GALLIUM - LIFEBLOOD OF THE MODERN WORLD

GOLCONDA PROJECT

March 2024

G50

ASX:G50 | gold50.com

EXPLORATION
IN ARIZONA AND NEVADA

IMPORTANT NOTICES

DISCLAIMER

This presentation and information contained in it is being provided to shareholders and investors for information purposes only. Shareholders and investors should undertake their own evaluation of the information and otherwise contact their professional advisers in the event they wish to buy or sell shares. To the extent the information contains any projections the Company has provided the projections based upon the information available to the Company. The Company does not make any representations as to the accuracy or otherwise of that third party information.

COMPETENT PERSON STATEMENT

The information in this report that relates to Exploration Results is based on information compiled by Bernard Rowe, a Competent Person who is a Member of the Australian Institute of Geoscientists. Bernard Rowe is a shareholder and Non-Executive Director of Gold 50 Limited. Mr Rowe has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Bernard Rowe consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this Presentation that relates to previous mining and/or exploration work is based on information included in the Company's Prospectus dated 21 May 2021. The Company confirms that it is not aware of any new information or data that materially affects the information included within the Prospectus dated 21 May 202

FORWARD LOOKING AND CAUTIONARY STATEMENTS

This Presentation contains "forward-looking information" that is based on the Company's expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to the pre-feasibility and feasibility studies, the Company's business strategy, plan, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations, mineral resources, results of exploration and relations expenses. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'likely',' believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this announcement are cautioned that such statements are only predictions and that the Company's actual future results or performance may be materially different Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information.

Forward-looking information is developed based on assumptions about such risks, uncertainties and other factors set out herein, including but not limited to general business, economic, competitive, political and social uncertainties; the actual results of current exploration activities; conclusions of economic evaluations; changes in project parameters as plans continue to be refined; future prices of lithium and other metals; possible variations of ore grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accident, labour disputes and other risks of the mining industry; and delays in obtaining governmental approvals or financing or in the completion of development or construction activities. This list is not exhaustive of the factors that may affect our forward-looking information. These and other factors should be considered carefully, and readers should not place undue reliance on such forward-looking information. The Company disclaims any intent or obligations to or revise any forward-looking statements whether as a result of new information, estimates, or options, future events or results or otherwise, unless required to do so by law.

Statements regarding plans with respect to the Company's mineral properties may contain forward-looking statements in relation to future matters that can be only made where the Company has a reasonable basis for making those statements. Competent Person Statements regarding plans with respect to the Company's mineral properties are forward looking statements. There can be no assurance that the Company's plans for development of its mineral properties will proceed as expected. There can be no assurance that the Company will be able to confirm the presence of mineral deposits, that any mineralisation will prove to be economic or that a mine will successfully be developed on any of the Company's mineral properties.

THE G50 OPPORTUNITY

CORPORATE OVERVIEW

Experienced leadership team with a track record of discovery in Southwest USA; leveraging strong networks to progress high-quality projects

ROB REYNOLDS
Non-Executive Chairman

MARK WALLACE
Managing Director

BERNARD ROWE
Non-Executive Director

GREG FOULIS
Non-Executive Director

- **Flagship Golconda Project** is adjacent to a major Cu-Mo porphyry deposit in Arizona, and historically mined for lead and zinc; it covers numerous well-developed precious and polymetallic mineralised veins and untested structures immediately southeast of the Mineral Park deposit
- Close to infrastructure, labor, supportive policies and communities.
- Operate from Patented Claims
- New gold discovery in GRC06 :

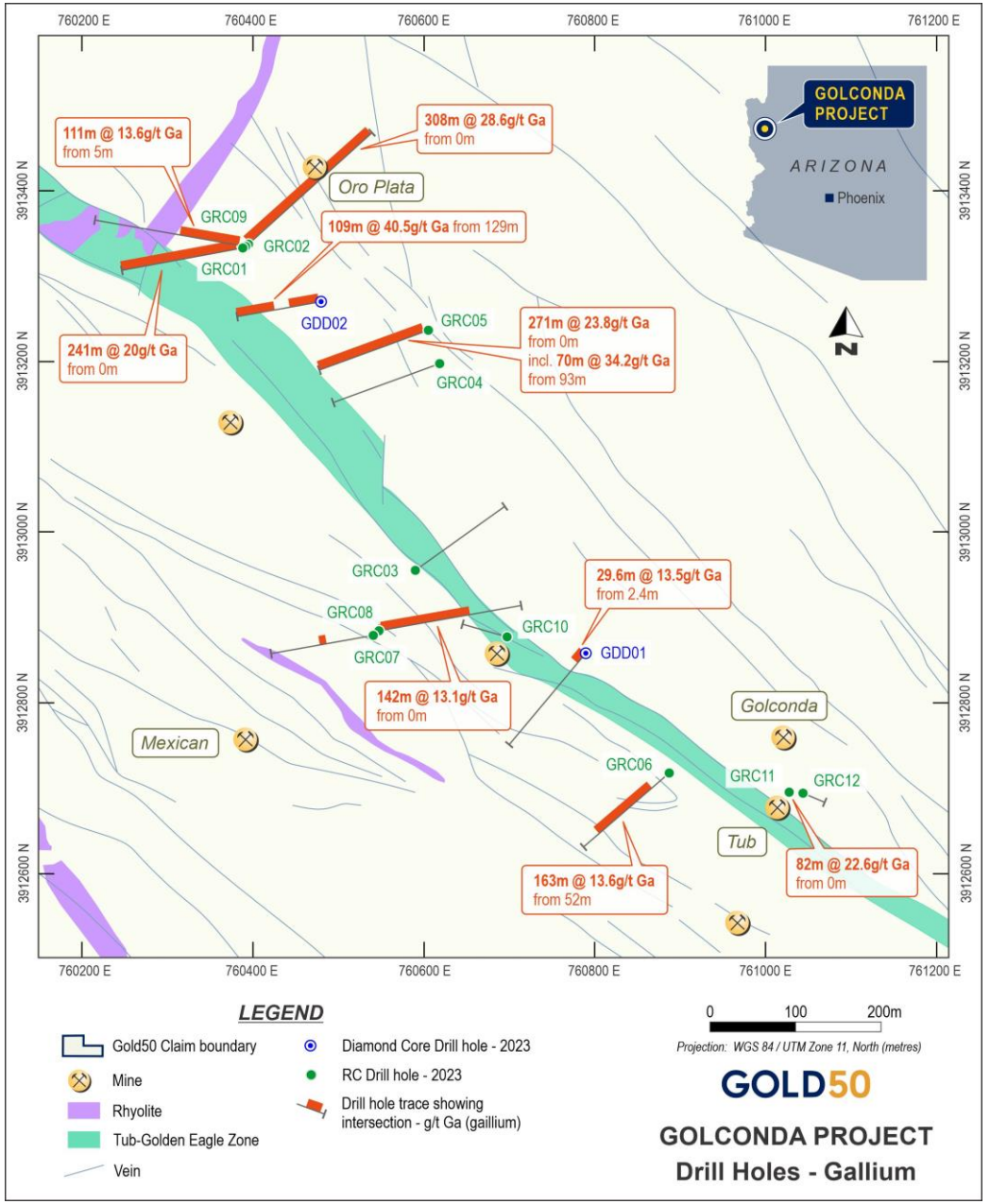
  35m at 5.2g/t Au, 5.9g/t Ag from 177m including:
  9m at 19.5g/t Au and 17.8g/t Ag and 0.4% Zn from 203m *

* See ASX Announcement "35m at 5.2g/t Gold, Discovery at Golconda", 19 June 2023

GOLCONDA – GALLIUM "HALO" DISCOVERY *

- Structure , structure, structure => **Permeability zones**
- Drilling intersections of major NW-striking veins with N or NE-striking faults => where precious metals are dominant
- Drilling program (12 RC and 2 Diamond holes) completed in April, 2023

Hole	Intercept	Gram x Metre
GDD02	**109m** at **40.5 g/t** gallium from 129m	**(4,415 gm*m)**
GRC01	**241m** at **20 g/t** gallium from surface	**(4,820 gm*m)**
GRC02	**308m** at **28.6 g/t** gallium from surface	**(8,809 gm*m)**
GRC05	**271m** at **23.8 g/t** gallium from surface, including **70m** at **34.2g/t** gallium from 93m	**(6,450 gm*m)**
GRC06	**163m** at **13.5 g/t** gallium from 52m	**(2,201 gm*m)**
GRC08	**142m** at **13.1 g/t** gallium from surface	**(1,861 gm*m)**
GRC11	**83m** at **22.6 g/t** gallium from surface	**(1,876 gm*m)**



* See ASX Announcement " 308m at 28.6 g/t Gallium at Golconda Project, Arizona ", 27 July 2023

THE GALLIUM OPPORTUNITY

Element Ga and is a soft, silvery metal, and Elemental gallium is a liquid at temperatures greater than 29.76C (85.57F) (slightly above room temperature)

Solid **gallium alloys are used in optics, electronics, and nuclear engineering** because of their non-toxicity and **resistance to neutron radiation and beta decay**

July 3rd, 2023 - **Gallium and germanium, along with their chemical compounds, will be subject to China export controls starting August 1st, 2023**

GALLIUM USES *

Gallium Nitride (GaN) is an important semiconductor material with high critical field strength and electron mobility.

- Advantages: Higher switching speed and lower ON-resistance.
- GaN contributes to lower power consumption, higher output and reduction in size of equipment
- Applications in light-emitting diodes **(LEDs), laser diodes, power amplifiers, data centres and solar cells.**

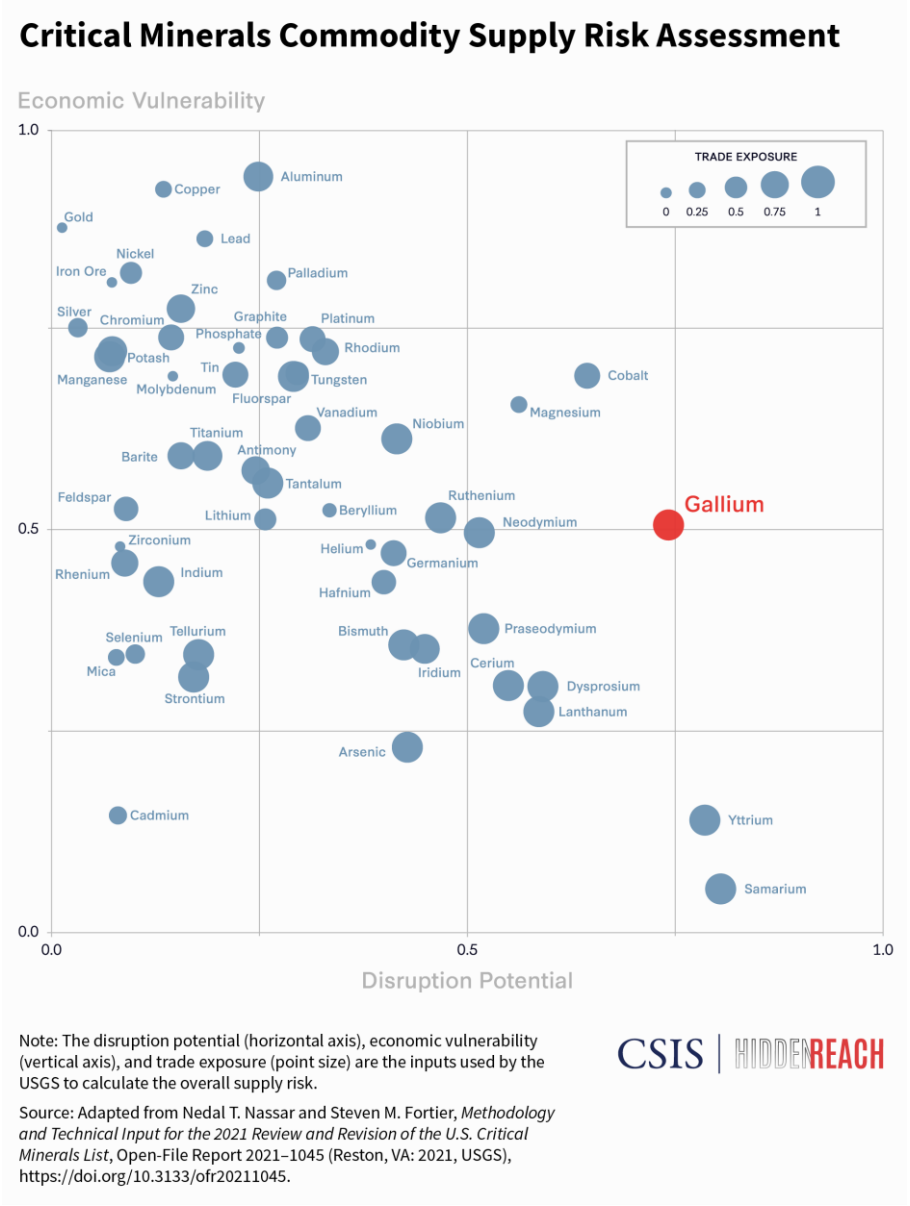
Gallium is used in alloys with other metals to create gallium arsenide (GaAs). This is used in semiconductor fabrication It provides a critical component of the manufacturing process for **computer chips and other electronic devices**

* www.strategicmetalsinvest.com

GALLIUM - "THE" CRITICAL MINERAL [2]

- **STRATEGIC VULNERABILITY** - A 2022 analysis by experts from the U.S. Geological Survey (USGS) found that a **30 percent supply disruption** of gallium could cause a **$602 billion decline** in U.S. economic output or **2.1 percent of gross domestic product (GDP)**

- **Advanced Military Applications**:
  - 2019 Raytheon was awarded **a $383 million contract** to build the first six GaN-enabled active electronically scanned array (AESA) radars for the U.S. Army's Lower-Tier Air and Missile Defense Sensor (LTAMDS).
  - Northrop Grumman is developing the AN/APG-85, an advanced GaN-backed AESA radar for the F-35 Lightning II Joint Strike Fighter
  - U.S. Marine Corps has deployed Northrup's AN/TPS-80 ground-based radar system since 2019.
  - In 2022 the U.S. Department of Defense (DOD) awarded **Raytheon a $3.2 billion contract** to equip up to 31 vessels with GaN-powered AN/SPY-6 system radars.

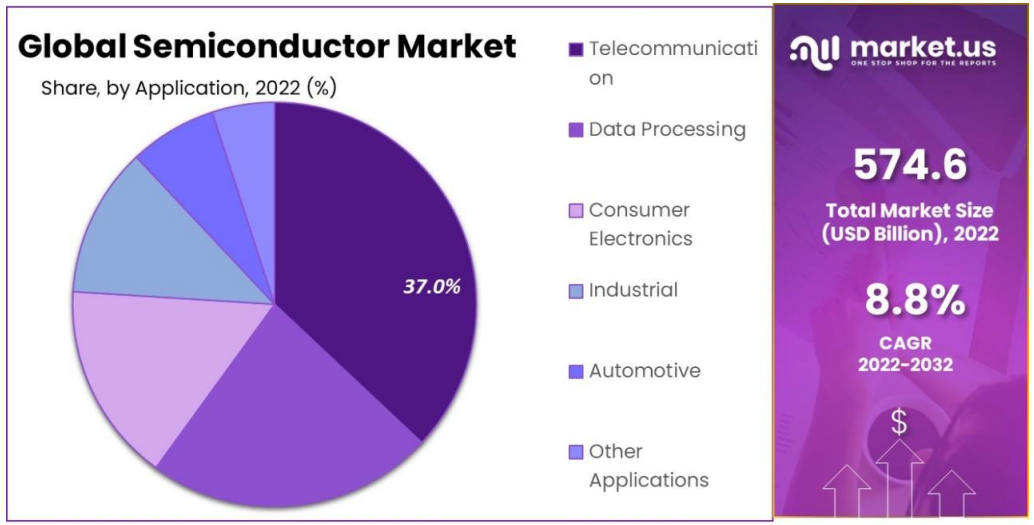


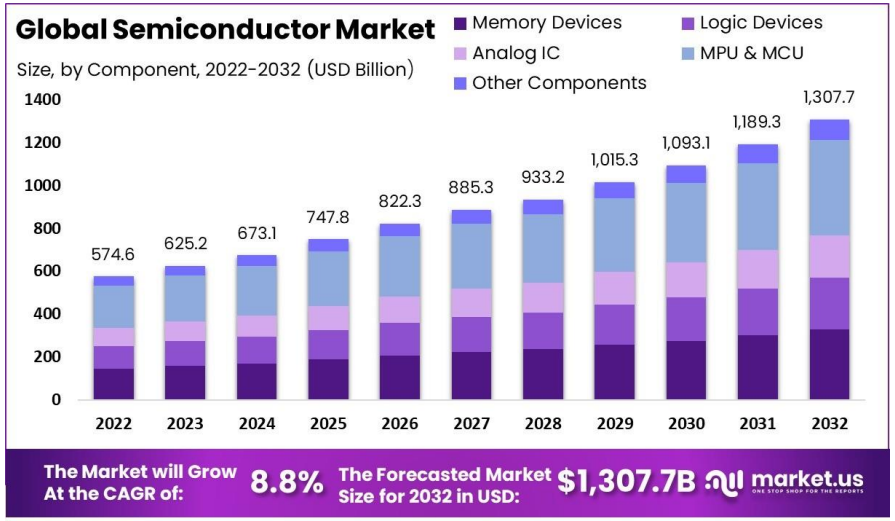
2. De-risking Gallium Supply Chains, August 2023. M.P. Funaiole, B. Hart, A. Powers-Riggs.

GLOBAL SEMICONDUCTOR MARKET

KEY DEMAND DRIVERS

- 5G telecommunications
- Artificial Intelligence
- Internet of Things
- Self-Driving Cars





KEY TRENDS

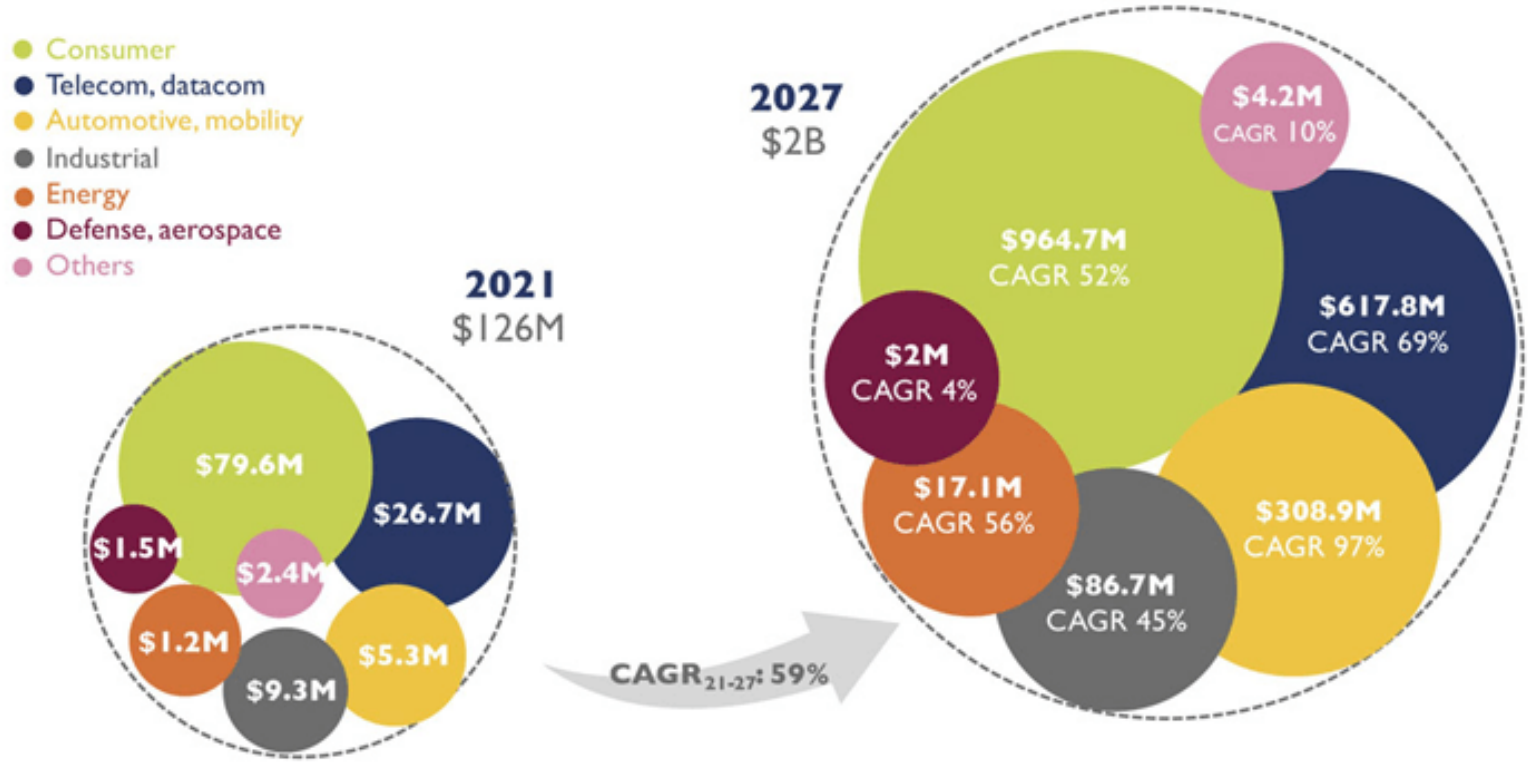
- Increasing Demand for high-performance semiconductor devices
- **New Semiconductor Technology -** New semiconductor technologies, such as 3D NAND flash and **gallium nitride (GaN),** are emerging to meet the needs of new applications. These technologies offer improved performance, power efficiency, and cost-effectiveness over traditional semiconductor technologies.
- Security
- Sustainability

SOURCE: Market.us "Semiconductor Industry: Shaping the Future of Electronics", September 2023

GALLIUM NITRIDE MARKET

2021-2027 power GaN device market revenue

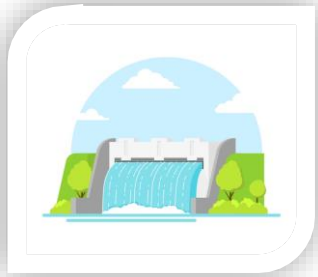
(Source: Power GaN 2022 report, Yole Développement, 2022)



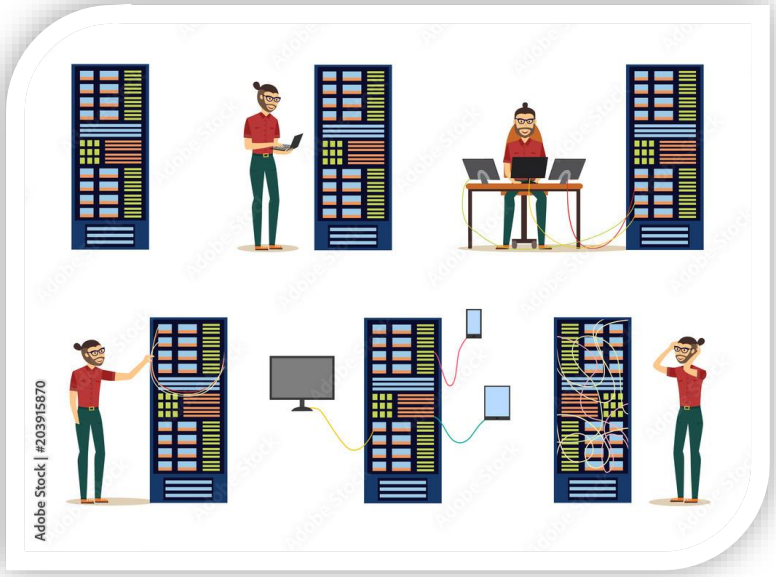
GALLIUM NITRIDE
MARKET ADOPTION

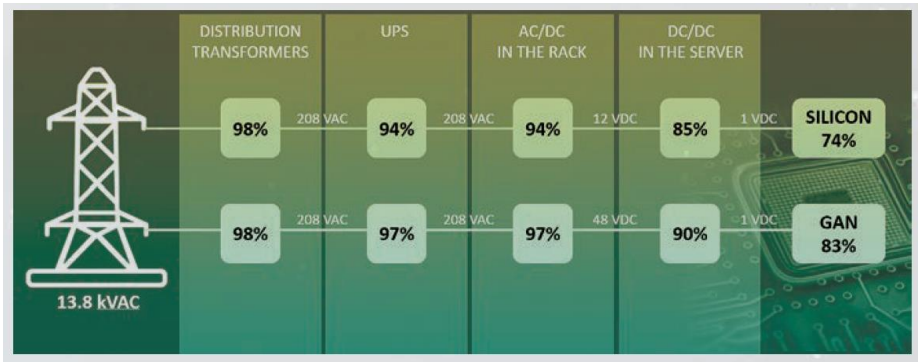
DATA CENTRES

- Demand driven by advances in AI, machine learning, 5G networks and autonomous transportation
- Currently **circa 8 million data centres handle global data load for current data driven activities requiring 450 terawatt hours of electricity**
- The Gorges Dam in China has a capacity of 22,500MW and produces 93.5 TWh per year



Production vs Usage Illustration





POTENTIAL SAVINGS

For a typical major **Tier One Data Centre Operator** assuming **6 smaller** and efficient GaN-based power supplies can perform the work of **10 Si-based units.**

Servers p/rack go from **30 to 34**. (Source: GaN Systems)

- Operational savings from energy:
  U$5,600 / server rack saves **U$241 million pa**
- Additional revenue from greater server density:
  U$5,100 / server rack adds **U$1.1 bn pa**
- Lower capex from postponing construction of further data centers:
  $840 million in CAPEX saving

Source: Aspencore Guide to Gallium Nitride: A New Era for Power Electronics. Edited by Maurizio Di Paolo Emilio & Nitin Daha

GALLIUM NITRIDE

MARKET ADOPTION

ELECTRIC VEHICLE MARKET

- Yole Group believe the medium to long term growth in GaN use will be driven by emerging needs in **EV's (bidirectional onboard charging)** and hybrid **EV's (DC/DC conversion in mild HEV's)**

- Integrated Device Manufacturers (IDM'S)
  - **Power Integrations, Infineon, STMicroelectronics and ON Semiconductor**

- GaN devices are already being produced by fabless and foundry pairings:
  - **Navitas-TSMC, GaN Systems-TSMC and EPC-Episil.**

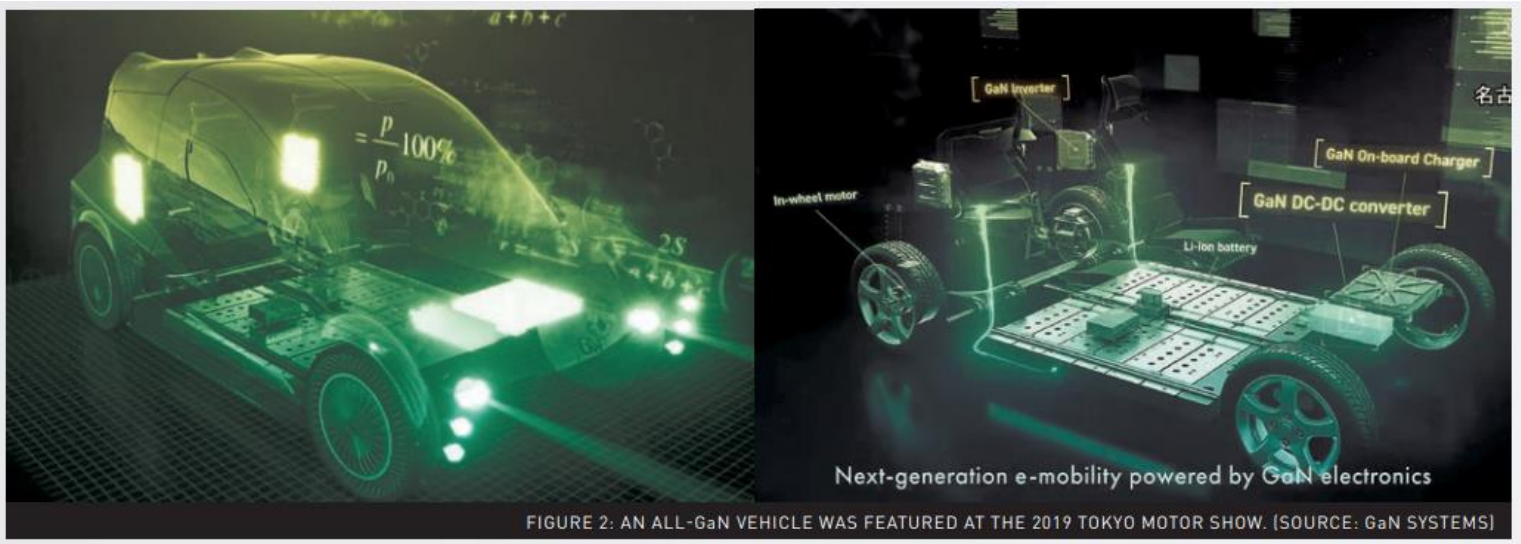
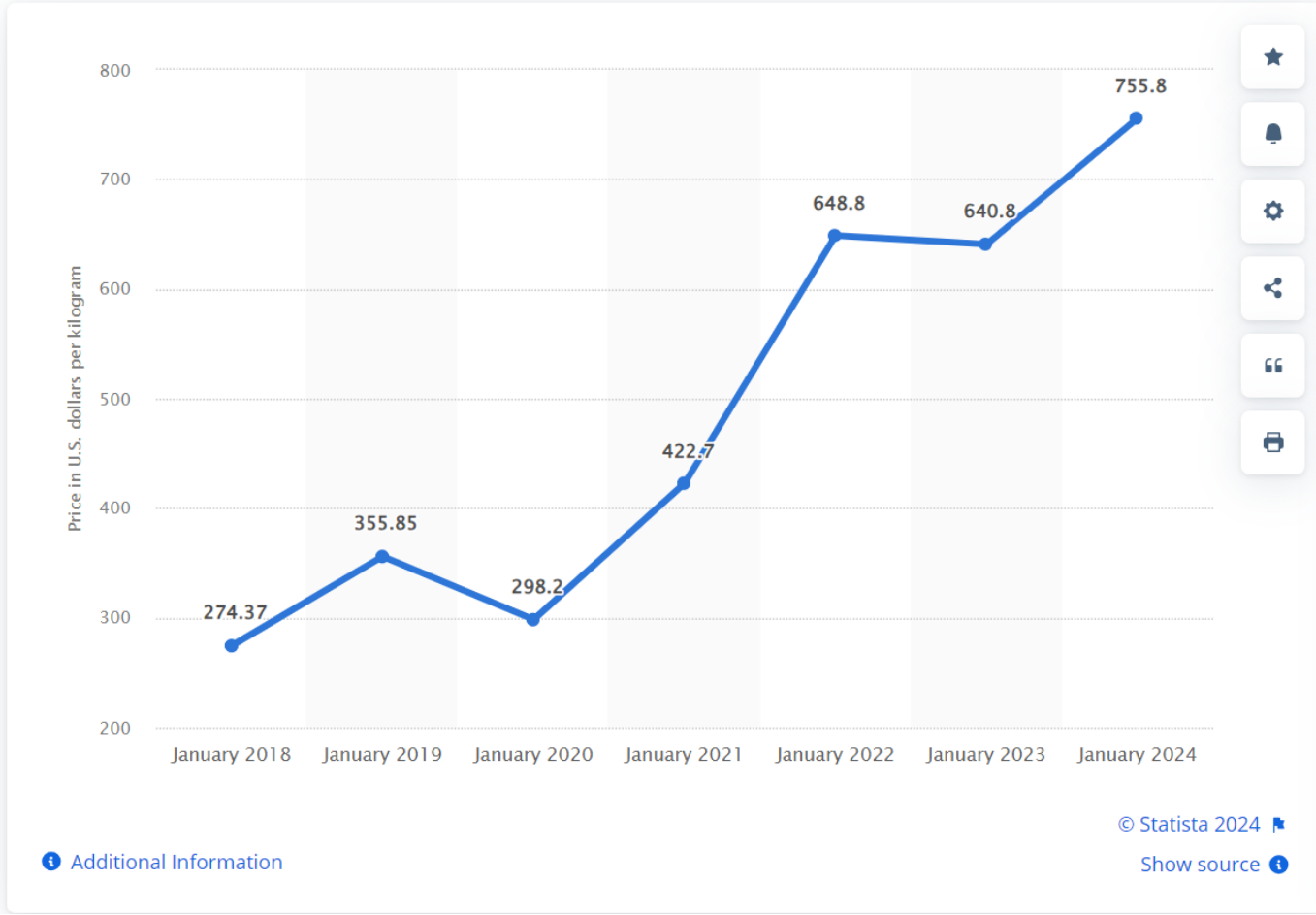


FIGURE 2: AN ALL-GaN VEHICLE WAS FEATURED AT THE 2019 TOKYO MOTOR SHOW. (SOURCE: GaN SYSTEMS)

GALLIUM PRICE

(Worldwide from January 2018 to January 2024) (U$ / kg)



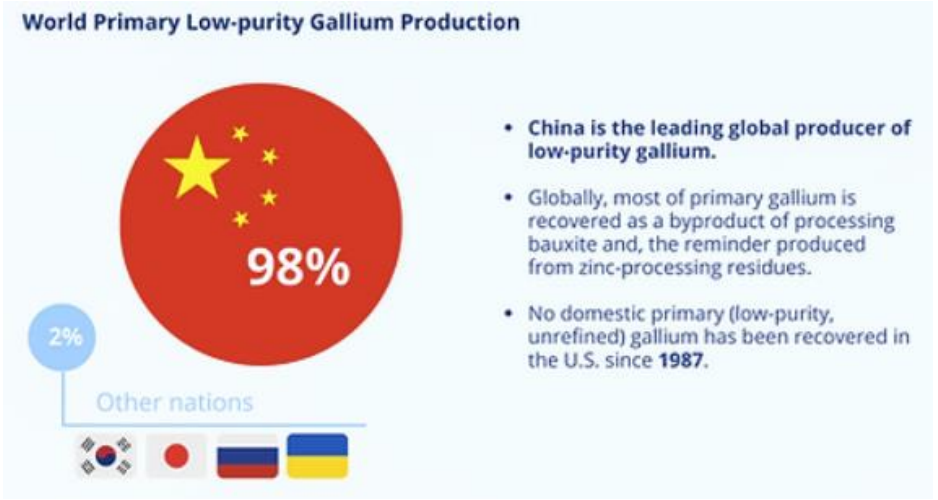
A US PERSPECTIVE

- Imports of gallium metal and gallium arsenide (GaAs) wafers were valued at about $5 million and $220 million, respectively (2022)
- Circa 77% of the gallium consumed in the United States was in GaAs, GaN, and gallium phosphide wafers
- Uses of Integrated Circuit's included defense applications, high-performance computers, and telecommunications equipment
- **No US Government Stockpiles**

WORLD RESOURCES

- **The average gallium content of bauxite is 50 parts per million (50 ppm or 50 g/t)**
- Some domestic zinc ores contain up to 50 parts per million gallium and could be a significant resource, although no gallium is currently recovered from domestic ores (US)
- Gallium contained in world resources of bauxite is estimated to exceed 1 million tons, and a considerable quantity could be contained in world zinc resources.
- However, **less than 10% of the gallium in bauxite and zinc resources is potentially recoverable**

GALLIUM SUPPLY [2]



e. Estimated 2. U.S. Geological Survey, 2023, Mineral commodity summaries 2023: U.S. Geological Survey, 210 p., https://doi.org/10.3133/mcs2023

GOLCONDA PROJECT

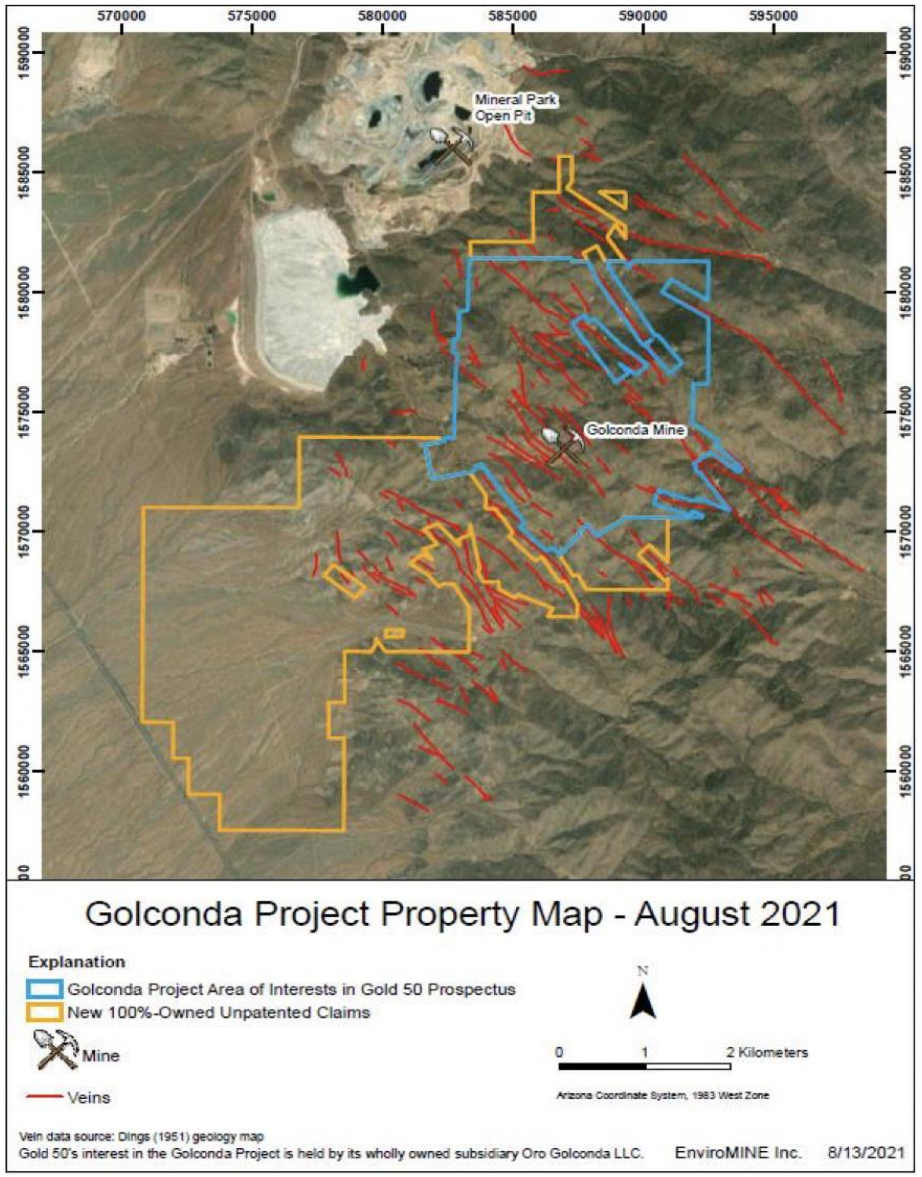
HISTORICAL MINING DISTRICT CONSOLIDATED

- Located in the **Wallapai Mining District - known for extensive vein systems and unusually high precious metals grades**
- Mined to a depth of 490m with high gold and silver grades
- However precious metals potential is largely untested
- No systematic exploration in >30 years with fragmented ownership
- **Proximal to Mineral Park porphyry Cu-Mo deposit** (100Mt at 0.45% Cu and 0.04% Mo)
- Contains numerous historic small mines including Tub, Big Bethel, Green Linnet, Oro Plata, Prosperity, Primrose, Blackfoot and Mexican

VAST EXPLORATION POTENTIAL TO BE TESTED

DISTRICT SCALE PROPERTY ADJACENT TO A MAJOR PORPHYRY COPPER DEPOSIT

- **Multiple vein structures** (over 10km), with known Au-Ag mineralization
- **Open along strike and at depth** including:
  - 2km long Tub-Golden Eagle Vein (priority drill target)
  - 30-130m wide zones of alteration, fracturing, brecciation and veining



VAST EXPLORATION POTENTIAL TO BE TESTED

DISTRICT SCALE PROPERTY ADJACENT TO A MAJOR PORPHYRY COPPER DEPOSIT

GALLIUM MINERALIZATION

Wide-spaced drilling at the Golconda Project has intersected **Gallium mineralization in 11 of 14 holes** of Gold 50's recent diamond and RC drilling program

Hole	Intercept	Gram x Metre
GDD02	**109m** at **40.5 g/t** gallium from 129m	**(4,415 gm*m)**
GRC01	**241m** at **20 g/t** gallium from surface	**(4,820 gm*m)**
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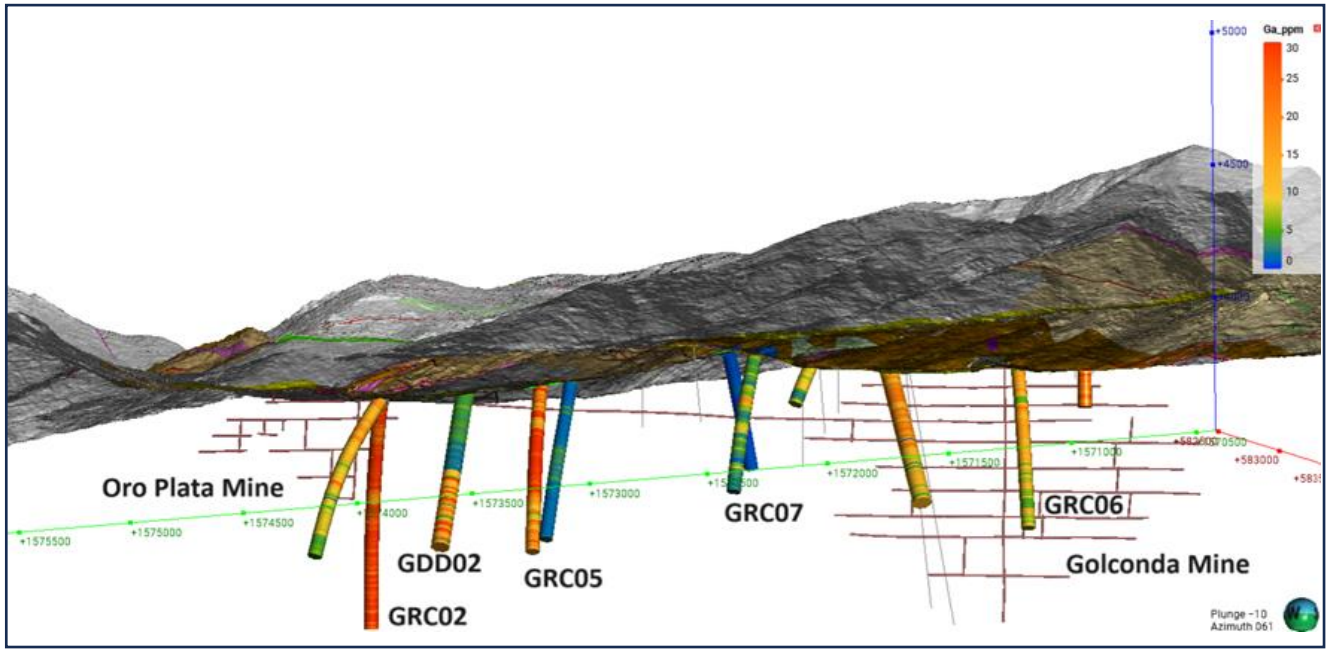
- Gold 50's initial drilling program targeted varied structural controls for mineralisation and confirmed particular structures strongly correlate with the high gold grades highlighted by the discovery in hole GRC06. (See ASX Announcement "35m at 5.2g/t Gold, Discovery at Golconda", 19 June 2023)
- Multi-element assaying of our maiden drilling program was critical due to the nature of the polymetallic mineralised system
- Recent work has demonstrated that the **base-metal sulfide deposits formed in porphyry Cu/Mo** systems have a great resource potential for **critical metals such as Re, In, Ge, Ga, Se, and Te**. Previous studies have predominantly focused on the genesis of the Pb–Zn(Ag) polymetallic veins. **The spatial distribution of Cd, Ga, and In and their enrichment mechanism is poorly constrained**
- In a **magmatic-hydrothermal environment, the zones of advanced argillic alteration associated with Quartz-alunite (high sulfidation) Au-Ag deposits have the highest Ga contents (max 120 ppm). In these Au deposits, Ga is enriched in the zone of alunite±kaolinite alteration and depleted in the zone of quartz-rich alteration within acid-leached rocks**

GOLCONDA

Geological Model Evolved - GALLIUM



Golconda Geology Model Looking Northeast

- Drifts and shafts on the Golconda Vein at the Golconda and Oro Plata mines are shown for orientation.
- Gold50 drillholes are shown with color contours for gallium grade.
- Bright red is greater than 30 ppm gallium.

Gallium while known to be prevalent was not an original target of the drilling program. Post drilling analysis indicated that significant Gallium is present in some drill holes.

Gallium grade generally increases from south to north, and the area with the greatest Gallium grade is the area of argillic alteration near the Oro Plata Mine, which is a prolific historic Gold producing mine located at the intersection of the Golconda vein and the large north-striking rhyolitic Bronco Dike.

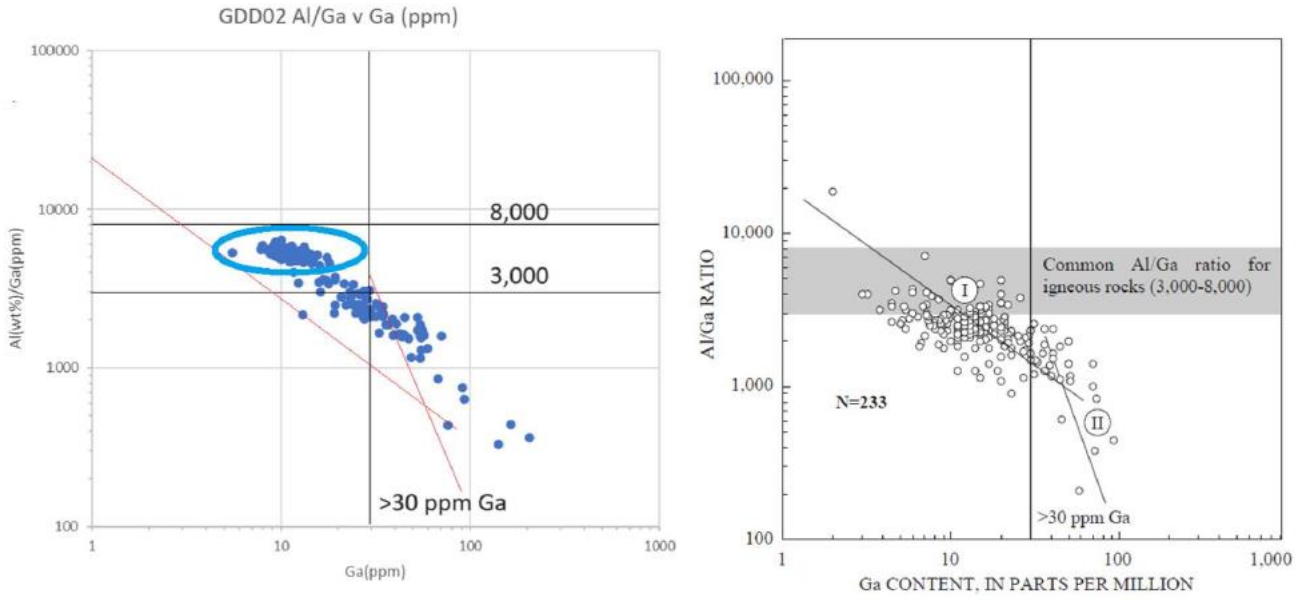
GOLCONDA

Geological Model Evolved - GALLIUM

- It was initially expected that Copper and/or Zinc would have strong correlations with Gallium because it is often included in Chalcopyrite and Sphalerite. **There are no such correlations**. Instead, **Gallium strongly correlates to Barium and Aluminum** within **argillized rock**. Core drill hole GDD02 demonstrates the preferential enrichment of Gallium in argillic altered rock. The drill hole was collared in the weakly altered Tub vein hanging wall and penetrated the Tub vein foot wall and an intersecting northeast striking fault, at approximately 463 feet downhole. In the shallow hanging wall rock, Gallium is relatively less abundant.

- Below 463 feet downhole, in argillic altered rock, the ratio of Al/Ga v Ga follows a well-defined trend between the lowest to highest Gallium grades. Values for unaltered rock in the depth interval to 463 feet are circled in blue. The **GDD02 interval 463-784 feet averages 42 ppm Gallium**. The zone I and II trend lines on the McDermitt plot are reproduced as red lines on the GD002 plot.

- **For a hydrothermal enriched Gallium occurrence, drill hole GDD02 is relatively high grade, and the Gallium grade does not drop at low Al/Ga ratios, as it does at McDermitt**. The grade at the Golconda Project thus appears to be substantial.



Al/Ga v Ga plot for Golconda drill hole GDD02 (left) and McDermitt NV (right)

GOLCONDA
Drilling 2023

Core from GDD02 from 178 m to 181m downhole which assays 40 g/t Gallium Stockwork and sheeted quartz-sulphide veins. Quartz–sericite–pyrite alteration

GDD02 – Quartz-sericite-pyrite altered intrusive with quartz-sulphide veins

CRITICAL METAL
THE CRITICAL OPPORTUNITY

Transforming Power Electronics

- Creating smaller, energy-efficient devices
- Faster and more reliable 5G networks
- Boost efficiency and performance in data-hungry processes
- Expect broad integration, leading to a connected, energy-efficient, tech-advanced future.

Immense Market Opportunity

- 5G telecommunications
- Artificial Intelligence
- Internet of Things
- Electric Vehicles / Self-Driving Cars
- Global Semiconductor Market was U$574.6 bn in 2022 and forecast to grow at 8.8% CAGR to U$1,307.7 bn by 2032

Golconda

- Infrastructure
- Patented Claims
- Grade x Intercepts
- Advanced Geological Model
- Proximity to End Users
- Strategic Location

CONTACT

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Managing Director
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Authorised for Release by the MD

SILICON (Si) v GALLIUM NITRIDE (GaN)

THE MAJOR OF ADVANTAGES OF GAN:

- Reduced Weight
- Reduced Size
- Reduced Costs
- Increased Energy Efficiency

ADVANTAGES OF GALLIUM NITRIDE

The value proposition for GaN devices consists of four major points:

1. Reduced energy costs – Because GaN semiconductors are inherently more efficient than silicon, less energy is expended as heat, resulting in smaller system sizes and material costs.
2. Higher power density (smaller volume) – Higher switching frequencies and operational temperatures than silicon result in lower cooling requirements, smaller heat sinks, conversion from liquid-cooling to air cooling, eliminating fans and reduced magnetics.
3. Higher switching frequency – The higher switching frequencies for GaN devices allows smaller inductors and capacitors to be used in power circuits. The inductance and capacitance scale down in proportion to the frequency – a 10X increase in frequency produces a 10X decrease in the capacitance and inductance. This can result in an enormous decrease in weight and volume, as well as cost. In addition, higher frequency can result in less acoustic noise in motor drive applications. High frequency also enables wireless power transfer at higher powers, more spatial freedom and bigger transmit to receive airgaps.
4. Lower system cost – While GaN semiconductors are generally higher cost than silicon, system level cost reductions result through the use of GaN by reducing the size/costs of other components such as passive inductive and capacitive circuit elements, filters, cooling, etc. Savings range from 10-20%.

Source: https://gansystems.com/gallium-nitride-semiconductor/

SILICON (Si) v GALLIUM NITRIDE (GaN)

Application	Description	Key Properties Utilized
Power Electronics	High-power, high-frequency applications (e.g., inverters, power supplies, motor drives) due to GaN's high electron mobility and breakdown voltage.	High electron mobility, high breakdown voltage, high power density, efficient at high frequencies.
RF (Radio Frequency) Devices	Efficient and high-frequency RF amplifiers, base stations, radar systems, and wireless communication systems. GaN offers improved efficiency and power handling at microwave and millimeter-wave frequencies.	High electron mobility, high-frequency operation, high power handling, and efficiency.
LEDs (Light Emitting Diodes)	Efficient, high-brightness LEDs used in lighting applications, displays, and optoelectronic devices. GaN-based LEDs provide superior performance and energy efficiency.	Direct bandgap, high thermal conductivity, efficient light emission.
Power Amplifiers (PA)	GaN-based PAs are used in satellite communication systems, defense electronics, and wireless infrastructure for improved power efficiency and higher frequency operations.	High electron mobility, high-frequency operation, high power density, and efficiency.
Automotive Electronics	In automotive applications, GaN is used for power conversion, electric vehicle (EV) charging systems, on-board chargers, and DC-DC converters, benefiting from its high power density and efficiency.	High electron mobility, high breakdown voltage, high power density, and efficiency.
Photodetectors	GaN-based photodetectors find applications in imaging, remote sensing, and optoelectronic devices due to their high sensitivity in the UV and visible light spectrum.	High electron mobility, direct bandgap, high thermal conductivity, and high sensitivity to UV and visible light.

Property/Characteristic	Silicon (Si)	Gallium Nitride (GaN)
Material Composition	Elemental (Si)	Compound (GaN)
Bandgap (eV)	1.12	3.4
Thermal Conductivity (W/m·K)	148	130–240
Breakdown Electric Field (MV/cm)	0.3–0.7	~3–6
Electron Mobility (cm^2/V·s)	~1500	~2000–2500
Saturation Electron Drift Velocity (cm/s)	~10^7	>2 × 10^7
Critical Field (MV/cm)	~0.3	~3–4
Dielectric Constant	11.7	9–10.5
Melting Point (°C)	1414	1700–1800
Crystal Structure	Diamond cubic	Wurtzite
Cost	Lower cost	Higher cost
Applications	Integrated circuits, solar cells	Power electronics, LEDs, RF devices
Efficiency and Power Handling	Limited power handling, lower efficiency at high frequencies	High power handling, higher efficiency at high frequencies
Switching Speed	Slower switching speed	Faster switching speed
Voltage Rating	Lower voltage rating	Higher voltage rating

https://techovedas.com/gallium-nitride-next-gen-semiconductor-that-could-revolutionize-electronics/