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**PRIMARY SILVER**  
PRODUCER



ALEXCO

September 2021

# Corporate Update

TSX | NYSE American | **AXU** | [www.alexcoresource.com](http://www.alexcoresource.com)

# FORWARD-LOOKING STATEMENTS

Some statements (“forward-looking statements”) in this presentation contain forward-looking information concerning the results of the Technical Report, anticipated results and developments in Alexco’s operations in future periods, planned exploration and development of its properties, plans related to Alexco’s business and other matters that may occur in the future, made as of the date of this presentation. Forward-looking statements may include, but are not limited to, statements with respect to results of the Technical Report; future mineral exploration including the estimation of mineral reserves and mineral resources and the realization of mineral reserve and mineral resource estimates and anticipated timing regarding results from the ongoing drill program and updated mineral resource estimate; future mine construction and development activities; future mine operation and production; the timing of activities and reports; the amount of estimated development and operational expenses; projected operational and economic metrics; the success of exploration and development activities; the potential upside and growth in respect of certain deposits comprising the Keno Hill Project; anticipated permitting time lines; requirements for additional permits (or amendments to existing permits); anticipated installation of certain infrastructure; projected equipment and production capacity; plans regarding the Company’s 2021 drilling program; and potential capital, revenue and sources and uses of funds. Forward-looking statements are subject to a variety of known and unknown risks, uncertainties and other factors which could cause actual events or results to differ from those expressed or implied by the forward-looking statements. Such factors include, among others, risks related to risks and uncertainties relating to the COVID-19 pandemic including but not limited to business closures, travel restrictions, quarantines and a general reduction in consumer activity; actual results and timing of exploration and development, mining, environmental services and remediation and reclamation activities; future prices of silver, gold, lead, zinc and other commodities; possible variations in mineral resources, grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accidents, labour disputes and other risks of the mining industry; First Nation rights and title; continued capitalization and commercial viability; global economic conditions; competition; and delays in obtaining governmental approvals or financing or in the completion of development activities. Forward-looking statements are based on certain assumptions that management believes are reasonable at the time they are made. In making the forward-looking statements included in this news release, Alexco has applied several material assumptions, including, but not limited to the circumstances surrounding the COVID-19 pandemic, although evolving, will stabilize or at least not worsen; that the extent to which COVID-19 may impact the Company, including without limitation disruptions to the mobility of Company personnel, costs associated with implementation of health and safety protocols, increased labour and transportation costs, and other related impacts, will not change in a materially adverse manner; Alexco will be able to raise additional capital as necessary, that the assumptions, projections, and estimates in the Technical Report will proceed as planned, and that market fundamentals will result in sustained silver, gold, lead and zinc demand and prices. There can be no assurance that forward-looking statements will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements. Alexco expressly disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise, except as otherwise required by applicable securities legislation.

The disclosure in this presentation of scientific and technical information regarding exploration has been reviewed and approved by Alan McOnie, FAusIMM, Alexco’s Vice President, Exploration, while that regarding mine development and operations has been reviewed and approved by Neil Chambers, P.Eng., Chief Mine Engineer, each of whom is a Qualified Person and has approved the disclosure herein. The material scientific and technical information in respect of Alexco’s Keno Hill Silver District Project in this presentation, unless otherwise indicated, is based upon information contained in the technical report entitled “NI 43-101 Technical Report on Updated Mineral Resource and Reserve Estimate of the Keno Hill Silver District”, with an effective date of April 1, 2021, and dated May 26, 2021. Readers are encouraged to read the Technical Report which is available under the Company’s profile on SEDAR, for detailed information concerning the Keno Hill Silver District. 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 Technical Report.

The Endnotes found on page 17 of this presentation are an integral part of this presentation.

# CAUTIONARY NOTES

This presentation has been prepared in accordance with the requirements of Canadian provincial securities laws, which differ from the requirements of U.S. securities laws. Unless otherwise indicated, all mineral reserve and mineral resource estimates included have been prepared in accordance with Canadian National Instrument 43-101—Standards of Disclosure for Mineral Projects (“NI 43-101”) and the Canadian Institute of Mining, Metallurgy and Petroleum (the “CIM”) – CIM Definition Standards on Mineral Resources and Mineral Reserves, adopted by the CIM Council, as amended. NI 43-101 is an instrument 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 definitions differ from the definitions in requirements under United States securities laws adopted by the United States Securities and Exchange Commission (the “SEC”).

Under Canadian rules, estimates of Inferred Mineral Resources (as defined therein) may not form the basis of feasibility or pre-feasibility studies, except in rare cases. Investors are cautioned not to assume that all or any part of an inferred mineral resource exists or is economically or legally mineable. An “Inferred Mineral Resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource (as defined herein) and must not be converted to a mineral reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Investors are cautioned not to assume that all or any part of mineral reserves and mineral resources determined in accordance with NI 43-101 and CIM standards will qualify as, or be identical to, mineral reserves and mineral resources estimated under the standards of the SEC applicable to U.S. companies. The SEC has adopted amendments to its disclosure rules to modernize the mineral property disclosure requirements for issuers whose securities are registered with the SEC. As a foreign private issuer that files its annual report on Form 40-F with the SEC pursuant to the multi-jurisdictional disclosure system, the Corporation is not required to provide disclosure on its mineral properties under the SEC’s new rules and will continue to provide disclosure under NI 43-101 and the CIM standards. If the Corporation ceases to be a foreign private issuer or lose its eligibility to file its annual report on Form 40-F pursuant to the multi-jurisdictional disclosure system, then the Corporation will be subject to the SEC’s new rules, which differ from the requirements of NI 43-101 and the CIM standards.

Accordingly, information contained in this presentation that contain descriptions of the Corporation’s mineral deposits may not be comparable to similar information made public by U.S. companies subject to the reporting and disclosure requirements under the United States federal securities laws and the rules and regulations thereunder.

## **Alternative Performance Measures**

Alternative performance measures are furnished to provide additional information. These non-GAAP performance measures are included in this presentation because these statistics are key performance measures that management uses to monitor performance, to assess how the Company is performing, and to plan and assess the overall effectiveness and efficiency of mining operations. These performance measures do not have a standard 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 or as a substitute for measure of performance in accordance with IFRS. The Company has included certain alternative performance measures including “All-in Sustaining Cost” (AISC) per ounce of silver in this presentation. All-in sustaining cost per silver ounce is calculated with reference to World Gold Council guidance, and is based upon contained silver ounces produced, excludes impacts of the streaming agreement with Wheaton Precious Metals, and included general and administrative, exploration, other expenses and sustaining capital expenditures.

## KENO HILL SILVER DISTRICT

# CANADA'S ONLY PURE SILVER MINE | RAMP UP UNDERWAY



## One of World's Highest Grade Silver Mines

- 804 g/t Ag | 1,035 g/t AgEq Reserve Grade
- Roughly 80% of revenues from Silver
- Enviable position on industry cost curve

## Tier 1 Jurisdiction & Great Infrastructure

- Connected to the Yukon hydro power grid
- Year-round highway access, all season airport
- Concentrates shipped year-round through deep water, ice-free port

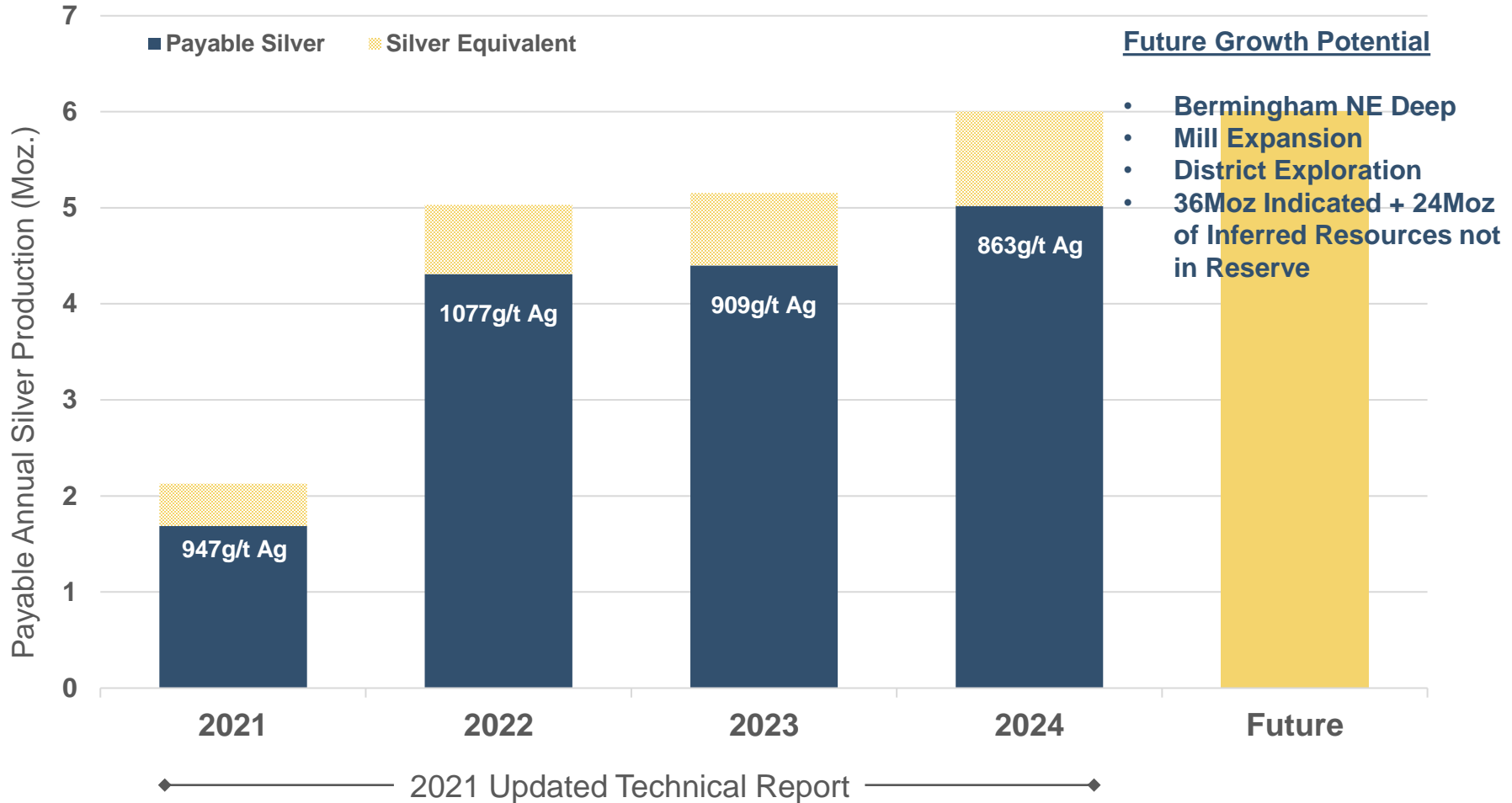
## Excellent Growth Potential

- Recent 22% increase to estimated reserves
- Birmingham NE Deep exploration a potential game changer → new resource for YE 2021
  - 20.37m @ 1,681g/t Ag (54 oz/t)
  - 500m strike length & +100m vertical extent

See Slide 17 for endnotes

## KENO HILL SILVER DISTRICT

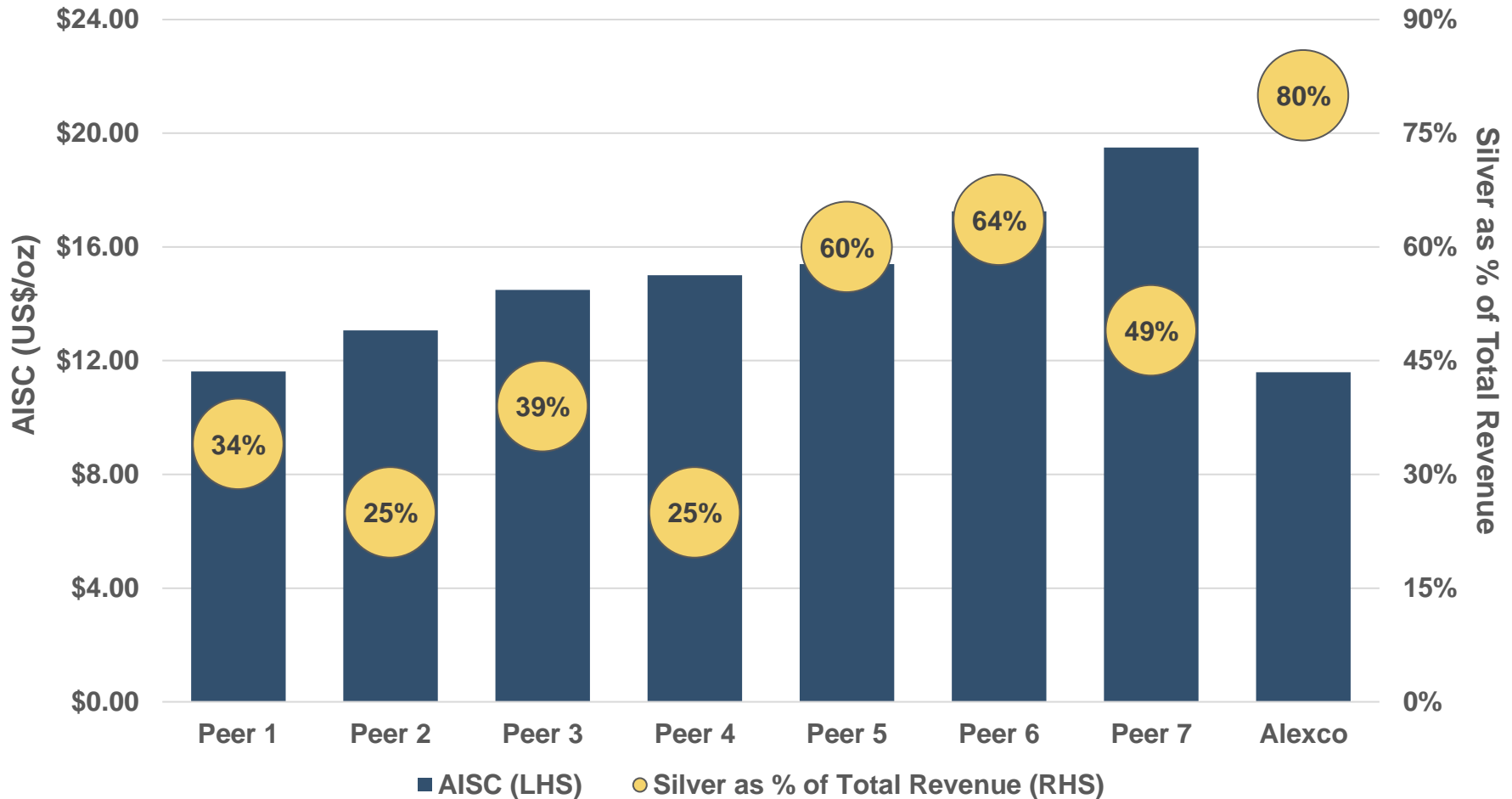
# GROWING HIGH GRADE SILVER PROFILE WITH MORE TO COME



See Slide 17 for endnotes

## KENO HILL SILVER DISTRICT

# COMPELLING MARGINS WITH LEADING SILVER EXPOSURE



See Slide 17 for endnotes

# ROADMAP TO FULL PRODUCTION – 2021 SCORECARD

**Sustainable  
Steady State  
Production  
in 2022**

	<b>Produced First Concentrates in Q1</b>   YTD (to July) Total silver production of 442koz, at average head grade of 818g/t Ag
	<b>Q2 Demonstrated Steady Operational Improvements</b>   Mill throughput up 64% to 176 tonnes per operating day, with silver recoveries at 93%. Underground development meters increased 13%. Positive cash flow from operating activities.
	<b>New Reserve Supports Extended Mine Life</b>   Reserves increased by 22% to 1.44Mt @ 804g/t Ag and 1,035g/t AgEq. Reserve mine plan estimates 35.5Moz Ag production over next 8 years.
	<b>Transitioning Ore Feed to New Mines</b>   Reached Birmingham production ore in August. Flame and Moth has reached first production level, preparing to cross-cut to the ore. Initial F&M ore in Q4.
	<b>District Mill Performance</b>   Cyclones, tailings filter press, fine ore feeder and crusher building all completed. Recoveries and concentrate grades on plan. Demonstrate mill nameplate capacity of 18tph (400tpd) in Q4.
	<b>New Site-Wide Resource</b>   Exceptional drilling results at Birmingham NE Deep Deposit to inform new resource estimate by year-end. Study value-enhancing operational implications.





See Slide 17 for endnotes

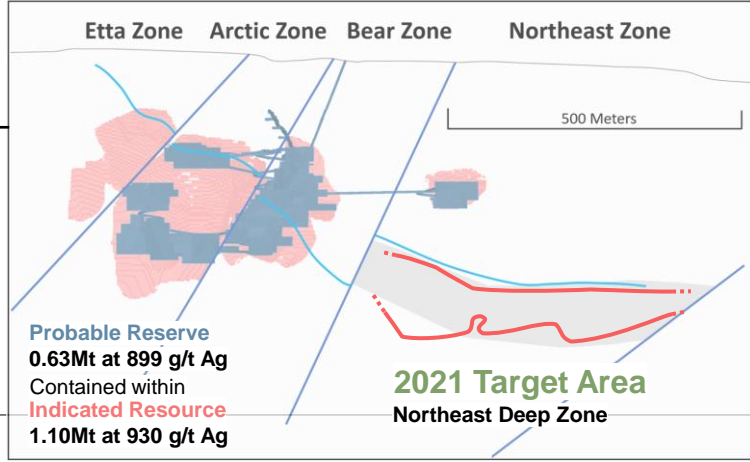
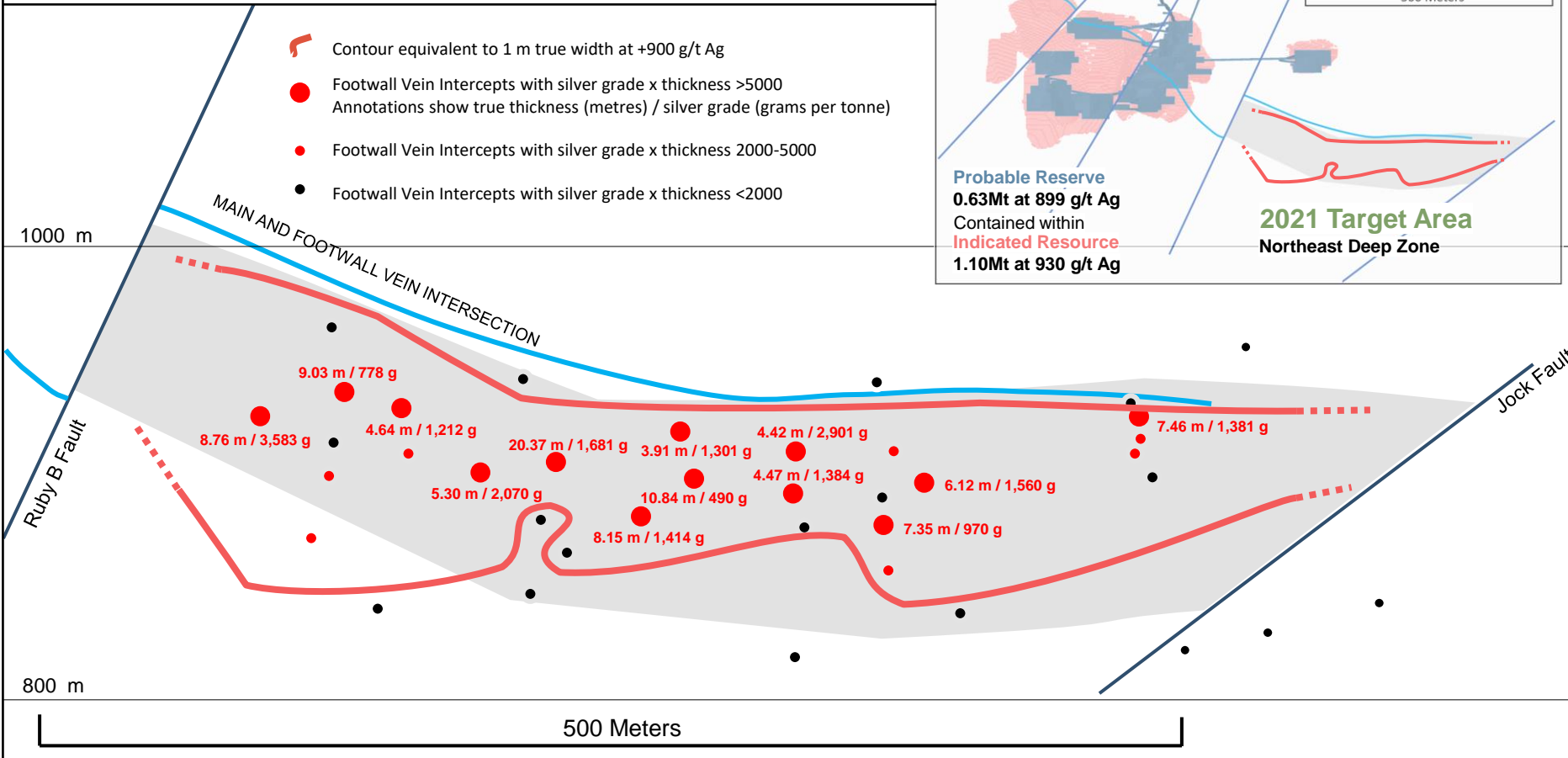
# STRATEGICALLY SIGNIFICANT DRILL PROGRAM IN 2021

## BERMINGHAM NORTHEAST DEEP ZONE

### Birmingham NE Deep Drilling Progress

Vertical Longsection looking northwest (310°)

-  Contour equivalent to 1 m true width at +900 g/t Ag
-  Footwall Vein Intercepts with silver grade x thickness >5000  
Annotations show true thickness (metres) / silver grade (grams per tonne)
-  Footwall Vein Intercepts with silver grade x thickness 2000-5000
-  Footwall Vein Intercepts with silver grade x thickness <2000



See Slide 17 for endnotes



## LONG TERM STRATEGIC GROWTH

### Operational Ramp-Up

- Onboarding and training of underground miners & maintenance technicians
- Maintain strong safety performance
- Increasing productivities and operational effectiveness to improve already robust economics
- Target sustainable operation of mill at full capacity for 2022

### Organic Growth

- Expected YOY production increases to over 5Moz Ag in 2024
- Explored ~15% of a district that has produced over 200Moz since 1913
- Property-wide updated Mineral Resource Estimate to include Birmingham NE Deep in Q4 2021

### External Options

- Disciplined approach to risk diversification and mitigation
- Potential move beyond one-mine status & remaining committed to high asset quality and low geopolitical risk
- Silver-first preference while building a better business

A High Grade, Pure Silver Company With Significant Upside

## COMMITTED TO RESPONSIBLE MINING



### People

- ~125 Keno Hill employees onboard with +80% of workforce from Yukon & BC
- Strong safety record and rigorous COVID-19 protocols
- Business and JV Contracting Agreements in place with First Nation of Na-Cho Nyak Dun Development (FNNND) Corporation



### Environment

- Reclaiming legacy environmental impacts in district in partnership with Federal Government and FNNND
- More than \$20M contributed to remediate and development closure plan for historic liabilities
- Dry stack tailings used in current operations → no conventional tailings dams



### Community

- Comprehensive Cooperation & Benefits Agreement with FNNND
- Legacy Fund and Scholarship contributions
- Strong community relationships with Mayo and Keno City

Currently Developing an Appropriate ESG Reporting Strategy

# ADDITIONAL INFORMATION /

## APPENDIX CAPITAL STRUCTURE

CAPITAL STRUCTURE	
Issued & Outstanding (basic)	150.9 M
Fully Diluted	161.5 M
Warrants (Exercise price \$3.50, Aug 25, 2025 expiry)	2.0 M

TRADING	USA	Canada
90-day Av. Daily Volume	1.3M shares/day	0.5M shares/day
52-week range	US\$1.79 – \$3.45	C\$2.25 – \$4.38
Market Cap	US\$290 M	C\$360 M

FINANCIAL POSITION AT JUNE 30, 2021	
Cash and Equivalents	C\$39 M
Restricted Cash	C\$3 M
Long-Term Debt	Nil

TOP SHAREHOLDERS	
Van Eck Associates	Fidelity
Jupiter Asset Management	SSI
ETF Managers Group	Invesco
Global X	Sprott
Insiders	Wheaton Precious Metals

ANALYST COVERAGE	
Alliance Global Partners	Jake Sekelsky
Canaccord Genuity	Kevin MacKenzie
Cantor Fitzgerald	Mike Kozak
Cormark Securities	Nicolas Dion
R.F. Lafferty Inc.	Mike Niehuser

# APPENDIX

## KENO HILL MINERAL RESERVE AND RESOURCE ESTIMATES

### MINERAL RESERVES

Deposit	Category	Tonnes	Ag (g/t)	Pb (%)	Zn (%)	Au (g/t)	Contained Metal (000 oz Ag)	Contained Metal (000 oz Au)	Contained Metal (M lbs Pb)	Contained Metal (M lbs Zn)
Bellekeno	Proven									
	Probable	12,809	936	13.00	7.30	0.00	385	0	4	2
Bellekeno Surface Stockpile	Proven									
	Probable	3,397	1150	21.70	4.50	0.00	126	0	2	0
Lucky Queen	Proven									
	Probable	70,648	1269	2.71	1.56	0.13	2883	0	4	2
Flame and Moth	Proven									
	Probable	721,322	672	2.69	6.21	0.49	15,590	11	43	99
Birmingham	Proven									
	Probable	630,173	899	2.26	1.30	0.13	18,209	3	31	18
<b>Total</b>	<b>Proven</b>									
	<b>Probable</b>	<b>1,438,349</b>	<b>804</b>	<b>2.64</b>	<b>3.84</b>	<b>0.31</b>	<b>37,193</b>	<b>14</b>	<b>84</b>	<b>122</b>

- Notes:**
1. Mineral Reserves are reported herein based on an NSR cutoff value using estimated metallurgical recoveries, assumed metal prices and smelter terms, which include payable factors, treatment charges, penalties, and refining charges
  2. Tonnage and grade measurements are in metric units. Contained gold and silver ounces are reported as troy ounces
  3. The Bellekeno, Lucky Queen, Flame & Moth and Birmingham deposits are incorporated into the current mine plan supported by disclosure in the news release dated May 26, 2021 entitled "Alexco Announces 22% Increase to Silver Reserves; Updated Technical Report Demonstrates Robust Economics at Keno Hill".
  4. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content.

### MINERAL RESOURCES

Category	Tonnes	Ag (g/t)	Au (g/t)	Pb (%)	Zn (%)	Contained Ag (oz)
Indicated	3,826,800	596	0.34	2.1%	5.4%	73,352,000
Inferred	1,719,600	442	0.2	1.4%	3.9%	24,413,000
Elsa Historical Tailings Resource <sup>8</sup>	2,490,000	119	0.1	1.0%	0.7%	9,527,000

- Notes:**
1. All mineral resources are classified following the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) of NI 43-101.
  2. Indicated mineral resources are inclusive of Probable Mineral Reserves estimates.
  3. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect the relative accuracy of the estimates.
  4. The mineral resource estimates comprising Lucky Queen and Flame & Moth, Onek and Birmingham are supported by disclosure in the news release dated March 28, 2019 entitled "Alexco Announces Positive Pre-Feasibility Study for Expanded Silver Production at Keno Hill Silver District" and the Technical Report filed on SEDAR dated February 13, 2020 with an effective date of March 28, 2019.
  5. The mineral resource estimate for the Birmingham deposit is based on mineral resource estimates having an effective date of March 28, 2019.
  6. The mineral resource estimate for the Lucky Queen, Flame & Moth and Onek deposits have an effective date of January 3, 2017.
  7. The mineral resource estimate for the Bellekeno deposit is based on an internal mineral resource estimate completed by Alexco Resource Corp. and externally audited by SRK Consulting Inc., having an effective date of January 01, 2021. This mineral resource estimate has been depleted to reflect all mine production from Bellekeno to the end of December 2020.
  8. The mineral resource estimate for the Elsa Tailings has an effective date of April 22, 2010 and is supported by the technical report dated June 16, 2010 entitled "Mineral Resource Estimation, Elsa Tailings Project, Yukon, Canada". The Elsa Historical Tailings Resource is classified following the CIM Definition Standards for Mineral Resources and Mineral Reserves (December 2005) of NI 43-101.

## APPENDIX WHEATON SILVER STREAM

Alexco and WPM amended the Silver Purchase Agreement (originally dated October 2, 2008) by virtue of which AXU will sell to Wheaton 25% of silver production from Keno Hill and Wheaton will use the following formula to pay for each ounce of silver:

Until the earlier of: (i) two years from first shipment of concentrate; and (ii) delivery of 2 million silver ounces to Wheaton	$90 - ((\text{Market Price} - 15) * 10)$ ; and	} Subject to a maximum of 90% and minimum of 10%
Thereafter:	$90 - ((\text{Market Price} - 13) * 8)$ ,	



## APPENDIX

# ELSA RECLAMATION & DEVELOPMENT COMPANY (“ERDC”)

- Keno Hill Silver District operated for ~100 years under various owners until 2001.
- In 2006, ERDC (100% Alexco-owned) entered into agreement with Government of Canada. ERDC is responsible for care & maintenance + closure of historical mines - with government funding provided - to address historical liabilities.

### Reclamation Obligation

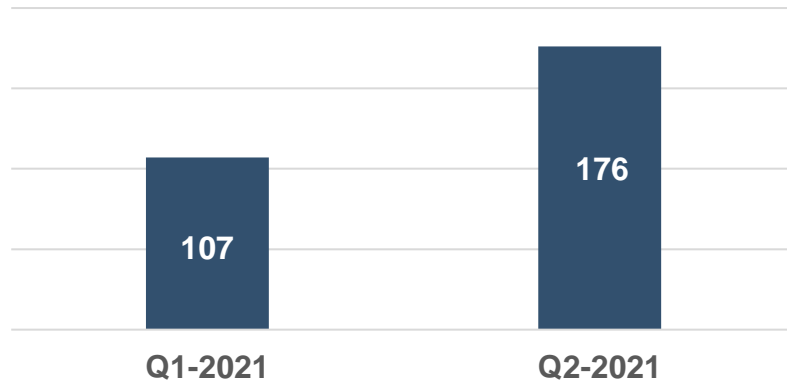
- As a public-private partnership with Governments of Canada, Yukon Government, and First Nation of Na-Cho Nyak Dun, ERDC will develop, permit and implement a Reclamation Plan for historical mining activities and associated liabilities.
- Alexco has contributed \$10M to a Reclamation Trust that will go towards implementation of the District Wide Reclamation Plan.
- The Reclamation Plan completed the environmental assessment process in February 2020; a final decision document was issued in July 2020.
- ERDC has entered the Yukon Water Board’s water licensing process to authorize closure activities.
- After licensing, ERDC will submit to Crown-Indigenous Relations and Northern Affairs Canada for approval and funding in order to proceed into implementation. The current estimate for the total capital and operating cost for the reclamation is ~\$100M over a 30-year period.

### Development Opportunity

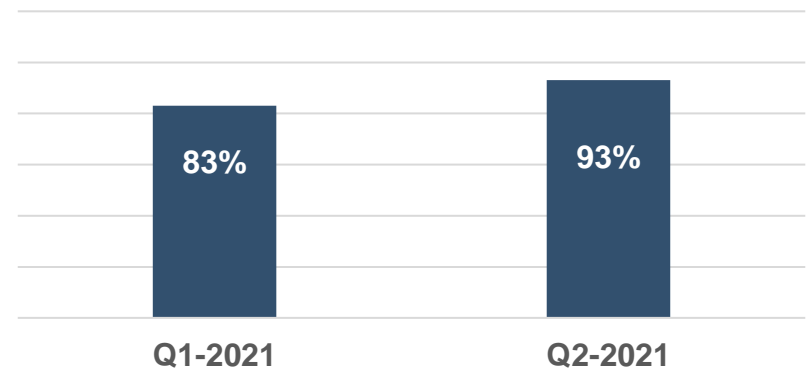
- The agreement allows Alexco to undertake exploration and development of the Keno Hill Silver District.

## APPENDIX SECOND QUARTER RESULTS

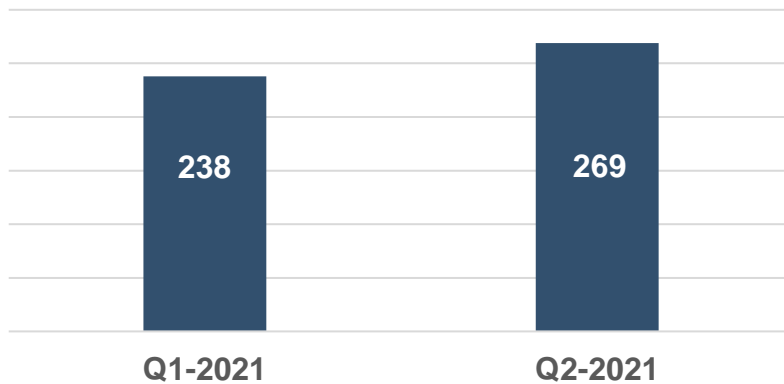
### Mill Throughput (tpd)



### Silver Recoveries



### Underground Development (m)



- Second quarter showed meaningful improvement in key metrics
- Management remains focused on continued improvements

See Slide 17 for endnotes



## ENDNOTES

<b>Slide 4</b>	<p>See slides 2 &amp; 3 for cautionary statements and slide 13 for a full view of the Mineral Reserves and Resources Summary Table associated with the Keno Hill Silver District.</p> <p>Readers should reference and read in its entirety, Alexco's news release dated September 7, 2021 entitled "Alexco Reports Interim Results from Bermingham Drilling, Composite Assays to 1,681 g/t Ag over 20.37 meters True Width" for a complete discussion of Bermingham NE Deep exploration results.</p>
<b>Slide 5</b>	<p>The Technical Report, titled "NI 43-101 Technical Report on Updated Mineral Resource and Reserve Estimate of the Keno Hill Silver District" with an effective date of April 1, 2021 and dated May 26, 2021 has been filed on SEDAR. Readers are cautioned that the conclusions, projections, and estimates set out in this presentation are subject to important qualifications, assumptions, and exclusions, all of which are detailed in the Technical Report. To fully understand the summary information set out herein, the Technical Report filed on SEDAR at <a href="http://www.sedar.com">www.sedar.com</a> should be read in its entirety.</p>
<b>Slide 6</b>	<p>The peers shown include Coeur, Endeavour Silver, First Majestic, Fortuna, Gatos, Hecla, and Pan American Silver. AISC is a non GAAP measure and may not be calculated on a comparable basis. Values shown for peer companies are taken from publicly available information and are shown based upon 2021 guidance in the case of AISC and either based upon company provided projections or historical financial information for silver revenues as a percentage of total revenues. Figures for Alexco are based upon the Technical Report titled "NI 43-101 Technical Report on Updated Mineral Resource and Reserve Estimate of the Keno Hill Silver District" with an effective date of April 1, 2021 and dated May 26, 2021 which has been filed on SEDAR.</p>
<b>Slide 7</b>	<p>Please refer to the Management's Discussion and Analysis for the three and six months periods ended June 30, 2021 for a complete discussion of Alexco's financial results. The Technical Report, titled "NI 43-101 Technical Report on Updated Mineral Resource and Reserve Estimate of the Keno Hill Silver District" with an effective date of April 1, 2021 and dated May 26, 2021 has been filed on SEDAR. Readers are cautioned that the conclusions, projections, and estimates set out in this presentation are subject to important qualifications, assumptions, and exclusions, all of which are detailed in the Technical Report. To fully understand the summary information set out herein, the Technical Report filed on SEDAR at <a href="http://www.sedar.com">www.sedar.com</a> should be read in its entirety.</p>
<b>Slide 8</b>	<p>See slides 2 &amp; 3 for cautionary notes. Probable Reserves are included in the Indicated Resources shown. See news release dated September 8, 2019 entitled "Alexco Intersects 8.1 Meters (true width) at Composite Grade of 1,414 Grams Per Tonne (45.5 oz/t) Silver at "Bermingham Deep" Target", news release dated January 19, 2021 entitled "Alexco Extends Bermingham High-Grade Mineralization at Depth, Intersects 3,583 g/t Silver over 8.76 meters True Width and Other Significant Results" and news release dated September 7, 2021 entitled "Alexco Reports Interim Results from Bermingham Drilling, Composite Assays to 1,681 g/t Ag over 20.37 meters True Width" for a complete discussion of Alexco's drilling results and for important additional disclosures.</p>
<b>Slide 16</b>	<p>Please refer to the Management's Discussion and Analysis for the three and six months periods ended June 30, 2021 for a complete discussion of Alexco's financial results.</p>