

Strategic Metals & Rare Earths Letter

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Booming lithium market orchestrated by price controlled variety of end-use processing

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Heavy Rare Earths Oxides (HREO)		Light Rare Earth Oxides (LREO)	Critical Metals and Special Minerals	
europium (Eu)	erbium (Er)	lanthanum (La)	yttrium (Y)	lithium (Li)
gadolinium (Gd)	thulium (Tm)	cerium (Ce)	scandium (Sc)	graphite (C)
terbium (Tb)	ytterbium (Yb)	praseodymium (Pr)	niobium (Nb)	tungsten (W)
dysprosium (Dy)	lutetium (Lu)	neodymium (Nd)	tantalum (Ta)	titanium (Ti)
holmium (Ho)		promethium (Pm)	beryllium (Be)	zirconium (Zr)
		samarium (Sm)	gallium (Ga)	hafnium (Hf)
			indium (In)	antimony (Sb)
			germanium (Ge)	cobalt (Co)

3

Li

Lithium
6.941

Lithium (chemical symbol: Li) is the lightest of all metals. It does not occur as a pure element in nature but is contained within minerals in a range of hard rock types or in solution in brine bodies, with salt lakes (“salars”), in sea water or geothermal brines.

The continued concentration of lithium is generally low and there are only a limited number of known resources where lithium can be economically extracted and be processed to form a variety of different chemicals depending on its end-use.

According to Roskill Information Services the author of “Lithium Market Outlook to 2017”, Twelfth Edition, 2013, **lithium carbonate represents approximately 48% of the total global consumption of lithium chemicals, of which 25% technically lithium carbonate and 23% battery grade carbonate.**

The next most common chemical is **lithium hydroxide**, which represents 16% of total global consumption. Other forms of lithium consumed include lithium bromide, lithium chloride and lithium minerals.

Lithium and its chemical components exhibit a broad range of beneficial properties, including the highest electrochemical potential of all metals; an extremely high co-efficient of thermal expansion; fluxing and catalytic characteristics; and acting as a viscosity modifier in mills. As a result of these properties, lithium is used in numerous applications, including ceramics and glass, batteries, greases, aluminium, air treatment and others.

Lithium has outperformed in both demand and price growth compared to other metal and mineral markets since 2011 through a combination of sectorial strength produced discipline and delays to new supply.

Within the rechargeable battery sector, smartphone and table sales, together with electric vehicle output, have boosted lithium demand by 18% per year and batteries now account for 37% of total lithium consumption.

Lithium supply

Commercial lithium production currently comes from two sources, both representing approximately 50% of total output:

- **Brines:** lithium-rich brines from salt lakes or salars; and
- **Minerals:** pegmatic rock deposits containing lithium bearing minerals

The process of producing lithium from brines is generally much lower cost than that from hard rock minerals.

Roskill in its Market Outlook 2017 estimates that global production in 2012 reached 83,000 tonnes from lithium minerals and 86,000 tonnes from lithium brine operations.



Current global production of lithium is highly concentrated, both geographically and in corporate ownership. Approximately 85% of world production comes from Chile (Sociedad de Quimica Minera de Chile or SQM and Rockwood Lithium), Argentina (from Rockwood Lithium) and Australia (Talison Lithium).

Nearly one-half of the world's lithium production comes from Lithium brines in an Andes mountains' region encompassing parts of **Argentina, Chile, and Bolivia** (no current production). The area is often referred to as the "**Lithium Triangle**".

In the mid-1990s, the development of these large-scale low-cost brine resources fundamentally changed global lithium supply.

Operating costs at mineral concession plants are largely dependent on the prices of key raw materials (namely spodumene, sulphur acid and soda ash). Soda ash in particular is an energy extensive chemical. Talison Lithium's Greenbushes lithium operations in Western Australia produces the vast majority of lithium from minerals and accounted for 70% of global lithium mineral production in 2012. Talison is the main supplier of spodumene concentrate to the Chinese market.

With its cost advantage over mineral-based production, brine producers lowered prices to gain market share. This resulted in closure of mineral conversion plants in the USA, Russia and China.

There are **three lithium minerals** commercially mined today: spodumene, petalite and lepidolite. Spodumene is the most important commercially mined lithium mineral given its high inherent lithium content. Both open-pit and underground mining methods are used to extract lithium minerals.

Typically, the mineralized rock contains approximately 12% to 20% spodumene, or approximately 1% to 1.5% lithium oxide.

Different separation processes will produce concentrate with different levels of lithium content, which can be used in either the technical or chemical-grade markets.

Chemical grade lithium concentrate sold to chemical producers undergoes additional processing through the sulphate route process to convert the chemical-grade lithium concentrate to a variety of lithium chemicals, including lithium carbonate, lithium chloride and lithium hydroxide.

Lithium pricing

There is no exchange traded market for lithium chemicals as prices are set by negotiation between producers and customers often based on customer-specific formations.

Prices for lithium concentrates used for conversion into chemicals are correlated to and tend to follow the same trend, as lithium carbonate prices.?

Lithium demand grew at an annual rate of 11% between 2010 and 2015 and is expected to grow at an annual rate of 16% until 2025.

In the period of June 2012 until December 2013, average lithium prices in the Chinese spot market (the world market) for battery grade lithium materials traded in a narrow range of US\$ 5,500 to US\$ 5,800 per tonne, increasing to an average price of US\$ 6,577 per tonne in 2014.

Since then, the lithium price almost tripled from US\$ 7,000 for Chinese imports of carbonate in the middle of last year to US\$ 20,000 per tonne in just two years according to research house CRU, as a result of the “Tesla effect” on lithium. Long-term contract prices are now at a level of US\$12,000/tonne, up from 5,500/tonne in 2011.

The Tesla-effect was caused by this Company announcing that it will need about 27,000 tons of uranium carbonate a year to reach its sales target of 500,000 vehicles a year by the end of 2018, which equates to 16% of global consumption last year.

► Short-term lithium market outlook

The short-term fundamentals for the lithium market remain strong, similar to those experienced during H2 2016.

The Chinese Government electric vehicle (EV) subsidy policy resulted in significant growth throughout the lithium battery manufacturing supply chain. Over 230 suppliers of battery cells and 315 producers of battery packs were reportedly operating in China during Q2 2016 (*source: Automotive News China*).

Nevertheless, the Chinese government maintains the target of achieving five million EV units on the road by 2020, up from an estimated 500,000 in 2016. Chinese consumers are increasingly shifting from a preference for PHEVs in past years to full EV's as large manufacturers improve the range of EV models. In 2016, BYD began offering an EV version of its best-selling PHEV model Q and recorded sales of 5,000 units in Q3, making it the fourth best-selling EV globally. Furthermore, BYD will no longer offer its PHEV version of its Song SUV instead only manufacturing the full EV version (*source: Lux Research*).

In terms of lithium consumption, the absolute effect of China's industry reform is positive and will support continued growth. Outside of China, key markets including the USA and Europe continue to gain government support for EV production with 100% EV fleet targets remaining in place for European countries such as Norway.

► Global lithium demand anticipated to triple by 2025

The growth in lithium demand is projected to continue due to increased demand for lithium-ion batteries for use in electric vehicles and battery-based energy storage for renewable energy sources, such as solar and wind.

As a result, global demand for lithium carbonate is anticipated to rise to more than 500,000 mT by 2025 from 163,000 mT in 2015.

Lithium-ion batteries have become the most important storage technology in the area of portable and mobile applications (e.g. laptops, cell phones, smartphones, tablets, power tools, medical devices, electric bicycles, and electric cars, since around 2000.

Lithium's high electrochemical potential: it has the highest electric output per unit weight of any battery material, making it the standard material for lithium-ion (high energy-density rechargeable) batteries. Lithium ion batteries generally have a very high efficiency, typically in the range of 95-98%.

In the **automotive sector**, the advent of lithium-ion hybrids (“HEV”), plug-in hybrids (“EV”) require large format batteries.

While portable consumer goods alone continue to provide impressive growth in demand for lithium batteries, the start of mass production of hybrid, plug-in hybrid and electric vehicles presents the most significant upside “step growth potential” for lithium demand.

Overview of LITHIUM companies (by market capitalization)

31 January 2017	Trading symbol		Share price		Change in %	12 months prices		Total shares issued million	Market cap. million	
			Current 2017	Year-end 2016		H	L		local	US\$
			US\$	US\$	US\$	US\$	US\$	US\$	US\$	US\$
FMC	NYSE	FMC	60.160	56.560	6	62.84	32.24	133.8	8,049.4	8,049.4
SQM	NYSE	SQM	32.320	28.650	13	34.84	14.60	120.4	3,891.3	3,891.3
Tianqi Lithium	1) HKSE	002466	34.150	32.450	5	52.64	29.18	994.4	33,958.8	4,380.7
ERAMET	Paris	ERA:FP	55.45	56.74	-2	66.72	15.36	26.6	1,475.0	1,548.7
Albemarle Corp.	2) NYSE	ALB	92.640	86.080	8	95.89	47.49	112.5	10,422.0	10,422.0
Galaxy Resources	3) ASX	GXY	0.590	0.530	11	0.7	0.13	1858.0	1,096.2	789.3
Orocobre	ASX	ORE	4.130	4.530	-9	5.05	2.18	210.3	868.5	625.3
Pilbara Minerals	ASX	PLS	0.540	0.500	8	0.87	0.32	1,264.0	682.6	491.4
Altura Mining	ASX	AJM	0.180	0.140	29	0.28	0.05	1,541.0	277.4	199.7
Neometals	ASX	NMT	0.390	0.340	15	0.49	0.14	563.0	219.6	158.1
Lithium Australia	ASX	LIT	0.170	0.150	13	0.39	0.12	257.8	43.8	31.6
Core Exploration	ASX	CXO	0.080	0.070	14	0.15	0.02	374.5	30.0	21.6
Liontown Resources	ASX	LTR	0.030	0.020	50	0.05	0.01	990.3	29.7	21.4
Dakota Minerals	ASX	DKO	0.060	0.060	0	0.28	0.05	363.8	21.8	15.7
European Lithium	ASX	EUR	0.050	0.060	-17	0.14	0.04	433.8	21.7	15.6
Nemasca Lithium	TSX	NMX	1.420	1.240	15	1.97	0.37	312.9	444.3	328.8
Lithium Americas	4) TSX	LAC	0.960	0.820	17	1.15	0.37	301.9	289.8	214.5
Neo Lithium	TSX	NLC	1.200	1.060	13	2.09	0.91	65.9	79.1	58.5
Millennial Lithium	5) TSX	ML	1.610	1.470	10	2.45	0.07	34.2	55.1	40.7
Advantage Lithium	6) TSX.V	AAL	0.850	0.970	-12	1.34	0.15	53.1	45.1	33.4
Pure Energy Minerals	TSX	PE	0.640	0.600	7	1.15	0.46	66.2	42.4	31.4
Power Metals	TSX.V	PWM	0.425	0.250	70	0.55	0.07	60.8	25.8	19.1
Dajin Resources	TSX.V	DJI	0.135	0.120	13	0.30	0.11	136.3	18.4	13.6
Argentina Lithium and Energy	TSX	LIT	0.300	0.370	-19	0.83	0.04	50.8	15.2	11.3
Aberdeen International	TSX	AAB	0.150	0.155	-3	0.24	0.10	95.5	14.3	10.6
Ultra Lithium	TSX.V	ULI	0.170	0.170	0	0.35	0.11	64.7	11.0	8.1
Southern Lithium	7) TSX.V	SNL	0.235	0.230	2	0.49	0.01	36.4	8.6	6.3
European Metals Holdings	EMH	AIM	40.000	34.750	15	81.75	6.38	129.4	51.8	63.7

1) owns 49% of Talison Lithium

2) owns 51% of Talison Lithium

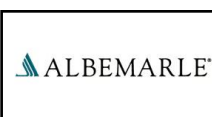
3) completed acquisition of General Mining; 1.65 Galaxy share for 1 General Mining share) as at 16 August 2016

4) formerly Western Lithium USA, name change effective March 31, 2016

5) formerly Redhill Resources, name change effective May 31, 2016

6) bought portfolio of exploration projects in Argentina from Orocobre in consideration of US\$ 30.5 million in shares and warrants in November 2016

7) formerly Signal Exploration, name change effective November 11, 2016



Albemarle (NYSE – ALB) is a global specialty chemicals company with leading positions in lithium, bromine, refining catalysts and applied surface treatments and is providing innovative chemistry solutions to customers in over 100 countries around the world.

Through expanding its lithium operations in Chile and China, recently, **Albemarle** has strengthened its position as the world's largest lithium producer.

In the first nine months of 2016, the Company realized net sales of US\$ 1.98 billion. The adjusted EBITDA and net income from continuing operations amounted to \$ 570.8 million and \$ 428.3 million, respectively.

Effective 1 January 2016, **Albemarle's** former Performance Chemicals reportable segment was split into two separate reportable segments: (1) Lithium and Advanced Materials which includes Lithium and Performance Catalyst Solutions and Curatives ("PCS"), and (2) Bromine Specialties.

On 30 November 2016, the Company announced that Tianqi Lithium Corp has given notice of its decision to exercise an option to acquire a 20% indirect interest in Rockwood Lithium and its subsidiaries. Rockwood is a wholly-owned German subsidiary of **Albemarle** that manages a portfolio of downstream product, including organolithiums such as butyllithium, which are manufactured at its facility in Langelshiem, Germany.

On 14 December 2016, **Albemarle** completed the sale of its Chemicals Surface Treatment business and related assets to BASF of Germany for proceeds of approximately US\$ 3 billion.

On 4 January 2017, **Albemarle** received final approval, effective 30 December 2016, from the Chilean Economic Development Agency (“Corfo”) to expand its lithium operations in Chile, the global leader in the production of value-added lithium products, which provides the Company with sufficient lithium to produce over 80,000 Mt annually of technical and battery grade lithium sales over the next 27 years from its expanding battery-grade manufacturing facilities in La Negra, Antofagasta.

Back in February 2016, **Albemarle** already agreed with Corfo and other relevant authorities to increase its output from 24,000 ta to 70,000 tpa through a US\$ 499-600 million investment at La Negra.

On 3 January 2017, **Albemarle** successfully completed acquisition of the Jiangxi Jiangli New Materials Science and Technology Co. lithium business for a purchase price of approximately US\$ 145 million. The transaction includes manufacturing assets and supporting business functions located in both Jiangxi and Sichuan, China, which are focused on the production of battery-grade lithium hydroxide and lithium carbonate.

Collectively, the Jiangli New Materials assets have total lithium sales capacity of 15,000 Mt/year.

Albemarle has already completed engineering and is in construction phase of an expansion project at Juangxi to create an additional 20,000 to 25,000 Mt/year of the lithium hydroxide capacity. This expansion will be used to satisfy log-term customer supply agreements.



Orocobre (ASX – ORE) is a leading chemicals and minerals company through the construction and operation of its portfolio of lithium potash and boron projects and facilities in Argentina’s “Lithium Triangle”.

The Company has built the first large-scale, de novo brine-based lithium project in over 20 years at its flagship **Salar de Olaroz resource** in northern Argentina. The Olaroz Lithium Facility began as a joint venture project built in partnership with Japanese trading giant Toyota Tsusho Corporation (“TTC”) and the mining investment company owned by the provincial Government of Jujuy, Jujuy Energia y Minería Sociedad des Estardo (“JEM-SE”).

The Olaroz Facility joint venture is operated through Argentina subsidiary Sales de Jujuy SA. The effective equity interests are: Orocobre 66.5%, TTC 25.0% and JEMSE 8.5%.

The Facility is presently ramping up production to reach the nameplate capacity of 17,500 t per annum of high quality lithium carbonate.

In the second half of 2016 production was 6,542 tonnes. Sales were 7,588 tonnes. The average price received was US\$ 9,171/tonne and cost of production was US\$ 3,554/tonne resulting in a gross cash margin of US\$ 1,233/tonne or 61.5%.

Olaroz stage 2 will entail the construction of a 17,500 tpa lithium carbonate production facility adjacent to the Stage 1 operations at Salar de Olaroz. The expansion is expected to include both primary and purification circuits capable of producing battery grade lithium carbonate.

Operating costs are expected to be US\$ 2,500 per tonne.

If a lithium hydroxide plant is constructed in Japan, as the preferred location, the approximate capital cost will be US\$ 30 million before any government incentives. It is expected that the funding of both developments will involve project debt of (circa 70%) and operating cash flow from Stage 1.

Orocobre does not anticipate the need to raise equity capital to finance either the Stage 2 expansion or lithium hydroxide plant. The process to obtain the necessary permits and approvals for Stage 2 has commenced and will run concurrently with engineering and design work.

Orocobre and its joint venture partners expects to reach a final investment decision by mid-2017. Stage 2 commission is planned to commence in late 2018/early 2019, which aligns with a projected undersupply of lithium chemicals in global markets.

In November 2016, **Orocobre** announced it will divest a number of lithium brine exploration projects with a total area of approximately 85,000 hectares to Canada's Advantage Lithium Corp. (TSX.V – AAL) for a consideration of US\$ 30.5 million.



Galaxy Resources (ASX – GXY) is currently advancing plans to develop its **Sal de Vida Lithium and Potash Brine Project ("Sal de Vida")** in Argentina, which is situated in the Lithium Triangle, a region where Chile, Argentina and Bolivia meet, and presently accounts for 60% of global lithium production.

Sal de Vida is a proven high quality resource and has excellent promise as a future low-cost production facility.

The Company also owns the **MtCattlin Spodumene Mine** in Western Australia and the **James Bay Lithium Pegmatite Project** in Quebec, Canada.

During Q4 2016, **Galaxy** announced that it had commenced 24-hour production at the MtCattlin Mine. The Company is aiming to produce a lithium concentrate of a minimum of 5.5% Li₂O grade with a mica concentration of less than 5%. Following the redesign of the processing facility to reduce mica content and improve the final product grade, realizing improved specifications and continuous operations were milestones achieved in the start-up of production.

The Company awarded the mining contract for MtCattlin to Piacentini & Son Pty, with mining recommencing in December 2016.

During the December 2016 quarter, **Galaxy** announced it had signed a binding commitment with existing Chinese off-take customers for the sale of 120,000 tonnes of lithium concentrate for the MtCattlin Project for delivery this year.

The Company's current production guidance for 2017 of 10,000 tonnes of lithium concentrate is based on an assumed 50% recovery.

Galaxy was able to achieve off-take prices of US\$ 830 per tonne (FOB at 5.5% Li₂O content), with these customers (chemical converters) in China, also agreeing to pay an additional US\$ 15/t for every 0.1% improvement in the grade of Li₂O delivered, resulting in an agreed price of up to US\$ 905/t for a 6% grade lithium concentrate.

Galaxy announced that it had varied the existing OCP Asia ("OCP") secured facility with OCP providing an additional A\$ 16 million facility to the Company, which was arranged to support working capital requirements, as MtCattlin advanced towards commissioning.

The new facility provides the Company with adequate cash flow to meet all capital and operational expenditure requirements in the lead up to the restart of production and first shipment of lithium concentrate on 2 January 2017.

Payment was received from Mitsubishi Corporation of Japan in mid-January 2017 for the first shipment of production from MtCattlin. A vessel was nominated for February for the second full shipment of lithium concentrate.

On 19 January 2017, the Company announced that it had secured a US\$ 40 million (approximately A\$ 53.33 million) debt facility with BNP Paribas to be utilized to repay the existing OCP Asia facilities and for general working capital.

On 19 January 2017, **Galaxy** also received a notice where OCP Asia exercised 25 million warrants with total exercise proceeds of A\$ 8.59 million being applied to a reduction of the OCP debt facilities, resulting in the outstanding balance of the facility being approximately A\$ 33.6 million. Following repayment of the OCP Asia facilities from drawdown of the BNP Paribas **Galaxy** has retained approximately A\$ 20 million.

On the **James Bay project** in Quebec, Canada a DFS team was assembled towards the end of 2016 to review all existing data and with the view to undertake a site visit in 2017. A formal plan will be put together to commence feasibility work during Q1 2017. **Galaxy** has arranged for a 40-tonne sample to be shipped to Perth, Western Australia, so that test work may begin on the James Bay Project.



Pilbara Minerals (ASX – PLS) is advancing its flagship 100%-owned **Pilgangoora Lithium-Tantalum Project** in West Australia's Pilbara region towards production and maintain its aggressive timetable targeting commissioning of the site by the end of 2017 and ramping up production during 2018.

During the December 2016 quarter, the main Mining Lease for the Project was granted by the Western Australian Department of Mines and Petroleum (DMP), which represents a key condition to the Pilgangoora mining proposal submission and subsequent final project permitting expected during Q1 2017, allowing major construction, development and mining activities to proceed.

Pilbara continues to work on the balance of the Project's funding requirements, which includes several financing streams such as conventional bank project financing, non-bank lending and customer/off-take financing. The Company expects to secure the remaining project funding required to complete the development of the Pilgangoora Project during the March 2017 Quarter.

On 20 September 2016, **Pilbara** released the completed Pre-Feasibility Study ("PFS") to assess the option for a future expansion of the **Pilgangoora Lithium-Tantalum Project** to achieve 4 million tonnes per annum run-of-mine ore production and processing capacity, in addition to the 2 million tonne per annum DFS.

Key results of the PFS on the 4 million tonne per annum expansion option include a Life of Mine (LOM) average annual production of approximately 564 ktpa of 6% spodumene concentrates, including 30 ktpa of technical grade 6% spodumene concentrate and 579,000 pounds of tantalite. LOM cash operating costs are further reduced to US\$ 180 CFR per tonne after Ta2O5 by-product.

To expand to 4 Mtpa modest incremental capital expenditure is estimated at approximately A\$ 128 million plus (\pm 20%) at a PFS level of assessment.

The proposed annual average EBITDA increases to A\$ 245 million from \$ 121 million and forecast Net Present Value (NPV) post-tax increased to A\$ 1,165 million from A\$ 809 million.

On 24 January 2017, **Pilbara** announced an updated resource which represents a 22% increase in total resource tonnage compared with the resource upgrade announced in July 2016 and now comprises a total of 156.3 million tonnes @ 1.25% Li2O (spodumene) and 128 ppm Ta2O3 containing 1.95 million tonnes Li2O and 44.2 million pounds Ta2O5.

Total Measured and Indicated Resources increased by 14% to 95.3 Mt grade 1.32% Li2O, 130 ppm Ta2O5 and 0.55% Fe2O3, containing 1.26 Mt of Li2O and 27,3 million pounds of Ta2O5.

Under an agreement with Mineral Resources (ASX – MIN) **Pilbara** issued A\$ 50 million in shares (comprising approximately 104.17 million shares) to Mineral Resources as consideration for the permanent relinquishment of the right of first refusal and royalty (based on A\$ 0.48 per share).

During Q4 2016, **Pilbara** secured a second innovative off-take agreement with Chinese lithium carbonate Li2CO3 producer, Shandong Ruifu Lithium Co for the early supply of direct shipping ore from either the **Pilgangoora Project** or, at **Pilbara's** election, the adjoining higher grade **Lynas Find Lithium Project**, from as early as July 2017.

Under the agreement, Pilbara will supply a total of 1.9 million tonnes of unprocessed ROM product from July 2017, with a specification of 1.5% Li₂O and 5% moisture level. The agreement provides for an attractive fixed US\$ price per dry metric tonne (1.5% Li₂O, CFR China basis), which will provide a healthy operating margin and cash flow for the Company.

The off-take agreement with Shandong Ruifu will be in addition to the concentrate off-take agreement announced on 4 July 2016 with General Lithium Corp for the supply of 140,000 tpo of 6% chemical grade spodumene concentrate from Pilgangoora from Q1 2020.



Altura Mining (ASX – AJM) has awarded a 5-year contract to perform mining, drilling and blasting services at its world-class 100%-owned Pilgangoora Lithium Project in the Pilbara region of Western Australia to NWR Holdings.

Mobilisation is expected to commence in March 2017, following statutory approval of the Mining Proposal.

Alter delivering outstanding results in its Definitive Feasibility Study (DFS) in September 2016, **Altura** continues to be well positioned to commence commissioning the Project by Q4 2017.

Key findings of the DFS are a Pre-tax NPV of A\$ 144 million and IRR of 58% real over an initial 13 year mine life (LOM) base on an ore reserve estimate of 20.33 million tonnes; average annual ore feed of 1.54 Mt pr annum; average annual production of 219 ktpa of spodumene concentrate at 6% Li₂O;; Life of Mine cash costs of A\$ 316 per tonne of spodumene concentrate; an attractive capital estimate of A\$ 139.7 million (including sustaining capital and pre-development capital).

Project EBITDA is A\$ 1.06 billion with Project Payback of 1.8 years; LOM revenue is A\$ 2.07 billion.

The design for the process plant is progressing well and the Project and procurement teams advance a number of key tenders, which enable construction work to commence by the end of Q1 2017.

On 30 January 2017, **Altura** announced a revised Ore Reserve estimate of 30.1 Mt @ 1.04% Li₂O and 2.16% Fe₂O₃ containing 313,000 tonnes L₁₂O. The latest estimate represents an increase of 9.8 million tonnes on the previous estimate in September 2016.

In addition, the revised Inferred Mineral Resource estimate includes an upgraded Indicated Mineral Resource of 40.3 Mt @ 1.00% Li₂O, which is an increase of 9.7 Mt @ 1.04% Li₂O.



Neometals (ASX – NMT) holds a 13.8% interest in the **Mt Marion Lithium Project** and Mineral Resources (ASX – MIN) and Gangfeng Lithium of China each holding a 43.1% interest.

Mineral Resources is a leading Australia-based mining services and processing company which offers a wide range of general mine services, contract crushing, infrastructure provision and recovery of basic metals concentrate for export. Along with this Mineral Resources has three mineral producing divisions: iron ore, a magnesium project (59% owned) and the 43.1% holding in the Mt Marion Project.

The first production of lithium was achieved during Q4 2016 with the beneficiation plant being methodically commissioned and ramped up towards a full nameplate of 2.2 million tonnes per annum.

On 7 February 2017, the shareholders announced the first shipment of 15,000 tonnes of lithium concentrates on its journey to the Zhengjiang Port, where it has delivered the product to Gangfeng.

The second shipment is scheduled for mid-March, with anticipated tonnage of approximately 15,000 tonnes with product grades of +6 and +4% Li₂O.

Shareholders in the Project expect execution of formal documentation by the end of February 2017, including offtake arrangements on the fix of the 6% Li₂O pricing (US\$ 750 per dry metric tonne, CFR China) for shipments departing before 30 June 2017, and expand the scope of the offtake agreements for the Mt Marion project to 400,000 tpa of spodumene concentrates to include any sub-6% Li₂O production.

On 20 February 2017, **Neometals** announced that it had completed “proof of scale” test work at its facilities in Montreal, Canada on co-developed, proprietary process to recover cobalt from lithium ion batteries for consumer electronic devices. The Sedgman Scoping Study supports business case to accelerate commercialisation of the technology at a project operating cost of US\$ 4.45/lb.

Neometals' other projects include the **Lithium Hydroxide Project** and the **Barramble Titanium Project**, both located in Western Australia.



Nemaska Lithium's (TSX – NMX) main objective is to have its 100%-owned Whabouchi Mine and concentrator, located in the James Bay region of Quebec, Canada, in production during the first half of 2018. In order to achieve its main objective, the Company is commissioning its hydromet demonstration plant in Shawinigan, having a design capacity to produce an average 500 tonnes per year of lithium hydroxide.

Nemaska expects to accomplish a number of tasks up to the next 12 to 24 months, including the commissioning of the Phase 1 plant and start producing lithium hydroxide monohydrate commercial samples; performing the tooling agreement signed with Johnson Matthey Battery Materials, using the Phase 1 plant; produce 6% Li₂O spodumene concentrate with its DMS concentrator at the Whabouchi Mine; commissioning the concentrator in Q1 2018; continue marketing efforts with potential clients in order to secure additional commercial offtake agreements for lithium hydroxide and lithium carbonate in order to support the project financing; continue ongoing negotiations in order to put in place the project financing with recognized financial institutions and investors.

Nemaska was able to proceed with these steps following the completion of the C\$ 38 million Phase 1 plant project financing during the first half of 2016.

The Company also closed in July 2016 a public offering for gross proceeds of C\$ 69 million by the issuance of 60 million units, of which C\$ 50 million is earmarked to either start, complete or continue the main business objectives stated above.

On 8 June 2016 an amended updated Feasibility Study was filed on SEDAR. Highlights based on a Mine Life of 26 years are: Revenue C\$ 9.2 billion (US\$ 7.4 billion) – average C\$ 354 M/yr; Pre-tax net undiscounted cash flow C\$ 6.2 billion (US\$ 4.9 billion) average c\$ 260 M/yr excluding initial CAPEX; After-tax undiscounted cash flow C\$ 3.9 billion (US\$ 3.1 billion); After-tax NPV 8% discount (base case) C\$ 1.2 billion (US\$ 924 million); total initial capital costs C\$ 549 million (US\$ 439 million) in CAPEX, including contingency of C\$ 56 million (US\$ 45 million).

The estimates are based on a selling price of lithium hydroxide and lithium carbonate of US\$ 9,600/t and US\$ 7,000/t FOB Shawinigan, respectively.

Average cost/tonne of spodumene concentrate is C\$ 181/t (US\$ 145/t) FOB Whabouchi Mine.

Average cost/tonne of lithium hydroxide is C\$ 2,693/t (US\$ 2,154/t), both FOB Shawinigan.

On 31 October 2016, **Nemaska** announced that it had entered into an agreement with **FMC Corporation**, pursuant to which the Company will provide FMC with 8,000 t per year of lithium carbonate beginning in mid-2018.

**2017 SHORTLIST of REE and Strategic Metals/Special Minerals
investment recommendations as at 31 January 2017**

Company	Trading symbol		Share price		Change in %		Market cap. (million)		Change MC in % 2017/2016
			31 Jan. 2017	Year-end 2016	local	US\$	31/1/2017	31/12/2016	
REE companies (8)									
			<i>US\$</i>	<i>US\$</i>			<i>US\$</i>	<i>US\$</i>	
US (1)									
Rare Element Resources	OTC US	REEMF	0.250	0.060	317	317	13.2	3.2	313
Canada (1)									
Avalon Rare Metals	TSX	AVL	0.185	0.145	28	27	26.4	20.1	31
Australia (3)									
Alkane Resources	ASX	ALK	0.34	0.340	0	0	130.5	123.7	5
Northern Minerals	ASX	NTU	0.12	0.120	0	0	61.5	52.9	16
Arafura Resources	ASX	ARU	0.08	0.060	33	32	26.8	19.1	40
Greenland (1)									
Greenland Minerals and Energy	ASX	GGG	0.14	0.09	56	53	106.3	64.7	64
Sweden (1)									
Leading Edge Materials	TSX.V	LEM	0.860	0.51	69	67	54.9	31.7	73
Tanzania (1)									
Peak Resources	ASX	PEK	0.080	0.07	14	14	29.0	24.1	20
Lithium companies (4)									
Argentina (1)									
Altura Mining	ASX	AJM	0.180	0.14	29	27	199.7	124.5	60
Australia (1)									
Neometals	ASX	NMR	0.390	0.34	15	15	158.1	137.8	15
US (1)									
Pure Energy Minerals	TSX.V	PE	0.640	0.60	7	6	31.4	29.4	7
Graphite companies (3)									
Tanzania/Australia (1)									
Magnis Resources	ASX	MNS	0.710	0.760	-7	-6	232.4	246.2	-6
Tanzania (1)									
Kibaran Resources	ASX	KNL	0.180	0.190	-5	-5	31.4	33.2	-5
Canada (1)									
Zenyatta Ventures	TSX.V	ZEN	0.900	0.85	6	6	40.3	38.1	6

Company	Trading symbol		Share price		Change in %		Market cap. (million)		Change MC in % 2016/2015
			31 Jan. 2017	Year-end 2015	local	US\$	31/1/2017 US\$	31/12/2016 US\$	
Tungsten companies (2)									
<i>England (1)</i>									
Wolf Minerals	ASX	WLF	A\$ 0.080	A\$ 0.08	0	0	62.5	62.5	0
<i>Spain (1)</i>									
Almonty Industries	TSX.V	All	Cdn\$ 0.285	Cdn\$ 0.270	6	5	23.4	21.00	11
Titanium companies (2)									
<i>Senegal / Norway (1)</i>									
Mineral Deposits	ASX	MDL	A\$ 0.57	A\$ 0.49	16	16	42.6	36.6	16
<i>Greenland (1)</i>									
FinnAust Mining	LSE	FAM	GBP 6.90	GBP 6.78	2	2	52.3	50.3	4
Market performance 2017 (in US\$) as at 31 January 2017:				32.0%					
Market performance 2016 (in US\$):				68.9%					
Market capitalization 2017 (in US\$) as at 31 January 2017:				37.2%					
Market capitalization 2016 (in US\$):				92.4%					