

Critical Minerals for a

Sustainable Future



NOVEMBER 2024





Cautionary Statement

FORWARD-LOOKING STATEMENT:

This presentation contains "forward-looking information" within the meaning of applicable Canadian securities legislation. Forward-looking information includes, but is not limited to, information with respect to the results of the PEA, including the expected NPV, IRR, CAPEX and OPEX of; expectations regarding lithium recovery and production; expectations on the timing of production commencement; expectations that governmental regulators will be supportive of the Project; expectations with respect to spodumene and lithium hydroxide pricing, expectations with respect to the Canada-US foreign exchange rate and expectations of the use of Metso technology . Generally, forward-looking information can be identified by the use of forward-looking terminology such as "add" or "additional", "advancing", "anticipates" or "does not anticipate", "appears", "believes", "can be", "conceptual", "confidence", "continue", "convert" or "conversion", "deliver", "demonstrating", "estimates", "encouraging", "expand" or "expanding" or "expanding" or "potentially", "promise", "forward", "goal", "improves", "increase", "intends", "justification", "plans", "potential" or "potentially", "promise", "prioritize", "reflects", "robust", "scheduled", "suggesting", "support", "top-tier", "updating", "upside", "will be" or "will consider", "work towards", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might", or "will be taken", "occur", or "be achieved".

Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward-looking information, including risks associated with project development such as: environmental hazards and economic factors as they affect the cost and success of the Company's capital expenditures, the ability of the Company to obtain required permits and approvals, the ability of the Company to obtain financing, , the ability to source feedstock for the Company's proposed lithium processing facility at reasonable prices or at all, the price of lithium hydroxide, no operating history, no operating revenue and negative cash flow, land title risk, the market price of the Company's securities, the Company's commercial viability, inflation and uncertain global economic conditions, uncertain geo-political shifts and risks, successful collaboration with indigenous communities, future pandemics and other health crises, dependence on management and other highly skilled personnel, , extensive government and environmental regulation, reliance on artificial intelligence technology to influence mining operations, volatility in the financial markets, uninsured risks, climate change, threat of legal proceedings, as well as those risk factors discussed or referred to in the annual information form of the Company dated November 28, 2023 (the "AIF") under the heading "Description of the Business – Risk Factors". Forward-looking information is based on the reasonable assumptions, estimates, analysis and opinions of management made in light of its experience and perception of trends, current conditions and expected developments, as well as other factors that management believes to be relevant and reasonable in the circumstances at the date that such statements are made, but which may prove to be incorrect. Although the Company believes that the assumptions and expectations reflected in such forward-looking information are reasonable, undue reliance should not be placed on forward-looking information because the Company can give no assurance that such expectations will prove to be correct. In addition to other factors and assumptions identified in the AIF, assumptions have been made regarding, among other things: management of certain of the Company's assets by other companies or joint venture partners, the Company's ability to carry on its project activities without undue delays or unbudgeted costs, the ability of the Company to obtain sufficient qualified personnel, equipment and services in a timely and cost-effective manner, the ability of the Company to operate in a safe, efficient and effective manner, the ability of the Company to obtain all necessary financing on acceptable terms and when needed, the accuracy of the Company's operational and price assumptions on which these are based and the continuance of the regulatory framework regarding environmental manners. Readers are cautioned that the foregoing list is not exhaustive of all factors and assumptions that may have been used. Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking information, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Accordingly, readers should not place undue reliance on forward-looking information. The Company does not undertake to update any forward-looking information, except in accordance with applicable securities laws.



Cautionary Statement

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The Company's financial projections are inherently speculative and may prove to be inaccurate. Any financial projections provided in this presentation have been prepared in good faith based upon the estimates and assumptions considered reasonable by management. However, projections are no more than estimates of possible events and should not be relied upon to predict the results that the Company may attain. Future oriented financial information in this presentation includes statements with respect to (i) capital expenditures; (ii) post-tax net present values; (iii) after-tax rate of returns; (iv) proposed revenues over the course of the project life; (v) operating and production costs; and (vi) projected EBITDA. The projections are based upon a number of estimates and assumptions and have not been examined, reviewed or compiled by independent accountants or other third-party experts, including assumptions with respect to the Company's anticipated future revenues; foreign exchange rates and price fluctuations; corporate income tax rates; working capital requirements; capital expenditures including construction costs and timing, and annual operating costs; type of facility feedstock including minimum requirements; sale price of lithium hydroxide; and purchase price of spodumene and petalite. These assumptions may vary from the actual results. Accordingly, there is no assurance that future events will correspond to management's assumptions or that actual results during the periods covered will approximate the financial projections. Any variations of actual results from projections may be material and adverse. Future-oriented financial information and financial outlooks, as with forward-looking information generally, are, without limitation, based on the reasonable assumptions of the Company and management as at the date hereof. The Company's actual financial position and results of operations may differ materially from management's current expectations and, as a result, revenue, profitability, and EBITDA may diffe

Industry Data

This presentation also contains or references certain market, industry and peer group data which is based upon information from independent industry publications, market research, analyst reports and surveys and other publicly available sources. Although the Company believe these sources to be generally reliable, such information is subject to interpretation and cannot be verified with complete certainty due to limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other inherent limitations and uncertainties. The Company has not independently verified any of the data from third party sources referred to in this presentation and accordingly, the accuracy and completeness of such data is not guaranteed.

QUALIFIED PERSONS:

Rickardo Welyhorsky, P. Eng., a Qualified Person ("QP") as such term is defined by National Instrument 43-101 - Standards of Disclosure for Mineral Projects, has reviewed and approved the geological information reported in this presentation. The Qualified Person has not completed sufficient work to verify all historic information on the Property. The Qualified Person assumes that sampling and analytical results were completed to industry standard practices. The information provides an indication of the exploration potential of the Property but may not be representative of expected results.



Avalon Advanced Materials - Projects

Avalon Advanced Materials Inc. is an asset management company with a focus on advanced materials and technology: sourcing, processing, and distributing the materials that will drive our world to a more sustainable future.



Lake Superior Lithium Inc. aims to meet the growing demand for lithium-ion batteries and support the rapidly expanding electric vehicle market by establishing a state-of-the-art lithium hydroxide facility in Thunder Bay, Ontario.



Separation Rapids Ltd. a joint venture between Avalon Advanced Materials and Sibelco, aims to commercialize high-purity petalite-lithium deposits and serve the global glass and ceramics market.



The Nechalacho Project aims to provide a stable supply of high-grade zirconium and heavy rareearth minerals, supporting advanced technological industries while securing North American energy security.





Project 1:

Separation Rapids Ltd.

• Location: Ontario

- Separation Rapids Region Kenora
- Lilypad Region Fort Hope
- Stage:
 - PEA 2018
 - Updated MRE by Q4 2024
 - Lilypad: Early-Stage Exploration
- Mineralization/Commodity:
 - Separation Rapids Region Lithium as Petalite/Lepidolite/Spodumene
 - Separation Rapids deposit: MRE
 - Snowbank: High Potential Target
 - Lilypad Region –
 Cesium/Tantalum/Rubidium/Lithium
- Key Points:
 - Resource Expansion
 - JV SCR-Sibelco NV: 60% , Avalon: 40%
 - Met. and Geotech Studies

- Location: Ontario

 Thunder Bay, Ontario
- Stage:
 PEA Q3 2024
 - After-Tax NPV (8%) C\$4.1B
 - After-Tax IRR 48%

Project 2:

Lake Superior Lithium Inc.

- CAPEX C\$1.3B
- Mineralization/Commodity:
 - Production of Lithium Hydroxide and/or Lithium Carbonate from Spodumene Petalite Concentrates
- Key Points:
 - 100% owned land for proposed lithium processing facility
 - Existing strategic infrastructure that provides significant advantages
 - MOU with Metso Corp.
 - Securing feed concentrate contracts globally
 - MOU with Qualcomm Technologies Inc.

Project 3 Nechalacho P

- Location:
 - Thor Lake, Northwest
- Stage:
 DFS 2013 to be updated
- Mineralization/Commodity
 - All Light Rare Earth Eler
 Promethium
 - All Heavy Rare Earth El
 - Transitional Rare Earth Yttrium
 - Zirconium, Tantalum, N
- Key Points:
 - 100% interest in resourd depth of 150m sea level
 - Supports industries inc defense, and communi
 - Most permits in place

	Other Projects:				
:	- East Kemptville Tin				
roject	- Warren Township Anorthosite				
	• East Kemptville Tin				
Territories	 Location Varmouth News Section 				
	 Mineralization/Commodity: 				
d	∘ Tin				
	 Mineral Resource Estimate 				
y. ments except	 Stage PEA 2018 				
ements	Warren Township Anorthosite Project:				
Element	 Location 				
lichium	• Timmins, Ontario				
nobium	 Mineralization/Commodity: Calcium Feldspar 				
	 Stage 				
rces below a el	 Early Exploration 				
luding nuclear,	• Key Points:				
cations sector	 Divestment Opportunities 				



Avalon Assets - Locations

0	Office Headquarters Toronto, ON
•	Lake Superior Lithium Inc Thunder Bay, ON
•	Separation Rapids Ltd Kenora, ON
0	Nechalacho Thor Lake, NWT
\bigcirc	Yarmouth, NS



ADVANCED MATERIALS

Investment Highlights

Proven Expertise



Leadership team with extensive and proven experience of delivery in the mining and advanced materials sectors.

Diverse Project Portfolio

Thunder Bay Facility PEA Results: Post-Tax \$4.1B NPV and 48% IRR

Nechalacho DFS (2013)

Separation Rapids JV with Sibelco.

Strong Partnerships



Collaborations with leading industry players to enhance our capabilities and market reach, fostering innovation and growth.



Government Alignment

Our initiatives align with global regulations and incentives for green energy, technological advancement, and critical mineral supply chains.

TSX:AVL OTCQB:AVLNF FRA:OU5A

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High Demand Markets Strategically positioned in rapidly growing markets such as electric vehicles, renewable energy storage, and advanced technologies.

Innovation & Technology



We leverage cutting-edge technology and innovative processes to maximize resource efficiency and create value.



Leadership

MANAGEMENT TEAM



Scott Monteith, CEO and Director

Scott Monteith, CEO of Avalon since May 2023, is an experienced entrepreneur and founder of Monteco Ltd.



Zeeshan Syed, President

Mr. Syed has 20 years of executive experience in the energy sector and has worked with the Canadian government, Alberta, and the UN. He is a graduate of the London School of Economics.



Jim Andersen, CFO

Mr. Andersen, a CPA with 30 years in mining, joined Avalon as CFO in 2001 after auditing the company from 1996-2000.





Cindy Hu, Controller

Ms. Hu, a CPA with over 20 years in accounting, joined Avalon in 2007 after serving as a senior manager at Andersen & Company.



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Andrew J. Ramcharan, VP, Corporate Development

Dr. Ramcharan has excelled in corporate development, with senior roles at IAMGOLD, SRK Consulting, Sprott, and Roscan Gold.

Rickardo Welyhorsky, VP, Operations

Mr. Welyhorsky, a Metallurgical Engineer with 30 years in mining, has led major projects and was COO at Signature Resources.

Amiel Blajchman, Manager, Sustainability

Amiel Blajchman is an Agrologist with 20 years of experience managing ESG risks for various clients and agencies.



Leadership

BOARD OF DIRECTORS



Alan Ferry, Chairman

Mr. Ferry, with 28 years in mining finance, is Avalon's director since 2000, and chairs the Audit Committee.



Timothy Haig, Director

A successful entrepreneur in renewable fuels and cleantech, known for transforming lab ideas into public companies, leading motivated teams, and upholding integrity and ethics.



Alec Kodatsky, Director

Alec Kodatsky, with over 20 years in finance, is Co-President of Forthlane Partners and a former top mining sector analyst. He holds a B.Sc. in Mining Engineering and an MBA.



Scott Monteith, CEO, Director

Scott Monteith, CEO of Avalon since May 2023, is an experienced entrepreneur and founder of Monteco Ltd.



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Naomi Johnson, Director

Ms. Johnson, Titan Mining VP since 2018, joined Avalon's Board in 2019 and chairs the Compensation Committee.

Benny Loix, Director

Vice President Commercial – Sibelco North America

Harvey L.A. Yesno, Director

Harvey Yesno, former Chief of Eabametoong First Nation and Grand Chief of Nishnawbe Aski Nation, led NADF and worked with Ontario's Ring of Fire Secretariat.



Global Lithium Market Overview

 Market Size The global lithium market size was valued at \$22.19 billion in 2023.¹ 	Lithium carbonate globa
Projected Growth	3,500
 It is projected to grow from \$26.88 billion in 2024 to \$134.02 billion in 2032. Demand is expected to reach over 3 million metric tons by 2030 	3,000
 Demand Drivers Regulatory 	2,500
 Countries have set ambitious climate targets, net-zero emissions Consumer Adoption for Greener Technologies 	2,000
 Rising consumer demand for greener technologies 	1,500
 OEM Commitments Announcements from original equipment manufacturers (OEMs) to phase out ICE vehicles and set new emission-reduction targets. 	1,000
 <u>Geopolitical Tensions</u> Supply Chain Security: Tensions with China, which dominates the global supply of many critical minerals, have heightened the need for North America to secure its own supply chains. 	500 - 10% 0 - 17% 2021 supply

Source: McKinsey MineSpans, 2022

McKinsey & Company

¹International Renewable Energy Agency (IRENA). (2020). Global Renewables Outlook: Energy Transformation 2050. https://www.irena.org/publications/2020/Apr/Global-Renewables-Outlook-2020 al equivalent demand 2030, supply 2021 and 2030 by country, kt





Lithium Demand for Electric Vehicles

LITHIUM DEMAND BY APPLICATION (MILLIONS OF METRIC TONS PER ANNUM • Future Demand OF LITHIUM CARBONATE EQUIVALENT) • EVs could account for 84% of total lithium demand by 2030 Sources: Global X ETFs with information derived from: Norris, E. (2022, June 27). Building a domestic EV By 2025, EVs are expected to represent over 20% of global light-duty vehicle sales, up ecosystem: Fastmarkets lithium supply and battery raw materials 2022. Albemarle. from 9% in 2021.¹ 3.5 • Supply Constraints Lithium demand is set to grow tenfold by 2050 under the International Energy Agency's 3.0 (IEA) Net Zero Emissions by 2050 Scenario.² 2.5 Current Production: The lithium market is adding demand growth of 250,000–300,000 Mt LCE tons of lithium carbonate equivalent (tLCE) per year, nearly half of the total 2021 supply 2.0 of 540,000 tLCE. Millions Implications Significant supply chain investments are needed to meet the growing EV demand. 1.0 0.5 0.0 2020 2021 2025* 2030*

Note: *Forecast

1-IEA (2023), Global EV Outlook 2023, IEA, Paris https://www.iea.org/reports/global-ev-outlook-2023, Licence: CC BY 4.0 2 - Confidential Market Assessment; Andy Home, "Lithium Still Super-Charged as Supply Chases after Demand," Reuters, December 15, 2022, https://reut.rs/3RAIWBN





Lake Superior Lithium Inc.

• Ownership:

• 100% Wholly Owned subsidiary of Avalon Advanced Materials Inc.

• Location:

• City of Thunder Bay, Ontario

• Objective:

 To meet the growing demand for lithium-ion batteries and support the rapidly expanding electric vehicle market by establishing a state-of-the-art lithium hydroxide facility in Thunder Bay, Ontario.

• Funding:

- Exploring funding options: equity, loans, grants, partnerships
- Submitted applications for Government Funding
 - U.S. D.O.D. Funding
 - Federal and Ontario Funding

• Stage:

- 2024 PEA completed by DRA Americas Inc.
- Next step: Detailed Studies and Optimizations

• Implementation:

- Phase 1: Market analysis, seek potential financing sources and strategic partnerships
- <u>Phase 2</u>: Permit application, technology acquisition, additional funding and partnerships





Lake Superior Lithium Inc.

Strategic Investment Overview

- Strategic Location:
 - Proximity to key markets and resources, supporting efficient supply chains.
- Infrastructure Advantage
 - Robust infrastructure, including existing buildings, extensive rail connectivity, and a deep-water port
- <u>Supporting Government Incentives:</u>
 - Leverage Canadian, and U.S. government incentives for green energy and technology projects.
- Meeting High Demand:
 - The facility will help meet the escalating demand for lithium in EVs and renewable energy storage.
- Scalable Growth Potential:
 - Capable of processing Spodumene and Petalite concentrate
 - Facility designed with scalability in mind, capable of expanding to meet future market demands.
- Sustainability Commitment:
 - Implement environmentally friendly processes to minimize ecological impact and support sustainability goals
- Integrated Lithium Platform:
 - Host processing, recycling, chemical, and cell manufacturing capabilities at the Thunder Bay site.







PEA Highlights (\$CDN)







Avalon & Metso Corp. Partnership

• Avalon has also entered a partnership with Metso Corp. to leverage their groundbreaking, sustainable processing technologies.

Overview

• Metso is a comprehensive solution provider for major lithium operations and backed by the latest technologies and decades of experience of spodumene extraction

• The Process

• Metso has a proprietary technology with a more direct route to convert spodumene to battery-grade lithium hydroxide all within an environmentally sustainable alkaline leaching process completely acid & sulphate free

• Key Partnership Highlights:

- Create a testing laboratory for research and development on lithium and clean technology solutions.
- Metso to provide testing and engineering equipment procurement and related services to develop and commercialize Avalon's Thunder Bay lithium processing facility.
- Avalon and Metso to cooperate on the recycling of used batteries and the refining of battery chemicals for recycle use.









Tesla Lithium Refinery Deep Dive Discussion





Metso Lithium Processing Solutions

- **Spodumene Feed:** Alpha-Spodumene converted to Beta-Spodumene via calcination within a Kiln heating process
- Lithium Carbonate Production: from Beta-Spodumene reaction with soda ash in Pressure Leaching.
- Lithium Hydroxide Production: via Atmospheric Conversion reaction of Lithium carbonate with lime
- Leach Residue Filtration Washing: Separate out lithium hydroxide from inert by-products sand (analcime) and limestone
- Purification of lithium hydroxide via:
 - Polishing filtration
 - Ion exchange
 - Crystallization
- Final Product: Battery Grade Lithium Hydroxide



Critical Elements: https://www.cecorp.ca/en/critical-elements-complete-positive-engineering-study-for-a-lithium-hydroxide-monohydrate-plant/



Avalon & Qualcomm Collaboration

• Avalon has signed a memorandum of understanding with Qualcomm Technologies Inc., focusing on enhancing Avalon's Thunder Bay lithium processing facility through advanced digital solutions.

• Key Collaboration Highlights:

- Utilizing Qualcomm's Industrial & Edge technologies
- Developing a roadmap for Internet-of-Things solutions
- Strengthening Ontario's role as a tech hub in mining by integrating local SMEs into the digital transformation efforts.
- Supporting the modernization of the mining industry to enhance competitiveness, environmental performance, and operational efficiency.
- Leveraging Canada's skilled workforce to drive technological advancements and create a sustainable, resilient mining sector.

Qualcom





Separation Rapids Ltd. (SRL) - JV

• Ownership:

• SRL is jointly owned by Sibelco (60%) and Avalon (40)%

• Locations:

- 3 Lithium sites in Ontario
 - Separation Rapids Region Separation Rapids Deposit, Snowbank target
 - Lilypad Region Lilypad target mineralization

• Objective:

• To advance mining activities at Separation Rapids, Lilypad and Snowbank

• Funding:

- Sibelco has sole funding responsibility for the first C\$50 million of JV expenditures
- Submitted application for: U.S. D.O.D. Funding for FS

• Stage:

- PEA 2018
 - MRE Update by end of Q3 2024
 - Ongoing Met. and Geotechnical studies

• Strategy:

- Dual-market strategy to supply petalite-lithium to the global glass & ceramics industry and North American EV battery manufacturing market
- The JV aims to commercialize and generate revenue from the Separation Rapids, Lilypad, and Snowbank lithium deposits.



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About Sibelco

Founded in 1872, Sibelco operates in 31 countries with a diverse mineral portfolio. They serve various industries with innovative solutions and highspecification materials.

Their purpose—material solutions advancing life supports construction, renewable energy, clean water, and advanced technologies. Committed to sustainability, Sibelco balances economic performance with environmental and social responsibility.



Separation Rapids Overview

- Overview:
 - Separation Rapids Region 4,414 Hectares

• Location:

70 kilometers north of Kenora, Ontario

• Mineral Resource:

- PEA 2018
- Updated Resource 2023
 - Measured & Indicated:
 - 10.08 Mt averaging 1.35% Li2O
 - Inferred:
 - 2.8 Mt averaging 1.38% Li2O

• Stage:

- PEA
 - 2024 Winter Drilling Program:
 - Started on Sept. 2023 completed July 2024
- Goals:
 - Update inferred resources to indicated category, increase resources to the deposit and perform geotechnical drilling
 - MRE update to be completed by end of Q4 2024
 - Studies for a PFS (Met./Geotech.)

Description		
Open Pit		
Underground		
Total		

Notes:

1.CIM (2014) definitions were followed for Mineral Resources. 2. Mineral Resources are reported using a petalite concentrate price assumption of US \$1,300/t with an exchange rate of US\$1 = C\$1.30. 3.0pen pit Mineral Resources are reported at a 0.29 % Li2O cut-off grade (COG) in a Whittle resource shell. The Whittle resource shell and open pit COG grade are based on a mining cost of C\$5.50/t, general and administration cost of C\$3.50/t, a processing cost of C\$55.00/t, and a recovery of 50%. 4. Underground Mineral Resources are reported within Deswik resource panels which were generated using a breakeven 0.9 % Li2O COG. The underground breakeven COG grade is based on a mining cost of C\$120/t, general and administration cost of C\$3.50/t a processing cost of C\$55.00/t, a recovery of 50%, and an exchange rate of US\$1 = C\$1.30. The Deswik resource panels are 5 m by 5 m by 3 m wide. 5. Mineral resources are reported based on a minimum thickness of approximately 3 m. 6.Average bulk densities were assigned to the blocks and range between 2.61 t/m3 and 2.66 t/m3 for the lithium pegmatite. 7.Numbers may not add due to rounding.

Classification	Tonnage (Mt)	Li2O (%)
Measured & Indicated	9.39	1.34
Inferred	1.6	1.34
Measured & Indicated	0.68	1.43
Inferred	1.21	1.42
Measured & Indicated	10.08	1.35
Inferred	2.81	1.38

- 8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.



Lilypad & Snowbank Target Overview

Lilypad Project

- Overview:
 - The Lilypad Project consists of 14 claims, comprising 166 new claim units or cells, totaling slightly over 3,299 hectares (8,152 acres)
- Location:
 - Fort Hope, Ontario
- Mineralization/Commodities:
 - Lithium Pegmatites: discovered in the area as spodumene and lepidolite
 - Tantalum: present in mineralized pegmatites
 - Cesium: significant occurrences of pollucite, which is rare and represents one of the very few known significant occurrences of this mineral in the world

• Development Potential:

- Significant mineral discoveries to the north (ring of fire) have prompted the developing of road access into the area
- Stage:
 - Exploration

Snowbank Target

- Overview:
 - petalite
- Location:
 - Kenora, Ontario

Mineralization/Commodity:

- mineral content
- Development Potential:
 - Rapids property
- Stage:
 - Exploration

• A lithium pegmatite occurring primarily in the ore mineral

• 4 kilometers northwest of Separation Rapids lithium deposit

• Channel samples yielded assays of up to 2.51% Li2O over 1.1 meters, with petalite comprising approximately 50% of the

• Significantly contributes to the development of Separation



Rare Earths Market Analysis

 Rare Earths Market Analysis 	
 Market Overview: 	Global
 Overall rare earth metals demand is projected to increase at a 10.4% CAGF 	R through Size, by Type
the forecast period (2023-2032)	10000
Total market valuation is set to reach \$USD 33.464 billion	40000
	35000
Demand Drivers:	30000
 Technological and Industrial Applications 	50000
 Renewable Energy and Environmental Policies 	25000
 Defense and Aerospace Sectors 	20000
 Economic Growth, Urbanization, and Government Policies 	10 750
	15000 12,753.
 Key Applications of Rare-Earth Minerals: 	10000
 Neodymium: Permanent magnets, wind power technology, electromobility, pi 	gments
 Terbium: Permanent magnets, semiconductors, catalysts, lasers 	5000
 Gallium: Medicine, thermometers, catalysts, semiconductors, liquid metal coo 	ling 0
 Dysprosium: Magnets, wind power technology, electromobility, nuclear power 	2022
 Yttrium: Advanced ceramics, catalysts, water electrolysis, medical technology 	
 Samarium: Permanent magnets, medical technology, nuclear power, semicond 	ductors The Market
 Erbium: Glass, laser, lighting, pigments 	At the CAGE





Zirconium, Niobium, Tantalum Market Analysis

- Zirconium (Zr)
 - Market Growth
 - CAGR: 7.8% (2023-2032)
 - Valuation: \$3.8 billion by 2032
 - Applications
 - Nuclear Reactors: Cladding fuel rods, alloying with uranium
 - Chemical Industry: Resistant to acidic/alkaline conditions
 - Military: Aircraft, spacecraft, potential nerve agent decontaminant
- Niobium (Nb)
 - Market Growth
 - CAGR: 9.92% (2024-2029)
 - Valuation: \$1.9 billion by 2030
 - Applications
 - Alloys: Strength for jet engines, and rockets.
 - Superconducting Magnets: Medical MRI, particle accelerators
- Tantalum (Ta)
 - Market Growth
 - CAGR: 5.88% (2023-2030)
 - Valuation: \$799 million by 2030
 - Applications
 - Capacitors: High capacitance, reliability in high temperatures.
 - Military: Communication equipment, avionics, radar, missile guidance systems









Nechalacho Project - REE

- Ownership:
 - 100% interest of the resources below a depth of 150 meters from surface (the "Basal Zone Resources")

• Location:

- Thor Lake, Northwest Territories
- Mineral Resources:
 - Zirconium, Tantalum & Niobium
 - 15 rare earth elements:
 - **Light Rare Earth** lanthanum, cerium, praseodymium, neodymium, and samarium
 - Heavy Rare Earth europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium
 - Transitional Rare Earth yttrium
- Objective:
 - Update of MRE based on new economic considerations followed by an updated FS
- Funding:
 - Exploring funding options
 - Submitted applications for Government Funding: U.S. D.O.D Funding
- Stage:
 - Planning
 - DFS 2013 to be updated

Category	Zone	Tonnes (million)	TREO (%)	HREO (%)	ZrO2 (%)	Nb2O5 (%)	Ta2O5 (%)
Measured	Basal	10.86	1.67	0.38	3.23	0.40	0.04
Indicated	Basal	55.81	1.55	0.33	3.01	0.40	0.04
Measured & Indicated	Basal	66.67	1.57	0.34	3.05	0.40	0.04
Inferred	Basal	61.09	1.29	0.25	2.69	0.36	0.03

Notes:

Mineral Resource Estimate as at May 3, 2013

1.CIM definitions were followed for Mineral Reserves.

CIM definitions were followed for Mineral Reserves.
 Mineral Reserves are based on Mineral Resources published by Avalon in News Release dated November 26th, 2012 and audited by Roscoe Postle Associates Inc., and modified as of 3 May, 2013.
 Mineral Reserves are estimated using price forecasts for 2016 for rare earth oxides given below.
 HREO grade comprises Y2O3, Eu2O3, Gd2O3, Tb2O3, Dy2O3, Ho2O3, Er2O3, Tm2O3, Yb2O3, and Lu2O3. TREO grade comprises all HREO and La2O3, Ce2O3, Nd2O3, Pr2O3, and Sm2O3.
 Mineral Reserves are estimated using a NMR cash cost cut-off value of US\$320/t.
 Reserves are estimated using a pate price of US\$2 Place and Ta2O5 at US\$56/kg, and Ta2O5 at US\$56/kg.

6.Rare earths were valued at an average net price of US\$62.91/kg, ZrO2 at US\$3.77/kg, Nb2O5 at US\$56/kg, and Ta2O5 at US\$256/kg. Average REO price is net of metallurgical recovery and payable assumptions for contained rare earths, and will vary according to the proportions of individual rare earth elements present. In this case, the proportions of REO as final products were used to calculate the average price.

7. Mineral reserves calculation includes an average internal dilution of 8.5% and external dilution of 5% on secondary stopes.



Other Projects

East Kemptville Tin

- Overview:
 - Ownership: 100% owned
 - Property Size:
 - One contiguous exploration licenses: Over 2,880 acres (1,166 hectares)
- Location:
 - Approximately 45 km northeast of Yarmouth, Nova Scotia
 - Vicinity of the former East Kemptville Tin Mine
- Stage:
 - Exploring divestment potentials

Warren Township Anorthosite Project

- Overview:
 - Ownership: 100% owned by Avalon
 - Lease:
 - 21-year, 673.7 ha renewable surface and mining rights Lease
 - Renewable for further terms
- Location:
 - 100 km west of Timmins, Ontario, in the Porcupine Mining Division
- Stage:
 - Exploring divestment potentials

TSX:AVL OTCQB:AVLNF FRA:OU5A



Feldspathic Minerals Market

Market Size

Tin Market

Market Size in Kilotons

CAGR >3%





Key Milestones





- Ongoing development and optimization at Thunder Bay Facility
- Explore and potentially secure new strategic partnerships

Q1

• Avalon unveils third-party economic and labour study for its Thunder Bay Facility • MRE Update - Separation Rapids • MOU with Qualcomm Technologies • \$3.5M Financing from JV Partner and Major Shareholder Sibelco



*All values unless otherwise indicated are in Canadian dollars



Capital Structure

As at July 9,2024

Description (Cdn)	Value
Ticker Symbol	TSX: AVL
52 week high/low	\$0.18/0.04
Common Shares Outstanding	565.1M
Deferred Share Units & Restricted Share Units	5.7M
Stock Options	25.8M
Warrants	42.5M
Convertible Note Payable (Lind)	58.6M
Fully Diluted Shares	697.7M
Market Cap.	20.7M





Thank You

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