

# Strategic Metals & Rare Earths Letter

## INTERNATIONAL

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

October 2022



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publisher and editor

| 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)                        |                |                                 |                |                                |

### ► U.S. President Joe Biden helps Critical Minerals industry marked for US\$ 2.8 billion to meet electric vehicle and other green energy targets

#### Overview of listed LITHIUM focused companies (by market capitalization)

| October 31, 2022            | Trading symbol |        | Share price     |                  | Change<br>in % | 12 months<br>prices |        | Market capitalization |              |
|-----------------------------|----------------|--------|-----------------|------------------|----------------|---------------------|--------|-----------------------|--------------|
|                             |                |        | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L      | US\$ billion          | US\$ billion |
|                             |                |        | US\$            | US\$             |                | US\$                | US\$   | US\$ billion          | US\$ billion |
| Albemarle                   | NYSE           | ALB    | 279.87          | 233.77           | 20             | 308.24              | 169.93 | 32.8                  | 32.8         |
| SQM                         | 1) NYSE        | SQM    | 93.68           | 50.43            | 86             | 115.75              | 46.13  | 25.8                  | 25.8         |
|                             |                |        | CNY             | CNY              |                | CNY                 | CNY    | CNY billion           | US\$ billion |
| Tianqi Lithium              | Shenzen        | 002466 | 95.55           | 107.00           | -11            | 148.57              | 58.05  | 148.0                 | 20.7         |
| Ganfeng Lithium             | 2) Shenzen     | 002460 | 79.02           | 142.85           | -45            | 127.14              | 64.21  | 155.4                 | 21.8         |
|                             |                |        | Euro            | Euro             |                | Euro                | Euro   | Euro billion          | US\$ billion |
| ERAMET                      | Euronext       | ERA:FP | 66.35           | 71.95            | -8             | 166.00              | 60.60  | 2.0                   | 2.0          |
|                             |                |        | A\$             | A\$              |                | A\$                 | A\$    | A\$ billion           | US\$ billion |
| Pilbara Minerals            | 3) ASX         | PLS    | 5.09            | 3.20             | 59             | 5.66                | 1.98   | 15.2                  | 9.7          |
| Allkem                      | 4) ASX         | AKE    | 14.44           | 10.81            | 34             | 16.08               | 8.43   | 9.2                   | 5.9          |
| Liontown Resources          | ASX            | LTR    | 1.89            | 1.66             | 14             | 2.19                | 0.88   | 4.1                   | 2.6          |
| Core Lithium                | ASX            | CXO    | 1.39            | 0.59             | 135            | 1.69                | 0.47   | 2.5                   | 1.6          |
| Sayona Mining               | 5) ASX         | SYA    | 0.24            | 0.13             | 81             | 0.39                | 0.11   | 2.0                   | 1.2          |
| Piedmont Lithium            | ASX            | PLL    | 0.96            | 0.74             | 31             | 1.08                | 0.49   | 1.5                   | 1.0          |
| Lake Resources              | ASX            | LKE    | 1.06            | 1.01             | 5              | 2.65                | 0.55   | 1.5                   | 0.9          |
| IoNeer                      | ASX            | INR    | 0.55            | 0.80             | -31            | 0.86                | 0.32   | 1.2                   | 0.7          |
|                             |                |        |                 |                  |                |                     |        | A\$ million           | US\$ million |
| Argosy Minerals             | ASX            | AGY    | 0.52            | 0.32             | 61             | 0.61                | 0.23   | 720.9                 | 461.4        |
| Neometals                   | ASX            | NMT    | 1.11            | 1.43             | -22            | 1.97                | 0.85   | 610.3                 | 390.6        |
| Global Lithium Resources    | ASX            | GL1    | 2.44            | 1.18             | 107            | 2.94                | 0.51   | 490.8                 | 314.1        |
| Galan Lithium               | ASX            | GLN    | 1.52            | 1.95             | -22            | 2.33                | 0.94   | 462.9                 | 296.3        |
| Latin Resources             | ASX            | LRS    | 0.12            | 0.03             | 297            | 0.23                | 0.03   | 229.6                 | 146.9        |
| Lithium Power International | ASX            | LPI    | 0.57            | 0.46             | 23             | 1.04                | 0.35   | 221.0                 | 141.4        |
| European Lithium            | ASX            | EUR    | 0.09            | 0.13             | -31            | 0.19                | 0.05   | 131.4                 | 84.1         |
| Winsome Resources           | ASX            | WR1    | 0.47            | 0.37             | 26             | 0.57                | 0.18   | 66.7                  | 42.7         |
| Lithium Australia           | ASX            | LIT    | 0.05            | 0.12             | -59            | 0.16                | 0.05   | 57.4                  | 36.7         |
| Lithium Plus Minerals       | 6) ASX         | LPM    | 0.56            | 0.41             | 37             | 1.08                | 0.26   | 54.3                  | 34.8         |
| Prospect Resources          | ASX            | PSC    | 0.10            | 0.80             | -88            | 1.02                | 0.07   | 43.9                  | 28.1         |
| Balkan Mining and Minerals  | ASX            | BMM    | 0.29            | 0.34             | -13            | 0.68                | 0.15   | 16.3                  | 10.4         |

1) 23.8% equity interest Tianqi

2) announced on January 21, 2022 a 90.3% ownership in Bacanora Lithium

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

4) merger of Orocobre with Galaxy Resources implemented on August 20, 2021; name change from Orocobre effective December 6, 2021

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

6) listed as at April 26, 2022

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

| October 31, 2022               | Trading symbol |       | Share price     |                  | Change<br>in % | 12 months<br>prices |       | Market capitalization |              |
|--------------------------------|----------------|-------|-----------------|------------------|----------------|---------------------|-------|-----------------------|--------------|
|                                |                |       | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L     | C\$ million           | US\$ million |
|                                | C\$            | C\$   | C\$             | C\$              | C\$ million    | US\$ million        |       |                       |              |
| Sigma Lithium                  | TSX.V          | SGML  | 48.66           | 13.00            | 274            | 54.23               | 9.98  | 4,911.0               | 3,585.0      |
| Lithium Americas               | 1) TSX         | LAC   | 33.90           | 36.82            | -8             | 53.09               | 24.65 | 4,575.6               | 3,340.2      |
| Standard Lithium               | TSX.V          | SLI   | 5.46            | 12.27            | -56            | 15.80               | 4.11  | 909.4                 | 663.8        |
| Frontier Lithium               | TSX.V          | FL    | 2.05            | 2.03             | 1              | 3.89                | 1.02  | 436.8                 | 318.9        |
| American Lithium               | TSX.V          | LI    | 2.09            | 4.26             | -51            | 6.25                | 1.56  | 435.0                 | 317.5        |
| Critical Elements Lithium      | TSX.V          | CRE   | 1.95            | 1.39             | 40             | 1.98                | 1.13  | 409.0                 | 298.5        |
| Cypress Development            | TSX.V          | CYP   | 1.17            | 2.22             | -47            | 2.61                | 0.97  | 171.4                 | 125.1        |
| E3 Lithium                     | 2) TSX.V       | ETL   | 1.96            | 2.30             | -15            | 3.33                | 1.59  | 119.7                 | 87.4         |
| Wealth Minerals                | TSX.V          | WML   | 0.28            | 0.37             | -25            | 0.63                | 0.17  | 80.2                  | 58.5         |
| Avalon Advanced Materials      | 3) TSX         | AVL   | 0.14            | 0.11             | 23             | 0.24                | 0.09  | 55.6                  | 40.6         |
| Lithium South Development      | TSX.V          | LIS   | 0.51            | 0.81             | -37            | 1.08                | 0.42  | 49.2                  | 35.9         |
| Brunswick Exploration          | TSX.V          | BRW   | 0.30            | 0.17             | 76             | 0.44                | 0.11  | 48.2                  | 35.2         |
| Vision Lithium                 | TSX.V          | VL    | 0.15            | 0.21             | -27            | 0.34                | 0.06  | 35.2                  | 25.7         |
| ACME Lithium                   | CSE            | ACME  | 0.64            | 0.96             | -33            | 1.44                | 0.62  | 34.2                  | 24.9         |
| Foremost Lithium Resource      | CSE            | FAT   | 0.17            | 0.29             | -42            | 0.44                | 0.12  | 31.3                  | 22.8         |
| Stillwater Critical Minerals   | TSX.V          | PGE   | 0.17            | 0.40             | -58            | 0.48                | 0.15  | 29.3                  | 21.4         |
| Power Metals                   | TSX.V          | PWM   | 0.22            | 0.22             | 0              | 0.34                | 0.15  | 29.3                  | 21.4         |
| Argentina Lithium and Energy   | * TSX          | LIT   | 0.28            | 0.45             | -37            | 0.57                | 0.20  | 25.8                  | 18.8         |
| Macarthur Minerals             | TSX.V          | MMS   | 0.14            | 0.31             | -54            | 0.51                | 0.10  | 23.2                  | 16.9         |
| International Lithium          | TSX.V          | ILC   | 0.08            | 0.12             | -38            | 0.15                | 0.05  | 18.6                  | 13.6         |
| Pure Energy Minerals           | TSX            | PE    | 0.54            | 1.64             | -67            | 2.60                | 0.47  | 17.8                  | 13.0         |
| HeliosX Lithium & Technologies | 4) TSX.V       | HX    | 0.49            | 0.76             | -36            | 1.31                | 0.42  | 17.8                  | 13.0         |
| Ultra Lithium                  | 5) TSX.V       | ULT   | 0.08            | 0.21             | -62            | 0.45                | 0.08  | 13.5                  | 9.8          |
| Aberdeen International         | TSX            | AAB   | 0.05            | 0.14             | -63            | 0.17                | 0.04  | 7.2                   | 5.3          |
| Portofino Resources            | TSX.V          | POR   | 0.04            | 0.12             | -71            | 0.16                | 0.03  | 3.8                   | 2.8          |
| Bradda Head Lithium            | 6) OTCB        | BHLIF | 0.10            | 0.19             | -50            | 0.24                | 0.01  | 37.1                  | 27.1         |
| European Metals Holdings       | AIM            | EMH   | 46.00           | 68.50            | -33            | 86.50               | 34.20 | 85.6                  | 99.3         |
| Kodal Minerals                 | 7) AIM         | KOD   | 0.26            | 0.31             | -16            | 0.47                | 0.21  | 43.1                  | 50.0         |
| Savannah Resources             | AIM            | SAV   | 2.40            | 4.35             | -45            | 5.60                | 2.04  | 40.5                  | 47.0         |

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

1) acquisition of Millennial Lithium completed on January 11, 2022 at a price of C\$ 4.70 per share payable in cash and shares

2) name change from E3 Metals effective May 31, 2022

3) also rare earth elements indium, usium and tantanium

4) name change from Dajin Lithium effective February 1, 2022

5) name change from Ultra Resources effective January 19, 2022; also gold assets in Australia

6) listed as at February 7, 2022

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

## Overview of major NICKEL focused companies (by market capitalization)

| October 31, 2022             | Trading symbol |        | Share price     |                  | Change<br>in % | 12 months<br>prices |      | Market capitalization |              |
|------------------------------|----------------|--------|-----------------|------------------|----------------|---------------------|------|-----------------------|--------------|
|                              |                |        | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L    | C\$ million           | US\$ million |
|                              |                |        | C\$             | C\$              |                | C\$                 | C\$  | C\$ million           | US\$ million |
| Canada Nickel                | TSX.V          | CNC    | 1.43            | 3.52             | -17            | 4.01                | 1.18 | 161.7                 | 118.0        |
| Sherrit International        | TSX            | S      | 0.46            | 0.41             | 12             | 0.85                | 0.31 | 180.8                 | 132.0        |
| FPX Nickel                   | TSX.V          | FPX    | 0.42            | 0.50             | -16            | 0.96                | 0.35 | 90.8                  | 66.3         |
| Nickel 28                    | TSX.V          | NKL    | 0.87            | 0.97             | -10            | 1.79                | 0.74 | 78.7                  | 57.5         |
| Garibaldi Resources          | TSX.V          | GGI    | 0.26            | 0.25             | 2              | 0.65                | 0.21 | 32.5                  | 23.7         |
| Grid Metals                  | TSX.V          | GRDM   | 0.19            | 0.11             | 76             | 0.23                | 0.09 | 25.4                  | 18.5         |
|                              |                |        | A\$             | A\$              |                | A\$                 | A\$  | A\$                   |              |
| Queensland Pacific Metals    | TSX.V          | QPM    | 0.17            | 0.17             | 0              | 0.25                | 0.09 | 285.49                | 182.7        |
|                              |                |        | CNY             | CNY              |                | CNY                 | CNY  | CNY billion           | US\$ billion |
| Metallurgical Corp. of China | SSE            | 601618 | 2.88            | 3.83             | -17            | 4.83                | 2.86 | 55.5                  | 7.8          |

## Overview of listed COBALT focused companies (by market capitalization)

| October 31, 2022           | Trading symbol |        | Share price     |                  | Change<br>in % | 12 months<br>prices |       | Market capitalization |              |
|----------------------------|----------------|--------|-----------------|------------------|----------------|---------------------|-------|-----------------------|--------------|
|                            |                |        | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L     | CNY billion           | US\$ billion |
|                            |                |        | CNY             | CNY              |                | CNY                 | CNY   | CNY billion           | US\$ billion |
| Zhejiang Huayou Cobalt     | Shanghai       | 603799 | 54.48           | 110.31           | -51            | 109.46              | 52.32 | 90.9                  | 12.7         |
|                            |                |        | C\$             | C\$              |                | C\$                 | C\$   | C\$ million           | US\$ million |
| Electra Battery Metals     | 1) TSX.V       | ELBM   | 4.00            | 5.76             | -31            | 7.65                | 3.27  | 131.2                 | 95.7         |
| Fortune Minerals           | TSX.V          | FT     | 0.08            | 0.15             | -45            | 0.16                | 0.08  | 30.5                  | 22.3         |
| Canada Silver Cobalt Works | TSX.V          | CCW    | 0.10            | 0.17             | -42            | 0.33                | 0.08  | 19.3                  | 14.1         |
| Quantum Battery Metals     | 2) CSE         | QBAT   | 0.47            | 0.89             | -47            | 1.90                | 0.28  | 11.5                  | 8.4          |
| Fuse Cobalt                | TSX.V          | FUSE   | 0.07            | 0.07             | 0              | 0.12                | 0.04  | 10.6                  | 7.7          |
| Cruz Battery Metals        | 3) CSE         | CRUZ   | 0.09            | 0.27             | -67            | 0.34                | 0.09  | 10.1                  | 7.4          |
| Sienna Resources           | 4) TSX.V       | SIE    | 0.06            | 0.12             | -48            | 0.15                | 0.04  | 7.5                   | 5.5          |
| Enerev5 Metals             | 5) TSX.V       | ENEV   | 0.03            | 0.05             | -44            | 0.06                | 0.01  | 5.8                   | 4.2          |
| Global Energy Metals       | TSX.V          | GEMC   | 0.09            | 0.26             | -65            | 0.31                | 0.06  | 2.9                   | 2.1          |
| Fjordland Exploration      | 6) TSX.V       | FEX    | 0.04            | 0.12             | -70            | 0.13                | 0.03  | 2.9                   | 2.1          |
| Power Group Projects       | TSX.V          | PGP    | 0.02            | 0.04             | -43            | 0.06                | 0.02  | 2.4                   | 1.7          |
| Bolt Metals                | 7) CSE         | BOLT   | 0.08            | 0.20             | -59            | 0.31                | 0.06  | 1.2                   | 0.9          |
|                            |                |        | A\$             | A\$              |                | A\$                 | A\$   | A\$ million           | US\$ million |
| Jervois Global Limited     | ASX            | JRV    | 0.49            | 0.59             | -17            | 1.02                | 0.38  | 745.1                 | 476.8        |
| Cobalt Blue Holdings       | ASX            | COB    | 0.64            | 0.50             | 29             | 1.07                | 0.34  | 211.6                 | 135.4        |
| A-Cap Energy               | 8) ASX         | ACB    | 0.08            | 0.15             | -45            | 0.19                | 0.05  | 102.3                 | 65.5         |

1) name change from First Cobalt effective November 8, 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) name change from Cobalt Blockchain, effective November 10, 2021

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

7) mass consolidation of mining permits by Indonesian government leads to conditional sale of Cyclops Project to Nickel Mines in December 2021

8) 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 31, 2022           | Trading symbol |      | Share price     |                  | Change<br>in % | 12 months<br>prices |             | Market capitalization |                     |
|----------------------------|----------------|------|-----------------|------------------|----------------|---------------------|-------------|-----------------------|---------------------|
|                            |                |      | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L           | A\$ million           | US\$ million        |
|                            |                |      | <b>A\$</b>      | <b>A\$</b>       |                | <b>A\$</b>          | <b>A\$</b>  | <b>A\$ million</b>    | <b>US\$ million</b> |
| Syrah Resources            | ASX            | SYR  | 2.39            | 1.81             | 32             | 2.51                | 1.04        | 1,600.0               | 1,024.0             |
| Talga Group                | ASX            | TLG  | 1.25            | 1.63             | -24            | 2.23                | 1.00        | 416.2                 | 266.4               |
| Magnis Energy Technologies | ASX            | MNS  | 0.38            | 0.58             | -35            | 0.76                | 0.27        | 363.9                 | 232.9               |
| Ecograf                    | ASX            | EGR  | 0.35            | 0.68             | -49            | 0.86                | 0.22        | 155.4                 | 99.4                |
| Greenwing Resources        | 1) ASX         | GW1  | 0.33            | 0.43             | -23            | 0.58                | 0.18        | 41.6                  | 26.6                |
|                            |                |      | <b>C\$</b>      | <b>C\$</b>       |                | <b>C\$</b>          | <b>C\$</b>  | <b>C\$ million</b>    | <b>US\$ million</b> |
| Nouveau Monde Graphite     | TSX.V          | NOU  | 6.43            | 8.79             | -27            | 11.90               | 4.36        | 359.1                 | 262.1               |
| NextSource Materials       | TSX.V          | NEXT | 2.40            | 3.26             | -26            | 4.90                | 1.63        | 244.5                 | 178.5               |
| Graphite One               | TSX            | GPH  | 1.12            | 1.91             | -41            | 2.54                | 0.93        | 119.3                 | 87.1                |
| SRG Mining                 | TSX.V          | SRG  | 0.67            | 0.72             | -7             | 0.96                | 0.37        | 76.3                  | 55.7                |
| Northern Graphite          | TSX.V          | NGC  | 0.46            | 0.83             | -45            | 0.94                | 0.43        | 55.2                  | 40.3                |
| Mason Graphite             | TSX.V          | LLG  | 0.20            | 0.69             | -72            | 0.78                | 0.20        | 26.6                  | 19.4                |
| Ceylon Graphite            | TSX.V          | CYL  | 0.09            | 0.20             | -54            | 0.27                | 0.07        | 13.9                  | 10.1                |
| Canada Carbon              | TSX.V          | CCB  | 0.05            | 0.08             | -38            | 0.10                | 0.03        | 7.7                   | 5.6                 |
| Lomiko Metals              | TSX.V          | LMR  | 0.03            | 0.10             | -70            | 0.13                | 0.03        | 7.1                   | 5.2                 |
| Focus Graphite             | TSX.V          | FMS  | 0.13            | 0.75             | -83            | 1.20                | 0.09        | 7.0                   | 5.1                 |
| Eagle Graphite             | TSX.V          | EGA  | 0.09            | 0.16             | -47            | 0.22                | 0.07        | 3.2                   | 2.3                 |
|                            |                |      | <b>US\$</b>     | <b>US\$</b>      |                | <b>US\$</b>         | <b>US\$</b> | <b>US\$ million</b>   | <b>US\$ million</b> |
| Westwater Resources        | NASDAQ         | WWR  | 1.13            | 2.15             | -47            | 3.83                | 1.00        | 53.4                  | 53.4                |

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

## Overview of listed VANADIUM focused companies (by market capitalization)

| October 31, 2022            | Trading symbol |      | Share price     |                  | Change<br>in % | 12 months<br>prices |            | Market capitalization |                     |
|-----------------------------|----------------|------|-----------------|------------------|----------------|---------------------|------------|-----------------------|---------------------|
|                             |                |      | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L          | £ million             | US\$ million        |
|                             |                |      | <b>GBX</b>      | <b>GBX</b>       |                | <b>GBX</b>          | <b>GBX</b> | <b>£ million</b>      | <b>US\$ million</b> |
| Bushveld Minerals           | AIM            | BMN  | 4.90            | 10.10            | -51            | 15.20               | 4.00       | 63.1                  | 73.2                |
|                             |                |      | <b>A\$</b>      | <b>A\$</b>       |                | <b>A\$</b>          | <b>A\$</b> | <b>A\$ million</b>    | <b>US\$ million</b> |
| Australian Vanadium         | ASX            | AVL  | 0.03            | 0.03             | 3              | 0.12                | 0.02       | 128.3                 | 82.1                |
| TNG                         | 1) ASX         | TNG  | 0.08            | 0.08             | 0              | 0.14                | 0.05       | 111.1                 | 71.1                |
| Technolpgy Metals Australia | ASX            | TMT  | 0.35            | 0.29             | 21             | 0.62                | 0.27       | 73.4                  | 47.0                |
| Vanadium Resources          | ASX            | VR8  | 0.07            | 0.08             | -13            | 0.18                | 0.06       | 30.9                  | 19.8                |
|                             |                |      | <b>GBX</b>      | <b>GBX</b>       |                | <b>GBX</b>          | <b>GBX</b> | <b>£ million</b>      | <b>US\$ million</b> |
| Aura Energy                 | 2) AIM         | AEE  | 15.75           | 13.50            | 17             | 19.00               | 8.50       | 83.6                  | 96.9                |
|                             |                |      | <b>C\$</b>      | <b>C\$</b>       |                | <b>C\$</b>          | <b>C\$</b> | <b>C\$ million</b>    | <b>US\$ million</b> |
| Phenom Resources            | 4) TSX.V       | PHNM | 0.38            | 0.41             | -7             | 0.81                | 0.30       | 31.5                  | 23.0                |
| Blue Sky Uranium *          | 3) TSX.V       | BSK  | 0.13            | 0.20             | -33            | 0.34                | 0.12       | 26.0                  | 19.0                |
| Voyager Metals              | 5) TSX.V       | VONE | 0.10            | 0.18             | -44            | 0.27                | 0.10       | 9.3                   | 6.8                 |
| Vanadian Energy             | TSX.V          | VEC  | 0.03            | 0.05             | -50            | 0.10                | 0.02       | 1.1                   | 0.8                 |

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

1) vanadium-titanium-iron project

2) also advanced uranium project in Mauretania

3) uranium-vanadium project

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

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

## Overview of listed MAGNESIUM focused companies (by market capitalization)

| October 31, 2022          | Trading symbol |       | Share price     |                  | Change<br>in % | 12 months<br>prices |      | Market capitalization<br>million |              |      |
|---------------------------|----------------|-------|-----------------|------------------|----------------|---------------------|------|----------------------------------|--------------|------|
|                           |                |       | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L    | local                            | US\$         |      |
|                           |                |       | C\$             | C\$              |                | C\$                 | C\$  | C\$ million                      | US\$ million |      |
| Western Magnesium         | TSX.V          | WMG   | 0.14            | 0.50             | -72            | 0.77                | 0.09 | 63.0                             | 46.0         |      |
| West High Yield Resources | * 1)           | TSX.V | WHY             | 0.26             | 0.68           | -63                 | 1.22 | 0.25                             | 20.9         | 15.3 |
|                           |                |       | A\$             | A\$              |                | A\$                 | A\$  | A\$ million                      | US\$ million |      |
| Latrobe Magnesium         | ASX            | LMG   | 0.08            | 0.10             | -22            | 0.18                | 0.05 | 120.9                            | 77.4         |      |
| Korab Resources           | ASX            | KOR   | 0.03            | 0.05             | -44            | 0.10                | 0.02 | 10.3                             | 6.6          |      |

1) also gold project in Victoria, Australia

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

## Overview of listed MANGANESE focused companies (by market capitalization)

| October 31, 2022            | Trading symbol |       | Share price     |                  | Change<br>in % | 12 months<br>prices |      | Market capitalization<br>million |              |      |
|-----------------------------|----------------|-------|-----------------|------------------|----------------|---------------------|------|----------------------------------|--------------|------|
|                             |                |       | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L    | local                            | US\$         |      |
|                             |                |       | C\$             | C\$              |                | C\$                 | C\$  | C\$ million                      | US\$ million |      |
| Euro Manganese              | TSX.V          | EMN   | 0.27            | 0.47             | -42            | 0.60                | 0.19 | 108.3                            | 79.1         |      |
| Recyclico Battery Materials | 1)             | TSX.V | AMY             | 0.40             | 0.52           | -24                 | 0.94 | 0.28                             | 98.8         | 72.1 |
| Giyani Metals               | 2)             | TSX   | EMM             | 0.21             | 0.34           | -40                 | 0.61 | 0.21                             | 44.8         | 32.7 |
| Manganese X Energy          | TSX.V          | MN    | 0.20            | 0.30             | -32            | 0.58                | 0.20 | 25.3                             | 18.5         |      |
|                             |                |       | A\$             | A\$              |                | A\$                 | A\$  | A\$ million                      | US\$ million |      |
| Element 25                  | ASX            | E25   | 1.06            | 1.23             | -14            | 1.71                | 0.43 | 162.0                            | 103.7        |      |

1) name change from Amican Manganese, effective September 27, 2022

2) developing projects in Botswana

## Overview of listed TUNGSTEN focused companies (by market capitalization)

| October 31, 2022   | Trading symbol |     | Share price     |                  | Change<br>in % | 12 months<br>prices |      | Market capitalization |              |      |
|--------------------|----------------|-----|-----------------|------------------|----------------|---------------------|------|-----------------------|--------------|------|
|                    |                |     | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L    | C\$ million           | US\$ million |      |
|                    |                |     | C\$             | C\$              |                | C\$                 | C\$  | C\$ million           | US\$ million |      |
| Almonty Industries | TSX            | All | 0.69            | 0.89             | -22            | 1.10                | 0.57 | 149.0                 | 108.8        |      |
|                    |                |     | A\$             | A\$              |                | A\$                 | A\$  | A\$ million           | US\$ million |      |
| EQ Resources       | 1)             | ASX | EQR             | 0.04             | 0.06           | -31                 | 0.08 | 0.04                  | 57.8         | 37.0 |

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 31, 2022 | Trading symbol |      | Share price     |                  | Change<br>in % | 12 months<br>prices |       | Market capitalization |              |
|------------------|----------------|------|-----------------|------------------|----------------|---------------------|-------|-----------------------|--------------|
|                  |                |      | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L     |                       |              |
|                  |                |      | US\$            | US\$             |                | US\$                | US\$  | US\$ billion          | US\$ billion |
| Tronox           | NYSE           | TROX | 12.00           | 24.03            | -50            | 25.95               | 11.14 | 1,850.0               | 1,850.0      |
| Kronos Worldwide | NYSE           | KRO  | 9.50            | 15.01            | -37            | 19.78               | 8.48  | 1,100.0               | 1,100.0      |
|                  |                |      | A\$             | A\$              |                | A\$                 | A\$   | A\$ million           | US\$ million |
| Iluka Resources  | ASX            | ILU  | 8.65            | 10.10            | -14            | 12.83               | 8.05  | 3,670.0               | 2,348.8      |
|                  |                |      | GBX             | GBX              |                | GBX                 | GBX   | £ million             | US\$ million |
| BlueJay Mining   | 1) AIM         | JAY  | 5.60            | 9.22             | -39            | 11.58               | 4.20  | 58.8                  | 68.2         |

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 31, 2022            | Trading symbol |              | Share price     |                  | Change<br>in % | 12 months<br>prices |      | Market capitalization<br>million |              |
|-----------------------------|----------------|--------------|-----------------|------------------|----------------|---------------------|------|----------------------------------|--------------|
|                             |                |              | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L    |                                  |              |
|                             |                |              | A\$             | A\$              |                | A\$                 | A\$  | A\$ million                      | US\$ million |
| <b>Australia:</b>           |                |              |                 |                  |                |                     |      |                                  |              |
| Lynas Rare Earths           | ASX            | LYC          | 8.33            | 10.17            | -18            | 11.59               | 7.09 | 7,530.0                          | 4,819.2      |
| Arafura Resources           | ASX            | ARU          | 0.30            | 0.21             | 40             | 0.50                | 0.17 | 509.6                            | 326.1        |
| Hastings Technology Metals  | ASX            | HAS          | 3.55            | 5.20             | -32            | 6.40                | 3.21 | 449.7                            | 287.8        |
| Northern Minerals           | ASX            | NTU          | 0.04            | 0.06             | -17            | 0.07                | 0.04 | 214.6                            | 137.3        |
| <b>US:</b>                  |                |              |                 |                  |                |                     |      |                                  |              |
| Texas Mineral Resources     |                | OTC US TMRC  | 1.88            | 1.97             | -5             | 2.49                | 1.52 | 137.3                            | 137.3        |
| Rare Element Resources      | 1)             | OTC US REEMF | 0.45            | 1.25             | -64            | 2.05                | 0.36 | 95.6                             | 95.6         |
|                             |                |              | C\$             | C\$              |                | C\$                 | C\$  | C\$ million                      | US\$ million |
| Ucore Rare Metals           |                | TSX.V UCU    | 0.77            | 0.73             | 5              | 1.25                | 0.53 | 37.8                             | 27.6         |
| <b>Canada:</b>              |                |              |                 |                  |                |                     |      |                                  |              |
| Appia Rare Earths & Uranium | 2)             | CSE API      | 0.46            | 0.14             | 237            | 0.79                | 0.28 | 56.0                             | 40.9         |
| Search Minerals             |                | TSX.V SMY    | 0.08            | 0.22             | -64            | 0.33                | 0.08 | 33.2                             | 24.2         |
| Eagle Plains Resources      |                | TSX.V EPL    | 0.16            | 0.17             | -9             | 0.19                | 0.15 | 17.1                             | 12.5         |
| Commerce Resources          |                | TSX.V CCE    | 0.14            | 0.23             | -40            | 0.32                | 0.10 | 12.4                             | 9.0          |
| Marvel Discovery            | 3)             | TSX.V MARV   | 0.09            | 0.08             | 13             | 0.17                | 0.06 | 8.7                              | 6.3          |
| Canada Rare Earth           |                | TSX.V LL     | 0.03            | 0.06             | -50            | 0.08                | 0.03 | 6.3                              | 4.6          |
| Medaillon Resources         |                | TSX.V MDL    | 0.07            | 0.13             | -46            | 0.16                | 0.05 | 4.9                              | 3.6          |
| <b>Western Europe:</b>      |                |              |                 |                  |                |                     |      |                                  |              |
| <b>Greenland:</b>           |                |              |                 |                  |                |                     |      |                                  |              |
| Greenland Minerals          | 4)             | ASX GGG      | 0.01            | 0.08             | -94            | 0.14                | 0.04 | 67.8                             | 43.4         |
| <b>Sweden:</b>              |                |              |                 |                  |                |                     |      |                                  |              |
| Leading Edge Materials      | 5)             | TSX.V LEM    | 0.16            | 0.50             | -69            | 0.72                | 0.15 | 23.6                             | 17.2         |

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

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

3) also uranium assets

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

5) 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 31, 2022        |    | Trading symbol |     | Share price     |                  | Change<br>in % | 12 months<br>prices |              | Market capitalization<br>million |                       |
|-------------------------|----|----------------|-----|-----------------|------------------|----------------|---------------------|--------------|----------------------------------|-----------------------|
|                         |    |                |     | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L            |                                  |                       |
| <b>Africa:</b>          |    |                |     |                 |                  |                |                     |              |                                  |                       |
| <b>Namibia:</b>         |    |                |     |                 |                  |                |                     |              |                                  |                       |
| Namibia Critical Metals | 1) | TSX.V          | NMI | C\$<br>0.15     | C\$<br>0.25      | -39            | C\$<br>0.26         | C\$<br>0.12  | C\$ million<br>29.5              | US\$ million<br>21.5  |
| <b>Angola:</b>          |    |                |     |                 |                  |                |                     |              |                                  |                       |
| Pensana Plc             |    | AIM            | PRE | GBX<br>57.50    | GBX<br>99.05     | -42            | GBX<br>116.50       | GBX<br>41.05 | £ million<br>142.6               | US\$ million<br>165.4 |
| <b>Tanzania:</b>        |    |                |     |                 |                  |                |                     |              |                                  |                       |
| Peak Rare Earths        | 2) | ASX            | PEK | A\$<br>0.43     | A\$<br>0.85      | -49            | A\$<br>0.93         | A\$<br>0.29  | A\$ million<br>89.2              | US\$ million<br>57.1  |
| <b>Burundi:</b>         |    |                |     |                 |                  |                |                     |              |                                  |                       |
| Rainbow Rare Earths     |    | AIM            | RBW | GBX<br>9.84     | GBX<br>17.38     | -43            | GBX<br>18.50        | GBX<br>9.50  | £ million<br>51.6                | US\$ million<br>59.9  |
| <b>Malawi:</b>          |    |                |     |                 |                  |                |                     |              |                                  |                       |
| Mkango Resources        |    | TSX.V          | MKA | C\$<br>0.21     | C\$<br>0.52      | -60            | C\$<br>0.70         | C\$<br>0.16  | C\$ million<br>45.2              | US\$ million<br>33.0  |
| Globe Metals and Mining |    | ASX            | GBE | A\$<br>0.08     | A\$<br>0.11      | -27            | A\$<br>0.14         | A\$<br>0.06  | A\$ million<br>39.1              | US\$ million<br>25.0  |

1) heavy rare earths joint venture with JOGMEC of Japan  
2) name change from Peak Resources, effective November 29, 2021

## CARBON STREAMING focused company (by market capitalization)

| October 31, 2022 |   | Trading symbol |      | Share price     |                  | Change<br>in % | 12 months<br>prices |             | Market capitalization<br>million |                       |
|------------------|---|----------------|------|-----------------|------------------|----------------|---------------------|-------------|----------------------------------|-----------------------|
|                  |   |                |      | Oct. 31<br>2022 | Year-end<br>2021 |                | H                   | L           |                                  |                       |
| Carbon Streaming | * | NEO            | NETZ | C\$<br>0.74     | C\$<br>13.15 *   | -94            | C\$<br>16.84        | C\$<br>2.53 | C\$ million<br>163.8             | US\$ million<br>119.6 |

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

## ► US sets 50% target on electric vehicles by 2030

The United States has set a target to make half of all new passenger cars and light trucks sold in 2030 zero emission vehicles. The category includes battery electric plug-in hybrid electric or fuel cell electric vehicles.

“America must lead the world on clean and efficient cars and trucks” U.S. President Joe Biden announced on August 5, 2022. “My administration will prioritize setting clear standards, expending key infrastructure planning, critical innovation and investing in the American auto worker”.

In a joint statement by Ford General Motors and Stellantis, the automakers announced “their shared aspiration to achieve sales of 40-50% of annual U.S. volumes of electric vehicles (battery electric, fuel cell and plug-in hybrid vehicles) by 2030 in order to move the nation closer to a zero-emission future consistent with Paris climate goals”. That percentage range is up from about 2% this year.

The White House briefing noted that the U.S. market share of electric vehicles “is only one-third of that of the Chinese electric vehicle market” and outlined a number of investments including installation of the first-ever national network of electric vehicle charging stations; consumer incentives; financing the rebuilding and expansion of the fuel domestic manufacturing supply chain”; and “innovating the next generation of clean technologies to maintain our competitive edge”.

Since 2010, the cost of battery packs has fallen by 85%, the White House briefing stated, “paving the way to sticker price parity with gasoline-powered vehicles”. It also noted that “the range of EVs has increased dramatically as charging times shortened”.

As we said before, “we are in competition with China and many other nations for the 21<sup>st</sup> century”, President Biden declared. “To win, we are going to have to make sure the future will be made in America”.

“Right now, China is leading the race and is one of the largest and fastest growing electric vehicle markets in the world and a key part of the electric vehicle – to state the obvious – is the battery. And right now, 80% of the manufacturing capacity for these batteries is done in China”.

According to the White House briefing the Environmental Protection Agency (EPA) and U.S. Department of Transportation are advancing “smart fuel efficiency and emission standards and would deliver around US\$ 140 billion in net benefits over de life of the program, save about 200 billion gallons of gasoline and reduce around two billion metric carbon pollution”.

On November 9, 2021, a proposal revised U.S. critical minerals list was published in the Federal Register. The new list contained 50 individual mineral commodities, proposed changes were the addition of **nickel** and **zinc** and the removal of helium, potash, rhenium, strontium and uranium, which were included in the 2018 critical minerals list.



# CALENDAR OF MINING EVENTS



Uraniumletter INTERNATIONAL

Strategic Metals & Rare Earths Letter  
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## Media Partnerships 2022

|                          |         |  |
|--------------------------|---------|--|
| January                  | 25 – 27 | <b>Mines and Money Online Connect</b>                                  |
| April                    | 5 – 7   | <b>Mines and Money Online Connect</b>                                  |
| April                    | 6 – 8   | <b>Madrid Energy Conference (MEC 2022), Madrid, Spain</b>              |
| April                    | 6 – 8   | <b>MINEX Kazakhstan – Nur Sultan, Kazakhstan</b>                       |
| May                      | 4 – 5   | <b>Mines &amp; Money London (Hybrid)</b>                               |
| June                     | 1 – 3   | <b>DRC Mining Week – Lubumbashi, DRC</b>                               |
| June                     | 13 – 15 | <b>PDAC 2022 – Toronto, Canada – in person</b>                         |
| June                     | 28 – 29 | <b>PDAC 2022 – Toronto, Canada – ONLINE</b>                            |
| June                     | 28 – 30 | <b>Suriname Energy, Oil &amp; Gas Summit, Paramaribo, Suriname</b>     |
| July                     | 26 – 27 | <b>Lithium Latin America – Buenos Aires, Argentina</b>                 |
| August 30 – September 1  |         | <b>Mines and Money Online Connect</b>                                  |
| September                | 14 – 16 | <b>Guyana Basins Summit – Georgetown, Guyana</b>                       |
| November                 | 1 – 3   | <b>ZIMEC 2022 – Kitwe, Zambia</b>                                      |
| November                 | 2 – 4   | <b>Int.Mining and Resource Conf. (IMARC) – Melbourne, Australia</b>    |
| November                 | 15 – 17 | <b>Symposium Mines Guinee – Conakry, Guinea</b>                        |
| November                 | 29      | <b>MINEX Eurasia</b>   |
| November 29 – December 1 |         | <b>Resourcing Tomorrow, brought to you by Mines and Money - London</b> |



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