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ALASKA2023

*A Brief Introduction to Ucore's
Alaska-centric Business Model for
the Establishment of a US Rare Earth
Element Supply Chain*

 **American Critical-Metals Independence Starts Here**



Southeast Conference

September 16, 2021

CAUTIONARY NOTES & DISCLAIMERS

This presentation includes certain statements that may be deemed “forward-looking statements”. All statements in this presentation (other than statements of historical facts) that address future business development, technological development and/or acquisition activities (including any related required financings), timelines, litigation outcomes, events, or developments that the Company expects, are forward-looking statements. Although the Company believes the expectations expressed in such forward-looking statements are based on reasonable assumptions, such statements are not guarantees of future performance or results and actual results or developments may differ materially from those in forward-looking statements. The Company has assumed that it will be able to procure or retain additional partners and/or suppliers, in addition to the wholly owned Innovation Metals Corp. (“IMC”), as suppliers for Ucore’s expected future Alaska Strategic Metals Complex (“SMC”). Ucore has also assumed that sufficient external funding will be found to prepare a new National Instrument 43-101 (“NI 43-101”) technical report that demonstrates that the Bokan Mountain Rare Earth Element project (“Bokan”) is feasible and economically viable for the production of both REE and co-product metals at the then prevailing market prices based upon assumed customer off-take agreements. Ucore has also assumed that sufficient external funding will be secured to develop the specific engineering plans for the Alaska SMC and its construction. Factors that could cause actual results to differ materially from those in forward-looking statements include, without limitation: IMC failing to protect its intellectual property rights associated with the RapidSX™ technology; the RapidSX™ technology failing to demonstrate commercial viability in large commercial-scale applications; Ucore not being able to procure additional key partners or suppliers for the Alaska SMC; Ucore not being able to raise sufficient funds to fund the specific design and construction of the Alaska SMC and/or the continued commercial rollout of RapidSX™ technology; adverse capital-market conditions; unexpected due-diligence findings; the emergence of alternative superior metallurgy and metal-separation technologies; the inability of Ucore and/or IMC to retain its key staff members; a change in the legislation in Alaska and/or in the support expressed by the Alaska Industrial Development and Export Authority (“AIDEA”) regarding the development of Bokan and/or the Alaska SMC; the availability and procurement of any required interim and/or long-term financing that may be required; and general economic, market or business conditions.

For more information about Ucore Rare Metals Inc., please see the information that is available on SEDAR (www.sedar.com). Please also see the risk disclosures that are found in Ucore’s most recent Management Discussion & Analysis document (filed on August 30, 2021).

For more information about Ucore’s mineral resources and related technical information regarding the Bokan Project, please see Ucore’s NI 43-101 technical report (a preliminary economic assessment) filed on SEDAR on March 14, 2013 and Ucore’s mineral resource update filed on SEDAR on October 15, 2019. Information about the quantity and grades of the indicated and inferred mineral resources are described in these documents and are available therein. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

Qualified Person: Michael L. Schrider, P.E., VP & COO of Ucore, has approved the scientific and technical content of this presentation and is the Qualified Person responsible for its accuracy. Mr. Schrider, is a registered professional engineer in the State of Louisiana, holds a BS degree in engineering from the University of New Orleans and a MEng in mining engineering (mineral process emphasis) from The University of Arizona.

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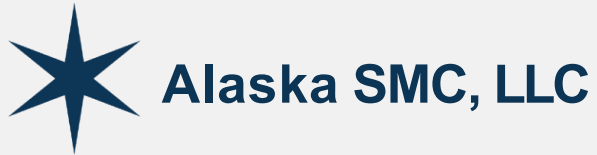


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UCORE'S BUSINESSES, TECHNOLOGY & PRINCIPLES



ASMC is an Alaska corporation and the wholly owned Ucore subsidiary established to build and operate the Alaska SMC



Corporate parent to existing subsidiaries and prospective joint ventures

RapidSX™

IMC's proprietary, environmentally sound, and 21st century critical metals separation technology platform founded on time-tested SX technology for REE, Li, Co, Ni, et al.



IMC is a wholly owned subsidiary of Ucore with a separate management team and a dedicated business plan

Vision & Principles

To deliver leading advanced technology that provides separation and mining services to the mining and metal extraction industry; guided by the principles of being environmentally and socially responsible with good corporate governance (ESG).

Through strategic partnerships, this vision includes disrupting China's dominance of the US REE supply chain through the development of a HREE processing facility - the Alaska Strategic Metals Complex in Southeast Alaska and the long-term development of Ucore's HREE resource located at Bokan Mountain on Prince of Wales Island, Alaska.



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ABOUT UCORE

Overview of Historical Actions

Bokan-Dotson Ridge REE Project:

- 100% ownership rights
- [US \\$145M AIDEA bond financing authorization](#) by the AK legislature (SB 99, 2014)
- C \$35M invested to:
 - **Explore, validate & establish an NI 43-101 inferred & indicated mineral resource** estimate of 1.05M tonnes @ 0.603% TREO and 4.79M tonnes @ 0.602% TREO, respectively
 - **develop the PEA***, published in 2013
- Drove the need to **establish an efficient & environmentally friendly REE separation technology**

REE Separation Technology IP Development & Acquisition

- C \$18.6M to date on internal R&D/acquisition of best-in-class technology for REE separation

US Supply Chain Cultivation & Development:

- Upstream feedstock identification, testing and acquisition (US allied nations)
- Establish North American complementary partnerships
- Downstream utilization & deployment (metals, alloys, magnets & components)



** A PEA is preliminary in nature; it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.*



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THE CRITICAL RARE EARTH MARKET SECTOR

The Opportunity

Adamas Intelligence forecasts that the value of global **magnet rare earth oxide consumption will rise five-fold by 2030, from US \$2.98 billion in 2020 to US \$15.65 billion** at the end of the decade.

- The most significant value-added revenue in the REE supply chain is in producing separated REO
- A transformative technology, like the RapidSX™ separation technology, can break China's stranglehold on REE separation
- **North America has no:**
 - **Commercial REE refining**
 - **REE metal/alloy making**
 - **NdFeB magnet making**

The Challenge

China controls over 80% of all worldwide REE resources, manufactures over 90% of all REE-based components and will eventually consume all of the REE that they produce, as they manipulate and control global REE pricing.

- The flight from fossil fuels is occurring faster than most even thought possible
- Decarbonization is the industrial challenge of this century
- China has exploited its dominant position in the REE market by **coercing industries that rely on these elements to locate their facilities, IP, and technology in China**

Source: Adamas Intelligence



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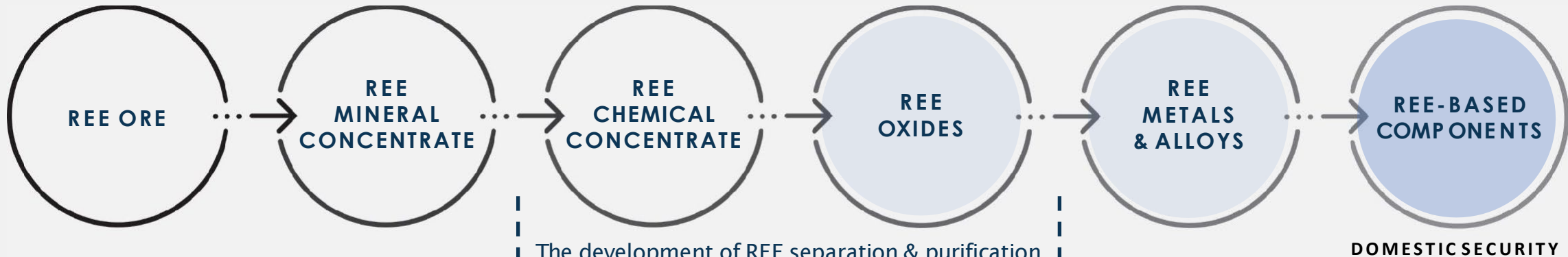


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THE RARE EARTH MARKET SECTOR

The Solution: Ucore's Vision of a Domestic REE Supply Chain



The development of REE separation & purification capabilities in North America is the most vital component of establishing a secure, economic, independent REO supply chain, at commercial scale



Mine & Mill
US Allied Mineral Concentrate
Bokan Project
Other Sources

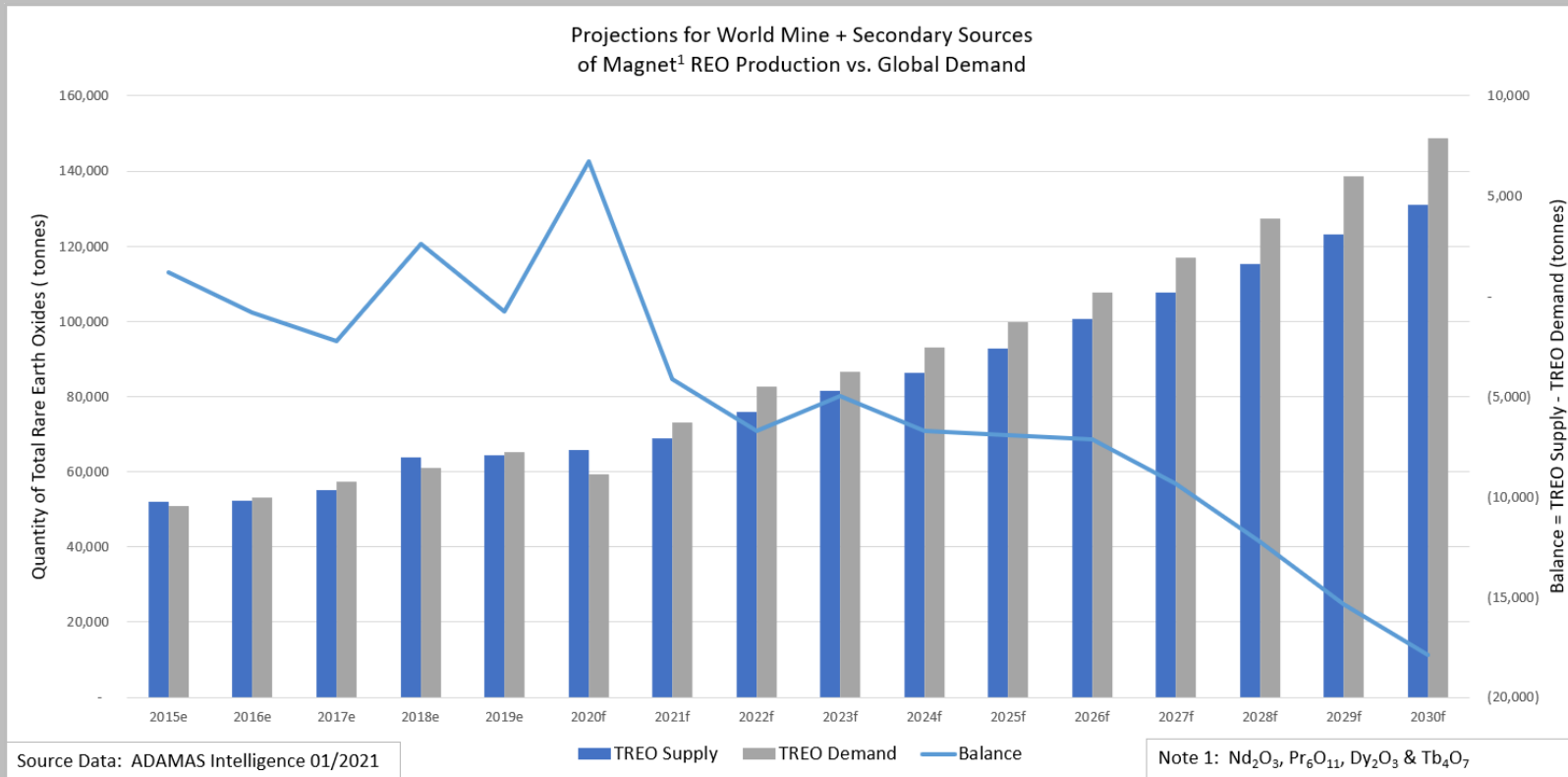
Processing Plants
US Allied Chemical Concentrate
Alaska SMC
Complementary Continental US Joint Venture
Independent RapidSX™ Licensing Model

Downstream Operations
Strategic Partners

GLOBAL PRODUCTION AND CONSUMPTION

of Rare Earth Oxides

Inherent Domestic Risks to the Current PRC Dominant Supply Chain



Supply Risks with PRC Dominance

- Control of the Complete Domestic REE Supply Chain – North America can't just dig ore and produce oxides
- Political Unrest – Trade wars
- Climate Change – Hurricanes, floods & wildfires
- Protectionist Strategies – China keeps what China needs
- The Unforeseen – Rail blockades & COVID-19



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UCORE RARE METALS INC. & THE STATE OF ALASKA

Critical Metals Supply Chain Development

Two Pillars of Development in Alaska:



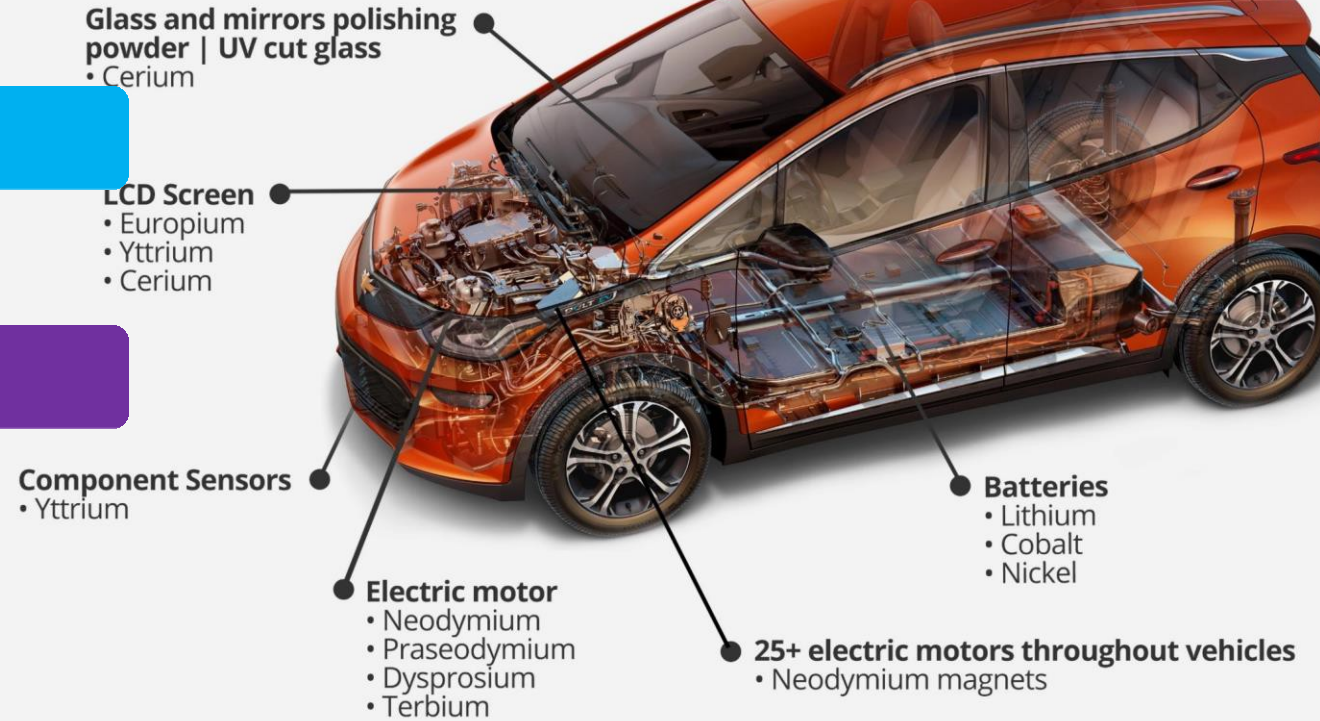
Alaska Strategic Metals Complex



Bokan Mountain Complex



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Developing an independent American REE supply chain

Comprised of three primary initiatives:



Feed

Securing a US-allied REE feedstock source and in parallel, continuing to advance the prospective HREE mine at the Bokan Project toward a feasibility study and permitting;



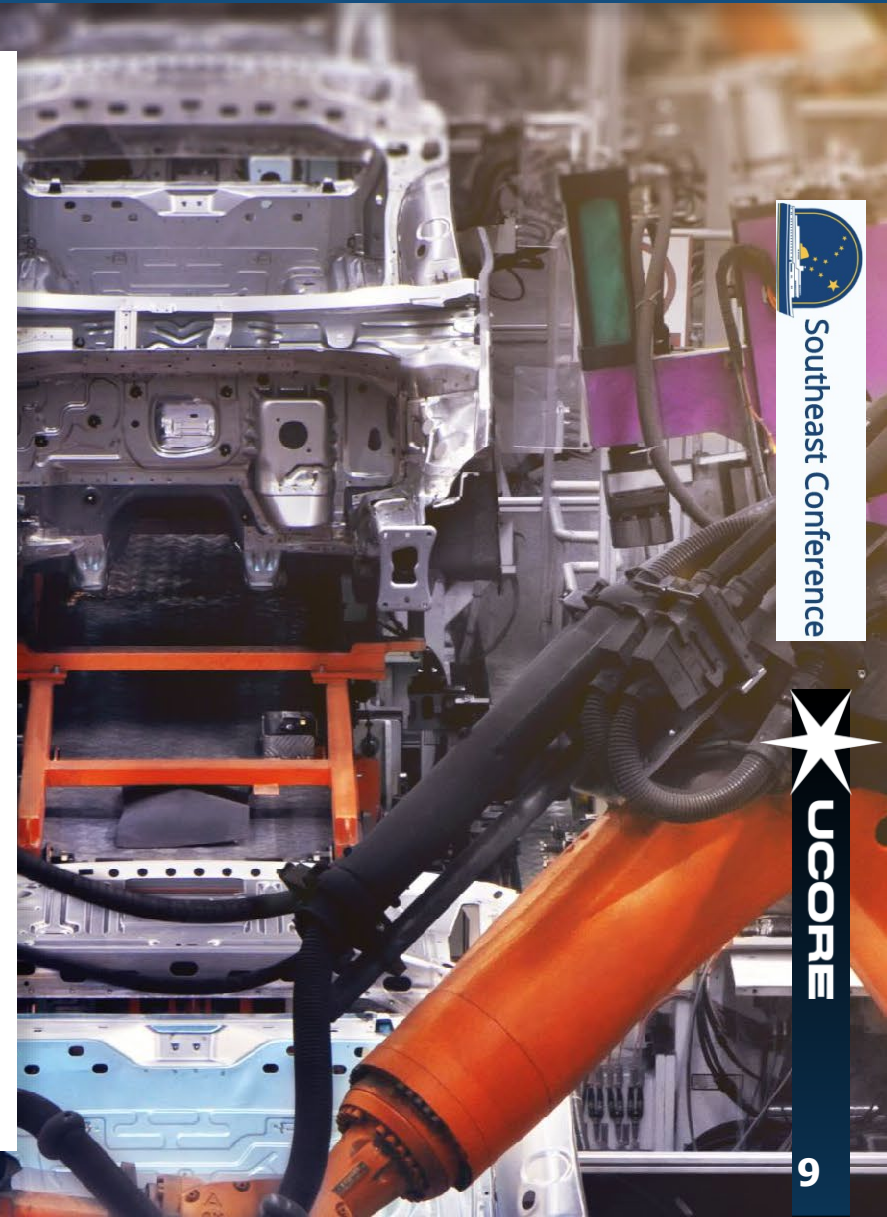
Technology

Developing the Alaska SMC HREE & LREE separation plant in Southeast Alaska through the wholly owned subsidiary Alaska SMC, LLC, utilizing IMC's proprietary RapidSX™ critical metals separation technology platform; and



Market

North American market development and cultivation of the tiered supplier and customer base for REE products in the Western World, disrupting PRC dominance.



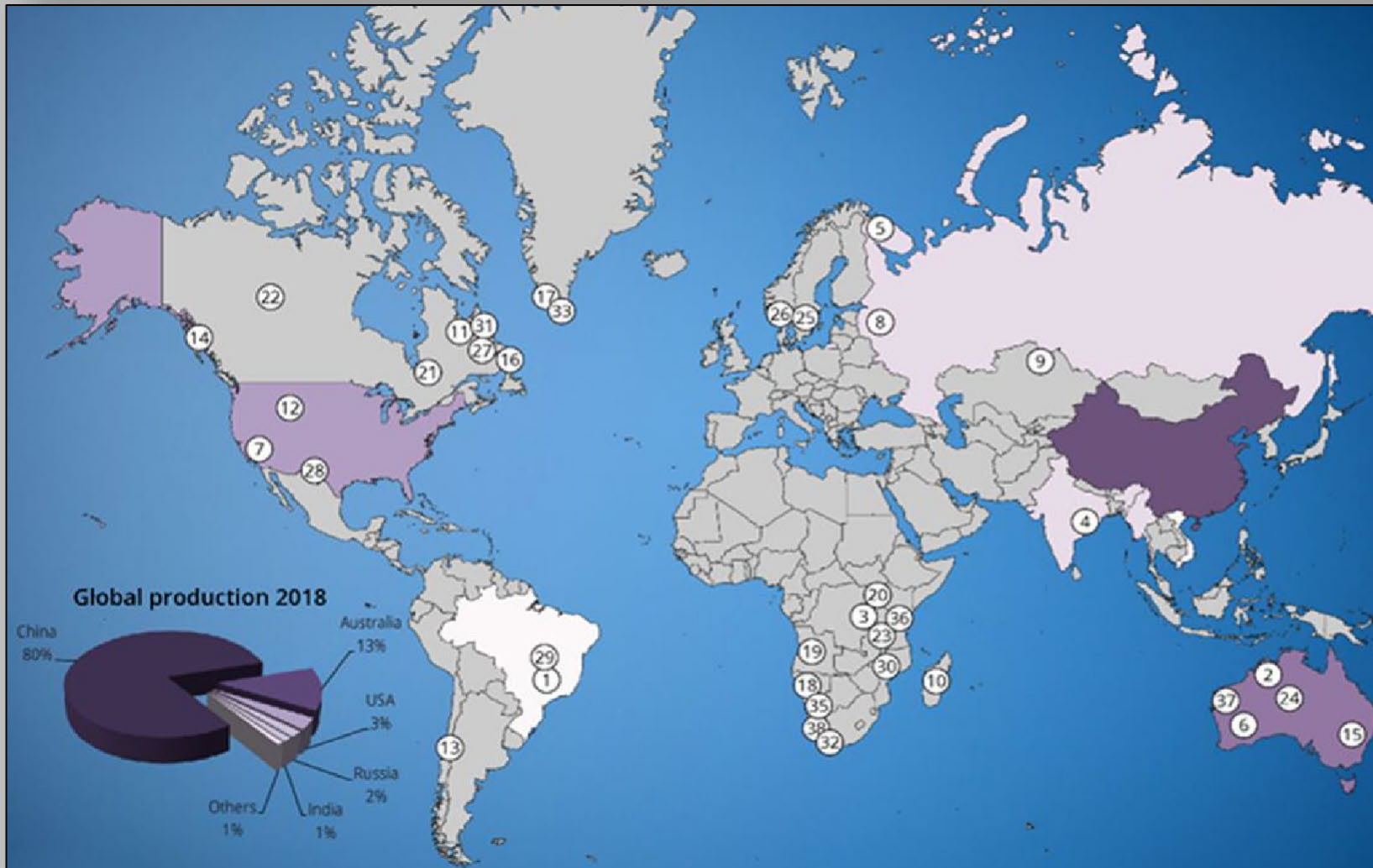
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Existing & Developing Non-PRC Feedstock Sources



Roskill

Non-Chinese rare earths

Operating mines

- 1 Araxá (*suspended*)
- 2 Browns Range
- 3 Gakara
- 4 India Rare Earths
- 5 Karnasurt
- 6 Mount Weld
- 7 Mountain Pass
- 8 Novogorod
- 9 SARECO (*suspended*)

Rare earth projects

- | | |
|-------------------|---------------------|
| 10 Ambato | 25 Norra Kärr |
| 11 Ashram | 26 Porsgrunn |
| 12 Bear Lodge | 27 Red Wine Complex |
| 13 Bio Lantanidos | 28 Round Top |
| 14 Bokan | 29 Serra Verde |
| 15 Dubbo | 30 Songwe Hill |
| 16 Foxtrot | 31 Strange Lake |
| 17 Greenland Min. | 32 Steenkampskraal |
| 18 Lofdal | 33 Tanbreez |
| 19 Longonjo | |
| 20 Makuutu | 35 Warmbad |
| 21 Montviel | 36 Wigu Hill |
| 22 Nechelacho | 37 Yangibana |
| 23 Ngualla | 38 Zandkopsdrift |
| 24 Nolans | |





A Planned 2,000 tpa HREE & LREE Separation & Purification Facility for the Production of REO

- The first constructed component of the Bokan Project and the start of an envisioned industrial complex
- Initially designed for currently available US-allied feedstock
- Expandable capacity to at least 5,000 tpa of feedstock throughput
- The processing plant will incorporate the RapidSX™ separation technology platform
- Planned for substantial completion by December of 2023

US or Allied Feedstock will Transit Through Seattle or Prince Rupert



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Artist Rendering

Located in Southeast Alaska

- Within a 50-mile radius (the IRS ‘Mining’ Limit) of Bokan – likely within the Ketchikan Gateway Borough
 - Located on a worldwide shipping corridor
 - **Proximity to other REE deposits in Alaska and Canada**
 - Closest Alaska port to Seattle and Prince Rupert
 - Capitalize on an industrious work force & existing infrastructure (i.e. ports, roadways, water, electrical, broadband, etc.)



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The Alaska SMC

Ketchikan Gateway Borough, Alaska

- This is an estimated and preliminary summary of the economic benefits provided by the Alaska SMC rare earth oxide production facility planned for Ketchikan, Alaska. All data is derived from Ucore's February 2021 Preliminary Economic Model of the Alaska SMC and other Ucore estimates.
 - **Indirect impacts**, including jobs and income in businesses providing goods and services to the Alaska SMC. Indirect effects also include the economic activity that results from payment of taxes to state, local and federal government.
 - **Induced impacts**, including the jobs and income created as a result of employees spending their payroll dollars in the local economy.
- **Note 1:** indirect & induced labor and payroll factors are derived from the [McDowell Group, January 2013, Bokan Mountain Rare Earth Element Mine Economic Impact Study](#).
- **Note 2:** totals may not equate due to rounding.

A Preliminary Summary of the Estimated Economic Benefits of the Alaska Strategic Metals Complex (Real 2020 Dollars)		
Economic Activity	Impacts	
Construction Phase		
Estimated years of construction	2 years	
Direct Impacts		
Annual average employment	40	
Peak employment	60	
Annual payroll	\$4 million	
Total construction phase payroll	\$9 million	See Note 2
Multiplier Effects		
Indirect and induced statewide employment	25	
Indirect and induced statewide payroll	\$2 million	
Total Impacts (direct, indirect, and induced)		
Total employment	65	
Total annual payroll	\$6 million	
Total construction phase payroll (direct and indirect)	\$12 million	
Operations Phase		
Current life of plant projection	25 years	
Direct Impacts		
Annual average statewide employment	40	
Annual statewide payroll	\$3 million	
Multiplier Effects		
Indirect and induced statewide employment	25	
Indirect and induced statewide payroll	\$2 million	
Total Impacts (direct, indirect, and induced)		
Total employment	65	
Total annual payroll	\$5 million	

Source: Ucore Rare Metals Inc. - Preliminary Economic Model dated February 2021 and other Ucore estimates

Construction
65 Jobs
\$6 M/yr Payroll
\$12 M Payroll

Operation
65 Jobs
\$5 M/yr Payroll

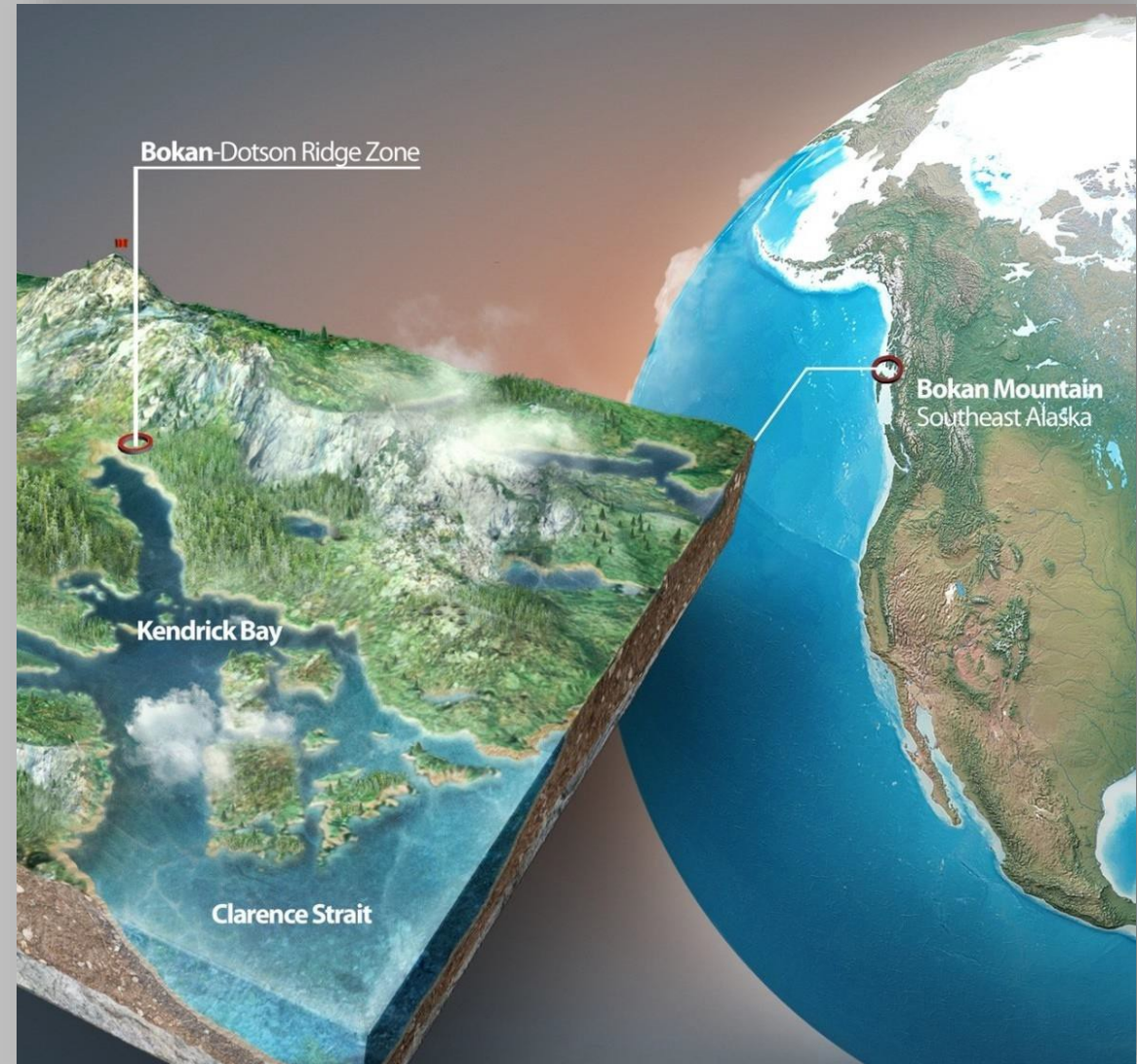


Bokan-Dotson Ridge REE Project Prince of Wales Island, Alaska

- The Bokan Mountain Complex **has approximately nine different historical mineralization zones but only one of these, the Bokan-Dotson Ridge Zone, has been the focus** of Ucore's rare earth mineral resource development

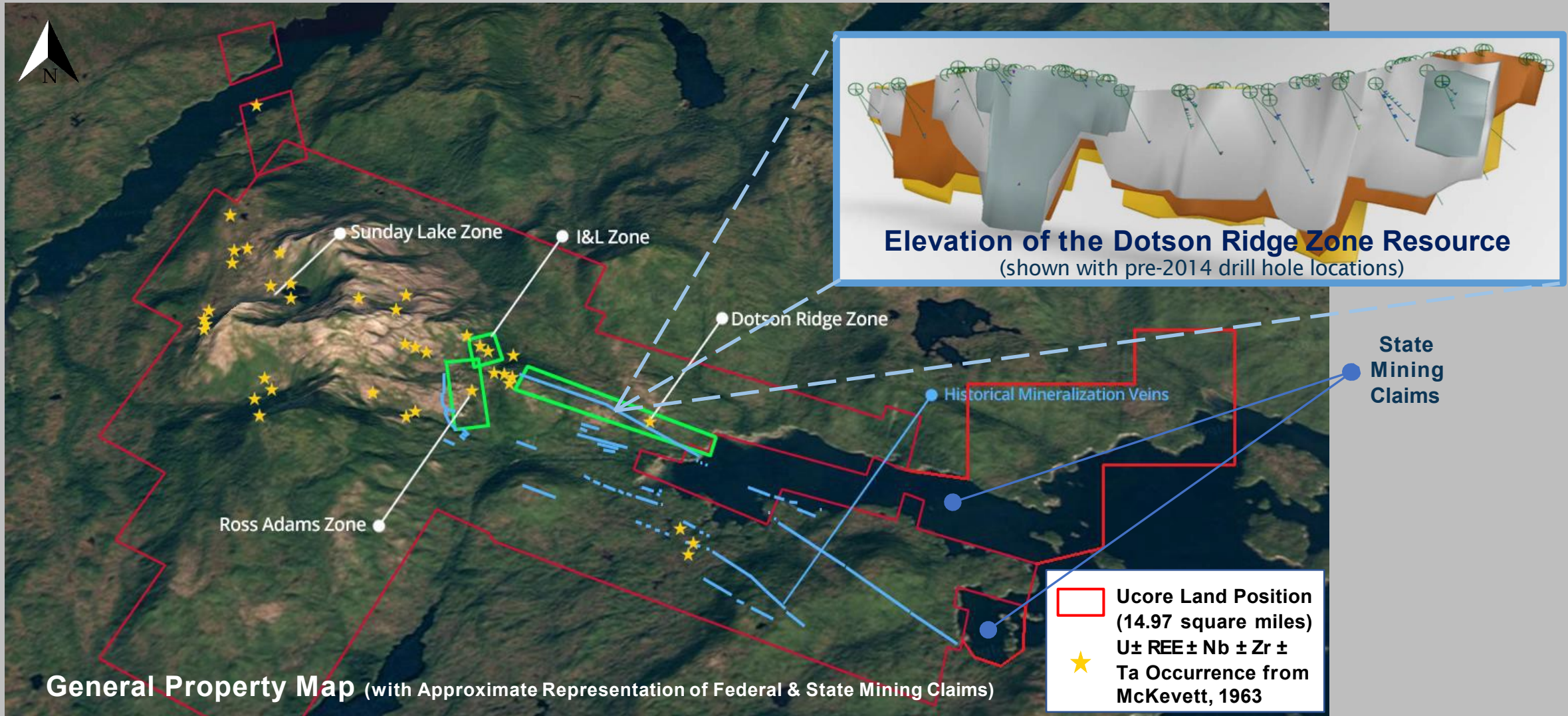
The Bokan-Dotson Ridge Zone resource estimate:

- US \$145M State of Alaska authorized AIDEA bond financing for project infrastructure and construction costs under [SB99\(2014\)](#)
- Can be “near shovel ready” for construction in less than 30 months after receipt of development funding
- Further exploration planned concurrent with initial mining to expand the open resource
- **The highest grade HREE resource in the US, disclosed per NI43-101**





The Bokan Mountain Complex & the Dotson Ridge Zone Resource





Bokan-Dotson Ridge REE Project

- This is an updated data set of the original McDowell Group, January 2013, Bokan Mountain Rare Earth Element Mine Economic Impact Study **estimates for the complete Bokan-Dotson Ridge Rare Earth Element Project (this includes the processing plant that is now represented by the Alaska SMC).**
 - Indirect impacts**, including jobs and income in businesses providing goods and services to the mine. Indirect effects also include the economic activity that results from payment of taxes to state, local and federal government.
 - Induced impacts**, including the jobs and income created as a result of employees spending their payroll dollars in the local economy.
- Note 1:** the 2012 payroll values are modified by applying the US Bureau of Labor & Statistics Employment Cost Index (ECI) growth factors to the original data – there are no other changes.
- Note 2:** totals may not equate due to rounding.

A Preliminary Summary of the Estimated Economic Benefits of the Complete Bokan-Dotson Ridge Rare Earth Element Project (Real 2020 Dollars)

Economic Activity	Impacts	
Construction Phase		
Estimated years of construction	2 years	
Direct Impacts		
Annual average employment	200	
Peak employment	300	
Annual payroll	\$24 million	See Note 1
Total construction phase payroll	\$49 million	See Note 2
Multiplier Effects		
Indirect and induced statewide employment	125	
Indirect and induced statewide payroll	\$9 million	See Note 1
Total Impacts (direct, indirect, and induced)		
Total employment	325	
Total annual payroll	\$33 million	See Note 1
Total construction phase payroll (direct and indirect)	\$66 million	See Note 2
Operations Phase		
Current life of mine projection	11 years	
Direct Impacts		
Annual average statewide employment	190	
Annual statewide payroll	\$24 million	See Note 1
Multiplier Effects		
Indirect and induced statewide employment	150	
Indirect and induced statewide payroll	\$10 million	See Note 1
Total Impacts (direct, indirect, and induced)		
Total employment	340	
Total annual payroll	\$34 million	See Note 2

Source: McDowell Group estimates.

Construction
325 Jobs
\$33 M /yr Payroll
\$66M Payroll

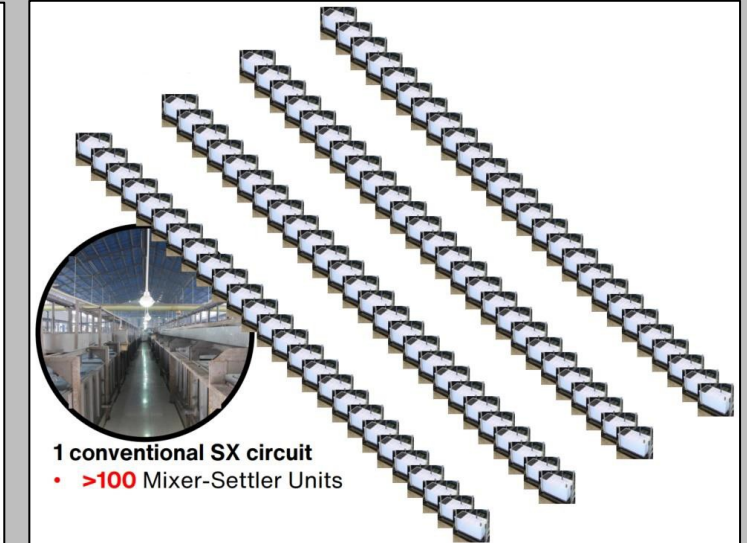
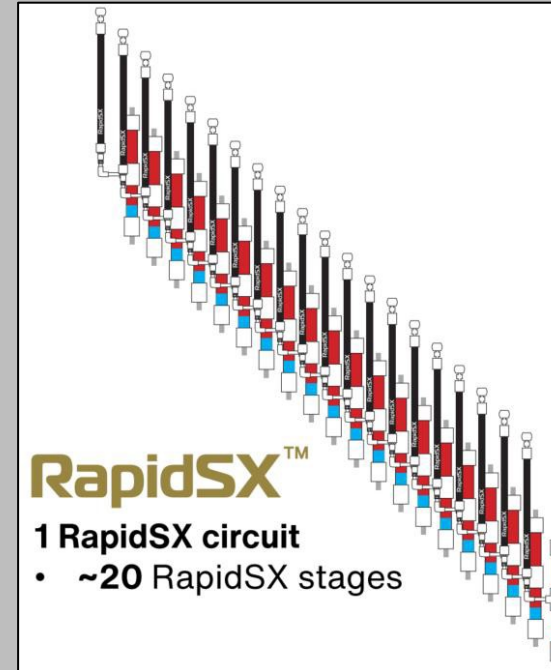
Operation
340 Jobs
\$34 M /yr Payroll



Key Advantages vs. Conventional SX:

RapidSX™		Conventional SX
Performance & Efficiency		
Commercial Purity	Yes	Yes
REE Recovery Rates	High	High
Processing Time	Rapid	Slow
Time to Equilibrium	Days	Several Weeks
CAPEX		
Equipment Cost	Low	High
Physical Footprint	Low	Very High
Separation Staging	Low	Very High
OPEX		
Metal Inventory/WIP	Low	High
Organic Volumes	Low	High
Labour	Low	High
Power Consumption	Low	High

Hypothetical Direct Comparison



- RapidSX™ significantly reduces the number of REE separation stages in the SX chemical circuits compared with conventional SX systems, leading to a significant reduction in plant footprint and associated CAPEX
- RapidSX™ reduces OPEX and time to process completion, reducing processing times —from several weeks to just days — for each REE separation completed

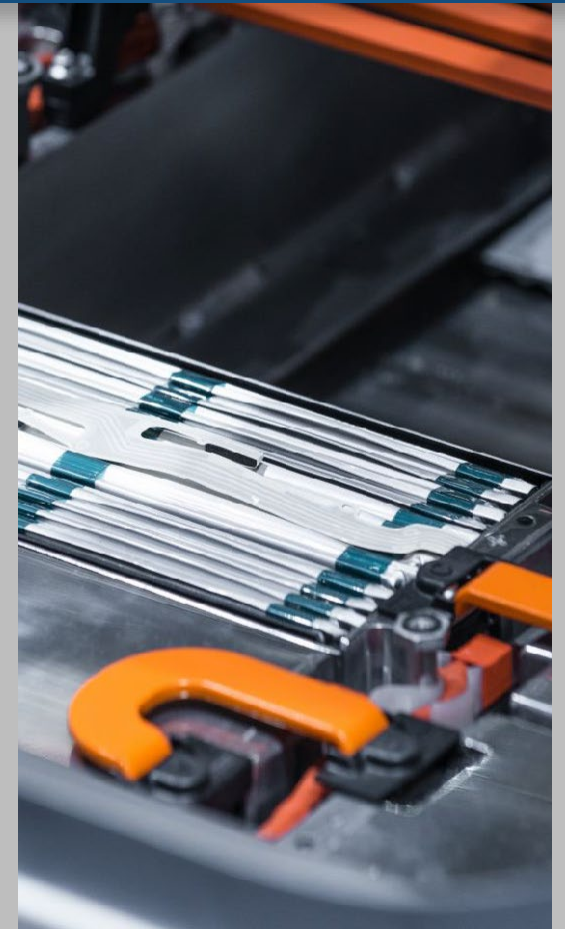


Do Something Hard - Together

The Time is now for a Secure North American REE Supply Chain and it Starts in Alaska

Ucore is extremely grateful to our Alaskan Partners:

- The Federal Congressional Delegation – Senator Murkowski, Senator Sullivan and Congressman Young
- Governor Dunleavy and his team:
 - The Alaska Development Team
 - AIDEA
- State Senator Bert Stedman
- State Representative Dan Ortiz
- The Ketchikan Gateway Borough Assembly & Mayor Dial
- The Alaska Department of Natural Resources
- The Alaska representatives of the USFS
- And last but not least, **Southeast Conference**



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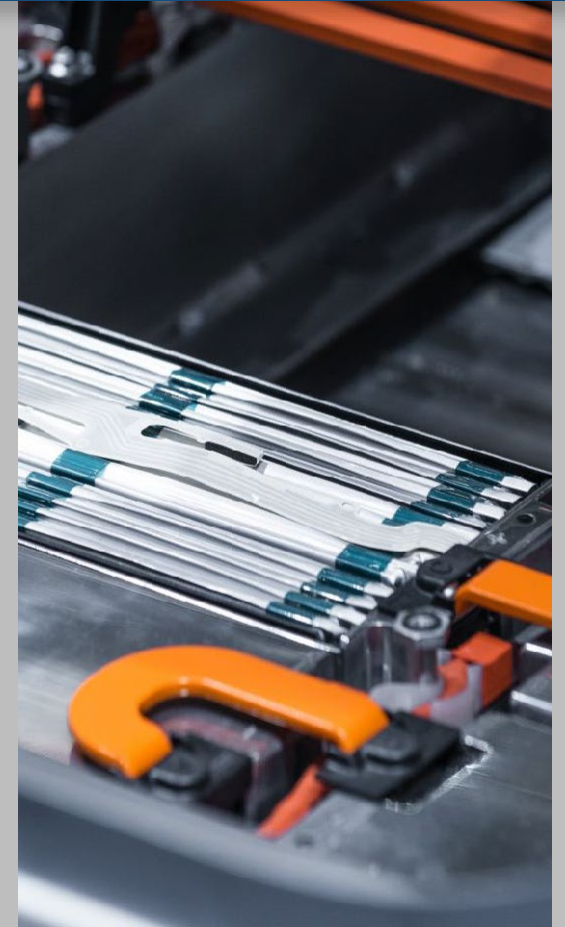
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SUMMARY

The Time is now for a Secure North American REE Supply Chain

Ucore is implementing an Alaska-centric solution to the current critical minerals national emergency due to reliance on foreign adversaries, actively engaging in:

- Through IMC, commercial deployment of the RapidSX™ separation technology platform
- Securing third-party allied-sourced feedstock for the Alaska SMC
- Engineering for the Alaska SMC REE separation & purification plant founded on modern RapidSX™ technology
- Securing offtake agreements for the sale of rare earth oxides
- Forming strategic alliances for the production of rare earth metals and oxides
- Working with prospective partners for various sources of project funding:
 - Debt Financing, Offtake Pre-Purchase & Supply, USG Matching Grant Funds, Lease Back Arrangement, Other
- Continued resource development, engineering and testing for the Bokan Project
- Maximizing potential workforce training opportunities



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ACRONYMS & DEFINITIONS

- **AIDEA** – Alaska Industrial Development and Export Authority
- **AK** – State of Alaska
- **ASMC** – Alaska SMC, LLC
- **Bokan or Bokan Project** – Bokan-Dotson Ridge Rare Earth Element Project
- **C \$** - Canadian Dollars
- **CAPEX** - Capital Expenditures
- **DOD** – US Department of Defense
- **DOE** – US Department of Energy
- **ESG** – Environmental, Social & Governance Principles
- **EV** – Electric Vehicles
- **FY** – Fiscal Year
- **HREE** – Heavy Rare Earth Elements
- **IMC** - Innovation Metals Corp.
- **IP** – Intellectual Property
- **IRS** – US Internal Revenue Service
- **JV** – Joint Venture
- **LREE** – Light Rare Earth Elements
- **M** – Million
- **NdFeB Magnet** – Neodymium Iron Boron Magnet
- **Near Shovel Ready** - engineering complete and permitting well underway
- **NI 43-101** – National Instrument 43-101
- **OPEX** – Operating Expenditures
- **PEA** – Preliminary Economic Assessment
- **PRC** - People's Republic of China
- **PFS** – Pre-Feasibility Study
- **PMSM** – Permanent Magnet Synchronized Motor
- **R&D** – Research & Development
- **REE** – Rare Earth Elements
- **REPM** – Rare Earth Permanent Magnet
- **REO** – Rare Earth Oxides
- **S&P** – Separation & Processing
- **SMC** – Strategic Metals Complex
- **SX** – Solvent Extraction
- **TPA** – Tonnes Per Annum
- **TREO** – Total Rare Earth Oxides
- **US** – United States
- **US\$** - United States Dollars
- **USG** – United States Government
- **USFS** – United States Forest Service
- **WIP** – Work-In-Progress





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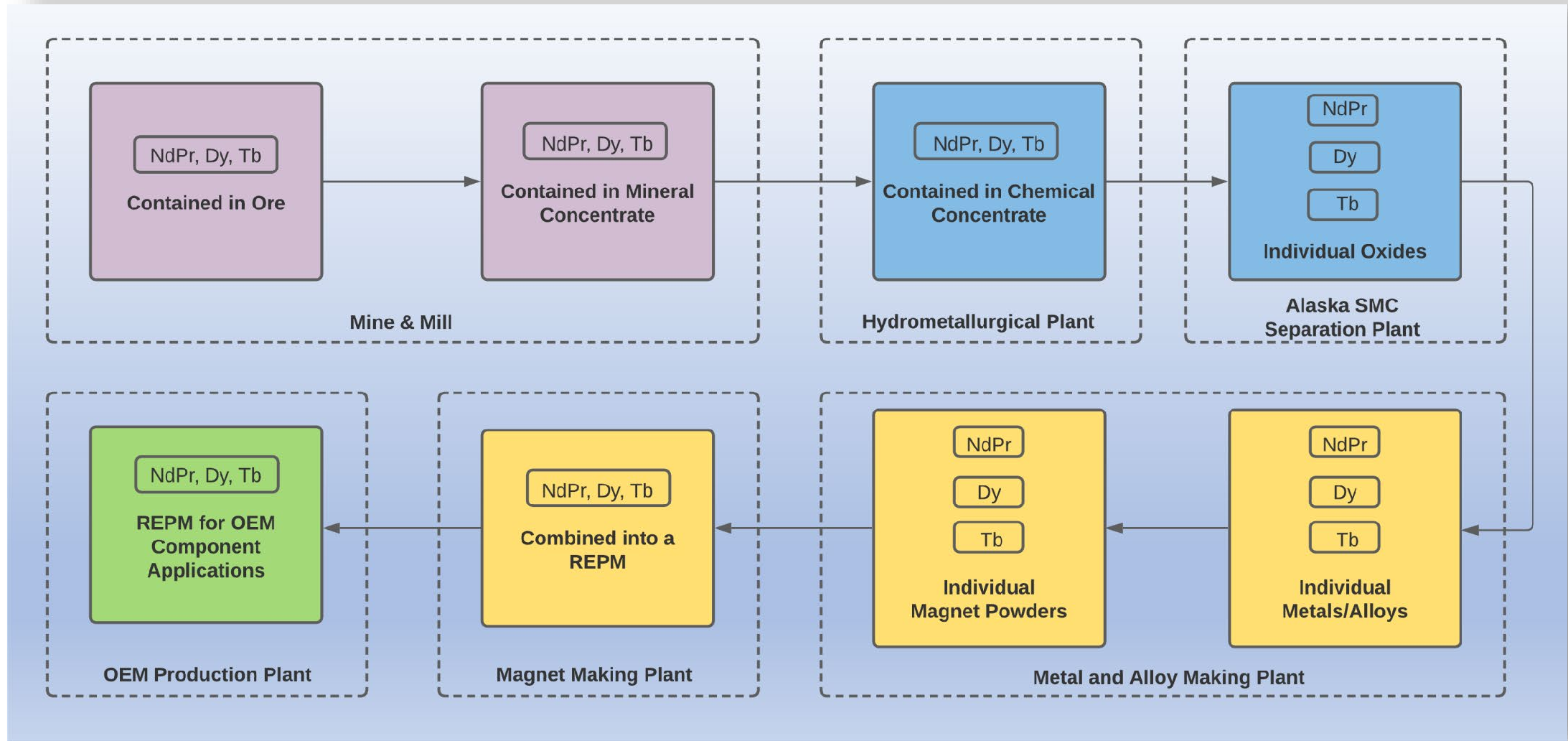


Thank you.

 **American Critical-Metals Independence Starts Here**



Simplified Flow Chart for NdPr, Dy & Tb Elements from Mine to Vehicle





SX-based Technology Demanded by Global Commercial REE Producers

Solvent Extraction (SX)

100% Market Adoption

SX is currently used by 100% of all commercial REE producers worldwide

Conventional SX – commercially available; bankable

SX design and performance is very well established. Comprised of numerous circuits consisting of hundreds of mixer settler units (e.g., **>1,500 units**), utilizing organophosphorus-acid-based extractants (e.g. *P507*, *PC88A* or *CYANEX® 572*). **All commercial REE producers utilize conventional SX for separation.**

RapidSX™ – currently being commercialized

Utilizing the exact same chemistry as conventional SX, IMC's RapidSX™ REE separation technology represents a significant improvement on the well-established, well-understood, proven conventional SX separation technology preferred by REE producers. **RapidSX™ is not a “new” technology**, but rather a **significant improvement** on the **REE industry-standard SX technology**.



An operator monitoring the mixer-settler levels at the NPM Silmet rare-earth separation plant, located in Sillamäe, Estonia.
Photo: Joel Tozer





RapidSX™ vs. Conventional SX

What is the same?

- **Chemistry** – IMC utilizes a ‘bring your own chemistry’ approach, applying existing SX chemistry and tailoring it, where necessary, to the RapidSX™ platform
- **Circuit configuration** – RapidSX™ utilizes countercurrent SX with familiar unit operations, as a potential drop-in replacement for incumbent / conventional mixer-settler applications

What is different?

- **IMC’s RapidSX™ Proprietary REE Hardware ‘Stage Unit’** – consisting of two novel, proprietary hardware components:
 - i. Proprietary, custom mixer – **RapidSX™ contactor**
 - ii. Proprietary, custom settler – **RapidSX™ phase separator**

