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Aldoro Resources Limited (ASX:ARN)
'Clean energy metals portfolio more than meets the eye: Uncovering Lithium and world-class Rubidium grades at Niobe'

Introduction

This informational note follows the first piece published in July 2021

In July 2021, TEP Investments initiated coverage of ARN, focusing on the flagship Ni-Cu-PGE Narndee Windimurra Complex. The Narndee Igneous Complex is a globally significant, large layered mafic-ultramafic complex covering approximately 700km^2. Historic exploration on this tenement was constrained due to its focused on PGM mineralisation using a Bushveld model, despite historic drill results finding good indications of Ni-Cu sulphide mineralisation. **As the largest layered mafic-ultramafic complex in Australia (and the second largest globally), massive potential exists for the discovery of a company making deposit with progress ongoing.**

Drilling so far at Narndee on the first two (of over a dozen) targets have already hit 'massive sulphides'

Since research coverage was initiated, all 4 drillholes of the VC1 target have intersected 'massive sulphides'[1], and encouraging early drill results of VC11 have emerged, with drilling ongoing. The first diamond hole NDD0001, testing the VC1 target at the Narndee Igneous Complex, NDD0001, intersected significant zones of massive, semi-massive, blebby, and veined nickel-copper sulphides, in what was the first hole drilled in the area in nearly a decade. **The second drillhole, NDD0002, intersected approximately 3.6m of massive sulphide (two zones), 0.5m of semi-massive sulphide (one zone), and 6.9m of veined, blebby, and breccia sulphide (two zones), with the share price reaching a peak of $0.62 on the 12th of August**. Following this, NDD0003 intersected approximately 1.9m of massive sulphide and NDD0004 intersected 0.9m of massive sulphide, and several broad zones of disseminated and blebby sulphides totalling 124.9m.

More recently, on the 18th of October, NDD0010 and NDD0011 were drilled at the VC11 target, with a zone of disseminated, semi-massive, and breccia nickel-copper sulphide intersected from 139.6m to 140.2m downhole at NDD0010. **The presence of nickel-copper magmatic sulphides confirms the VC11 area to be highly prospective[2].**

Ongoing drilling continues: The drill rig has now mobilised back to the VC1 target to drill test off-hole DHTEM responses generated from recent surveying. Moreover, 3 off-hole and extension drillholes are planned at VC1, followed by VC11 targets. Thereafter, the rig will move to the deep stratigraphic hole located between VC3 and VC11.

Flying under the radar: Lithium & Rubidium serves as the key focus on this informational report

While investors have been focused on the nickel story, major progress is being made with ARN's recently secured lithium and rubidium tenements (Wyemandoo & Niobe acquisition) – Li and Rb is thus the exclusive focus of this latest informational note. Herein, the investment case for ARN's Li & Rb deposits is discussed alongside a valuation analysis, company description, industry overview and risks.

[1] 'Massive' defined as a greater than 80% sulphide, 'Semi-Massive' defined as 40% to 80% sulphide

[2] NDD0014 intersected 3.74m of massive sulphide mineralisation in a single interval (8th Nov 2021 ASX announcement)

Contents

Section 1: Company Description

Early years and the pivot towards battery metals

In August 2018, ARN listed on the ASX with an offer of 22,500,000 shares at an issue price of $0.20 per share, for a market capitalisation of circa $7 million, raising $4,500,000. The aim for the company at this stage was to bring together 3 Western Australian tenements – Ryan's Find Project, Leinster Project and the Cathedrals and Kalgarin Projects – all with significant exploration potential. These projects comprised over 1100km^2 of granted tenure which are prospective for either, or both, nickel-cobalt mineralisation in weathered lithologies or nickel sulphide mineralisation.

Since then, the company executed on its key business objectives, namely, to focus on mineral exploration of resource opportunities that have the potential to deliver growth for shareholders and to **implement a growth strategy to seek out further exploration and acquisition opportunities.**

In line with this expansion strategy, in September 2019, the Company announced its intention to acquire 100% of Altilium Metals Limited to create a focused West Australian gold and nickel exploration company, which was completed in November following shareholder approval. **This acquisition was transformational for the company expanding Aldoro's existing portfolio to include the Narndee Project Area –** consisting of the Narndee Igneous Complex (Ni-Cu-PGM), and Kiabye Greenstone Belt (Au)**.**

In addition, this acquisition gave ARN control of the Penny South Gold Project (contiguous with the Penny West Gold Project owned by Spectrum Metals (ASX:SPX)) and the Windimurra Igneous Complex (Ni-Cu-PGM, Li) – where lithium bearing pegmatites have recently been identified.

Figure 1: ARN's WA Portfolio of Flagship Assets: Narndee, Windimurra & Niobe (near Leinster) & recently spun-out gold assets (Penny South Gold Project, the Ryan's Find Project and the Unaly Hill South Project)

Lithium assets could be a 'company maker' and deepen the battery metals focus of ARN

Alongside nickel, lithium is one of the major winners of the green metal revolution and ARN's acquisition of Altilium Metals Limited also granted ARN prospective lithium tenements. The Windimurra Igneous Complex (adjacent to the Narndee complex) (applications E58/518 and E58/519) cover approximately 420km^2 of the Igneous Complex. **Recent field work and geological mapping interpretation by Altilium identified over 20 pegmatites at the edge of the Windimurra Complex, that are considered prospective for lithium mineralisation.**

On the 7th of July 2021, Aldoro expanded its Windimurra lithium pegmatite footprint via the acquisition of the adjacent Wyemandoo Project to Aldoro Licence E59/2431 and Niobe tantalum-lithium project both

located in the Mt Magnet region. The projects are rich in LCT type pegmatites with high lithium, caesium, tantalum and tungsten with rock chip lithium oxide grades of up to 2.6% Li2O, tantalum oxide grades up to 5610ppm and 16.5% of tungsten oxide. **Mr Mark Mitchell, a geological consultant to Aldoro Resources has also joined Aldoro's technical team. Mr Mitchell is a Registered Professional Geoscientist with the Australian Institute of Geoscientists.**

Niobe on-track to become a world-class Rubidium (Rb) resource, relevant for a clean energy future

Aldoro is also currently exploring the Niobe rubidium/lithium/tantalum project; the company is encouraged by the very high grades of rubidium and the at surface deposit which extends over multiple kilometres. **On the 27th of August, Aldoro announced that it has defined an initial exploration target of approximately 33,000-150,000 tonnes at grades ranging 696-1457ppm Rubidium Oxide (Rb_2O) over an area bound by 80m by 65m of detailed drilling**.

These results are based on historical (1984-1986) drilling by Pancontinental Mining Limited. Tantalum was mined in 1996 with 20t of Tantalum heavy mineral concentrate produced onsite from a small shallow pit with the tailings left onsite and the Rubidium appears to be in the micas pertaining to the Zinnwaldite. Importantly, the drill geochemical assays show that there is no association between Ta and Li/Rb/Cs so it is implied that the majority of the exploration target remains onsite.

Early indications suggest that this deposit is 'world-class' and in-line with the size and grades of the world's current largest Rb deposit – the Tiantangshan Rb deposit, which was discovered in Guangdong province in 2019. It has been reported that the Tiantangshan Rubidium deposit (with a resource of Rb_2O over 100,000 tonnes at an average grade of 0.109% Rb_2O), is the biggest Rb deposit in the world by the Mining Association of Guangdong Province of China. In addition, on the 8th May 2019, the Guangdong Provincial Government announced that the Provincial Government will invest multibillion RMB to exploit this Rb project in the next five years.

> *"It seems that the potential resources of the Niobe Rb project of Aldoro Resources Limited may be in the same order with the Tiantongshan Rb deposit with analyses of Rb_2O>1.5% and is associated with other valuable elements, such as Lithium, Caesium and Tantalum."*
>
> *– Joshua Letcher, Chairman (August 2021, ASX Release)*

Understanding of rubidium and its potential applications is obscured by minimal public verifiable data and a lack of awareness by investors. Therefore, it is possible that the rubidium opportunity is being overlooked by ASX investors. Herein, in section 2, an overview of the rubidium market is presented and its current and emerging applications in specialty glasses (such as fibre optic cables), chemical & electronic applications, solar panels, quantum computing and sodium-ion batteries.

Gold spinoff now complete

Lastly, Aldoro has recently divested its portfolio of gold assets via a spin out of the Penny South Gold Project, the Ryan's Find Project and the Unaly Hill South Project through the listing on the ASX of its wholly owned subsidiary, Aurum Resources Limited (ASX:AUE). Aldoro continues to be a substantial shareholder of Aurum.

ANR's management have experience taking exploration targets through to early production

With the board and management team holding approximately 7% of all shares on issue, company insiders have significant skin in the game. The board is led

by non-executive chairman Mr Joshua Letcher, alongside Mr Troy Flannery and Mr Lincoln Ho.

Joshua has experience working in various operational and technical roles within the African and Australian mining industry. He was the founder of Allotropes Diamonds Pty Ltd and was responsible for its acquisition by Newfield Resources Ltd (ASX: NWF). As CEO of Allotropes, Josh was responsible for the development of the project from exploration to trial mining. The roles in that capacity included project management, plant construction and commissioning, exploration management and asset acquisition. Joshua has served in the Royal Australian Navy and trained as a Mechanical Engineer.

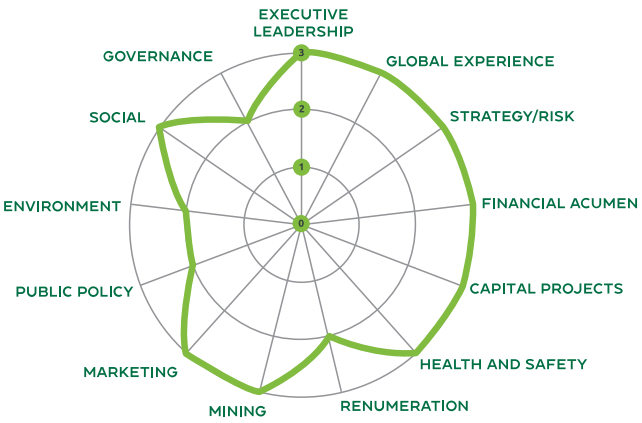

Figure 2: Skill Matrix for Mr Joshua Letcher as publicly provided by ARN (Source: ARN Website)

Mr Flannery has more than 23 years' experience in the mining industry, including 7 years in corporate and 16 years in senior mining engineering & project development roles. He has a degree in Mining Engineering, Masters in Finance & First Class Mine Managers Certificate of Competency. Up until September 2021, Troy was the CEO of Abra Mining Pty Ltd, the corporate vehicle for the Galena Mining Ltd (ASX:G1A) & Toho Zinc Joint Venture. He has worked at numerous mining companies, mining consultancies & contractors including BHP, Newcrest, Xstrata, St Barbara Mines & AMC Consultants.

Mr Lincoln Ho has over a decade's experience in equities trading, with a strong focus on due diligence investigations, mergers & acquisitions and corporate restructuring in the emerging companies sector. He also has specific investor relations experience in both Australia and Asia, having liaised with significant high net-worth investors based in Hong Kong, Singapore and China. Lincoln currently serves as non-executive director of Red Mountain Mining Limited (ASX: RMX). He previously served as non-executive director of Pure Minerals Limited (ASX: PM1) and Sultan Resources Limited (ASX: SLZ). Lincoln also currently serves as director of the Pioneer Development Fund (Aust) Limited, the largest shareholder in ARN.

The team is confident of attaining company defining results at the flagship Ni-Cu-PGE Narndee project, the Windimurra and Wyemandoo Lithium project, and at the Niobe rare metals tenement with world-class Rubidium potential. **Ultimately, this optionality presents ARN with a strengthened chance to progress their long-term vision of building a significant clean energy metals company with a portfolio of nickel, lithium, rubidium and/or PGEs.**

Lastly, it is worth noting that all members of the management team continue to support ARN with capital commitments. During the Sept 2021 quarter, the Company conducted a placement of 6 million shares priced at $0.40 to raise $2.4 million before costs. Mr Letcher subscribed to $70K AUD, Mr Ho subscribed to $20K AUD and Mr Flannery subscribed to $40K AUD, with the placement undertaken at $0.40/share. This can be objectively seen as a positive indication that the management team and company insiders are confident of ongoing success at Aldoro Resources Limited (ASX:ARN).

Section 2: Industry Overview of Lithium & Rubidium

Rubidium: impressive growth in demand and important emerging applications in clean energy

Overview

In 1861, Robert Bunsen and Gustav Kirchhoff first discovered Rubidium at the University of Heidelberg in Germany in the mineral lepidolite through flame spectroscopy. Yet, it was not until 1928 that a sample of pure rubidium metal was eventually produced. **Despite its relative anonymity, rubidium compounds have a range of highly promising chemical & photoelectric applications due to its unique properties**: Rb metal is easily vaporized and has a convenient spectral absorption range and Rb crystals have very active free electrons, thus it has useful electrical conductivity and thermal conductivity.

Demand

Rubidium's current global demand is estimated at circa 200 tonnes per annum (at +90% purity) sourced from an estimated 180,000 tons of ore (at 0.1% purity) per annum (Source: Mordor Intelligence Analysis). Although the rubidium market is very small in terms of volumes/tonnage and relatively hidden, the market is currently constrained by limited supply. This, combined with nascent (but fast growing) applications, suggests significant growth and upside potential exists for Rb in the coming decades.

Based on existing uses of rubidium, the market is expected to experience growth of 22% through to 2026 (4%+ p.a.) (Source: Mordor Intelligence Analysis). This growth is primarily based on existing applications in biomedical research (use as a bio-marker and blood-flow tracer for the detection of Coronary Heart Disease (CAD) and the detection of brain tumours), electronics and specialty glass (fibre) for enabling 4G and 5G networks due to the electrical conductivity properties of rubidium carbonate (Rb_2CO_3).

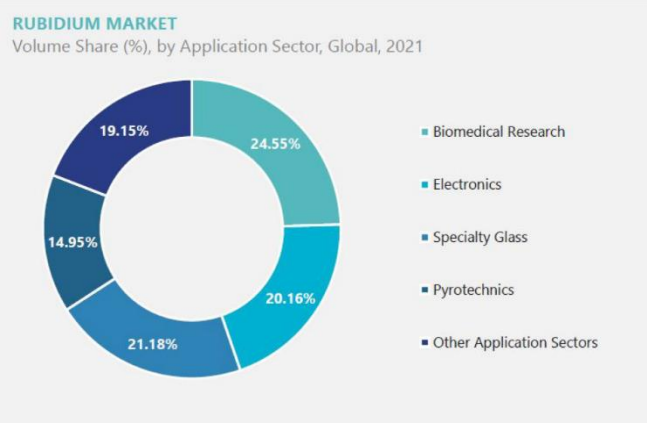

Figure 3: Global Rubidium Market By Application Sector (2021) (Source: Mordor Intelligence)

Research suggests that it is possible that actual growth across the next decade in rubidium will exceed forecasts due to a plethora of important emerging applications. For example, Rb is currently being investigated at the R&D stage for use in rubidium-based thin-film solar cell materials and thermoelectric materials. The development of thin-film solar is expected to be a major advancement enabling future cities where each building acts as a distributed photovoltaic power station. Based on the existing silicon-based solar market the potential market prospects of Rb-based thin film solar cell materials could exceed $1.5b USD in the future. **In addition, the use of Rb-compounds as a power generation material (conductor) in a magnetic fluid generator (nuclear power) was found to increase thermal efficiency from 35% to 70% (Source: Mining Exchange).**

Moreover, although Rubidium is not at present used to any great extent in battery technology, Rb-doped high-rate lithium battery cathode materials were recently found to increase the recharging capacity and the discharging speed of batteries. **In addition, rubidium and caesium ions are being studied as**

electrolyte additives for sodium-ion batteries.[3] If sodium-ion batteries were to take market share from traditional lithium-ion batteries, the demand for Rb is likely to increase further due to improve ionic conductivity and stability in sodium ion electrolyte. Rb therefore provides a hedge of sorts for covering both of the promising forms of battery compositions that are in existing use and in development stage respectively: lithium-ion and sodium-ion batteries.

Supply

Since Rubidium is a typical dispersing element, so far, no pure rubidium mineral has been found. Yet, Rb is found in a variety of rubidium-bearing resources primarily: lepidolite (main mineral source for extracting Rb), pollucite, biotite, granite pegmatite, natural carnallite, potash, geothermal water, salt lake brine and sea water (Table 1). According to the standards declared by the Ministry of Land and Resources in China, rubidium metal oxide reserves greater than 2,000 tons are classified as large deposits and the process for extraction can be similar to that used for caesium.

Table 1: Rubidium concentration in Rb-bearing resources/minerals (Source: Mining Exchange, 2017)

Minerals	Rubidium Concentration
Lepidolite	3.5% – 3.75%
Pollucite	1.5%
Potash Feldspar	3.0%
Muscovite	2.1%
Biotite	4.1%
Potassium salt	0.2%

Ex-China, the total global reserves of rubidium ore are estimated at 10.77 million tonnes in terms of Rb_2O, of which 170,000 tons of rubidium is found in rubidium mica (pegmatites), 10 million tonnes of Salt Lake brine, and 600,000 tonnes of carnallite (Table 2).[4] Rubidium resources are mainly concentrated in Canada, Afghanistan, Peru, and Zambia. In addition, a modest number of resources exist in brine, such as northern Chile, China, France, Germany, and the United States, most of which have not been industrialized. China is thought to be a material producer. However, it is presumed to consume at least as much as it produces domestically.

Table 2: Global estimated known reserves of Rb_2O ('000 tonnes) (Mining Exchange, 2017)

Mineral Types & Region[5]		Rb_2O in Lepidolite	Rb_2O in Pollucite	In Total
Pegmatite		167	3	170
1	Canada	10	2	12
2	United States	2	-	2
3	Brazil	1	-	1
4	Argentina & Bolivia	0.3	-	0.3
5	Zimbabwe	100	0.7	100.7
6	Namibia	50	0.3	50.3
7	Uganda, Mozambique	0.6	-	0.6
8	Zaire	0.3	-	0.3
9	India	0.7	-	0.7
10	Australia[6]	1	-	1
11	France	-	-	-
12	Switzerland	-	-	-
13	Portugal	1	-	1
Salt Lake Brine *(Dead Sea, Great Salt Lake etc)*				10,000
Carnallite *(Germany)*				600
In Total				**10,770**

Pricing

Rubidium pricing is relatively obscure; however, market commentary suggests it has been rising and is significantly higher than other comparable elements. The market price of 99.75% rubidium carbonate, the most widely used rubidium chemical, was around $57 USD for 10 grams in 2019 (i.e. $5,700 USD per kilogram) (Source: International Lithium Corp). Remarkably, this is in the order of more than 100x higher than the price for Lithium or Potassium

[3] Che et. al. (2017)

[4] Mining Exchange (2021)

[5] Excludes China due to a lack of verifiable data. However, it is estimated that the Tiantangshan rubidium deposit with resources of Rb_2O over 100,000 tonnes at the average grade 0.109% Rb2O, is the biggest rubidium deposit in the world

[6] Excludes Aldoro Resources rubidium resource

Carbonate of a similar battery grade. Pricing for >99% rubidium carbonate (Rb_2CO_3) was reported at circa $1,060 USD per kg as of May 2021, representing a circa 76x price ratio to Li_2CO_3 of 99.5% battery grade. (Table 3).

Current pricing is prohibitively expensive due to limited supply, and it is expected that future pricing for Rb may be offered at more economical levels if a secure large-scale source of supply could be guaranteed. However, even so, rubidium's overall crustal abundance of 32 ppm (by weight), suggests that in the long term (with unrestricted supply), a price in the region of around $100,000 USD/tonne ($100 USD/kg) could be supported for its most readily accessible derivative salt (Figure 4). **As a conservative baseline, even this pricing would be likely to sustain significant value creation to the large-scale rubidium producers, of which ARN would be well placed. This is further discussed in section 3, regarding valuations.**

Table 3: Comparative prices of Lithium, Rubidium and Caesium. Source: SMM (https://www.metal.com/), May 24, 2021.

Product	Price (USD)	Price Ratio to Li_2CO_3
Lithium Metal (Li≥99%)	$97,331/tonne ($97/kg)	
Lithium Carbonate (99.5% Battery Grade)	$13,971/tonne ($13.97/kg)	1
Caesium (Cs≥99.5%)	$109.89/g ($109,890/kg)	
Caesium Carbonate(Cs2CO3≥99%)	$133.44/kg	9.55
Rubidium (Rb≥99.5%)	**$125.60/g ($125,600/kg)**	
Rubidium Carbonate (Rb2CO3≥99%)	**$1,059.65/kg**	**75.9**

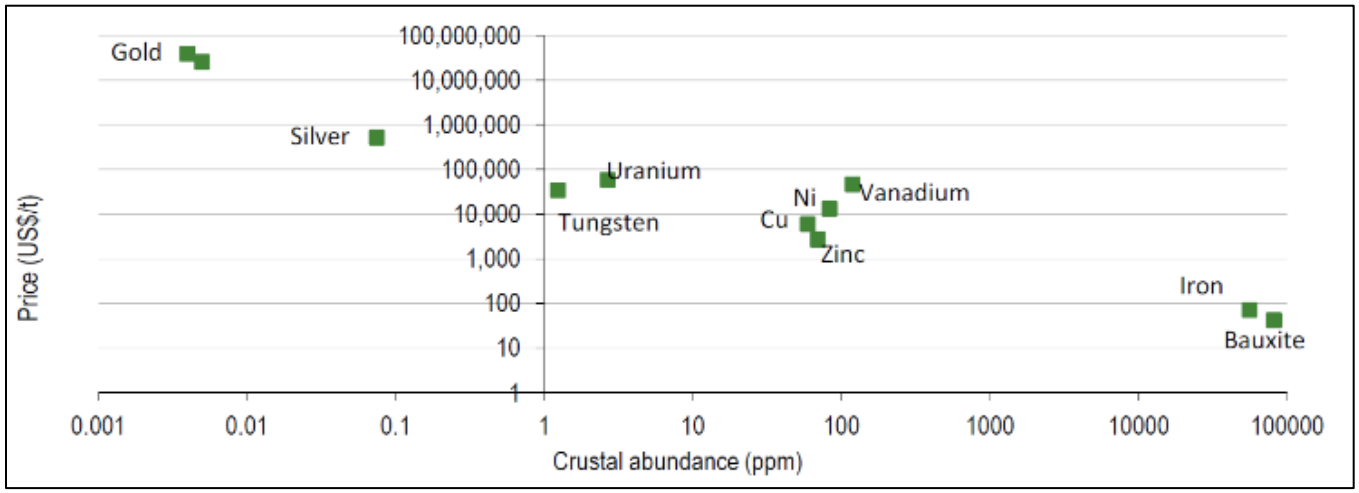

Figure 4: Price (US$/t) vs crustal abundance (ppm), selected minerals and metals (Source: Edison Investment Research)

Conclusion

Rubidium's position in 2021 may be akin to lithium over three decades ago. Although demand is currently minimal, the use of Rb in future energy systems (thin-film solar, sodium-ion batteries, nuclear) and other biomedical & electronic applications shows promise and consideration should be given by the industry *today* to the availability of rubidium resources to secure stable *future* supply. It is possible that the shift towards a new energy economy will continue to result in a massive increase in the number of new minerals and metals that are increasingly finding applications across multiple sectors: Rb may end up playing a pivotal role in this mix.

Lithium: entering an era of 'perpetual deficit'

Overview

Lithium resources occur in two distinct categories: lithium minerals, largely from the mineral spodumene (Li2O.Al2O3.4SiO2), and salts, largely from lithium-rich brines in salt lakes. Canada, China and Australia have significant resources of lithium minerals, while lithium brine is produced predominantly in Chile, followed by Argentina, China and the USA.

Demand & Supply

The global market for the alkali metal lithium is growing rapidly. Between 2008 and 2018 alone, annual production in the major producing countries (Chile, Australia, Argentina and China) rose from 25,400 to 85,000 tons. **This growth is expected to continue with the primary driver for lithium demand going forward linked to global sales of electric vehicles.** Bloomberg New Energy Finance foresees an inflection point in 2037, when EVs will account for more than 50 per cent of new vehicles sold (Figure 5).

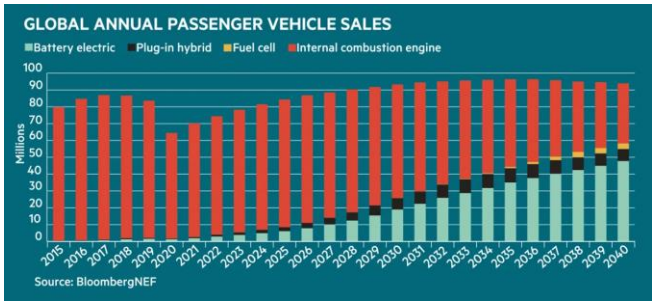

Figure 5: Bloomberg New Energy Finance (BNEF) global annual passenger vehicle sales forecast

Australia is by far the most important supplier of lithium – ahead of Chile (16,000 tons), China (8,000 tons) and Argentina (6,200 tons) (Source: US Geological Survey). All of Australia's current resources and production are from lithium minerals, chiefly spodumene, though other Li-bearing minerals such as lepidolite are also present. These mineral deposits typically have average grades of 1 to 3% Li_2O.

Due to increasing demand and a lethargic supply side, the lithium market is forecast to be in a state of "perpetual deficit", across the next decade by market commentators, such as Macquarie (Figure 6, below).

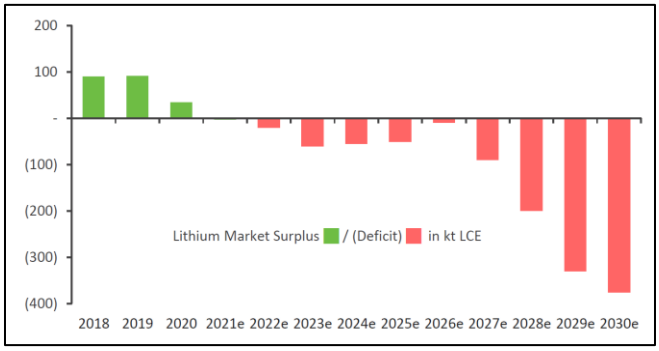

Figure 6: Lithium Chemical Market Balance (kt LCE)[7]

Pricing

Lithium prices are up strongly in 2021. **Fastmarkets are reporting spot sales at US$2,000 to $2,500/t**[8] **as of October 2021.** Other market commentators are forecasting price increases in the short to medium term. Macquarie Bank expects lithium prices to continue to rise, moving to an incentive price by CY24. Some new supply additions temporarily tighten the market in CY26, but beyond CY27 the supply deficit widens significantly, according to these forecasts.

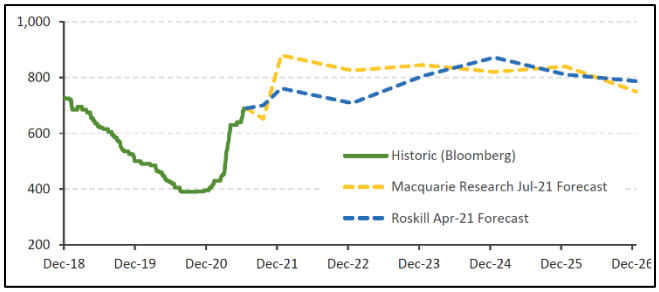

Figure 7: Spodumene Prices (US$/t, 6% Li_2O, CFR)[9]

[7] Source: Macquarie Li Market Update (July 2021)

[8] Fastmarkets Battery Raw Material Price Update (14 Oct 2021)

[9] Source: Bloomberg, Macquarie Market Update, Roskill Q2 Quarterly Lithium Price Deck (April 2021)

Section 3: Valuation Analysis

Shareholder register and structure

ARN are comfortably funded for the proposed drill program across all identified assets and have a highly attractive shareholder structure and low SOI – the foundations are thus in place for an ongoing share price rise *if* drill results continue to be favourable.

The major shareholders (The Pioneer Development Fund) have been early and significant backers of the company since IPO. The Pioneer Development Fund have also been early and major backers of Vulcan Lithium (ASX:VUL) and Rumble Resources (ASX:RTR). In addition, the Narndee asset vendors remain meaningful shareholders as opposed to selling once having received their vendor shares, as is often the case.

Table 4: Shareholder register and corporate structure (as of the closing prices on the 10th Nov 2021)

ASX Code	ASX:ARN
Share Price	$0.50
Shares on Issue	87.9M
Options	30.1M[10]
Market Capitalisation	$43.95M
Cash (30th September 2021)	$4.36M
Enterprise Value (EV)	$39.59M
Number of shareholders	1,273
Top 20 shareholders	46%[11]

Estimates of Niobe's Rubidium (sales) value to ARN could conservatively hit US$20m/annum

While it is still very nascent – and thus in its nature, relatively speculative – indications, to date, are that the elevated grades of rubidium (at Niobe in particular), could support economical production of rubidium oxide (Rb_2O). Based on the initial Exploration Target a potential resource of approximately 33,000-150,000 tonnes at grades ranging 696-1457ppm Rubidium Oxide (Rb_2O) over an area bound by 80m by 65m of detailed drilling (which represents less than half the mapped section of the Niobe pegmatite [Pegmatite No.1]) has been estimated. **Thus, the author estimates that an average volume of Rb_2O in the order of 20tpa may be possible[12], with a (sale) value up of US$20m per annum, assuming pricing of $1,000 USD/kg. This value is a material revenue stream alone, let alone when considered in conjunction with what appears to be an economical lithium resource.**

Assuming a life of mine steady state forecast for turnover of US$20m and a net profit margin of 10%, a very preliminary estimate of average post-tax profits of A$2.65m p.a. could be made in respect of Aldoro's potential development of the Niobe project for Rb. **Discounted at a rate of 10% per annum, the approximate value of this stream of profit to Aldoro (discounted, post-tax, assuming a mine life of 5 years) would be circa A$10m, or A$0.11/share alone (not considering anticipated future dilution). This would form a nice boost to the project economics of a**

[10] 20,878,474 ex 30c, 31st August 2023 expiry
2,000,000 ex 22.5c, 18th November 2022 expiry
2,500,000 ex 17.5c, 9th September 2023 expiry
4,800,000 ex 23.4c, 9th September 2023 expiry

[11] The Pioneer Development Fund (19%), Institutional (9%), Management and advisors (7%)

[12] At circa 20 tonnes per annum (at +90% purity) sourced from an estimated 18,000 tons of ore (at c. 0.1% purity) per annum (10% of current global demand)

combined Li-Rb operation and does not consider the possibility of material Li upside.

ARN announcements indicate the insitu value of the Wyemandoo lithium-bearing pegmatite loop may be significant

The Wyemandoo interpreted Pegmatite Fairway Corridor appears to be over 10km in length and up to 6km wide. In addition, lepidolite bearing rock samples have been confirmed over 9km of the strike length and up to 3km wide. The significance of the footprint of the Wyemandoo Field is comparable other lithium bearing pegmatites fields, such as Greenbushes (7x1km), Pilgangoora (>7x1km), Mt Marion (>6km), Cattlin Creek (1x1.5km), Kathleen Valley (1.5 x1km) and Wodgina (main 1x0.05km Field >2 x0.8km).

Sampling in and around the "Loop Pegmatite" and surrounds found over half the 22 samples analysed have >1% Li_2O (up to 2.6% Li_2O) and an average grade of 1.1% Li_2O, which is within the range of typical lithium economic grades. Rubidium assays are above those typically found in LCT pegmatites with an average of 0.94% with values up to 1.7%. Caesium values average 262ppm with values up to 542ppm.[13]

Rb assays at Wyemandoo are comparable with the highest JORC compliant Rb deposit, Lepidico's Karibib deposit published at 6.7Mt of ore grading 0.23%Rb, 0.46% Li_2O and 320ppm Caesium. Given the current price for Li concentrate containing 6% Li_2O is circa $2,100-$2,200/t (equivalent to $500/t @ 1.5% Li_2O) and assuming a price for Rb_2CO_3(99.5%) of $1.4M -$1.5M/t, if the mineralisation has an average grade of 1% Rb_2CO_3, the mineralisation has an insitu value of approximately $10,000/t (without considering the mining & processing recoveries).

The focus for the Wyemandoo Pegmatite Loop moving forward is extensive sampling of the "Loop Pegmatite" structure and surrounding areas which are located in the central corridor of the "Fairway Pegmatite Field". This area contains lepidolite micas with anomalous lithium and rubidium assays that highlight the potential of the area for mineralisation.

Valuations for ASX lithium companies by lifecycle stage demonstrate runway for growth

Although the company is still in the exploration phase, indications of economical lithium grades also suggest that the company is in a position to potentially move forward to the development (and eventually production) stage. Evaluating the Australian lithium landscape provides a view of the possible market cap ranges that have been achieved from market comparables at various stages of the lithium exploration, development and production lifecycle.

Lepidico (ASX:LPD) is a global lithium exploration and development company with offices in Perth and Toronto. LPD is primarily focused on the exploration, development and production of lithium chemicals and owns the technology to a metallurgical process that has successfully produced lithium carbonate from non-conventional sources, specifically lithium-rich mica minerals including lepidolite and zinnwaldite.

LPD provides a useful insight on Rubidium. LPD's Karibib deposit in Namibia is believed to be the world's only Code compliant estimate for the strategic alkali metals caesium and rubidium. The United States International Development Finance Corporation (DFC) has provided Lepidico with an indicative, non-binding term sheet in respect of debt funding for the Phase 1 Project in Namibia which would produce between 1400 – 1600 tonnes per annum of Rubidium sulphate production, providing for an initial 14-year LOM. This highlights the importance of the supply of specialty alkali metal chemicals, such as Rb, that are designated as Critical Minerals by the US Government. LPD currently trades at a market capitalisation of $326M AUD, up 430% YTD.

[13] ASX announcement, 27th Oct 2021

The ASX is home to a diverse set of world-class lithium companies who span the spectrum from *explorer* (concept, pre-discovery, and discovery phases) through to *development* (feasibility and funding), *construction* and *production*. T.E.P. Investments has assessed 34 listed entities to understand valuation trends by lifecycle stage.

Valuation of Selected ASX Lithium Companies Versus Lifecycle Stage[14]

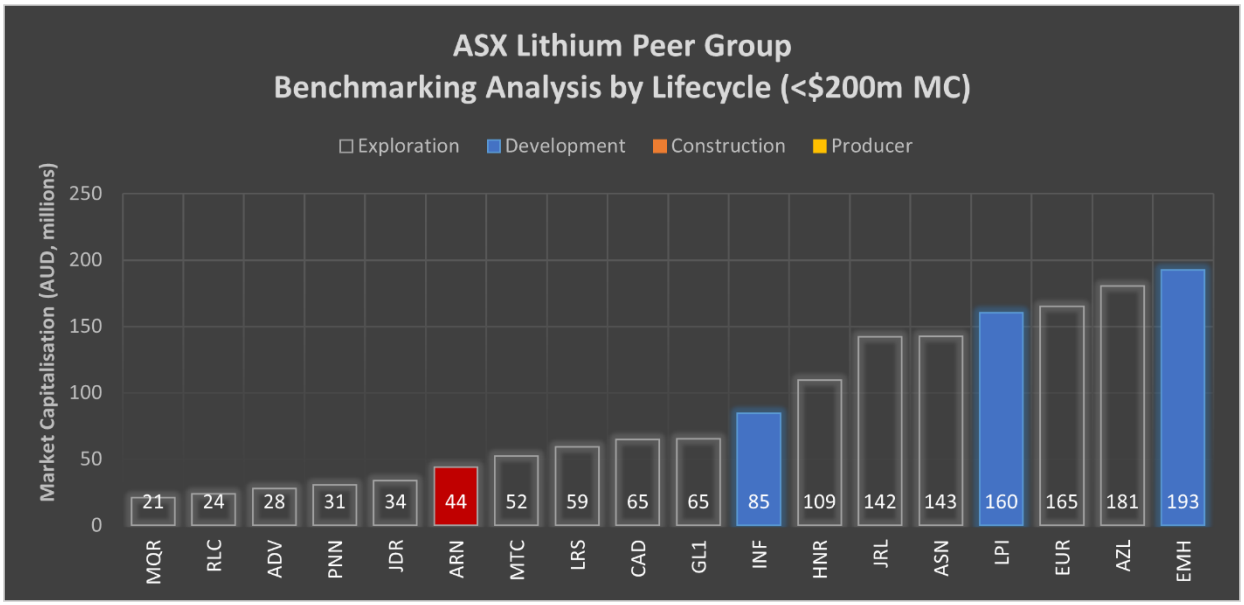

Figure 8: Peer Group Benchmarking Analysis of ASX-Listed Lithium Companies (<$200m MC)

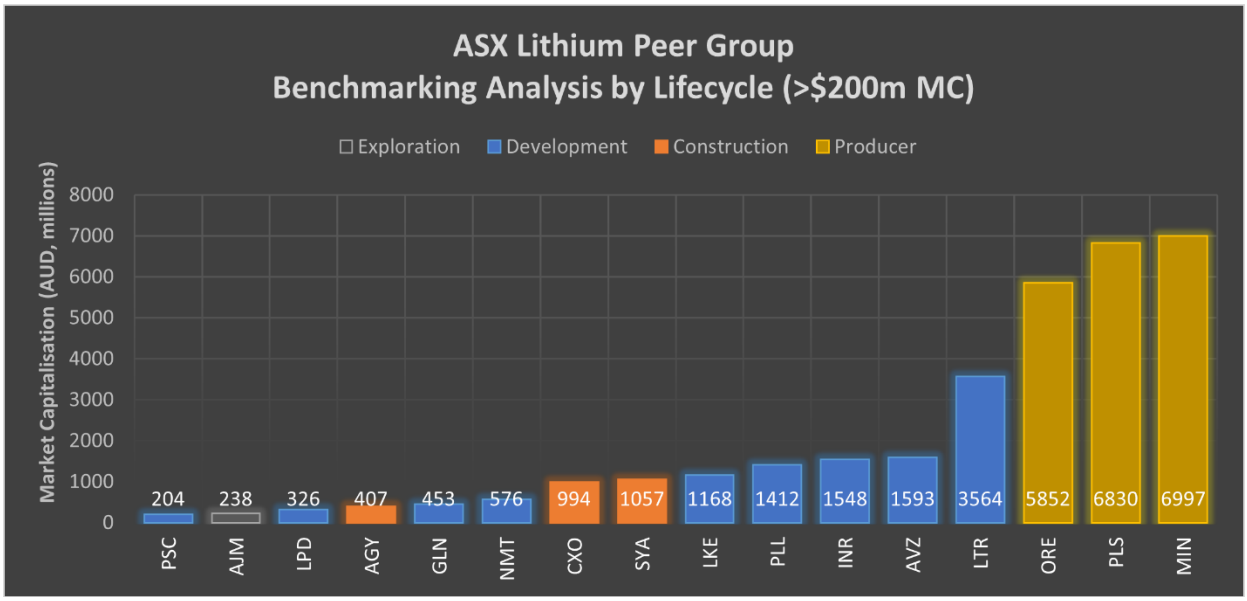

Figure 9: Peer Group Benchmarking Analysis of ASX-Listed Lithium Companies (>$200m MC)

[14] **Exploration phase** defined as encompassing the concept, pre-discovery and discovery stages and **development phase** defined as encompassing the feasibility and funding stages.

Section 4: Investment Case

Right time, right place for the Lithium industry

The commercialisation of the lithium-ion battery in the 1990s powered a 20-year surge in the telecommunications and computing industries with the development of light, rechargeable batteries. Today, the global shift to electric vehicles is powering another surge in demand for lithium-based battery metals to power the EV industry. As EV growth is set to accelerate, Deutsche Bank expects lithium demand to triple from current levels to 1mt LCE (lithium carbonate equivalent) by 2025 and 1.8mt LCE by 2030. **However, DB expect the supply pipeline to only yield 1.4mt LCE by the end of the decade, presenting a significant supply shortfall.**

The unique industry tailwinds for lithium (surging demand and increased investor interest) serves dual intertwined benefits for the ASX lithium sector. Firstly, companies are progressing through the feasibility and development stages at a rapid pace. In addition, increased investor attention has enabled the rapid rise in lithium sector valuations (Figure 8 and Figure 9) and this, in turn, serves to reinforce the ability of the sector to progress through the necessary financing and development milestones. **For example, development stage ASX lithium companies currently span from $85m valuations (ASX:INF) through to $3.5b valuations (ASX:LTR). Meanwhile, ASX:AGY, ASX:CXO and ASX:SYA are all currently in the construction phase (having passed feasibility studies and a FID) and trade at $407m, $994m and $1.06b market capitalisations, respectively.**

Although each of these companies have differing resource sizes, risks, resource grades, etc. they are a useful comparison point to gauge relative valuations by lifecycle. **ARN currently sits within the junior lithium explorer set with valuations ranging from sub $20 million to $240m (ASX:AJM).**[15]

Re-evaluation of historic data highlights world-class Rubidium potential of L-C-T pegmatites.

Evaluating the set of ASX-lithium players is neither here nor there if ARN is unable to discover an economical grade deposit; yet the Wyemandoo pegmatite corridor appears to have promising early results to suggest economical lithium potential. A site visit was conducted at Niobe to collect 46 rock chip samples from three localities, Pegmatite East, Pegmatite Southeast, and Breakaway, where preliminary pXRF readings confirmed encouraging Rubidium results (ASX announcement 21 September 2021). On this basis, the positions of 66 drill hole collars were sighted to increase the exploration target footprint. The Niobe prospect was drilled in the mid-1980's, allowing Aldoro to utilize these data to define an Exploration Target (JORC 2012) of 33,000-150,000 tonnes at a grade range of 696-1475 pp of Rubidium Oxide (Rb2O) (ASX announcement 27 August 2021). The Company noted that the Exploration Target metrics closely parallel those of the World's largest Rubidium deposit in the Guangdong Province of China. Drilling at Niobe commenced in late Sept/Oct, during which time, the Company also investigated the Lithium potential of the mapped pegmatites. In addition, the nearby Wyemandoo LCT pegmatites (E57/1017)

[15] Altura entered receivership in Oct 2020 (when lender support was withdrawn) and has now begun claiming its stake in a suite of lithium tenements in WA's Pilbara region as part of an earn-in arrangement with Sayona Mining (ASX:SYA). The Altura Lithium project was a producing asset (commenced operations in 2018) but transitioned to care and maintenance in late 2020. Thus, the company has been re-classified as an *explorer* as per the definitions of this report.

returned rock-chip results ranging up to 0.81-2.6% Lithium oxide, 5610 ppm tantalum oxide and 0.80% rubidium oxide (ASX announcements 07 July 2021; 28 September 2021).

The Rubidium potential of ARN may be overlooked

Investors may be overlooking the potential, added value and optionality that ARN's Niobe & Wyemandoo tenements present for Rubidium. As discussed in the *Industry Overview* section, Rb, whilst largely unheard of, has a range of promising existing and emerging applications in biomedical, quantum computing, thin-film solar, nuclear, lithium-ion and sodium-ion batteries. Based on existing uses of rubidium, the market is expected to experience growth of 22% through to 2026 (4%+ p.a.). Moreover, although rubidium pricing is relatively obscure; market commentary suggests it has been rising and is significantly higher than other comparable elements.

It is possible that rubidium is currently in a nascent stage, with the potential for strong demand to be unlocked if a stable, secure supply is found, much like a situation akin to Scandium (Sc). If ARN was to form a research or industrial partnership, analogous to the Guangdong Provincial Government's agreement with research institutes (regarding the Tiantangshan Rubidium deposit), the company could work hand in hand to with a strategic partner to grow new applications and form offtake agreements. This would provide a greater level of assurance to investors that Rb has potential as a long term revenue source alongside the more well-understood resources of Li and Ni.

An attractive shareholder structure and low SOI means that a re-rate could be swift

An extremely clean cap table also places ARN in an enviable position. With merely 87.9M shares on issue and 46% held by the Top 20, the company is positioned for a major re-rate should drilling be favourable.

Moreover, the shareholder register is an impressive who's who of ASX mining success stories, led by The Pioneer Development Fund (19%), Institutional (9%) and management and advisors (7%).

Pioneer Development Fund's involvement with a significant holding and representation on the board via Lincoln Ho is reminiscent of other major mining success stories including VUL and RTR.

The activity pipeline has strengthened with regular newsflow likely to continue

The initial surge in share price for a junior explorer is often driven by initial speculative and early investment encouraged by the prospective geology and encouraging drill results.

The start of a major drill campaign, as recently announced by the Company, also marks the start of a period of major newsflow as the company is obliged by disclosure requirements to update the market on drill results as they unfold. **ARN has entered a period of heightened newsflow and this is often a period of rising share price for companies as it presents not only the opportunity to highlight company defining discoveries, but also expands the audience and awareness of the company within the industry and beyond.**

In addition, when investing in junior explorer plays, awareness, newsflow and sentiment also plays a major role. The company is determined to ensure its voice is heard with a range of upcoming media opportunities planned across the remainder of the 2021 calendar year and across the first few months of CY2022.

Management and company insiders are confident, particularly with respect to Li & Rb

The involvement of experienced and successful global technical experts in the drilling campaign, is a positive for ARN.

On the 29th of March 2021, internationally renowned geologist Dr Minlu Fu joined the Aldoro team as technical advisor for the Narndee Nickel-PGE Project. Dr

Minlu Fu has an envious ASX track record given his successful technical involvement in the significant discoveries made by Los Ceros (ASX: LCL) and Tietto Minerals (ASX:TIE).

In addition to Dr Minlu Fu's technical involvement in the Narndee Nickel-PGE project, Dr Fu and associates committed to invest $2 million into Aldoro at $0.20 per share which is a significant show of faith into the Narndee Nickel-PGE Projects prospectivity and Aldoro's methodical de-risking efforts prior to drilling the largest mafic-ultramafic complex in Australia.

The team appears to have increased confidence that the portfolio of tenement options presented by ARN will yield company making results. The team is eager to explore the Li and Rb potential of Niobe and Wyemandoo, in particular.

Technical analysis: the long-term bullish uptrend continues

ARN appears to be in a strong bullish trend confirmed by multiple indicators. Specifically, a 5-day moving average of the stock price is above the 20 and 50-day moving averages. Additionally, a long-term bullish signal is offered by the 200-day moving average which is trending higher.

Table 5: ARN share price performance (as of 12th Nov 2021)

Timeframe	Performance
1 Week	+3.92%
1 Month	+32.50%
2021 YTD	+221.21%
1 Year	+307.69%
vs Sector (1yr)	+296.69%
vs ASX 200 (1yr)	+291.55%

Table 6: ARN share price activity (as of 12th Nov 2021)

Indicator	Value
ASX Rank	1,378 of 2,313
Sector Rank	364 of 815
Last (Price)	$0.53
Bid / Ask	$0.525 - $0.535
Volume (4w avg)	512,881

Table 7: ARN Technical Indicators (as of 12th Nov 2021)

Indicator	Value
52 Week High	0.67
52 Week Low	0.115
200-Day Moving Average	0.372
50-Day Moving Average	0.455
20-Day Moving Average	0.481
10-Day Moving Average	0.520
ADX	24.88
+DI	21.451
-DI	13.696
Upper Bollinger Bands	0.579
Lower Bollinger Band	0.383

ARN 9 month share price performance, MACD & volume

Figure 10: ARN share price chart, MACD & volume since Feb 2021

#Table 8: ARN Pivot Point Levels Based on Classic, Fibonacci, Denmark, Woodie and Camarilla Systems (as of the 12th Nov 2021)

Pivot Point Level	*Traditional / Classic*	*Fibonacci*	*Demark*	*Woodie*	*Camarilla*
Resistance 4 (R4)					0.575
Resistance 3 (R3)	0.575	0.555			0.565
Resistance 2 (R2)	0.555	0.540		0.555	0.562
Resistance 1 (R1)	0.535	0.530	0.545	0.535	0.558
Pivot Point	0.515	0.515	0.520	0.515	0.515
Support 1 (S1)	0.495	0.500	0.505	0.495	0.472
Support 2 (S2)	0.475	0.490		0.475	0.468
Support 3 (S3)	0.455	0.475			0.465
Support 4 (S4)					0.455

Section 5: Risk Factors

Shares in ARN remain speculative by nature until the company progresses into the development stage

Due to its position as a junior nickel/lithium/rare metals *explorer*, shares in ARN at this stage remain highly speculative with high risk and high reward. An investment in the company is not risk free and the following risk factors described below should be considered alongside the opportunities and potential upside on offer associated with an investment in the Company.

There are specific risks which relate directly to the Company's business. In addition, other general risks are also possible, many of which are largely beyond the control of the Company and the Directors. The risks identified in this section or other risk factors may have a material impact on the financial performance of the Company and the market price of the shares. The risks identified herein are not exhaustive and highlight a limited selection of the more pertinent risks faced by the company.

Early drilling results appear favourable, but there is no guarantee of an economic resource discovery

Potential investors should understand that mineral exploration and development are high-risk undertakings. There can be no assurance that future exploration of the Tenement, or any other mineral licences that may be acquired in the future, will result in the discovery of an economic resource. Even if an apparently viable resource is identified, there is no guarantee that it can be economically exploited.

The future exploration activities of the Company may be affected by a range of factors including geological conditions, limitations on activities due to seasonal weather patterns or adverse weather conditions, unanticipated operational and technical difficulties, difficulties in commissioning and operating plant and equipment, mechanical failure or plant breakdown, unanticipated metallurgical problems which may affect extraction costs, industrial and environmental accidents, industrial disputes, unexpected shortages and increases in the costs of consumables, spare parts, plant, equipment and staff, native title process, changing government regulations and many other factors beyond the control of the Company.

A CR may be required if a discovery is made that requires further exploration

The exploration costs of the Company are based on certain assumptions with respect to the method and timing of exploration. By their nature, these estimates and assumptions are subject to significant uncertainty, and accordingly, the actual costs may materially differ from the estimates and assumptions. Accordingly, no assurance can be given that the cost estimates and the underlying assumptions will be realised in practice, which may materially and adversely impact the Company's viability. **In addition, a successful discovery that leads to further exploration is likely to require additional funds, which would presumably be funded via a capital raise.**

Despite outsized demand for Li (future) producers cannot become complacent in their position

Although the industry dynamics for lithium remain (and are forecasted to be) extremely favourable over the upcoming decade, current or future producers shouldn't be complacent in their positions for the following reasons: 1) the most sustainable and large scale lithium producers will become the suppliers of choice and be viewed as less risky by customers and financers creating a hierarchy of supply, 2) country-specific regulation is increasing is increasing and will likely lead to restrictions and

higher production costs for producers that are less environmentally friendly, and 3) lithium will need to remain the most cost effective option to remain part of the EV growth algorithm over the long term. **To be clear, a viable alternative does not exist today, but significant investments in R&D across the coming years (in endeavours such as sodium-ion batteries) will likely reveal competing solutions across the coming years.**

Rubidium holds promise for new applications but is nascent, with obscure industry dynamics

Rubidium is currently characterised by unreliable supply, resulting in limited development of markets for rubidium oxide. Markets may take longer to develop than anticipated, and ARN, or other potential rubidium producers may have to wait for products and applications to create adequate demand. Certain applications may require lengthy certification processes that could delay usage or acceptance. In addition, certain rubidium applications require very high purity rubidium product, which is much more difficult to produce than lower grade product. If ARN commence Rb production, their ability or inability to supply Rb in sufficient quantities, in a reliable and timely manner and in the correct quantity could reduce the demand for any Rb produced from their projects and possibly render the project uneconomic. The above appears unlikely in the authors view but is an important risk, nonetheless.

In addition, there is no guarantee that Aldoro Resources will be able to finance any Niobe or Wyemandoo projects for production. Any decision to proceed with production on any of the company's projects will require significant production financing. Rb projects are rare, and economic and production uncertainty may limit the company's ability to attract the required amount of capital to put the project into production.

Lastly, ARN is not immune to a range of general risks associated with mining activities. The company may not receive permits necessary to proceed with the development of any or all of its mining project. Estimates of resources on ARN tenements are subject to uncertainty and may not reflect what may be economically extracted. Operations may also be adversely affected by government and environmental regulations and operations are subject to the inherent risk associated with mineral exploration activities. Finally, it should be noted that ARN stock is relatively thinly traded, and the market price is subject to volatility.

Disclaimer

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