sources of more highly concentrated helium (>3%) which can be exploited specifically as helium projects. However, these are the exact sources which are becoming depleted in the US Geological Survey projections.

Qatar unable to raise production, USA experiencing depletion

The following chart shows the price of helium.

We have used three data sources:

Amarillo:

The US Bureau of Land Management held annual auctions at Amarillo Texas, for helium from the strategic helium reserve, up until 2019. Auctions ended because the reserve is almost depleted, with the last remaining reserves to be sold by private sale. The exhaustion of the US helium reserve has been a very significant event for the global helium market, contributing to the price spike in 2018-2019.

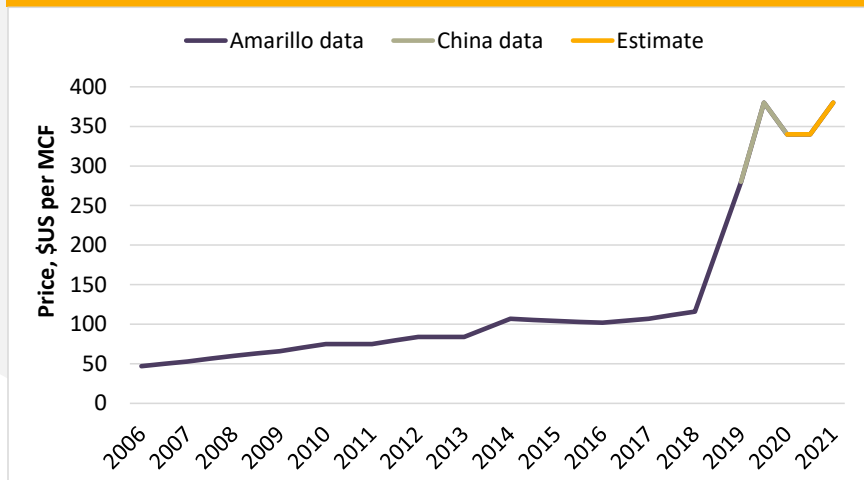
China:

We have used data from China for 2019-2020. There is also Chinese data available back to 2016, and this correlates quite closely with the Amarillo data, so we believe it is reasonable to conjoin the two data sources.

Our estimate:

There is no data available yet for the end of 2020 or for 2021 YTD. However, reports in trade journals suggest that prices have bottomed and begun to recover.

Helium price



Source: Proactive Research, various sources

The price has been on an upward trend for a decade. In 2018-2019 the price spiked significantly. We attribute this price move to:

1. Diminishing incremental supply from the US
2. Demand growth from high-tech applications, especially medical
3. Some degree of risk premium around Qatari supply, based on geopolitical tensions

We believe that an overall upward price trend is a reasonable expectation for the next decade.

Where does Georgina Energy fit into the helium market

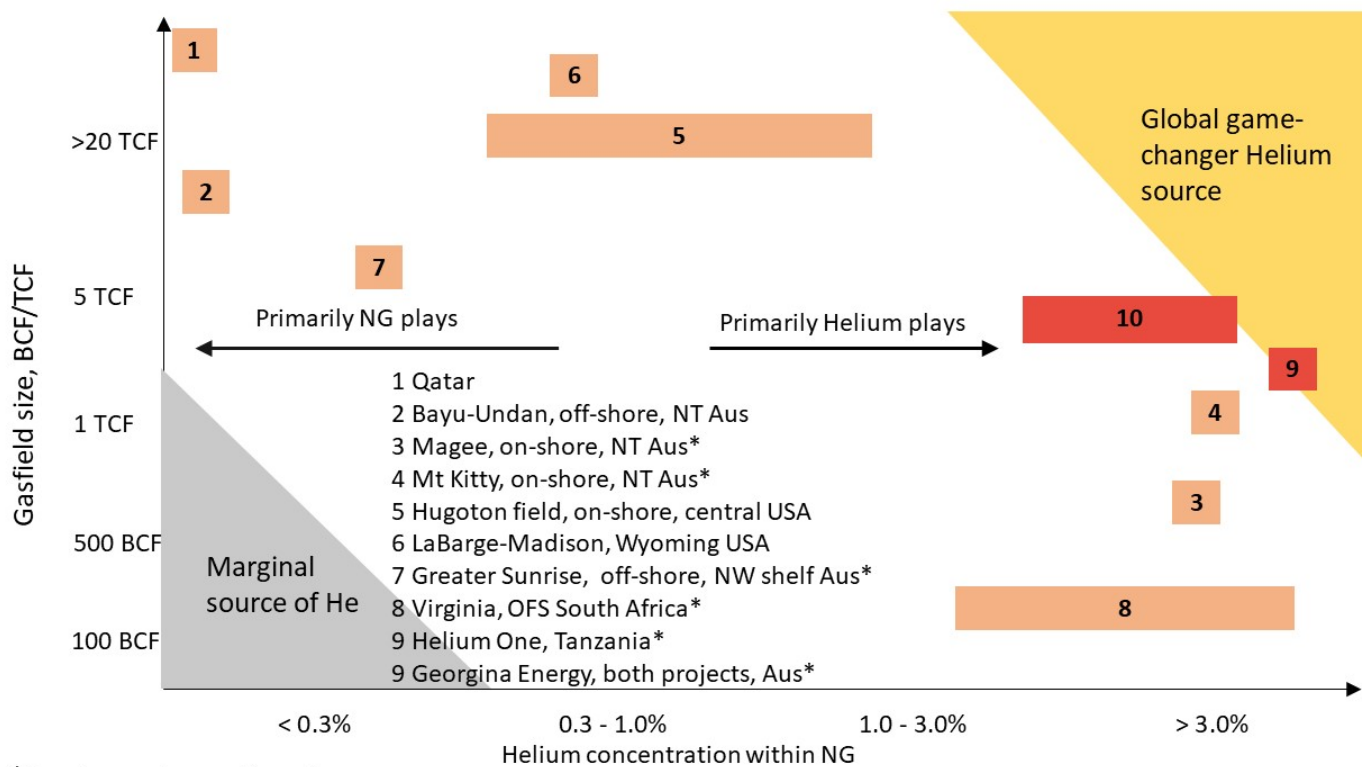
Helium extraction projects fall into two categories (and a spectrum of projects in between):

- Predominantly natural gas LNG extraction industry , with helium as a by-product, occurring at typical concentrations of 0.3% or less
- Naturally occurring gaseous hydrocarbon reservoirs , with helium concentrations of 3.0% or higher, often found in subsalt reservoirs due to the excellent sealing qualities of deep saline sequences forming a plastic relatively impermeable barrier to the upward migration of helium.

Drivers of the supply squeeze remain in place

The following diagram shows some of the major helium projects globally.

Selected major helium producers



Source: Georgina Energy and industry sources *Levels as yet unconfirmed

We have highlighted in red two helium programmes – the Georgina Energy projects in Australia, and the Helium One development in Tanzania. These are the leading helium primary plays in development in the world today.

The two Georgina Energy projects have combined potential helium resources of P50 180 BCF (P50 is a gas industry term indicating a 'middle case' estimate). This volume of helium has an in-situ value of around US\$50bn at a price of US\$280 per MCF. Based on these figures the Georgina projects have potential to become a globally important source of helium.

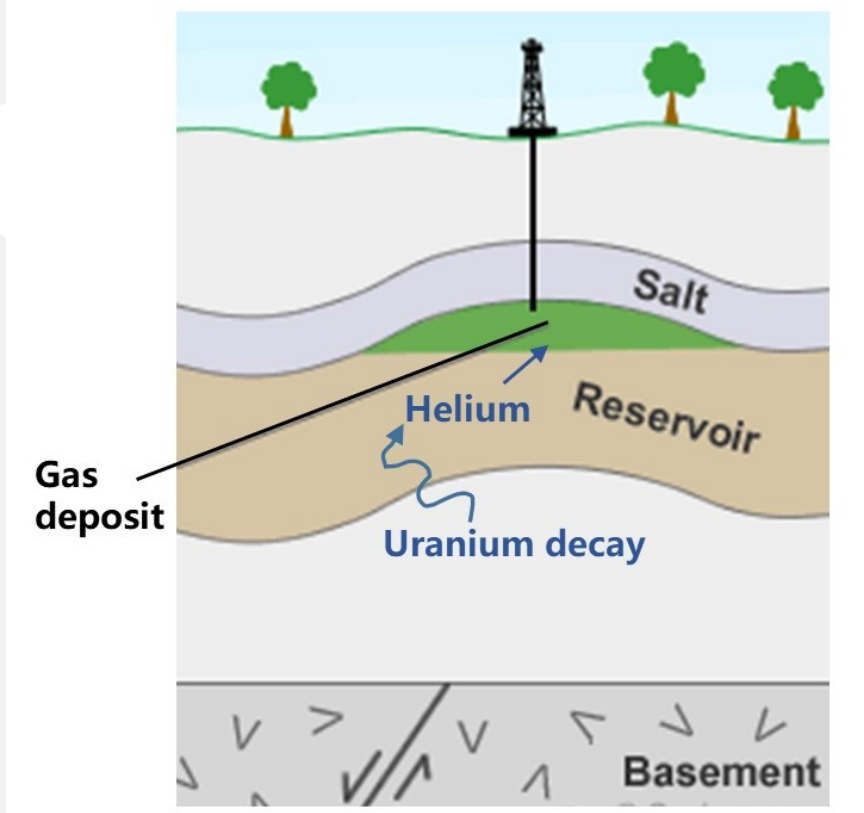
The two projects

Georgina Energy has two projects underway which offer strong potential for commercial helium development – the SPA HUSSAR project in the Officer Basin formation in Western Australia, and the EP155 Mt. Winter Project in the Amadeus Basin formation in the Northern Territories.

Both of these lie within a wider formation called the Centralian Superbasin, which hosts one of the most promising formation sequences globally in terms of the necessary ingredients for helium to be formed and retained. Terrestrial helium formation occurs predominantly via the radioactive decay of elements such as uranium. Helium itself is not radioactive and cannot become radioactive. If an impervious “sealing” layer exists above the uranium, usually a layer of salt, then helium can collect within gas deposits beneath this salt layer. The following diagram illustrates this concept. Salt becomes plastic with increasing depth, so much so that it will prevent the upward migration of very mobile helium (and hydrocarbon) gas in a similar manner to a self sealing fuel tank found in some fighter aircraft. Wherever drilled to sufficient depth and/or interpreted by

seismic and other geophysical methods the Centralian Superbasin incorporating the Officer and Amadeus Basin features a thick Neoproterozoic salt sealing horizon over a clastic hydrocarbon and helium reservoir.

Formation of helium deposits



Source: Proactive Research

These key elements are present in both of the Georgina Energy projects. Furthermore, past drilling at two sites within the Amadeus Basin (same basin as Mt. Winter EP155) has revealed Helium concentrations of 6-9%, far higher than most other helium sources which are currently being exploited globally.

SPA HUSSAR

Within the Officer Basin in Western Australia, through its wholly owned subsidiary Westmarket Oil & Gas, Georgina Energy holds a property consisting of 46 full sized 5' X 5' graticular blocks each of c.80 square kms, ie 4,000 square km, which collectively form the SPA HUSSAR project. The property contains the Hussar 1 well which was drilled in 1982, but did not go below the Townsend sub-salt horizon which contains the potential helium. Via re-entry and deepening, the existing well offers a potential initial route for new deeper subsalt exploration. Mapped seismic closure of the targeted subsalt horizon is some 200 square km or 50,000 acres.

Key aspects of the SPA HUSSAR property include:

- Independent consultants have identified the necessary elements for the formation of substantial helium, and potential charged structures to host 105 BCFG of helium at P50. This volume of helium has an in-situ value of US \$29bn at a price of US\$280 per MCF.
- Additionally, potentially around 4.2 TCFG of P50 recoverable natural gas.

Strong evidence for helium presence, based on geology and on historical drilling

Potential for helium, hydrocarbons, and hydrogen at SPA HUSSAR

- And also potentially around 500 BCFG of hydrogen, which is less valuable than helium but which could offer an additional revenue stream.

Georgina Energy intends, on completing its work programme, to convert the SPA HUSSAR to an Exploration Permit to develop the licence and to focus on the helium potential.

EP155 – Mt. Winter

In the Amadeus Basin in the Northern Territory, Westmarket Oil & Gas (100% owned subsidiary) holds a Farm-in with Mosman Oil & Gas to earn up to 90% interest, with management control, in the EP155 property at Mt. Winter, a project area covering c.230,000 acres. A pre-existing well has been drilled to a depth of 2,650m but has not yet been extended deep enough to penetrate the sub-salt helium horizon.

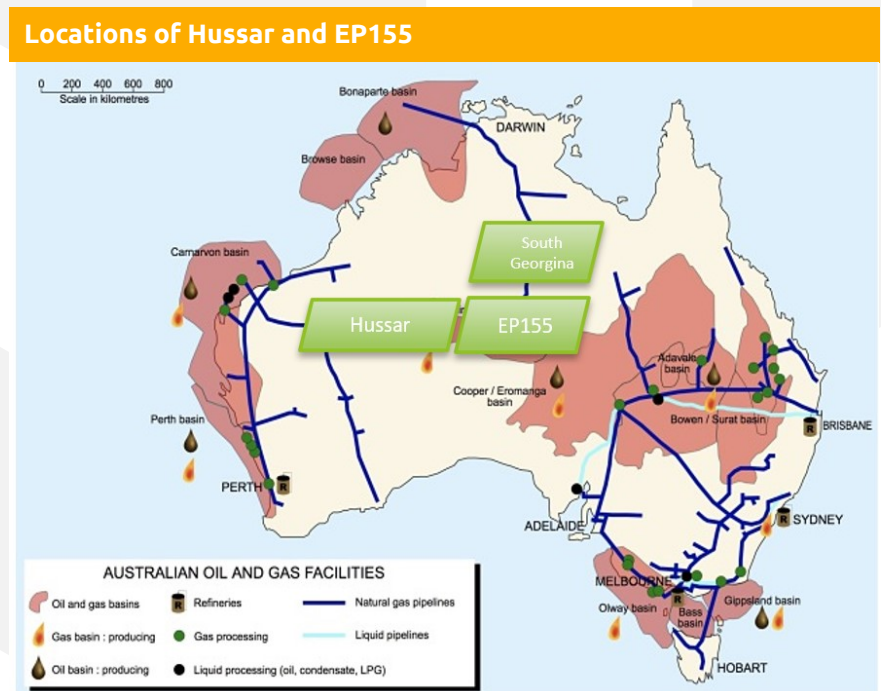
Key aspects of the property include:

- Independent consultants have identified the necessary elements for the formation of substantial helium, and potential charged structures to host 75 BCFG of helium at P50. This volume of helium has an in-situ value of US\$21bn at a price of US\$280 per MCF.
- Additionally, potentially around 1.5 TCFG of P50 recoverable hydrocarbons.
- Around 165 BCFG of hydrogen may also be present, which could offer an additional revenue stream.
- Mapped seismically defined structural closure in the Mt Winter prospect hosted by EP 155 has been evaluated totalling some 3,200 acres.

Georgina Energy has an initial programme to complete seismic studies and then re-enter and deepen the existing well to develop the subsalt helium (and potentially hydrogen) resources.

Commercialisation

Both properties are situated within reach of existing infrastructure which could help support the route to commercialisation. The following map illustrates the locations.



Source: Georgina Energy

Potential for helium, hydrocarbons, and hydrogen at Mt. Winter

Good geographic location - infrastructure, labour, supportive state governments

A potential roadmap for commercialisation is summarised as follows :

- Helium would be refined in a gas separation plant on site, to A grade liquid helium of at least 99.995% purity. This requires relatively modest onsite infrastructure utilising co-produced gaseous hydrocarbons as an energy source for the helium extraction and liquefaction plant. We believe that the modular helium plant could potentially be financed by the customer in any off-take agreement.
- The refined helium can they be trucked by road and/or rail in cryogenic containers to port or other distribution centres.

The potential helium reserves exist in association with natural gas, which would be marketed separately from the helium. In the case of a modest to medium sized gas reserve, the natural gas separated from the helium would be used for onsite power generation. In a larger find, natural gas would be sold into the market, which could be achieved, for example, by a connection to the pipeline network.

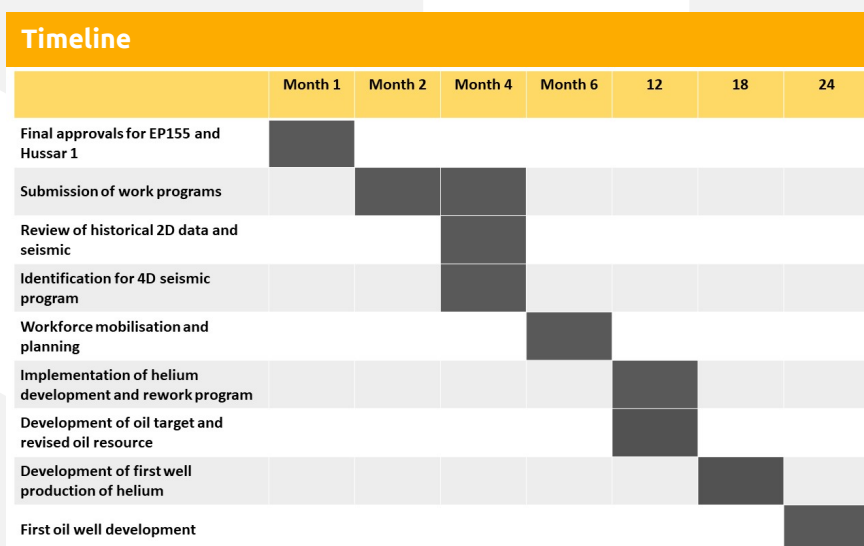
The Northern Territory, in particular, has some additional advantages as a location:

- Local availability of specialised labour
- Local presence of underutilised or unutilised equipment
- Potential to benefit from development incentives from the state government.

Timeline

In order to advance the two projects to their next stages, Georgina Energy will seek to raise capital via an IPO, listing on the Standard board of the LSE in Q3 2021. The IPO will target a minimum capital raise of £5.0m, which will be used to develop the projects.

The following diagram shows a timeline for the project through to full commercial production, based on the minimum capital raise of £5m. In the event that more than £5mln is raised through the IPO process, then the development process would be accelerated.



Source: Georgina Energy

Our understanding is that the capital raised at the IPO will be sufficient to bring the first helium to the surface. We note that this represents a small capital investment compared with drilling on a 'virgin' site, as both sites can utilise existing wellheads from the earlier drilling projects on the properties.

We believe that customer offtake agreements could be in place 12-18 months after the capital raise.

We argue that this ambitious timeline offers an attractive pathway towards shareholder value creation, with share price upside potential at each major milestone.

The Board of Directors

The management team that will deliver on this strategy brings a breadth of experience across the commercial, technical and financial aspects of the business. The following summarises some of the key personnel.

Anthony Hamilton, Executive Director

Mr Hamilton is Managing Partner of Westmarket Capital Plc, and is a Fellow of the Institute of Directors in London. He is an accountant by profession with over 35 years of experience, from investment advisory to Oil & Gas, exploration and production of gold, diamonds, base metals and property development.

He was previously CEO of an oil & gas company in South Texas, USA, raising US \$55mln for the refurbishment and re-established of operations producing 28,000 MCFPD of gas running both onshore and offshore operations.

Mark Wallace, Executive Director

Mr. Wallace is Managing Partner of Westmarket Capital Plc, and holds a Bachelor of Economics and Accounting. He is a Chartered Accountant and has over 25 years expertise in the global financial markets having held positions with firms including Standard Chartered Capital Markets, Cantor Fitzgerald and Credit Lyonnais in London and NatWest Capital Markets in Sydney.

He has significant experience and expertise in funding for the development of production and operational assets across numerous commodities and extensive knowledge of the off-take markets.

John Heugh, Technical Director

Mr. Heugh has extensive experience in oil and gas exploration management, geology, including wellsite geology, project generation, operations geology and engineering support. He was the founding Director and MD for 15 years of Central Petroleum Ltd., the biggest acreage holder in Australia of prime petroleum exploration and appraisal ground (70 million acres). He also has extensive helium exploration and target identification expertise.

He was previously Founding Director and Executive Vice-Chairman PetroAfrique Oil & Gas Ltd, and Founding Director and Executive Chairman of Gryphon Mining & Energy Melanesia Pty Ltd, raising over US\$100 million for exploration, initial development and discovery.

Mr. Heugh has orchestrated over \$500 million of JV expenditure potential, and discovered over one trillion tons of coal, a 300 km² tight gas sand prospect, and generated the first horizontal well onshore in Australia, delivering commercial oil to surface. He also pioneered the promotion of unconventional (shale gas and oil) in Australia in 2007.

Potential value

It is too early to produce a definitive valuation for the two helium projects. However, there are a number of useful datapoints we can use as a framework:

- Combined total of 180 BCF of P50 helium
- Latest helium auction price US\$280 per MCF
- We believe Georgina Energy could achieve an extraction cost of US\$80 per MCF

Based on these assumptions one can arrive at the following outline forecasts for profit and cash flow.

Profitability and cash flow increasing over first 5 years and continuing

P&L outlook

Year	Yr 5	Yr 10
Well 1 production, million cubic feet	360	600
Well 2 production, million cubic feet	360	600
Total, million cubic feet	720	1,200
Revenue (£mln)	145	242
EBITDA (£mln)	96	167
Other cash (£mln)	-20	-30
Net cash flow (£mln)	77	137

Source: Georgina Energy

If we assume that commercial extraction begins 18 months after the IPO, and we generate a discounted cashflow from that point in time, with a discount rate of 12%, we arrive at a Net Present Value of £284mln. The following table shows the sensitivity of this NPV calculation to changes in discount rate or helium price.

Net Present Value central case of £284mln based on 12% discount rate

Net Present Value of the potential helium resource - output in £mln

Discount factor		Helium price (\$US/MFC)					
		70	140	210	280	350	420
		8.0%	-45.6	92.0	249.5	389.6	572.1
10.0%	-40.1	77.1	213.1	332.2	491.8	631.1	
12.0%	-35.4	64.5	182.4	284.0	424.1	545.0	
14.0%	-31.3	57.0	156.6	243.5	366.9	472.1	

Source: Proactive Research

These figures do not take into account the additional potential value from hydrocarbon extraction (oil and gas) or from potential hydrogen resources.

Georgina Energy would become one of only two primary helium plays listed globally

Market comparator – Helium One

We note that there is a market analogue for Georgina Energy in the form of Helium One Global, which achieved an AIM market listing in December 2020. The shares have gained 198% in the months since the listing, and now has a market cap of £95mln. We make the following comparisons between the two companies:

- Helium One operates in Tanzania, while Georgina Energy will operate in Australia. We believe that Georgina Energy may benefit from a more well-defined regulatory regime based on the jurisdiction.
- Helium One has greater volumes of potential natural gas resources on its properties compared with Georgina Energy, but is not thought to have hydrogen potential which could be an additional revenue stream for Georgina.

We believe that the two companies are the only listed primary helium plays globally, and that both have access to potentially globally important sources of helium.

Conclusion

We believe that Georgina Energy offers investors a unique opportunity to gain exposure to the ongoing helium supply squeeze as well as the potential to exploit naturally occurring hydrogen resources as a valuable adjunct. The business plan offers strong profitability, modest capital requirement, and a fast transition to positive cashflow. We argue that investors stand to benefit from substantial valuation upside if commercial volumes of helium are confirmed.

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