

### **ASX ANNOUNCEMENT**

30 September 2021

### BLUE STAR PRESENTING AT SPARK PLUS METALS & MINING DAY

Blue Star Helium Limited (ASX:BNL) (**Blue Star** or the **Company**) is pleased to announce its participation in the *Spark Plus Metals & Mining Day* being held on 30 September 2021.

Managing Director and CEO, Trent Spry, will present on the Blue Star outlook via a free online webinar. This webinar will be held live via Zoom and will provide existing shareholders and potential investors the opportunity to hear from, and engage with, the Company.

A selection of slides from the updated corporate presentation appended to this release will be presented during the webinar.

#### **DETAILS:**

**Event**: Spark Plus Metals & Mining Day **Date**: Thursday 30 September 2021

Timeslot: 11:30am (AWST) / 1.30pm (AEST)

#### **CLICK HERE TO REGISTER:**

https://us02web.zoom.us/webinar/register/1116322862671/WN y85rBTPZRE-uXmjucT60mw

After registering your interest, you will receive a confirmation email with information about joining the webinar. Participants will be able to submit questions via the panel throughout the presentation; however, we encourage shareholders and investors to send through questions via email beforehand to the panel moderator, Timothy Wong (timothy.wong@sparkplus.org).

This ASX Announcement has been authorised for release by the Board of Blue Star Helium Limited.

### For further information, please contact:

Trent Spry
Managing Director & CEO
info@bluestarhelium.com
+61 8 9481 0389

#### **About Blue Star Helium:**

Blue Star Helium Ltd (ASX:BNL) is an independent helium exploration and production company, headquartered in Australia, with operations and exploration in North America. Blue Star's strategy is to find and develop new supplies of low cost, high grade helium in North America. For further information please visit the Company's website at <a href="https://www.bluestarhelium.com">www.bluestarhelium.com</a>

### **About Helium:**

Helium is a unique industrial gas that exhibits characteristics both of a bulk, commodity gas and of a high value specialty gas and is considered a "high tech" strategic element. Due to its unique chemical and physical qualities, helium is a vital element in the manufacture of MRIs and semiconductors and is critical for fibre optic cable manufacturing, hard disc manufacture and cooling, space exploration, rocketry, lifting and high-level science. There is no way of manufacturing helium artificially and most of the world's reserves have been derived as a byproduct of the extraction of natural hydrocarbon gas.









BLUE STAR HELIUM

# THE LEADING HELIUM PURE PLAY

Delivering high-grade, low-cost helium projects in the United States

September 2021

ASX | BNL

# **DISCLAIMER AND IMPORTANT INFORMATION**

The material in this presentation has been prepared by Blue Star Helium Limited (ACN 009 230 835)("Company").

This presentation may not be reproduced, redistributed or passed on, directly or indirectly, to any other person, or published, in whole or in part, for any purpose without prior written approval of the Company. The material contained in this presentation is for information purposes only. This presentation is not an offer or invitation for subscription or purchase of, or a recommendation in relation to, securities in the Company and neither this presentation nor anything contained in it shall form the basis of any contract or commitment. Any offering of any of the Company's securities to Australian persons will be subject to Australian securities laws. The distribution of this document in jurisdictions outside of Australia may be restricted by law, and persons in to whose possession this document comes should inform themselves about, and observe, all such restrictions. This investor presentation is not an offer of securities for sale in the United States. Securities of the Company are not registered under the US Securities Act of 1933, as amended (the "US Securities Act") and may not be offered or sold in the United States absent registration or an exemption from registration under the US Securities Act. No public offer of the securities is being made in the United States and the information contained herein does not constitute an offer of securities for sale in the United States.

This presentation is not financial product or investment advice. It does not take into account the investment objectives, financial situation and particular needs of any investor. Before making an investment in the Company, an investor or prospective investor should consider whether such an investment is appropriate to their particular investment needs, objectives and financial circumstances, seek legal and taxation advice as appropriate and consult a financial adviser if necessary.

This presentation may contain forward-looking statements that are subject to risk factors associated with a waste management business. Forward looking statements include those containing such words as "anticipate", "estimates", "forecasts", "should", "could", "may", "intends", "will", "expects", "plans" or similar expressions. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a range of variables and changes in underlying assumptions which could cause actual results or trends to differ materially. The Company does not make any representation or warranty as to the accuracy of such statements or assumptions.

This presentation has been prepared by the Company based on information currently available to it. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this presentation. To the maximum extent permitted by law, none of the Company or its subsidiaries or affiliates or the directors, employees, agents, representatives or advisers of any such party, nor any other person accepts any liability for any loss arising from the use of this presentation or its contents or otherwise arising in connection with it, including without limitation, any liability arising from fault or negligence on the part of the Company or its subsidiaries or affiliates or the directors, employees, agents, representatives or advisers of any such party.

The Company owns 2 operated wells in Dawson County, Texas. These wells are shutin and will be plugged and abandoned.

Prospective Resources			
Net Recoverable Helium (mmcf)	1U (P90)	2U (P50)	3U (P10)
Galactica Prospect	2,131	4,395	6,849
Pegasus Prospect	1,970	3,423	5,092
Argo Prospect	276	2,108	3,065
Enterprise Prospect	372	2,204	5,494
Galileo Prospect	495	1,292	2,329
Total BNL Net Recoverable Helium	5,244	13,422	22,829

Note 1: The estimated quantities of helium that may potentially be recovered by the application of a future development project relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable helium.

Note 2: The resource estimates have been prepared using the probabilistic method and are presented on an unrisked basis. In a probabilistic resource distribution, 1U (P90), 2U (P50), 3U (P10) estimates represent the 90% probability, 50% probability and 10% probability respectively that the quantity recovered will equal or exceed the estimate assuming a success case in the prospect. Resource totals have been arithmetically added.

#### Notes specifically in relation to Galactica, Pegasus and Argo

Note 3: The estimates of prospective resources in respect of Galactica, Pegasus and Argo prospects are reported as at an evaluation date of 4 June 2021 and are more fully described in the Company's announcement of 10 June 2021. The Company is not aware of any new information or data that materially affects the information included in that announcement and all the material assumptions and technical parameters underpinning the estimates in that announcement continue to apply and have not materially changed.

#### Notes specifically in relation to Enterprise and Galileo

Note 4: The estimates of prospective resources in respect of Enterprise and Galileo prospects are reported as at an evaluation date of 1 November 2020 and are more fully described in the Company's announcement of 16 November 2020. The Company is not aware of any new information or data that materially affects the information included in that announcement and all the material assumptions and technical parameters underpinning the estimates in that announcement continue to apply and have not materially changed.

The Board has authorised this announcement to be given to ASX. Security holders and other interested parties can contact Trent Spry, Managing Director and CEO at <a href="mailto:info@bluestarhelium.com.au">info@bluestarhelium.com.au</a>



# BLUE STAR: LEADING HELIUM PURE PLAY

- Helium: a critical technology enabler
- Strategic, large-scale US land position
- High grade, green resource
- Low cost, high-impact drilling program
- High-return commercialisation pathway



# **BNL CORPORATE SNAPSHOT**

CLEAN CAPITAL STRUCTURE	1
ASX code	BNL
Share price (27 September 21)	6.3 ¢
Issued share capital	1,257 M
Unlisted options (1.2¢ strike, expiry December 21)	63 M
Basic market capitalisation	A\$79 M
Cash (30 June 21)	A\$3.3 M

SUPPORTIVE SHAREHOLDER BASE		
BNP Paribas Nominees	3.5 %	
Ms Chunyan Niu	3.4 %	
Board and management	2.8 %	
United Equity Partners	2.5 %	
Pamplona Opportunities Fund	2.5 %	
Top 20	38.0 %	

As at 24 March 2021

### SHARE PRICE PERFORMANCE



### **EXPERIENCED BOARD AND MANAGEMENT**

### Ross Warner - Executive Chairman

Lawyer and corporate executive with 15+ years in oil and gas, more particularly in the United States, UK and Indonesia

## Trent Spry - Managing Director & CEO

Experienced geoscientist with 20+ years in oil, gas and helium, exploration, development and new ventures

## Neil Rinaldi - Non-Executive Director

Executive leader and finance professional with 20+ years in asset acquisitions and disposals, company structuring and growth strategy

# Amanda Wilton-Heald – Company Secretary & Accountant

CA with 20+ years of accounting, auditing and company secretarial (including O&G exploration), listing and corporate advisory experience

# STRONG US BASED OPERATIONS TEAM

Led by experienced board and management team

### **KEY US PERSONNEL**

- Paul Jordan (US Subsidiary Director)
- Kristen Stocks (Operations Manager)
- Crockett Butler and Greg Taffe (Minerals, Surface - Contex)
- Andrea Gross and Kim Rodell (Permitting - Upstream)
- Jacki Malone (EHS Services Aquionix)

### **EXPERIENCED PARTNERS AND SUPPORT SERVICES**

- Welborn Sullivan Meck & Tooley (lawyers)
- Sproule (technical & commercial)
- D.R. Griffin & Associates (engineers & land surveyors)
- Intelligas Consulting (gas market experts)
- SIGIT (integrated project engineering solution)
- Pioneer Environmental Consultants (wildlife)
- TRES Management (well site, engineering, operations)
- McCleery International Geology (geoscience)
- Geochemical Insight (field and wellsite gas sampling)
- Decollement Consulting (wellsite geology, mud-logging)
- Crown Geochemistry (onsite drilling gas analysis)
- Mack Drilling Company (water well specialists)
- Perry Remote Sensing (remote sensing specialist)
- Archimedes Consultants (gravity & magnetics)
- Earthfield Technology (gravity & magnetics)
- ELI Wireline Services (wireline logging)

# STRATEGIC HELIUM EARLY-MOVER

### **BLUE STAR STRATEGY SINCE 2018**

- Early-mover at start of helium up-cycle, emerging supply risks, and increasing demand
- Identified low cost, high-grade helium resources in premier U.S. location and market
- Executed disciplined, cost-effective leasing operation to consolidate landholdings
- Now commencing evaluation and commercialisation cycle

#### LEADING STRATEGIC ADVANTAGE

- Premier land position in proven play fairway with high-grade helium concentration
- Non-hydrocarbon source delivers green helium
- Proximity to key infrastructure and major downstream markets / consumers
- On-the-ground depth; highly experienced leasing, permitting and operational teams

# HELIUM: A CRITICAL TECHNOLOGY ENABLER

High value commodity with high-tech applications
Rapid demand growth and emerging supply risks
Listed as critical to economy and national security in US

# UNIQUE, RARE AND HIGHLY VALUED



# HELIUM DEMAND

An enabler of innovation, helium is essential for key existing and future technology development

Estimated market size in 2025

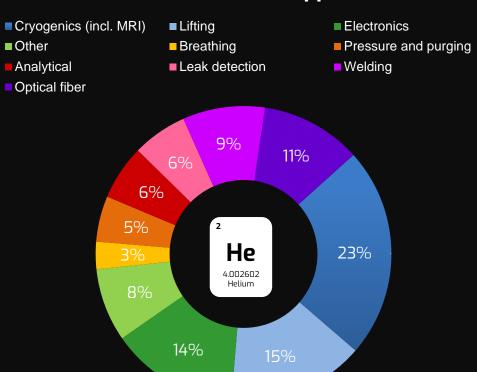
US\$18.2 B

Forecast 2021-25 CAGR: 11.2% p.a.

Source: ResearchAndMarkets

# BLUE STAR HELIUM

# **Global share of helium applications**



A diversified, deep market with increasing demand driven by medicine, consumer electronics and technological advancement

Source: USGS

# A HIGH-VALUE PRODUCT – WITH BLUE CHIP CONSUMERS

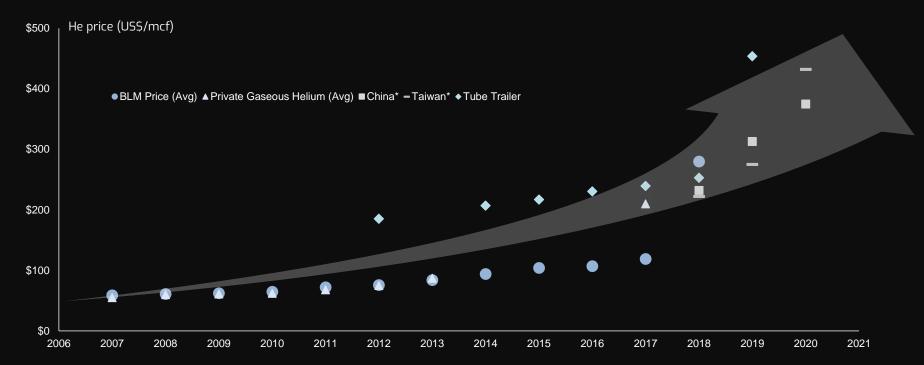
Current U.S. domestic prices of Helium (BLM) and Natural Gas (Henry Hub)





# STRONG RECENT PRICE MOMENTUM

# Growing consumer recognition of changing supply landscape



<sup>\*</sup> Denotes CFR price

Note existence of select spot price references at levels well above those price points depicted above



# THE U.S. HELIUM MARKET

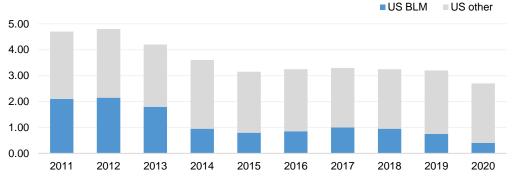
#### LOOMING DOMESTIC SUPPLY CHALLENGES

- U.S. strategic reserve (BLM) progressively sold-off minimal residual
- Most worldwide He supply is a by-product of hydrocarbon extraction; price inelastic plus climate targets expected to significantly impact on new supply

#### SURGING DEMAND FROM SEMICONDUCTOR INDUSTRY – DOMESTIC AND OFFSHORE

- Push from U.S. Govt. to dramatically increase domestic semiconductor manufacturing with +US\$50bn investment (security of supply dynamic)
- Semiconductor manufacturers committing to investing ~US\$50bn in new fabs in U.S.
- Additional capacity flagged globally from major global semi-conductor players

# US helium supply 2011-20 (Bcf)



The U.S. comprises approximately 30% of global helium demand

# MAJOR GLOBAL HELIUM SUPPLY SOURCES

# Most helium production is a by-product output of hydrocarbon extraction

Asset	Owner	Domicile	He output (Bcf p.a.)	He concentration (% He in raw gas)	Notes
Ras Laffan	RasGas	Qatar	2.0	0.2%	Primarily LNG output
La Barge	Exxon	U.S.	1.5	0.7%	Primarily CO <sub>2</sub> output
Algeria LNG	Various	Algeria	0.4	0.2%	Primarily LNG output
Hugoton	Various	U.S.	0.4	0.6%	Primarily natural gas output (approaching depletion)
US Strategic Reserve	BLM	U.S.	0.4	1%	Secondary He supply (approaching depletion)
Concho Dome	Petrosun	U.S.	0.2	4%	Primary He supply
Doe Canyon	Air Liquide	U.S.	0.2	0.4%	Primarily natural gas output
Bayu-Undan	Various	Australia	0.2	0.3%	Primarily LNG output
Dineh Bi Keyah (DBK)	Nasco AG	U.S.	0.2	5%	Primary He supply
Tocito Dome	Tacitus	U.S.	0.1	<b>7</b> %	Primary He supply
Orenburg	Gazprom	Russia	0.1	0.5%	Primarily natural gas output (domestic supply only)
Odalonow	PGNiG	Poland	0.1	0.5%	Primary He supply
Lisbon	Paradox Resources	U.S.	0.1	1%	Primarily natural gas output

Primary He supply comprises only approx. 10% of global market supply



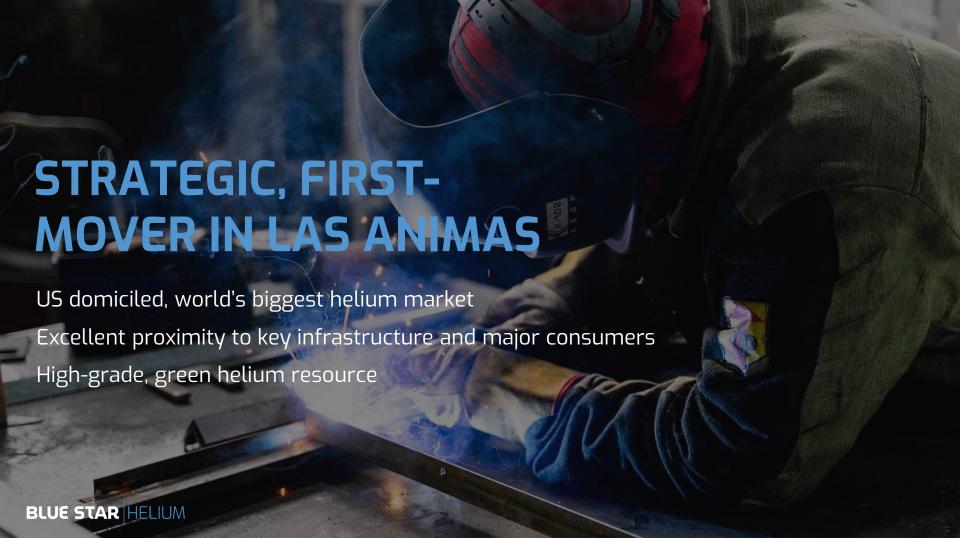


# **BUILDING THE FUTURE**

# With helium

- Helium is a modern technology enabler
- Not a greenhouse gas and not an energy source
- Helium plays a key part in renewable energy and the technology required for a low-carbon economy:
  - Essential in nuclear fusion and ideal for nuclear fission cooling
  - High speed Mag-Lev transport, reducing travel related emissions
  - Space / satellite launches
  - Lithium-ion battery testing and quality assurance
  - Semiconductors and quantum computing
- Increasing pressure on companies to decarbonise themselves and their supply chains
- Growing attraction of primary helium sources vs hydrocarbon extraction by-products
- Blue Star ideally positioned to capitalise



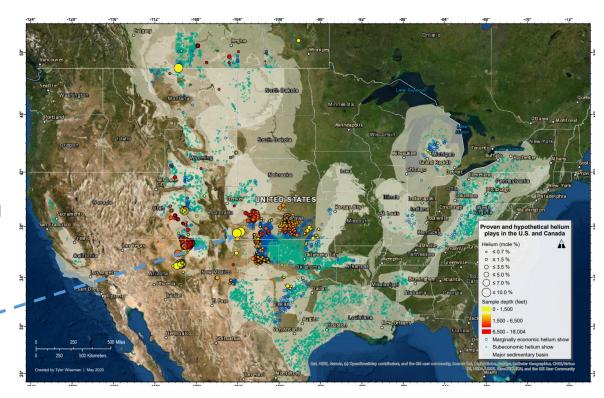


# **BLUE STAR'S FLAGSHIP HELIUM PROJECTS**

# Strategic first mover in Las Animas, Colorado

- Strategic, large scale land position
- Proven helium play fairway
- High helium concentration
- Substantial shallow resources and deeper play concepts

Las Animas County Project Area



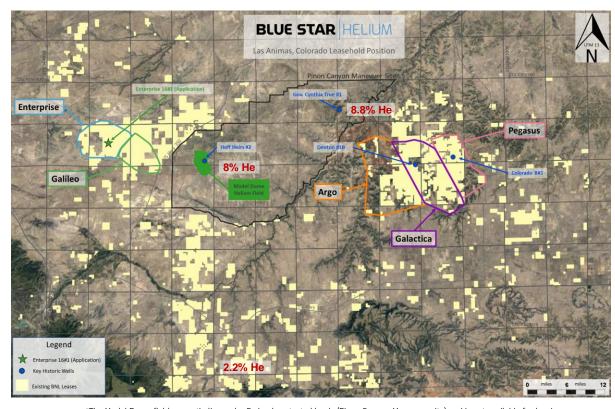


# 1 STRATEGIC, LARGE-SCALE LAND POSITION

# Extensive landholding in premier U.S. helium location

# FIRST MOVER IN LAS ANIMAS COUNTY, COLORADO

- Dominant land position secured
- Circa 265,265 gross (189,449 net) acres leased
- Largest lease holder in the play/county
- Historical production at Model Dome\* (Top 3 He concentration in U.S.)
- Proven helium play fairway
- Close to key infrastructure and downstream helium consumers
- Cultivated key stakeholder relationships





\*The Model Dome field currently lies under Federal protected lands (Pinon Canyon Maneuver site) and is not available for leasing

# 2 PROVEN HELIUM PLAY FAIRWAY

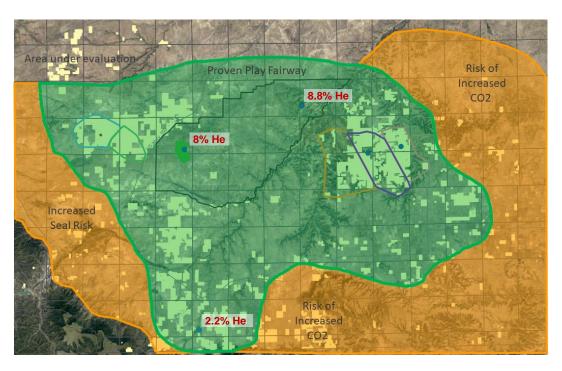
# Established across Blue Star's land position

#### **PROVEN ANALOGUE**

- Historic production at Model Dome
  - 8% helium concentration
  - 500 1,000 mcf/d raw gas vertical well IP rate
  - Proves working helium system

# SOIL GAS SAMPLING AND PETROPHYSICAL ANALYSIS CONFIRMS

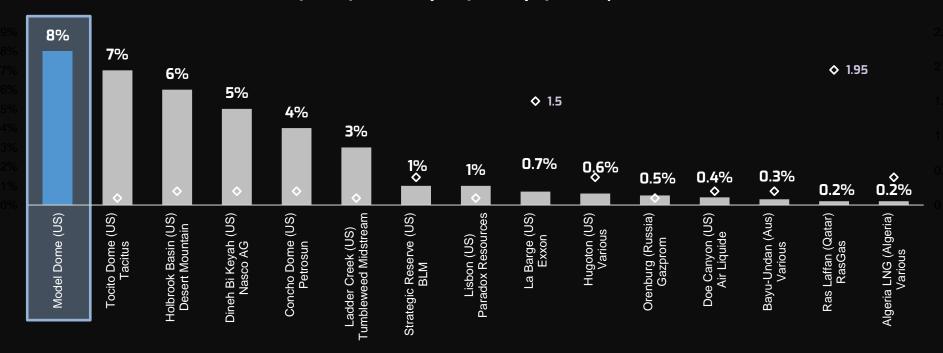
- 1. Proven helium source and active charge (basement & sediments)
  - Elevated soil gas sample locations under lease
  - Up to 100% above normal atmospheric levels
- 2. Proven high quality reservoir (Lyons formation)
  - Petrophysical analysis confirms ~20% porosity, 160mD permeability
- 3. Proven trap sealing formation (Blaine formation)
  - Petrophysical analysis confirms high-quality anhydrite / shale seal



# **HIGH-GRADE HELIUM**

# Globally attractive helium concentration levels

# Helium Concentration (% He) and Output (\$\displays \text{Bcf pa}) of Major Global Production Fields







# SUBSTANTIAL SHALLOW RESOURCES & DEEPER PLAYS

# Across large land position and significant prospect portfolio

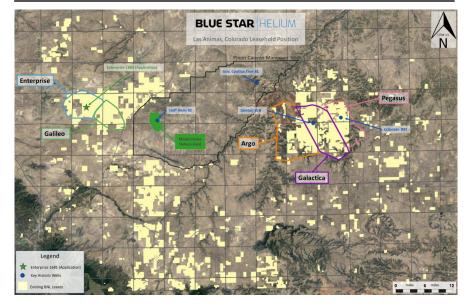
#### 13.4 BCF PROSPECTIVE HELIUM RESOURCES

- Lyons Helium Play Prospects
- Currently from 5 key prospects in portfolio
- Shallow target depths: 1,000 1,200 ft
- Conventional drilling
- Modest drilling cost of US\$300k per well (dry hole)\*
- Highly attractive raw gas composition
- Model Dome analogue\*\* helium: 8%; nitrogen: 77%; CO<sub>2</sub>: 15%

### **DEEPER PLAY CONCEPTS**

- Below the proven Lyons helium play
- Catherine Mock#1 tested helium (2.2%) from 2,390ft in the deeper Pennsylvanian
- Las Animas formation contains potential additional helium source, reservoirs and sealing units
- Potential for fractured basement source play
- Similar aged proven plays in the Anadarko basin and helium bearing on the Las Animas Arch to the north

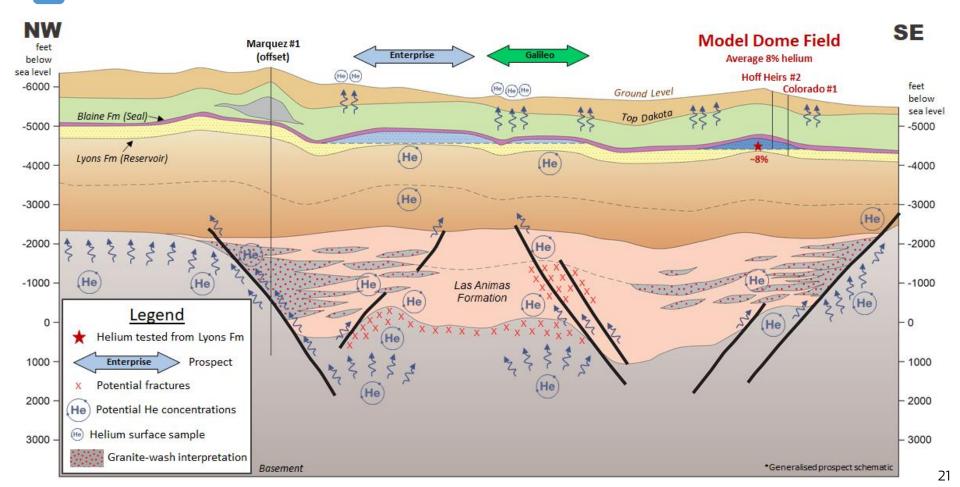
Net Recoverable Helium (mmcf)	1U (P90)	2U (P50)	3U (P10)
Galactica Prospect	2,131	4,395	6,849
Pegasus Prospect	1,970	3,423	5,092
Argo Prospect	276	2,108	3,065
Enterprise Prospect	372	2,204	5,494
Galileo Prospect	495	1,292	2,329
Total BNL Net Recoverable Helium	5,244	13,422	22,829





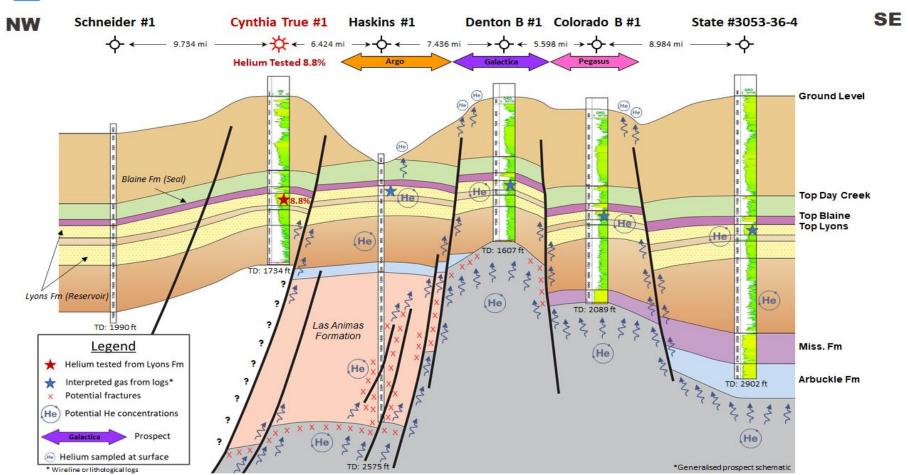
# 4

# SUBSTANTIAL SHALLOW RESOURCES & DEEPER PLAYS



# 

# SUBSTANTIAL SHALLOW RESOURCES & DEEPER PLAYS





Maiden drilling campaign

High return, commercialisation pathway



# AGGRESSIVE DRILLING STRATEGY SET TO COMMENCE

# First helium well planned for Q4 2021

## **Water Well Program**

- Blue Star to fund the drilling of water wells\* for local ranch holders as part of its environmental, social and governance initiatives
- Mudlogging, wellsite geology, continuous mass spectrometry gas and wireline logging are being evaluated prior to helium well operations
- Data gathered during drilling may aid in the further definition of helium prospects
- Provide valuable stratigraphic information in lieu of any available seismic data
- New and existing water wells to be tested for helium and other gases while in field

#### **Helium Wells**

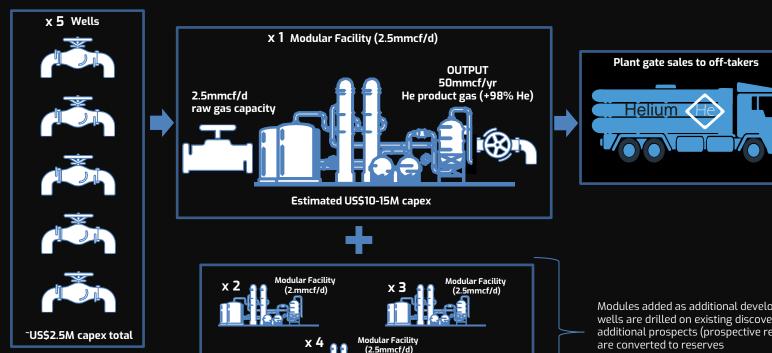
- Initial helium drilling campaign planned to commence in Q4 2021
- On track to receive final permit for Enterprise 16#1 well
- Applications initiated for a further four wells in the Galactica and Pegasus prospects with others in pipeline
- Rolling permitting strategy designed to deliver:
  - Continual drilling program; with
  - Flexibility around well selection; and
  - Responsiveness to respective drilling outcomes;
  - To accelerate development drilling





# HIGH-RETURN COMMERCIALISATION PATHWAY

# Scalable, modular growth concept to market



Modules added as additional development wells are drilled on existing discoveries and additional prospects (prospective resources) are converted to reserves

**BLUE STAR** HELIUM

Developing ~0.25 BCF of helium

To liquification

plant or end user (various nearby)

# MOVING RAPIDLY TO FIRST HELIUM

Accelerated evaluation and commercialisation timetable

### 04 2021

- Enterprise 16#1 drill permit approved
- Enterprise 16#1 well drilled
- Permits for wells #6 10 initiated
- Water well drilling

### **Q2 2022**

- Wells #4 8 drilled
- Defined commercialisation route
- Shortlist offtakers

## Q3 2021

- Enterprise 16#1 well permit passed completeness
- Permits for wells #2 5 initiated
- Helium marketing study completed
- High level engineering study completed
- Preliminary development plan completed

### 012022

- Wells #2 & #3 drilled
- Development engineering study complete
- Water well drilling

### 03/04 2022

- Further development and exploration well drilling (#9, #10, ++)
- Commission Stage 1 production facility (late Q4 2022 / early Q1 2023)

# THE LEADING HELIUM PURE PLAY

# Premier quality development asset opportunity

	BLUE STAR HELIUM	DESERT MOUNTAIN	RENERGEN	Helium One	avanti energy	ROYAL HELIUM	IMPERIAL H E L I U M	GRANDGULF
Company	Blue Star Helium	Desert Mountain Energy	Renergen	Helium One Global	Avanti Energy	Royal Helium	Imperial Helium	Grand Gulf Energy
Listing	ASX: BNL	TSXV: DME	JSE: REN; ASX: RLT	AIM: HE1	TSXV: AVN	TSXV: RHC	TSXV: IHC	ASX: GGE
Asset domicile	U.S.	U.S.	South Africa	Tanzania	U.S. & Canada	Canada	Canada	U.S.
Provincial location	Colorado	Arizona	Free State	Songwe Region	Montana & Alberta	Saskatchewan	Alberta	Utah
Market capitalisation (US\$M)	\$56M	\$156M	\$166M	\$69M	\$75M	\$53M	\$20M	\$12M
Net acreage held	189,449	+85,000	462,000	1,115,000	69,000	988,000	60,500	23,600
Net prospective He resource (Bcf, 2U)	13.4	-	106.3	138	-	-	-	-
Helium concentration (% He)	8%	1 - 7%	3 – 12%	NA	NA	< 1%	0.6%	NA
Evaluation stage	Exploration	Exploration	E&D	Exploration	Exploration	Exploration	Exploration	Exploration



# BLUE STAR: THE LEADING HELIUM PURE PLAY

- Helium: a Critical technology enabler
- Strategic, large-scale US land position
- High grade, green resource
- Low cost, high-impact drilling program
- High-return commercialisation pathway

BLUE STAR HELIUM



# MARKETING BLUE STAR HELIUM

# Right in the centre of the world's biggest helium market

### TARGETING PREMIUM SUPPLIER STATUS

- Helium marketing study completed
- Within trucking distance to established liquefaction plants with significant available capacity
- Targeting production of highly sought after and premiumly priced +98% He product gas
- Direct gas sales opportunities as well as long term contract options
- Relationships established with potential offtake parties and end-users
- Excellent timing as new entrant major evolution underway in U.S. helium market
- Transformational market opportunity





# **BLUE STAR: A LOCAL PARTNER AND SUPPLIER OF CHOICE**

# A highly engaged, holistic stakeholder approach,

## STRONG ESG CREDENTIALS

- Green helium natural gas composition advantages
- High relative helium and nitrogen composition
- Effectively zero hydrocarbon (methane) content
  - Avoids highly impactful associated emissions
- Delivers strong, structural environmental competitive advantage
- Planned long-term sale of CO<sub>2</sub> by-product for use by food industry (dominant consumer) and/or sequestered for tax credits
- Renewables focus
  - Evaluating significant renewable power penetration potential for helium production facility
- Well established, deep landowner and local community relationships
  - Funding drilling of water wells for local ranchers
  - Minimising surface disturbance
  - Preferencing of local commercial engagement and supplies sourcing





# **CURRENT HELIUM USES**

### Aerospace/aircraft

#### Space flight

NASA (and private space organisations) uses helium as an inert purge gas for hydrogen systems and a pressurizing agent for ground and flight fluid systems. Helium is also used throughout the agency as a cryogenic agent for cooling various materials and in precision welding applications.

#### Controlled atmosphere

Helium's use as an inert, non-toxic gas makes it ideal in controlled atmosphere environments.

### Advanced science

#### Quantum computing

Helium exists in liquid form at temperatures below - 269C (4K); this enables its use as the ideal coolant for quantum computing research.

#### Research / Large Hadron Collider

Helium has been essential to numerous Nobel Laureates and their advanced research; more than 5,200 patents relying on liquid helium have been awarded since 1975 in the U.S. alone.

### Healthcare

#### **Heliox breathing mixtures**

Helium in breathing mixtures assists with breathing and improves oxygenation in medicine and diving. Potentially reducing inflammation for COVID-19 patients with acute respiratory distress syndrome.

#### Magnetic Resonance Imaging (6% annual growth)

MRI technology is essential in modern medicine. The superconductive magnets inside MRI machines reach extreme temperatures and rely on helium for cooling. A single MRI machine uses 700 litres of helium per year.

### **Defence**

### High-end thermographic cameras

Used as a coolant in thermographic quantum detectors.

#### Missile propulsion systems

A purge gas and fuel pressurising agent.

#### **Submarine detection**

Liquid helium is used to clean noisy sound signals.

#### **Electronics/semiconductors**

#### Fibre optics

Used in the manufacturing process and for cooling systems during use. High speed networks such as the internet rely on helium.

#### LCD panels

Helium is essential in the manufacture of LCD panels to cool the glass and to etch internal components.

#### Hard disk technology

The use of helium in hard disk drives reduces friction between disk platters, increasing speed, longevity and storage potential.

#### Lithium batteries

Helium is used in the quality assurance process of lithium battery manufacturing, to test every battery for leakage.

### Renewables/low carbon tech

Small modular nuclear reactors (SMRs)

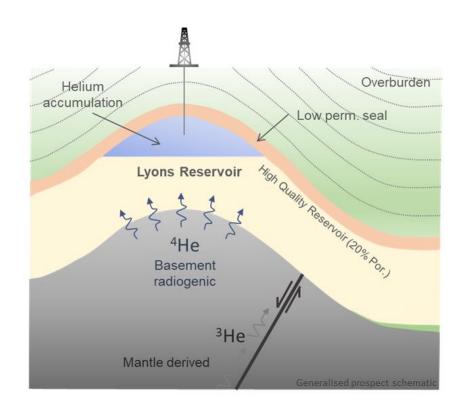
High speed Mag-Lev transport

Lithium-ion battery testing and quality assurance



# RICH HELIUM ACCUMULATIONS ARE RARE?

- Helium (He) is produced by the decay of uranium and thorium in granitoid basement rocks and derived sediments over significant time
- The He then moves upward through the sedimentary section until it is trapped under effective sealing units, usually including anhydrite or salt
- The richest He accumulations are found where:
  - 1. Granitoid basement rocks are rich in U and Th;
  - 2. The basement rocks are fractured and faulted to provide escape paths for the helium; and
  - 3. Porous sedimentary rocks above are capped by an impermeable seal of dense clay, halite or anhydrite
- This unique geological association only occurs at a few locations globally which is why rich He accumulations are rare
- Rate of natural He generation and accumulation is so slow so as to be considered a non-renewable resource





# **GLOSSARY AND UNITS**

Term	Description
1U (P90), 2U (P50) and 3U (P10)	In a probabilistic resource distribution, 1U (P90), 2U (P50), 3U (P10) estimates represent the 90% probability, 50% probability and 10% probability respectively that the quantity recovered will equal or exceed the estimate assuming a success case in the prospect
gross acres and net acres	The minerals in a tract of land may be owned by one or more owners. Each owner may lease its respective percentage share of the minerals. The gross area of the tract of land is referred to as the "gross acres" of a lease. The "net acres" refers to the lessor's percentage share of the gross acres.
lead	A project associated with a potential accumulation that is currently poorly defined and requires more data acquisition and/or evaluation to be classified as a Prospect. A project maturity sub-class of Prospective Resources.
net revenue interest or NRI	A share of production after all burdens, such as royalty and overriding royalty, have been deducted from the working interest. It is the percentage of production that each party actually receives.
oil and gas lease	An agreement between a mineral owner (lessor) and an oil and gas company (lessee) permitting the lessee to explore, drill and produce oil and gas from the tract of property. Typically, the lease provides that lessee will pay a Royalty to the lessor. Also referred to as a "mineral lease" or a "lease".
operator	The owner of the right to drill or produce a well, or the entity contractually charged with drilling of a test well and production of subsequent wells.
overriding royalty	A percentage share of production, or the value derived from production, which is free of all costs of drilling and producing, and is created by the lessee or working interest owner and paid by the lessee or working interest owner.
PRMS	The Petroleum Resources Management System of the Society of Petroleum Engineers, World Petroleum Council, American Association of Petroleum Geologists and Society of Petroleum Evaluation Engineers as revised in June 2018.
prospect	A project associated with an undrilled potential accumulation that is sufficiently well defined to represent a viable drilling target. A project maturity sub-class of Prospective Resources.
royalty	A percentage share of production, or the value derived from that production, paid from a producing well.
working interest or WI	A percentage of ownership in an Oil and Gas Lease. Working Interest owners are obliged to pay a corresponding percentage of the cost of leasing, drilling and producing and operating a well or unit. After payment of Royalties, the working interest also entitles its owner to a share in production revenues with other working interest owners, based on the percentage of working interest owned.

Unit	Measure
В	Prefix - billions
mm	Prefix - millions
m	Prefix - thousands
/d	Suffix - per day

Unit	Measure
Bcf	billion cubic feet
mmcf	million cubic feet
mcf	thousand cubic feet



# **DATA SOURCES**

Slide	Description	Source		
		Currency conversion rates: CADUSD 0.79; AUDUSD 0.73 (28 September 2021)		
		Desert Mountain Energy - Investor Presentation, 16 September 2021		
		Renergen Ltd - Prospective Resource Evaluation, July 2020; Annual Report to Shareholders, 1 July 2021		
		Helium One – Investor Presentation, 6 May 2021; Completion of 2021 Drilling Campaign, 26 August 2021		
Slide 7	Peer Comparative Table	<b>Avanti Energy</b> – Investor Presentation, Avanti Energy Completes Due Diligence and Signs Definitive Agreement to Acquire ~50,000 acres of Land for Helium Exploration in Montana, 15 September 2021		
		Royal Helium - Investor Presentation, August 2021		
		Imperial Helium – Investor Presentation, July 2021; Imperial Helium Completes Drilling of Second Well in the Steveville Project, 31 August 2021		
		Grand Gulf Energy - Investor Presentation, 2 September 2021; Utah Helium Acquisition Update, 23 September 2021		
Slide 13	Investment in new onshore US semiconductor foundries	<ul> <li>https://www.reuters.com/technology/exclusive-tsmc-looks-double-down-us-chip-factories-talks-europe-falter-2021-05-14/</li> <li>https://www.anandtech.com/show/16483/samsung-in-the-usa-a-17-billion-usd-fab-by-late-2023</li> <li>https://www.forbes.com/sites/timbajarin/2021/03/23/intel-to-launch-two-new-fabs-in-arizona-and-why-this-is-important/?sh=54232a5247bb</li> <li>https://www.industryweek.com/technology-and-iiot/information-technology/article/21170068/globalfoundries-announces-new-semiconductor-fab-in-new-york</li> </ul>		
Slide 14	Major Global Helium Supply Sources	Edison Research, ' <i>Helium – Macro View Update Update'</i> , February 2019; ' <i>Global helium market update'</i> , May 2021; Hannam & Partners Equity Research, ' <i>Helium, a super cool commodity</i> ', 14 December 2020;		
Slide 20	High-grade Helium	Hannam & Partners Equity Research, <i>'Helium, a super cool commodity'</i> , 14 December 2020; Edison Research, <i>'Global helium market update'</i> , May 2021		

