



**RENERGEN**

FUTURE ENERGY, TODAY

# Investor Update

Emerging natural gas  
and helium producer

Aug 2020

# Overview



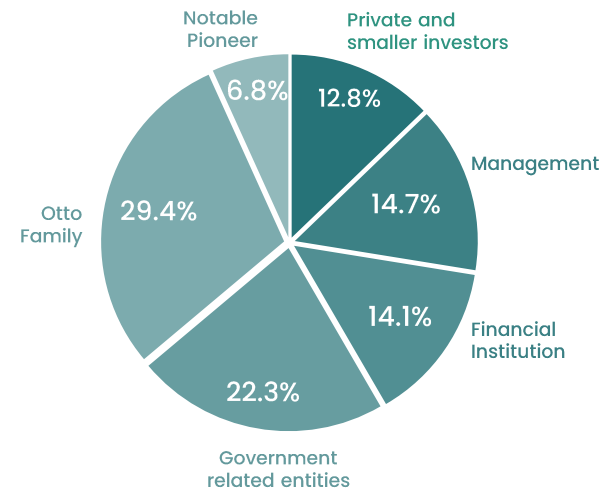
- Founded in 2014 & listed on the **JSE Alternate Exchange (Alt<sup>x</sup>)** in 2015, and ASX in 2019
- Sole asset is its 100% shareholding in Tetra4 which holds the **first and currently only, onshore petroleum production right** in South Africa (**Virginia Gas Project**)
  - located in the Free State, about 250 km southwest of Johannesburg
  - first-mover advantage on domestic distribution of natural gas
  - gas fields are situated in an energy scarce area, with high customer density and limited competition
- Business focus is on the commercialisation of the Virginia Gas Project – significant **proven reserve estimates of both helium and natural gas**
  - average helium concentration of 3.4% with newest discovery containing up to 12% helium
  - purity of natural gas is also high (over 90% methane in original wells) with almost zero higher alkanes
  - currently has 12 wells which are production ready
- Started **producing compressed natural gas** which contains high concentrations of Helium in May 2016
  - current plant services buses in the region owned and operated by a large listed logistics company, KAP Industrial Limited, through its subsidiary **Megabus**
- Signed joint-marketing agreement with **Total** for distribution of LNG along the N3
  - Signed off-take agreements with **AB-InBev, Black Knight Logistics, BHIT and KAP Industrial**

# Company Structure and Shareholding

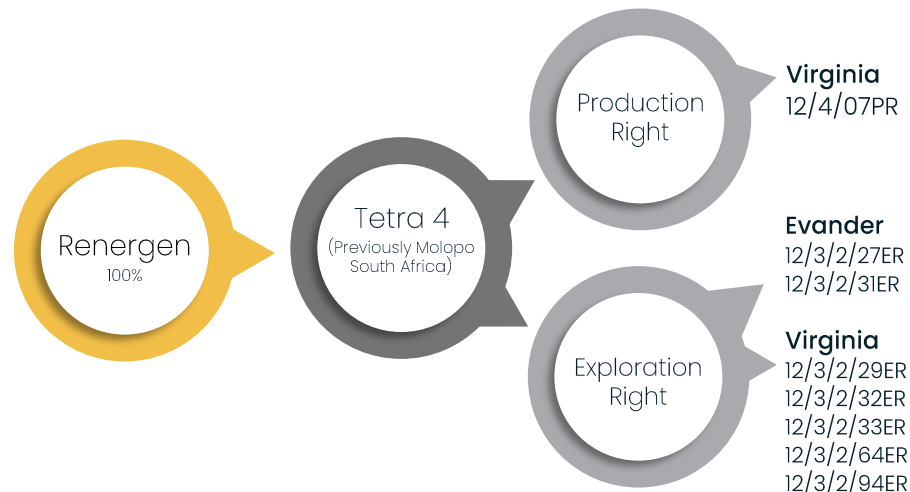
## Capital Structure at 30 July 2020

Share Price	A\$1.20/R14.60
Shares on issue	~117.5M
Options on issue	~6.1M
Market capitalisation	~A\$141M/R1.7B
Debt	interest free loan NPV ZAR39M undrawn OPIC loan of US\$7.5M drawn OPIC loan of US\$32.5M

## Shareholding as at 28 February 2020



- Coverage report prepared by MST Access dated 28 January 2020 values Renergen at **A\$2.12/share equivalent**
- Coverage report prepared by Edison Investment Research dated 30 January 2020 values Renergen at **A\$2.39/share equivalent**





# Management & Board



**Stefano Marani**  
**CEO**

B.Sc Actuarial Hons with +15 years experience working in structured finance for institutions including Deutsche Bank and Morgan Stanley. Instrumental in the acquisition of Tetra4 and founding shareholder in Renergen.



**Nick Mitchell**  
**COO**

Experienced Network Engineer with experience in developing infrastructure projects in Africa. Instrumental in the acquisition of Tetra4 and is the current Chairman of the Onshore Petroleum Association of South Africa (ONPASA).



**Fulu Ravele**  
**CFO**

Chartered Account with +10 years experience working for institutions including Deloitte and Barclays Capital.



**Brett Kimber**  
**Chairman**

Senior executive with +25 years experience working for the Anglo American, Linde Group and Aliaxas Group. Honours in both Mineral Economics and geochemistry. Brett is currently the Managing Director of Eazi Access Group.



**Francois Olivier**  
**Non-Executive Director**

Francois Olivier is a portfolio manager and executive committee member at Mazi Asset Management. He has 19 years of investment research and portfolio management experience, the first seven of which were spent in the USA.



**David King**  
**Non-Executive Director Australia**

Dr King was a founder and director of Sapex Ltd, Gas2Grid Ltd and Eastern Star Gas Ltd. He has substantial natural resource related experience, having previously served as managing director of North Flinders Mines Ltd and CEO of Beach Petroleum and Claremont Petroleum.



**Bane Maleke**  
**Non-Executive Director**

20 years in senior management at the Development Bank of South Africa and held the position of Regional Executive for the SADC and East Africa Regions.



**Mbali Swana**  
**Non-Executive Director**

Mbali is the chief executive officer of Prop5 Corporation Proprietary Limited, a turnkey built environment infrastructure and engineered products developer which he founded in 1986.



**Luigi Matteucci**  
**Non-Executive Director**

Experienced executive who actively consults on strategic and business development initiatives in the mining and engineering field.

## Executive Summary



Gas producer in SA  
with helium & LNG  
production in 2021



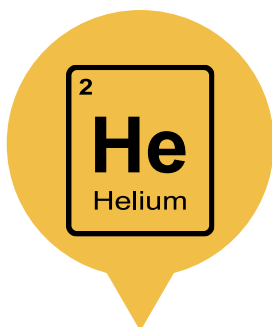
Exposure to helium on  
the ASX



Experienced team with  
material ownership



Significant gas and  
helium reserves



Helium is a rare  
element without  
substitutes



Strong helium  
demand & supply  
fundamentals



Helium prices have  
gone up 460% in the  
last 11 years



Helium concentrations  
up to 20x the global  
average



# **The Resource**

# Reserves & Resources – Virginia Project

Reserves	Total Proved (1P)	Probable	Proved + Probable (2P)	Possible	Proved + Probable + Possible (3P)
Methane (BCF)	40.76	98.23	138.99	145.18	284.18
Helium (BCF)	1.01	2.39	3.41	3.45	6.86

~7bn diesel  
litre equivalent

Contingent Resources	Low Case (C1)	Best Case (C2)	High case (C3)
Methane (BCF)	237.3	435.9	648.5
Helium (BCF)	7.9	14.4	20.9

~16bn diesel  
litre equivalent

Prospective Resources	Low Case	Best Case	High case
Methane (BCF)	640	1,278	2,069
Helium (BCF)	32.5	106.3	344.2

~47bn diesel  
litre equivalent

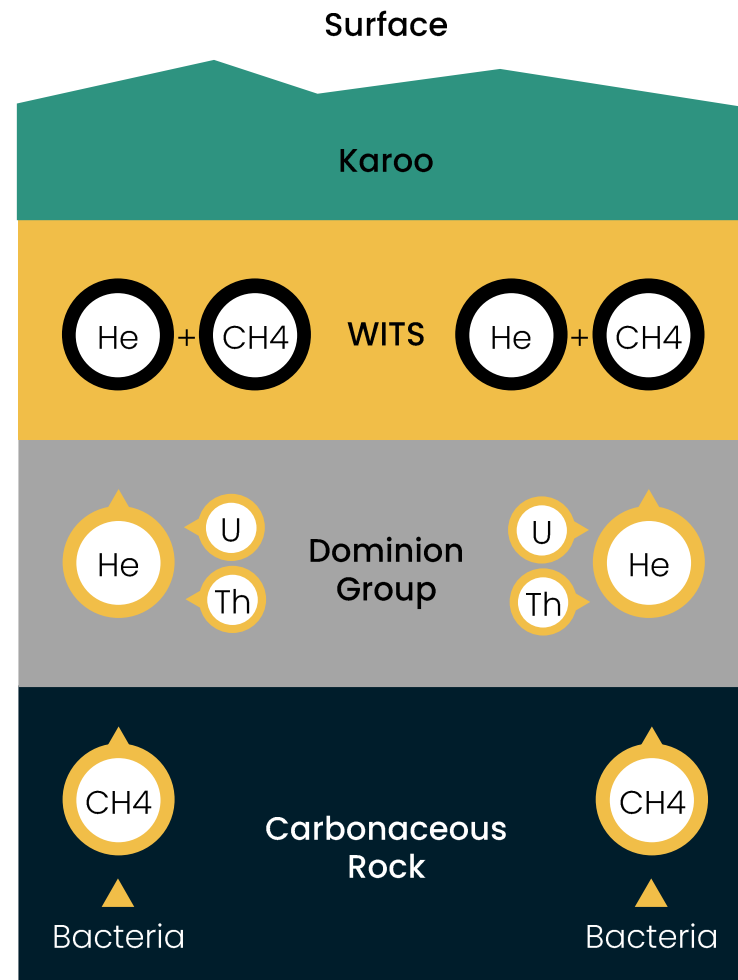
Methane Reserves, Contingent Resources and Prospective Resources, and helium Reserves and Contingent Resources: <https://www.renergen.co.za/mha-final-report/>  
Helium Prospective Resources as estimated by Sproule: <https://www.renergen.co.za/sproule-evaluation-of-certain-helium-prospective-resources-on-the-tetra4-virginia-gas-project-july-2020/>



# Why is the Gas There?



Meteor trapped heavy metals in the crater







# Helium Overview

# Helium Uses – “Irreplaceable without Substitutes”

## Helium uses

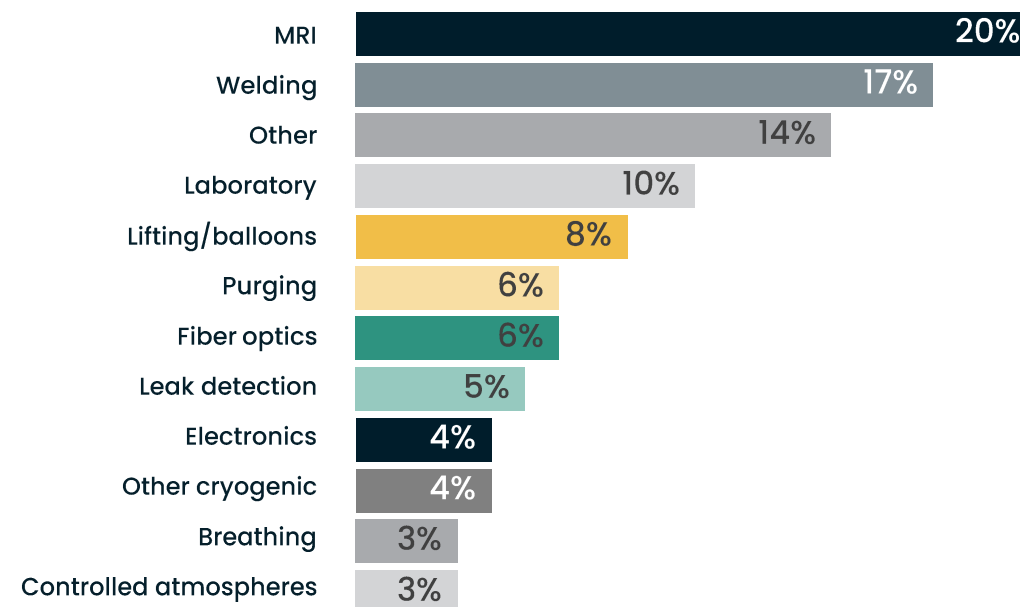
Helium is a vital and irreplaceable element in many modern industries

## Why is helium important?

- Helium is a rare commodity
- Helium becomes economically viable to extract from natural gas at concentrations as low as 0.1%
- The Virginia Gas Project’s average concentration of helium is 3.4%
- Tetra4 is placed at the forefront of exciting new discoveries for global helium supply

## The properties of helium

Helium is best known for being lighter than air, but it actually has many unique qualities that make it important for applications in technology.



**Inert**  
Doesn't react chemically with other elements



**Non-toxic**  
It's colourless, odorless and tasteless



**Lighter than air**  
Ability to lift and/or float



**Boiling point – 268.9°C**  
Does not solidify at atmospheric pressure



**Superfluid**  
The only substance with no viscosity in liquid form making it critical in use for high energy physics

# Helium Uses – “Strong Supply & Demand Dynamics”

## Key Considerations

### Demand

- Estimates vary but annual usage is 6-7BCF (28m - 32m kg) worth \$US6bn
- US is the largest user of helium, accounting for 41% of current global demand
- Increased penetration of MRI in emerging markets
- Growth in electronics, semiconductors, LCD and fibre optics mainly from South East Asia

### Supply

- USA is the world's leading helium supplier with ~ 55% share of global supply in 2016, followed by Qatar with ~32% (Source: USGS)
- Qatar and Russia have been unreliable sources of helium supply
- Blockade of Qatar has reduced world supply and impacted price
- Supply is diminishing with the US Bureau of Land Management having announced a permanent shut down with the last auction having occurred in August 2018
- Hugoton field winding down, with production forecast < 500 MMSCF per annum

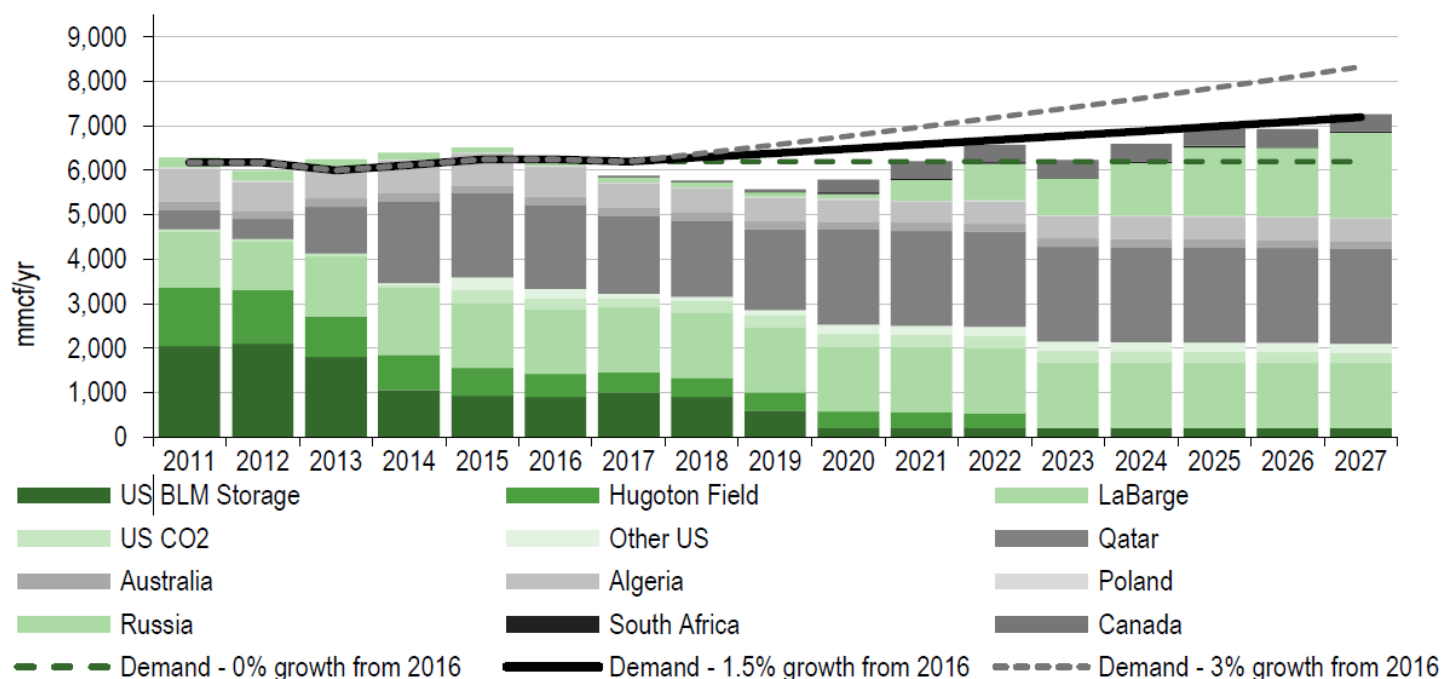
### Key Future Catalysts

- Space agencies (China, India, SpaceX)
- According to Deloitte's 2019 report "Global health care outlook", the number of private hospitals in China doubled to 18,759 from 2011 to 2017 which represents a compound growth of over 12% in the private health care sector alone
- The world's only primary helium supply, the USA Federal reserve goes offline to the public sector in 2021, due to depletion
- Qatar's supply remains volatile given the situation in the Middle East



# Global Helium Supply & Demand

Global supply and forecast, Edison Investment Research  
compiled November 2017



Edison Global Research is of the opinion that there is likely to be a global shortage of helium supply starting in 2019 and continuing until new planned projects in Qatar and Russia come online, planned for 2020 and 2021 respectively. There is no way of manufacturing helium artificially and existing naturally occurring resources are finite.

## Recent Press in the FT

Opinion Lex + Add to myFT

### Helium: the unbearable lightness of being

Demand for electronics is growing, but more efficient MRI kit is less dependent on the noble gas



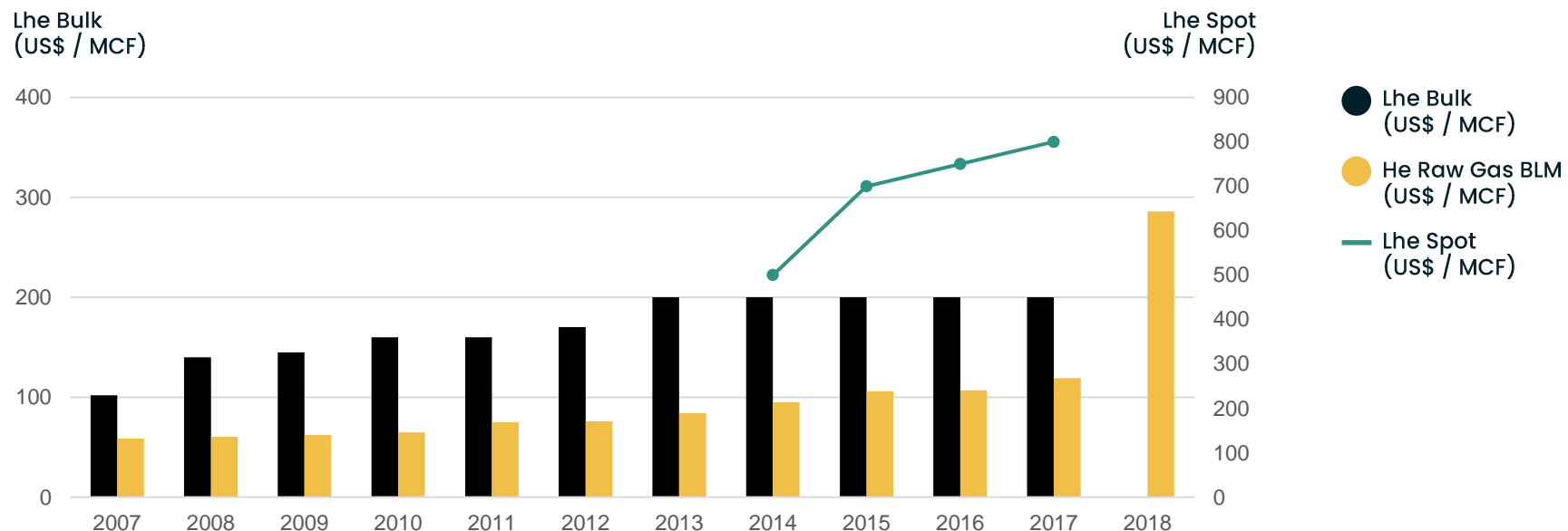
Helios, the sun god: the inert gas named after the Greek titan might well have had its moment in the sun. © De Agostini/Getty

Article speaks to declining use in MRI – only partially correct. They use less to run, but the same to manufacture. Old MRIs are being sold into the emerging markets, so that demand isn't disappearing.

Article also references Amur and its stabilisation of the helium market. This is true, but their plant turns on in 2021/22 and takes 5 years to ramp up

# Helium Price – “Significant Upswing”

## LHe Bulk & Spot Helium prices

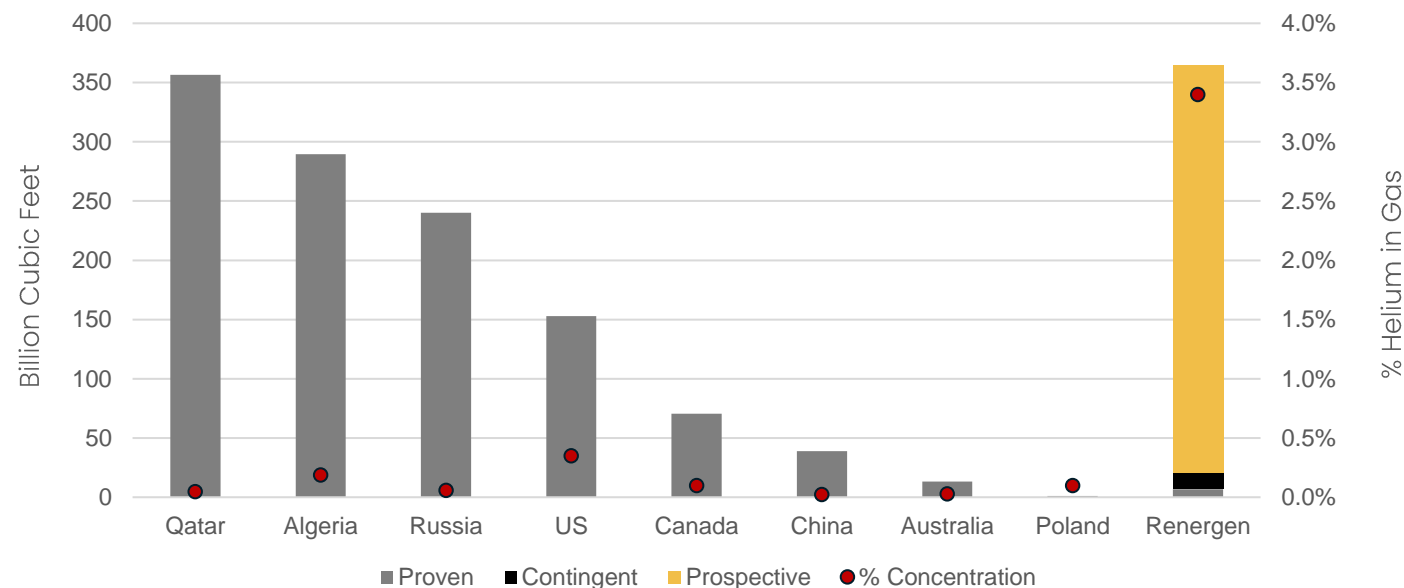


Source: Edison, USGS and BLM

- The helium BLM auction prices have increased by over 460% since 2007
- Each year the US government auctions helium from the Federal Reserve with 2018 prices ~US\$280 / MCF
- Private industry Grade-A (99.99%) helium was estimated to be selling for US\$200 / MCF in 2017, with current estimates significantly higher
- Contract based pricing with long term take or pay supply contracts with industrial companies
- It has been reported that recent private auctions attracted prices of over US\$1,000 / MCF

# Global Helium Resources

## Global Helium Resources in Billion Cubic Feet



Source: Edison, USGS and BLM

- Qatar currently has the world's highest proven Reserves with 356 BCF
- Recoverability of helium is however a function of the concentration of helium in the gas
  - To produce helium, the methane needs a market. Higher helium concentrations therefore mean less methane is required to be produced
- In many of these countries, the low concentrations of helium reduce their ability to recover the helium

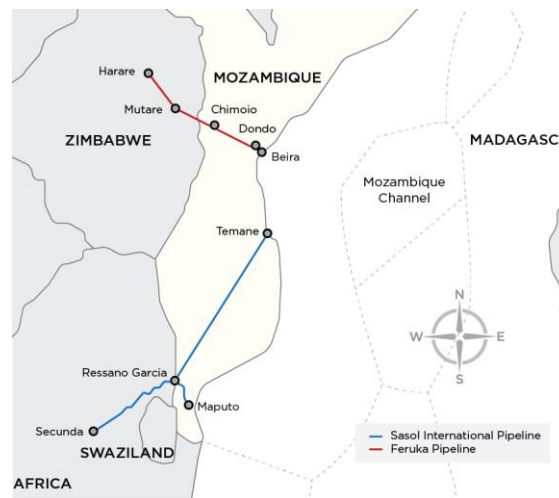




# **South African Gas Market**

# The South African Gas Market

- Natural gas is currently **imported via pipeline from Mozambique by Sasol**
- Pipeline runs to Johannesburg – **reticulated to customers** via low pressure pipeline
- Majority of imported gas is used by Sasol for its petrochemicals business
  - estimated **shortfall of gas** in Johannesburg of up to **220,000 GJ/day**
  - Industrial Gas Users Association of Southern Africa predicts **gas supply crunch imminent**, with Sasol's Mozambican field in depletion
- Pipeline natural gas sold at low pressure for ZAR 120/GJ to large users
- LPG is widely sold to **industrial customers not on the pipeline** in Johannesburg at a similar price to diesel
  - LPG in South Africa is **low quality**, being **predominantly butane**
- Estimated daily LPG consumption in SA of 10,000 barrels equivalent per day (>61,000GJ)
- ~377 090 heavy duty trucks registered in South Africa



Renergen's supply by 2023 time is estimated at >10,000 GJ/day

Less than 1% of trucking market or ~13% of the domestic LPG market

# Business Verticals – “Wellhead to Tank”

## Ownership of end user in 4 market segments

### Power generation

- Gas to power using small generators, with heat recapture for steam generation for clients
- Combined sale of heat and power yields highly competitive economics

### Industrial users

- Substitution of significantly more expensive Liquid Petroleum Gas (LPG) with natural gas
- Typically very large-scale users of energy for thermal purposes

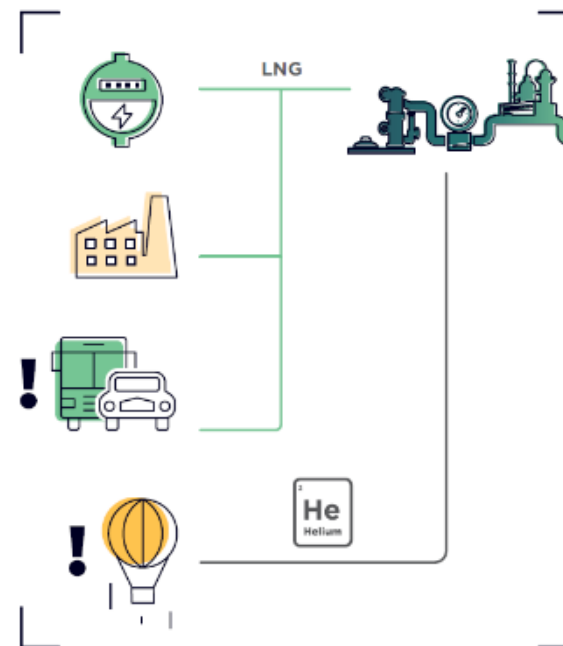
### Liquid fuel substitution

- Dual fuel applications for trucks and busses, reducing emissions and running costs
- Tetra4 will establish refilling depots in Johannesburg, Cape Town, Durban, Bloemfontein, Harrismith and Port Elizabeth

### Helium

- Significant export potential given South Africa’s strategic location
- Helium can only travel for 45 days in containers before venting payload

Vertically integrated business-  
from wellhead to tank





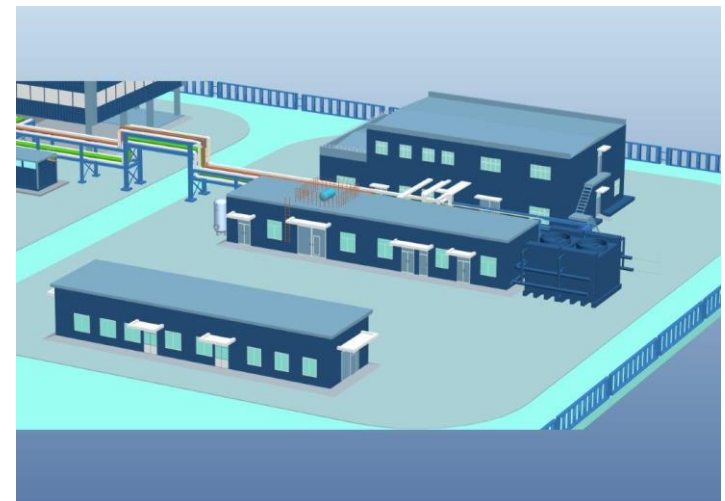
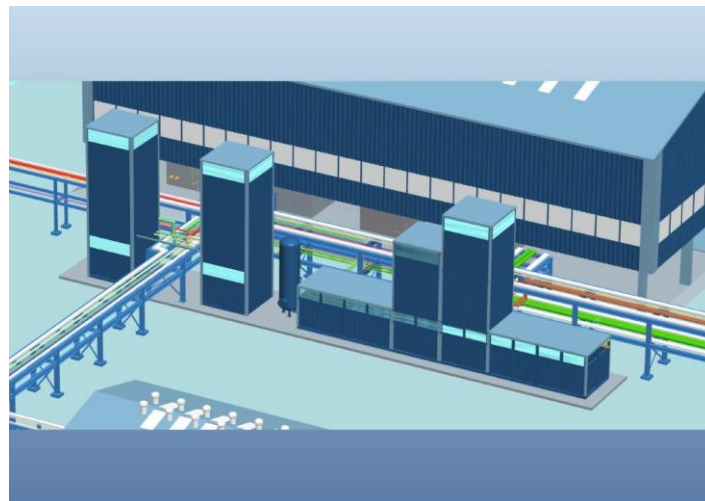
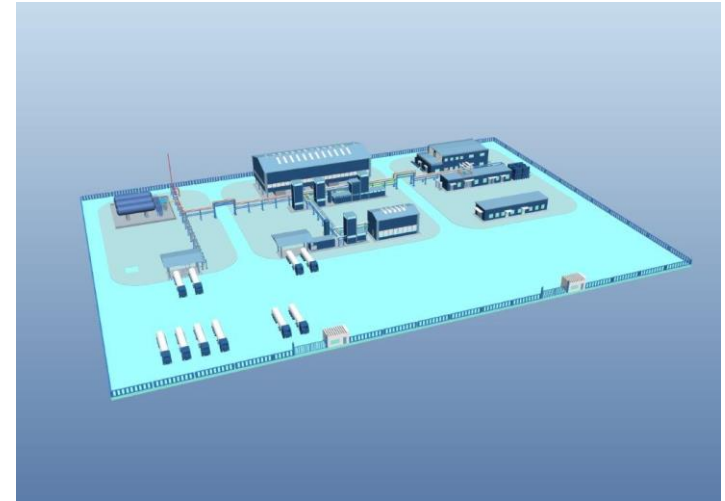
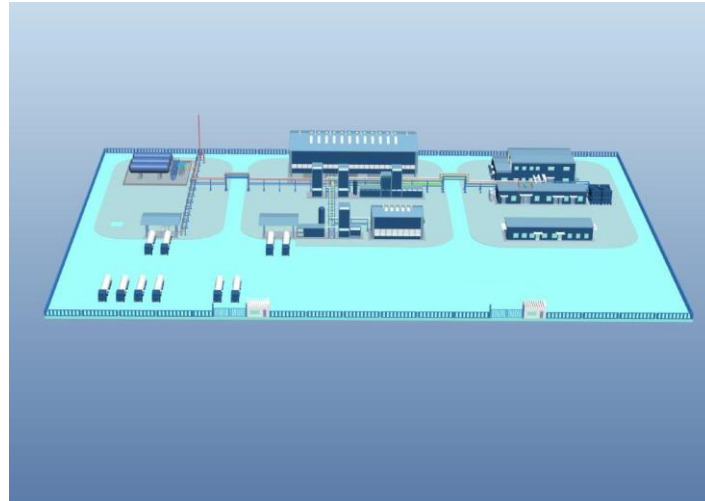


# **Operation Commencement**

## Plant After Expansion



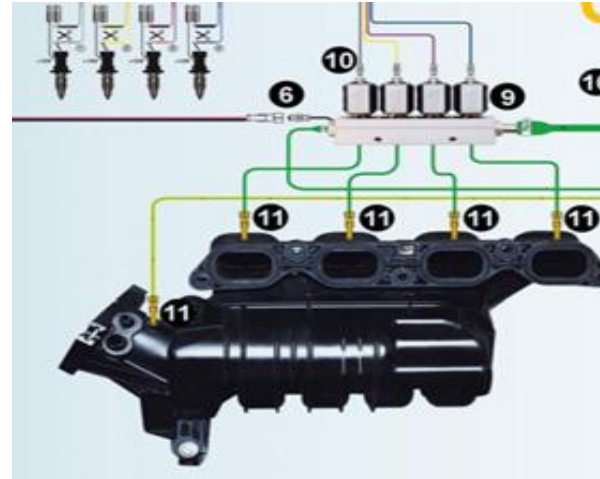
## Plant 3D Images





# LNG Vehicle Options

## Diesel Dual Fuel (DDF)



- Developed over 50 years ago and today, over 24m vehicles use NG
- 'Plug and Play' system for most trucks
- 1-2 days for installation
- Kit can be transferred from the same engine type to another
- Up to 60% diesel substitution
- Higher travel range (up to 1200 km) compared to CNG operation

## Dedicated

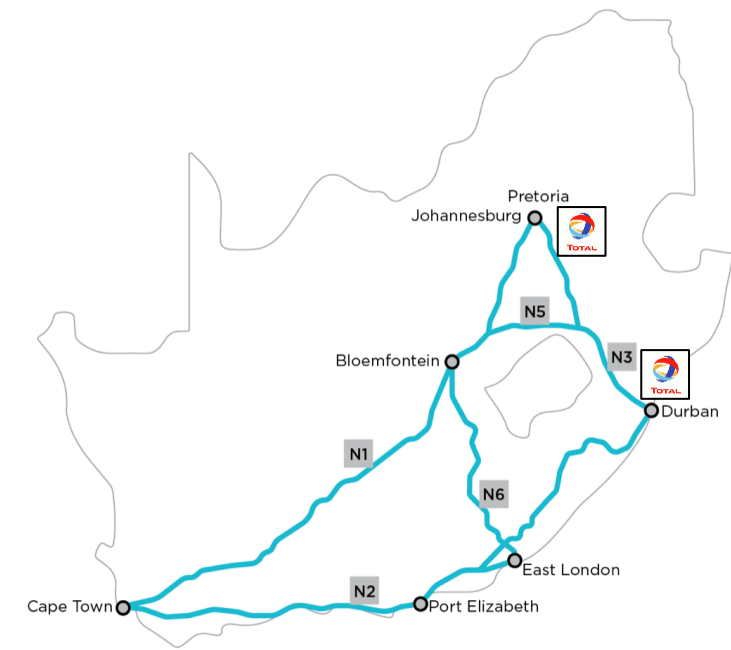
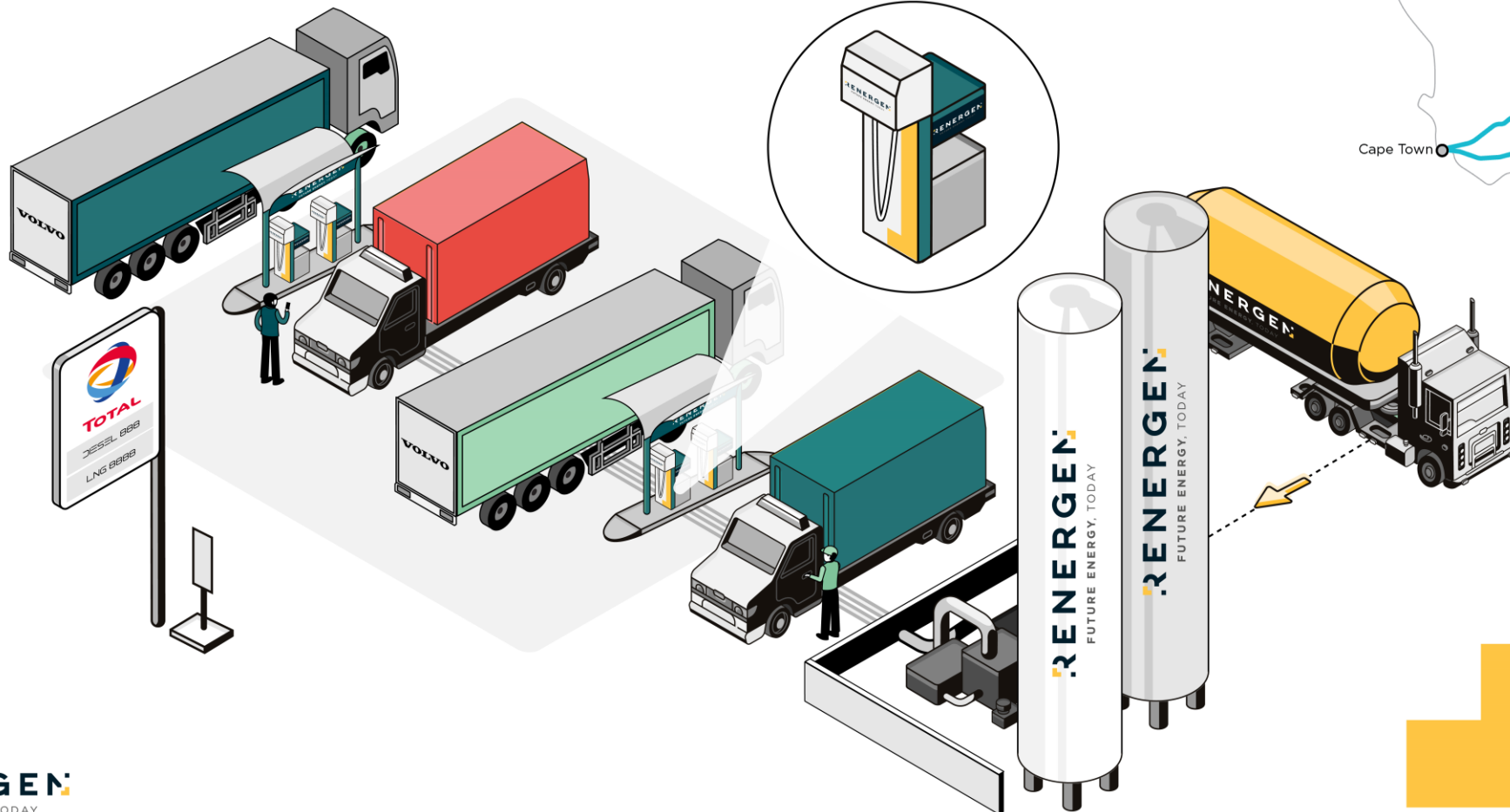


- Operate on NG only
- Same power as diesel trucks
- Low environmental emissions
- Up to 1000 km travel distance
- Lower engine noise
- Use HP Diesel Injection technology

# LNG Routes and Stations



## Artist illustration of LNG dispensing station



- The Total joint marketing agreement focuses on the N3
- The N3 joins Johannesburg and Durban, the busiest highway in the country
- The N3 alone has over 20,000 heavy trucks per day

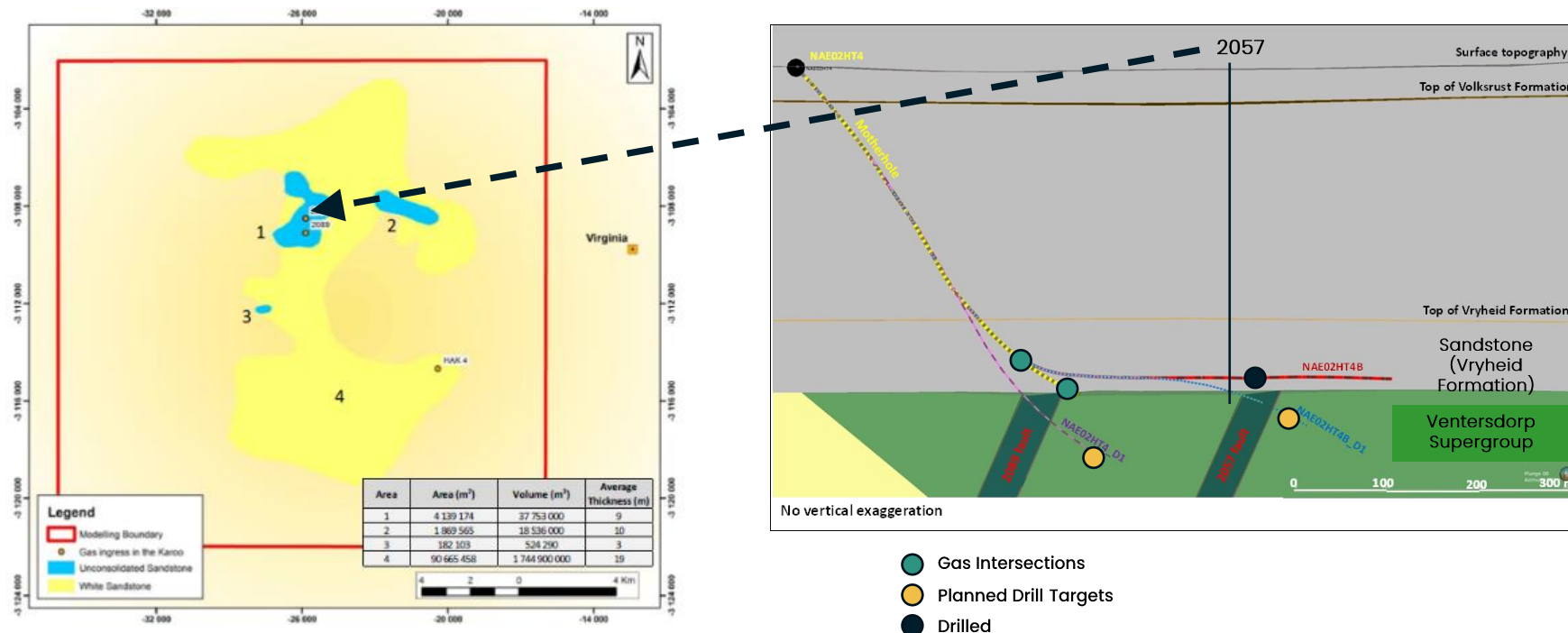


# **Drilling Plan**



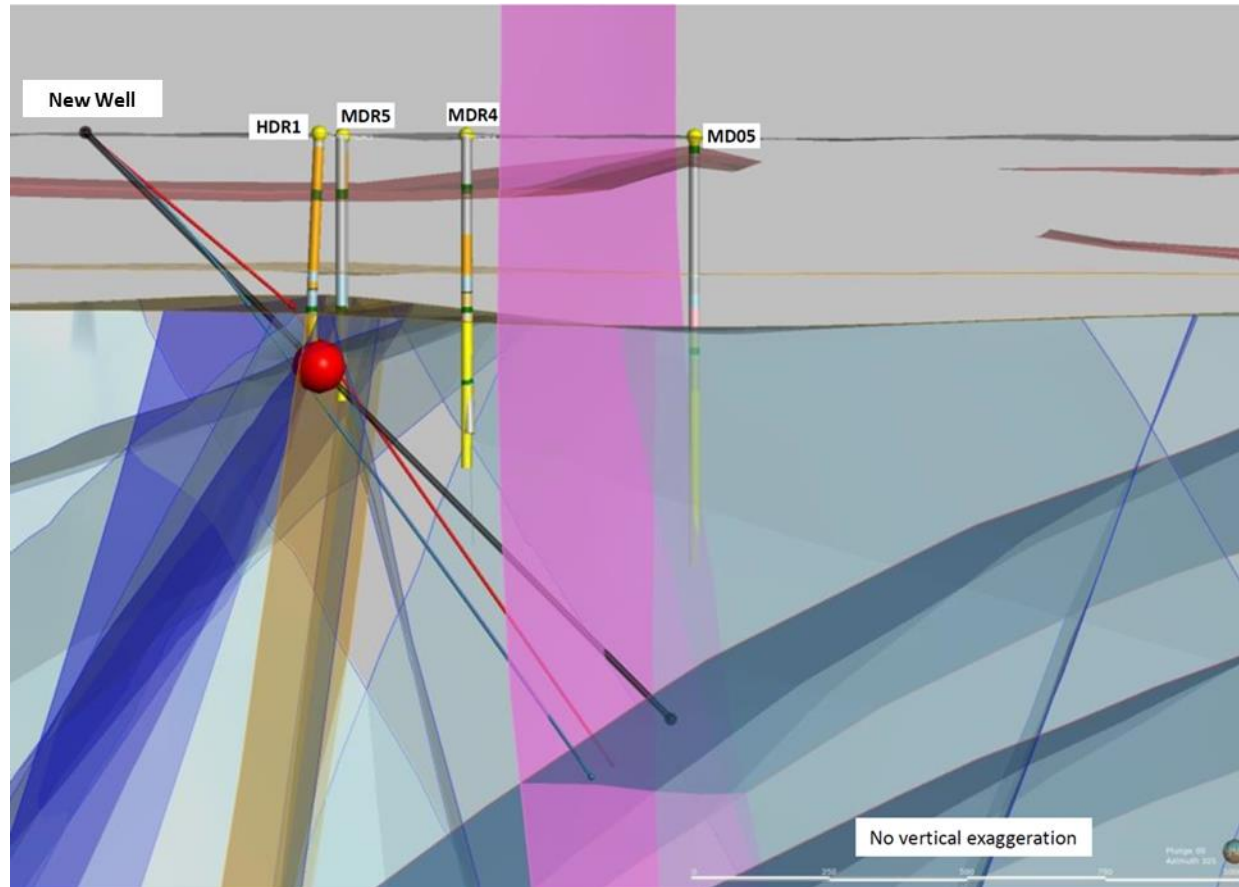
# Sandstone Drill Success

- In 2016, hole 2057 was drilled vertically and intersected 11% helium just below the Vryheid formation in the sandstone
- In October 2019 it was decided to drill a horizontal well into the sandstone around 2057 to explore the potential for high concentration helium
- December 2019 saw the discovery of 12% helium in the “motherhole” below the base of the Karoo
- The flow reached 850,000 scf/d during initial testing. Gas found originating from faults 2057 and 2089 below



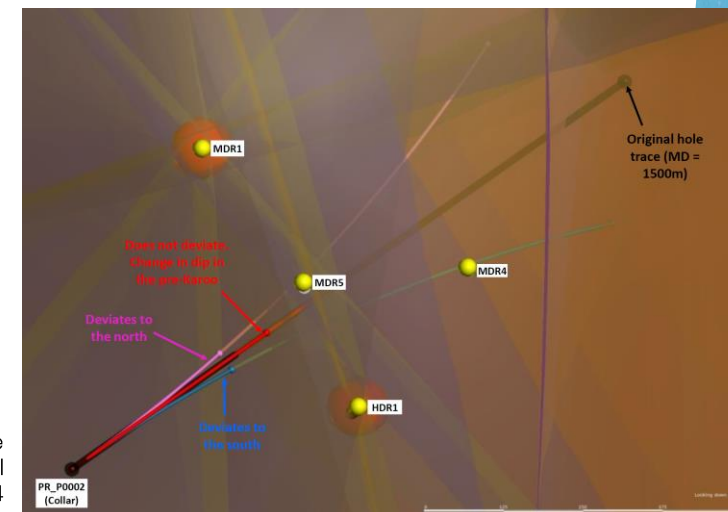


# Spudded Well



The diagram above indicates the planned well (black), with the targeted faults represented by the 2-demsional planes

- The field doesn't have a conventional reservoir, but rather gas permeating up through faults and fissures
- The announced well has now spudded, expectation is approximately 1 month to reach the base of the Karoo
- This well will prove the efficacy of drilling slanted wells to improve gas recoverability



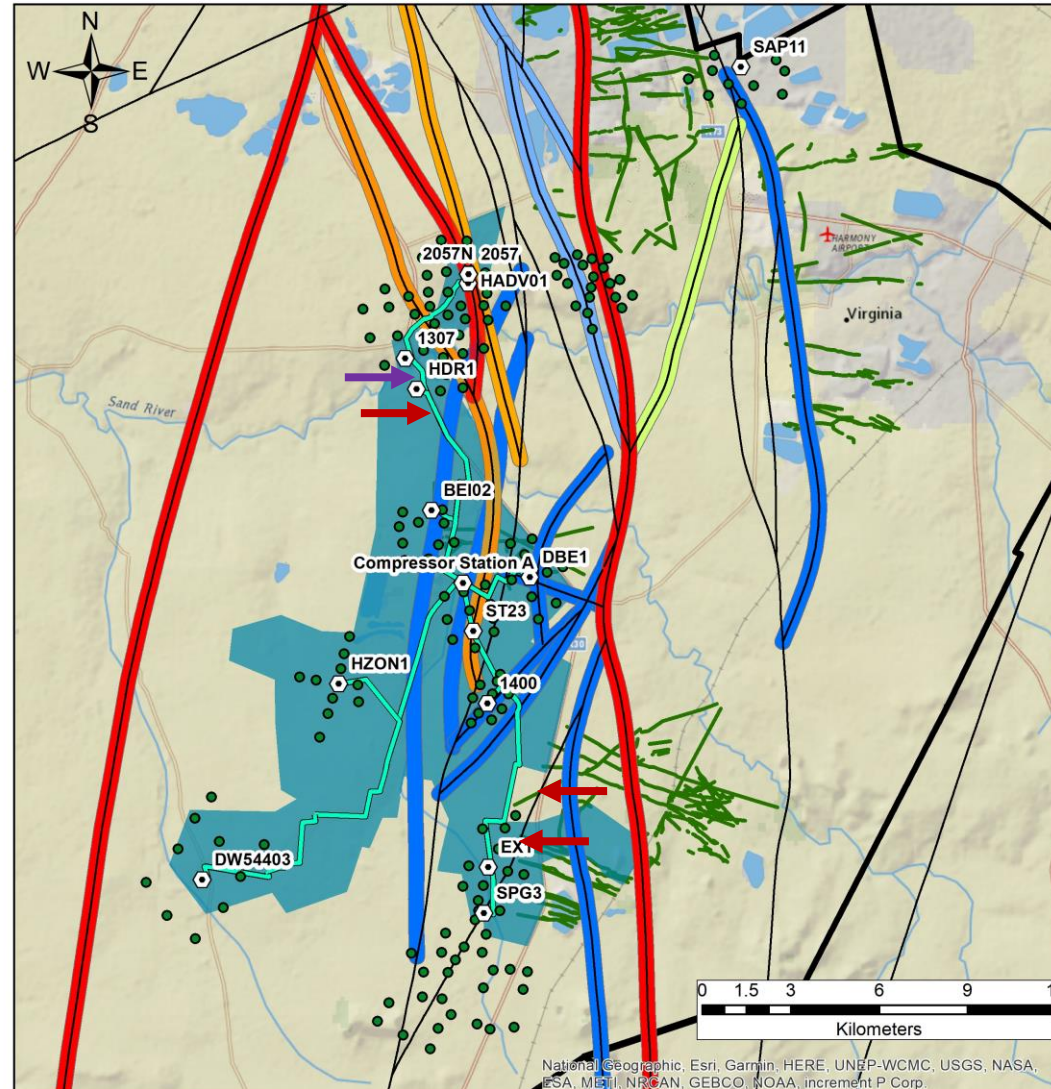
The diagram to the right shows the aerial view of the inclined well with the faults, along with existing vertical wells MDR1, MDR5, HDR1 and MDR4



# New Wells

- Over the past 18 months, the Company has been working with Shango Solutions and Sproule to define the reservoir
- A comprehensive data base of holes, drilled by the gold mining in the area, produced lithography which was then modelled in 3 dimensions
- Based on gas intersections, faults, fissures and dykes have now been ranked in terms of their gas production
- The map shows an overlay of the existing wells, the pipeline, the major faults and dykes, and Sproule's previous coordinates for Proven and Probable wells based on a more traditional reservoir model as opposed to a faulted system
- The new wells have been selected to intersect critical faults, fissures and dykes, while also expanding Proven and Probable locations

- Spudded Well
- Planned New Wells



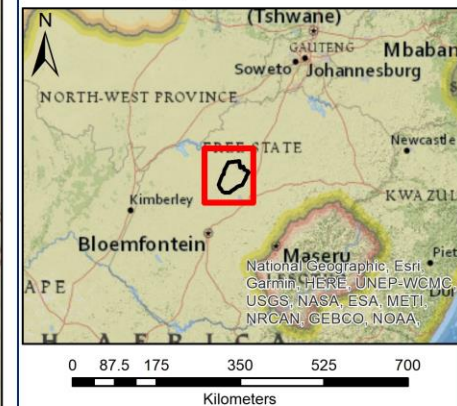
**TETRA4**

Tetra4 (Pty) Ltd  
Production Right

## Legend

- Gas Pipeline
- Fault Trace
- Dykes
- P1
- P2
- P3
- MHA Locations
- Phase 1 Gas Wells
- Cluster 1 Boundary
- Production Right
- P4
- P5

## Reference Map



Coordinate System: WG27Transverse Mercator  
Central Meridian: 27.0000  
Scale Factor: 1.0000  
Latitude Of Origin: 0.0000  
Units: Meter  
Date: 2020/07/31  
Document Name: Fractures\_Faults\_20200701



# FAQ



# FAQ

## Why list on the ASX when already listed on the JSE?

- Despite the market cap of the ASX and JSE being relatively similar (12th vs 19th ranked globally as of November 2018), ASX has more than 200 listed energy companies and more than 600 mining companies. JSE has a total of around 400 companies across all sectors, implying by comparison that companies on the JSE tend to be of a significantly larger market cap
  - The top 100 JSE companies represent 88.4% of the total market cap, with the average per company of A\$9.4bn (according to data provided by the JSE from 2018)
  - By contrast, 84% of the total market capitalization of the ASX is comprised of companies with a market capitalization of less than A\$500m (according to data provided by the ASX over the same period)
  - Renergen is unique to the JSE, as its only listed domestic oil and gas company, hence no domestic research coverage. The ASX has over 200 listed energy companies
  - Limited research and domestic comparables means liquidity will be limited on the JSE

## Is the stock fungible on both exchanges?

- Yes. 1 CDI on the ASX is equivalent to 1 share on the JSE. A CDI on the ASX can be migrated to the JSE, and a share on the JSE can be migrated to the ASX. This process is done through Computershare, but you need a broker both in Australia and South Africa

## How has COVID-19 impacted the business?

- Operations:
  - We halted the supply of gas temporarily in the pilot project, but have subsequently resumed the supply of gas to Megabus. We are now exploring supply to Johannesburg for Black Knight
- Construction:
  - The plant is being manufactured in China, and so delays have been minimal, given how quickly China reacted; potential delays have not yet been quantified
  - The pipeline construction to join the wells has been halted at this stage. Fortunately the pipeline was intended to be complete five months prior to the plant arriving, so this is not delaying the project
- Exploration:
  - The exploration program was impacted. We only recently announced resumption of drilling, which means that we are only likely to see an updated Reserve Report in Q3 of this calendar year, so the full extent of Phase II will only be announced thereafter, around 6 months behind the original schedule
- Balance sheet:
  - We remain in a strong financial position, and plan to draw the next tranche of the OPIC loan to further construction progress



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