



Antimony and the Stibnite Gold Project

May 2021

TSX:PPTA

NASDAQ:PPTA

PERPETUA RESOURCES

Critical Resources. Responsible Mining. Environmental Restoration.

www.perpetuaresources.com

FORWARD LOOKING STATEMENTS

Information and statement contained in this presentation that are not historical facts are “forward-looking information” or “forward-looking statements” (collectively, “Forward-Looking Information”) within the meaning of applicable Canadian securities legislation and the United States Private Securities Litigation Reform Act of 1995. Forward Looking Information includes, but is not limited to, information concerning the Company’s business including but not limited to statements with respect to results of the FS (as defined below); disclosure regarding possible events, conditions or financial performance that is based on assumptions about future economic conditions and courses of action; the timing and impact of future activities on the Project, including but not limited to the ability to address legacy features left by previous operators; the anticipated economic, environmental and other benefits of the Project; the viability of the Project; development and operating costs in the event that a production decision is made; success of exploration, development and environmental protection, closure and remediation activities; permitting time lines and requirements; requirements for additional capital; requirements for additional water rights and the potential effect of proposed notices of environmental conditions relating to mineral claims; risks and opportunities associated with the Project; planned exploration and development of properties and the results thereof; planned expenditures, production schedules and budgets and the execution thereof. Statements concerning mineral resource and mineral reserve estimates may also constitute Forward-Looking Information to the extent that they involve estimates of the mineralization that may be encountered if the Stibnite Gold Project is developed. In preparing the Forward-Looking Information herein, the Company has applied several material assumptions, including, but not limited to, that any additional financing needed will be available on reasonable terms; the exchange rates for the U.S. and Canadian currencies will be consistent with the Company’s expectations; that the current exploration, development, environmental and other objectives concerning the Stibnite Gold Project can be achieved and that its other corporate activities will proceed as expected; that the current price and demand for gold and antimony will be sustained or will improve; that general business and economic conditions will not change in a materially adverse manner and that all necessary governmental approvals for planned activities on the Stibnite Gold Project will be obtained in a timely manner and on acceptable terms; the continuity of the price of gold and other metals, economic and political conditions and operations; that the circumstances surrounding the COVID-19 pandemic, although evolving, will stabilize or at least not worsen; and the assumptions set out in the FS. Forward-Looking Information involves known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by the Forward-Looking Information. Such risks and other factors include, among others, the industry-wide risks and project-specific risks identified in the FS; risks related to the availability of financing; operations and contractual obligations; changes in exploration programs based upon results of exploration; changes in estimated mineral reserves or mineral resources; future prices of metals and minerals; availability of personnel and equipment equipment; equipment failure; accidents, effects of weather and other natural phenomena and other risks associated with the mineral exploration industry; environmental risks, including environmental matters under US federal and Idaho rules and regulations; impact of environmental remediation requirements and the terms of existing and potential consent decrees on the Company’s planned exploration and development activities on the Project; certainty of mineral title; community relations; delays in obtaining governmental approvals or financing; the Company’s dependence on one mineral project; the nature of mineral exploration and mining and the uncertain commercial viability; the Company’s lack of operating revenues; governmental regulations and the ability to obtain necessary licenses and permits; risks related to prior unregistered agreements, transfers or claims and other defects in title to mineral projects; currency fluctuations; changes in environmental laws and regulations and changes in the application of standards pursuant to existing laws and regulations; risks related to dependence on key personnel; COVID-19 risks to employee health and safety and a slowdown or temporary suspension of operations in geographic locations impacted by an outbreak; and estimates used in budgeting and financial statements proving to be incorrect; as well as those factors discussed in the Company’s public disclosure record. Although the Company has attempted to identify important factors that could affect the Company and may cause actual actions, events or results to differ materially from those described in Forward-Looking Information, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. There can be no assurance that Forward-Looking Information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on Forward-Looking Information. Except as required by law, the Company expressly disclaims any obligation to update the Forward-Looking Information herein.

Cautionary Note and Technical Disclosure

The presentation has been prepared by Perpetua Resources management and does not represent a recommendation to buy or sell these securities. Investors should always consult their investment advisors prior to making any investment decisions.

All references to “dollars” or “\$” shall mean United States dollars unless otherwise specified.

The material scientific and technical information in respect of the Stibnite Gold Project in this presentation, unless otherwise indicated, is based upon information contained in the technical report titled “Stibnite Gold Project, Feasibility Study Technical Report, Valley County, Idaho” dated effective December 22, 2020 and issued January 27, 2021 (the “FS” or “2020 Feasibility Study”). Readers are encouraged to read the FS, which is available under the Company’s profile on SEDAR, for detailed information concerning the Project. See also “Regulatory Information” at the end of this presentation.

Cautionary Note to U.S. Investors

This presentation includes Mineral Reserves and Mineral Resources classification terms that comply with reporting standards in Canada and the Mineral Reserves and the Mineral Resources estimates are made in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects (“NI 43-101”). NI 43-101 is a rule developed by the Canadian Securities Administrators that establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects. These standards differ significantly from the requirements of the SEC set the SEC’s rules that are applicable to domestic United States reporting companies. Consequently, Mineral Reserves and Mineral Resources information included in this news release is not comparable to similar information that would generally be disclosed by domestic U.S. reporting companies subject to the reporting and disclosure requirements of the SEC. Accordingly, information concerning mineral deposits set forth herein may not be comparable with information made public by companies that report in accordance with U.S. standards.



WHY PERPETUA RESOURCES?



- ✓ Redeveloping one of **largest, highest grade** and **lowest cost** gold projects in the U.S.*
- ✓ **Superior project economics** with ~15-year reserve life and <3-year payback period*
- ✓ **Re-establishing U.S. critical mineral production**
- ✓ Located in **stable mining jurisdiction** with **Idaho community** and **political support**
- ✓ **Sustainable approach** to restoring the environment, improving a legacy, and creating value for all stakeholders
- ✓ **Attractive valuation** with **significant near-term catalysts**

**Based on the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation.*

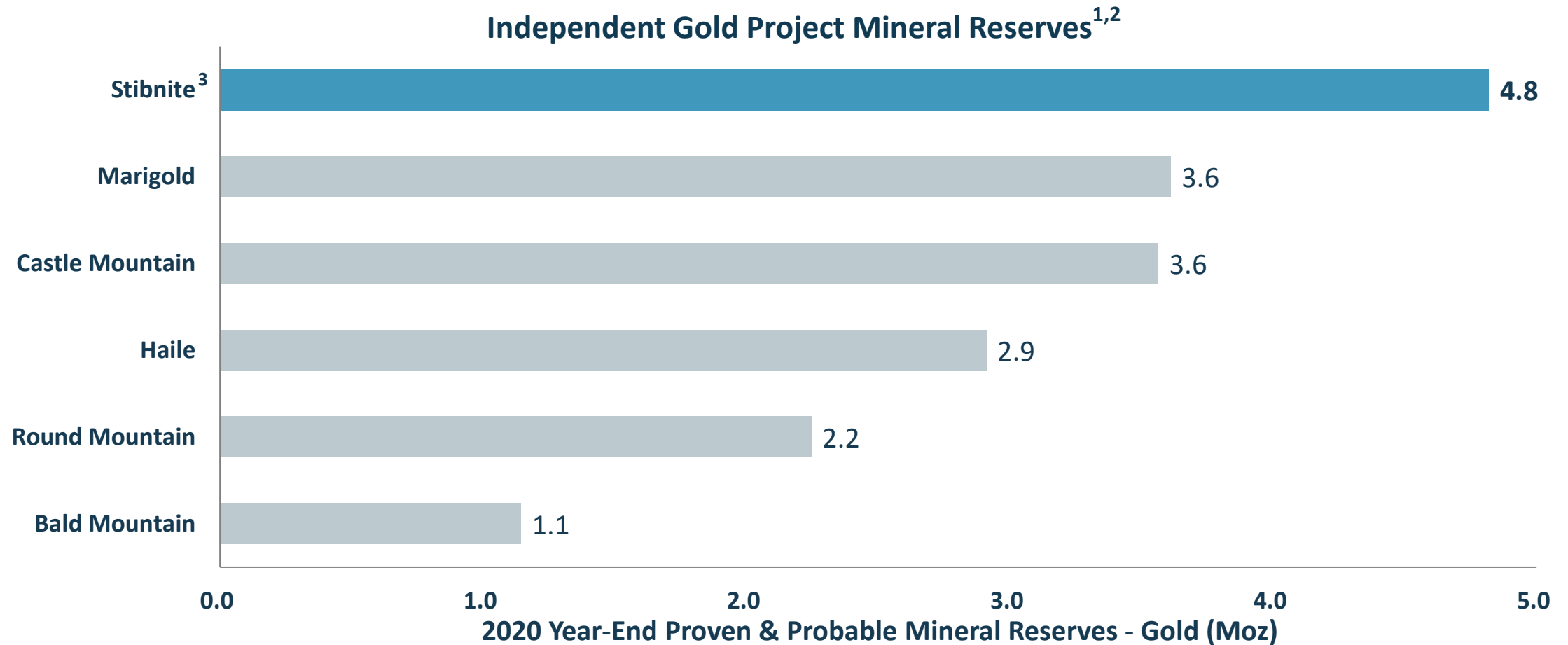


THE STIBNITE GOLD PROJECT

We can take an area abandoned after 100 years of mining activity and use a sustainable approach to restore the environment and develop a modern mining project with critical mineral production



ONE OF THE LARGEST^{1,2} GOLD RESERVES IN THE U.S.



Source: S&P Global – Market Intelligence

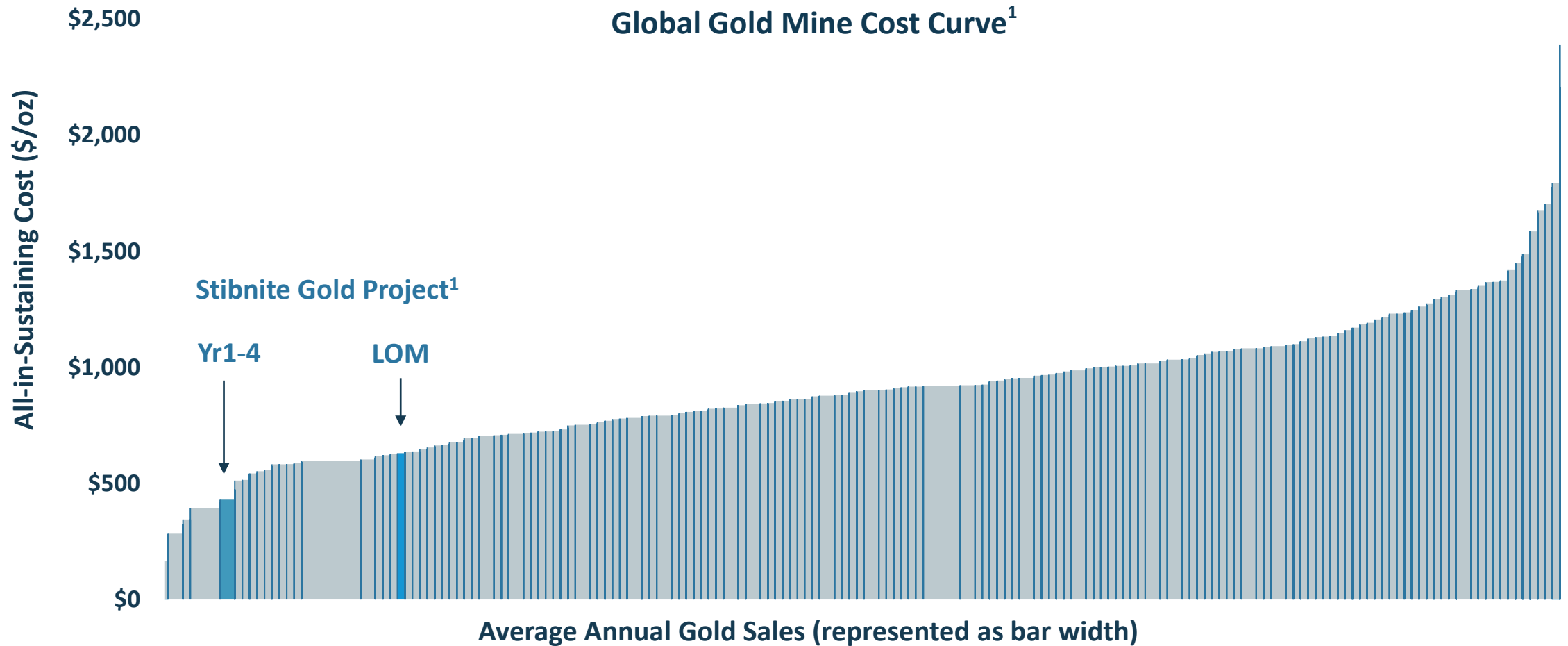
1. Excludes Hycroft due to technical uncertainty regarding recoverability of mineral reserves

2. Independent refers to gold projects as not owned by Barrick or Newmont; Independent projects shown are from the lower 48 states in U.S.

3. Based on the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation.



LOWEST QUARTILE ALL-IN-SUSTAINING COSTS¹



Source: S&P Global – Market Intelligence

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WHY ANTIMONY?

Christopher Ecclestone, Principal and Mining Strategist, Hallgarten & Company

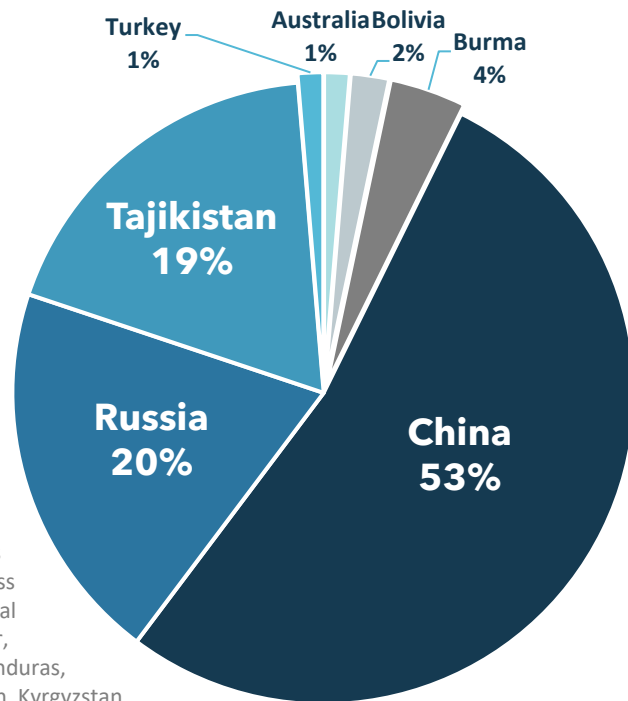




CRITICAL MINERAL ANTIMONY SUPPLY

“**Critical Minerals**” are metals and non-metals essential to economic and national security and are vulnerable to supply chain disruptions

World Antimony 2020 Production (USGS)



Other countries that produce less than 1% of global supply: Ecuador, Guatemala, Honduras, Iran, Kazakhstan, Kyrgyzstan, Laos, Mexico, Pakistan, Vietnam

- **Antimony is one of 35 federally listed critical minerals**
- **China & Russia dominate the world antimony supply (>70%)**
- **U.S. has no domestic antimony production**
- **Necessary for energy, defense and technology**



ANTIMONY IN THE ENERGY SECTOR

CURRENT ENERGY USES:

- Copper wiring insulation
- Lead-acid batteries
- Solar panels
- Wind turbines

FUTURE ENERGY USES:

- Materials to convert ambient indoor light into electricity





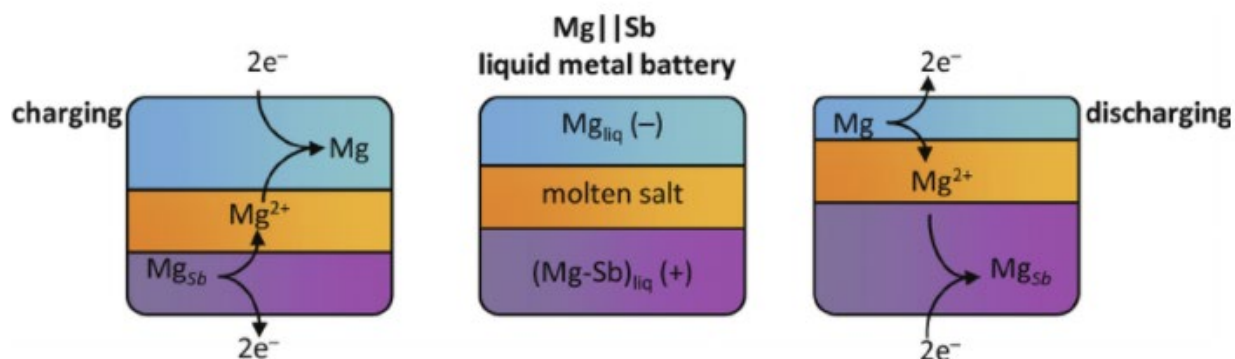
ANTIMONY IN LIQUID METAL BATTERIES

Mass storage devices mesh with energy grids to provide off-peak storage of electricity

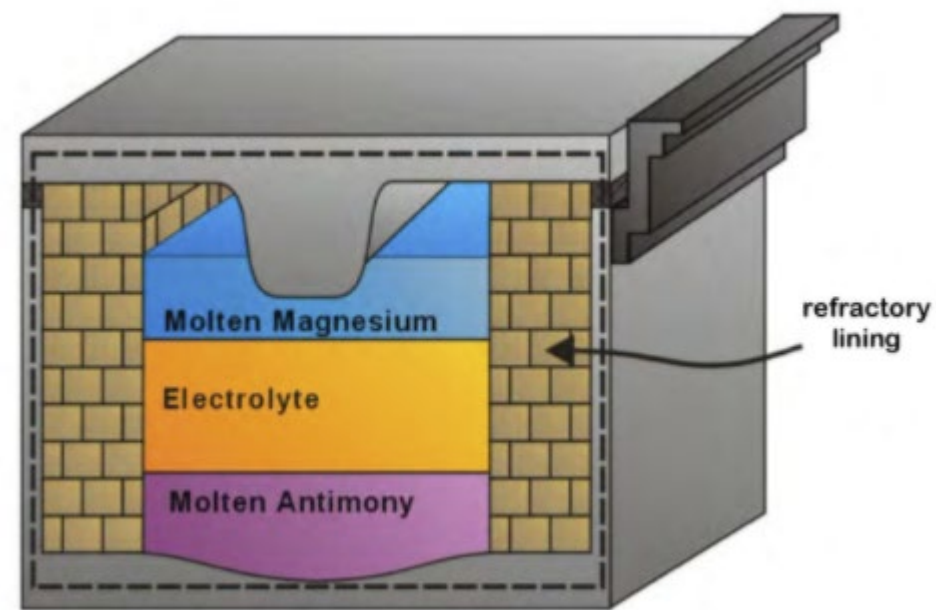
“Antimony is key to liquid metal battery storage solutions needed for a low carbon energy grid.”

- Hallgarten and Company, *Antimony Molten-Salt Batteries, the New Metal in Mass Storage*, Jan. 2021

- “Grid” connection no longer needed
- Stored indefinitely
- Provides full power in an instant, on demand
- Antimony reduces cost and complexity
- Stored indefinitely



 **Ambri**
Batteries for clean energy





ANTIMONY IN THE TECHNOLOGY SECTOR

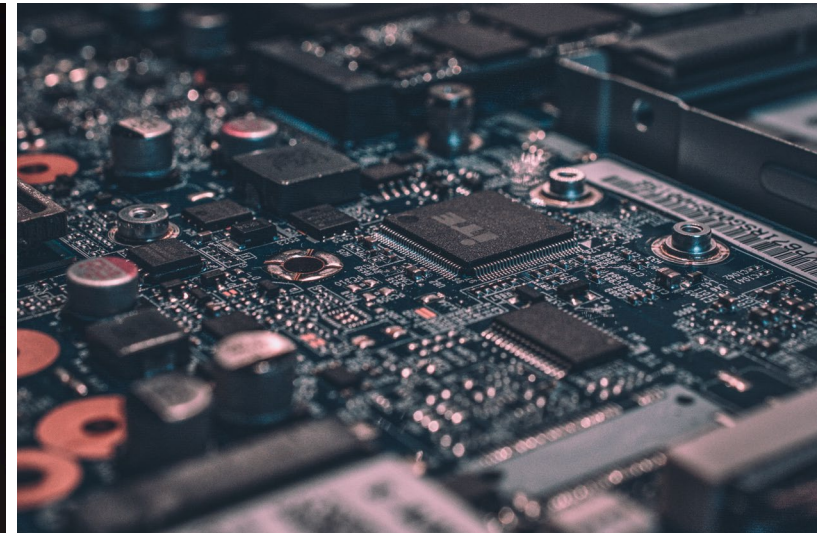
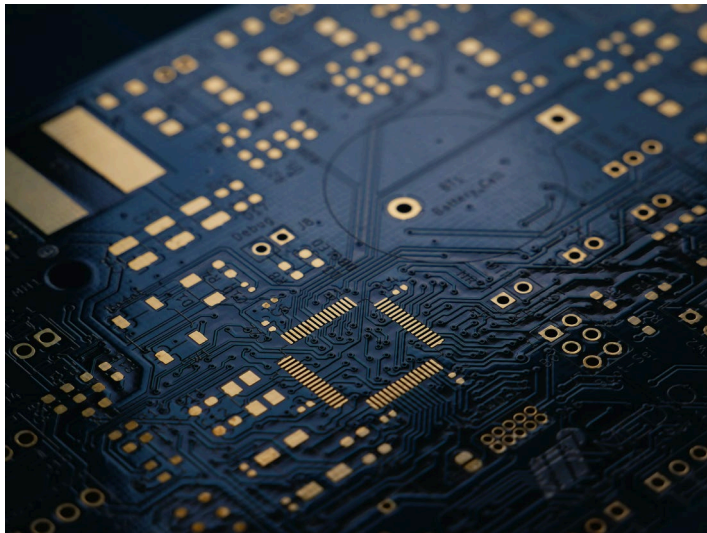
Critical flame retardant: ~90% production ends up in electronics and plastics

CURRENT TECH USES

- Circuit boards
- Semi-conductors
- Electrical switches
- Fluorescent lighting
- High-quality clear glass
- Lithium-ion batteries

FUTURE TECH USES

Faster, smaller, more efficient systems





ANTIMONY IN THE DEFENSE SECTOR

"...Antimony is the last of the non-ferrous group of strategic metals, but it by no means the least important, for it has more uses of direct military character than any other member of the group..."

- G.A. Rousch, The Military Engineer, 1937

WIDE VARIETY OF MILITARY USES

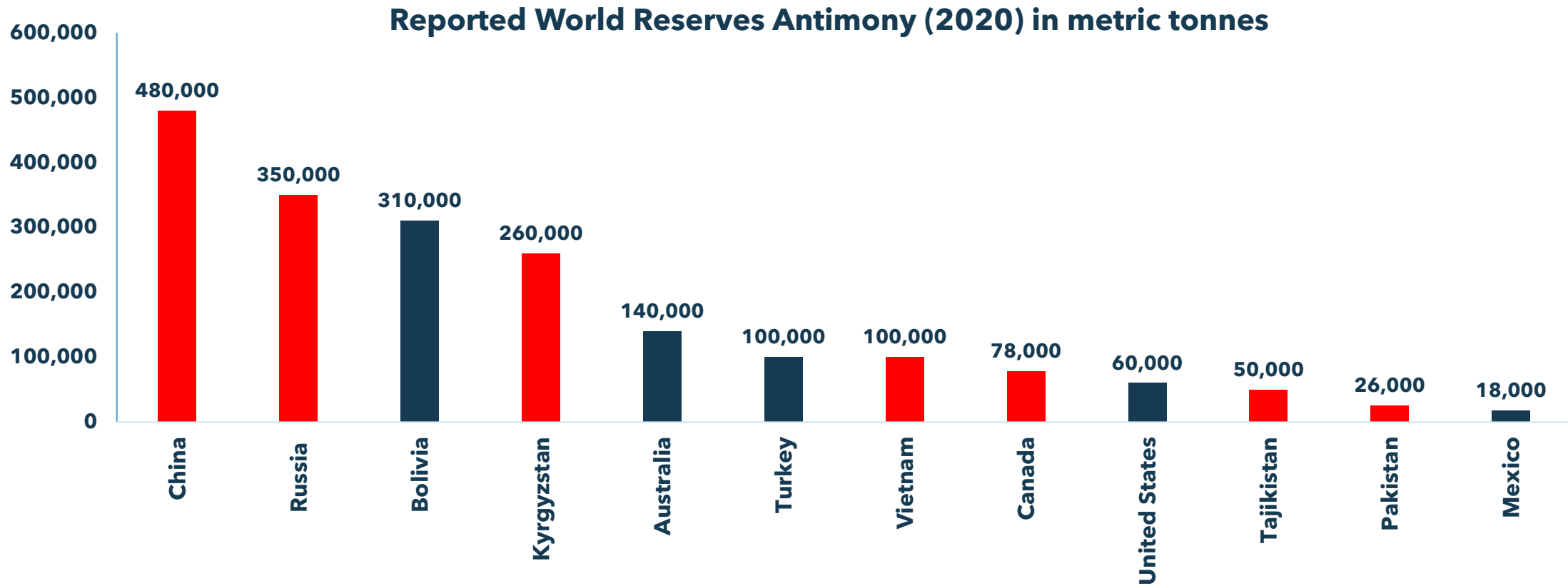
- Night Vision Goggles
- Military Clothing
- Communication Equipment
- Infrared Sensors
- Precision Optics
- Laser Sighting
- Explosive Formulations
- Hardening Lead: Bullets & Shrapnel
- Armor Piercing Projectiles
- Ammunition Primers
- Tracer Ammunition
- Nuclear Weapons & Reactors
- Tritium Production
- Flares





FUTURE SUPPLY

China dominates the world's antimony and beneficiation facilities, essentially controlling both the upstream and downstream ends of the commodity supply chain.



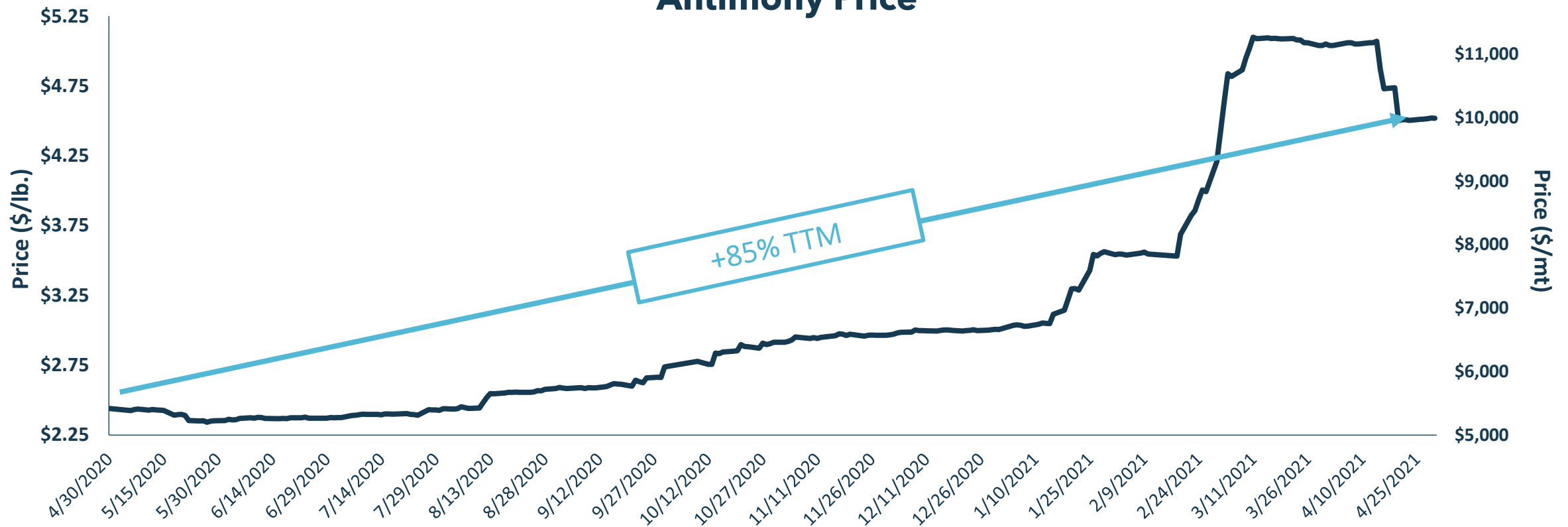
Reported Worldwide Reserves of Antimony in metric tonnes (from USGS 2021)
(Red bars represent reserves under direct or indirect control of Chinese or Russian interests)



ANTIMONY STRATEGIC VALUE RECOGNIZED

ANTIMONY (Sb): A “critical mineral” that is vital to U.S. national security and supports the energy transition

Antimony Price

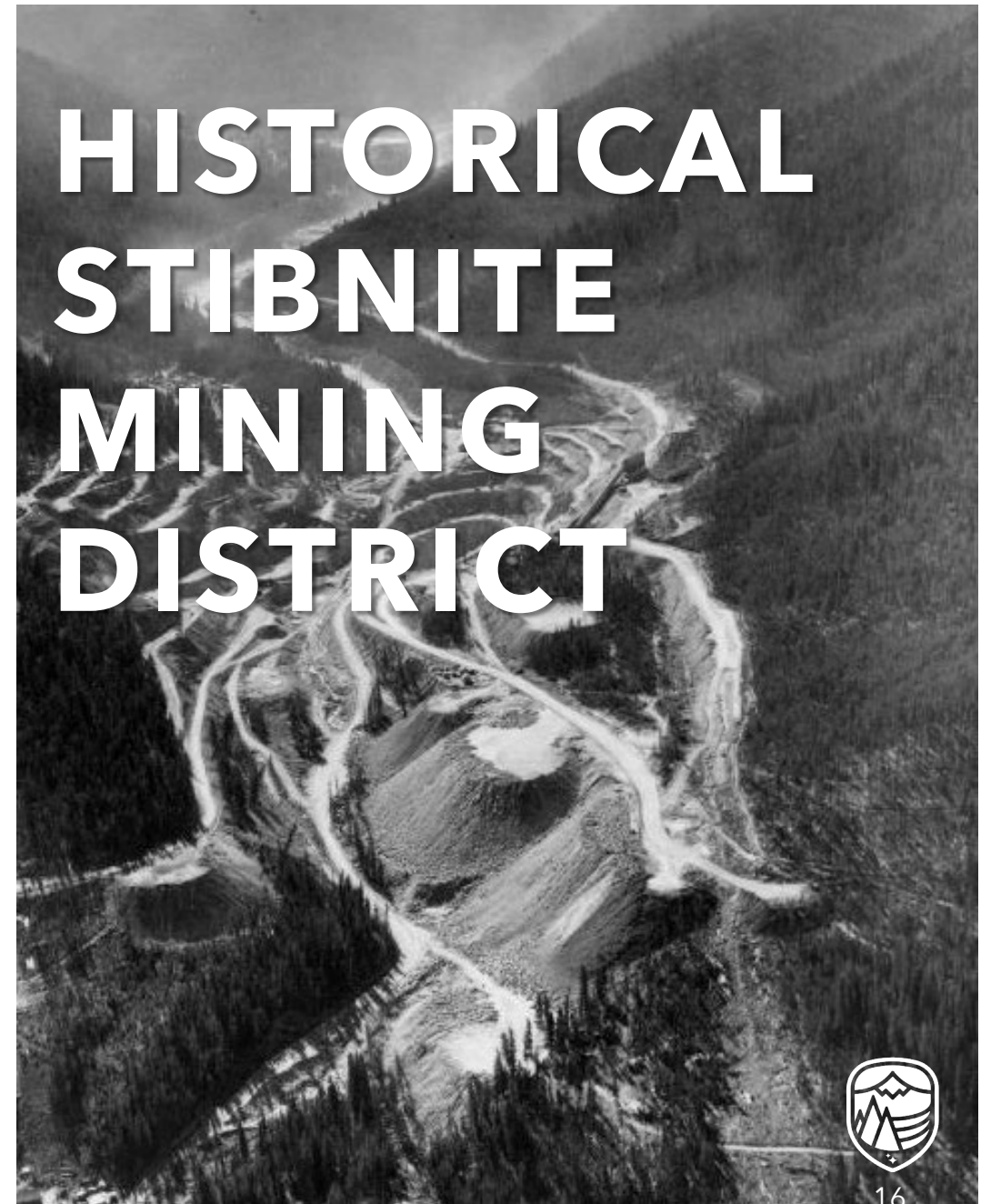
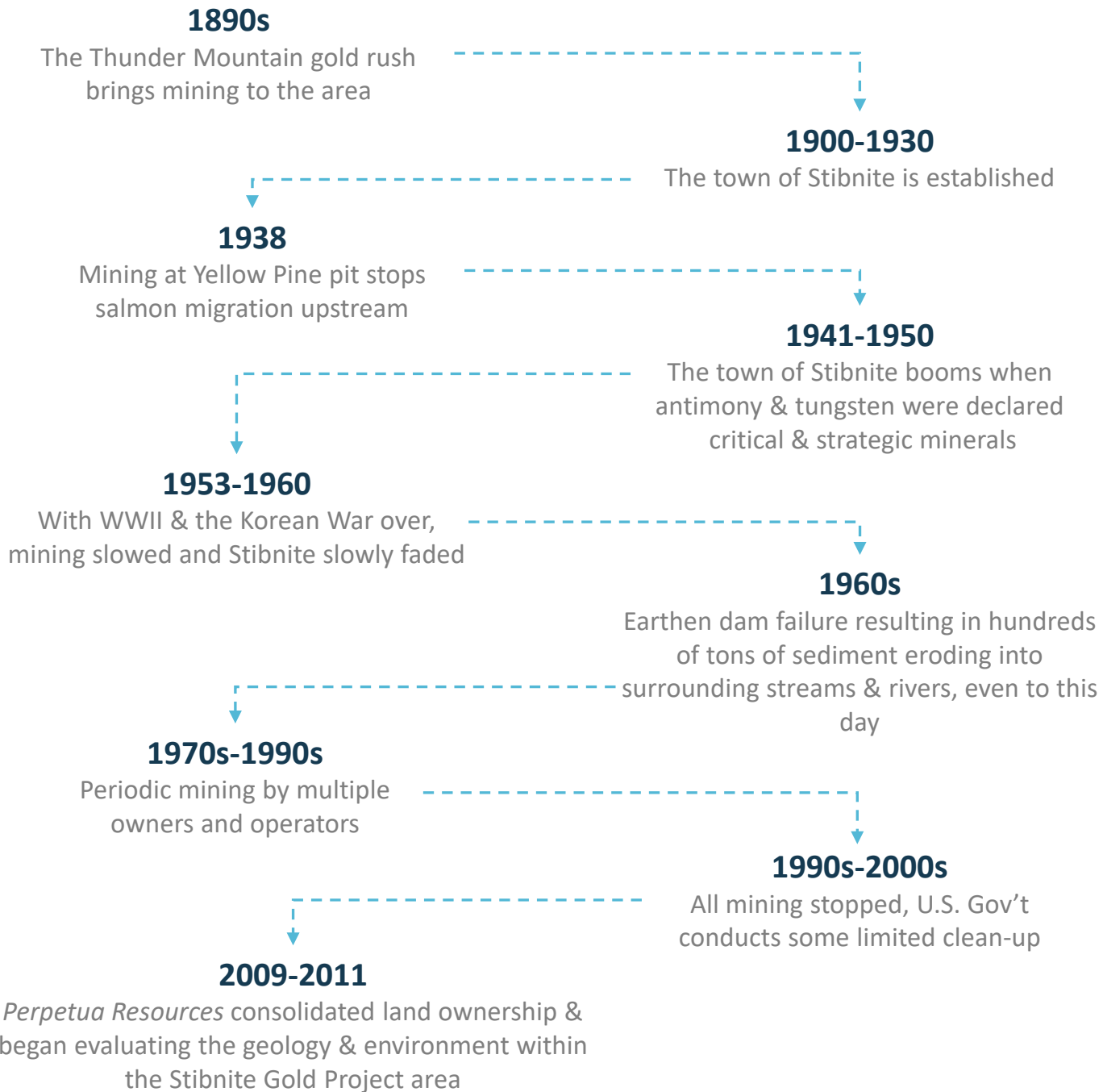


Source: Bloomberg

WHY THE STIBNITE GOLD PROJECT?

Chris Dail, Exploration Manager, Perpetua Resources





Neutral by the Americas.
It was Germany's use of high-velocity, armor-piercing projectiles with the tungsten carbide core that almost made the north African campaign a successful one.

Tungsten production in China began in 1914, and it has been the largest tungsten producer in the world.

Japan's tungsten production was disrupted by the war in China. The United States entered the war in 1941, and the tungsten shortage became a critical military problem. The discovery of the tungsten mine at Stibnite, Idaho in 1942 was a major breakthrough for the United States. The mine was one of the largest tungsten deposits in the world. The discovery of the mine was a major breakthrough for the United States. The mine was one of the largest tungsten deposits in the world.

The Government invested millions to build access roads and open up this mine. The Yellow Pine deposit was a lifesaver for this country, but it was geologically complex and difficult to mine.

“In the opinion of the Munitions Board, the discovery of that tungsten mine at Stibnite, Idaho in 1942 shortened World War II by at least 1 year and saved the lives of a million American soldiers.”

The US Senate Congressional Record. 1956



BM-124



MINERAL RESOURCES & RESERVES

Proven & Probable Mineral Reserves:

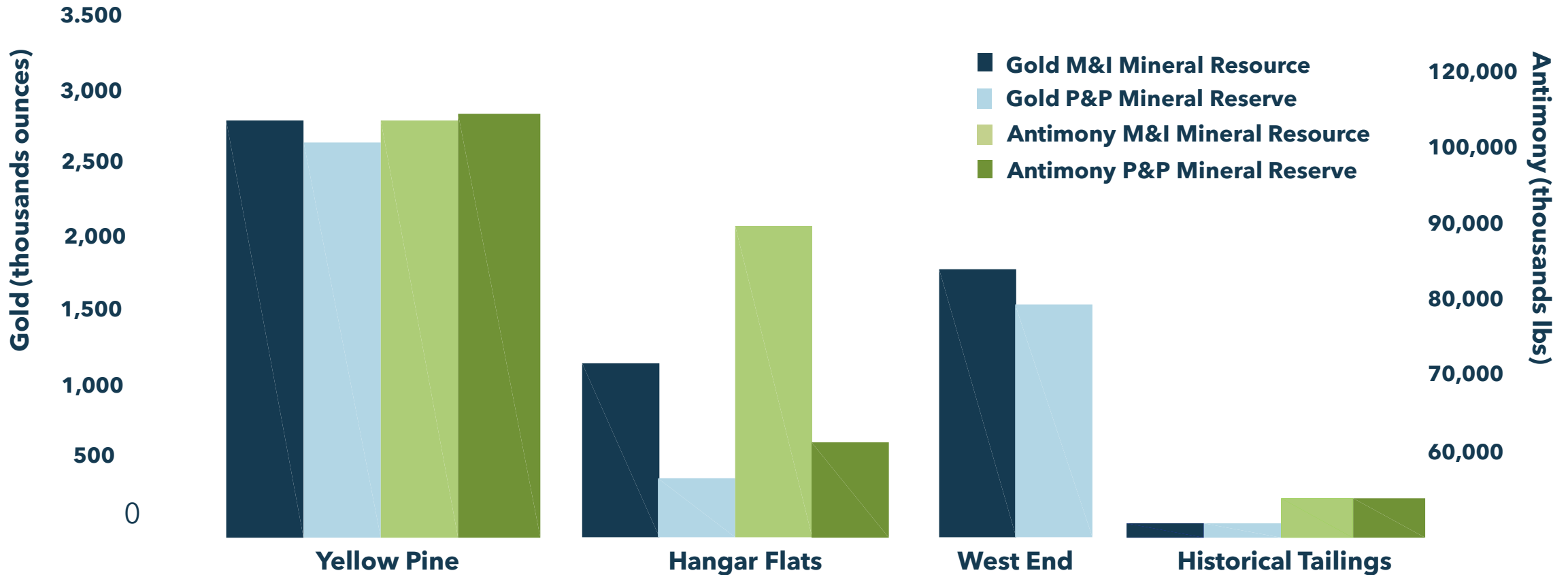
4.8 Mozs Gold @1.43 g/t

148 M lbs antimony at 0.06% contained in 104 Mt

Measured & Indicated Mineral Resources:

6.0 Mozs Gold @1.42g/t

206 Mlbs antimony at 0.07% contained in 132 Mt



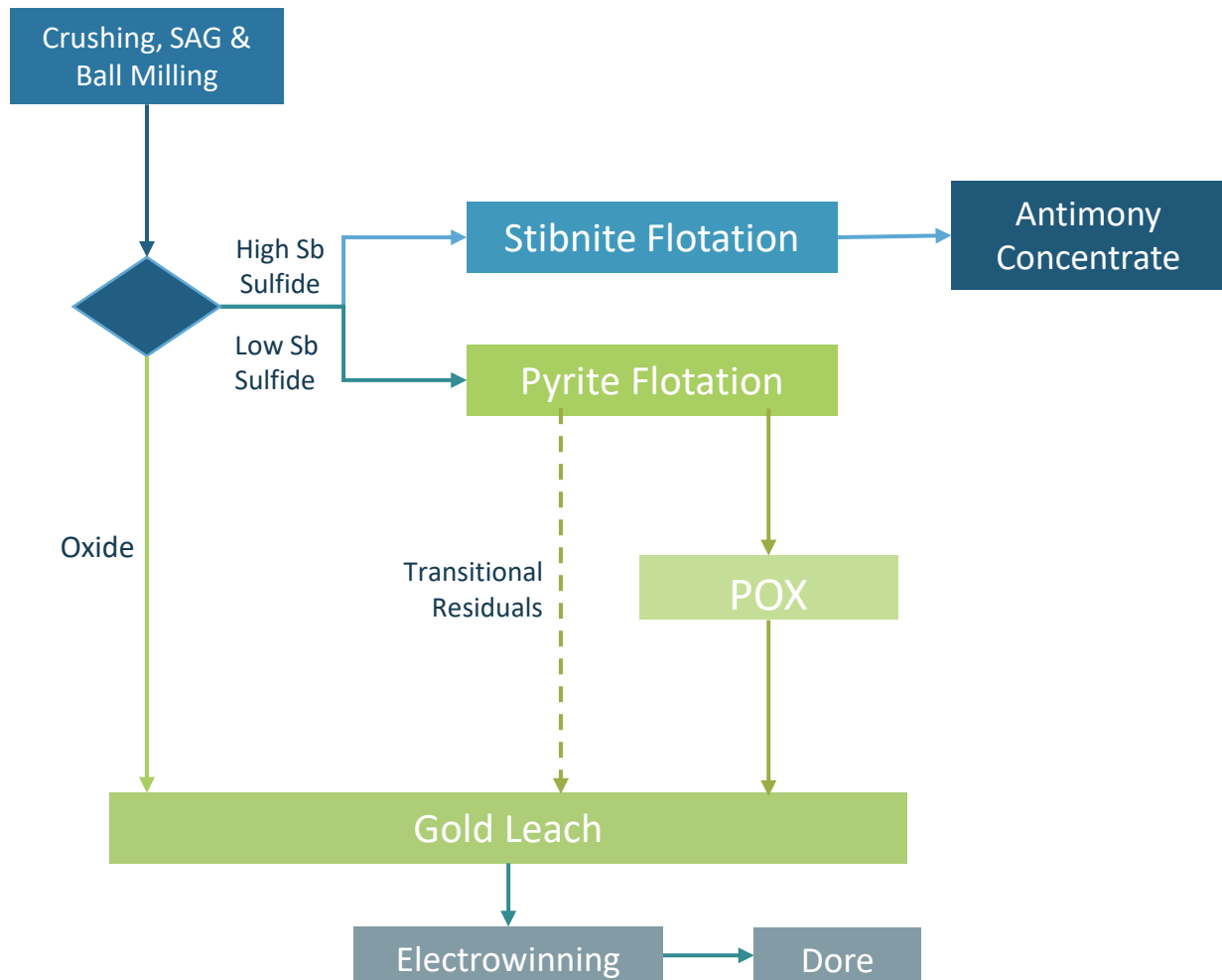
1. Based on the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation. The Mineral Reserves are contained within the Mineral Resources. Mineral Reserves were calculated using an Au price of \$1600/oz and Sb price of \$3.50/lb and variable cut off grade of 0.39-0.49 g/t Au. Mineral Resources were calculated using a \$1250/oz Au price and sulfide cut off grade of 0.45 g/t Au and oxide COG of 0.4 g/t Au.



STIBNITE GOLD PROJECT (SGP)

Ore Process

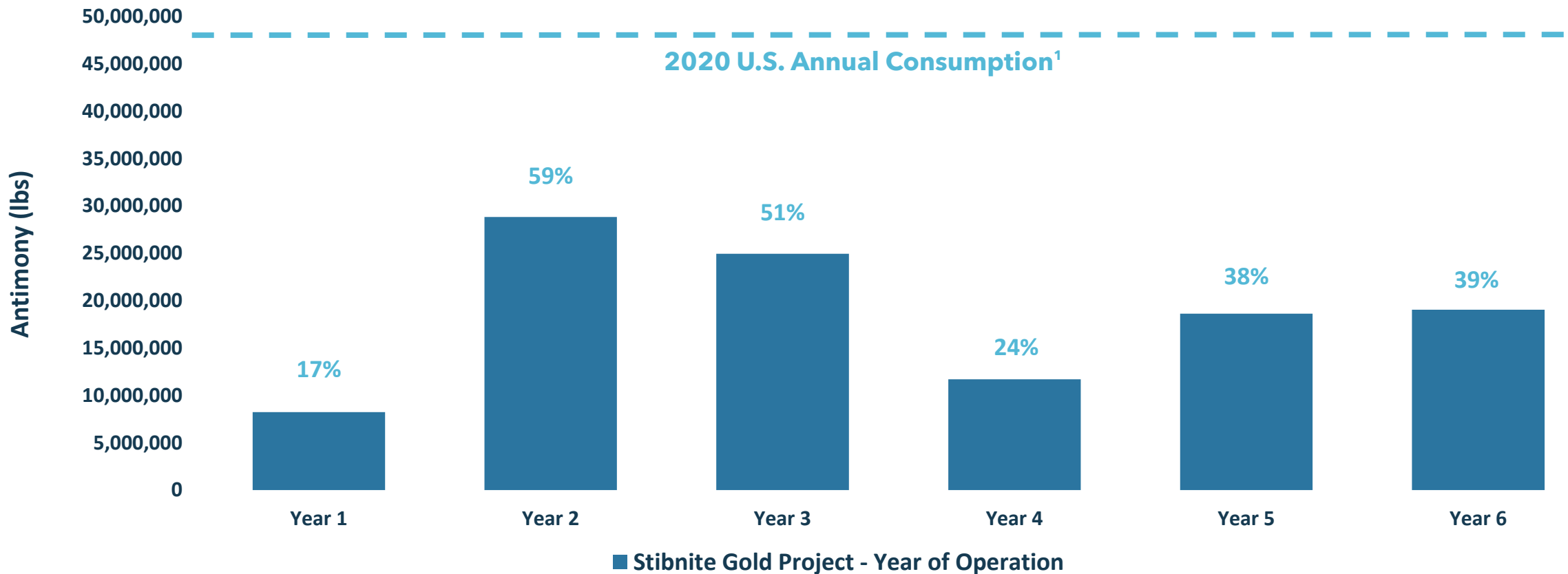
- **Dore metallurgical recoveries**
 - Gold at 68% - 91% (88.9% average)
 - Silver at 23.2% Average
- **Antimony concentrate metallurgical recoveries**
 - Antimony at 84% - 91% (89.5% average)
 - Gold at 1% - 2%
 - Silver at 59% - 65%
- **High-grade antimony concentrate (Sb 55-65%)**
 - Low levels impurities = no penalties
- **Ag (and Au) likely by-product payables in Sb concentrates;**
- **Potential processing options include**
 - Conventional pyrometallurgical (smelting and roasting)
 - Hydrometallurgical (solvent extraction)
 - Bench and pilot scale testing indicates both options are viable processing options to the project.





PERPETUA EXPECTED TO SUPPLY ~35% OF U.S. DEMAND¹

Stibnite Gold Project Recovered Antimony²



Perpetua Resources could re-establish domestic antimony production, protecting America's future

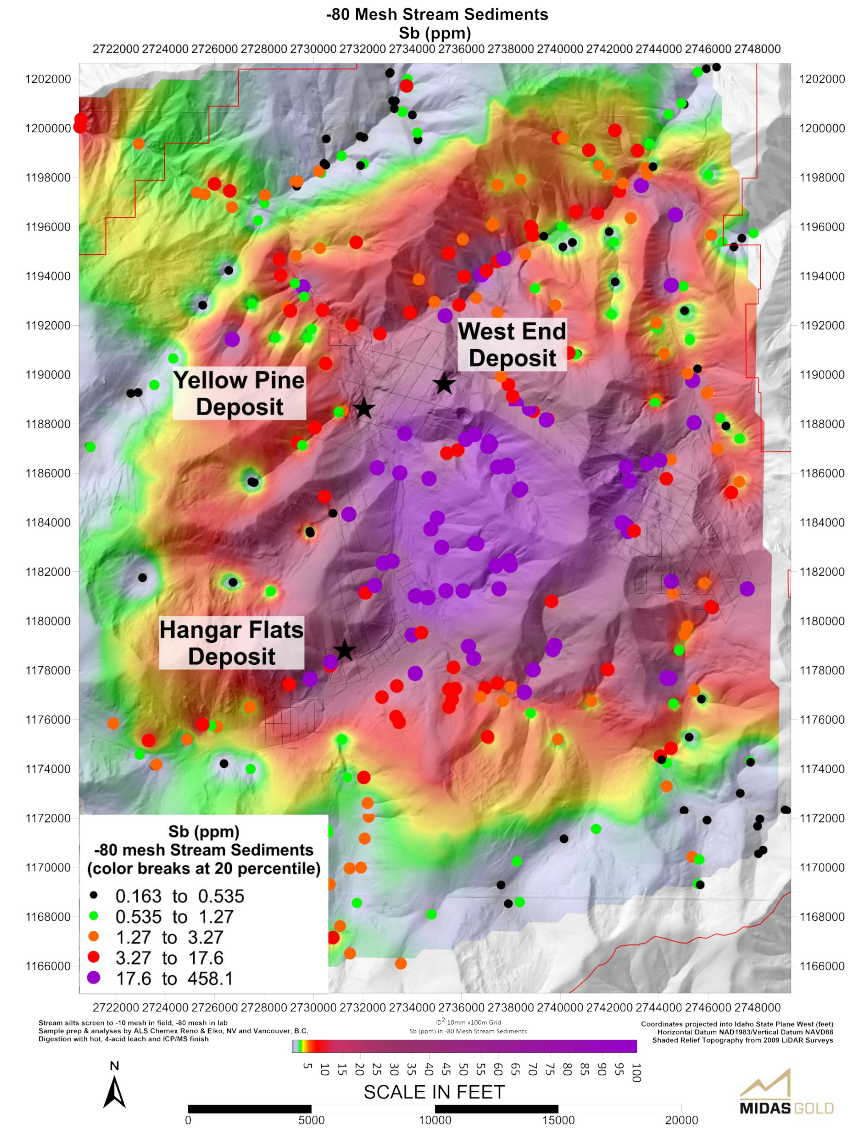
1. Source: 2021 USGS Antimony commodity summary; all numbers are approximate and may not add due to rounding.
2. Based on the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation.



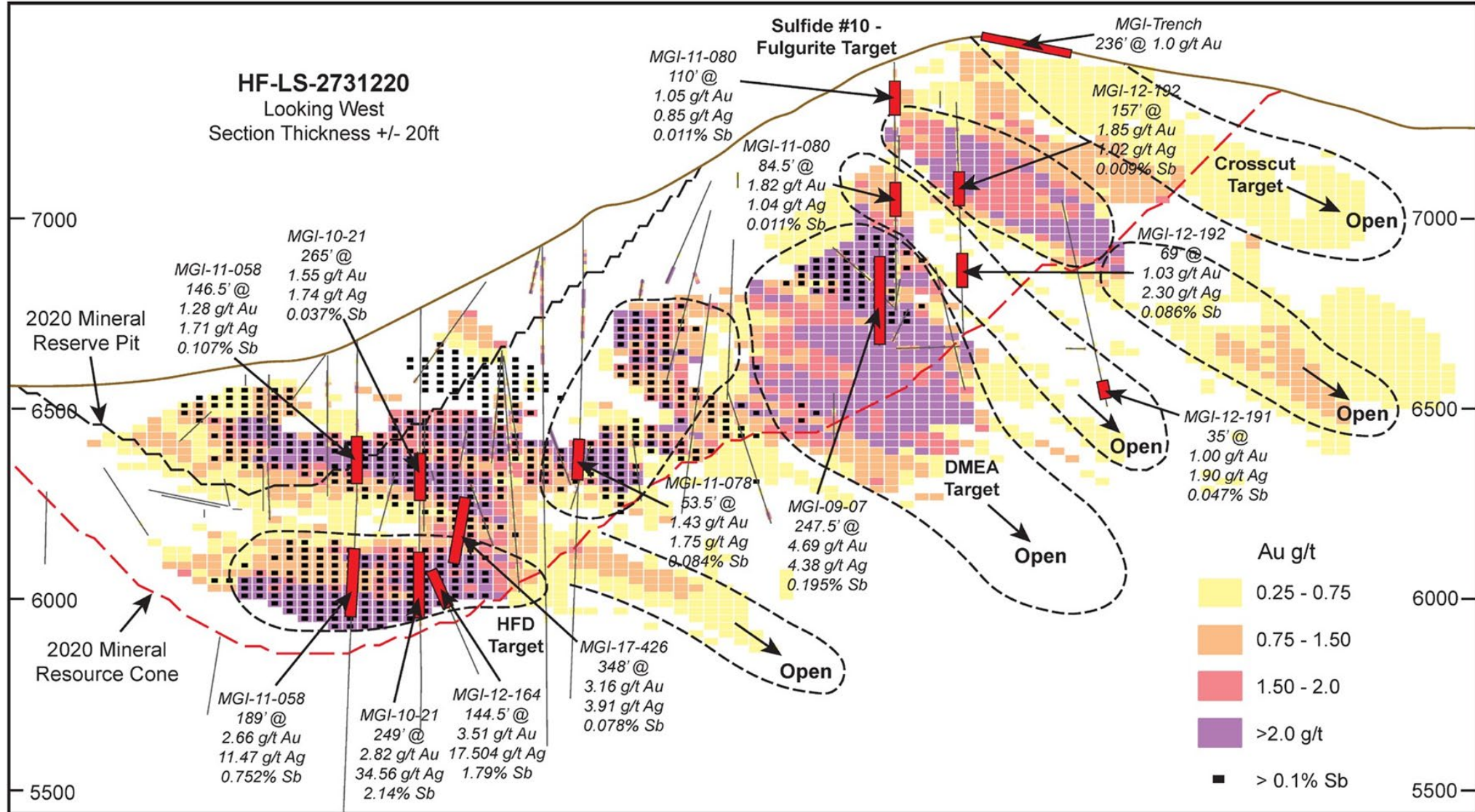
EXPLORATION UPSIDE

Stibnite District

- Exploration (2010-2015) defined core area “bulls-eye” with extremely anomalous antimony in stream sediments, soils and rocks
- Antimony associated with tungsten and related to younger stages of mineralization; intrusive- and sediment-hosted
- Virtually no drilling in primary target area exclusive of main deposits and Scout



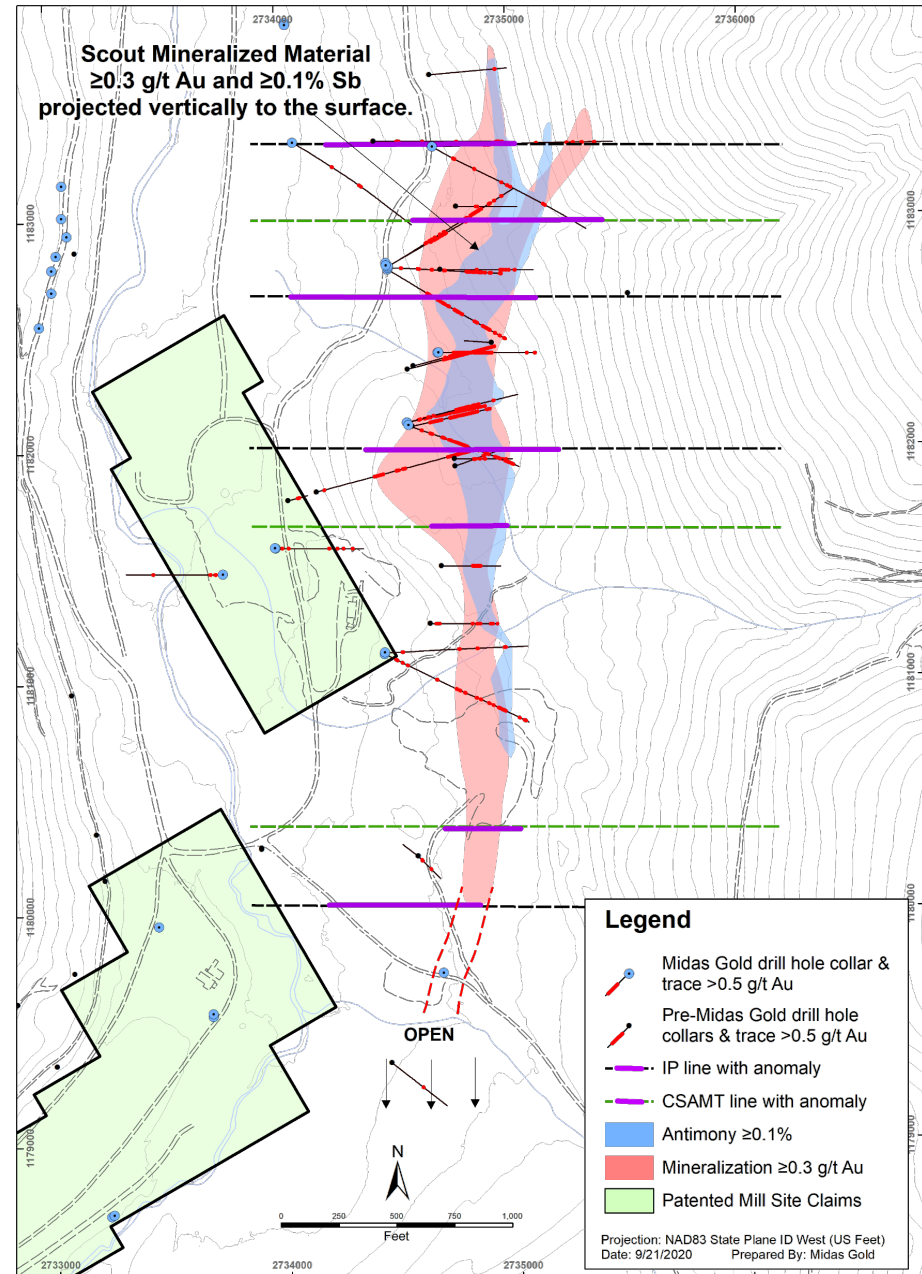
HANGAR FLATS DEPOSIT UPSIDE



EXPLORATION UPSIDE

Scout

- **1950s:** Discovery during fed-sponsored exploration
- **1970s-90s:** Explored as gold prospect
- **2012-2013:** Exploration indicated presence of large Sb-rich system blind beneath glacial overburden
 - High grades of Sb suggest potential for underground mining
 - Proposed exploration decline for underground opportunity included in Plan of Restoration and Operations
 - System open along strike and down dip





Ensuring we have a steady domestic supply of these materials, without reliance on foreign sources, will keep our nation at the forefront of technical innovation while creating more jobs for American workers.

- Representative Eric Swalwell (D-CA)

Critical Materials Caucus Press Release, September 24, 2020



WHY PERPETUA RESOURCES?

Jessica Largent, VP Investor Relations & Finance, Perpetua Resources



GAINING MOMENTUM WITH NEAR-TERM CATALYSTS



Recent Accomplishments:

- ✓ Draft Environmental Impact Statement (Aug 2020)
- ✓ Successful comment period (Aug-Oct 2020)
- ✓ Feasibility Study released (Dec 2020)
- ✓ Signed historic agreement with Federal Agencies to begin water clean up (Jan 2021)*
- ✓ Announced name change (Feb 2021)
- ✓ US listing on NASDAQ approved (Feb 2021)

Upcoming Milestones:

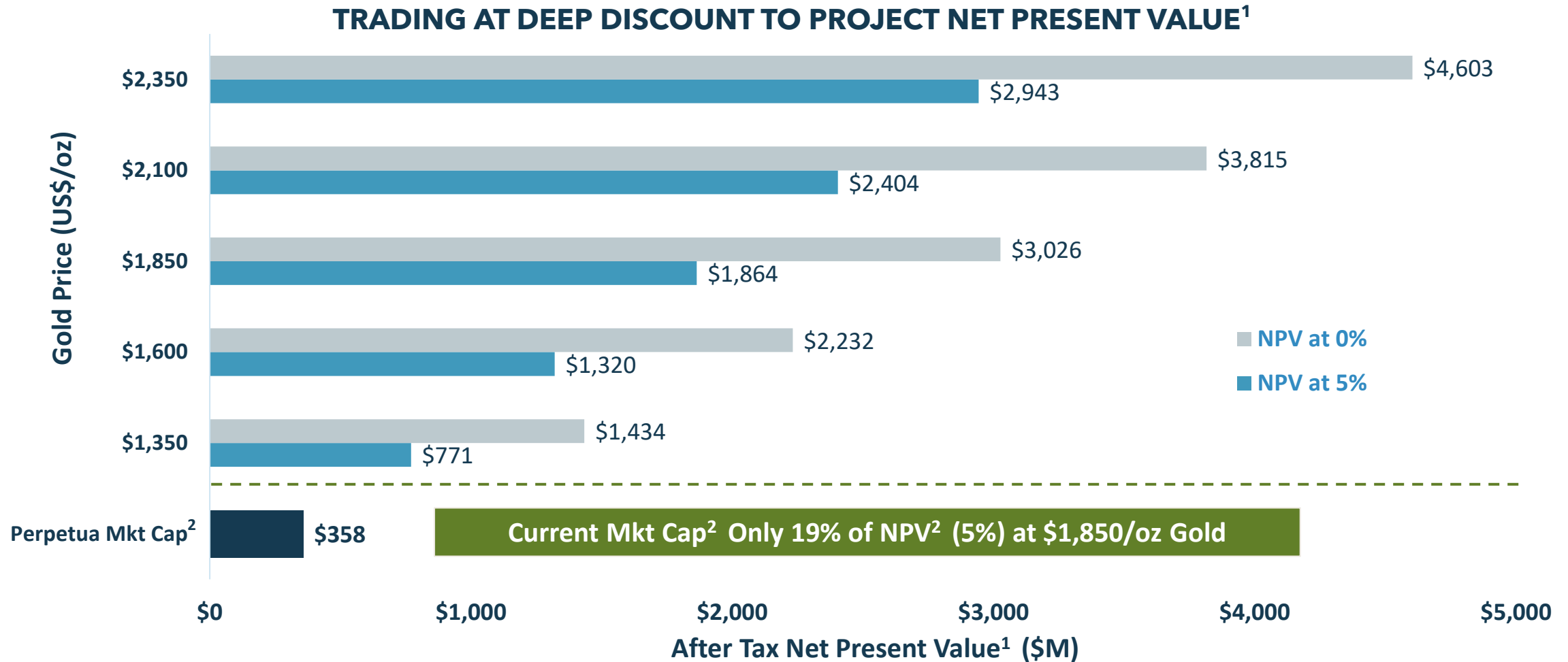
- ❑ Final Environmental Impact Statement & Draft Record of Decision (ROD) (Q3 2021)**
- ❑ Final RoD (Q4 2021)**
- ❑ Inclusion in multiple indices due to Nasdaq listing (2021)
- ❑ Ancillary permits & financing (2022)
- ❑ Construction, begin legacy restoration (2022/2023)
- ❑ Commercial operations, ongoing restoration (2026)

*Administrative Settlement Agreement and Order on Consent (ASAOC)

**Reflects management's latest expectations which are more conservative than the current government schedule



SIGNIFICANT LEVERAGE TO HIGHER GOLD PRICES

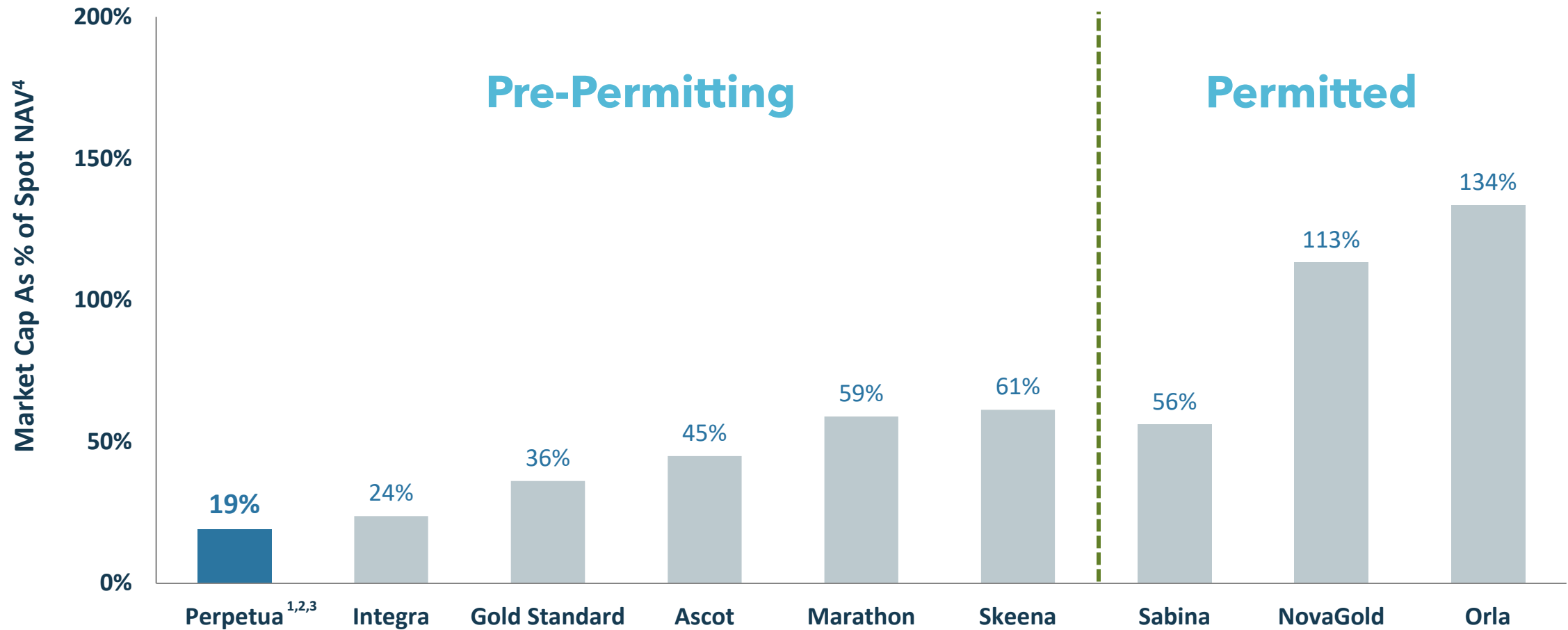


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2. Perpetua Resources Market Cap based on Fully Diluted Market Cap using closing price on TSX as of April 1, 2021 (C\$8.19)



VALUATION SET TO RE-RATE ONCE PERMITTED



1. Perpetua Resources based on market capitalization assumes full conversion of all outstanding Convertible Notes into Perpetua shares.

2. Based on the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation.

3. Market capitalizations based on fully diluted share count as of latest filing date (including convertible bonds); NAV based on after-tax NPV (5% discount rate) based on last available NAV within \$1,850/oz gold price.

4. Based on April 1, 2021 closing stock prices.



A UNIQUE AMERICAN OPPORTUNITY

PERPETUA RESOURCES



- ✓ Redeveloping one of **largest, highest grade** and **lowest cost** gold projects in the U.S.*
- ✓ **Superior project economics** with ~15 year reserve life and <3 year payback period*
- ✓ **Re-establishing U.S. critical mineral production**
- ✓ Located in **stable mining jurisdiction** with **Idaho community** and **political support**
- ✓ **Sustainable approach** to restoring the environment, improving a legacy, and creating value for all stakeholders
- ✓ **Attractive valuation**, trading at 19% of NPV^{(5%)*}, with **significant near-term catalysts**

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QUESTIONS & CONVERSATION



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REGULATORY INFORMATION

The FS was compiled by M3 Engineering & Technology Corporation (“M3”) in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (“NI 43-101”) under the direction of independent qualified persons (as defined in NI 43-101) (“Independent QPs”). Independent QPs for the FS include: Richard Zimmerman, SME-RM (onsite and offsite infrastructure, cost estimating and financial modeling) and Art Ibrado, P.E. (mineral processing) with M3; Garth Kirkham, P.Geo. (mineral resources) with Kirkham Geosystems Ltd.; Christopher Martin, C.Eng. (metallurgy) with Blue Coast Metallurgy Ltd.; Grenvil Dunn, C.Eng. (hydrometallurgy) with Hydromet WA (Pty) Ltd.; Chris Roos, P.E. (mineral reserves) and Scott Rosenthal P.E. (mine planning) with Value Consulting, Inc.; and Peter Kowalewski, P.E. (tailings storage facility and closure) with Tierra Group International, Ltd.

The material scientific and technical information in respect of the Project in this presentation, unless otherwise indicated, is based upon information contained in the FS. Readers are encouraged to read the FS, which is available under the Company's profile on SEDAR, for detailed information concerning the Project. All disclosure contained in this presentation regarding the mineral reserves and mineral resource estimates and economic analysis on the property is fully qualified by the full disclosure contained in the FS.

Information of a scientific or technical nature in this presentation has been approved by Austin Zinsser, SME-RM, Sr. Resource Geologist for Perpetua Resources Idaho, Inc. and a qualified person (as defined in Ni 43-101).

All mineral resources have been estimated in accordance with CIM definitions. Mineral resources are reported in relation to a conceptual pit shell to demonstrate potential for economic viability, as required under NI 43-101; mineralization lying outside of these pit shells is not reported as a mineral resource. Mineral resources are not mineral reserves and do not have demonstrated economic viability. Mineral resource estimates include inferred mineral resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves. It is reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources.

The mineral resources and mineral reserves at the Stibnite Gold Project are contained within areas that have seen historic disturbance resulting from prior mining activities. In order for the Company to advance its interests at the Stibnite Gold Project, the Project will be subject to a number of federal, state and local laws and regulations and will require permits to conduct its activities.

NON-IFRS REPORTING MEASURES

“Cash Costs”, “All-in Sustaining Costs” and “Total costs” are not performance measures reported in accordance with International Financial Reporting Standards (“IFRS”). These performance measures are included because the statistics are key performance measures that management uses to monitor performance. Management uses these statistics to assess how the Project ranks against its peer projects and to assess the overall effectiveness and efficiency of the contemplated mining operations. These performance measures do not have a meaning within IFRS and, therefore, amounts presented may not be comparable to similar data presented by other mining companies. These performance measures should not be considered in isolation as a substitute for measures of performance reported in accordance with IFRS.