

Scandium International's IX Process offers an extraction technology of critical materials from existing mine operations

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When it comes to producing much needed and valuable critical minerals there are two ways to do this. The traditional way consists of developing a proven deposit into a mine by spending hundreds of millions of dollars, on average, and up to [16.5 years](#) to reach production. However, a far quicker way is to develop and prove a new extraction technology that can selectively recover, as byproducts, critical materials from existing mines. Today's company, [Scandium International Mining Corp.](#) (TSX: SCY), has been working on both ways at once, with both their own advanced stage scandium project and also with the creation of a joint venture to use a recent milestone achieved in their, in-house developed, critical materials recovery technology. They are, in addition, working on developing a high purity alumina ("HPA") production technology business.

[Scandium International](#) owns 100% of the [Nyngan Scandium Project](#), located in New South Wales, Australia. The Project is at an [advanced stage](#) with a DFS completed, all required governmental approvals in place, and is now seeking financing. The Company also owns a 100% interest in the Honeybugle Scandium Property, an exploration property adjacent to the Nyngan Scandium Project.

Scandium International has developed and is ready to deploy an ion exchange ("IX") technology to recover scandium, cobalt, and

other critical metals. The Company has also developed a process to manufacture an aluminum-scandium master alloy (Al-Sc2%) from scandium oxide and has a High Purity Alumina (“HPA”) manufacturing process. All of these processes are likely to have free-standing value in the critical metals’ marketplaces on their own.

Critical metals recovery mining strategy using ion exchange (IX) technology

As a result of Scandium International’s IX recovery technology process success, the Company recently [announced](#) that it had signed a Letter of Intent (“LOI”) with Nevada Gold Mines to pursue critical metals recovery at Nevada Gold Mines’ Phoenix Mine, in Nevada, USA. As [reported](#): “The program is anticipated to require 15 months to complete. With program completion, the partners intend to take an investment decision on the construction and operation of a plant facility to recover critical metals from mine solutions. The LOI also outlines key parameters of a partnership, including formation of a joint venture to hold the plant facility, and a 50:50 ownership in the recovery circuit asset.”

The net result of the above news is that Scandium International will now get a chance to prove their IX selective recovery technology at scale, and when it is successful, to be able to create a new revenue stream from the 50:50 JV. As [stated](#): “This (critical metals recovery) CMR project, and other similar projects in development, **have the potential to produce material quantities of strategically important metals**, tailored to today’s tech-driven products, and can do so from a distributed global copper production base. The environmental impact from this production process is minimal – **no new mines are required.**”

Phoenix Mine critical metals recovery Scoping Stage INDICATIVE

ONLY economics (not yet reliable)



Source: [Scandium International company presentation](#)

I would expect that this could lead to many other similar projects globally to recover added value byproducts from existing mines wanting to capture more critical metals from their mining process. It seems the market remains cautious as the stock price has not reacted yet. Of course, this is not unusual, as it usually takes actual results and dollars to flow before the market wakes up – but therein is the potential opportunity for early investors.

Scandium International stock price has not yet reacted to the potential value-add of their ion exchange (IX) technology to extract critical materials from existing mine operations.



Source: [Yahoo Finance](#)

Scandium International [states](#):

“The Company is also currently pursuing CMR opportunities with various copper industry groups, where SCY proposes to employ ion exchange technology to extract unrecovered critical metals from existing mine process streams. This program represents a fast-track concept to make battery-grade nickel and cobalt products, scandium master alloy product, and other critical metals, from North American sources.”

High purity alumina opportunity

On May 27 Scandium International [announced](#) the filing for patent protection on their High Purity Alumina (“HPA”) manufacturing

process. Scandium International intends to pursue a business in producing high purity alumina, and to employ the designs and methods contained in the patent application to manufacture HPA, for use in both the LED lighting industry and the lithium-ion battery industry. More details [here](#).

Scandium International has broadened their strategy now with 3 key areas of focus



Source: [Scandium International company presentation](#)

Closing remarks

It is still early days for Scandium International in regards to commercializing their ion exchange critical metals recovery technology. However recent news gives significant impetus to the idea that one day the process will become a significant regular commercial success with wide application in commercial mining.

Scandium International is concurrently developing their high grade Nyngan Scandium Project in Australia and multiple high-purity alumina and aluminum-scandium master alloy opportunities.

Trading on a market cap of just C\$52 million there is a lot to like about the potential of Scandium International Mining Corp. Stay tuned for more developments.

Disclosure: The author is long Scandium International Mining Corp. (TSX: SCY)

Lifton, Clausi, Cashin and Putnam on how the time for scandium is now

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The [Technology Metals Show](#) hosts Jack Lifton and Peter Clausi talk to Peter Cashin, President and CEO of [Imperial Mining Group Ltd.](#) (TSXV: IPG) and George Putnam, President, CEO and Director of [Scandium International Mining Corp.](#) (TSX: SCY), about scandium, which is a critical material and the scandium market overall.

The full interview available exclusively to [subscribers](#) of the [Technology Metals Show](#), this a promo clip from the panel's discussion on the overall scandium market, commercial uses of scandium and the latest research and development that has been done in this area. George said, "Scandium has some unique aspects to it that make it well suited as an aluminum alloy along with some exciting uses in a number of areas specifically in battery technology."

In the interview, Peter Cashin provided an update on the Imperial Mining's Crater Lake Scandium-Rare Earth property located in the Canada's aluminum capital – Quebec.

To access the complete interview [subscribe](#) to the [Technology Metals Show](#) and get exclusive access to member-only content through this exclusive site. Or [Log-In Here](#) for the latest conversations, debates, updates and interviews with the leaders, thought leaders and investors focused on issues relating to sustainability in the critical materials sector.

For more information on the [Technology Metals Show](#) email us at

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As Chinese rare earths' stock prices rally, pressure rises for the rest of the world...

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Rising [US-China tension](#) has resulted in some rare earths' stock prices rising sharply, particularly those in China. Given the recent US moves to introduce [critical materials legislation](#) it seems likely that the non-Chinese rare earth stocks will also rally strongly this year, particularly if the new bills and financial support are passed.

Let's start with a recap of the recent US support highlights for rare earths:

- May 18, 2018 – The US declared a [list of 35 critical materials](#). A large part of the list includes rare earths.
- May 2, 2019 – U.S. Sen. Lisa Murkowski and others submitted the [American Mineral Security Act](#)
- In mid May, 2020, Senator Ted Cruz submitted the [Onshoring Rare Earths Act – the 'ORE Act'](#)
- On May 28, 2020 US Representative Michael Waltz submitted the [American Critical Mineral Exploration and Innovation Act of 2020](#)

The ORE Act focuses on six critical materials – **Rare earths**, scandium, lithium, cobalt, graphite, and manganese. The Critical

Mineral Exploration and Innovation Act directs the U.S.G.S. to complete updated resource assessments for each critical mineral. It has been reported that there will be a focus on **rare earths** and other so-called strategic minerals.

Then just last week rare earths expert and [Technology Metals Show](#) host Jack Lifton [stated exclusively to InvestorIntel](#): “The US Defense Department has announced last week that it will seek \$1.7 billion for rare earths purchases in the 2021 National Defense Authorization Act that means the budget for fiscal 2021. In addition they will ask for another \$300 million (**a total of \$2 billion**), for rare earths for specialized weapons which they name as hypersonic missiles...”

Given all of the above proposed support to the rare earths sector, it is abundantly clear that the US is now finally moving rapidly to secure critical rare earths supply, particularly from US deposits, where possible. Current rare earths producers and listed rare earths stocks stand to be beneficiaries. Especially if they have US rare earths projects, but quite likely any non-Chinese rare earth juniors that can achieve funding and production should find very strong western demand for their products. Most of the western world is now looking to diversify their supply chains especially after the trade war and COVID-19 problems of the past 2 years.

Some rare earth miners with US projects include:

- MP Materials (private)
- Rare Element Resources Ltd. (OTCQB: REEMF)
- Texas Mineral Resources Corp. (OTCQB: TMRC)
- Ucore Rare Metals Inc. (TSXV: UCU | OTCQX: UURAF)

Some miners with US rare earth processing potential include:

- [Energy Fuels Inc.](#) (NYSE: UUUU | TSX: EFR) recently [stated](#)

their White Mesa Mill in the USA could be used in future for rare earths processing.

- Lynas Corporation (ASX: LYC) has received US support for a planned US rare earths processing facility.
- Peak Resources (ASX: PEK) plan to have a US rare earths processing facility.

Some rare earth miners with Canadian projects include:

- [Avalon Advanced Materials Inc.](#) (TSX: AVL | OTCQB: AVLNF)
- [Appia Energy Corp.](#) (CSE: API | OTCQB: APAAF)
- [Search Minerals Inc.](#) (TSXV: SMY)

Some rare earth miners with Australian projects include:

- [Alkane Resources Ltd.](#) (ASX: ALK | OTCQX: ALKEF)
- [Scandium International Mining Corp.](#) (TSX: SCY)

Rare earths are vital ingredients for modern technology



Closing remarks

The massive recent news of two new rare earth/critical materials related Acts and a proposed “US\$2 billion towards rare earths in 2021”, appears to have been somewhat missed by the market. The Chinese rare earths stocks have already bounced leaving the potential rest of the world rare earth miners to play catch up.

News flow in future months should continue to be extremely promising for the rare earths sector following on from the tremendous news from the last few weeks.

Investors should not wait too long as any further increased US-China tensions, threats of China supply loss, or passing of rare earths related Bills, will likely send non-Chinese rare earth miners stock prices higher.

Putnam on the US-China Trade Deal and its effect on scandium developers

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✖ “Scandium and yttrium have been called out specifically in the latest trade deal between China and the US. I think this is very encouraging to scandium developers...We are laser-focused on building the markets for scandium sales from our Australian project, the Nyngan Scandium Project.” States George Putnam, President, CEO, and Director of [Scandium International Mining Corp.](#) (TSX: SCY), in an interview with InvestorIntel’s Tracy Weslosky.

George went on to say that the trade deal is going to benefit both Canada and Australia as both countries have prospects for scandium production in the near to intermediate term. He said that Scandium International is at the front end of that effort in Australia. George also said that the US Commerce Department has published positive initiatives with both Australia and with Canada on encouraging and supporting the development of critical metals projects including scandium.

To access the complete interview, [click here](#)

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Scandium International's CEO on the impact of the US-China trade war on the global supply of scandium

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"Depending on what happens in trade talks between the United States and China there could be some disruption of Chinese sources of scandium and I think that is going to be a good thing for Scandium International. It is going to highlight the fact that we are earliest possible producer outside of China, in the Australian clay belt. We are of a good size and of commercial scale to offer scandium to the waiting global markets outside of the disruptions what are apparently going to be caused by this trade dispute..." States George Putnam, President, CEO, and Director of [Scandium International Mining Corp.](#) (TSX: SCY), in an interview with InvestorIntel's Tracy Weslosky.

George went on to discuss Scandium International's mine lease for its Nyngan Scandium Project. He said that the company is in discussions with the New South Wales' Department of Planning and Environment and expects that the mine lease will be reissued soon. George also provided an update on the LOIs with customers. He said that Scandium International is expecting full technical success with two of its LOI partners and are working to add more potential customers in the form of LOIs this year.

To access the complete interview, [click here](#)

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Putnam on Scandium International's new ventures testing the use of scandium alloys

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"Scandium International has made three recent announcements on Letters of Intent for new ventures testing the use of scandium alloys..." – states InvestorIntel's Jeff Wareham in an interview with George Putnam, CEO, President and Director of [Scandium International Mining Corp.](#) (TSX: SCY).

George Putnam: We have done one with AML, which is in the additive manufacturing or the 3D printing space. That one is very exciting. We made another one in the casting space with Ohm & Häner, which is a German company. One we just made was with a Swedish company called Gränges, which is a very significant producer of heat exchangers and radiators globally.

Jeff Wareham: Tell me a little bit more specifically about the news release with Gränges?

George Putnam: This one is probably the most significant of the three that we have done in here in January. Gränges is a world producer of, a world size producer, of heat exchangers. They claim to have 20% of the world's heat exchanger market in the

automotive business. Scandium will, in their metals, will help them make lighter, stronger, more efficient radiators. We believe that is the case. We came to them. They knew about scandium. They believe that is the case. We need to test it now and understand where we can take it from there, but it is very exciting and very significant for the company.

Jeff Wareham: Would that be one of your core markets?

George Putnam: Yes it would. It could potentially be a very significant market for us. All three of them could be significant markets. The casting space and certainly the radiator space are bigger than additive manufacturing, which is just in its nascent growth phase. Yes, they are all significant and there are many others that could be significant too... to access complete interview, [click here](#)

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