

HALLGARTEN & COMPANY

Coverage Update

Christopher Ecclestone
ceccestone@hallgartenco.com

American Rare Earths

(ASX:ARR)

Strategy: LONG

Key Metrics

Price (AUD)	\$	0.09
12-Month Target Price (AUD)	\$	0.24
Upside to Target		161%
12mth hi-low		\$0.011-\$0.235
Market Cap (AUD mn)	\$	30.51
Shares Outstanding (mns)		331.6
	Fully diluted	348.7

American Rare Earths

Technical Report Hits the Spot

- + The company has published a new (JORC-compliant) Technical Report on its La Paz project
- + There is over 1,600 tons of high-value Scandium contained in its resource
- + Rare Earth prices have started to firm dramatically in the last two months
- + The focus in the US has swung over the last year towards the vulnerability of the country to China dominance of specialty metals, in particular, Rare Earths
- + Even at the height of the Rare Earth boom of 2009-11 there were not a lot of REE projects in the US and now there are less than a handful still in active consideration
- + The low level of radioactive contaminants is a major plus at La Paz
- + A second REE project, in Wyoming, was added to the portfolio in August 2020
- + The company has around AUD\$5mn in cash on hand
- ✗ Project is low-grade, but large in tonnage
- ✗ China still has the whiphand in REE-pricing and can sink prices, suddenly, at will
- ✗ Current DoD strategy of picking “champions” is being muddled by companies lacking HREE resources being given consideration
- ✗ The environment for funding REE projects remains tough so capex to the low side is a virtue

Rare Earths Rising

Since we initiated coverage in 2020, the Rare Earths space has gone from mild buzzing to a full furore. As in the first go around in 2009-12, misinformation is the watchword. Fortunately though there has not been a massive flourishing of projects, like last time, nor have there been additions to the number of viable projects in the United States

The awakening in Rare Earths has been spurred by the invective related to the shocking dependence of the US economy (and its military) upon externally-sourced Rare Earths, primarily from China.

The renewed interest of politicians and investors coincides with the on-going slide in China’s own internal production (particularly in Heavy Rare Earths). This changes the dynamic from the one which has reigned for the last eight years, where China definitively had the whiphand. With Chinese supplies under a cloud and the West having added no capacity in recent years, the scenario is one of shortages and rationing, particularly with regard to those REEs most used in EVs and 5G.

As we noted in our initiation American Rare Earths is one of those sleeper assets from the first REE boom. Its La Paz property arrived somewhat late on the scene in the previous REE upwelling but that meant that it was less well-known in the interim and, dare we say it, less tainted than many unworthy

projects that were flogged to death in the excesses of that promotorial frenzy.

La Paz is a low-grade bulk tonnage deposit with its chief attractions being that the deposit is near surface, low radioactivity, in a good mining jurisdiction, easily accessible location and with a dominance of Scandium. Scandium is another technology metal on which we have written extensively.

Management's main goal now is the acceleration of the development of the La Paz project. In this note we shall expand upon the most recent resource statement and the expanding relationship with the Lawrence Livermore Labs on the development of processing technologies. We also look at the state of the Rare Earth industry in the US over the last six months where there has been considerable excitement generated by the US pivot towards more self-reliance. Whether this shall survive into the Biden Administration remains to be seen.

The La Paz Project

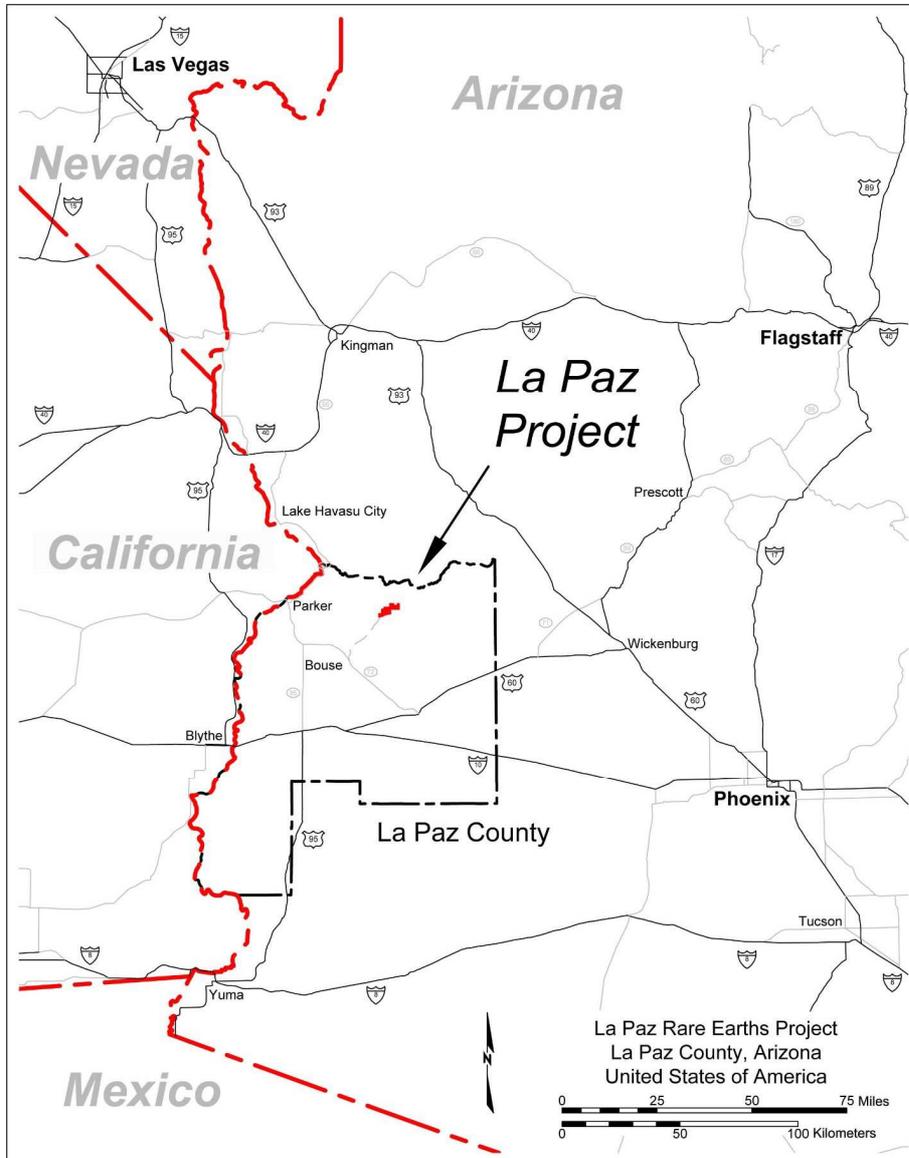
ARR formed a 100%-owned US-based subsidiary called La Paz Rare Earth LLC to acquire and develop the La Paz project, located in La Paz County, Arizona, US in August 2019. The project lies approximately 170 km north- west of Phoenix. The mining claims are located in the La Paz County approximately 16 miles (26 km) northeast of Bouse, Arizona. The property can be reached by going northeast of Bouse on the Rankin/Lincoln Ranch Road approximately 16 miles (26 km).



La Paz covers over 890 hectares comprising 107 unpatented lode mining claims on federally controlled land and a prospecting permit over one section of Arizona State Trust land (259 hectares). The tenements are unencumbered and 100% controlled by La Paz Rare Earth LLC.

In 2019, the company moved to double its US footprint with the application to acquire a further 660

hectares directly adjacent to the existing tenements to secure the full rare earth potential of the region.



In terms of infrastructure, there is a high-voltage power line and a high-pressure natural gas line approximately 11 km from the property. Sources indicate that local groundwater is present at a depth of approximately 400 feet (122m) and likely suitable for any processing efforts in the future.

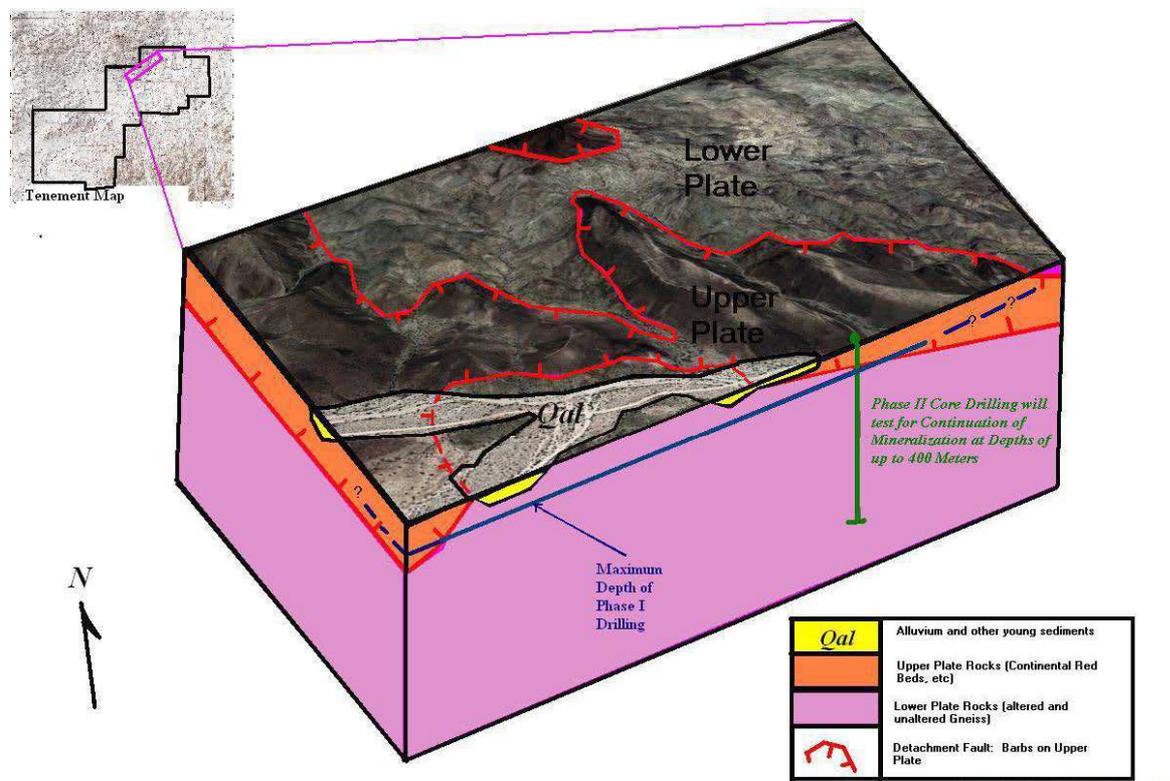
Geology

The area is located in western-central Arizona within the structural Detachment Fault Domain of the large Basin-Range Province. Geologic units in the project area may be combined into a minimum of

three. Young alluvium and other sedimentary units are locally thick enough to obscure underlying geology, especially to the east and west.

There is an Upper Plate, which may consist of several rock units of differing character and age, but here are dominantly continental red bed deposits. And Lower Plate rocks, which here are dominantly gneisses that have been altered to varying degree by epigenetic structural deformation and alteration.

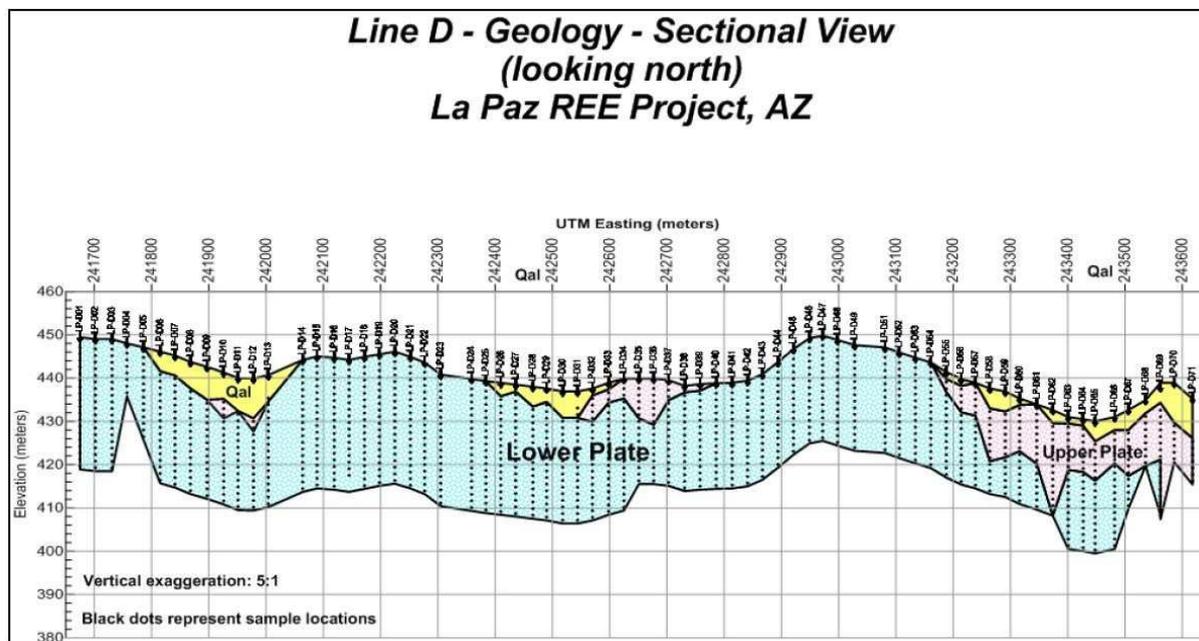
Below can be seen a detailed diagram showing mineralised level to 30m (mineralisation is open to depth and laterally).



The planar surface between the Upper and Lower Plates is a fault. This fault in the La Paz area is merely a small portion of the regional detachment fault of mid-Tertiary age. The Detachment Fault System on a regional scale is known to be associated with various ore deposits. It is best known for gold deposits, but may also carry a variety of other metals including copper, silver, lead, barium, zinc, and manganese.

The potential of the Detachment Fault System for Rare Earth Elements had not been recognized and likely no large number of analyses for REE's was made before those in July, 2010. Even if there had been such analyses in gold-enriched portions of the system there appears to be a mutual exclusion between

REEs and gold.

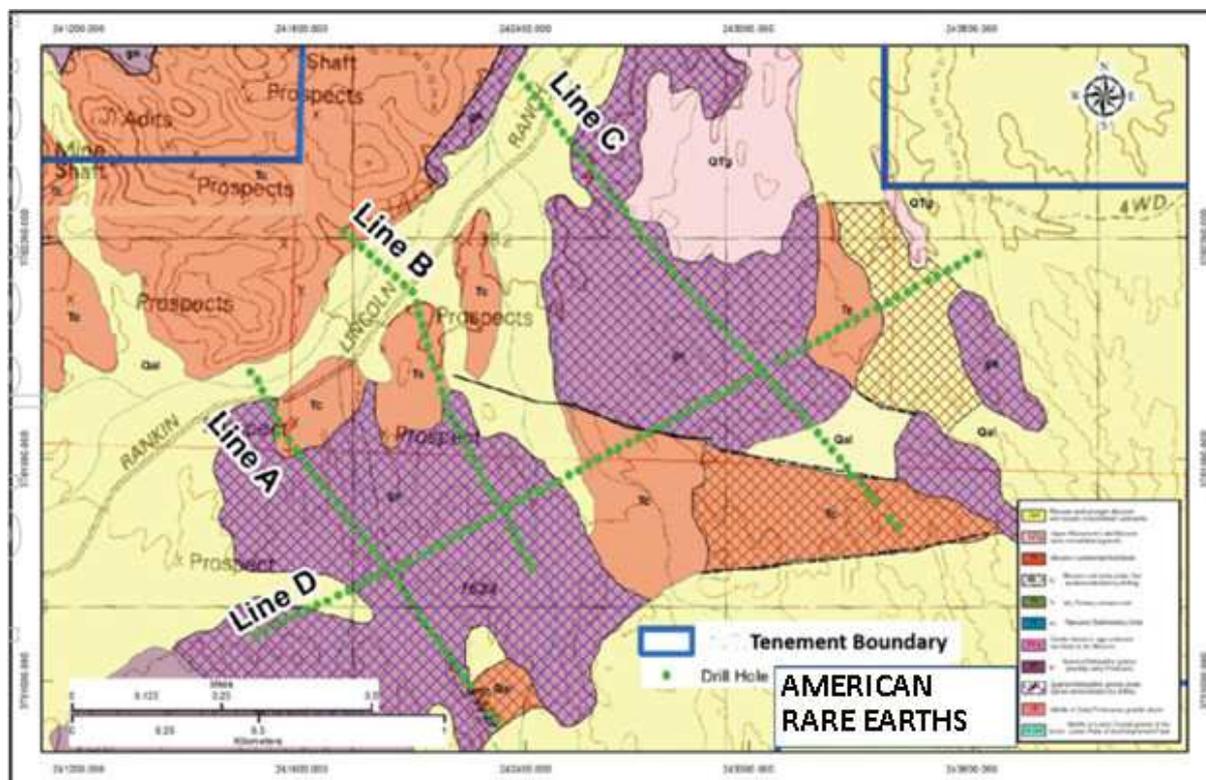


The factors which are most important in control of Rare Earth (and all other) mineralizations include the detachment fault itself, which caused significantly thick breccias at and below the fault surface and provided a conduit for the movement of mineralizing solutions. Host rock lithology played an unknown role in the mineralizing system since both the red beds and gneiss are hosts to REE's despite differing significantly in character. In fact, other similar mineralizations explored by AusAmerican in the immediate area include limestone host rock. In the case of La Paz there is also an upwarp of the detachment fault that conceivably played a localizing control during the time of mineralization.

The initial outcrop sampling at La Paz resulted in recognition of a gradual transition from relatively unaltered gneiss at the margins to strongly affected gneiss in the central portions of the deposit. Subsequent shallow drilling has found the REE mineralization to be remarkably uniform in the hole through the upper 30 meters of its extent. Such differences in grade that seem to have significant lateral extent have a layered appearance that may reflect original compositional layering or second-order control by faulting.

The lateral extents of mineralization to the North, East and West have not yet been determined although reconnaissance sampling to the west has discovered a possible re-emergence of REE mineralized rock from beneath alluvial cover. In this area, the Upper Plate consists of a variety of volcanic rock units, that are, nonetheless, REE-mineralized. Nor has the depth extent of mineral been determined as numerous of the shallow drill holes not only ended in mineralization, but quite often

ended in the highest grade found in the hole.



It is interesting to note that the Scandium deposition does not specifically correlate to the presence of allanite or high REE values. The scandium appears to be a constituent of the metamorphosed alkalic intrusion with variable concentrations throughout the Lower plate gneiss.

Exploration

The La Paz area was first shown to contain Rare Earth elements during exploration sampling programs in mid-2010.

During 2011, Australian American Mining Corporation Ltd (on which we launched coverage around that time) drilled 195, mostly shallow, percussion holes for a total of 5,120 metres. Drillhole depths ranged from 40 feet (12m) to 100 feet (30m). One hundred and forty one holes reached the maximum depth of 100feet (30m).

Composite and selected interval samples were submitted to SGS Canada for mineralogical investigations (QEMSCAN, XRD and Electron Microprobe analysis) and the Saskatchewan Research Council (SRC, Saskatoon) for preliminary metallurgical test work (pre-concentration and leaching).

The highest grades (values as high as 781 ppm TREE, with the majority of values greater than 300 ppm TREE) of Rare Earth mineralization are found in the lower plate gneisses directly associated with inclusions of allanite. The upper plate sediments have a mean TREE value of 220 ppm with the majority of values less than 300 ppm TREE.

La Paz - Drill Results			
	Lower & Upper Plate Ave. Concentration (ppm) 3260 samples	Upper Plate Ave. Concentration (ppm) 490 samples	Lower Plate Ave. Concentration (ppm) 2770 samples
Scandium (Sc)	14.4	8.9	15.3
Yttrium (Y)	36.1	24.1	38.2
Lanthanum (La)	56.6	41.3	59.0
Cerium (Ce)	120.4	84.1	126.8
Praseodymium (Pr)	14.0	9.6	14.8
Neodymium (Nd)	54.4	35.8	57.7
Samarium (Sm)	10.4	6.7	11.0
Europium (Eu)	2.6	1.8	2.7
Gadolinium (Gd)	9.1	5.7	9.7
Terbium (Tb)	1.3	0.8	1.4
Dysprosium (Dy)	7.0	4.5	7.5
Erbium (Er)	3.8	2.5	4.0

Scandium is also found in the gneisses in greater quantities (values as high as 26ppm Sc) than any other rock type according to the drilling results to date. Scandium mineralization is more ubiquitous and the higher grades appear not to be specifically associated with allanite. Likely the emplacement of Scandium was associated with a mineralizing event independent of allanite-Rare Earths deposition.

In October 2019 ARR announced that its initial field activities including mapping, sampling and the review of historical datasets which identified mineralisation at a higher grade to the South East of the existing Resource.

Resource Estimate

The maiden resource estimate and preliminary metallurgical test work formed the basis of an NI 43-101 resource estimate published in December 2011 that was prepared by David Boyer. The parameters were derived from 195 drill holes selecting 12 intervals. The analytical results of 3,274 bed rock samples delivered by ALS-Chemex in Reno and Vancouver served as a basis for metal grades in ppm.

At a 300 ppm cutoff the 2011 total indicated and inferred resource in the upper and lower plates was estimated at 128.2 million tonnes containing 95.4 million pounds of REE.

Additional metallurgical test work was completed in early 2012.

The resource displayed relatively uniform distribution of total Rare Earth Elements (TREE) across and along strike covering a resource area 2.5 km by 1.5km. The entire deposit is exposed at surface, or lightly concealed by alluvial cover. It is open at depth and is currently defined to 30m below surface.

In the first couple of months of 2020, before the (first) global virus lockdown came into force, the company's technical team completed importing the base data into a GIS model, which is the first of several key components in adopting all the known datasets into a single database.

The analysis of both the existing area and recently granted expanded footprint where samples were taken in 3Q19 is complete and confirms the extension of the resource. A trenching program, which aims to confirm the continuity of the two resource areas, is targeted as one of the first key activities to be undertaken.

The latest resource estimate, published in late November 2020 converts the NI 43-101 Report and its supporting data to JORC 2012 standards.

La Paz - Resource Estimate			
Cut-off = 0.03%			
	Tonnage mns	Grade ppm	Contained REE lb
Indicated			
TC	0.4	337.7	300,000
Lower Plate	15.8	373.4	11,800,000
	<u>16.2</u>	<u>373.4</u>	<u>12,100,000</u>
Inferred			
TC	7.2	369.8	5,400,000
Lower Plate	104.8	371.6	77,900,000
	<u>112.0</u>	<u>371.5</u>	<u>83,300,000</u>

Planned Work

Whilst the initial resource provided a solid base case, the increasing of grades at depth, which were identified in several of the initial drill results, will be targeted as part of the exploration program underway.

The consultants recommended further surface sampling, metallurgical testing with additional drilling in the maiden resource and the additional areas targeted. With appropriate additional drilling to verify the data, the authors of the resource estimate consider the REE and Scandium resources can be confidently reclassified and expanded.

A nine-hole coring program has been scheduled and is anticipated to begin in March 2021. The cost of this drilling program and associated metallurgical test work was estimated at \$390,000. Initial metallurgical test work would begin post the drilling program in the 2nd quarter 2021 and continue into the 3rd quarter of 2021. Pending the results of this work, more advanced metallurgical studies should be implemented in 2021. The Wood Group in Perth recommended an advanced metallurgical testing program based on the test results to date.

After completion of the confirmation core drilling in March/April 2021 the REE resource will be updated with the new core data. Additionally, the historic drill data combined with the new core information will be used to calculate a maiden Scandium resource.

The exploration activities planned for the near future should provide the preliminary backdrop for the planned PEA in H2 2021.

The Technology Aspect

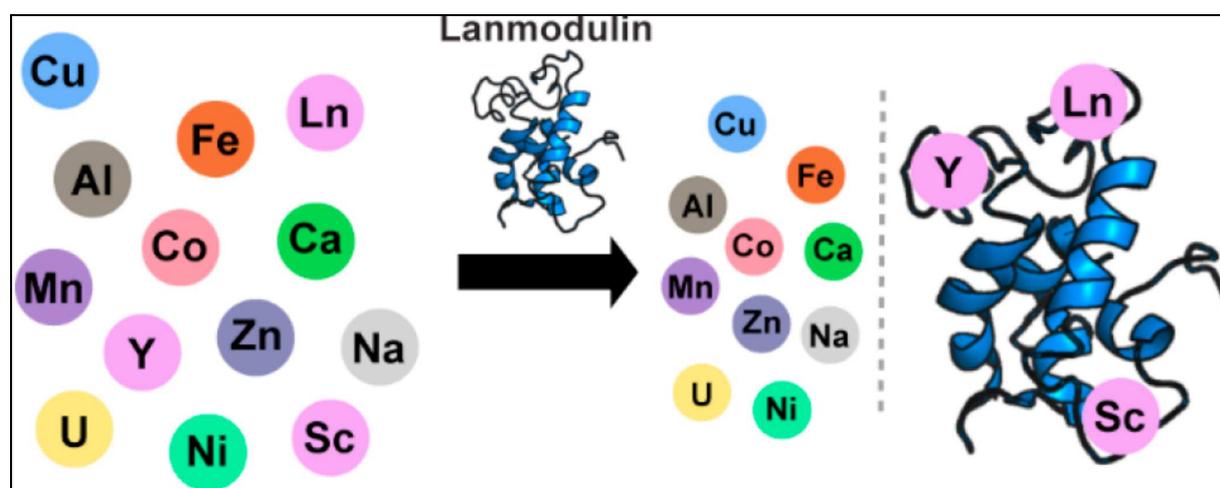
One thing that became clear in the wake of the first REE Boom was that the rewarmed conventional processing methods for REE oxides (many of which were unchanged from the 1960s and 1970s) were the downfall of some of the PEAs and PFSs that many players dished up during the feeding frenzy. Many of these “tried & true” also came with eye-watering price tags that ranged from \$500mn through to over one billion dollars. Then when one considers Molycorp, it ended up losing billions on technical SNAFUs when it was really not going off-piste in its processing technology.

This go around, if anything, it is entirely the opposite with most players seeking out new technologies to lower costs and differentiate themselves from the other players on the field. In particular, companies have been looking for systems that can bypass having to process out at great cost (of money and time) the essentially unwanted Lanthanum and Cerium. Few though are talking about the radioactive component in their deposits. We note in particular that one company claims to have a plant in the suburbs of Denver and yet does not mention the uranium-tainted nature of their ore and concentrates.

The drawbacks of most conventional REE extraction technologies is their reliance on energy- and chemical-intensive metallurgical techniques that can be expensive and environmentally harmful for source materials that contain low concentrations of REEs (<1% REE content). In addition, these technologies are unable to effectively extract both Scandium (Sc) and those elements in the Lanthanide

series at high efficiency. Many of these technologies co-extract Uranium and Thorium, leading to challenging volumes of radioactive wastes.

The team from American Rare Earths has been working with Lawrence Livermore National Laboratory (LLNL) and Pennsylvania State University (PSU) to enable clean extraction of both Scandium and lanthanides from low-grade feedstocks. The researchers have completed a proof-of-concept demonstration of a novel biosorption technology that uses the biological ligand, lanmodulin (LanM), for selective Scandium and Lanthanide recovery without enriching U/Th.



The schematic above seeks to show how the lanmodulin-based Rare Earth biosorption technology extracts the Lanthanides, Yttrium and Scandium. With this process high-purity Scandium and Lanthanides (Ln) can be produced from a single biosorption and desorption cycle, enabling selective Sc/Ln separation from other non-REE contaminants. The performance of lanmodulin (LanM) is enabled by its three EF-hand motifs that complex with REEs with high binding affinity and selectivity.

The researchers are now moving on to technical performance testing and economic analysis of an integrated process. This exercise will address the commercial feasibility this novel extraction technology with feedstocks from La Paz (and eventually Laramie also). By using the two different low-grade feedstocks (AZ and WY), the aim is to understand the minimum economically viable composition of rare earth feedstocks, and the optimal phases for the extraction process.

Based on this approach ARR is aiming to develop the US's first low-grade Rare Earth mineral processing facility close to the planned mining sites in La Paz County, AZ and Albany County, WY. These deposits are relatively low-grade (300–700 ppm total REEs), being notable for their sheer volume, uncomplicated mineralogy, and low U/Th and high Scandium content.

ARR's strategy is to leverage the LLNL/PSU biosorption technology and to evaluate the economics of the

LLNL/PSU technology to the complete REE supply chain. These activities will hopefully address questions required in order to license and incorporate the technology into its mineral processing platform.

Scandium

For starters Scandium is not a Rare Earth, never has been and never will be. It sometimes appears in Rare Earth deposits (as does Niobium). Having said that Scandium is relatively rare (with total annual production of 25 tonnes or less and it is very highly valued (being priced at over US\$1,000 per kg).

While Scandium sometimes appears in Rare Earth deposits it is rarely in recoverable quantities. However at La Paz the Scandium component is large and makes a meaningful contribution to the economics of the project.

We have written on Scandium at length elsewhere but the potted version is that its potential upside in terms of applications is significant. Its current main usage is in Solid Oxide Fuel cells but its major potential use is as a light-weighting alloy with aluminium, particularly in aerospace but also possibly in EVs. The problem is currently a supply issue with no primary mines, and that the bulk of production comes as a by-product from Titanium streams (or more recently from a Nickel-Cobalt mine in the Philippines). This has produced a chicken-and-egg dilemma for aerospace majors who will not tool up for Sc-Al componentry if they cannot be guaranteed a reliable and substantial supply of Scandium.

The most recent development in the space has been RTZ talking of moving to commercial production in Canada from its Titanium streams there. This potentially will reduce the Scandium price, but conversely spur potential demand by creating a further, reliable source of supply (from a major). This ultimately will be a positive for ARR in marketing the output of La Paz by turning a nice metal, traded by appointment, into a mainstream metal.

With specific reference to La Paz, we would note that the updated resource from late 2020 stated that the Scandium is not limited to the allanite. It is ubiquitous to the lower plate gneiss in relative higher grades than the overlying red bed sediments. This potentially means there could be economic value in processing more of the gneiss for Scandium. This would be additive to Rare Earths and Scandium in the allanite material.

On the processing side, it is interesting to note that limited capacity to produce ingot and distilled scandium metal exists at facilities in Ames in Iowa and at Tolleson in Arizona, AZ (with the latter being only 200km from the La Paz project site).

Valuations

On the following can be seen an *in situ* valuation of the Rare Earth (plus Scandium) component of ARR's

main project. This was calculated using the most recent stated resource estimate at La Paz.

La Paz In situ Valuation		Price/kg Feb-21	In situ \$mn
M&I Tonnage	112,000		
	ppm		
Scandium (Sc)	14.40	\$1,040.76	\$1,678.54
Lanthanum (La)	56.60	\$1.51	\$9.57
Cerium (Ce)	120.40	\$1.51	\$20.36
Praseodymium (Pr)	14.00	\$63.46	\$99.51
Neodymium (Nd)	54.40	\$88.69	\$540.37
Samarium (Sm)	2.60	\$1.78	\$0.52
Europium (Eu)	2.60	\$32.51	\$9.47
Gadolinium (Gd)	9.10	\$30.57	\$31.16
Terbium (Tb)	1.30	\$1,358.00	\$197.72
Dysprosium (Dy)	7.00	\$357.00	\$279.89
Holmium (Ho)	1.40	\$107.00	\$16.78
Erbium (Er)	3.80	\$26.76	\$11.39
Yttrium (Y)	36.10	\$4.49	\$18.15
Total			<u>\$2,913.42</u>

So we can see that the La Paz project has:

- ✓ over \$560mn in Heavy REE value, representing 19% of the total value, and 45% of the value of the Lanthanides.
- ✓ over \$1.1bn in magnet metal value, representing 38% of the total value and 90% of the value of the Lanthanides.

A note of caution is required when discussing Scandium pricing as the market is not only opaque but virtually non-existent. The quantities that are traded outside of what Bloom Energy buys direct from intermediaries amount to single-digit tonnes (in total). Thus prices are dictated by the size of the order and the way the wind is blowing on a particular day (if we may be so flippant). The number used as the price by a particular claimant to the crown of largest US Scandium wannabe contains a strong element

of “eye of toad, tail of newt”.

It can be noted that full two-thirds of La Paz’s revenues are expected to come from Sc using this relatively recent price deck.

Radioactivity

It is not a truism to say that radioactivity comes with the territory in regard to Rare Earth projects. While many projects or indeed a majority have radioactive components (the presence of Uranium or Thorium) there are some that have little to no radioactivity. When it comes to dealing with these elements a host of challenges are thrown up. These cannot be ignored or willed away by wishful thinking.

Below can be seen the widely differing ppm rates for the main “name” mines/projects in the Rare Earth space at the current time. A large number of the REE projects in the first boom were repurposed Uranium projects (as were the corporate vehicles they were housed in). This factor was ultimately the demise of many a project.

REE Projects - Radioactive Elements Comps						
Project	Jurisdiction	Owner	TREO %	Cut-off	U3O8 ppm	Thorium ppm
Mountain Pass	US	MP Materials	7.98%	5.00%	n/a	250
Browns Range (Dazzler)	Australia	Northern Minerals	0.63%	0.15%	26	28
Mount Weld	Australia	Lynas	5.40%	2.50%	20	700
Round Top	US	US Rare Earths/TMRC	0.06%	NSR US\$16/t	37	179
Bear Lodge	US	Rare Element Resources	3.05%	1.50%	31	134
La Paz	US	American Rare Earths	0.04%	0.03%	1.2	6
Nolan's Bore	Australia	Arafura Resources	2.60%	1.00%	22	328
Norra Karr	Sweden	Leading Edge	0.61%	0.40%	13	6
Nechalacho	Canada	Avalon	1.27%	NMR US\$320/t	28	139
		Vital Metals	2.70%	0.3% Nd2O3	15	100
Bokan Mountain	US	Ucore Resources	0.60%	0.40%	77	155

We would note that effectively Solvay’s La Rochelle refinery has been neutralized as a force in processing due to an excessive build-up of thorium stockpiles, which no-one wants to buy off them. Thus the French government will not let them process any radioactive REE ore, at what was the largest non-Chinese processor when it was owned by Rhodia-STER.

Then there are the on-going travails of Lynas. Much of its grief in Malaysia has to do with the radioactive

component in the ores that it brings in for processing from its Mt Weld mine in Western Australia. This delayed completion of the initial plant build and has been continuous source of trouble with local residents, politicians and NGOs.

The latest PEA from Texas Minerals Resources sets aside US\$9mn for a plant to extract the Thorium and Uranium from their production.

The DoD's "Champions" Strategy

The US government's pivot towards the domestic production of Rare Earths has finally happened, albeit 10 years after the urgency of such a move was signaled. The DoD's Phase 1 funding will support detailed planning and design of a U.S.-based Heavy Rare Earth separation facility. The DoD will provide funds to undertake Phase 1 work as part of the US Defense Production Act.

The two beneficiaries of the move to promote alternatives to Chinese dominance of Heavy Rare Earths were LynasBlue (a joint venture between Blue Line Corporation and Lynas Corporation, with a proposal for downstream processing in Texas) and the other party chosen was the Mountain Pass mine (of the partly-Chinese owned MP Materials) in California. The key determinant was current production.

A number of other REE wannabes were left waiting at the altar largely because they had no prospect of production in the short-term. One in particular started agitating, in a campaign against Lynas's foreignness, and touting their own virtues as, sometime, Texans. The fact that their own partners are sometime Antipodeans seemed to elude them. With Lynas's proposed plant in Texas the decision makers at the Pentagon had the choice between a real company with a real mine or the alternative of a project on a drawing board partnered with a putative downstream "plant" in Colorado.

The backbiting behaviour of the spoilsports in the Texan space risks derailing the whole DoD initiative (which ARR was never in the running for anyway). Additionally the loss of the Presidency by Donald Trump could result in a less REE-focused administration as the Democrat Party is well-known for pandering to China.

The Rare Earth "industry" in the US

The scene in the US is changing rapidly. One might venture that they are trying to outrun the Chinese but in reality many were trying to outrun the possibility that Donald Trump would lose the US elections and a more Sinophilic Biden regime might ascend to power. In the battle for scarce investor dollars (particularly with so many Canadian investors having been baked alive in the REE boom's collapse in 2011-12) the promotional machines went into overdrive. The most egregious "pump" was USA Rare Earths with its control of Round Top (wrested from Texas Mineral Resources) with a now-you-see-it-now you-don't processing facility supposedly in Wheat Ridge, Colorado. Latest versions suggest this construct might imminently be injected into a SPAC structure.

MP Materials made a spectacular debut, also, via a SPAC path to market and then soared to a market cap of over \$4bn on no news. This proved to be a Wile E. Coyote moment and after passing \$40 briefly, it then retreated over \$10 under a concerted Short attack. Talk of Shenghe already being on the prowl to replace MP as a source of monazite (with product for RTZ's mineral sands operations in Madagascar) left MP looking vulnerable to the very point we highlighted in our note on the company that its sole client in Shenghe.

Further muddying of the waters was the appearance out of left-field of Energy Fuels (UUUU) as a player. Utilising its uranium/vanadium processing plant at White Mesa, it tantalized the market for a few months with talk of a possible assault on the REE space. The missing part of the equation was where it would source monazite sands to make this equation come to life. Eventually it was revealed that this would come from Chemours' Offerman mineral sands plant in Georgia. While UUUU has missed the boat of the much vaunted DoD hand-outs it did not really need these anyway and the company's surfacing out of nowhere had it leapfrogging the still sentient MP Materials with a processing plant that the glamour stock still lacked (or at least lacked in a functioning form. Indeed there was even a form of nexus with Neo Performance Materials and its Silmet plant in Estonia as a means of creating the much vaunted "end"-product, REE oxides for magnet making. This also puts Neo (theoretically) out of the picture as a marriage partner for MP.

Bear Lodge (owned by General Atomic) carries some weight with us in the US space, but suffers from a mighty capex bill which would appear to be a deal-killer. The other lightweights (pardon the pun) appear likely to blow away like tumbleweeds.

Cobalt Blue

While Cobalt might seem extraneous to the subject of Rare Earths, in the case of American Rare Earths it has proven to be somewhat of a cashcow in recent years due to the sale of the company's former Thackaringa Cobalt asset to Cobalt Blue Holdings Limited (ASX: COB). This has proven to be a "gift that keeps giving" and a key to the company's ability in the short term to eschew other financing methods.

In mid-January the company announced that it:

- Sold 8,000,000 shares in COB for proceeds of \$2,468,822
- Converted its \$1m three-year Convertible Note (CN) at a deemed price of \$0.20 into 5mn shares in COB
- Post conversion, will hold 6,000,448 shares in COB valued at \$2.7mn based on the closing price of COB on 18 January 2021
- Interest of \$60,328 on the CN up until its conversion has been received
- Continues to hold a \$3mn five year Promissory Note, interest free for years 1, 2 and 3, with

interest of 6% per annum for years 4 and 5 payable in arrears. The note, which is now in year 2, is secured over the title to the tenements

- Continues to hold exploration, base and precious metal rights on an agreed sub tenement as defined in the agreement with a 2% Net Smelter Royalty on all Cobalt from the Broken Hill (Thackaringa) Cobalt Project
- Current cash position is \$5mn following the sale of the shares in COB

While Cobalt has little relevance to ARR going forward it does provide a useful financing stream to fund other activities.

Risks

The whole Rare Earth industry finds itself in a different world with some constants from the previous “boom”, but also quite a few things have changed. However it is worth enumerating some of the risks that may be faced:

- A return to weak Rare Earth prices
- The REE market is still controlled largely by China
- Financing difficulties for mine build
- Failure of demand to match rising production (i.e. build it and no-one comes)
- Excessive number of competing projects could crowd the scene and investors’ attention in the event that REE prices turn up

Rare Earth prices are not likely to go lower than the levels they have been at in recent years, even the Chinese are not running a charity any more. Prices have been ebullient for the last three months but there is no rationale for them to even vaguely test the highs of 2011-12. The Chinese have learnt their lesson from last boom and that lesson is that the best way to maintain control and discipline market players is by aggressive predatory pricing. Even now there is talk swirling of the Chinese pondering ramping down (!) LREE prices.

Despite all the hullabaloo, there is not a lot of money for major REE capex pipedreams out there. The MP SPAC came with \$500mn embedded, which got the company off to the races. UUUU are running on the smell of an oil rag. The rest of the fakers and wannabes are promoting the hell out of the concept but not actually spending anything.

With the EV “revolution” finally gaining traction outside of China the potential for greater demand for REE magnets from the quarter is enhanced. We see no reason for REE demand to slacken and indeed

there is the potential for it to finally start to meet some of the bullish projections of 10 years ago.

Finally, there is the issue of competing projects. The Canadian projects have a few contenders to be real, but most of the promoters there remind us of Mark Twain's definition of miners, except they don't even have a hole to stand at the top of. Projects farther away (and we don't mean Greenland or Angola) stand some prospect (particularly if located on the territory of US allies, i.e. Australia) of being seen as being "as good as onshore".

Conclusion

From over 300 claimants to be potential Rare Earth producers in 2011, at the end of the last Rare Earths boom, the number of developers has shrunk to less than twenty survivors. Of those fifteen, only five have properties in the United States. These assets are the La Paz property of ARR, the Bear Lodge property (controlled by General Atomic), Mountain Pass in California (the sole producer, controlled by MP Materials, with a minority Chinese ownership), and Bokan in Alaska (owned by UCore) and the aforementioned Round Top. We would note though that the number of prospective properties in the US has not shrunk to an appreciable extent since 2011, but rather the attrition has been in Canada, Australia and elsewhere.

Nevertheless, Mountain Pass was advanced to production when the curtains came down in 2011 and all the rest have been marking time. While La Paz existed back at the earlier time it was not really on the radar and has surfaced in the current revival as a somewhat "fresh face" on the landscape. Mountain Pass died (and has been reborn) and the others went through a long somnolence (from which Bokan and Bear Lodge have still not awoken).

With such a small number of names to conjure with inside US borders, these Rare Earth players have scarcity value. Inevitably promoters will attempt to create new "stories" in the space but the embedded advantage lies with those projects, like La Paz, that have historic exploration work done and resource estimates to hand. If then one applies a filter that excludes projects that radioactive (literally or metaphorically) then the universe is less than a handful.

It has been said that history does NOT repeat itself, but that it rhymes and clearly the future in Rare Earths will not be a repeat of 2009-11 as the importance of mid-stream processing is now recognized. ARR is uniquely positioned sit at the table when the next REE recovery gains traction. The task now is to upgrade the resource while working on securing the all-important relationship with a processor.

On the political front the *annus horribilis* of President Trump has drawn to a close and with it the future stretches in front of the critical metals sector with the scorched earth (or not) of a Democratic regime with its traditional Sinosycophancy. However initial signs are that the China-threat is being taken seriously now by those on both sides of the political aisle in Washington.

Thus we have given ARR a **LONG** rating with a 12-month target price of 24 cts.



Important disclosures

I, Christopher Ecclestone, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Hallgarten's Equity Research rating system consists of LONG, SHORT and NEUTRAL recommendations. LONG suggests capital appreciation to our target price during the next twelve months, while SHORT suggests capital depreciation to our target price during the next twelve months. NEUTRAL denotes a stock that is not likely to provide outstanding performance in either direction during the next twelve months, or it is a stock that we do not wish to place a rating on at the present time. Information contained herein is based on sources that we believe to be reliable, but we do not guarantee their accuracy. Prices and opinions concerning the composition of market sectors included in this report reflect the judgments of this date and are subject to change without notice. This report is for information purposes only and is not intended as an offer to sell or as a solicitation to buy securities.

Hallgarten & Company or persons associated do not own securities of the securities described herein and may not make purchases or sales within one month, before or after, the publication of this report. Hallgarten policy does not permit any analyst to own shares in any company that he/she covers. Additional information is available upon request.

Hallgarten & Company acts as a strategic consultant to American Rare Earths and as such is/was compensated for those services, but does not hold any stock in either company nor has the right to hold any stock in the future.

© 2021 Hallgarten & Company Ltd. All rights reserved.

Reprints of Hallgarten reports are prohibited without permission.

Web access at:

Research: www.hallgartenco.com

60 Madison Ave, 6th Floor, New York, NY, 10010