



AVALON ADVANCED MATERIALS



# SUSTAINABILITY REPORT

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DECEMBER 2024

# FORWARD-LOOKING INFORMATION

This report 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 Avalon Advanced Materials Inc.’s (“Avalon or the “Company”) future plans and objectives, sustainability initiatives, mineral resource estimates, the development of the Company’s material lithium projects, the advancement of projects towards a development decision, the Company’s plans with respect to the exploration and development of its properties, the continued exploration and drilling initiatives and having the necessary funding required to complete these initiatives, the prospectivity of exploration targets; the expected receipt of permits; permitting timelines, the future price of commodities, foreign exchange rates and currency fluctuations, requirements for additional capital; obligations to consult with Indigenous communities, and government regulation of mining operations. 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 “expansion”, “expect” or “expectations”, “forecasts”, “forward”, “goal”, “improves”, “increase”, “intends”, “justification”, “plans”, “potential” or “potentially”, “promise”, “prospective”, “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 inherently subject to known and unknown risks, uncertainties, and other factors that may cause actual results, activities, performance, or achievements of the Company to differ materially from those expressed or implied by such forward-looking statements. These include, but are not limited to, risks associated with mineral exploration and development, such as environmental hazards, the impact of economic conditions on capital expenditures, challenges in obtaining required permits and approvals, financing uncertainties, fluctuations in the estimation of mineral resources, volatility in the price of lithium and other specialty minerals, lack of operating history and revenue, negative cash flow, land title disputes, market price variability of the Company’s securities, economic feasibility and commercial viability of mineral resources, inflationary pressures, uncertain global economic conditions, geopolitical risks, successful collaboration with Indigenous communities, potential future

pandemics or health crises, reliance on management and skilled personnel, ongoing geopolitical conflicts such as the war in Ukraine, extensive government and environmental regulations, dependence on artificial intelligence technologies in operations, volatility in financial markets, uninsured risks, climate change impacts, potential legal proceedings, and other risks identified in the Company’s annual information form dated November 28, 2024, under the section “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 exploration and development 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 resource estimates and geological, operational and price assumptions on which these are based and the continuance of the regulatory framework regarding environmental matters. 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.

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Land

# ACKNOWLEDGEMENT

**Avalon Advanced Materials Inc. acknowledges that our work takes place within the ancestral and traditional territories of First Nations, and Métis people. We respect Indigenous rights and are committed to deepening our existing relationships while forging new lasting ties which will ensure that we and future generations benefit from the positive social and economic opportunities related to our operations.**

I am excited to share Avalon's 13th Annual Sustainability Report with you. As CEO of Avalon Advanced Materials and an experienced clean technology entrepreneur, I am thrilled to discuss how sustainability is embedded into our strategy.

This year marks a milestone in our journey. The global movement to establish a robust critical mineral supply chain in North America is building momentum, and Avalon is prepared to play its role. At the core of our approach is the integration of advanced technological solutions: finding innovative and efficient ways to address today's environmental challenges while laying the groundwork for long-term ecological stability. Technology and innovation are cornerstones of our sustainability strategy.

By focusing on the development of critical minerals such as lithium, rare earths, and zirconium, we are ensuring that Avalon plays a critical role in powering the industries of tomorrow— from electric vehicles to advanced manufacturing and renewable energy.

As we continue to build strong partnerships and foster innovation, we remain focused on delivering long-term value to our stakeholders and creating lasting positive impacts for the communities where we operate. Together, we will lay the foundation for a net-zero, sustainable future.



Message from  
our  
**LEADERS**

**Innovation is at the heart of our journey towards sustainability. By embracing new technologies and responsible practices, we are not only meeting today's demands but building a future that benefits both the planet and generations to come.**



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# Major Milestones 2024

## August

- August 19 - Avalon reports the drill results for the 2024 winter drill campaign conducted by the JV company Separation Rapids Ltd. (Avalon 40% : Sibelco: 60%).



## September

- September 3 - Completion of a Preliminary Economic Assessment (PEA) for its Lithium Hydroxide Processing Facility project in Thunder Bay
- September 11 - Avalon announces plans to develop a zero-emission solar farm at its 100% Thunder Bay industrial site



## October

- October 9 - A report was commissioned to validate the project's alignment with our sustainability goals by quantifying its social and economic benefits to surrounding communities.



## November

- November 5 - Avalon signs a Memorandum of Understanding (MOU) with Qualcomm Technologies Inc.
- November 13 - Avalon hosts Technology Mining Roundtable with industry leaders.

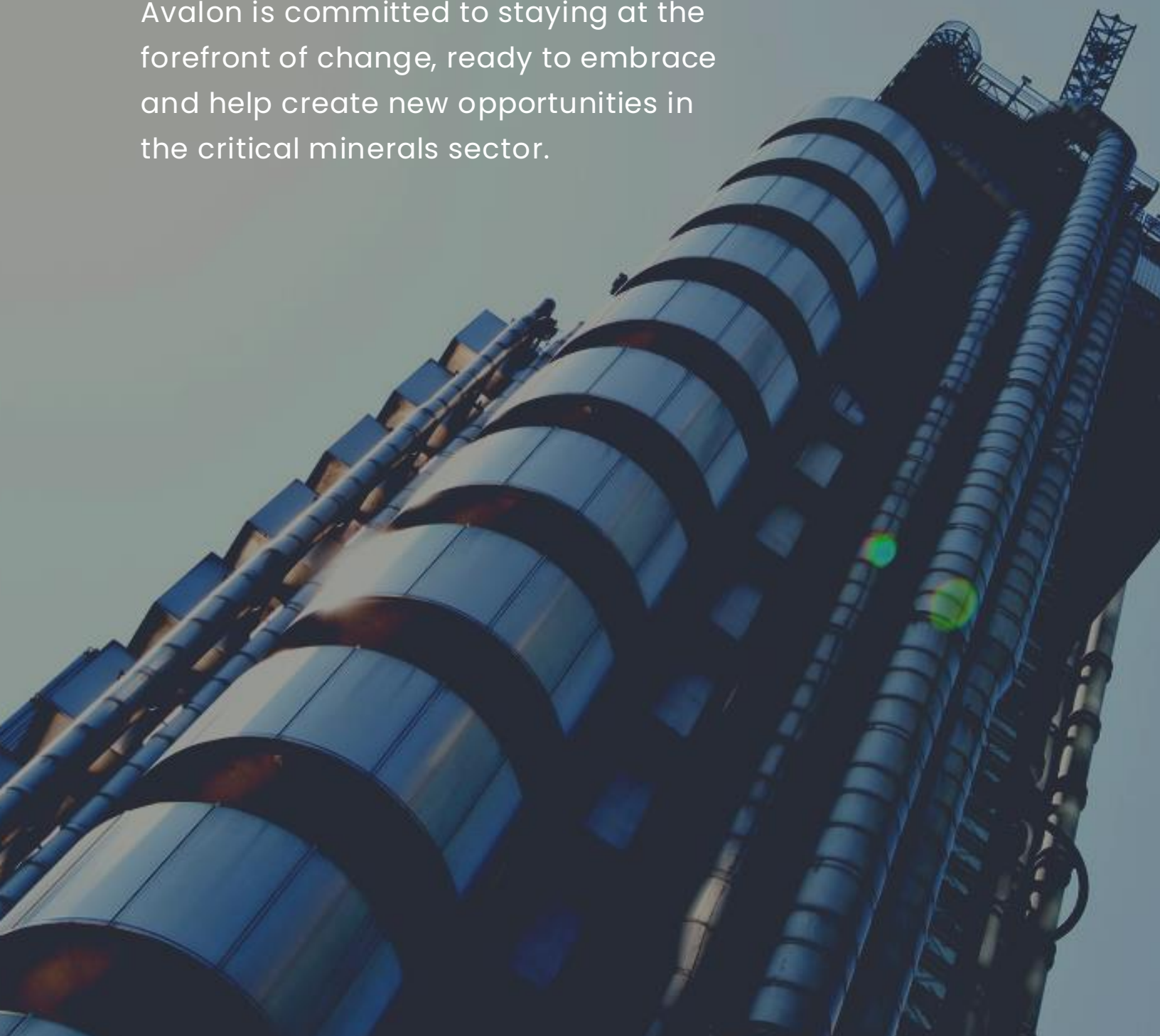


# Innovating for the FUTURE

Avalon is committed to staying at the forefront of change, ready to embrace and help create new opportunities in the critical minerals sector.

**“Innovation is the ability to see change as an opportunity – not a threat.”**

**STEVE JOBS**



Rare earth elements (REEs) consist of 17 distinct elements, including the 15 lanthanides on the periodic table, along with the transition metals scandium and yttrium. These two metals share similar properties with the lanthanides.

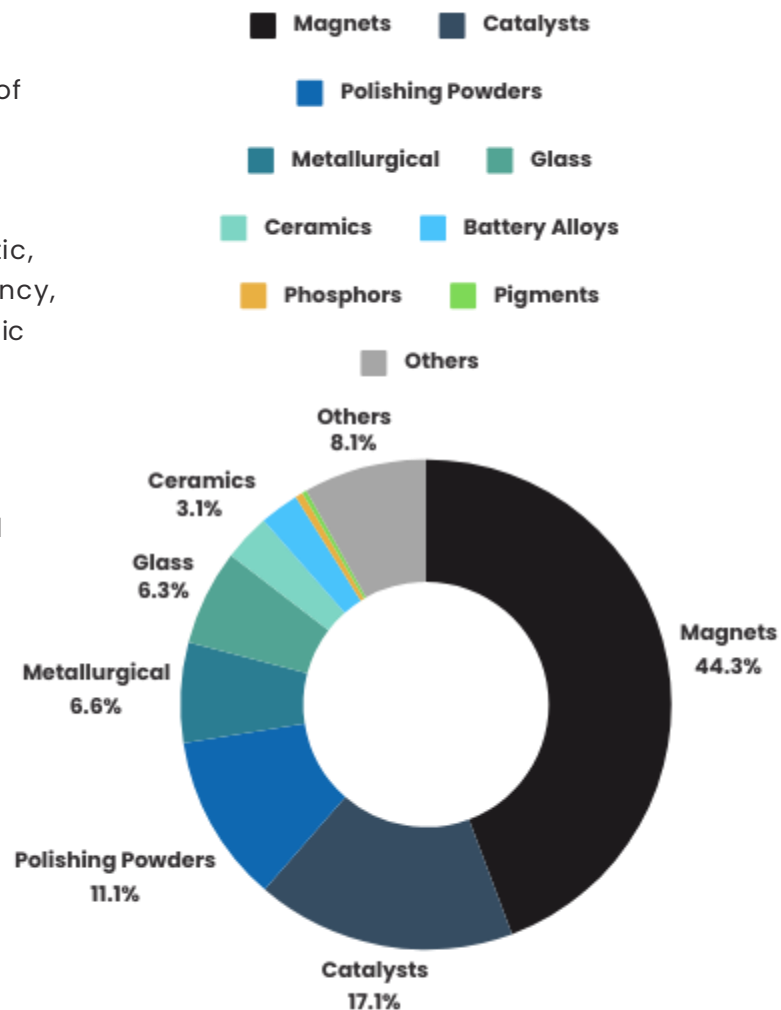
Rare earth elements are crucial in a wide array of high-tech and industrial applications, such as electronics, clean energy solutions, aerospace, automotive, and defense sectors. Their unique attributes, including physical, chemical, magnetic, and luminescent properties, enhance the efficiency, durability, and compactness of various electronic components and alloys.

Manufacturing permanent magnets is the most significant and prevalent use of REEs. These magnets are essential in numerous devices and systems, including cell phones, computers, automobiles, wind turbines, MRI machines, jet aircraft, and more.

In the realm of clean technologies and alternative energy, REEs are extensively utilized in wind turbines, fuel cells, rechargeable batteries, and electric vehicles.

Due to their luminescent capabilities, REEs find applications in LCD screens, LEDs, lasers, and fluorescent lighting. They are also used in catalytic converters, optical glass for camera lenses, and the polishing powders required for semiconductor production.

## Rare Earth Element Uses



Natural Resources Canada. (n.d.). Rare Earth Elements Facts. Retrieved from <https://natural-resources.canada.ca/our-natural-resources/minerals-mining/mining-data-statistics-and-analysis/minerals-metals-facts/rare-earth-elements-facts/20522>

# Rare Earth OVERVIEW



Avalon Advanced Materials Inc. is a Canadian critical mineral company focused on sourcing, processing, and distributing materials that will power the green and digital economy. Our mission is to contribute to a net-zero, competitive future by leveraging innovative technologies and establishing environmentally conscious mining and processing operations.

We are advancing several key projects that position Avalon as a leader in the global transition towards sustainable energy and advanced technology. These initiatives focus on addressing the growing demand for critical minerals, enhancing supply chain security, and supporting industries that drive economic growth and environmental sustainability.



### Lake Superior Lithium Inc.

Aims to support the rapidly expanding electric vehicle market by establishing a state-of-the-art lithium hydroxide facility in Thunder Bay, Ontario.

### Nechalacho Project

Located at Thor Lake, Northwest Territories, this project aims to provide a stable supply of zirconium and rare-earth minerals, supporting advanced technological industries while securing North American energy security.

### Separation Rapids Ltd.

A joint venture between Avalon and SCR-Sibelco NV, spanning three strategic locations in Kenora and Fort Hope, focused on commercializing high-purity petalite-lithium deposits to serve the global glass, ceramics, and EV battery markets.





# Sustainable Resource MANAGEMENT

Our corporate strategy is dedicated to enhancing our environmental performance by minimizing harmful emissions into the air, water, and land, and by increasing the efficiency of our use of natural resources, energy, and materials. Our policies are designed to safeguard biodiversity and prevent the degradation of ecosystem functions resulting from our activities.

## Water Management

Avalon assesses the potential environmental impacts of its projects, utilizing extensive baseline ecological data and adhering to precise timelines and quality assurance protocols. Site-specific management plans are developed for each project location to meticulously monitor aquatic effects, manage site runoff, handle spill contingencies, and oversee waste management along with other potential water-related risks.

In 2024, Avalon consumed approximately 125 cubic meters (M3) from the municipal water system at the company head office representing a ~55% reduction from 2023.

## Energy Management

At Avalon, we continue to identify energy efficiency and energy optimization opportunities, including the implementation of renewable sources of energy.

In 2024, Avalon consumed 169.54 gigajoules (GJ) of energy at its head office.

## GHG Emissions

Avalon strives to reduce Carbon Dioxide Equivalent (CO<sub>2</sub>e) emissions to meet our goal of becoming net carbon neutral by 2040.

TOPIC	CO <sub>2</sub> e kg	CO <sub>2</sub> e t
SCOPE 1	25,999.28	26.00
SCOPE 2	6128.61	6.13



## WASTE MANAGEMENT

OUR GOAL IS TO MINIMIZE WASTE AND MANAGE MATERIALS RESPONSIBLY. WE STRIVE TO DIVERT WASTE FROM LANDFILLS, PARTICIPATE IN THE CIRCULAR ECONOMY, AND REDUCE ENVIRONMENTAL RISKS. WE MITIGATE PRODUCT IMPACTS AND PROMOTE RECYCLING THROUGHOUT THE SUPPLY CHAIN AND PRODUCT LIFE CYCLE. PARTNERING WITH METSO, WE EMPLOY A SUSTAINABLE LITHIUM CONVERSION PROCESS THAT AVOIDS SODIUM SULFATE BYPRODUCTS, INSTEAD PRODUCING INERT ANALCIME AND CALCIUM CARBONATE, ENHANCING SAFETY FOR PERSONNEL AND THE ENVIRONMENT.

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# Innovate, Sustain, ACHIEVE

At Avalon, we believe that innovation is our most powerful tool in achieving our climate goals. We are committed to pioneering solutions that will fundamentally transform our industry and secure a sustainable future.

*"I think the only way we're going to achieve climate goals that have been set is through innovation. I mean, that's the only way forward. We have to innovate our way out of it."*

**CHAD SYVERSON**



# BUSINESS ETHICS AND TRANSPARENCY

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Our leadership team consistently embodies our core values and emphasizes innovation to go beyond the usual standards in responsible mining and sustainability. By doing so, we aim not only to meet but to exceed industry expectations, ensuring that our operations are both environmentally responsible and economically viable.

Understanding the importance of a thoughtful, strategic approach in today's dynamic global environment, our management team meets regularly. These gatherings are crucial for reviewing and refining our strategies to ensure they align with Avalon's commitment to corporate social responsibility. Through these efforts, we are dedicated to securing a sustainable and prosperous future for Canada's critical minerals sector, continuously adapting our practices to meet evolving challenges and opportunities.



# COMMUNITY ENGAGEMENT AND INDIGENOUS PARTNERSHIPS

Avalon is committed to actively collaborating with Indigenous communities within our operational areas. We prioritize transparent engagement with local stakeholders and communities from the inception of our projects and continue this interaction throughout the operations' lifecycle. Our approach is culturally sensitive, ensuring respect for the traditions, priorities, values, and rights of local communities, with a special focus on Indigenous peoples.

Avalon's continuous work has led to multiple Memoranda of Understanding and other formal agreements with various communities, including the Wabaseemoong Independent Nations, the Northwest Territory Métis Nation, the North Slave Métis Alliance, the Deninu Kųé First Nation, and the Chapleau First Nation.

Our efforts are recognized by industry leaders, and the formal agreements we have established serve as a testament to our ongoing dedication to responsible and collaborative operations. We are steadfast in our commitment to enhancing these partnerships and will continue to work towards mutual benefits and sustainable development.



Community  
**RELATIONS**

# Our Sustainability POLICY

Through our Sustainability Policy, we affirm our commitment to a sustainable future that benefits our stakeholders and the planet.



## Health and Safety

Our goal is to create a workplace free of injuries and to enhance the well-being of our employees, contractors, and the communities in which we operate.



## Environment

We are committed to preserving ecosystems and minimizing environmental impacts through sustainable practices across all of our operations.



## Community

We are dedicated to being a responsible corporate citizen, aiming to contribute positively to the economic and social well-being of the communities associated with our activities.



## People

We are committed to creating a workplace founded on mutual respect, fairness, and integrity is crucial to Avalon's core values. We are committed to fostering an environment where employees are encouraged to innovate and grow over the long term.

At Avalon, we are deeply committed to adhering to the highest standards in health, safety, and environmental management. Our approach includes adopting leading industry standards and maintaining transparent engagement with local communities and stakeholders. We strive to treat everyone with whom we interact with respect. We foster a workplace environment where all employees feel valued, engaged, and motivated to succeed.

As we advance our initiatives, we aim to integrate innovative technologies and sustainable methodologies that align with global sustainability goals. This dedication enhances our operational efficiency and ensures leadership in responsible practices. Our efforts are transparently shared with our stakeholders. Through this approach, Avalon aims to not just meet but exceed expectations, ensuring a legacy of positive impact and continued excellence in everything we do.

We are not just creating a sustainable business; we are fostering a **sustainable future.**

# GOVERNANCE

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OUR GOVERNANCE STRUCTURES UPHOLD THE HIGH STANDARDS WE SET FOR OUR ORGANIZATION AND LEADERSHIP, ENSURING ACCOUNTABILITY AT EVERY LEVEL. THESE PRINCIPLES GUIDE CRITICAL POLICIES, INCLUDING COMPENSATION, COMMUNICATION, BUSINESS ETHICS, AND RISK MANAGEMENT, PROVIDING A STRONG FRAMEWORK FOR SOUND DECISION-MAKING AND SEAMLESS OPERATIONAL EXCELLENCE.





# GOVERNANCE

## BOARD OF DIRECTORS

Our Board of Directors receives regular input from Avalon's management team regarding economic, environmental, community and risk management concerns, both internal and external.

These are held at least four times a year or as necessary to address other matters that may arise between quarterly meetings. When required, the Directors act on this input by providing direction to senior management or through amendments, to the Company's policies.

## OUR HIRING PROCESS

All senior officers and directors are subjected to rigorous vetting while being considered for their positions, including background checks. The Board and legal counsel conduct thorough employment screening at each stage of the hiring process to demonstrate due diligence and ensure high standards of ethics, reviewing any findings.

Avalon is an equal-opportunity employer and encourages applications from all qualified individuals. We do not discriminate against applicants based on any prohibited grounds of discrimination. Avalon welcomes and encourages applications from people with disabilities, and accommodations are available on request for candidates taking part in all aspects of the selection process.

## AUDIT COMMITTEE

Our Audit Committee assists the Board in fulfilling its oversight responsibilities to the Company. In so doing, the Committee provides an avenue of communication among the independent auditors of the Company, management, and the Board. The Committee's primary duties and responsibilities are to gain reasonable assurance that the Company complies with the applicable laws, regulations, rules, policies and other requirements of governments, regulatory agencies and stock exchanges relating to financial reporting and disclosure principles.

## COMPENSATION, GOVERNANCE, AND NOMINATING COMMITTEE

The Compensation, Governance, and Nominating Committee operates under the authority of the Board of Directors, overseeing the compensation, benefits, and performance evaluation of all executives within the Company and its controlled entities. The Committee ensures these practices align with the Company's goals, values, and regulatory requirements, promoting fairness, accountability, and competitiveness. It provides recommendations on executive pay structures, incentive programs, and leadership succession planning while upholding corporate governance best practices and supporting the Company's strategic objectives.



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# ACKNOWLEDGEMENTS

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**We extend our gratitude to everyone who contributed to the development and realization of this sustainability report. Your dedication to advancing our sustainability goals is not only appreciated but essential for our continued success.**

**We also express our heartfelt appreciation to the communities we serve, particularly the Indigenous communities, whose insights and participation are invaluable to our operations.**

**We recognize the leadership and support provided by our executive team and board members, who continuously drive us toward greater sustainability achievements.**

**Thank you all for your dedication to a sustainable future.**

## Contact

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