

Rowena Smith sits down with Jack Lifton on ASM's 'Mines to Metal' Advantage in Supplying Rare Earths

written by InvestorNews | March 17, 2024

During an interview at PDAC 2024 in Toronto, Jack Lifton of InvestorNews sat down with Rowena Smith, the Managing Director of [Australian Strategic Materials Ltd.](#) (ASX: ASM), to delve into the company's position and strategic initiatives within the rare earths and permanent magnet supply chain. Smith elucidated ASM's comprehensive strategy, spanning from "mine to metal," highlighting their advanced development project in Dubbo, New South Wales, and their operational metals plant in South Korea. The company has successfully commenced production of neodymium praseodymium (NdPr) metal and neodymium iron boron (NdFeB) strip alloy, which are essential components for sintered magnets used across various technological applications. Smith proudly noted ASM's pioneering role as the first Australian entity and one of the few globally to achieve such depth in the supply chain outside of China, emphasizing the critical nature of their work in diversifying the global supply chain and reducing dependence on single-source suppliers.

Smith also detailed the Dubbo Project's progress, underlining its pivotal role in ASM's mine-to-metals business model for supplying rare earths and critical minerals. Funding and securing off-take agreements are current priorities, with the project's engineering, exploration, and permitting stages already completed. Smith's participation in a U.S. trade delegation and discussions with U.S. government departments

reflect a strong international interest in funding the project. These interactions highlight the alignment between Australian and U.S. interests in establishing a sustainable and transparent critical minerals supply chain. ASM's engagement with various U.S. government agencies and the passage of legislation recognizing Australia as a 'domestic source' for U.S. Department of Defense procurement showcases the international efforts to bolster critical mineral supply chains outside of China. The company's ongoing discussions for offtake agreements and advancements in metallization capability at the Korean Metals Plant further underscore ASM's commitment to securing a robust position within the global supply chain of rare earth metals and alloys.

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About Australian Strategic Materials Ltd.

Australian Strategic Materials (ASX: ASM) is a vertically integrated 'mine to metals' producer of critical metals for new growth industries, high technologies and sustainable energy solutions. ASM operates a metals plant in Ochang, South Korea which is currently producing critical metals and alloys to customer specifications. The initial production focus is on neodymium praseodymium (NdPr) and neodymium iron boron (NdFeB). Currently, ASM sources the rare earth oxides for the production of the critical metals at its Korean Metals Plant (KMP) from a third party located in Vietnam. The company's Dubbo Project, is a long-term resource of rare earth elements, zirconium, niobium and hafnium, located in New South Wales, Australia. ASM intends

to develop the Dubbo Project to produce metal oxides which will be used for refining into critical metals at ASM's KMP and subsequent plants that may be established in other jurisdictions.

To learn more about Australian Strategic Materials Limited, [click here](#)

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Global Rare Earths Market Heats Up as China Implements Export Ban

written by Tracy Weslosky | March 17, 2024

China's recent decision to ban the export of [rare earth](#)

[processing technology](#) marks a significant shift in the global rare earths market. This move, aimed at protecting China's dominance in the strategic metals sector, encompasses technology for extracting and separating rare earths, as well as the production technology for rare earth metals, alloys, and some magnets. The ban has major implications for industries reliant on these materials, such as electronics, clean energy, and defense.

In response to this development, experts from the [Critical Minerals Institute](#) (CMI) have shared their insights. Melissa "Mel" Sanderson, a director at CMI, characterizes China's move as predictable and in line with their stated intentions. She stresses the importance of the United States responding proactively, emphasizing the need to advance initiatives in greener, cleaner spaces like bio-extraction, and to invest in conventional technologies. Sanderson warns of the risks of over-reliance on nations like Australia, which have their own market priorities and limitations.

The consensus among experts is clear: the recent developments serve as a crucial wake-up call for the United States, emphasizing the need to prioritize technological advancements, particularly in sustainable sectors. They stress the importance of investing in traditional processing and separation technologies to prevent limitations in capacity. CMI Director [Peyton Jackson](#) further elaborates, "The U.S. government [granted](#) Lynas Rare Earths Ltd. (ASX: LYC) \$300 million for a project feasibly achievable with just \$30 million invested at White Mesa Utah. Production at White Mesa is expected to begin in January 2024, as scheduled. This exemplifies a vital point: often, solutions are more straightforward than they initially seem. It falls upon us to bring attention to these simpler, yet effective, approaches."

CMI Co-Chair [Jack Lifton](#) comments: “The ban will impact mostly non-Chinese countries that are building rare earth processing and fabricating facilities de novo. Western companies, such as Solvay, Neo Performance (Sil-Met), and Lynas have been efficiently separating rare earths for some time. America’s MP and Energy Fuels are either re-starting and/or modifying existing solvent extraction processing systems to handle rare earth separations. Solvent extraction separation is a long-established practice everywhere. The issue is the production of rare earth metals and alloys and from them of rare earth permanent magnets. This is where China’s massive lead in manufacturing technology may be insurmountable. Time will tell.”

In this context, [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR), a frontrunner in the industry, has embarked on an ambitious project. Jack Lifton explains: “Energy Fuels has begun construction of an up-to-date solvent extraction system with an initial capacity of 1000 tons per year of the total rare earths contained in monazite. The SX plant, designed in-house, will be among the world’s most streamlined and efficient. It will require only a fraction of the traditional number of mixer-settler stations today considered ‘necessary’ for a legacy SX system. The payable product of the EF system will be separated NdPr, also known as didymium. This first phase plant will produce enough NdPr per year for the production of 700 tons of neodymium-iron-boron type rare earth permanent magnets. Energy Fuels phase one SX plant will be operational on or before May 1, 2024.”

The ban on the export of rare earth processing technology by China and the proactive steps taken by companies like Energy Fuels underscore a larger issue: the strategic importance of rare earth elements and the technological independence of nations. The insights from CMI directors, combined with the initiatives of industry players like Energy Fuels, suggest a

path forward for the U.S. to increase investment in both green and conventional technologies. This strategy is essential not only to address the immediate challenges posed by China's policy change but also to pave the way for a more sustainable and secure future in the rare earths and broader critical minerals sector.

Setback for U.S. Rare Earth Industry: China Tightens Export Laws on Key Technologies, Impeding American Efforts to Gain Independence Despite Financial Incentives

written by Jack Lifton | March 17, 2024

Bad news for those who think that the shortage of rare earth processing in America can be resolved by the injection of “free” money (A/K/A subsidies [also known as taxpayer's money]) into the “free” market as, drum roll, please, “tax credits,” grants, and loans. The Chinese have decided not to give up their decades-long, learned by trial and error as much as by science and engineering, dominance in rare earth processing. China has announced a (further) tightening of its strict laws against the export of rare earth themed industrial technology. In

particular, this means that technologies for producing rare earth metals, alloys and MAGNETS may not be shared with ANY foreign (to China) entity as a matter of national security!

Redefining Rare Earths Supply Chain: A Conversation with ASM's Rowena Smith

written by InvestorNews | March 17, 2024

In a recent interview on InvestorNews, CMI Co-Chair Jack Lifton had a chance to speak with Rowena Smith, the Managing Director and CEO of Australian Strategic Materials Limited (ASM) (ASX: ASM). The conversation took a deep dive into ASM's unique positioning in the rare earths industry.

Eyes on Korea: The Emerging Epicenter of the Rare Earth Supply Chain

written by Jack Lifton | March 17, 2024

To sum up, while the global discourse frequently orbits around China and the US, the Korean rare earth landscape is bustling. Their relentless quest to develop a comprehensive domestic

supply chain for rare earth permanent magnets will invariably lead to a demand spike, which may catch many by surprise.

Former Secretary of State Mike Pompeo Joins USA Rare Earth to Bolster Rare Earths Supply Chain Goals

written by Jack Lifton | March 17, 2024

In a dramatic affirmation/recognition of the interest of the US Federal Government in the creation of a domestic American total rare earth permanent magnet supply chain, [USA Rare Earth LLC](#), a private company, [announced](#) yesterday that former Secretary of State and, before that, CIA Director, Mike Pompeo has joined the company as a “strategic advisor.” USA Rare Earth is developing a total rare earth permanent magnet supply chain, anchored on a mineral deposit in Texas, over which it has acquired control from Texas Mineral Resources Corp. (OTCQB: TMRC).

After graduating from the United States Military Academy (West Point) in 1986 and serving in the active military for 5 years, Mr. Pompeo left the army, as a captain, and enrolled in Harvard Law School, from which he graduated and then went to work as a lawyer in Washington, D.C. After that role, he created first an aerospace components manufacturing group and then one to supply the oilfield industry. A successful sale of those ventures was followed by his entry into politics. He was elected to the U.S. House of Representatives from Kansas from 2011 to 2017. He was

first appointed to head the CIA by President Trump, and then to the post of Secretary of State.

I don't think that there is an American better qualified to lead a critical minerals company through the labyrinths of the US Federal Government, the Department of Defense, and the industrial rare-earth-enabled components industry than Mr. Pompeo, who, in traditional Washington-speak, is referred to as "Secretary Pompeo" and is well known and well regarded among all three of the above-mentioned groups.

USA Rare Earth has the only fully equipped rare earth permanent magnet manufacturing site in America today in Stillwater, Oklahoma. It is not yet operational or staffed. The company's challenge will be to first produce or obtain the rare earth metals, alloys, and magnetic powder feedstocks to supply that plant.

If those hurdles are overcome then USA Rare Earth will be the first, or among the first, rare earth permanent magnet manufacturers in the US in a generation.

Even, if operationally successful, the Company will still need to obtain purchase orders for the magnets.

I doubt that USA Rare Earth could have found a better door opener to both the military and civilian rare earth permanent magnet markets than Secretary Pompeo.

Rare Earths, “The War Metals?”

written by Jack Lifton | March 17, 2024

Sometime after 2007, I was invited to participate in a meeting called by the Office of Net Threat (Assessment) in the inner ring of the Pentagon in Washington, DC. The topic was the impact of the lack of critical materials on the security of the United States. I was asked to discuss the necessity of rare earths for the military. Around that same time, the US Dept of Energy put out its now well-known chart of [critical materials](#). The current version of that chart is now given as a set of bullet points

- Rare earth elements, used in offshore wind turbine generators and electric vehicle motors;
- Lithium, cobalt, and high-purity nickel, used in energy storage technologies;
- Platinum group metals used in catalysts for automotive, chemical, fuel cell, and green hydrogen products; and
- Gallium and germanium used in semiconductors.

Note well that there is no mention of specific military demands for any of the critical materials in the DoE bullet points. This doesn't mean that these critical materials are not important to the Department of Defense; it means that the US cabinet departments have separate agendas.

Even though the Pentagon released a report in 2013 that stated that the demand for rare earth permanent magnets by the US military was “about” 1000 tons per year, the current demand figure is “classified,”

Returning to 2007 or thereabouts I well remember that the leading market cap player at the time, sometime around 2010, started using a picture of a US jet fighter plane in its

advertising and claiming that “rare earths” were critical to its (the plane’s) flying and combat operations and implying that without rare earths the US would be defenseless. This quickly became “received wisdom.”

This was, as with so many pronouncements made by many companies in the bull market not true, but it became embedded in all rare earth related advertising from then on.

The purpose and value of rare earth permanent magnets in vehicles of any type is to reduce weight and the need for space. Their value is that they can be miniaturized. In planes, trains and automobiles this allows more payload (for the military) or more range due to less power necessary to carry the weight of the magnets and less volume allowing tiny, but powerful, magnets to be used in power accessories, such as power windows and seats or, as one example of a military use, weapons bay (formerly called bomb bay) doors.

Similar stories were that then began to say that an F35 fighter/bomber needed 935 pounds of rare earth permanent magnets in its construction and operation. This misinformation has also become, today, received wisdom.

In 2017 while working on a plan to recycle rare earth permanent magnets for the Defense Logistics Agency, I, of course, asked from where the scrap magnets were to come. The answer was that the DLA didn’t have a firm grasp on that, since compartmentalization and “need to know” and classification of end uses made it impossible for any one agency of the Pentagon to know that.

I guessed that the DoD needed 3000 tons per annum of rare earth permanent magnets. I based my estimate on data about the uses in F35s from an unclassified report published by the Pentagon in 2013, and my own guesses as to the need for rare earth permanent

magnets in main battle tanks, man-carried missiles, drones, and the Navy's adoption of electric propulsion.

Rare earth permanent magnets are important to the military for exactly the same reason they are important to the OEM automotive industry; they save weight and volume, and thus increase range and payload.

Vehicles and weapons can be made without rare earth permanent magnets; they will just be less efficient.

The Hellfire missile, made famous by being carried and launched from drones, uses Alnico (aluminum-nickel-cobalt) magnets made in the USA by a magnet maker in business now for 120 years. It could use rare earth permanent magnets, if they were available and made from domestic raw materials processed in the United States.

The F35 could use Alnico magnets in place of its current rare earth permanent magnets, but it would require special cooling to avoid curie-point failure and the additional weight and volume would reduce range and payload. The same for automobiles and trucks except that it wouldn't be so much the payload that is sacrificed it would be convenience accessories such as power windows, seats, and doors in all cars and range in EVs.

Rare earth permanent magnet motors are the most efficient electric motors known. They are thus the best and most robust solution to engineering issues of weight and volume for both military and consumer products.

But, they are not indispensable. And, if the US requires that any such magnets be made domestically from domestic materials then we are going to need to make between 10,000 and 15,000 tons of them per year at current usage.

Even if only the military gets to use them, we would need at least 3,000 tons per year.

Today NO rare earth permanent magnets are manufactured in the USA from domestic materials.

The time to change that is NOW.

Note from the Publisher: Jack Lifton is the co-founder and the Chairman of the [Critical Minerals Institute](#), which maintains lists of the critical minerals as identified by the US, Canada, the UK, Australia and Europe.

What does the replacement of the Australian Strategic Materials CEO mean?

written by Jack Lifton | March 17, 2024

[Australian Strategic Materials Ltd.](#) (ASX: ASM) has accomplished the execution of a business model first described by Canada's former Great Western Minerals and then appropriated by the (second) American Molycorp, neither of which could ultimately pull it off – the vertical integration of a critical mineral producer from the mine to the finished mass-produced product ready for end-user product fabrication.

For ASM the first integrated production will be of rare earth metals, titanium, and zirconium, the mineral supply chain for each of them originates with the company's Australian mining operation, and the final processing to metals is done in a

Korean joint venture, already proven at the pilot plant level and with a full-scale plant being contracted for with Hyundai Engineering.

I have no doubts that the entire output of ASM's Korean operations will be sold into the Korean market. The sister company of Hyundai Engineering, Hyundai Motors, is already mass producing a low-cost battery powered EV, which needs rare earth permanent magnet electric motors made independently of Chinese critical metals.

The Korean nuclear power industry needs zirconium (and its sister metal, hafnium [also to be produced by ASM in Korea]) for the cladding of fuel rods. And the Korean domestic armaments industry needs rare earth permanent magnet motors and titanium for its aircraft and shipbuilding (Korea's first full-scale aircraft carrier is now being planned).

ASM, having now structured its total supply chain for critical metals, just last week [installed a new CEO](#), its former COO, Rowena Smith, who has almost 30 years of global mining experience in strategic planning and mineral processing with senior mining corporations, including roles at South 32, Rio Tinto, and BHP. Previous CEO David Woodall abruptly stepped down from his roles and left the company.

It's important at this point to understand the significance of the replacement of now former CEO, David Woodall, by former COO, now CEO, Rowena Smith. Those who plan wars, or even battles, rarely carry them out. During David Woodall's tenure, the vertical integration of ASM was planned and the component ventures were acquired, modified and themselves integrated. During that time Rowena Smith, as COO, familiarized herself with the plan, helped to implement it, and took over the day-to-day operations of the system as it matured. She has overseen areas

of the Dubbo project and the Korean Metals Plant. Last week the board of the company determined that ASM was ready for her operationally-experienced and skilled management to assume overall control, and the management change was implemented.

ASM is now the first non-Chinese company to complete a vertically integrated business model from the mine through to the production of high purity critical metals for the EV, shipbuilding, aerospace, and nuclear industries.

ASM is Australian-owned and sited, and its first customers are in Korea.

The rest of the non-Chinese mining and processing world should look closely at this success and emulate this model.

Canada gets it right with new critical materials report

written by Jack Lifton | March 17, 2024

Government report should be mandatory reading

Last week, Canada's House of Commons Standing Committee on Industry and Technology issued a report entitled: "[POSITIONING CANADA AS A LEADER IN THE SUPPLY AND PROCESSING OF CRITICAL MINERALS](#)." I urge everyone to read it. Canada is the leader in the Americas in the mining of the critical metals for EVs, and

as this report shows it is embarked upon a government-supported and funded initiative to become a world class provider of not only the downstream end-user forms of those critical materials, but of the consumer products dependent upon them, such as EVs and the batteries they need as well as stationary storage batteries, and the rare earth permanent magnet motors that most efficiently propel EVs.

The report is, not “should be,” mandatory reading for the elected officials and bureaucrats of the USA, the UK, and the EU. Just go to the table of contents page, which has live links for each topic, and you have the outline of a textbook on the topic of “How can a government support the development of a domestic, world class, critical metals enabled high tech consumer industry?” Note well that China has already done this! The United States and Europe publish voluminous reports patting themselves on the back but showing no consultation with industry or finance whatsoever. This Canadian report puts Canada at the forefront of a revolution in how a democracy can compete with an autocracy and can implement an industrial policy without falling into the “just throw money at a problem” mentality of the USA and Europe.

It has been said that to accomplish anything, you need people who come from a culture that honors work and expects results. This is no longer the culture in the United States, and this is why the United States cannot catch up with Asia in technological prowess or “reclaim” its former and rapidly fading lead. The rapid rise of Canada as a technology products powerhouse will also constrain American production, as Canada uses its own high tech raw materials domestically just as China does.



From the introduction to the Canadian critical materials report (p. 9)

The two American bubbles, the Hollywood fantasy culture and the Washington and coastal center cities' economic fantasy, have combined to ensure the end of social mobility through economic improvement for any and all who try hard enough and to replace it with financialized fascism decorated with the appearance of social justice trumping merit and of selective "data"-based clueless illogic replacing scientific inquiry that has created a need to direct the energy economy to oblivion strictly to enrich an oligarchy.

Unlike the USA, Canada has a clean sheet, technologically. It has not lost its respect for merit-based scientists, and although badly infected by clueless social justice, its universities and government still retain a culture that values scientific accomplishment and is against [man-made energy poverty](#) (aka, the green new deal). American readers should note that Canadians use more energy per capita than Americans. Winnipeg's climate is not like San Diego's.

Thus, I am not surprised, and I have some pride (note: my parents emigrated from Winnipeg to Detroit in 1923-26 seeking the opportunities offered by the then "American dream" of social mobility) in the fact that Canada's Parliament has the making and keeping of Canada's standard of living for everyone a top priority. The Canadian dream is, in my opinion, today more viable than the fading American dream.

The founder of Amazon, Jeff Bezos, said last week of recent pronouncements by the White House: "It's either straight ahead misdirection or a deep misunderstanding of basic market dynamics."

Let me add that the U.S. government also has a deep misunderstanding of the technology of natural resource production and its limitations. Canada's Parliament could give

some good tips to the Americans.

Rare earths giant MP Materials invests heavily to rebuild a U.S. magnetics supply chain

written by InvestorNews | March 17, 2024

Taking private companies public through alternative investment vehicles, such as special-purpose acquisition companies (SPAC), was a popular trend in 2020 and 2021. SPAC and other deals, such as Fortress Value Acquisition Corp (FVAC), have come under scrutiny by some parties as a cash grab. However, there are multiple success stories that have been able to secure investor trust.

One company who did not fall victim to this hype is [MP Materials Corp.](#) (NYSE: MP). In fact, MP Materials has continued to impress investors since the company went public through a FVAC in December 2020. Operating the only rare earth mining and processing facility in the United States, MP Materials is poised to continue to deliver rare earths (RE) to US customers whose appetite for these materials is nearly endless.

MP Materials primarily provides lanthanum, cerium, and neodymium-praseodymium oxide. Interestingly, MP Materials has both support from the commercial and military sectors. We reported back in [December](#) that General Motors (GM) struck a deal with MP Materials to supply U.S.-sourced and manufactured rare earth materials, alloy, and finished magnets for GM's electric

vehicle programs. MP Materials plans to ramp up production to support this effort in 2023, but it remains to be seen if they can meet that aggressive timeline.

The Department of Defense will help contribute to the continued operation of the Mountain Pass facility. MP Materials was awarded a [\\$35 million contract](#) through the Industrial Base Analysis and Sustainment Program to support heavy rare earth elements (HREE) mining. These materials are critical to the development of permanent magnets that are key components in various products, from wind turbines to missile systems.

The Mountain Pass facility already has the capability to mine and process light rare earth elements (LREEs). The added capability to mine HREE will enable MP Materials to mine all rare earths for high-performance magnet production. The company will also be able to recycle all recoverable rare earths from end-of-life magnets and magnet production scrap.

The company is currently [building](#) a 200,000 sq. ft. greenfield metal, alloy, and neodymium-iron-boron (NdFeB) magnet manufacturing facility in Fort Worth, Texas. This facility will also serve as the business and engineering headquarters for MP Magnetics. Materials mined at Mountain Pass will be processed and transformed into products at the Texas-based facility. Construction of this facility began in April 2022.

These exciting new developments and other macroeconomic forces have led to a positive outlook for MP Materials. The company had a promising [first quarter](#) of 2022 and beat market expectations. MP Materials posted revenues of \$166 million—surpassing the \$132 million expected—and boasted earnings per share of \$0.50 (as opposed to the \$0.38 expected).

Revenue increased 177% year-over-year from increases in the realized price of rare earth oxide from higher demand for rare

earths. The increase in revenue was also in part due to the amount of rare earth oxide sold, which occurred due to higher production volumes and shipment timings.

MP Materials also had a significant amount of free cash flow in quarter one, but that will likely change throughout the rest of 2022. The company plans to continue to heavily invest in its assets this year. These investments could result in a negative free cash flow in 2022.

It remains to be seen whether MP Materials can meet the bold promises that management is aiming for. Improving rare-earth supply chains in the United States is a massive challenge, but currently, MP Materials has a chance to get there.