TSX: AII / ASX: AII / OTCQX: ALMTF / Frankfurt: ALI.F

# **INVESTOR PRESENTATION**

Opening The World's Largest Tungsten Mine & Redomiciling to the United States



February 2025

### **INVESTOR PRESENTATION**

PREPARED BY ALMONTY INDUSTRIES INC. PRESIDENT & CEO: LEWIS BLACK

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The forward-looking statements and information in this investor presentation include information relating to the intentions of management. Such statements and information reflect the current view of Almonty with respect to risks and uncertainties that may cause actual results to vary. Forward-looking statements are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of Almonty to be materially different from those expressed or implied by such forward-looking statements, including but not limited to: the receipt of all required approvals, unanticipated costs and expenses, general market and industry conditions and operational risks, including large project risk and contractual factors, any specific risks relating to fluctuations in the price of ammonium para tungstate ("APT") from which the sale price of Almonty's tungsten concentrate is derived, actual results of mining and exploration activities, environmental, economic and political risks of the jurisdictions in which Almonty's operations are located and changes in project parameters as plans continue to be refined, forecasts and assessments relating to Almonty's business, credit and liquidity risks, hedging risk, competition in the mining industry, risks related to the market price of Almonty's shares, the ability of Almonty to retain key management employees or procure the services of skilled and experienced personnel, risks related to claims and legal proceedings against Almonty and any of its operating mines, risks relating to unknown defects and impairments, risks related to the adequacy of internal control over financial reporting, risks related to governmental regulations, including environmental regulations, sand perations, of Almonty, risks related to the adequacy of mineral resources are permits, the ability of Almonty to comply with applicable laws, regulations and permitting requirements, lack of suitable infrastructure and employees to support Almont

Forward-looking statements are based on assumptions management believes to be reasonable, including but not limited to, the receipt of all required final approvals, no unanticipated delays in the project financing, no material unanticipated costs and expenses, no material adverse change in general market and industry conditions and no unanticipated material operational risks, including large project risk and contractual factors, no material adverse change in the market price of APT, the continuing ability to fund or obtain funding for outstanding commitments, expectations regarding the resolution of legal and tax matters, no negative change to applicable laws, the ability to secure local contractors, employees and assistance as and when required and on reasonable terms, and such other assumptions and factors as are set out herein. Although Almonty has attempted to identify important factors that could cause actual results, level of activity, performance or achievements not to be as anticipated, estimated or intended. There can be no assurance that forward-looking statements will prove to be accurate and even if events or results described in the forward-looking statements are realized or substantially realized, there can be no assurance that they will have the expected consequences to, or effects on, Almonty. Accordingly, readers should not place undue reliance on forward-looking statements and are cautioned that actual outcomes may vary.

Investors are cautioned against attributing undue certainty to forward-looking statements. Almonty cautions that the foregoing list of material factors is not exhaustive. When relying on Almonty's forward-looking statements and information to make decisions, investors and others should carefully consider the foregoing factors and other uncertainties and potential events.

Almonty has also assumed that material factors will not cause any forward-looking statements and information to differ materially from actual results or events. However, the list of these factors is not exhaustive and is subject to change and there can be no assurance that such assumptions will reflect the actual outcome of such items or factors.

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ALMONTY AT A GLANCE MARKET П SANGDONG Ш PANASQUEIRA IV CORPORATE APPENDIX VI





ALMONTY AT A GLANCE

# **CORPORATE SNAPSHOT**



### **ISSUED CAPITAL**

275.5m

Common Shares

### CASH

C\$ 12.9m

as at Sep 30, 2024

### **PROJECT FINANCE** US\$ 75.1m

KfW project finance loan secured

### **MARKET CAP** C\$ 520.8m

At C\$ 1.89 on Feb 10<sup>th</sup>, 2025

### **LONG-TERM DEBT** C\$149.8m

Includes loans to shareholders

### **TOTAL ORE RESERVES**

101mt

@ avg. grade of 0.35%

### **BOARD OF DIRECTORS** & OFFICERS

➤ Lewis Black Director, President and Chief Executive Officer

**▶** Daniel D'Amato Director, Europe

➤ Mark Trachuk Director, Canada

> Dr. Thomas Gutschlag Director, Germany

**➤** David Hanick Director, Canada

**➤** Andrew Frazer Director, Australia

> Mark Gelmon, CPA, CA CFO, Canada



### **MAJOR SHAREHOLDERS**



Lewis Black (CEO)

Almonty Partners LLC **GTP**  11.3%

Deutsche Rohstoff

65.2%

Other Shareholders

### **Registered Office**

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# TUNGSTEN - PROBLEMATIC SOURCES, ONE SOLUTION: SANGDONG MINE

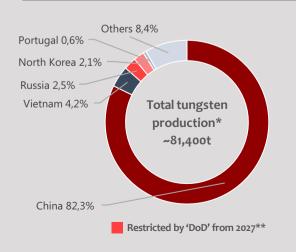


Tight Market With Geopolitical Tension

### THE ISSUE

### Global Tungsten Supply Shifts Amid U.S.-China Restrictions

- > Starting January 1, 2027, the U.S. Department of Defense ("DoD") will ban the mining, refining, and production of tungsten, tantalum, and certain magnets in Iran, Russia, North Korea, and China for military procurement, reducing U.S. reliance on adversarial nations
- ➤ Since December 2024, China's restrictions on 'dual-use' technologies, including tungsten, have disrupted global supply chains and targeted the U.S. Its dominance in critical minerals, reinforced by subsidies and resource control, challenges Western efforts to secure independent supplies for semiconductors, defense, and clean energy
- ➤ USA REEShore Act (2022) bans Chinese tungsten in military equipment by 2026, while the European Commission extends anti-dumping duties on Chinese tungsten carbide imports for 5 more years in 2023
- ➤ Effective February 2025, China's Ministry of Commerce (MOFCOM) and General Administration of Customs (GAC) have imposed export controls on 25 rare metal products, including tungsten and molybdenum, citing national security and non-proliferation commitments



### Scarce Metal: High Dependency on China

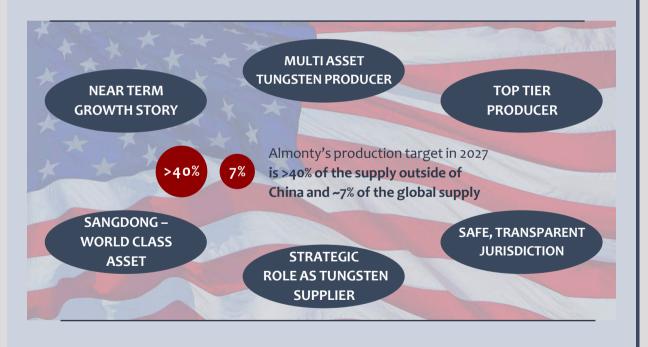
- Market tension rises with reliance on China and Russia amid opaque production
- Tungsten is deemed critical by the EU, US, Australia, Canada, and South Korea due to supply risks and economic value
- Roskill designated Tungsten a technology material due to its role in semiconductors, batteries, and 5G

# THE SOLUTION

# **ALMONTY**

On the verge of becoming the only U.S.-based tungsten producer

Almonty has announced plans to shift its jurisdiction of incorporation from Canada to Delaware (U.S.), citing strong critical material regulations and a changing global economy.





Almonty Industries is one of the only transparent, non-restricted, western source for tungsten with the ability to supply conflict-free tungsten to the United States and other western partners.

<sup>\*</sup>Source: U.S. Geological Survey, Mineral Commodity Summaries January 2025, est. production in 2024

<sup>\*\* &#</sup>x27;DoD' = U.S. Department of Defense

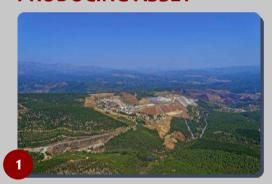
# **ALMONTY'S GLOBAL PRESENCE**



# Diversified and Experienced Operator in Conflict-free Regions



### **PRODUCING ASSET**



### **PANASQUEIRA** – PORTUGAL

ACQUIRED: 2016 STAGE: PRODUCTION P&P: 3,056kt @ 0.21% WO<sub>3</sub>\* M&I: 11,855kt @ 0.23% WO<sub>3</sub> Inferred: 10,631kt @ 0.24% WO<sub>3</sub>

### **UNDER CONSTRUCTION**



### **SANGDONG - SOUTH KOREA**

ACQUIRED: 2015 STAGE: CONSTRUCTION P&P: 7,896kt @ 0.45% WO<sub>3</sub> M&I: 8,029kt @ 0.51% WO<sub>3</sub> Inferred: 50,686kt @ 0.43% WO<sub>3</sub>

### **DEVELOPMENT PROJECTS**



### **VALTREIXAL** – SPAIN

ACQUIRED: 2013 - 2016 STAGE: PRE-FEASIBILITY P&P: 2,577kt @ 0.35% WO<sub>3</sub> Eq. M&I: 2,833kt @ 0.36% WO<sub>3</sub> Eq. Inferred: 16,755kt @ 0.18% WO<sub>3</sub>-Eq.



### **LOS SANTOS TAILINGS – SPAIN**

ACQUIRED: 2011 STAGE: CARE & MAINTENANCE P&P: 3,767kt @ 0.13% WO<sub>3</sub>

M&I: 3,767kt @ 0.13% WO<sub>3</sub>

# ALMONTY'S SUCCESS BUILT ON 3 MAIN PILLARS



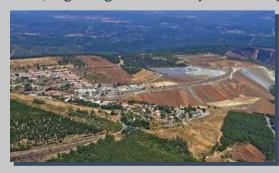
### PRODUCTION - CONSTRUCTION - DEVELOPMENT

### **PANASQUEIRA - PRODUCTION**

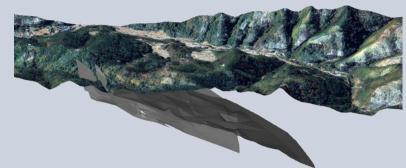
- Worlds longest producing mine 136 years of almost uninterruptable exploitation – still producing
- Excellent permit situation exploitation permit is valid until 2052, extendable for a further 30 years. All permits and necessary infrastructures are in place and fully permitted
- ➤ Premium Price received >15% premium on Portuguese shipments due to tightening supply from transparent source
- ➤ In progress of extending the mine to the next level "L4"

  Low risk profile due to usage of the existing surface

  equipment & following orebody to depth
  - → Scoping study completed, ready-to-be-built, high synergies, use of existing infrastructure
- Outstanding quality:
   High-Quality & very consistent Concentrates, Low
   Contamination, Highest grade recovery with nearly 74%



### **SANGDONG – CONSTRUCTION**



- ➤ Fully permitted, construction well advanced, ca. US\$66m drawn under the KfW Loan Facility, all progress milestones achieved
- ➤ Past producing asset, existing infrastructure
- Delivery of all long lead time equipment from Metso Outotec in Europe to South Korea is completed
- > 0.51% WO<sub>3</sub> exceptional 3x of the global average grade\*
- ➤ Largest tungsten deposit in the world by Inferred Resource based on historical drilling by Korea Tungsten
- Significant upside potential from underlying molybdenum deposit
- ➤ Unprecedented floor price guarantee with a US\$235/MTU floor price underlines the strategic importance of asset → NO UPSIDE CAP

### **VALTREIXAL – DEVELOPMENT**

- ➤ Valtreixal will potentially be **Almonty's third high quality mine in a safe jurisdiction,** clearing the companys path to become one of the leading Tungsten producer worldwide
- Almonty acquired the project from SIEMCALSA, the same group that was involved in the historical development of Los Santos
- > Permitting process on the way, progress expected soon
- Current Status Pre-Feasibility (October 2015)
- ➤ Anticipated 20+ years life of mine with a constant highquality production of WO3 and Tin
- Potential cost saving factor through synergies from Los Santos



# 10 REASONS TO INVEST INTO ALMONTY



Unique position in the tungsten market due to first-class projects & proven track record

### T BECOMING A U.S.-BASED TUNGSTEN PRODUCER

Almonty announced redomiciling to the U.S. to align its structure with shareholders and enhance access to key U.S. markets

### TT PROFITABLE COMPANY

Almonty holds a distinctive position in the tungsten market, supported by its established track record of consistently positive economic performance

### TTT SECURED FINANCING & 15-YEAR OFFTAKE

US\$75.1M loan from Germany's state bank - at LIBOR/SOFR +2.3% and guaranteed by Austrian development bank OeKB

### T T PROVEN TRACK RECORD

Sold operations for 21x earnings during a previous supply squeeze in 2007 128-year history of profitable tungsten mining

### MATERIAL IS PROCESSED INT THE U.S.

Almonty's material is currently processed in Buffalo, NY, soon also in Pennsylvania

## ${f V}{f I}$ 2 NEAR-TERM GROWTH STORIES

Low-risk extension at Panasqueira as well as Phase II + Tungsten Oxide Plant at Sangdong – each will add significant value to the company

### $\mathbf{V}\mathsf{T}\mathsf{T}$ Current premium on portuguese material

>15% premium on Portuguese shipments due to tightening supply from transparent source

### ${f VIII}$ ACHIEVING ALL PROGRESS MILESTONES

All progress milestones have been achieved, and KfW, Germany's state bank, has approved every drawdown, eight so far

### **TX** STRATEGIC ROLE AS TUNGSTEN SUPPLIER

90% of global tungsten supply from China and Russia
→ Almonty operates in transparent & conflict-free democratic countries

### NONE OF THE LARGEST PRODUCER IN A GROWING MARKET

Almonty's production target in 2027 is 40% of the supply outside of China and 7% of the global supply. All in a growing market environment

# STRIDING FORWARD IN ONGOING IMPROVEMENTS – UPDATES & OUTLOOK





#### CHINA TO TIGHTEN EXPORT CURBS ON CRITICAL METALS

China's new export controls, effective Dec. 1, target critical metals like tungsten, vital for tech and defense, reinforcing its dominance over 80% of global tungsten supply.

# ALM Almotopostrei

### ALMONTY SIGNS EXCLUSIVE OFFTAKE WITH SEAH FOR SANGDONG MOLYBDENUM

Almonty secured an exclusive offtake with SeAH M&S for 100% of Sangdong Molybdenum's production, set to potentially begin in late 2026. The deal ensures financial stability with a \$19.00/lb floor price and strengthens South Korea's supply chain by reducing reliance on Chinese imports.

### **ALMONTY SUCCESSFULLY RAISED AUD 18.45M**

The Company has successfully raised AUD 18.45m (4.53 million Canadian units and 15.41 million CDI Units). Proceeds from the Placement will be applied towards restructuring the Company's balance sheet and towards offer costs.

#### **ALMONTY ANNOUNCES INTENTION TO RELOCATE TO THE UNITED STATES**

The Company is planning to change its jurisdiction of incorporation from Canada to the State of Delaware while maintaining its listings for now on the Toronto Stock Exchange and the Australian Securities Exchange. Management believes that being based in the United States will enhance Almonty's long-term competitiveness and agility in a dynamic global market

### ALMONTY IS A GLOBAL LEADER PROMOTING WOMEN IN MINING

Almonty Korea Tungsten Corp. has 20% female employment, exceeding the global mining average of 15%, and is actively fostering inclusion through safety measures, mentorship programs, and equal opportunities to support women in the industry.

# **ALMONTY'S STRATEGIC OUTLOOK**

**Q1/2025**Redomiciling from Canada to the U.S.

**Q2/2025**Completion of Phase 1 of the Sangdong Mine

**2025** Finalizing financing for Phase 2 of Sangdong

2025/2026 Significantly advancing Sangdong Molybdenum

2026 Phase 2 of Sangdong, doubling its output Late 2026/Early 2027
Targeting production of its Molybdenum Asset

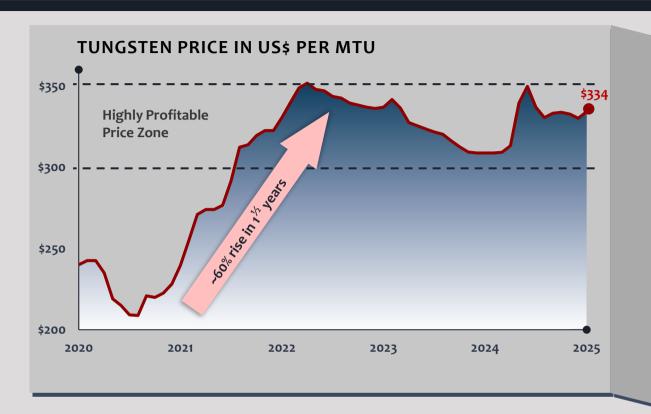
From mid 2027
Becoming a leading western strategic metals producer by reaching full-scale production



MARKET

# TUNGSTEN PRICE IN HIGHLY PROFITABLE ZONE

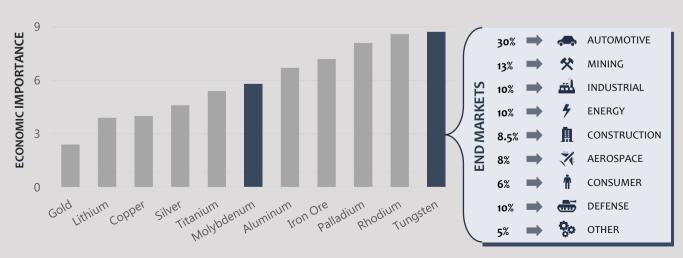




### TIGHT MARKET WITH GEOPOLITICAL TENSION

- > South Korea, the largest per capita tungsten consumer worldwide, imports 94.7% of its tungsten supply from China
- Rising dependence on China and Russia fuels market tension due to lack of transparency and uncertain production practices
- **EU, US, Australia, Canada & South Korea** declared tungsten as a critical raw material as a result of **high supply risk and high economic importance**
- ➤ U.S. 'DoD' bans critical material, including tungsten, from adversarial nations for military procurement by 2027, reducing reliance on foreign sources
- ➤ China imposes export controls on 25 rare metals, including tungsten and molybdenum, tightening global supply chains starting February 2025
- NATO published in December 2024 their Defense-Critical Supply Chain Security Roadmap stating tungsten as high supply risk for several military applications such as Fighter Aircrafts, Battle tanks, missiles & submarines

### TUNGSTEN - THE MOST IMPORTANT AMONG ALL RAW MATERIALS\*



### NANO TUNGSTEN OXIDE

- > The material to supply the **battery anode & cathode manufacturing** industry
- The raw material to produce tungsten hexafluoride (WF6) gas used in the production of all semiconductors
  - → 40% of global tungsten hexafluoride was consumed in Korea.
- ➤ **Roskill** recently designated **Tungsten a technology material**, a function of its high importance in **new technologies** such as **semiconductors**, batteries and 5G

\*Source: Study on the review of the list of critical raw materials, European Commission 2023

# MAIN REASONS FOR GROWING TUNGSTEN DEMAND





### **EV & HYBRID VEHICLE BOOM COULD BOOST TUNGSTEN**

- > Tungsten is an increasingly important component in the production of Hybrid batteries due to its ability to enhance their high energy density
- > Development in the battery field is ongoing as performance, safety and cost-effectiveness are current key drivers
- > Increased focus on niobium tungsten oxide in batteries to reduce charge time and increase power density could result in a growing demand





### INDUSTRIAL USES IN SEMICONDUCTOR AND ROBOTICS

- > Tungsten Hexafluoride (WF<sub>6</sub>) gas used in the production of all semiconductors; a market with an expected growth of more than 12% p.a.
- > Essential material to produce robotic arms and other heavy machinery; a market with an expected growth of more than 10% p.a.
- > High melting point and good conductivity make it an **ideal material for EDM processes**, which require high levels of precision and control

### MILITARY TENSION SUPPORT TUNGSTEN DEMAND

- > Rising military tensions are driving increased demand for tungsten in next-generation defense systems
- Tungsten's extreme hardness, density, and high melting point (3,422°C) make it critical for armor-piercing ammunition, missile components, radiation shielding, and hypersonic weapons
- > It is widely used in M1 Abrams tank armor, armor-piercing bullets, and 155mm shells
- ➤ Unlike depleted uranium, tungsten armor is less regulated and considered "exportable," allowing U.S. allies to receive tanks with tungsten armor
- Emerging technologies, including hypersonic projectiles requiring heat-resistant materials, will further boost tungsten demand.

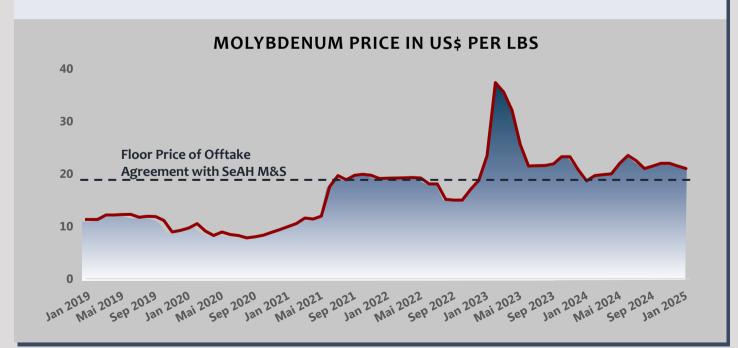


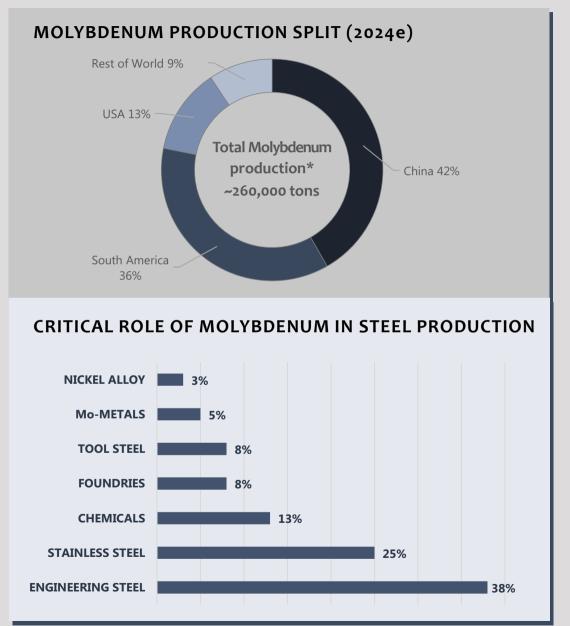
# MOLYBDENUM'S VITAL SIGNIFICANCE IN STEEL PRODUCTION



### TIGHT MARKET WITH GEOPOLITICAL TENSION

- Molybdenum, mainly a low-grade by-product, results from the insufficiency of high-grade projects
- ➤ Globally, there are **very few stand-alone molybdenum mines**, with only two in the USA and seven operating as by-product mines.
- ➤ Worldwide held molybdenum reserves account for less than 5% of the annual demand and are equivalent to less than 1 month of production
- > US in-ground Reserves of Moly are estimated to be around 5.4mt and in the rest of the world around 20mt
- > Only **little substitution** for molybdenum in its **major application** in steels and cast irons

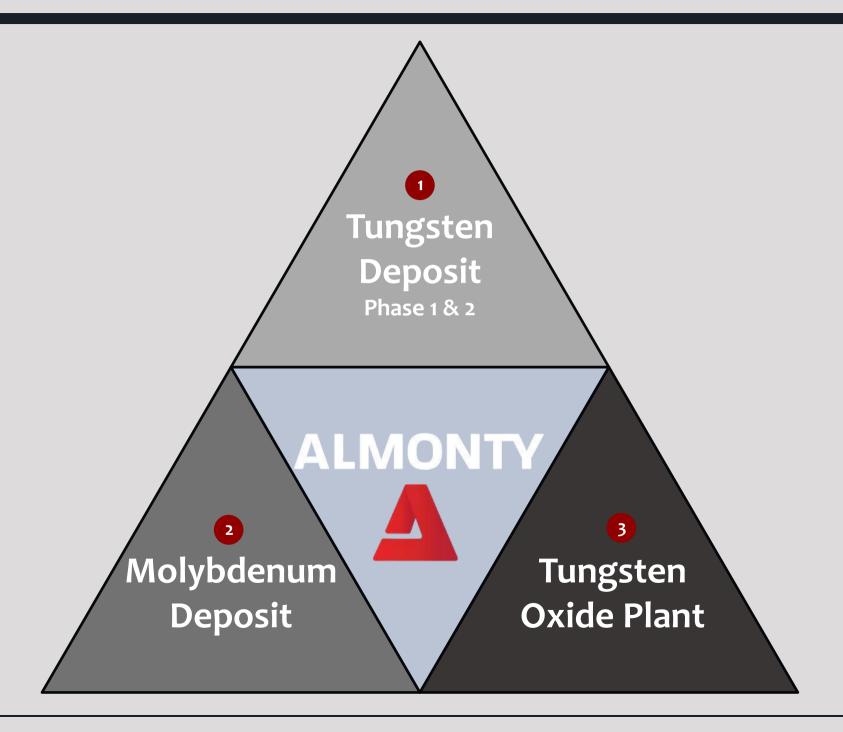






SANGDONG



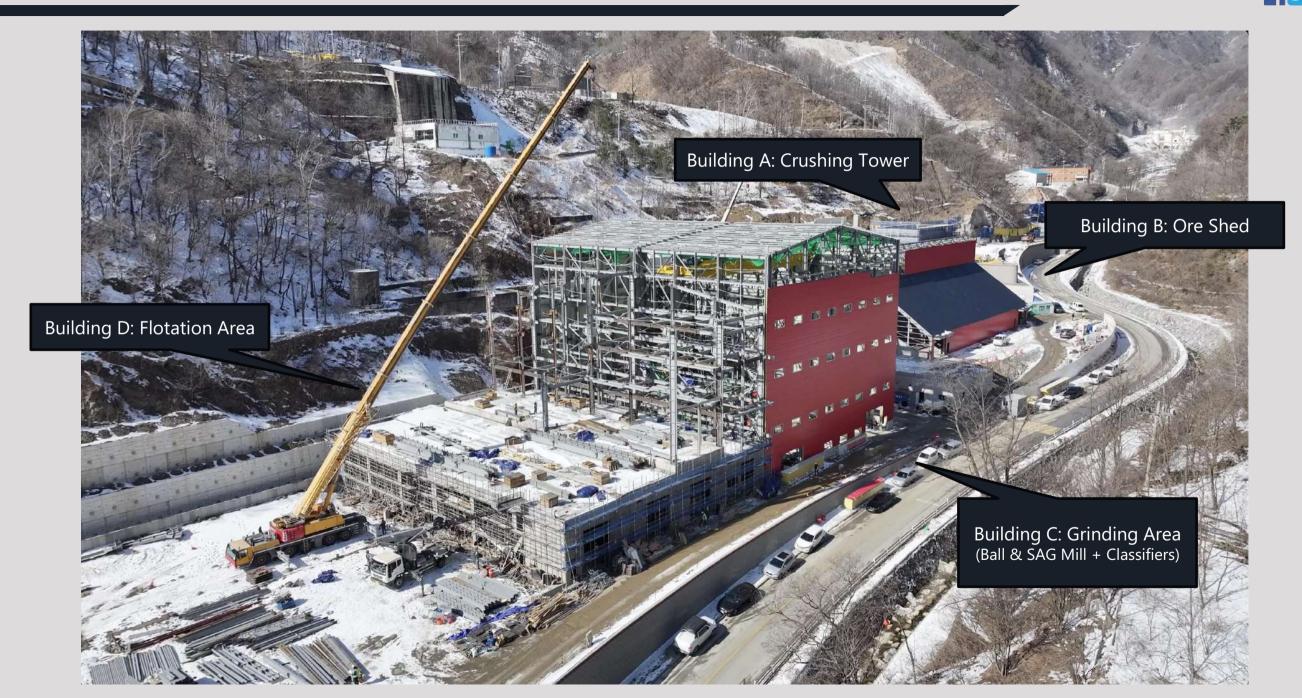


# Almonty's Trinity - SANGDONG

- 1 One of the largest and highest-grade tungsten deposits in the world
- > Construction well advanced, production start in 2025
- Offtake Agreement with unprecedented floor price guarantee of US\$235/MTU
- > Expansion shortly after initial production started
- 2 Large molybdenite-quartz vein stockwork, located on Sangdong's existing fully permitted, mining lease, about 170km southeast of Seoul
- Provides potential for material increase in shareholder value given synergies that exist with Sangdong
- ➤ Offtake Agreement with a floor price guarantee of US\$19/Lb signed in January 2025
- 4,000t p.a. vertical nano tungsten oxide plant using additional material of the Sangdong Tungsten deposit
  - ➤ Crucial supply for the battery anode & cathode manufacturing industry with rising importance

# IMPRESSIONS (February 2025) – CONSTRUCTION WELL ADVANCES







# February 2025

# November 2024





# SHOVEL READY PROJECT IN A SUPPORTIVE TIER 1 JURISDICTION



Low pre-production capex, great economics & long mine life

~US\$ 120m

Start-Up Capex\*\*\*

\$110/mtu

Cash costs per ton\*

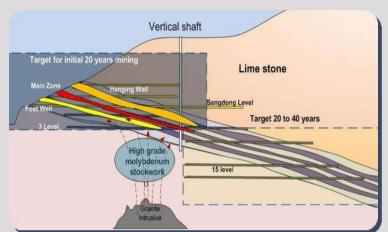
C\$ 72.0m

Annual EBITDA @1.2m tons & \$300/mtu

90+ years

Potential Mine Life





- > Fully permitted, construction well advanced, expected completion mid-2025
- > **Delivery** of all **long lead** time equipment from **Metso Outotec** in Europe to South Korea is **completed**
- > Past producing asset, existing infrastructure
- > 450kt ore @0.44% WO<sub>3</sub> mined during 1st production year
- > Significant upside potential from underlying molybdenum deposit
- ➤ Unprecedented floor price guarantee with a US\$235/MTU floor price underlines the strategic importance of asset → NO UPSIDE CAP
- All progress milestones have been achieved, and KfW has approved every drawdown

Tonnage	Tungsten	C ! !

**SANGDONG RESERVES & RESOURCE TABLE\*\*** 

	Tonnage (Mt)	Tungsten WO <sub>3</sub> grade	WO <sub>3</sub>
Reserves	7.9	0.45%	~36 kt
M&I Resource	8.0	0.51%	~41 kt
Inferred Resource	50.7	0.43%	~218 kt

# PROJECT FINANCING & OFFTAKE AGREEMENT



Reputable partners confirm high quality project



# 15-YEAR OFFTAKE AGREEMENT GUARANTEES ~US\$580M REVENUE



- > Global tungsten product major
- Unprecedented floor price guarantee with a US\$235/MTU floor price underlines the strategic importance of asset
  - → NO UPSIDE CAP
- ➤ Plansee provided a US\$20m cost overrun facility and US\$9.8m guarantee for the DRSA if required



# 70% OF CAPEX FINANCED THROUGH SENIOR PROJECT FINANCE LOAN



SIZE	US\$ 75.1m
INTEREST	3-M LIBOR/SOFR + 2.3%
GRACE	2-Year Grace Period
REPAYMENT	6.25y Installments

- ➤ German 100% state-owned development bank
- Very extensive environmental and commercial project due diligence confirms project quality



### **GOVERNMENT GUARANTEE**



- ➤ Long-standing partner of Austrian partners for their international export financing needs
- ➤ KFW project finance guaranteed by OEKB via Export Credit Agency (ECA) cover

# SANGDONG MASSIVE OREBODY WITH OUTSTANDING ECONOMICS





### SIGNIFICANT RESERVE UPSIDE

Largest tungsten deposit in the world by Inferred Resource based on historical drilling by Korea Tungsten



### **HIGHEST GRADE**

One of the **highest grades** in the world. Over 3X that of China's and the global average



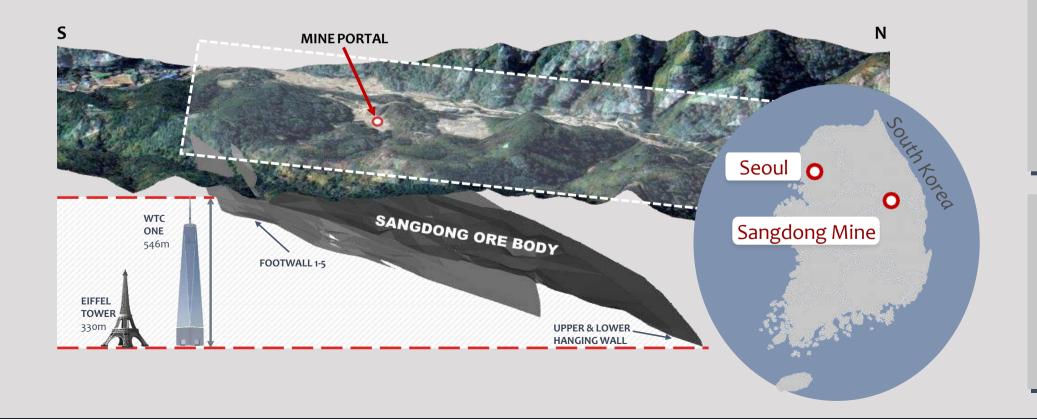
### **LOWEST COST**

Estimated **lowest quartile production costs** (US\$110/MTU); roughly half the average of Chinese SOE's



### **HIGHEST RECOVERY**

World-class recovery of 85% and concentrate of 65%





# 90+ POTENTIAL YEARS MINE LIFE

will ensure constant **high-quality material** from and for the western
world over multiple generations



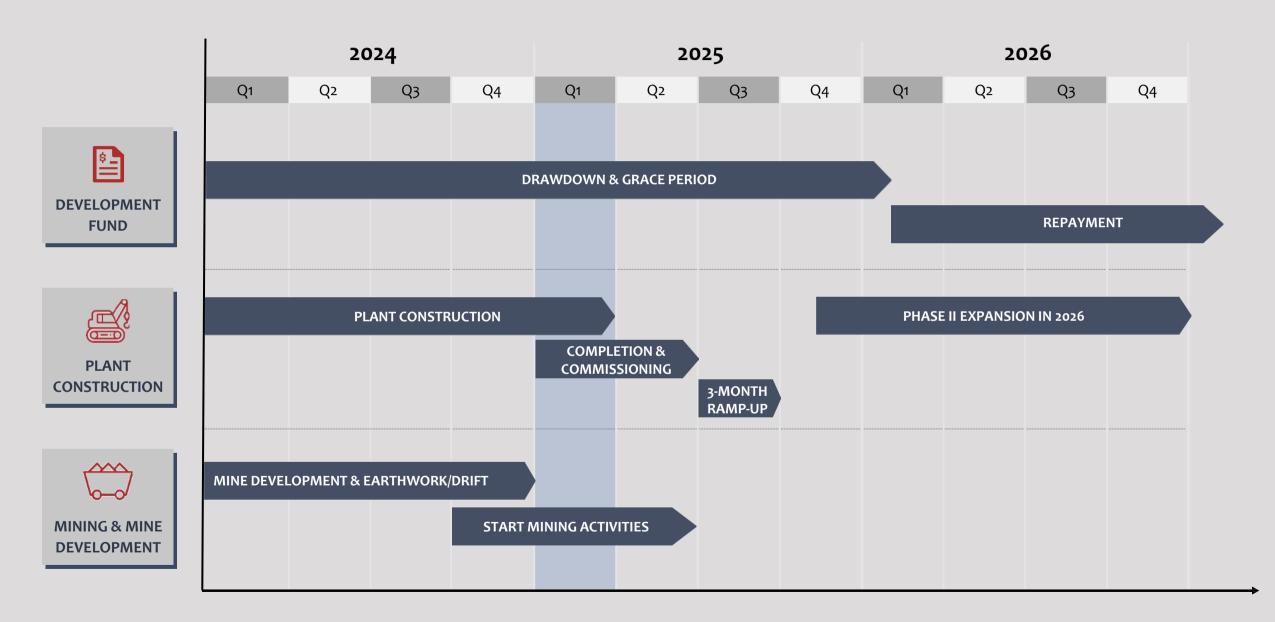
# FULLY PERMITTED & ALL MILESTONES ACHIEVED

**Construction well advanced,** Almonty kept constantly working on the Sangdong project since the beginning

# SANGDONG PROJECT – SUPPYING THE WESTERN WORLD FOR DECADES



Key milestones ahead – nearing completion



# **DOWNSTREAM AT A GLANCE**



# Key Factors & Financial Summary

PROJECT SUMMARY (Data are averages over the LOM)**	Phase I (financed & in construction)	Phase II	Tungsten Oxide (TO) plant
Expected start of production	2025	2026/2027	2027/2028
WO <sub>3</sub> production	~230,000 mtu	~460,000 mtu	4,000 tons p.a. capacity Recovery 97%
Recovery	85%	85%	
Revenue p.a.	~ US\$ 68m	~ US\$ 142m	~ US\$ 173m*
Operating Expenses (OPEX) p.a.	~ US\$ 27m	~ US\$ 59m	~ US\$ 146m*
EBITDA	~ US\$ 41m	~ US\$ 83m	~ US\$ 26m
Expected Initial Capex	~ US\$ 125m	~ US\$ 17m	~ US\$ 71m





# PROCESSING OF ADDITIONAL MINE-OUTPUT

Due to the unique upside potential at the Sangdong tungsten mine, there is a rare opportunity to process additional material on-site



### **FURTHER DIVERSIFICATION**

Due to global demands, Almonty can supply MTU concentrate as well as nano tungsten oxide and therefore diversify its end-consumers



### **INCREASED CASH FLOW**

Tungsten nano oxide sells at a 10% premium over MTUs, potentially adding US\$ 18m cash flow



### **PERMITS IN PLACE**

Tungsten oxide plant expansion is enabled within the existing Phase 1 permits, allowing for a faster and more efficient scale-up



### **GOVERNMENT SUPPORT**

Strong Government Support for Almonty to support reducing dependence on Chinese imports is a No.1 priority for the Korean government

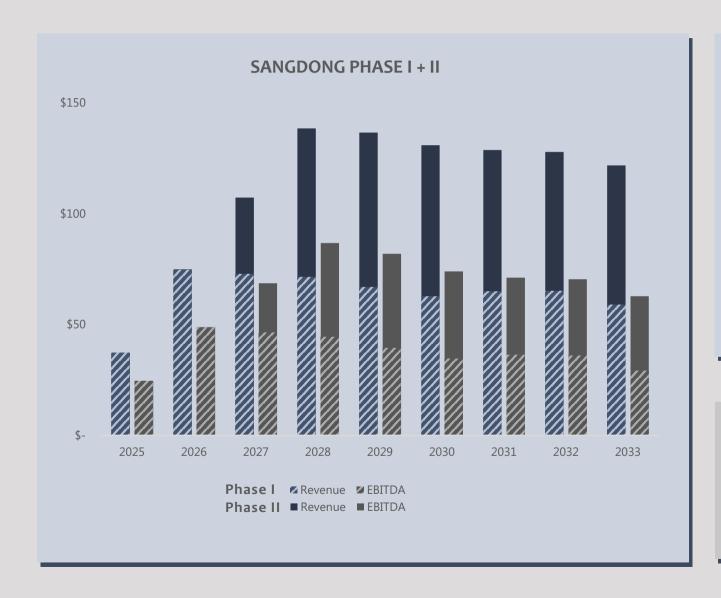
<sup>\*</sup>Contains intercompany Revenue/Opex of  $\sim$  US\$ 75m, due to sales of WO $_3$  conc. From Sangdong to Tungsten Oxide Plant

<sup>\*\*</sup> Based on price forecast of Merchant Research & Consulting: 2024 World Market Review and Forecast to 2033

# FINANCIAL OUTLOOK - SANGDONG TUNGSTEN



Near-term production and short-term upside



### Phase II – Doubling Production with Minimal Investment

- Almonty has a rare and unique opportunity to **organically expand** its production capacity **from approximately 640kt to 1.2 million tons** within 2 years of initial production
- > Preliminary results indicate that the **expansion will require limited capex**, **significantly enhancing the overall economics** of the project
- ➤ The overall risk profile is reduced, as the **expansion will integrate seamlessly** into **existing infrastructure and operations**, ensuring an efficient implementation with enhancing economics all within 1-2 years from initial start production
- > Permitting for Sangdong Phase I will allow the extension of Phase II



### LONGETIVITY

While the NI43 has a 13-y LOM, internal studies show potential excavation for 90+years



#### **EXPANSION POTENTIAL**

Potential to double throughput within 1-2 years after commence of production



### **EXCELLENT ECONOMICS**

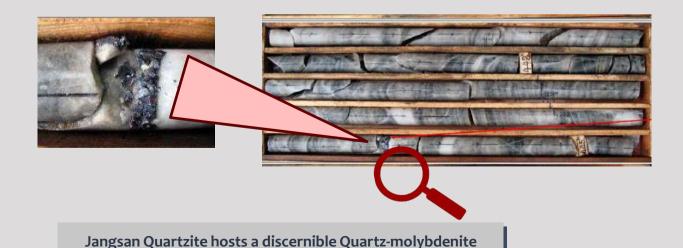
Potential for up to **US\$ 140m** revenue and **US\$85m EBITDA** 

# SANGDONG'S SILENT HERO: THE MOLYBDENUM STORY UNFOLDED

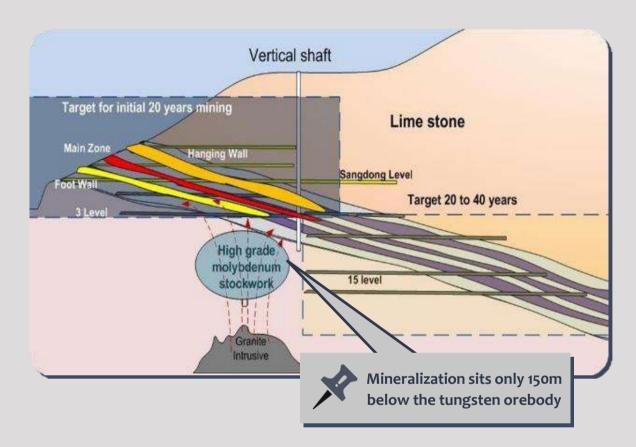


### **ALMONTY KOREA MOLY**

- Almonty Korea Moly (AKM) Project with its large molybdenite-quartz vein stockwork is located on Sangdong's existing fully permitted, mining lease, about 190km southeast of Seoul
- ➤ **Significant maiden molybdenum resource** defined 150m adjacent to tungsten orebody at **Sangdong Mine in South Korea**
- ➤ Provides potential for material increase in shareholder value given synergies that exist with Sangdong Investigating integration into the Sangdong Tungsten Mine
- ➤ Previous drilling has indicated that the deposit is open in several directions and that a higher grade zone may be delineated. Both factors will be assessed with further drilling in the future



vein stockwork, showcasing visible mineralization

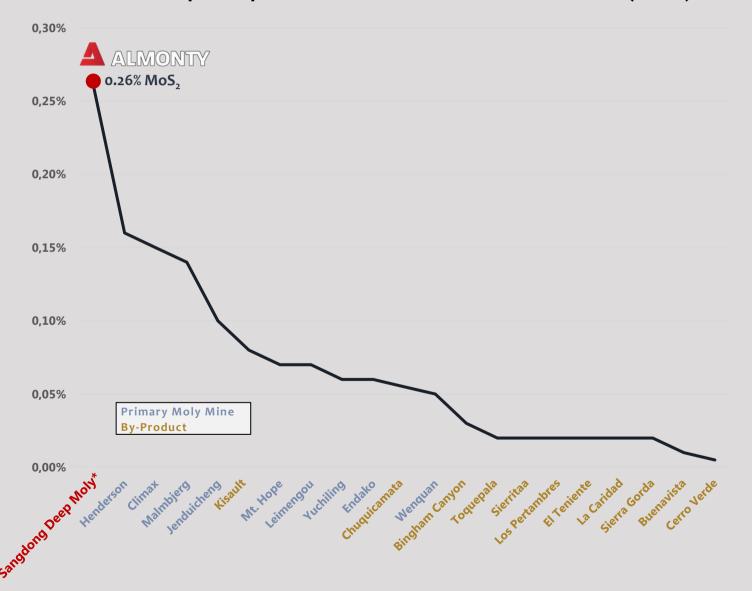




# SIGNIFICANTLY HIGHER GRADES – SANGDONG ONE IT'S KIND



### Peer-Group Comparison of Resource/Reserves Grades (% Mo)





#### **HIGHEST GRADE**

Sangdong Deep Moly has the highest grades of the peer group



#### **GREAT SYNERGIES**

Due to the approximaty to Sangdong Tungsten, there are significant synergies to the Moly Project



#### **POTENTIAL UPSIDE**

The **orebody is open into multiple** directions, while the source of the material is still to be found



#### NATIONAL IMPORTANCE

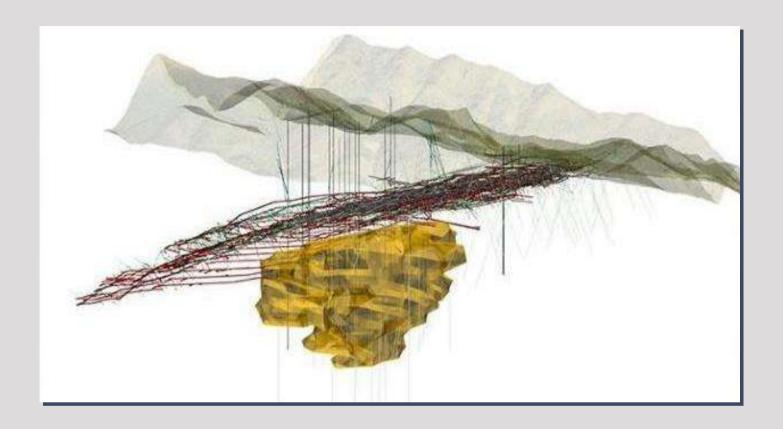
South Korea is one of the largest Molybdenum users/importers,

# January 2025 – Almonty signs Offtake Agreement with SeAH Group, the Korean Steel Giant for 100% of the material

- The Offtake Agreement includes a \$19.00/lb hard floor price to ensure financial stability, with molybdenum currently priced at \$22.00/lb
- ➤ SeAH M&S is the largest processor of molybdenum products in South Korea and the second largest Molybdenum oxide smelter in the world
- South Korea, heavily reliant on imported molybdenum (mostly from China), will benefit from a strengthened domestic supply chain
- ➤ This project reduces South Korea's dependence on foreign imports, supporting local manufacturers and critical industries.
- ➤ SeAH is constructing a \$110 million metals facility in Texas to supply SpaceX and the U.S. defense and aerospace industries

# GEOLOGICAL OVERVIEW: UNDERSTANDING SANGDONG'S MOLYBDENUM DEPOSITS





### **OREBODY CHARACTERISTICS**

- > Structure: Cut by steep reverse and normal faults, with significant offsets.
- > Mineral Composition: Scheelite, minor wolframite, molybdenite, bismuthinite, and more.
- > Hydrothermal Nature: Hydrothermal origin with two stages of mineral deposition.

### **DEPOSIT TYPE**

- Tungsten Mineralization: Tabular skarn horizons within Myobong Slate, sourced from hydrothermal fluids beneath Sangdong Granite.
- ➤ **Molybdenum Insights:** Molybdenum presence in Jangsan quartzite, forming Sangdong Molybdenum Stockwork.

### **MINERALIZATION INSIGHTS**

- Tungsten Skarns: Key tungsten mineralization in tabular, bedding conformable skarns.
- ➤ Molybdenum Layers: Predominantly molybdenum mineralization in quartz veins underlying the tungsten skarn footwall

### **EXPLORATION OVERVIEW**

- ➤ **Past Exploration:** Limited to mineral resource definition drilling, identifying significant mineralization.
- ➤ **Potential Extensions:** Suggestions of unexplored zones, emphasizing the need for further drilling.

# STRATEGIC ASSET: UNLOCKING THE VALUE OF OUR MOLYBDENUM RESERVES



# **CURRENT STRENGTH**

# STRATEGIC MOLY PROJECT: 6 REASONS TO BOOST OVERALL COMPANY WORTH

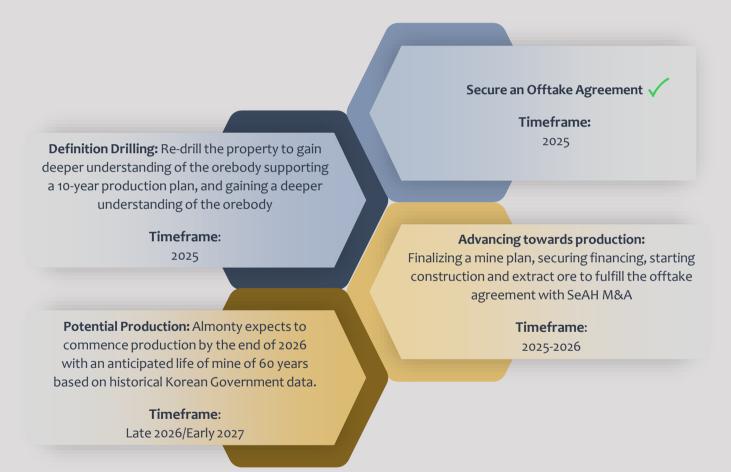
- 1 FULLY PERMITTED
  Orebody located in the same permitted area as Sangdong, ensures efficient development and regulatory compliance
- 2 ADJACENT TO SANGDONG

  The orebody is characterized by both easy future access and costefficient exploration due to its location
- 3 SIGNIFICANT UPSIDE
  Open orebody in all directions; more drilling is needed to understand the full scale which will be acquired during the early mine phase of Sangdong
- 4 HIGH GRADE

  Among the highest grades observed, yet the source of the material remains unidentified
- 5 STAND-ALONE MINE
  Almonty's high-grade molybdenum project stands alone, contrasting with lower grades in other mines
- 6 POTENTIAL SYNERGIES

  Proximity to Sangdong Tungsten creates powerful synergies that could significantly elevate the project's impact
- OFFTAKE AGREEMENT IN PLACE
  Offtake Agreement with SeAH M&S includes a \$19.00/lb hard floor price to ensure financial stability

# ROADMAP TO SUCCESS





**PANASQUEIRA** 

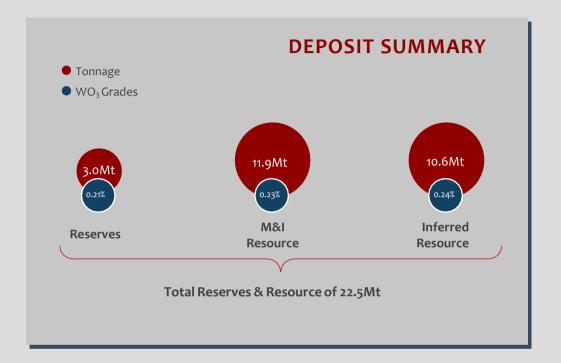
# PANASQUEIRA – WO<sub>3</sub> PRODUCTION FOR MORE THAN A CENTURY



### Proven track record in a first-class jurisdiction

### **KEY FACTS**

- ➤ Located in Covilhã, Castelo Branco district, Portugal
- > Worlds longest producing mine 136 years of almost uninterruptable exploitation still producing
- > L4 extension with huge upside potential and low risk
  - > Scoping study completed, ready-to-be-built after completion of financing
  - Work on access ramps expected to start as early as Q1/2024
  - **Existing surface infrastructure** sufficient for extension, only underground infrastructure to be built
  - ➤ **Higher throughput** and access to **higher grade** material will almost double the WO₃ production
  - > L4 could extend production by more than 20 years
- Forecasted yearly production of ~124,000 MTU WO3 after the extension
- ➤ Panasqueira Deep is **rich in Tin**. The possibility of **recovering several metals** contained in the **slime dams**, especially **tungsten**, **tin and copper** is currently being investigated



# ANNUAL WO<sub>3</sub> PRODUCTION & REVENUE\* (in US\$m)





# PANASQUEIRA – GETTING TO THE NEXT LEVEL



### **Economic Model and Future Outlook**



### THE VISION

### PANASQUEIRA - GETTING TO THE NEXT LEVEL

> Although current production levels remain steady, seizing the opportunity to access L4 is crucial for safeguarding against potential future declines. By strategically unlocking L4, we aim to not only sustain but enhance the overall project's value, ensuring its long-term success and profitability.

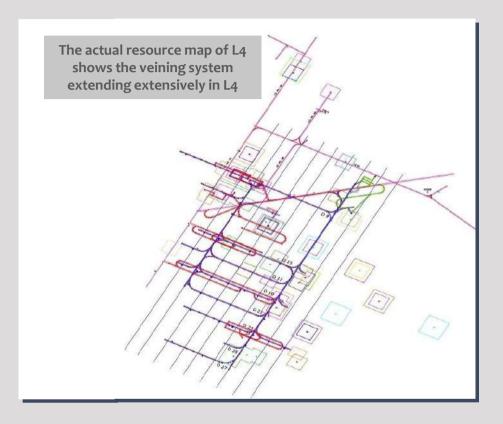


### PANASQUEIRA – GETTING TO THE NEXT LEVEL

- > Project involves deepening existing mining infrastructure by 120 meters and strengthening crucial elements: drainage, ventilation, and surface environmental facilities.
- > Low risk profile due to usage of the existing surface equipment & following orebody to depth
- > L4 will allow access to new deeper richer virgin vein zones and to transfer most of the production from the upper levels lower grade zones to the new richer deeper zones
  - ➤ Current upper-level mining grade stands at approximately 0.13% WO₃
  - ➤ Prioritize highest-grade stopes to achieve a 0.15% WO₃ or higher head grade
  - ► L4 grades around 0.20% WO<sub>3</sub> expected to significantly boost production and economics
- > Achieving L4 extension within 3 years from start without disrupting ongoing mine production



	2025F	2027F – After extension*	
ROM/y	580,000	800,000	+38%
Avg. Grade	0.125%	0.20%	+60%
Rec Metal (MTU WO <sub>3</sub> )	56,000	124,000	+105%
Revenue (USDm)**	15.9	39.5	+148%
OPEX (USDm / Ratio)	14.6 / 91.8%	24.2 / 61.3%	-39%
Operating Expense Ratio (OER)	91.8%	61.3%	-33%
EBITDA Margin	12%	43%	+158%
Exp. CAPEX (USDm)	53		
NPV(7.5% - 16y LOM) (USDm)	103		
Payback	~ 3 years		*Cumulated I land
			*Cumulated: Uppe







Low risk profile due to usage of the existing surface equipment & following orebody to depth



#### PREMIUM PRICE RECEIVED

>15% premium on Portuguese shipments due to tightening supply from transparent source

# PANASQUEIRA – CLEANEST OUTPUT MATERIAL



# Panasqueira Tungsten Mine Overview

### **Historical Legacy (1886-Present)**

- > 136 years of Uninterrupted Exploitation
- > 107,000+ tons of WO<sub>3</sub> Produced
- ➤ 2nd largest Global Tungsten Producer

### **Excellent Output Quality**

- ➤ Highest grade recovery with nearly 74%
- > Very consistent material
- → High-Quality Concentrates, Low Contamination
   → Free of arsenic, phosphors, thorium & uranium

### **Unique Orebody & Excellent Permits**

- ➤ Operational Continuity exploitation permit is valid until 2052, extendable for a further 30 years
- ➤ Low-risk extension that follows the orebody
- ➤ Significant Role in Global Tungsten Supply





Wolframite concentrate 73.5% WO<sub>3</sub>



Wolframite mineralization in a quartz vein

# PANASQUEIRA – VISIT BY THE US DEPARTMENT OF COMMERCE/DLA



# Impressions of the visit by the US Department of Commerce on September 29, 2023

- > Delegation of the US Department of Commerce visited the Panasqueira mine in Portugal
- ➤ General discussions regarding the planned L4 extension
- > Open dialog about Panasqueira's strategic role in improving tungsten supply for the United States
- > DLA (US Gov) depletion of tungsten after 20 years as the largest US supplier
- > Surging demand from defense and oil & gas foresees 2024 price spike







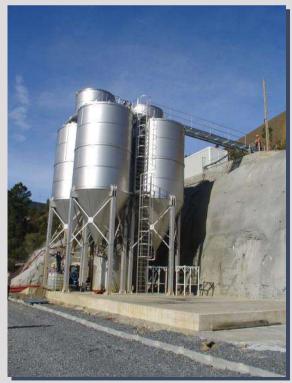


# PANASQUEIRA – MINING FACILITIES



### Existing Infrastructure & Equipment will be used for the L4-Extension

- > Panasqueira mine has extensive mining, processing and environmental infrastructures
- ➤ Plays an important role in the regional economy, as the local community depends almost entirely on the mine for employment
- Capacity of surface equipment is sufficient for the L4-Extension, therefore, only underground equipment has to be built, e.g. crusher & shafts



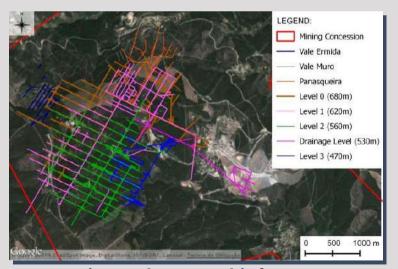
Waste Water treatment facilities



Underground crushing chamber



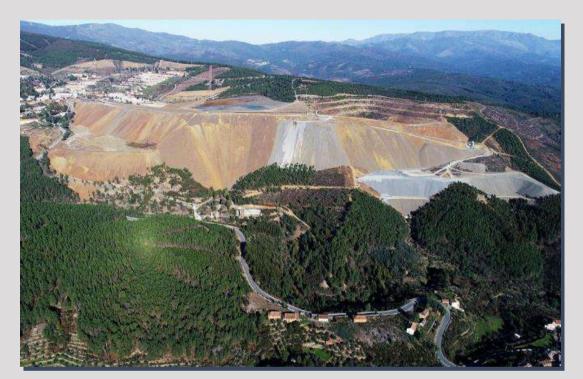
In-house completed & designed new fine tailings pond (on the right) – Capacity for a further 27 years

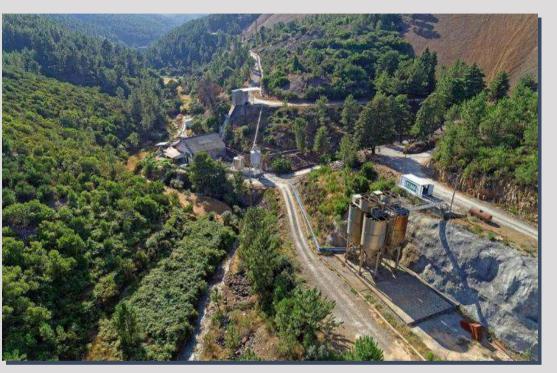


Extensive underground infrastructure and surface installations

# PANASQUEIRA TUNGSTEN-TIN MINE











CORPORATE

## ALMONTY GROUP RESOURCE SUMMARY



Classification	Deposit	Tonnage (kt)	Grade (%)	Contained metal
TOTAL RESERVES (proven & probable)	Sangdong	7,896 kt	0.45%	~36 kt
	Panasqueira	1,951 kt	0.20%	~4 kt
	Los Santos	3,767 kt	0.19%	~7 kt
	Valtreixal	2,549 kt	0.34%	~9 kt
Total		16,163 kt	0.3%	~56 kt
<b>M&amp;I RESOURCES</b> (inclusive of reserves)	Sangdong	8,029 kt	0.51%	~41 kt
	Panasqueira	10,027 kt	0.23%	~13 kt
	Los Santos	3,767 kt	0.19%	~7 kt
	Valtreixal	2,828 kt	0.34%	~10 kt
Total		24,651 kt	0.33%	~71 kt
INFERRED MINERAL RESOURCES	Sangdong	50,686 kt	0.43%	~218 kt
	Panasqueira	10,322 kt	0.24%	~24 kt
	Los Santos	-	-	-
	Valtreixal	15,419 kt	0.17%	~26 kt
Total		76,427 kt	0.35%	~268 t

### VALTREIXAL – ANOTHER VALUABLE TUNGSTEN SOURCE WITHIN EUROPE

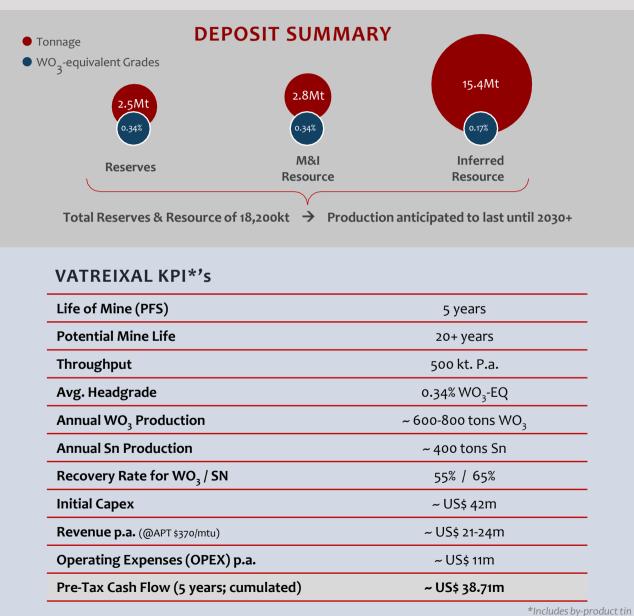


### Almonty's well-located high-potential development target

#### **KEY FACTS**

- Located in **northwestern Spain**, 250km from the Los Santos Mine
- Almonty acquired the project from SIEMCALSA, the same group that was involved in the historical development of Los Santos
- ➤ Valtreixal will potentially be **Almonty's third high quality mine in a safe jurisdiction,** clearing the companys path to become one of the leading Tungsten producer worldwide
- > Permitting process on the way, progress expected soon
- Current Status Pre-Feasibility (October 2015)
- > Anticipated 20+ years life of mine with a constant high-quality production of WO<sub>3</sub> and Tin
- ➤ Potential cost saving factor through synergies from Los Santos





### **SANGDONG ESG**



Equator principles and beyond.





#### **INVESTOR PRESENTATION**

PREPARED BY ALMONTY INDUSTRIES INC: PRESIDENT & CEO: LEWIS BLACK

#### **ADDRESS**

100 KING STREET WEST SUITE 5700 TORONTO, ON CANADA M5X 1C7

#### CONTACT US

+1 647 438-9766 info@almonty.com



**APPENDIX** 

## APPENDIX 1 – BOARD OF DIRECTORS AND OFFICERS



Director	Experience
Lewis Black (Executive Director, President and CEO)	> Currently a Partner of Almonty Partners LLC, a privately-held company specializing in tungsten mining investments and has over 16 years of experience in the tungsten mining industry
	Formerly Chairman and CEO of Primary Metals Inc. (PMI), a former TSX-V listed tungsten mining company
	Formerly served as head of sales and marketing for SC Mining Tungsten, Thailand
	Former VP of the International Tungsten Industry Association (ITIA)
Daniel D'Amato (Executive Director)	Currently a Partner of Almonty Partners LLC and has extensive experience in the finance industry specializing in portfolio management and private equity
	Formerly MD of Bear Stearns
	In 2005, with business partner Lewis Black, Mr. D'Amato co-founded Almonty
	Formerly a director of Primary Metals Inc., a TSX Venture Exchange-listed tungsten mining company, of which Almonty was the majority owner
Mark Trachuk (Non-Executive Director)	Formerly the General Counsel and Corporate Secretary of Entertainment One Ltd. which is a global entertainment studio. Entertainment One was listed on the Premium List of the London Stock Exchange (LSE:ETO) and was a member of the FTSE 250 prior to being acquired by Hasbro Inc. in December 2019
	Formerly a Senior Partner in the Business Law Group at Osler, Hoskin & Harcourt LLP in Toronto where he practiced corporate and securities law with an emphasis on mergers, acquisitions and strategic alliances
	Mr. Trachuk holds a B.A. in Economics from Carleton University, an LL.B. from the University of Ottawa and an LL.M. from the London School of Economics. He also holds the ICD.D designation from the Institute of Corporate Directors. Mr. Trachuk is called to the bar in Ontario and British Columbia and is a solicitor in England and Wales
Dr. Thomas Gutschlag (Non-Executive Director)	> CEO of Deutsche Rohstoff AG (DRAG), a public company listed on the Frankfurt Stock Exchange
	Qualified economist with a degree in economics from the University of Heidelberg and a doctorate from the University of Mannheim
David Hanick (Non-Executive Director)	> CLO and a member of the Investment Committee at Starlight Investments
	Formerly a corporate partner and co-head of the Mining and Natural Resources Group in the Toronto office of Osler, Hoskin & Harcourt LLP
Andrew Frazer (Non-Executive Director)	Over 30 years of capital markets experience and is the founder and managing director of Lazarus Corporate Finance Pty Ltd
	> Formerly held senior roles at Morgan Stanley, Patersons Securities, Hartleys, Azure Capital, focused on equity capital market transactions with clients both locally and internationally
	> Graduated from the University of Western Australia with a Bachelor of Commerce – Honours, Bachelor of Jurisprudence and a Bachelor of Laws. Andrew also has obtained his CFA Charter, along with a Diploma from the Securities Institute of the Australian Stock Exchange
Mark Gelmon CPA, CA (CFO)	Mr. Gelmon obtained his Bachelor of Arts degree at the University of British Columbia and subsequently attained his Chartered Accountant designation in 1995 and is a member of the Chartered Professional Accountants of B.C.
	> Mr. Gelmon has provided his expertise to several TSX Venture Exchange listed companies in the capacity of director, chief financial officer and consultant
	> His background as a CPA, CA, provides the Company with the necessary skills required for financial management, reporting operating results to the Board of Directors, liaison with financial institutions, and compliance with today's complex regulatory reporting requirements

### APPENDIX 2 - DOWNSTREAM EXTENSION

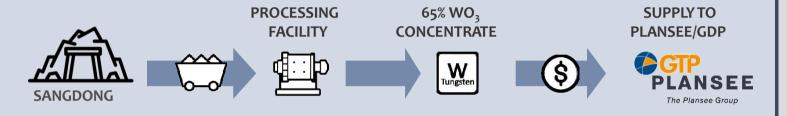


Almonty's plans to participate in the battery anode & cathode manufacturing industry

#### **SOUTH KOREA & KEY DEMAND DIRECTIONS**

- 5 Reasons for the importance of Tungsten Oxide
- 1. South Korea is the largest per capita consumer of tungsten worldwide, however, imports 94.7% of tungsten used, 97.1% of Tungsten oxide from China
- 2. South Korea consumes ~40% of Tungsten Hexafluoride (WF<sub>6</sub>), which is used in **semiconductor** production. **South Korean** semiconductor market accounts for 20% of the supply, where exports rose in 2021 by 28.4%
- 3. Semiconductors & electronics from the automotive, industrial and consumer electronics industries powered by constant digitalization of all industries and daily life
- 4. The **expanding electric vehicle** (EV) market is driving advancements in battery technologies, including the development of Niobium Tungsten Oxide (NWO) batteries and upgrades to existing ones. The use of nano tungsten oxide Powder, known for its high intrinsic density, rich framework diversity, and exceptional heat resistance, contributes to increased safety features.
- 5. South Korea is now within the Top 10 defense manufacturers & is continuing to extend its production

### **ALMONTY'S CURRENT** PRODUCTION CHAIN



### **ALMONTY'S PLANNED DOWNSTREAM CHAIN**



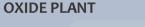
**PRODUCTION** 







**MILLING TO NANO SIZE** 



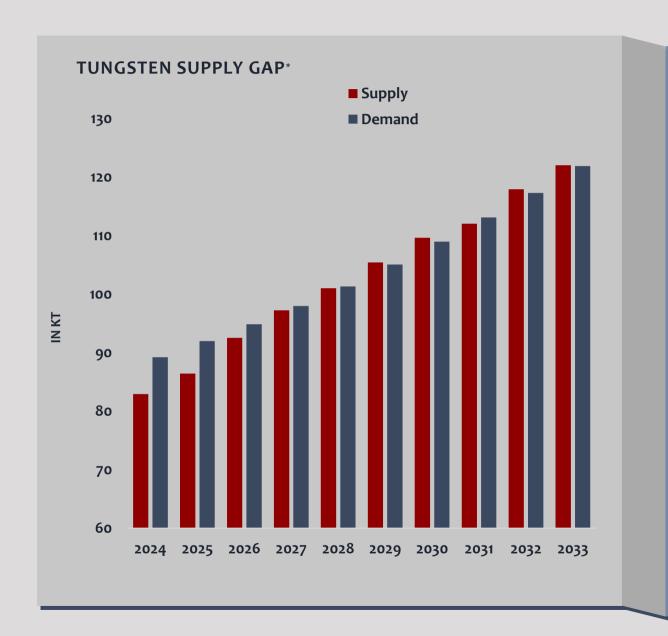




- > LOI signed with KfW IPEX-Bank on January 12, 2022
- > 4,000t p.a. vertical nano tungsten oxide plant
- > Supply for the battery anode & cathode manufacturing industry
- > Equipment/Plant provided by Metso Outotec (Finland), Inductotherme Europe (UK), Pfeiffer (Austria)
- Discussions over **potential debt financing** of up to **US\$50**m for the downstream

## APPENDIX 3 – GROWING MARKET WITH RISK OF TIGHTENING





Anticipated demand is forecasted to rise at a Compound Annual Growth Rate (CAGR) averaging 3.45%. Certain projections indicate a more robust growth rate of 7-8% per annum.

However, despite the expected alignment between supply and demand growth, significant production risks pose the greatest threat and could **potentially lead to a supply gap in the future.** 

#### **INCREASING IMPORTANCE OF NON-CHINESE TUNGSTEN**

- > Strong growth is anticipated to persist in the cemented carbides sector, as well as in super alloys and other alloys
- Additionally, there is a **rising demand for progressive technologies** and tungsten utilization in the **defense sector**, all of which are projected to drive growth in the coming years
- ➤ On the supply side, it is important to note that the **global tungsten** market is becoming increasingly constrained and is expected to experience a more pronounced deficit in the coming years. Certain indications of this deficit are already evident in the market
- Chinese tungsten supply is forecast to decline, Chinese tungsten reserves are dwindling and grades are declining though exploration continues
- Tungsten from sources outside of China become more valuable due to different measures taken by the EU & USA



#### RESOURCE NATIONALISM LIKELY TO INCREASE



SHIFTING TRENDS & RISKS

- The Mining & Metals sector is experiencing a surge in nationalism, potentially driving increased sales and production within individual nations, as indicated by the latest sentiment survey by White & Case
- ➤ The sector's top risks have shifted to heightened geopolitical tensions and the imposition of inflationary cost pressures, necessitating vigilant monitoring and adaptive strategies for industry stakeholders



#### POTENTIAL NEW DOMESTIC DEMAND FOR TUNGSTEN IN SOUTH KOREA?



IMPORTANCE OF TUNGSTEN IN SOUTH KOREA

- **Daegu City announced** that on February 7, 2024, it signed an **investment agreement with IMC** End Mill, an affiliate of the IMC (International Metalworking Companies) Group, to **build a tungsten powder manufacturing facility**
- > IMC Group, a 100% Berkshire Hathaway-owned entity and the world's second-largest cutting tool production group, headquartered in Israel, boasts a robust international presence with over 130 subsidiaries spanning 60 countries.
- IMC End Mill, a subsidiary of IMC Group, will spearhead the establishment of a **cutting-edge tungsten powder manufacturing facility** in Gachang-myeon, Dalseong-gun, Daegu. This facility is geared towards enhancing the production of **semiconductor special gases**, with a substantial **investment of 130 billion won (approximately US\$97.5 million).**
- > IMC Group President, Ilan Gehry, underscores the commitment to economic prosperity, job creation, and industry advancement. The initiative aims to distribute high-quality tungsten materials across diverse industries, contributing to the revitalization of the local economy.

## APPENDIX 5 – CURRENT TRENDS & NEWS

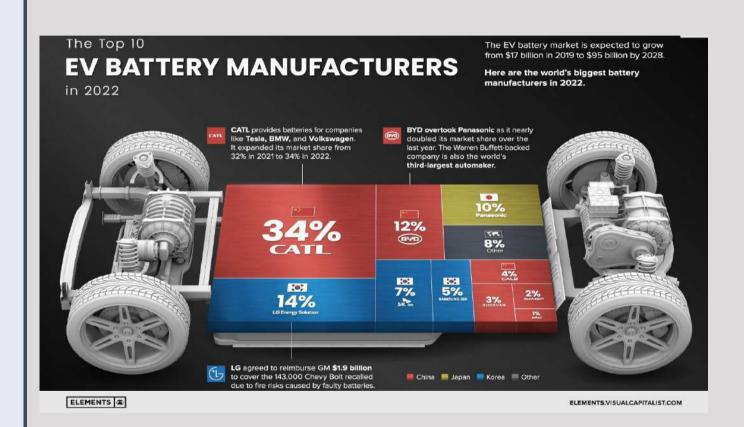


### TUNGSTEN'S INCREASING ROLE IN THE BATTERY & EV/HYBRID MARKET



"According to the researchers at N1 Technologies, as the next-generation battery, they had added **tungsten** and carbon multi-layered nanotubes while working on anodes. This will recharging the NanoBolt lithium tungsten battery faster, and stores more energy." (BISInfotech, EV MECHANIA)

- ➤ Three major Korean companies have propelled Korea to become the world's secondlargest EV battery manufacture
- > The Sangdong Tungsten Mine emerges as a stable and cost-effective alternative, empowering these companies to diversify supply chains and reduce reliance on China
- ➤ Tungsten, indispensable in EV & Hybrid batteries and semiconductor production, plays a pivotal role at the heart of EV battery technology, contributing to enhanced energy density
- As a **crucial battery component**, tungsten not only improves energy density but also advances battery technology, underscoring its key role in both anode and cathode manufacturing
- ➤ Increased focus on niobium tungsten oxide in batteries to reduce charge time and increase power density. This could result in a material increase from ~1.5kg of tungsten per EV to ~2.5 kg a step change in demand

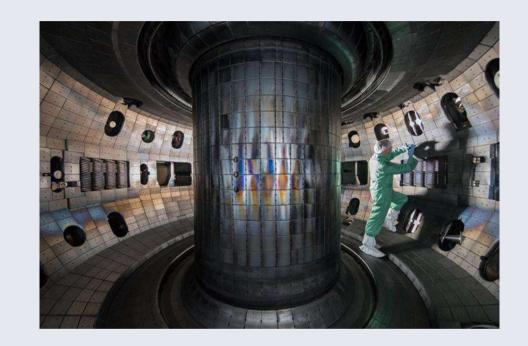


# APPENDIX 6 - TUNGSTEN - A KEY ELEMENT FOR FUTURE TECHNOLOGIES (I/III)



#### THERMONUCLEAR ENERGY - MATERIAL WITH EXCELLENT HEAT CONDUCTIVITY AND MELTING POINT NEEDED

- Necessary Material: Tests confirm that an alloy of 90% tungsten, 7 % nickel and 3% iron brings the best performance. As this (or similar) alloys will be used not only for the Plasma Facing Components (PFCs), but also for the Divertor Plates (which are designed to remove impurities from the plasma), etc., the demand of tungsten per reactor is very significant.
- ➤ **High Melting Point Advantage:** Tungsten's very high melting point makes it an ideal material for use in the extreme temperatures of fusion reactors, where it can withstand the intense heat without melting.
- Alloying for Toughness: By alloying tungsten with small amounts of nickel and iron, the material gains toughness and reduces brittleness, retaining the essential high melting temperature but becoming more durable for practical use in reactor environments.
- Innovative Microstructure Design: Research by PNNL and Virginia Tech has shown that hot-rolling techniques can create tungsten heavy alloys with microstructures that resemble nacre, or mother-of-pearl, which is known for its remarkable strength and durability, enhancing the material's performance in nuclear fusion applications.
- Fusion Reactor Suitability: Tungsten heavy alloys, enhanced by alloying, thermomechanical processing, and nacre-like microstructures, are ideal for nuclear fusion reactor components due to their high-temperature resistance and mechanical properties.



#### > Potential Increase of demand:

- > Tungsten Requirement: Approximately 100 metric tons needed per fusion reactor, with some designs requiring up to 200 metric tons<sup>1</sup>
- > Special Steel Composition: Around 1100 metric tons of special steel used in reactor structure, containing 1 to 2% tungsten<sup>1</sup>
- ➤ If the scenario of deploying 250 thermonuclear reactors annually materializes to cover a third of global energy demand, it could lead to a yearly need for **30,000 to 50,000 tons of tungsten**, with additional requirements for maintenance and component replacement over the first decade.

Potential of 33% to 66% growth in worldwide tungsten demand

## APPENDIX 7 – TUNGSTEN – A KEY ELEMENT FOR FUTURE TECHNOLOGIES (II/III)



#### TUNGSTEN WIRE – EFFICIENT & STRONG MATERIAL FOR PHOTOVOLTAIK APPLICATION

- Tungsten wires superior strength and efficiency are driving its replacement of traditional materials in diamond wire cutting, enhancing solar cell production and reducing costs
- The transition to using **fine tungsten wire in diamond wire cutting for photovoltaic (PV)** silicon wafer production is driving significant industry growth, with the **tungsten wire market** expected to see a compound **annual growth rate** (CAGR) of 93% from 2023 to 2026
- > Tungsten wire, with higher tensile strength and corrosion resistance compared to carbon steel, allows for thinner diameters, leading to less material loss and cost savings in silicon wafer production.
- Global photovoltaic installations are projected to increase dramatically, with new installations expected to reach 530GW, 630GW, and 730GW in 2024, 2025, and 2026, respectively, boosting demand for diamond and tungsten wires
- ➤ China, holding 52% of global tungsten reserves and implementing strict mining controls, is a key player in the market, with significant price increases in tungsten and a limited supply elasticity, indicating a rising market value for tungsten products
- > The industry's rapid adoption of fine tungsten wire is evidenced by substantial investments in production capacity, with Xiamen Tungsten leading in supply and planning for massive increases in production to meet the burgeoning demand.





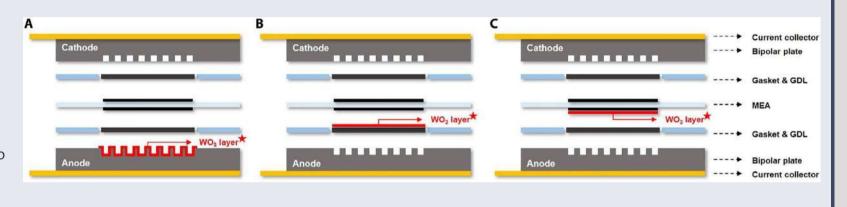
Tungsten Wire Market expected to grow rapidly: CAGR of 93% from 2023 to 2026

## APPENDIX 8 – TUNGSTEN – A KEY ELEMENT FOR FUTURE TECHNOLOGIES (III/III)



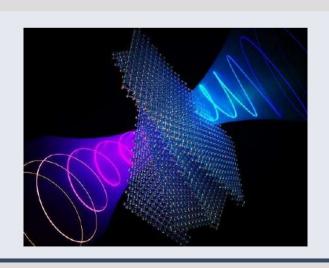
#### ENHANCING HYDROGEN FUEL CELL DURABILITY VIA TUNGSTEN OXIDE COATING

- ➤ Tungsten Oxide Coating: POSTECH researchers developed a WO<sub>3</sub> coating for hydrogen fuel cell electrodes, improving durability and reducing catalyst degradation
- ➤ Selective Conduction via MIT: Utilizes metal-insulator transition (MIT) to allow electrical conduction only when needed, protecting the catalyst during critical start-up/shut-down phases
- ➤ Commercial Viability: The technology can be seamlessly integrated into current MEA production, potentially boosting tungsten demand as it enhances hydrogen fuel cell vehicle longevity¹



### UNLOCKING QUANTUM POTENTIAL: TUNGSTEN AT THE HEART OF NEW POLARIZED LIGHT TECHNOLOGY

- > Researchers at Los Alamos National Laboratory have developed a **new, cost-effective method** to produce **circularly polarized light** by pressing tiny dents into a layered material, eliminating the need for strong magnetic fields.
- > This advancement simplifies the generation of special light particles (photons) that are crucial for secure quantum communication and encryption.
- > The new technique uses a combination of a tungsten diselenide semiconductor and a nickel phosphorus trisulfide magnetic semiconductor, which work together when indented to emit twisted photons.
- > These findings could pave the way for building the foundation of an **ultra-secure quantum internet**, potentially **revolutionizing how we transmit secure information**.



## APPENDIX 9 – TUNGSTEN USES I/II – INDUSTRIES & HIGH-TECH WORLD



**SEMICONDUCTORS** 



AUTOMOTIVE MARKET



**INSERTS FOR AIRCRAFT** 



**BALLISTIC EQUIPMENT** 



**5G NETWORK INFRASTRUCTURE** 



**DEFENSE** 



PLATE FOR STONE HAMMER DRILL



SAW TEETH FOR BLADES OF A CIRCULAR SAW

400G

CASING FOR LUXURY WATCH

35G

65G



FILM PROJECTOR LAMP

750G

PINS FOR DOORLOCK

**TUNGSTEN** 

183.84







CRUSHERS & MILLS

25-80KG

HEATING WIRES FOR CAR WINDOW

5G

VIBRATION ALARM UNIT IN SMARTPHONES

0.4G





IRRADIATION EQUIPMENT

~ 500 KG

## APPENDIX 10 – TUNGSTEN USES II/II – MILITARY APPLICATIONS OF TUNGSTEN



#### **TUNGSTEN IN MILITARY USE**

- High Melting Point: Tungsten's melting point of 3,442°C is the highest of any element, making it ideal for creating materials that can withstand high temperatures without deformation
- Hardness: Tungsten carbide's Mohs hardness of 9, second only to diamond, makes it a vital material in military armor, armor-piercing rounds, and rocket accessories due to its durability and toughness
- High Density: Tungsten's density of 19.3 g/cm³ is almost as high as gold, making it a valuable substitute in applications such as jewelry. Its high density also makes it a crucial component in the aerospace and defense industries
- High Resistance to Corrosion: Tungsten is an exceptionally stable metal with a remarkable resistance to oxidation and corrosion, even in harsh and extreme environments. Its remarkable chemical stability makes it an ideal material for use in various industrial applications
- Non-Toxicity: Tungsten and its products are considered safe and non-toxic to humans, as well as environmentally friendly. Its exceptional properties make it an excellent substitute for materials like lead and uranium, which are commonly used in the production of equipment like bullets

#### Many Types of Weapon Use Tungsten:



Abram M1
"exportable" Tank armor



Phalanx anti-missile Gatling gun



Anti-tank rounds



GNU-44 Viper Strike missile



M993 rifle rounds



Future technology: Hypersonic Weapons

### APPENDIX 11 – DEFINED AS CONFLICT MATERIAL – LACK OF TRANSPARENCY



### **CONFLICT MATERIAL "3TG"**

Tin (Sn)

Tantalum (Ta)

Tungsten (W)

Gold (Au)

#### **BACKGROUND AND CURRENT SITUATION**

- ➤ The SEC has implemented regulations to address the issue of conflict minerals
- ➤ SEC's conflict minerals rule obliges companies to conduct due diligence on their supply chains and disclose whether their products contain 3TG minerals sourced from conflict-affected regions

#### NON-TRANSPARENT SUPPLY & STRONGLY CHINA DOMINATED

- > While the US & Europe have a few tungsten smelters & refineries, the majority are based in China and Russia
- > As a result, many major US companies have a high dependency on chinese refineries and smelters
- > Lack of transparency is a major issue, as the source of tungsten is not always clear
- > Reports suggest major **US companies be may sourcing "conflict minerals"** through non-transparent supply chains
- Major US companies, such as **Apple, Tesla, Nvidia and Boeing** have a **very high dependency** on tungsten supplied by smelters & refineries from **non-transparent countries** such as China, Russia & Vietnam

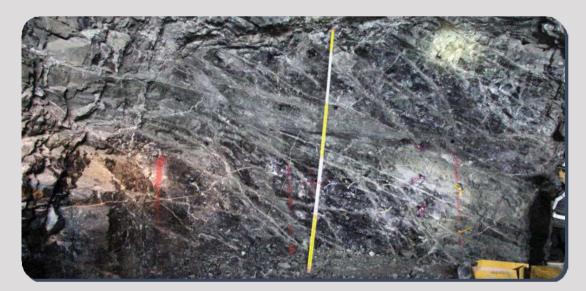
#### **POTENTIAL SOLUTION**

- > Construction of a new world-class tungsten mine at Sangdong in South Korea, operated by a Canadian company
- > The mine will have a vertically integrated downstream facility on site, which will provide a transparent and fairly produced source of tungsten materials
- > While tungsten companies in Australia & Canada have stopped exploration & development in the past, the near-term production mine in South Korea could **potentially produce for around 100 years** and account for **almost 10% of the worldwide** tungsten **production**

## APPENDIX 12 - CONSTRUCTION IN ORE



Mineralization very close to the surface allows for immediate start of production











#### **INVESTOR PRESENTATION**

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