

# AVZ MINERALS LIMITED

## Developing a World Class Lithium Deposit with Near-Term Production

### INVESTMENT THESIS

AVZ Minerals Limited (AVZ) is a lithium development company bringing the world class Manono Lithium and Tin project into production. Manono is located in the Democratic Republic of Congo (DRC) and hosts the largest undeveloped lithium mineral deposit in the world. The project is well-advanced having attracted a financing partner and several off-take agreements and should be producing spodumene concentrate as early as mid-2023.

### VALUATION

We are initiating coverage on AVZ with a Speculative BUY rating and a \$1.00/shr target price based on valuation of 1.0x NAV<sub>10%</sub>.

### HIGHLIGHTS

- World Class Deposit:** The Roche Dure lithium deposit at Manono currently totals 402 MMt grading 1.65% Li<sub>2</sub>O and 715ppm tin making it the largest and highest-grade undeveloped lithium mineral deposit in the world.
- Short Timeline to Production:** AVZ is set to start construction at Manono in the coming months which should see first production of spodumene by H2/2023.
- Compelling Economics:** We expect a 10 Mtpa operation will be built ramping up to produce 1.8 Mtpa of saleable spodumene concentrate (SC6) and 92ktpa of primary lithium sulphate (PLS). Based on our upfront capital cost estimate of US\$850 MM, operating costs of US\$370/t of SC6 produced and a US\$950/t SC6 price, a 22-year operation returns a post-tax NPV<sub>10%</sub> of US\$4.5 B.
- Funding Partner and Offtake Agreements:** CATH has agreed to pay US\$240 MM for a 24% participating interest in the Manono Project and significant offtake. Agreements are signed with 3 other Chinese lithium processors for over 540kt of SC6 annually.
- Upside Potential:** The lithium-bearing pegmatites at Manono extend for more than 13km with potential to grow the resource to 1.2Bt supporting mine expansions, longer mine life and/or in-country lithium hydroxide production.

### Recommendation:

**Speculative BUY**

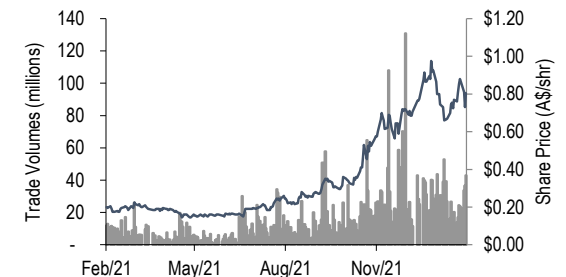
Symbol/Exchange:	AVZ-ASX
Sector:	Metals & Mining
<i>All dollar values in AUD unless otherwise noted.</i>	
Current price:	\$0.79
One-year target:	\$1.00
Target return:	27%
52-week Range:	\$0.14 - \$1.00

### Financial Summary

Market Cap (\$MM)	2,727.1
Cash & Equivalents (\$MM)	99.0
Debt (\$MM)	0.1
Basic Shares O/S (MM)	3,452.1
Fully Diluted Shares O/S (MM)	3,528.7
Avg. Weekly Volume (k)	29,421

	2021A	2022E	2023E	2024E
<b>Sales</b>				
Spod SC6 (kt)	-	-	-	450
PMS Sales (kt)	-	-	-	18
SC6 Sales (kt)	-	-	-	372
Unit Cost (US\$/t SC6)	-	-	-	322

EPS	\$ (0.00)	\$ (0.00)	\$ (0.01)	\$ 0.06
CFPS	\$ (0.00)	\$ (0.00)	\$ (0.01)	\$ 0.02
Free CFPS	\$ (0.00)	\$ (0.00)	\$ (0.23)	\$ 0.01



**Company Profile:** AVZ Minerals is a lithium development company bringing the world class Manono Lithium and Tin project into production. The Manono Project is located in the Democratic Republic of Congo and hosts the largest undeveloped lithium mineral deposit in the world and should be producing spodumene concentrate by H2/2023.

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See disclosure and a description of our recommendation structure at the end of this report.

## COMPANY SUMMARY

AVZ Minerals Ltd. is an Australian-based lithium development company focused on advancing the Manono lithium-tin project located in the southern DRC to production. The project focuses on developing the world class Roch Dure lithium pegmatite to produce a spodumene concentrate and lithium sulphate for use in the global lithium-ion battery market with potential to produce value-added lithium hydroxide. The Company completed a definitive feasibility study (DFS) in 2020 and is on track to be fully permitted by mid-2022, with initial production of concentrate targeted for H2/2023.

**World Class Resource Project:** At its present size, the lithium resources at Manono stand out as one of the largest and highest grade undeveloped hard-rock lithium deposits in the world. The Roche Dure lithium deposit currently covers only 1.6 km of strike length with a current resource estimate of 402 MMt grading 1.65% Li<sub>2</sub>O and 715ppm tin in the Measured & Indicated plus Inferred categories (M&I+Inf) for total contained lithium of 16.5 MMt lithium carbonate equivalent (LCE) and 302,000 t of tin. To put this into context, this lithium resource is more than double that of current producers. It also represents a huge opportunity to satisfy accelerating global demand which is expected to grow to 3.0 MMt/yr by 2030 to meet the rising demand from electric vehicles (EVs).

**Exploration Upside:** The presence of lithium mineralization in multiple large pegmatites at Manono has been confirmed to extend along strike for more than 13km and AVZ has generated an internal exploration target of between 1Bt to 1.2Bt of 1.25% to 1.5% Li<sub>2</sub>O for the entire Manono Project. This growth potential will be used to support mine expansions, a longer mine life and/or a value-add lithium hydroxide facility.

**Chinese Funding Partner and Offtake Agreements:** In Q3/2021, AVZ entered into an agreement with Suzhou CATH Energy Technologies (CATH) whereby CATH will earn a 24% equity interest in the Manono Project by paying US\$240 MM in cash and a further amount to fund their pro-rata portion of development costs. The deal is expected to close in March, 2022. In addition, offtake agreements have been signed with three Chinese lithium processors for over 540kt of SC6 annually, a combined total of ~80% of early production.

**Near-Term Production with Strong Economics:** AVZ is set to start construction at Manono in the coming months which should see first production of spodumene by H2/2023. While the 2020 DFS contemplated a 4.5 MMt/yr open pit operation, increased demand from its pending partner CATH and current work on an expanded startup, we expect a 10 Mtpa operation will be built ramping up to produce 1.8 Mtpa of saleable SC6 and 92ktpa of PLS. Based on an upfront capital cost estimate of US\$850 MM, operating costs of US\$370/t of SC6 produced and pricing of US\$950/t of SC6, we see a minimum 22-year operation returning a post-tax NPV<sub>10%</sub> of US\$4.5 B on a 100% basis.

**Experienced Team:** AVZ is led by Nigel Ferguson, Managing Director who is a geologist who has held senior management positions for the past 20 years including direct in-country experience in the DRC since 2004. He is supported by an African-centric team of officers and directors with experience in exploration, mine development, metals and minerals processing, bulk commodities, off-take agreements and project financing.

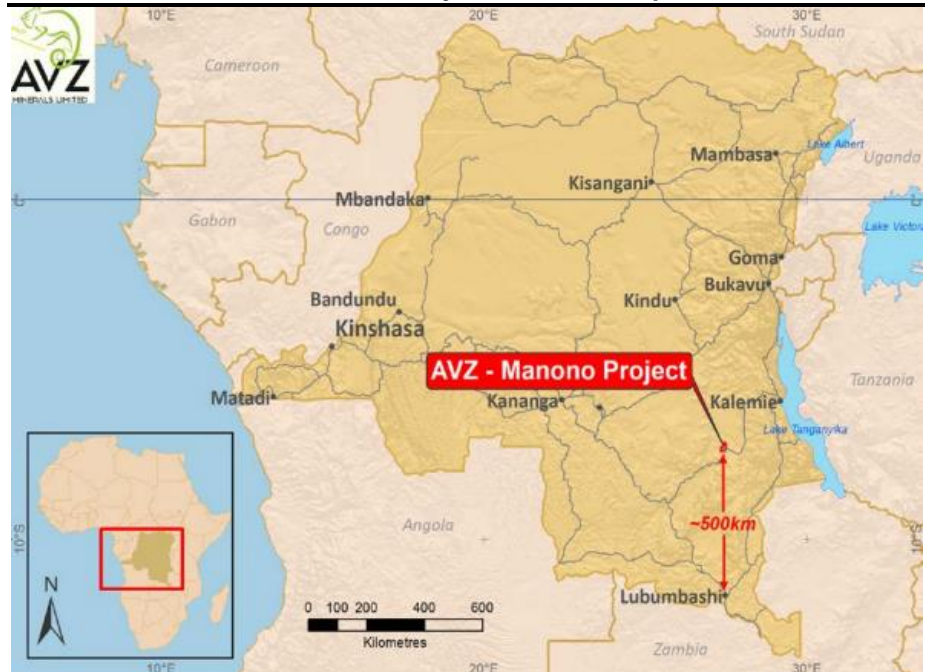
**Capital Structure:** The Company has cash and cash equivalents of ~\$99 MM and no debt. Upon closing of the CATH deal the Company will have ~US\$321 MM whilst maintaining a 51% controlling ownership interest in the project with CATH having 24% and the DRC Government a 25% interest (carried to production). AVZ currently has 3.452 B shares outstanding and 3.528 B on a fully diluted basis. The Company is listed on the Australian Stock Exchange under the ticker “AVZ” and the OTCQX under the ticker AZZVF. Management and insiders own ~2.1% of the stock.

**Target and Rating:** We are initiating coverage on AVZ Minerals with a Speculative BUY rating and a \$1.00/shr target price based on valuation of 1.0x NAV<sub>10%</sub> for an expanded 10 Mtpy operation. Since our valuation relies on a much larger operation than has yet to be committed to, and several near-term milestones still to be passed, we apply a Speculative Buy rating. However, given the strong demand for lithium, world class nature of the deposit, signed off-take agreements, strong partner in CATH and positive signals from the DRC government, our bias is to the upside.

**MANONO PROJECT – WORLD CLASS**

The Manono Project is currently owned by AVZ (75%) and La Congolaise d’Exploitation Minière SA (25%) (Cominiere, a State-owned enterprise). The Manono Project area covers 188km<sup>2</sup> and is located ~500km north of Lubumbashi in the southern part of the DRC and can be accessed by a 1.5-hour flight or by road. Cassiterite was first discovered in Manono in 1910, followed by intermittent prospecting and exploration programs which led to open pit mining for tin in the 1950s. AVZ commenced exploration in early 2017 with the goal of developing a lithium resource.

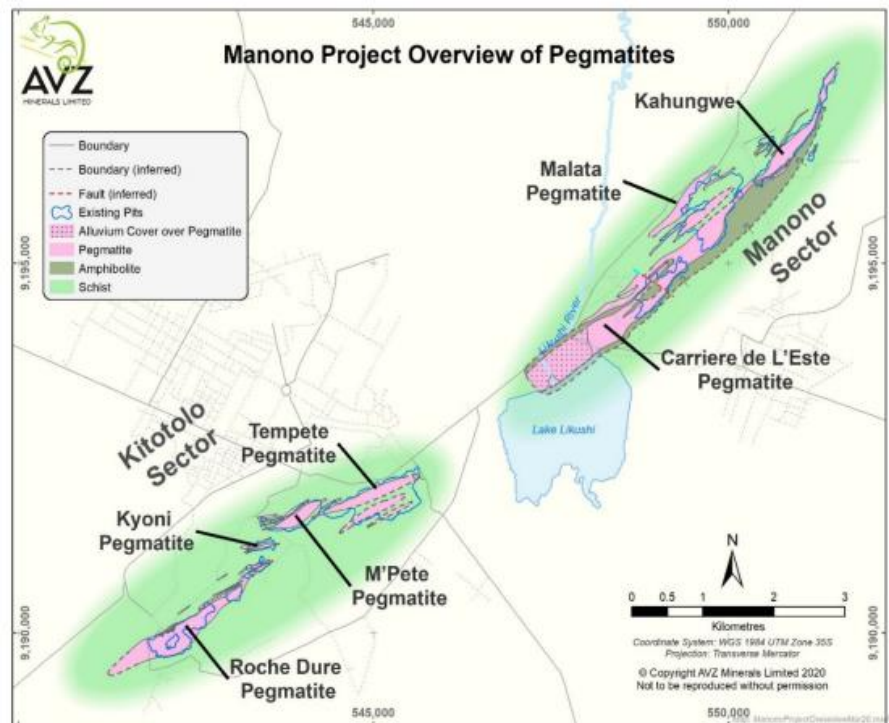
**Exhibit 1. Manono Lithium-Tin Project Location Map**



Source: AVZ Minerals Ltd.

**Geology & Resource:** The Manono Lithium and Tin Project lies within the mid-Proterozoic Kibaran Belt, an intracratonic domain stretching for over 1,000 km from just north of Kolwezi, north into southwest of Uganda. The latest granite phase (900 to 950 MMA) is associated with widespread vein and pegmatite mineralization containing tin, tungsten, tantalum, niobium, lithium and beryllium. Deposits of this type occur as clusters and are widespread throughout the Kibaran terrain. In the DRC, the Katanga Tin Belt stretches over 500 km from near Kolwezi in the southwest to Kalemie in the northeast, comprising numerous occurrences and deposits of which the Manono deposit is the largest known. Historically the Manono Lithium and Tin Project has been referred to as the Manono-Kitotolo Deposit, comprising the north-eastern Manono Sector and the south-western Kitotolo Sector separated by 2 km by Lake Lukushi (Exhibit 2). The area is covered by a variably lateritised eluvial cover up to 8 m thick and consists of orange-brown sandy or clayey-sandy, loose laterites, crumbly laterites and hardpan laterites. Sandy alluvial material cover occurs along the Lukushi River and its tributaries. This material contains significant cassiterite mineralization and was mined prior to the discovery of the pegmatites and is still mined by artisanal miners today. Within the Manono-Kitotolo sectors there are currently 7 large discrete pegmatite intrusions recognized, namely Roche Dure, Kyoni, M’Pete, Tempete, Carriere de L’Este, Malata and Kahungwe, along with several smaller unnamed pegmatites.

**Exhibit 2. Manono Lithium-Tin Geological Map**



Source: AVZ Minerals Ltd.

The Roche Dure Pegmatite is the largest of the four pegmatites in the southern Kitotolo Sector and is at least 2.8 km long, based upon work to date. The pegmatite has a strike of about 055° and dips at about 40° to the southeast and has a broadly lenticular with a true thickness exceeding 250 m at its thickest point. The pegmatite is essentially homogenous with regards to the distribution of spodumene because of its large size and coarse mineral size. An initial Mineral



Resource Estimate was completed in August 2018 based on 31 diamond drill holes covering 980 m of strike for 259.9 MMt of ore grading 1.63% Li<sub>2</sub>O. The Roche Dure Mineral Resource, on which the DFS was based, now covers 1,600 m of strike length with a 2019 resource estimate (M&I+Inf) currently at 402 MMt grading 1.65% Li<sub>2</sub>O, 715ppm and 34ppm Ta and includes 269 MMt @ 1.65% Li<sub>2</sub>O in the Measured and Indicated categories (Exhibit 3).

**Exhibit 3. Manono Reserves and Resources**

Manono - Reserves (July 2021)						
Category	Tonnes Mt	Grade Li <sub>2</sub> O %	Contained Li <sub>2</sub> O 000t	LCE 000t	Grade Sn g/t	Contained Sn 000t
Proven	65.0	1.60	1,070	2,646	942	61
Probable	66.6	1.61	1,070	2,646	1,037	69
<b>P&amp;P</b>	<b>131.7</b>	<b>1.63</b>	<b>2,140</b>	<b>5,292</b>	<b>990</b>	<b>130</b>

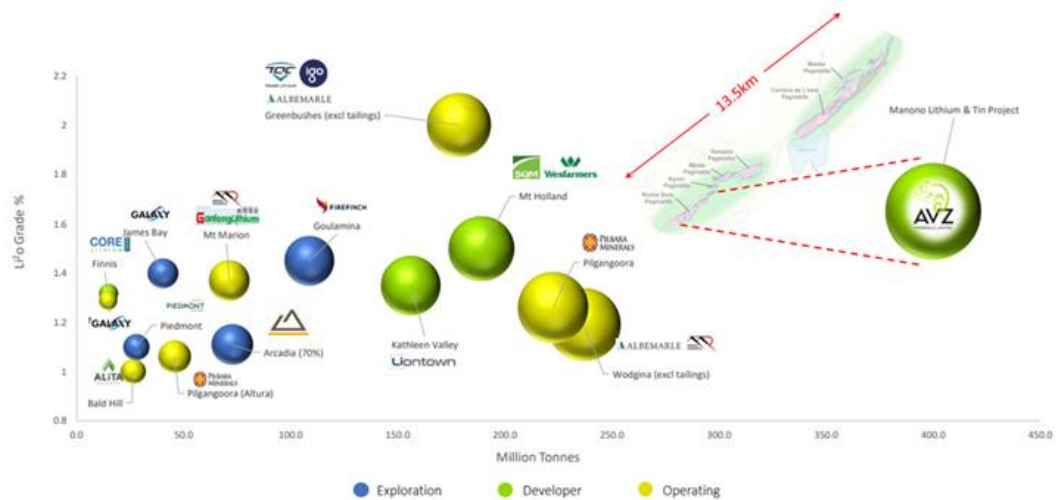
  

Roche Dure Main Pegmatite Resource (September 2021)						
Category	Tonnes Mt	Grade %	Lithium Metal 000t	LCE 000t	Grade Sn g/t	Contained Sn 000t
Measured	100.0	1.67	1,670	4,130	870	87
Indicated	174.0	1.65	2,871	7,100	807	140
<b>M&amp;I</b>	<b>274.0</b>	<b>1.66</b>	<b>4,541</b>	<b>11,230</b>	<b>830</b>	<b>227</b>
Inferred	128.0	1.65	2,112	5,223	585	75
<b>M&amp;I+Inf</b>	<b>402.0</b>	<b>1.65</b>	<b>6,653</b>	<b>16,453</b>	<b>752</b>	<b>302</b>

Source: AVZ Minerals Ltd.

At this size, Roche Dure stands as one of the largest and highest-grade undeveloped lithium deposits in the world and far exceeds current reserves of incumbent producers (Exhibit 4).

**Exhibit 4. Manono Li-Tin Resource Compared to Peers**



Source: AVZ Minerals Ltd.

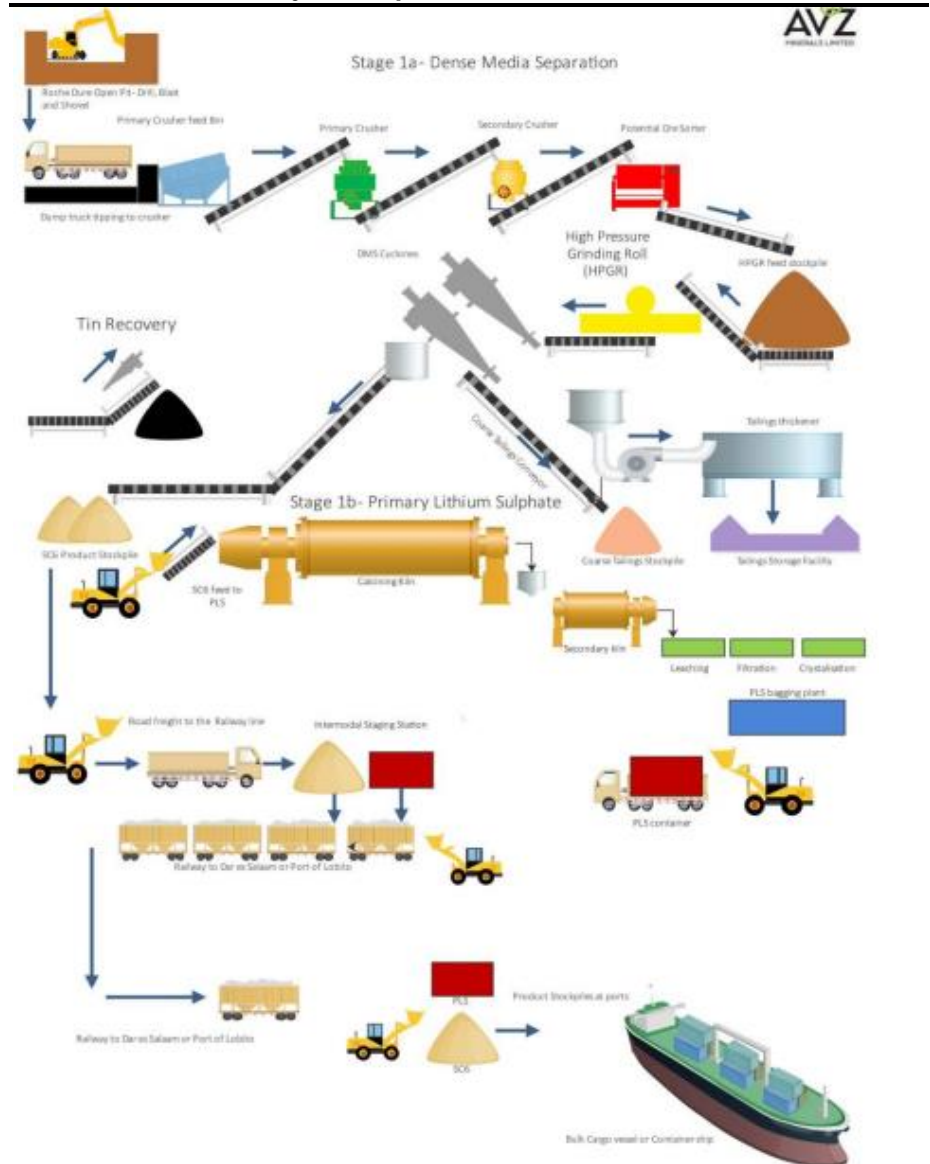
The presence of lithium mineralization in pegmatites at Manono has been confirmed to extend along strike for more than 13 km. Based on detailed prospect scale mapping, trenching and drill results, and given the size and mineralized nature of the pegmatites at Manono, AVZ generated an exploration target of between 1Bt to 1.2Bt of 1.25% to 1.5% Li<sub>2</sub>O for the entire Manono Project, including the current 402Mt of M&I+Inferred resource outlined to date.

**2020 Feasibility Study Summary:** In April 2020, AVZ delivered a definitive feasibility study (DFS) on the Manono Lithium and Tin Project based on a proven and probable reserve of 131.7 MMt grading 1.63% Li<sub>2</sub>O and 990 ppm tin. The DFS details an open pit mining operation processing 4.5 MMt/yr of ore to

produce a product mix of SC6 at 700,000 tpa and PLS at 46,000 tpa. The PLS would be produced using 153,000 tpa of SC6 product as feedstock. Tin and tantalum would also be recovered as a minor by-product. Based on upfront capital of US\$545.5 MM, operating costs of US\$471/t of SC6 produced and pricing of US\$699/t of SC6, the study determined a 20-year operation returns a post-tax NPV<sub>10%</sub> of US\$1,028 MM and an IRR of 33%. Subsequent work however is pointing to a much larger operation (see Cantor Model below) but the basics of the operations are the same.

**Mine, Concentrator and PMS Plant:** The 2020 DFS outlines an open-pit mine using conventional blasting, truck and shovel mining methods feeding a 12,500 tpd mill and concentrator. The spodumene plant is designed to process 4.5 MMt of ore annually to produce ~700,000 t of SC6 (spodumene concentrate with a grade of 6% Li<sub>2</sub>O) at a recovery rate of ~60%. Tin will be recovered as a by-product.

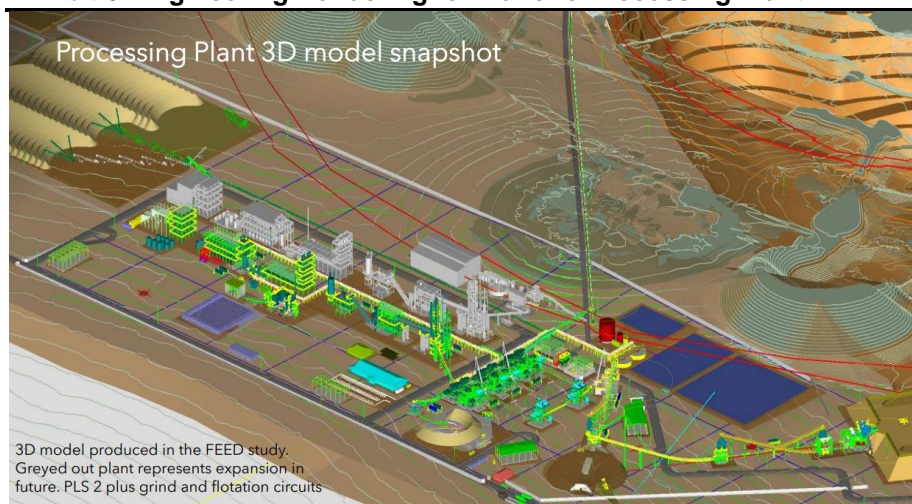
**Exhibit 5. Manono Project Simplified Flowsheet**



Source: AVZ Minerals Ltd.

The mill as contemplated in the DFS consists of two stages of conventional crushing and dense media separation (DMS) to produce about 700kt of SC6 concentrate and 3,600t of tin annually. A separate PLS plant on an adjacent site utilizing a single train would produce 46 ktpa of PLS ( $\text{Li}_2\text{SO}_4$ ) which is equivalent to ~20ktpa LCE. The PLS process involves the calcination of spodumene concentrate supplied from the concentrator (using large rotary kilns and heated the 1,050-1,100C) followed by sulphation of the calcine with the addition of sulfuric acid which leaches the lithium to form lithium sulphate. This intermediate product can be shipped to existing converters in China (or elsewhere) to make battery grade lithium carbonate or lithium hydroxide. It takes ~200,000 t of SC6 to produce 46,000 t of PLS so the process substantially reduces shipping costs and the carbon footprint associated with export. Work has demonstrated that the addition of a flotation circuit could increase the recoveries of finer lithium significantly. It is envisioned that this extra recovery would provide enough spodumene to supply a second PLS plant.

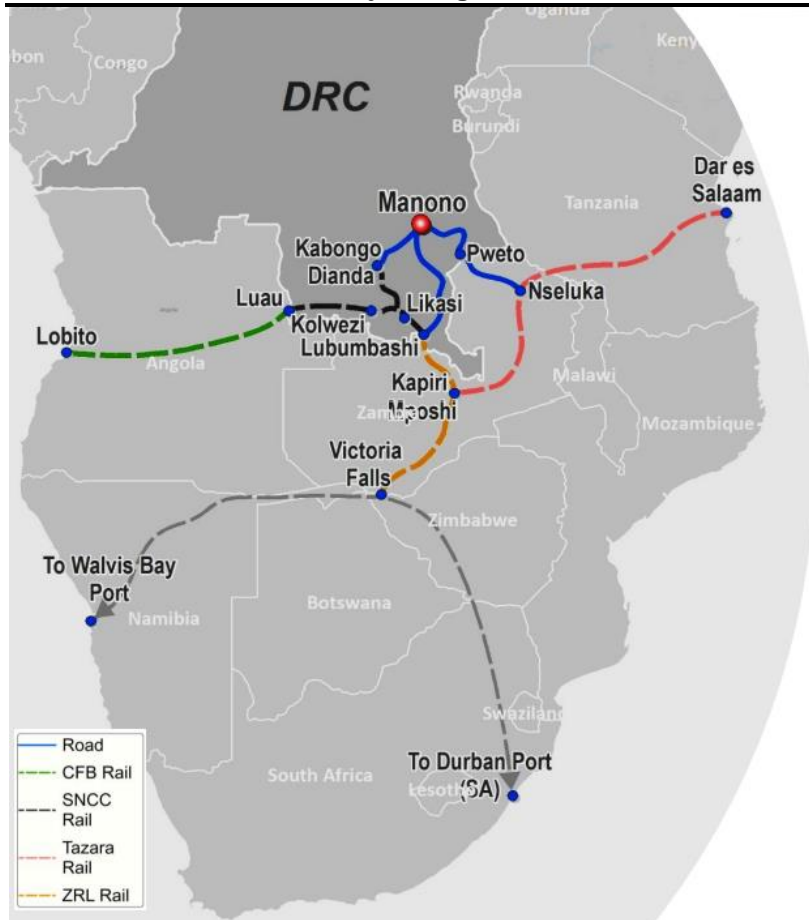
#### Exhibit 6. Engineering Rendering for Manono Processing Plant



Source: AVZ Minerals Inc.

**Logistics – Road, Barge and Rail from the Centre of Africa:** One of the main challenges for Manono project is establishing the export routes for over 750kt of SC6 and PLS annually from the center of the African continent. Two main routes have been selected; a westerly route through Angola and an easterly route through Tanzania. The first leg of the route sees the material carried by truck from Manono to the Kabondo Dianda Intermodal Staging Station for transfer to the DRC national railway line (SNCC). Once on the rail line the concentrate goes through Tenke and then either onto the TAZARA (Tanzania-Zambia Railway Authority) railway to Port of Dar es Salaam or via the westerly route by Angolan Rail (CFB) to Port of Lobito. Possible future options include exporting south-west to Walvis Bay in Namibia via the Walvis Bay Corridor. AVZ has already setup a logistics company to manage road transportation from Manono to Kabondo Dianda as well as for ferry operations as there is one major river crossing. AVZ has had full technical due diligence studies conducted on the railways to Lobito and Dar es Salaam and both are considered as suitable for the product export, having undergone upgrades in the last 3-years. Negotiations are ongoing with the ports, SNCC, TAZARA and CFB. Cost estimates for transport range from US\$230 to US\$319/t depending on the route taken and comprises a major component of operating costs.

**Exhibit 7. Manono Li-Tin Project Logistics**



Route	Project format	Road cost <sup>1</sup>	Rail cost <sup>2</sup>	Port handling cost	Customs and duties cost	Total cost
		US\$/t	US\$/t			
Manono to KD to Lobito (2,486 km)	Dry Bulk	\$29.70	\$152.58	\$17.96	\$29.15	<b>\$229.39</b>
Manono to KD to Dar es Salaam (3,137 km)	Dry Bulk	\$29.70	\$199.01	\$17.50	\$29.15	<b>\$275.36</b>
Manono to KD to Lobito (2,486 km)	Container	\$36.34	\$169.98	\$17.96	\$31.01	<b>\$255.29</b>
Manono to KD to Dar es Salaam (3,137 km)	Container	\$36.34	\$234.07	\$17.50	\$31.01	<b>\$318.92</b>

<sup>1</sup> Includes ferry crossing at Lualaba River

<sup>2</sup> Includes a correction factor for moisture content and intermodal station rehandling

Source: AVZ Minerals Ltd.

**Modest Infrastructure Requirements:** Infrastructure in Manono and the surrounding areas is limited and based on the 2020 FS, requiring about US\$120 MM worth of improvements including US\$46.5 MM for the refurbishment of the Mpiana Mwanga hydroelectric power station and the road from Lubumbashi to Manono. Reconstruction of the unsealed all weather road between the N33 from Manono to Kabondo Dianda as well as ferry crossing and departure aprons at the Lualaba river are also required. Water availability is not an issue as there is an abundance of good water supply for both local consumption and the mining operation at Manono.

**Low Greenhouse Gas Emissions:** In January 2021, AVZ released an independent Greenhouse Gas (GHG) emissions assessment for the life of mine



of the Manono Project. The GHG assessment, which was completed by leading global environmental and sustainability consultants at Environmental Resource Management (ERM). ERM's findings showed that the Manono Project could have one of the lowest carbon footprints of any global hard rock lithium miner. This was primarily due to AVZ's strategic location adjacent to the Mpiana Mwanga Hydro Electric Power Plant which, once refurbished, is anticipated to provide all the Manono Project's electricity requirements. AVZ is also investigating and planning substantial GHG mitigation measures which including; i) the purchase of electric mining fleet once commercially viable equipment is available; ii) generation of hydrogen from excess renewable electricity to enable use of Fuel Cell Electric Vehicles; and iii) the establishment of a 5,000-ha sequestration biomass plantation.

**Permit Status – Mining License Imminent:** AVZ is awaiting its key government approval for the Manono project. All documentation relating to AVZ's Mining License was submitted to relevant authorities in the DRC Government in May 2021, with the Company receiving favourable outcomes in relation to its environmental approvals, proof of financial capability and cadastral opinion. The Department of Mines has also provided favourable feedback in relation to the technical opinion on the DFS. Receipt of final approval is a key catalyst. Once the Company has been granted its Mining License, it will issue a bankable feasibility study (BFS) which will include updated costs and potential expansion scenarios and pave the way for debt financing and project construction.

## OFFTAKE AGREEMENTS - MAJOR SUPPLIER TO CHINA

AVZ has signed offtake agreements with three separate Chinese processors. As such AVZ will be a major supplier to the Chinese battery industry. With reputable customers signed up and ready to take as much production as is available, the demand side for AVZ is largely de-risked.

**Offtake Agreement with GFL:** In Q4/2020, AVZ signed an off-take agreement with strategic, long-term offtake partner GFL International Co. Ltd. ("GFL"), a subsidiary of China's largest lithium compounds producer, Ganfeng Lithium Co Ltd. (1772-HKG, Not Covered). AVZ has committed to an annual supply to GFL ramping up to 160,000 dry metric tonnes of SC6 from Year 3 onwards. The agreement is for an initial five-year term with an option to extend for a further five years. Pricing for the SC6 concentrate is to be determined by a formula which references pricing of lithium carbonate and lithium hydroxide, with appropriate adjustments for quality and including a scaled collar price mechanism.

**Offtake Agreement with Chengxin:** In Q1/2021, AVZ signed an offtake agreement with Shenzhen Chengxin Lithium Group Co. (002240-SHE, Not Covered). Chengxin agreed to purchase up to 180,000 tpa of SC6 for an initial 3-year term following commencement of production with mutually agreed options to extend the agreement. Chengxin is set to become one of the largest lithium hydroxide producers in China, with initial production capacity of up to 25,000t of lithium carbonate and 15,000t of lithium hydroxide and with future staged expansions expected to increase production to approximately 70,000tpa. Chengxin will require approximately 560,000tpa of SC6 to satisfy its internal demand after commissioning its planned expansions.

**Offtake Agreement with Yibin Tianyi / CATH:** In Q1/2021 AVZ also signed an initial offtake agreement, with Yibin Tianyi Lithium Industry Co., Ltd. Yibin Tianyi is a leading global battery materials producer that is expanding its lithium hydroxide production capacity as a key participant in the supply chain of Contemporary Amperex Technology Co Ltd. (“CATL”), (300750-SHE, Not Covered) the world’s largest lithium-ion battery maker. Yibin Tianyi is set to become one of the largest lithium hydroxide producers in China, with initial production capacity of up to 20,000tpa of lithium hydroxide and with future staged expansions expected to increase production to approximately 150,000tpa. To service this output, Yibin Tianyi will require ~1 Mtpa of SC6 to satisfy its internal demand after commissioning these expansions. AVZ has agreed to provide annual supply of 200,000 t (+/- 12.5% at Seller’s option) of SC6 for an initial 3-year term, with extension options. Pricing is to be determined by a formula which references various published market prices of lithium carbonate and lithium hydroxide products and underpinned by an agreed floor price. This agreement is being expanded on the announced partnership with CATH (discussed below).

### **CORNERSTONE INVESTOR – CATH ENERGY**

In Q3/2021, AVZ entered into a transaction implementation agreement (TIA) with Suzhou CATH Energy Technologies (“CATH”). CATH is a private investment entity jointly owned by Mr. Pei Zhenhua and Contemporary Amperex which is a major player in the global lithium conversion and lithium-ion battery manufacturing industries. Mr. Pei Zhenhua also holds significant interests in Suzhou TA&A Ultra Clean Technology Co. Ltd., the holding company for Yibin Tianyi (discussed above).

**Agreement:** Under the agreement, CATH will earn a 24% equity interest in a joint venture to develop the Manono Lithium and Tin Project by paying US\$240 MM in cash and a further amount to fund its pro rata portion of development capital for the Project. The transaction in totality will contribute more than US\$400 MM and fund the majority of the total equity project financing required, while AVZ will retain a 51% controlling interest in the Manono Project. The existing Offtake Agreement with Yibin Tianyi will be assigned to CATH and expanded in scope to provide offtake of SC6 for the life of the Manono Project. Furthermore, CATH will enter into a long-term PLS offtake or tolling agreement in respect of PLS produced from the PLS plant, which will also be developed in joint venture with CATH. Completion of the transaction is expected in March, 2022. In addition to the development of the Manono Project, AVZ and CATH will pursue together the provision of power, water and logistics services to the Manono project and the development, construction and operation of the PLS Plant. This forms the basis of a comprehensive joint venture that should leverage both Companies’ skill sets in the development of the Manono Project.

**Expansion Scenario:** AVZ and CATH have also agreed to evaluate and progress a study to increase annual production and expand DMS production capacity from the 4.5Mtpa throughput producing ~700ktpa of SC6 (as contemplated by the 2020 DFS) to 10Mtpa producing ~1.9 MMt of SC6. Under the Expansion Scenario, CATH will fund its equity share of the additional Manono Project development capital expenditure and increase its SC6 offtake commitment to approximately 50% of annual production. The Expansion Scenario will

significantly scale the size of the project and further de-risk the fundamental economics of the Manono Project.

**Phase II – Lithium Hydroxide Study:** The parties have also agreed to assess the feasibility of developing a lithium hydroxide facility. A pre-feasibility study on the production of lithium hydroxide from primary lithium sulphate has been awarded to Noram Engineering and Constructors Ltd. The information from the PFS will assist in identifying the preferred global location for a lithium hydroxide conversion facility to be fed with product from Manono.

**DEVELOPMENT PATH AHEAD – GOING BIG**

The 2020 DFS is AVZ’s base case and can be summarized as a 4.5 Mtpa operation producing 550ktpa of saleable SC6 and 46ktpa of PLS from the production of 700ktpa of SC6. Additional metallurgical work demonstrated that the addition of a flotation and grinding circuit could significantly improve recoveries and expand production of saleable SC6 to 650ktpa and PLS to 92ktpa for an additional ~US\$200 MM of capital. With the entrance of CATH and surging demand for lithium, plans have become more ambitious. AVZ and CATH are looking to ramp-up to a much bigger operation with a Stage 1 throughput capacity of 10 Mtpa producing 1.6 MMtpa of SC6 of which 1.4 MMtpa could be sold as is and the balance used to produce 46 ktpa of PLS. The flotation circuit and second PLS train would follow to increase saleable SC6 to 1.8 MMtpa and PLS to 92ktpa. Additional PLS trains could follow as the market develops and additional hydro and/or solar power generation.

**Exhibit 8. Manono Project: Base Case and Expansion Scenario**

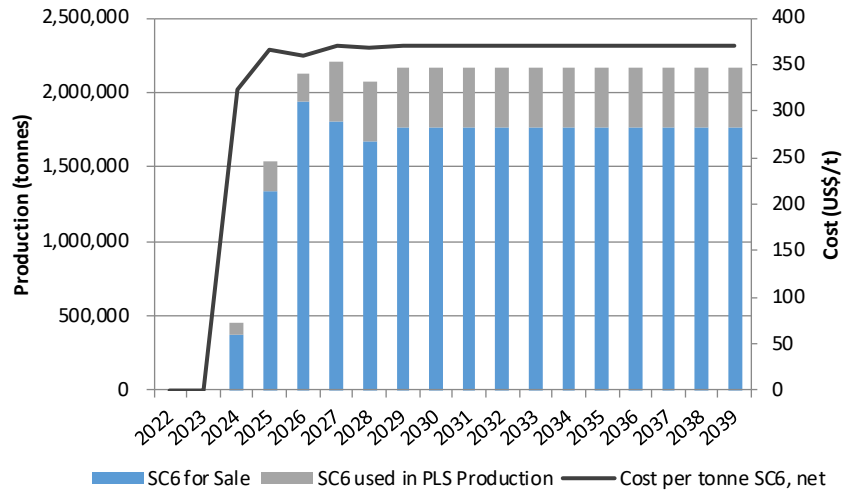
Throughput 4.5 Mtpa		Throughput 10 Mtpa			
2020 DFS Case	Base Case	Expansion/ Cantor Case	Stage 1	Stage 2	Stage 3 (Potential)
	4.5 Mtpa throughput & PLS Train 1		10 Mtpa throughput & PLS train 1	Add flotation circuit and PLS train 2	Add PLS trains 3&4
<b>Capex</b>	US\$550 MM	<b>Capex</b>	US\$850 MM	US\$200 MM	US\$300 MM
<b>Production</b>		<b>Production</b>			
SC6 Total	700 ktpa	SC6 Total	1,600 ktpa	2,200 ktpa	2,200 ktpa
SC6 saleable	550 ktpa	SC6 saleable	1,400 ktpa	1,800 ktpa	1,400 ktpa
PLS saleable	46 ktpa	PLS saleable	46 ktpa	92 ktpa	184 ktpa

Source: Cantor Fitzgerald

**CANTOR MODEL**

Based on the 2020 FS and Stage 2 Expansion Scenario outlined above, our base case model for AVZ assumes a ramp-up to throughput capacity of 10 Mtpa of ore and adds the flotation circuit and PLS Train 2 bringing annual SC6 production to 2.1 MMt and PLS capacity to 92,000 t. To support this scale, we also assume 75% conversion of M&I Resource to mineable reserves which drives a 22-year mine life. We consider further expansions and the hydroxide option as upside potential.

**Exhibit 9. Manono Project Production Profile (Cantor Case)**



Source: Cantor Fitzgerald

We assume capital costs of US\$850 MM for Stage 1 of which about US\$200 MM is for infrastructure including power and roadworks. Stage 2 capex is US\$300 MM. LOM operating costs are expected to come in at US\$370/t of concentrate produced (including shipping to port) net of tin by-product. Applying product prices of US\$950/t for SC6, US\$7,848/t for PLS and a US\$25,000/t for tin we calculate an after-tax NPV<sub>10%</sub> of US\$4.5 B for a 22-year project on a 100% basis. We expect this scenario to be outlined in more detail in the BFS which will follow final permitting.



**Exhibit 10. Manono Lithium Project Summary**

<b>Manono Project (100%)</b>		<b>2020 FS</b>	<b>Cantor Model</b>
<b>Resource</b>			
Category		P&P	P&P
Reserves	(MMt)	131.7	131.7
Li content	% Li	1.63	1.63
Mined Material LOM	(MMt)	93.0	212.9
<b>Operation</b>			
First Production		2023	2024
LOM	(yrs)	20	22
Mill Throughput	(MM tpa)	4.5	10.0
SC6 Production	(tpa)	700,000	2,200,000
SC6 for sale	(tpa)	547,000	1,800,000
PMS for sale	(tpa)	45,700	92,000
Tin Production	(tpa)	3,800	5,544
Unit Cost SC6 Produced, net	(US\$/t)	471	370
PMS Unit Cost	(US\$/t)	2,662	2,406
<b>Capital</b>			
Upfront Capex	(US\$MM)	545.5	850
Expansion (Flotation & PLS)	(US\$MM)	n/a	200
Sustaining Capex	(US\$MM)	92	188
<b>Price Assumptions</b>			
Spodumene SC6	(US\$/t)	699	950
PLS	(US\$/t)	7,400	7,848
Tin (60% concentrate)	(US\$/t)	10,000	25,000
<b>Economics</b>			
<b>NPV10%</b>	<b>(US\$MM)</b>	<b>\$1,028</b>	<b>\$4,516</b>
NPV8%	(US\$MM)	n/a	\$5,684
IRR		33.2%	58.2%

\*Adjusted: Tin price in 2020 FS based was US\$10,000/t for 60% concentrate.

Source: Cantor Fitzgerald, AVZ Minerals Ltd.

**PROJECT FINANCING – WELL ADVANCED**

AVZ's cornerstone investor, CATH, has committed US\$240 MM in cash to acquire 24% of the project. It has also will pay its pro-rata share of capex while the government of DRC gets a free carry to production on its 25% interest. As such, the ultimate structure will see AVZ's ownership drop to 51%, CATH increase to 24% and the DRC government maintain its 25% interest. From a capex commitment standpoint, AVZ will be responsible for 68% while CATH will also need to fund 32%. Based on the US\$850 MM upfront capex estimate, AVZ will have a total financing requirement of ~US\$620 MM. With ~US\$70 MM in cash and a US\$240 MM buy-in from CATH, we estimate AVZ will need to raise an additional US\$340 MM to fund its portion of construction. This is well within the debt capacity of the project will likely come in the form of syndicated debt. AVZ's management team is actively engaged with various commercial banks and non-commercial lenders such as Pan-African Development Finance Institutions for further funding agreements.

**Exhibit 11. AVZ Financing Requirement**

<b>AVZ Financing Package</b>	<b>US\$ MM</b>
Share of Capex (68%)	595.0
G&A and Financing Costs	25.0
<b>Financing Required</b>	<b>620.0</b>
Cash on hand	99.0
CATH Buy-in (24%)	240.0
<b>Financing Secured</b>	<b>280.0</b>
Financing Outstanding	340.0
Debt:	<b>340.0</b>
Additional Equity	-
<b>Total Additional Financing Phase 1</b>	<b>340</b>
Balance	-

Source: Cantor Fitzgerald

**VALUATION AND TARGET**

Based on our model for the Manono operation outlined above, the project would ramp up to an average of over US\$800MM of free cash flow annually over an initial 22-year life for a project NPV<sub>10%</sub> (100% basis) of \$4.516 B based on our price deck of US\$950/t for SC6 concentrate, US\$7,848/t for PLS and US\$15,000/t for tin by-product concentrate (60% con). To capture the exploration upside from identified additional mineral resource, we include the effect of an additional 20-years of production. Corporate adjustments include current cash, assumed buy-in from CATH for US\$240 MM, a US\$340 MM debt package and in-the-money warrants (due within 12-months). We also adjust AVS's ownership interest to 51% (following CATH buy-in) and its greater share of capex (as DRC government interest is carried) resulting in sum-of-parts NAV<sub>10%</sub> of US\$2,472.6 MM or \$1.00 per diluted share. To capture country risk and ongoing development risk we have applied a 10% discount rate versus 8% for peers. To this we apply a multiple of 1.0x to which is in-line with the top names in its development peer group resulting in a target price of \$1.00/share (rounded). Since our valuation relies on a much larger operation than has yet to be committed to, and several near-term milestones that need to be passed, we apply a Speculative Buy rating. Given the world class nature of the deposit, signed off-take agreements, strong partner in CATH and positive signals from the DRC government, our bias is to the upside.

**Exhibit 12: NAV Summary**

(A\$ million, unless otherwise indicated)

Mining Assets	Ownership	Valuation	NAV		
			USD MM	AUD MM	AUD/sh
Manono	51%	DCF10%	2,104.8	2,923.4	0.85
Exploration Upside	51%	+20 yrs	400.0	555.6	0.16
Total Mining Assets			2,504.8	3,478.9	1.01
<b>Financial Assets<sup>1</sup></b>					
Cash			307.71	427.4	0.12
Debt			(340.00)	(472.2)	(0.14)
Net Financial Assets			(32.3)	(44.8)	(0.01)
Net Asset Value			2,472.6	3,434.1	1.00
NAV Multiple					1.0x
Target NAV per Diluted Share					1.00
Basic shares outstanding (MM)					3,364
Diluted shares outstanding (MM) <sup>1</sup>					3,441
Fully diluted shares outstanding (MM)					3,441

<sup>1</sup>Includes anticipated equity stake by CATH, debt issue, 12-mo ITM options & warrants and capital spend.

Source: Cantor Fitzgerald

With 94% of estimated revenues derived from SC6 and PLS, the Manono project is most highly levered to the price of lithium. We calculate that for every US\$100 change in the price of SC6, there is a there is a ~15% change in our NAV whereas a similar (10%) movement in the price of tin results in a ~1% change to our NAV.

**Exhibit 13: Target Price Sensitivities to Lithium and Tin Prices**

Tin Price (US\$/t)	LT SC6 Price (US\$/t)											
	1.00	\$650	\$750	\$850	\$950	\$1,050	\$1,150	\$1,250	\$1,350	\$1,450	\$1,550	\$2,350
\$15,000	\$0.48	\$0.64	\$0.81	\$0.98	\$1.14	\$1.31	\$1.47	\$1.64	\$1.81	\$1.97	\$3.30	\$3.30
\$17,500	\$0.48	\$0.65	\$0.82	\$0.98	\$1.15	\$1.31	\$1.48	\$1.65	\$1.81	\$1.98	\$3.30	\$3.30
\$20,000	\$0.49	\$0.66	\$0.82	\$0.99	\$1.15	\$1.32	\$1.48	\$1.65	\$1.82	\$1.98	\$3.31	\$3.31
\$22,500	\$0.49	\$0.66	\$0.83	\$0.99	\$1.16	\$1.32	\$1.49	\$1.66	\$1.82	\$1.99	\$3.32	\$3.32
\$25,000	\$0.50	\$0.67	\$0.83	\$1.00	\$1.16	\$1.33	\$1.50	\$1.66	\$1.83	\$1.99	\$3.32	\$3.32
\$27,500	\$0.51	\$0.67	\$0.84	\$1.00	\$1.17	\$1.34	\$1.50	\$1.67	\$1.83	\$2.00	\$3.33	\$3.33
\$30,000	\$0.51	\$0.68	\$0.84	\$1.01	\$1.18	\$1.34	\$1.51	\$1.67	\$1.84	\$2.00	\$3.33	\$3.33
\$32,500	\$0.52	\$0.68	\$0.85	\$1.01	\$1.18	\$1.35	\$1.51	\$1.68	\$1.84	\$2.01	\$3.34	\$3.34
\$35,000	\$0.52	\$0.69	\$0.85	\$1.02	\$1.19	\$1.35	\$1.52	\$1.68	\$1.85	\$2.02	\$3.34	\$3.34
\$37,500	\$0.53	\$0.69	\$0.86	\$1.03	\$1.19	\$1.36	\$1.52	\$1.69	\$1.86	\$2.02	\$3.35	\$3.35
\$40,000	\$0.53	\$0.70	\$0.87	\$1.03	\$1.20	\$1.36	\$1.53	\$1.70	\$1.86	\$2.03	\$3.35	\$3.35
\$42,500	\$0.54	\$0.71	\$0.87	\$1.04	\$1.20	\$1.37	\$1.54	\$1.70	\$1.87	\$2.03	\$3.36	\$3.36
\$45,000	\$0.55	\$0.71	\$0.88	\$1.04	\$1.21	\$1.37	\$1.54	\$1.71	\$1.87	\$2.04	\$3.37	\$3.37

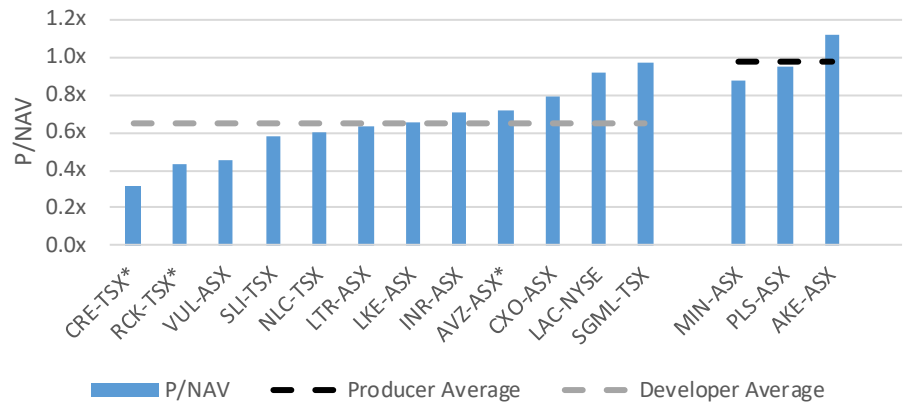
2020 FS      model      spot

Source: Cantor Fitzgerald

**PEER COMPARISON**

On a P/NAV basis, AVZ Minerals trades at 0.7x our NAV<sub>10%</sub> estimate, slightly above its peer group of lithium developers at 0.6x (consensus). However, given its advanced stage, imminent permitting, established financing partner and off-take agreements and near-term production, we expect it should trade at multiples of 1.0x or higher. Note that near-term producers such as Sigma Lithium (SGMA-ASX, Not Covered) and Lithium Americas (LAC-TSX/NYSE, Not Covered) trade closer to 1.0x NAV while established producers (larger and generally diversified) can trade over 1.0x.

**Exhibit 14: Lithium Comps: Explorer/Developer P/NAV**



\*Covered name  
 Source: Cantor Fitzgerald, FactSet (consensus)

**UPSIDE POTENTIAL**

Upside to this target comes from additional resource and production expansion opportunities, and potential price appreciation of lithium and tin.

**Exploration Upside:** As noted above, the pegmatite cluster on the Manono property stretches 13km along strike and the current resource covers only 1.6 km. AVZ has generated an in-house exploration target of between 1Bt to 1.2Bt of 1.25% to 1.5% Li<sub>2</sub>O for the entire Manono Project, which should be drilled off over the coming years, potentially increasing the resource over 2-fold. This also suggests a much longer life than currently planned and/or further expansions based on currently identified resources.

**Additional Expansions:** We currently model the 10 Mtpa operation through Stage 2 but Stage 3 planning looks at doubling PLS production to 92,000 tpa which add ~20% to our NAV. This is a likely opportunity as the PLS market develops and compelling as it reduces export shipping volumes and keeps the bulk of waste material at the source.

**Lithium Hydroxide Option:** AVZ and CATH have agreed to assess the feasibility of developing a lithium hydroxide facility once studies currently underway are completed on this process. We estimate the cost of a converter would be about US\$350-\$450 MM (depending on size and location) but where it would be located and what market it would serve will have a big impact on operating costs and overall feasibility. While the economics could be compelling, there will be increased technical and financial risk with the addition of a converter, although CATH has committed to sharing its lithium hydroxide technology. With its Chinese off-take partners’ main goal being to feed their existing converters in China, we do not expect this option to be pursued in the near-term.

**CATALYSTS AHEAD**

**Permits:** AVZ is awaiting its key DRC government approval for the Manono project. The Department of Mines has provided favourable feedback in relation



to the technical opinion on the DFS and final approval is expected imminently. This is a key catalyst.

**Bankable Feasibility Study:** Once the Company has been granted its Mining License, it will issue a BFS which will include updated costs and potential expansion scenarios. This is the key milestone that paves the way for debt financing and construction.

**Project Financing:** AVZ has an agreement in principle with CATH for a US\$240 MM at the project level which is on track to close in March 2022. Discussions for financing of AVZ's portion of the project of ~US\$340 MM (Cantor estimate) are ongoing and expected to be finalized shortly after permitting approval.

**Project Construction:** Once a construction decision is made and financing is in place, construction of the mine and concentrator should take ~18-months with the first production of SC6 expected in H2/2023.

## KEY RISKS

**Finance Risk:** AVZ Minerals currently has ~A\$99 MM in cash and is expected to receive US\$240 MM from CATH for its 24% ownership. Beyond this we expect AVZ to raise an additional US\$340 MM. Debt financing discussions are advancing. AVS's management team is actively engaged with various commercial banks and non-commercial lenders such as Pan-African Development Finance Institutions for further funding agreements for the development of the Manono Project. We see strong regional support as likely. At the DRC-Africa Business forum in 2021, led by the DRC's Ministry of Industry and the United Nations Economic Commission for Africa (ECA), in collaboration with the African Export-Import Bank (Afreximbank), the African Development Bank (AfDB), the Africa Finance Corporation (AFC), the Arab Bank for Economic Development in Africa (BADEA), the African Legal Support Facility (ALSF) and the United Nations Global Compact the Congolese Government as well as the technical and financial partners such as ECA, AFC and BADEA signed commitments for the development of a battery minerals industry in the DRC. With a strong project, experienced management team, low jurisdictional risk and tailwinds for green energy projects, we view financing risk as low.

**Technical Risk:** Costs and timelines to date for the construction and operation of the Manono Project are based on a 2020 FS and the results which, by definition, have an accuracy of +/-15%. The company has continued pricing and cost studies as well-as potential scope changes but uses a proven mining and processing methods to make products for established spodumene and tin markets and the evolving lithium sulphate market. As such we view technical risk for the Manono Project as moderate.

**Jurisdictional Risk:** The Democratic Republic of Congo is endowed with some of the largest and highest-grade mineral deposits in the world. However, it is a large, land-locked country with ageing infrastructure and prone to corruption and boarder disputes. It is consistently ranked towards the lower end of attractive mining jurisdictions by the Fraser Institute, ranking 57<sup>th</sup> overall (out of 77) in the last published report (2020). Despite this, several major mining companies have successfully operated in the DRC for years. Overall, we see jurisdictional risk as moderate to high.

**Commodity Price Risk:** The commodity exposure for AVZ Minerals is lithium, specifically spodumene and lithium sulphate and to a lesser degree, tin. Our price assumptions are viewed to be reasonable based on current information, but we note that as a rapidly evolving market, lithium prices have been very volatile. Timing and magnitude of commodity price fluctuations are a significant risk and can strongly affect the value of mining companies focused on a specific commodity. However, as a key input to electric vehicles and the global energy transition, we remain positive on the long-term price support for lithium in all forms.

## MANAGEMENT & BOARD

**Nigel Ferguson – Managing Director:** Mr. Ferguson is a geologist with 32 years of experience who has worked in senior management positions for the past 20 years in a variety of locations. He has experience in the discovery and definition of precious and base metal mineral resources throughout the world, including DRC, Zambia, Tanzania, Saudi Arabia, South East Asia and Central America. He has been active in the DRC since 2004 in gold and base metals exploration and resource development.

**Jan de Jager – CFO & Joint Company Secretary:** Mr. de Jager is a Chartered Accountant in Australia with more than 25 years of experience. His experience includes executive finance roles for listed companies and exposure to a variety of commodities (including coal, nickel, gold, iron ore and lithium) in South Africa and Australia.

**Ben Cohen – Commercial Manager & Joint Company Secretary:** Mr. Cohen is a commercially focused CPA with more than 20 years' experience in the bulk commodity, shipping, mining and corporate sectors. He joins AVZ with an intimate knowledge of the challenging environment of offtake agreements, bulk shipping and the commercial aspects of commodity trading. Mr. Cohen will assume the role of Commercial Manager and Joint Company Secretary with Mr. Jan de Jager.

**Michael Hughes – Project Director – Manono Lithium and Tin Project:** Mr. Michael Hughes has over 35 years' experience in EPC minerals and metals market, having worked for both Engineering companies and Clients to execute studies and projects. His experience covers all metals and minerals commodity plant design and construction in India, France, Australia, Malawi, Mozambique, Namibia, Botswana, Madagascar and Ethiopia.

**Serge Ngandu – Director Corporate Affairs, Dathcom Mining (Pr. Eng., MBA, M.Sc. Min.Proc. Eng., FSAIMM):** Serge Ngandu is a metallurgist with 34 years' experience in the African mining industry covering various commodities in the design, commissioning and operation of mineral processing plants. His experience includes a Business Development Executive and Partner at Worley Parsons focussed on project development opportunities in Africa, including the DRC.

**John Clarke – Non-Executive Chairman:** Mr. Clarke has been involved in acquisition, exploration, development and mine management in the DRC for 25 years and has considerable experience in mine management, mineral exploration, corporate acquisition, mine development and as a Director of several companies with mining activities in Africa. Mr. Clarke holds a B.Sc. in metallurgy from

University College Cardiff, a Ph.D. in metallurgy from Cambridge University and an MBA from Middlesex Polytechnic.

**Rett Brans – Non-Executive Director (Dip. Engineering (Civil)):** Mr. Brans is an experienced director and civil engineer with over 45 years' experience in project developments. Previously, Mr. Brans was a founding director of Perseus Mining Ltd. (PRU-ASX, Not Covered) and served on the boards of several other resource companies. Throughout his career, Mr. Brans has been involved in the management of feasibility studies and the design and construction of mineral treatment plants across a range of commodities and geographies including for gold in Ghana, copper in the DRC and graphite in Mozambique.

**Graeme Johnston, Technical Director:** Mr. Johnston is a geologist with over 30 years' experience in Australia, the Middle East, Romania, Malaysia and the DRC. Mr. Johnston's technical experience is focused on the transition between orebody delineation and mine opening and has worked on over five projects that resulted in new mines being commissioned.

**Peter Huljich, Non-Executive Director (BCom/LLB, GD-App Fin, GAICD):** Mr. Huljich has over 25 years' experience in the legal, natural resources and banking sectors with a particular expertise in capital markets, mining, commodities and African related matters. He has worked in London for several investment banks, including Goldman Sachs, Barclays Capital, Lehman Brothers and Macquarie Bank with a focus on Commodities and Equity and Debt Capital Markets and has extensive on-the-ground African mining, oil and gas and infrastructure.

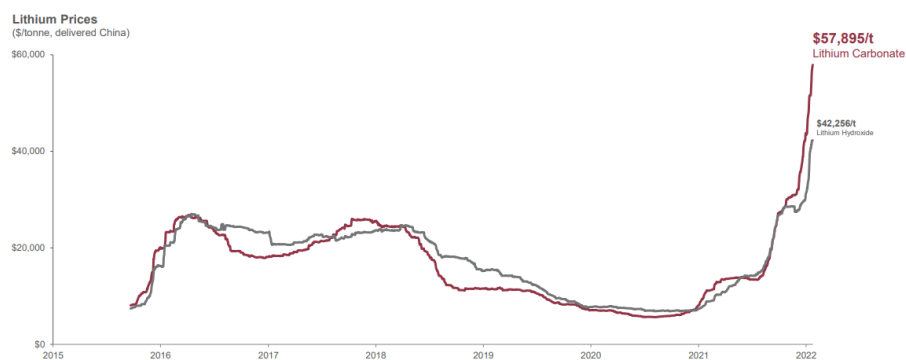
## CONCLUSION

We are initiating coverage on AVZ Minerals with a Speculative BUY rating and a \$1.00/shr target price based on valuation of 1.0x NAV<sub>10%</sub> for an expanded 10 Mtpa operation. Since our valuation relies on a much larger operation than has yet to be committed to, and several near-term milestones still to be passed, we apply a Speculative Buy rating. However, given the world class nature of the deposit, signed off-take agreements, strong partner in CATH and positive signals from the DRC government, our bias is to the upside.

## OUTLOOK FOR LITHIUM PRICES REMAINS STRONG

Lithium prices surged in 2021 with spot prices across all battery-related segments up sharply. Lithium carbonate was up over 400%, lithium hydroxide up over 300% and spodumene concentrates up over 500%. The surging prices of these key battery materials are driven by a “perfect storm” of increased natural demand (EV production), limited processed supply (mine and converter capacity) and supply chain issues (as a result of COVID-19). The record high spot prices will likely drive strong contract pricing for both established and new producers in the near-term. Demand for lithium is expected to continue to outstrip supply in 2022 until several new projects and expansions come online later this year and into 2023. But supply is expected to remain tight or in deficit over the decade as EV adoption surges. In our view, battery materials will likely be the bottleneck rather than EV penetration. This, and considering the recent price movements and forecasts by Roskill and Benchmark Minerals, we recently increased our long-term lithium hydroxide contract price estimate to US\$17,000/t (was US\$14,500/t) with related 6% battery-grade spodumene concentrate at US\$950/t (was US\$750/t). Prices as reflected by the spot market are expected to be higher over the course of 2022 but should settle out over the medium term.

### Exhibit 15. Lithium Carbonate and Hydroxide Spot Prices Surge

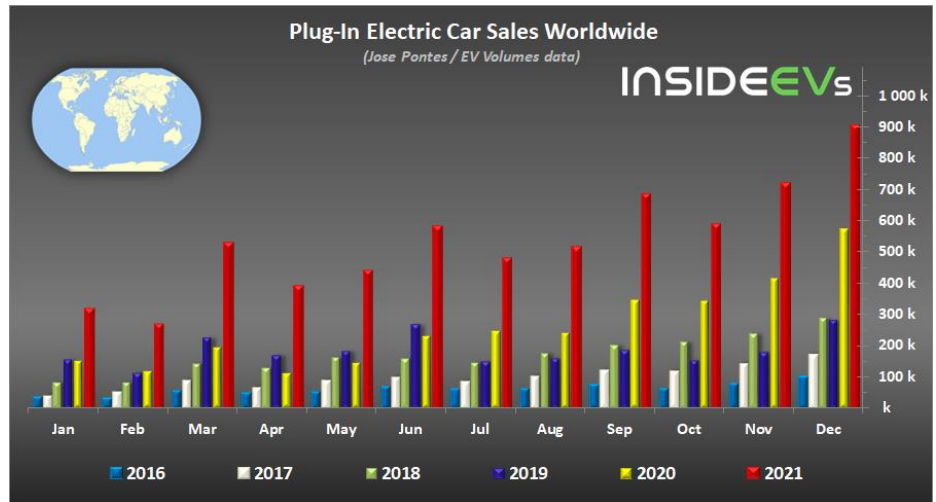


Source: Asian Metal

**EV Demand Accelerating:** In 2021, EV sales more than doubled to 6.5 MM new passenger vehicles from 3.1 MM in 2020. Market share of new sales has now climbed to over 8%. Tesla continues to dominate sales with the Model 3 and Model Y followed by Chinese producers BYD and Wuling. However, European brands as a whole (VW, BMW, Mercedes Benz, Audi and Volvo) outstrip Tesla reflecting the strong push in Europe for EV adoption.

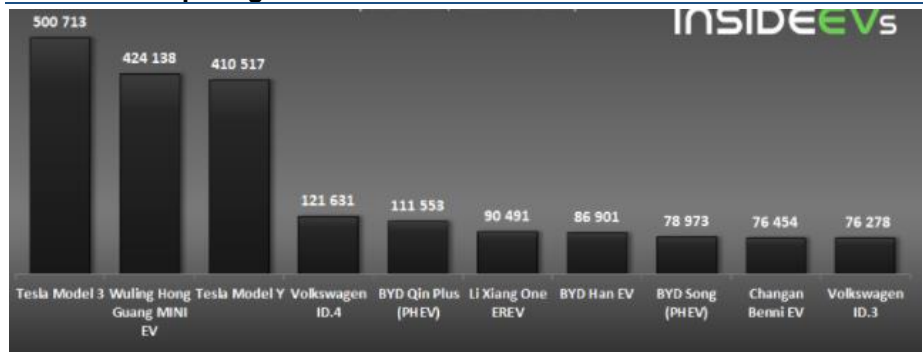


**Exhibit 16. Trailing Plug-In Electric Car Sales - Worldwide**



Source: Insideevs.com

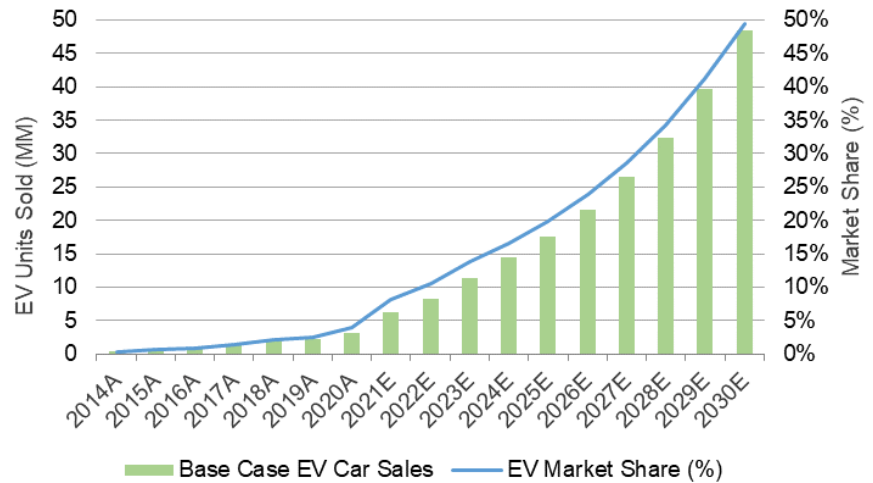
**Exhibit 17. Top Plug-In Car Brand Sales Worldwide**



Source: Insideevs.com

At this rate demand could easily see 50% penetration by 2030 but limited refined supply of lithium and other battery metals may limit the uptake. However, this imbalance should support strong pricing for longer and to compensate, automakers will continue to change battery choices as required (the recent premium of lithium carbonate over lithium hydroxide reflects increased usage of the cheaper LFP battery chemistry as higher nickel and cobalt prices and supply constraints have pushed up costs for longer range NCM batteries which use lithium hydroxide). As we’ve noted before, while plenty of new lithium supply has been identified (the USGS sees global resources to date at over 90 MMt of LCE), getting it into production in a timely manner to satisfy demand continues to be a challenge. But supply is growing. 2021 saw expansions at senior producers Albemarle (ALB-NYSE, not covered), SQM (SQM-NYSE, not covered) and Pilbara (PLS-ASX, not covered) and 2022 will bring some relief with several new projects coming onstream including Lithium Americas’ (LAC-NYSE, not covered) Cauchari-Olaroz project (brine) in Argentina and Sigma Lithium’s (SGML-TSXv, not covered) Grota do Cirilo project (mineral) in Brazil. By late 2022 or early 2023 Argosy Minerals’ (AGY-ASX, not covered) Rincon project (brine) in Argentina and Core Lithium’s Finnis project (mineral) in Australia’s Northern Territory should start up.

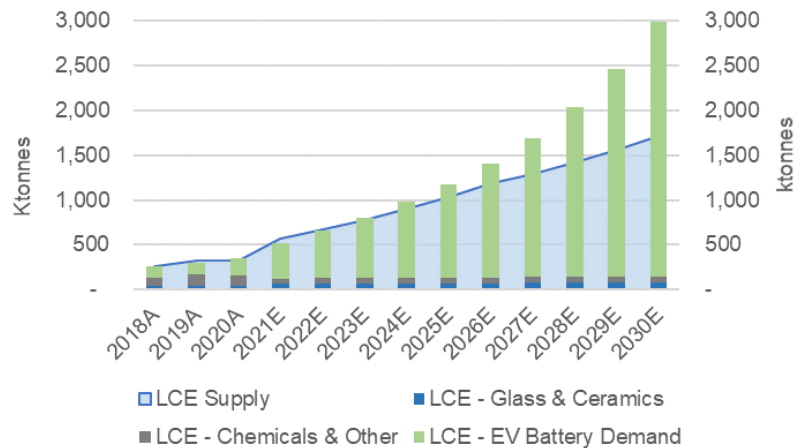
**Exhibit 18. Electric Vehicle Penetration – Set to Soar**



Source: Cantor Estimates based on EV Volumes, Tesla Inc.

Scheduled pipeline capacity can meet modest demand growth over the medium-term but COVID and other potential shocks may still negatively impact development timelines and the financing and commissioning of new lithium projects. As such, lithium supply should remain tight going forward. From a 2020 production base of about 410 kt LCE, production needs to rise to 3.0 MMt by 2030 to meet the rising demand from EVs.

**Exhibit 19. Lithium Supply-Demand Forecast**



Source: Cantor Fitzgerald, Roskill

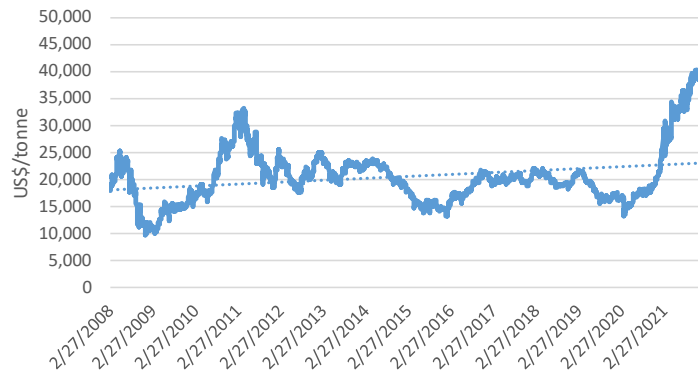
**Long-Term Price Estimates:** Based on the expectation of a tighter market over the longer term, our long-term lithium hydroxide contract price estimate is US\$17,000/t with related SC6 spodumene concentrate at US\$950/t. Prices as

reflected by the spot market are expected to be higher over the course of 2022 and 2023 but should settle out over the medium term.

**TIN MARKET ALSO STRONG**

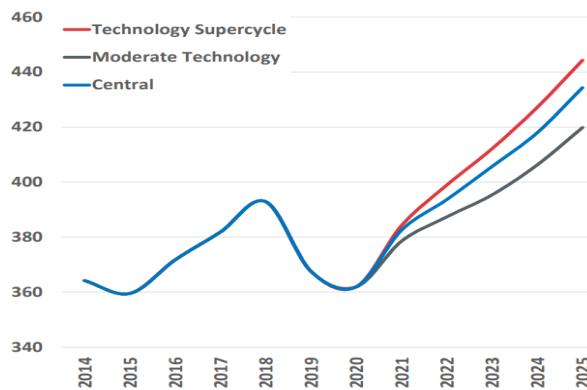
Tin (Sn) prices have surged along with other battery metals as its usage, primarily in electronics as solder. Covid-related increase in home electronics purchase and supply chain issues have driven the spike in prices. However, tin also figures heavily into the energy transition as a major input into solar panels with about 75t of tin used per gigawatt of new capacity. Tin is also used throughout the associated infrastructure, including stationary batteries and power management systems. This is driving a tin supercycle that sees the long-term growth rising from 2% annually to 3-4% going forward. The Tin institute sees 20kt – 40kt of additional production by 2025 but this is not committed. So while supply is loosening up in the near-term and prices are expected to come down from current highs of US\$45,000/t, supply will remain tight over the longer term supporting elevated long-term prices. We apply a US\$25,000/t long term price estimate.

**Exhibit 20. Tin Price History**



Source: Cantor Fitzgerald, FactSet

**Exhibit 21. Tin Demand Growth (000t)**



Source: International Tin Association

**AVZ Minerals Ltd.**

Rating	BUY	Basic Shares (MM)	3,452.1	Cantor Fitzgerald
Target Price	\$1.00	Diluted Shares (ITM / FD) (MM)	3,528.7	Matthew O'Keefe
Share Price	\$0.79	Basic Mkt Cap (\$MM)	2,727.1	416-849-5004
Potential Return	27%	Enterprise Value (\$MM)	2,628.2	matthew.o'keefe@cantor.com

**BALANCE SHEET**

A\$MM, Jun30.YE	2021A	2022E	2023E	2024E	2025E
<b>Assets</b>					
Cash	2.5	339.8	30.5	53.4	345.7
Other Current Assets	0.4	0.4	0.4	0.4	0.4
Total Current Assets	2.9	340.2	30.8	53.8	346.1
Non-current Assets	91.3	120.9	876.4	926.9	961.2
Total Assets	94.2	461.1	907.3	980.7	1,307.3
<b>Liabilities</b>					
Current Liabilities	7.3	7.3	7.3	7.3	7.3
Long Term Debt	-	-	472.2	472.2	472.2
Other Liabilities	-	-	2.4	2.4	2.4
Total Liabilities	7.3	7.3	481.9	481.9	481.9
<b>Shareholder Equity</b>	<b>76</b>	<b>443</b>	<b>415</b>	<b>488</b>	<b>815</b>
Non-controlling interest	10.5	10.5	10.5	10.5	10.5

**INCOME STATEMENT**

A\$MM, Jun30.YE	2021A	2022E	2023E	2024E	2025E
Total Revenue	-	-	-	377.8	1,186.2
Operating Costs	-	-	-	(93.9)	(313.8)
Depreciation	-	-	-	(6.3)	(22.3)
G&A	(5.0)	(4.8)	(4.8)	(4.8)	(4.8)
Interest Expense	(0.0)	-	(23.6)	(47.2)	(47.2)
Other	(0.5)	-	-	(36.5)	(122.0)
EBT	(5.5)	(4.8)	(28.4)	189.1	676.1
Taxes	-	-	-	115.7	349.5
<b>Net Income (Reported)</b>	<b>(13.1)</b>	<b>(4.8)</b>	<b>(28.4)</b>	<b>73.4</b>	<b>326.6</b>
<b>Net Income (Adjusted)</b>	<b>(13.1)</b>	<b>(4.8)</b>	<b>(28.4)</b>	<b>73.4</b>	<b>326.6</b>
EPS (Adjusted) (\$/sh)	\$(0.00)	\$(0.00)	\$(0.01)	\$0.06	\$0.20
Average shares (MM)	2,871	3,364	3,364	3,364	3,364
<b>EBITDA</b>	<b>(12.7)</b>	<b>(4.8)</b>	<b>(4.8)</b>	<b>236.3</b>	<b>723.3</b>

**CASH FLOW STATEMENT**

C\$MM, Jun30.YE	2021A	2022E	2023E	2024E	2025E
<b>Cash Flow from Operations</b>					
Net Income	(13)	(5)	(28)	73	326.6
Non-Cash Items	0.2	-	-	-	-
WC changes	(0.2)	-	-	-	-
<b>Total CF Operations</b>	<b>(1.5)</b>	<b>(4.8)</b>	<b>(28.4)</b>	<b>79.6</b>	<b>348.9</b>
CF Operations(\$/sh)	\$(0.00)	\$(0.00)	\$(0.01)	\$0.02	\$0.10
<b>Cash Flow from Investing</b>					
Capital Expenditures	(0.1)	(0.1)	(755.6)	(56.7)	(56.7)
Other Investments	(12.6)	(27.0)	-	-	-
<b>Total CF Investing</b>	<b>(12.7)</b>	<b>(27.1)</b>	<b>(755.6)</b>	<b>(56.7)</b>	<b>(56.7)</b>
<b>Cash Flow from Financing</b>					
Debt Financing	-	-	472.2	-	-
Equity Financing	3.1	40.0	-	-	-
Options & Warrants	-	0.2	-	-	-
Financing Costs	(0.1)	331.5	-	-	-
<b>Total CF Financing</b>	<b>3.0</b>	<b>371.7</b>	<b>472.2</b>	<b>-</b>	<b>-</b>
<b>Change In Cash</b>	<b>(11.7)</b>	<b>339.7</b>	<b>(311.7)</b>	<b>23.0</b>	<b>292.3</b>
Free Cash Flow	(1.6)	(4.9)	(784.0)	23.0	292.3

**VALUATION DATA**

	2021A	2022E	2023E	2024E	2025E
P/E	NM	NM	NM	14.1x	3.9x
P/CF	NM	NM	NM	33.4x	7.6x
P/NAV	-	0.8x	-	-	-
EV/EBITDA	NM	NM	NM	11.1x	3.6x
FCF Yield	NM	NM	NM	0.0x	11%
Dividend Yield	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Consensus data - Factset, Historical Data - Company Filings, Forecasts/estimates - Cantor Fitzgerald Canada

**RESOURCE BREAKDOWN**

Project	Category	Tonnes Mt	Grade %	Li Metal 000t	LCE 000t
Manono	P&P	131.7	1.63	2,140	5,290
	M&I	274.0	1.66	4,541	11,230
	Inferred	128.0	1.65	2,112	5,223
	M&I+Inf	402.0	1.65	6,653	16,453

**OPERATING STATISTICS**

Year (fiscal)		2021A	2022E	2023E	2024E	2025E
<b>Production</b>						
SC6	(t)	-	-	-	449,973	1,530,000
<b>Sales</b>						
SC6	(t)	-	-	-	371,673	1,334,250
Lithium Sulphate	(t)	-	-	-	18,000	45,000
<b>Costs</b>						
SC6	(\$/t)	-	-	-	322	367
Lithium Sulphate	(\$/t)	-	-	-	1,830	1,830

**PROJECT SUMMARY - 100% Basis (Cantor Model)**

**Manono Project**

**Resource**

Category	P&P
Reserves (Mt)	131.7
Li content % Li2O	1.63

**Operation**


First Production	2024
LOM (yrs)	22
SC6 (MMt/yr)	2.04
Lithium Sulphate (t/yr)	76,333
SC6 Unit Cost (US\$/t)	388
PMS Unit Cost (US\$/t)	2,406

**Capital**

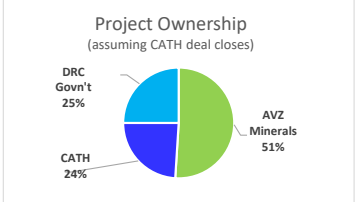
Upfront (US\$MM)	850
Expansion 1 (US\$MM)	200
Expansion 2 (US\$MM)	0
Sustaining (US\$MM)	188
Total (LOM) (US\$MM)	1,238

**Economics**

LT SC6 Price (US\$/t)	950
LT PLS (US\$/t)	7,848
NPV8% (US\$MM)	7,430
NPV10% (US\$MM)	4,968
IRR	58.2%



**Project Ownership**  
(assuming CATH deal closes)



**NET ASSET VALUE**

Asset	Valuation (NAV (\$M))	\$/Share	Target Price Breakdown			
			NAV Valuation	Per share	Multiple	Value
<b>Manono</b>						
Mine & Plant	DCF10%	2,105	\$0.85	Minesite \$0.85	1.0x	\$0.85
Exploration Upside		400	\$0.16	Financial -\$0.01	1.0x	-\$0.01
<b>Total Mining Assets</b>		<b>2,505</b>	<b>\$1.01</b>	<b>Total \$0.84</b>		<b>\$0.84</b>
Pro-forma Cash		427	\$0.12	EV/EBITDA (2024e)	8.0x	\$0.54
Pro-forma Debt		(472)	-\$0.14	<b>Target Weightings</b>		
				NAV	100%	\$0.84
<b>Net Financial Assets</b>		<b>(32)</b>	<b>-\$0.01</b>	EV/EBITDA	0%	\$0.00
<b>Total</b>		<b>\$2,473</b>	<b>\$1.00</b>	<b>TARGET PRICE</b>		<b>\$0.80</b>

**INPUT PRICES**

	2021A	2022E	2023E	2024E	2025E
<b>Key Commodities</b>					
SC 6	-	1,676	1,453	950	950
Lithium Sulphate	-	13,849	12,000	7,848	7,848
<b>Key Currencies</b>					
AUD:USD	-	0.72	0.72	0.72	0.72



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