

Strategic Metals & Rare Earths Letter

INTERNATIONAL

the independent information and advisory publication on investing in Strategic Metals & Rare Earths

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

► Magnesium prices explode from 80% of Chinese magnesite supply to come under state control consolidation

Recent media articles and TV news stories regarding a threat of an immediate halt to global car production due to depletion of stockpiles of magnesium metal **used as alloying element in production of aluminium alloys, which are then used extensively in car production.** According to these articles, the shortage of magnesium metal is caused by several cuts to magnesium production by China, which accounts for close to 90% of global magnesium metal production.

These cuts have led to magnesium metal prices rising from approximately \$ 2,000 per tonne in October 2020 to approximately \$ 3,200 per tonne in September 2021, and \$ 11,000 per tonne in October 2021.

► Magnesium is the lightest of all light metal alloys and is used as an alloying element in production of aluminium in production of aluminum alloys, which are used extensively in car production

On October 23, 2021, it was announced the prospect of **China's magnesite mining sector** coming under state ownership accompanied by consolidation of major players into one entity is looking increasingly likely to fraction this year.

Furthermore, the government of China is also offering tax exemption for EVs. In April 2020, the **Ministry of Finance of the People's Republic of China** issued a notice on ways to promote financial subsidies for new electric vehicles. It states that new EVs purchased between January 1, 2020 and December 31, 2022 would be exempted from vehicle purchase tax.

China possesses 27 proven magnesite deposits, making it the largest producers of magnesium in the world. **Shanxi Yinguang Magnesium** industry produces a large amount of magnesium and accounts for a huge chunk of domestic and export demand.

Shanxi Yinguang Huasheng Magnesium Co., located in Yaocun Industrial Zone of Wenxi County in Shanxi Province, known as one of the largest magnesium and calcium series product manufacturers in China since 1988, has an annual output of 80,000 tons of primary magnesium ingots, 30,000 tons of magnesium alloys and a total capacity of 10,000 tons for magnesium granules, 6,000 million tons of magnesium anodes, 4,000 million tons of extrusion profiles, 2,000 million tons die-cast fittings, 600 million tons of cast rolling strips and 500,000 forged automobile wheels along with other Mg based products

The Company also supplies 18,000 million tons of metal calcium, 7,200 million tons of calcium granular and 1,800 million tons of cored calcium wires.

Shanxi Yinguang Huasheng Magnesium Co. is also the national industrial base of magnesium and Mg alloy, while playing the vice president role in magnesium branch units of **China Nonferrous Metal Industry Association**. Moreover, the Company has established long-term business relations with Tsinghua University, Changchun Institute of Application Chemicals of Chinese Academy of Sciences, National Metals Institute and Chongqing University.

The **Huaziyu magnesite mine Haicheng**, is the second largest magnesite mine located in Liaoning province. This magnesite source and others like it are soon to be part of one huge state-owned entity **China Magnesite Mining Co.**, in an efforts to modernize and stabilize the Chinese magnesite industry and major matter for the country's refractory industry, since it is expected to control 80% of the national production.

Dongguan Eontec, listed on the Shenzhen Stock Exchange (300328), engages in the research, development and manufacturing of light alloy, liquid metal and bio-degradable magnesium alloys, parts for mobile phone accessories, cameras and light emitting diode accessories, notebook parts and auto structural parts.

The Company has a market valuation of CNY 4.88 billion (US\$ 763 million).

The products are applied in automotive and electronic industries.

Nanjing Yunhai Special Metals, listed on the Shenzhen Stock Exchange (002182), is principally engaged in the smelting, processing of nonferrous metals. Its main products include aluminium alloys, magnesium, master alloys, die castings, extrusion products and strontium, among others.

The Company has a market valuation of CNY 10.86 billion (US\$ 1.697 billion).

► **China dominates primary magnesite production by accounting for 86% of global total**

In 2019, **primary magnesium** was produced in the **USA** by one company in Utah at an electrolytic plant that recovered magnesium from the brines from the Great Salt Lake. **Secondary magnesium** was recovered from scrap at plants that produced magnesium ingot and castings and from aluminum alloy scrap at **secondary aluminium** smelters. Primary magnesium production in 2020 was estimated to have decreased from that of 2018. Information regards U.S. primary magnesium production was withheld to avoid disclosing company proprietary data.

The leading use for **primary magnesium metal**, which accounted for 55% of reported consumption, was in castings, principally used for the automotive industry. **Aluminium-base alloys** that were used for packaging, transportation and other applications **accounted for 28%** of primary magnesium in metal consumption; **desulfurization of iron and steel** 13%; and **other uses** 14%.

About 33% of the **secondary magnesium** was consumed for structural uses and about 67% was used in aluminium alloys.

According to the **U.S. Geological Survey**, Mineral Commodity Summaries, January 2020, **China** has topped world magnesium production for two decades, accounting for 70% of world magnesium capacity. Based on worldwide 2020 primary magnesium production estimated at 1.050 million tonnes by accounting for 900,000 tonnes or 86% of total recorded production, followed by **Russia** (60,000 tonnes), **USA** 50,000 estimated tonnes (5%), **Kazakhstan** 20,000 tonnes, **Israel** 20,000 tonnes, **Brazil** 20,000 tonnes, **Ukraine** 10,000 tonnes, **Turkey** 11,000 tonnes, **South Korea** 10,000 tonnes,.

World magnesium reserves are estimated at 7,800 million tonnes, which are highly concentrated in three countries: Russia 2,300 million tonnes, North Korea 1,500 million tonnes and China 1,000 million tonnes.

Overview of listed LITHIUM focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization	
			Oct.29 2021	year-end 2020		H	L	US\$ billion	US\$ billion
			US\$	US\$		US\$	US\$	US\$ billion	US\$ billion
Albemarle Corp.	NYSE	ALB	250.47	147.52	70	253.10	90.23	29.3	29.3
SQM	NYSE	SQM	54.89	49.09	12	60.74	35.74	15.7	15.7
FMC	NYSE	FMC	91.01	114.93	-21	123.66	87.27	11.7	11.7
ERAMET	Euronext	ERA:FP	72.30	42.92	68	86.60	22.97	2.0	2.3
Tianqi Lithium	Shenzen	002466	94.26	39.27	140	143.17	19.17	131.7	19.8
Pilbara Minerals	1) ASX	PLS	2.20	0.87	154	2.53	0.37	6,530.0	4,897.5
Orocobre	2) ASX	ORE	8.90	4.51	97	10.08	2.40	5,670.0	4,252.5
Liontown Resources	ASX	LTR	1.90	0.40	381	12.00	0.22	3,630.0	2,722.5
IoNeer	ASX	INR	0.69	0.28	149	0.75	0.18	1,400.0	1,050.0
Piedmont Lithium	ASX	PLL	0.86	0.37	132	1.14	0.28	1,360.0	1,020.0
AVZ Minerals	ASX	AVZ	0.36	0.17	109	0.40	0.07	1,140.0	855.0
Sayona Mining	3) ASX	SYA	0.16	0.01	1600	0.20	0.01	1,090.0	817.5
Core Lithium	ASX	CXO	0.57	0.15	293	0.66	0.04	943.6	707.7
Neometals	ASX	NMT	1.04	0.28	270	1.07	0.19	567.6	425.7
Argosy Minerals	ASX	AGY	0.29	0.08	263	0.31	0.05	362.6	271.9
Prospect Resources	ASX	PSC	0.42	0.17	147	0.49	0.10	161.1	120.8
Lithium Power International	ASX	LPI	0.43	0.22	96	0.49	0.18	150.0	112.5
European Lithium	ASX	EUR	0.15	0.05	233	0.19	0.04	137.9	103.4
Lithium Australia	ASX	LIT	0.13	0.07	89	0.21	0.05	125.0	93.8

1) completed acquisition of Altura Lithium on January 20, 2021; in consideration of an upfront cash payment of US\$ 155 million (A\$ 201 million)

2) merger of Orocobre with Galaxy Resources implemented on August 25, 2021

3) superior Court of Quebec approved acquisition of North American Lithium to create world-scale Abitibi lithium hub

Overview of listed LITHIUM focused companies (by market capitalization) - continuation

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization	
			Oct.29 2021	year-end 2020		H	L	C\$ million	US\$ million
			C\$	C\$		C\$	C\$	C\$ million	US\$ million
Lithium Americas	TSX	LAC	35.90	15.98	125	36.89	11.40	4,306.3	3,488.1
Standard Lithium	TSX.V	SLI	14.05	2.85	393	15.92	1.90	2,051.8	1,662.0
Sigma Lithium	TSX.V	SGML	10.30	2.99	244	12.05	2.40	899.5	728.6
Neo Lithium	TSX	NLC	6.26	1.99	215	6.32	0.93	884.8	716.7
American Lithium	TSX.V	LI	4.00	1.22	228	4.21	1.04	733.2	593.9
Millennial Lithium	TSX	ML	3.69	2.57	44	5.25	1.44	361.1	292.5
Critical Elements Lithium	TSX.V	CRE	1.67	0.69	142	1.84	0.66	310.3	251.3
Cypress Development	TSX.V	CYP	1.92	0.88	118	2.45	0.49	244.6	198.1
Frontier Lithium	TSX.V	FL	1.03	0.37	182	1.39	0.28	201.9	163.5
E3 Metals	TSX.V	ETMC	2.92	0.88	232	5.37	0.57	156.0	126.4
Wealth Minerals	TSX.V	WML	0.60	0.09	606	0.70	0.09	144.4	117.0
Pure Energy Minerals	TSX	PE	1.90	0.71	168	2.63	0.65	62.4	50.5
Macarthur Minerals	TSX.V	MMS	0.33	0.44	-25	0.70	0.29	47.7	38.6
Avalon Advanced Materials	TSX	AVL	0.12	0.11	9	0.36	0.07	43.8	35.5
Lithium South Development	1) TSX.V	LIS	0.71	0.46	56	1.18	0.21	43.0	34.8
Ultra Resources	2) TSX.V	ULT	0.25	0.09	172	0.28	0.04	26.3	21.3
Argentina Lithium and Energy	* TSX	LIT	0.50	0.09	456	0.96	0.07	24.7	20.0
Power Metals	TSX.V	PWM	0.21	0.39	-47	0.43	0.17	21.7	17.5
Aberdeen International	TSX	AAB	0.14	0.15	-3	0.48	0.04	19.2	15.5
Dajin Lithium	TSX.V	DJI	0.75	0.60	25	2.00	0.45	12.3	10.0
Portofino Resources	TSX.V	POR	0.12	0.10	20	0.23	0.08	10.9	8.8
			GBX	GBX		GBX	GBX	£ million	US\$ million
Bacanora Lithium	3) AIM	BCN	66.50	63.00	6	69.00	28.00	255.5	350.0
European Metals Holdings	AIM	EMH	74.50	64.00	16	110.00	20.60	130.6	178.9
Savannah Resources	AIM	SAV	4.20	4.40	-5	5.97	2.20	70.9	97.1
Kodal Minerals	4) AIM	KOD	0.32	0.10	220	0.50	0.06	50.8	69.5

* featured as a **Special Situation** and included in 2021 SMRE shortlist of investment recommendations

1) name change from NRG Metals effective October 19, 2020

2) also gold assets in Australia

4) NewView Capital of China holds a 19.89% equity interest

5) lithium project in Mali and in addition gold activity in Côte d'Ivoire

Overview of listed COBALT focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization	
			Oct.29 2021	year-end 2020		H	L	CNY billion	US\$ billion
			CNY	CNY		CNY	CNY		
Zhejiang Huayou Cobalt	Shanghai	603799	111.05	79.30	40	151.00	39.78	127.4	19.1
			C\$	C\$		C\$	C\$	C\$ million	US\$ million
First Cobalt	TSX.V	FCC	0.30	0.37	-19	0.46	0.12	162.2	131.4
Nickel 28 *	1) TSX.V	NKL	0.84	0.48	77	1.14	0.23	73.8	59.8
Fortune Minerals	TSX.V	FT	0.13	0.08	67	0.27	0.06	45.8	37.1
Quantum Battery Metals	2) CNX	QBAT	1.88	0.55	242	5.50	0.80	34.0	27.5
Canada Silver Cobalt Works	TSX.V	CCW	0.19	0.58	-68	0.77	0.18	23.8	19.3
Cruz Battery Metals	3) CNX	CRUZ	0.16	0.05	220	0.18	0.04	17.1	13.8
Sienna Resources	4) TSX.V	SIE	0.10	0.06	73	0.17	0.05	11.4	9.2
Cobalt Blockchain	TSX.V	COBC	0.05	0.07	-36	0.17	0.04	9.9	8.0
Fuse Cobalt	TSX.V	FUSE	0.08	0.04	100	0.33	0.03	8.8	7.1
Fjordland Exploration	5) TSX.V	FEX	0.11	0.11	0	0.27	0.07	8.2	6.6
Global Energy Metals	TSX.V	GEMC	0.29	0.30	-3	0.35	0.16	7.9	6.4
Bolt Metals	CNX	BOLT	0.28	0.29	-5	0.70	0.23	4.1	3.3
Power Group Projects	TSX.V	PGP	0.05	0.07	-36	0.16	0.04	2.2	1.8
			A\$	A\$		A\$	A\$	A\$ million	US\$ million
Jervois Mining	ASX	JRV	0.57	0.39	46	0.63	0.25	863.6	647.7
A-Cap Energy	6) ASX	ACB	0.15	0.03	383	0.16	0.02	165.3	124.0
Cobalt Blue Holdings	ASX	COB	0.44	0.18	142	0.52	0.10	129.8	97.4
Ardea Resources	ASX	ARL	0.49	0.41	21	0.63	0.40	67.6	50.7

* featured as a **Special Situation** and included in 2021 Shortlist of SMRE investment recommendations

1) name change from Conic Metals effective January 12, 2021

2) name change from Quantum Cobalt effective March 23, 2021

3) name change from Cruz Cobalt effective August 3, 2021

4) cobalt-nickel-copper project in Sweden

5) Nickel-copper-PGE project in Manitoba, USA and Nickel-copper-cobalt project in Newfoundland and Labrador, Canada

6) besides farm-in and Joint Venture Agreement with Blackham Resources to acquire a 75% interest in cobalt and nickel associated metals of the Wilconi Project in Western Australia, also major uranium project in Botswana

Overview of listed GRAPHITE focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization	
			Oct.29 2021	year-end 2020		H	L	A\$ million	US\$ million
			A\$	A\$		A\$	A\$	A\$ million	US\$ million
Syrah Resources	ASX	SYR	1.26	0.96	31	1.61	0.44	625.9	469.4
Talga Resources	ASX	TLG	1.50	1.62	-7	2.15	1.06	454.8	341.1
Magnis Energy Technologies	ASX	MNS	0.46	0.20	128	0.50	0.15	422.9	317.2
Ecograp	ASX	EGR	0.61	0.17	259	1.10	0.14	274.5	205.8
Greenwing Resources	1) ASX	GW1	0.34	0.19	76	0.70	0.10	37.4	28.0
			C\$	C\$		C\$	C\$	C\$ million	US\$ million
Nouveau Monde Graphite	TSX.V	NOU	10.08	10.30	-2	27.40	3.50	553.2	448.1
Zentek	2) TSX.V	ZEN	5.33	3.58	49	5.99	1.04	486.6	394.1
NextSource Materials	TSX.V	NEXT	3.39	0.90	277	5.30	0.45	331.4	268.4
Graphite One	TSX	GPH	1.56	0.49	218	2.40	0.37	117.8	95.4
Mason Graphite	TSX.V	LLG	0.54	0.48	13	1.19	0.25	73.6	59.6
Northern Graphite	TSX.V	NGC	0.52	0.29	82	0.70	0.21	41.0	33.2
SRG Mining	TSX.V	SRG	0.49	0.58	-16	1.05	0.43	38.9	31.5
Focus Graphite	TSX.V	FMS	0.06	0.06	9	0.28	0.03	29.2	23.7
Lomiko Metals	TSX.V	LMR	0.11	0.06	91	0.28	0.04	25.0	20.3
Ceylon Graphite	TSX.V	CYL	0.18	0.22	-18	0.62	0.12	23.4	18.9
Canada Carbon	TSX.V	CCB	0.09	0.18	-50	0.28	0.07	11.6	9.4
Eagle Graphite	TSX.V	EGA	0.12	0.05	167	0.38	0.04	4.5	3.6
			US\$	US\$		US\$	US\$	US\$ million	US\$ million
Westwater Resources	NASDAQ	WWR	3.17	4.93	-36	11.45	3.05	109.8	109.8

1) formerly Bass Metals; name change effective July 29, 2021; also lithium assets

2) name change from Zen Graphene Solutions, effective November 1, 2021

Overview of listed VANADIUM focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization	
			Oct.29 2021	year-end 2020		H	L	£ million	US\$ million
			GBX	GBX		GBX	GBX	£ million	US\$ million
Bushveld Minerals	AIM	BMN	10.50	19.70	-47	24.50	9.00	125.3	171.6
			A\$	A\$		A\$	A\$	A\$ million	US\$ million
TNG	1) ASX	TNG	0.13	0.09	44	0.15	0.06	162.4	121.8
Australian Vanadium	ASX	AVL	0.02	0.01	140	0.04	0.01	78.7	59.0
Technolpgy Metals Australia	ASX	TMT	0.38	0.33	15	0.48	0.29	70.0	52.5
Vanadium Resources	ASX	VR8	0.08	0.03	163	0.10	0.02	36.6	27.4
			GBX	GBX		GBX	GBX	£ million	US\$ million
Aura Energy	2) AIM	AEE	14.00	5.20	169	23.00	3.19	56.9	77.9
			C\$	C\$		C\$	C\$	C\$ million	US\$ million
Phenom Resources	3) TSX.V	PHNM	0.53	0.47	14	0.85	0.35	73.9	59.8
Silver Elephant Mining	4) TSX	ELEF	0.33	0.49	-33	0.59	0.17	73.8	59.8
Blue Sky Uranium *	5) TSX.V	BSK	0.27	0.19	43	0.37	0.09	48.9	39.6
Voyager Metals	6) TSX.V	VONE	0.13	0.13	0	0.36	0.09	11.0	8.9
Vanadian Energy	TSX.V	VEC	0.09	0.05	70	0.13	0.04	3.6	2.9

* featured as a **Special Situation** and included in 2021 Shortlist of investment recommendations

1) vanadium-titanium-iron project

2) also uranium project in Mauretania

4) plan of arrangement to spin out vanadium and nickel assets from core silver business; anticipated to be effected in December 2021

3) name change from First Vanadium, effective July 6, 2021

5) uranium-vanadium project

6) name change from Vanadium One Iron, effective October 18, 2021

Overview of listed MAGNESIUM focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization million	
			Oct.29 2021	year-end 2020		H	L	local	US\$
			C\$	C\$		C\$	C\$	C\$ million	US\$ million
Western Magnesium	TSX.V	WMG	0.73	0.11	564	0.96	0.10	270.3	218.9
West High Yield Resources	TSX.V	WHY	0.62	0.22	188	0.67	0.13	37.8	30.6
			A\$	A\$		A\$	A\$	A\$ million	US\$ million
Latrobe Magnesium	ASX	LMG	0.06	0.02	200	0.07	0.02	89.0	66.7
Korab Resources	ASX	KOR	0.06	0.01	500	0.10	0.01	21.7	16.2

Overview of listed MANGANESE focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization million	
			Oct.29 2021	year-end 2020		H	L	local	US\$
			C\$	C\$		C\$	C\$	C\$ million	US\$ million
Euro Manganese	TSX.V	EMN	0.53	0.48	11	0.85	0.18	200.1	162.0
American Manganese	TSX.V	AMY	0.81	0.41	98	2.86	0.19	195.2	158.1
Giyani Metals	TSX	EMM	0.51	0.38	34	0.87	0.17	89.1	72.2
Manganese X Energy	TSX.V	MN	0.35	0.28	27	1.04	0.17	43.5	35.2
			A\$	A\$		A\$	A\$	A\$ million	US\$ million
Element 25	ASX	E25	1.69	1.51	12	2.90	0.79	251.5	188.6

Overview of listed TUNGSTEN focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization	
			Oct.29 2021	year-end 2020		H	L	C\$ million	US\$ million
			C\$	C\$		C\$	C\$	C\$ million	US\$ million
Almonty Industries	TSX	All	0.94	0.64	47	1.30	0.58	180.2	145.9
			A\$	A\$		A\$	A\$	A\$ million	US\$ million
EQ Resources	1) ASX	EQR	0.07	0.04	25	0.08	0.02	88.7	66.5

1) formerly Carbine Tungsten; new name change from Specialty Metals effective December 2, 2020; also lithium assets in Chile and gold exploration licences in NSW, Australia

Overview of listed TITANIUM focused companies (by market capitalization)

October 29, 2021	Trading symbol		Share price		Change in %	12 months prices		Market capitalization	
			Oct.29 2021	year-end 2020		H	L	US\$ million	US\$ million
			US\$	US\$		US\$	US\$	US\$ million	US\$ million
Tronox	NYSE	TROX	23.32	14.62	60	26.33	8.51	3,580.0	3,580.0
Kronos Worldwide	NYSE	KRO	13.03	14.91	-13	18.41	12.06	1,510.0	1,510.0
			A\$	A\$		A\$	A\$	A\$ million	US\$ million
Iluka Resources	ASX	ILU	9.40	6.49	45	10.78	4.93	3,970.0	2,977.5
			GBX	GBX		GBX	GBX	£	US\$ million
BlueJay Mining	1) AIM	JAY	10.80	12.38	-13	15.99	7.60	104.9	143.7

1) Dundas ilmenite project in Greenland; also joint venture and earn-in agreement with Rio Tinto to advance Enonkoski nickel project in Finland.

Overview of listed REE focused companies (by market capitalization) - traditional countries

October 29, 2021		Trading symbol		Share price		Change in %	12 months prices		Market capitalization million	
		Oct. 29 2021	year-end 2020	US\$	US\$		US\$	US\$	US\$ million	US\$ million
US:										
Rare Element Resources	1)	OTC US REEMF		1.66	1.08	54	4.13	0.50	174.8	174.8
Texas Mineral Resources		OTC US TMRC		2.11	1.77	19	4.70	1.23	151.7	151.7
Ucore Rare Metals										
		TSX.V UCU		0.86	1.18	-27	2.97	0.70	42.2	34.2
Canada:										
Search Minerals		TSX.V SMY		0.25	0.07	277	0.37	0.04	84.2	68.2
Commerce Resources		TSX.V CCE		0.20	0.33	-38	0.50	0.19	16.6	13.4
Eagle Plains Resources		TSX.V EPL		0.15	0.15	3	0.19	0.14	15.0	12.1
Appia Rare Earths & Uranium	2)	CNSX API		0.70	0.41	73	1.22	0.29	14.5	11.7
Canada Rare Earth		TSX.V LL		0.07	0.10	-30	0.22	0.05	14.2	11.5
Medaillon Resources		TSX.V MDL		0.14	0.29	-53	0.75	0.14	9.5	7.7
Marvel Discovery	3)	TSX.V MARV		0.11	0.07	69	0.22	0.05	8.8	7.1
Australia:										
Lynas Rare Earths		ASX LYC		7.33	4.18	75	8.05	2.78	6,610.0	4,957.5
Alkane Resources	4)	ASX ALK		0.90	0.97	-8	1.40	0.66	533.0	399.8
Hastings Technology Metals		ASX HAS		0.27	0.19	43	0.30	0.12	460.7	345.5
Arafura Resources		ASX ARU		0.22	0.13	76	0.30	0.09	341.0	255.7
Northern Minerals		ASX NTU		0.05	0.04	39	0.07	0.03	257.1	192.8
Western Europe:										
Greenland:										
Greenland Minerals	5)	ASX GGG		0.12	0.28	-57	0.36	0.07	161.3	121.0
Sweden:										
Leading Edge Materials	6)	TSX.V LEM		0.39	0.37	4	0.45	0.16	56.6	45.8

1) approximately 49% held by Synchron, an affiliated General Atomics privately held group of companies

2) also uranium assets; name change from Appia Energy effective October 15, 2021

3) also uranium assets

4) also gold producer

5) world's largest undeveloped multi-element REE-uranium-zinc occurrence; uranium exploitation banned by Greenland government

6) also graphite and lithium properties in Sweden and 51% nickel-cobalt exploration alliance in Romania

Overview of listed REE focused companies (by market capitalization) - emerging countries

October 29, 2021		Trading symbol		Share price		Change in %	12 months prices		Market capitalization million	
				Oct. 29 2021	year-end 2020		H	L		
Africa:										
Namibia:										
				C\$	C\$		C\$	C\$	C\$ million	US\$ million
Namibia Critical Metals	6)	TSX.V	NMI	0.25	0.25	0	0.43	0.19	47.1	38.2
Angola:										
				GBX	GBX		GBX	GBX	£ million	US\$ million
Pensana Plc		AIM	PRE	112.00	110.00	2	208.00	58.00	250.0	342.5
Tanzania:										
				A\$	A\$		A\$	A\$	A\$ million	US\$ million
Peak Resources		ASX	PEK	0.07	0.07	-4	0.16	0.03	141.1	105.8
Burundi:										
				GBX	GBX		GBX	GBX	£ million	US\$ million
Rainbow Rare Earths		AIM	RBW	15.38	10.75	43	21.50	4.71	78.7	107.8
Malawi:										
				C\$	C\$		C\$	C\$	C\$ million	US\$ million
Mkango Resources		TSX.V	MKA	0.50	0.28	82	0.59	0.15	77.0	62.3
				A\$	A\$		A\$	A\$	A\$ million	US\$ million
Globe Metals and Mining		ASX	GBE	0.13	0.04	225	0.20	0.03	60.6	45.4

6) heavy rare earths joint venture with JOGMEC of Japan

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November	16 – 17	The Mining Show – Dubai
November	23 – 24	DRC Mining Week – Year-end Celebration - Lubumbashi, DRC
November	30	MINEX Eurasia – London
December	1 – 2	MINES and MONEY - London

Media Partnerships 2022

January	25 – 27	MINES and MONEY Online Connect
January 31 – February 2		MINES and MONEY Online Connect
January 31 – February 2		Mines and Money / IMARC Intern. Mining – Melbourne, Australia
March	7 – 10	PDAC – Toronto, Canada
April	6 – 8	Madrid Energy Conference (MEC 2022), Madrid, Spain
June	14 – 16	DRC Mining Week – Lubumbashi, DRC
June	16 – 17	Lithium Latin America – Buenos Aires, Argentina
June	28 – 30	Suriname Energy, Oil & Gas Summit (SEOG 2022), Paramaribo, Suriname
September	14 – 16	Guyana Basins Summit (GBS 2022)– Georgetown, Guyana

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