

Saskatchewan Research Council Rare Earth Element Processing Hub

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Associate Vice-President, Rare Earth Element Division



SRC Overview

- ➔ *SRC is Canada's second largest research and technology organization and has worked with industry, government and communities around the world for 75 years.*
- ➔ We receive a portion of our funding from government with the remainder coming from contract research and fee-for-service work.
- ➔ We work closely with many industries including rare earths, mining, oil & gas and nuclear industries around the world



OVERVIEW 2023-24



\$83
MILLION
IN ANNUAL
REVENUE



CANADA'S 2ND
LARGEST RESEARCH
& TECHNOLOGY
ORGANIZATION



1,400
CLIENTS
IN 22
COUNTRIES



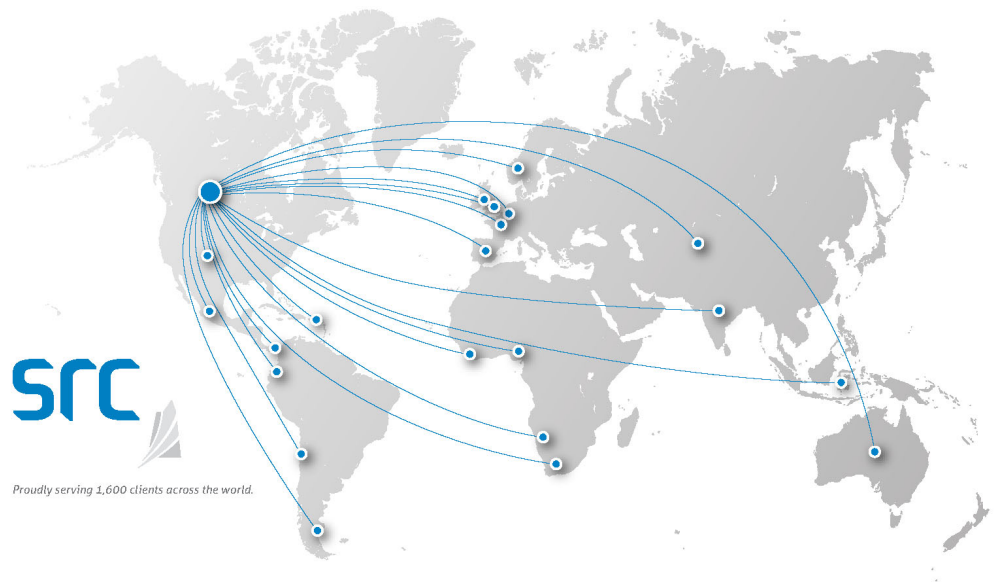
MORE THAN
350
EMPLOYEES



OF RD&D
EXPERIENCE

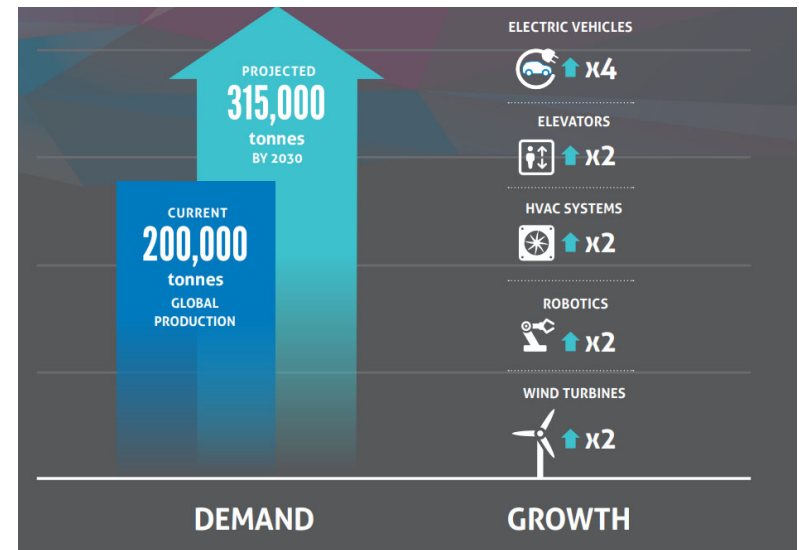


SRC: Global Reach



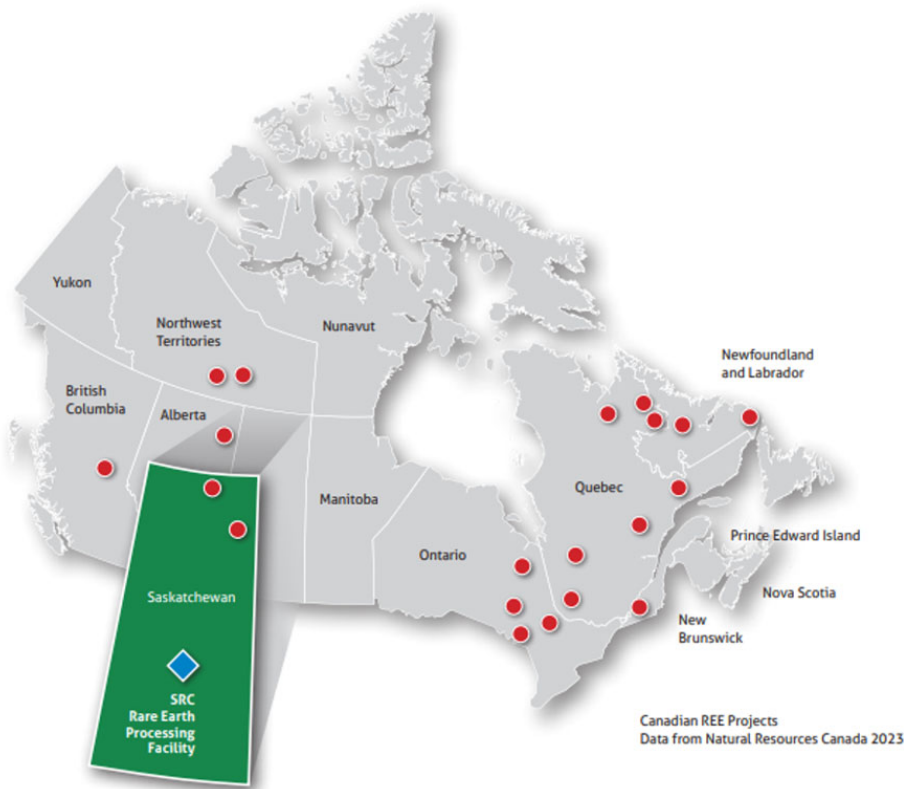
Rare Earth Elements – Critical Minerals

- Rare Earth Elements comprise part of Canada's Critical Mineral Strategy
- Uses in many advanced technologies including uses in energy transition and electric vehicles - permanent magnets
- Not actually rare – common in low concentrations
- Rare to find deposits with concentrations suitable for commercial development
- REE market is expected to continue to grow with the evolution of technology including the energy sector, net-zero emissions
- A global race is underway to secure global access and processing capacity of REE minerals



59 Pr Praseodymium	60 Nd Neodymium	65 Tb Terbium	66 Dy Dysprosium
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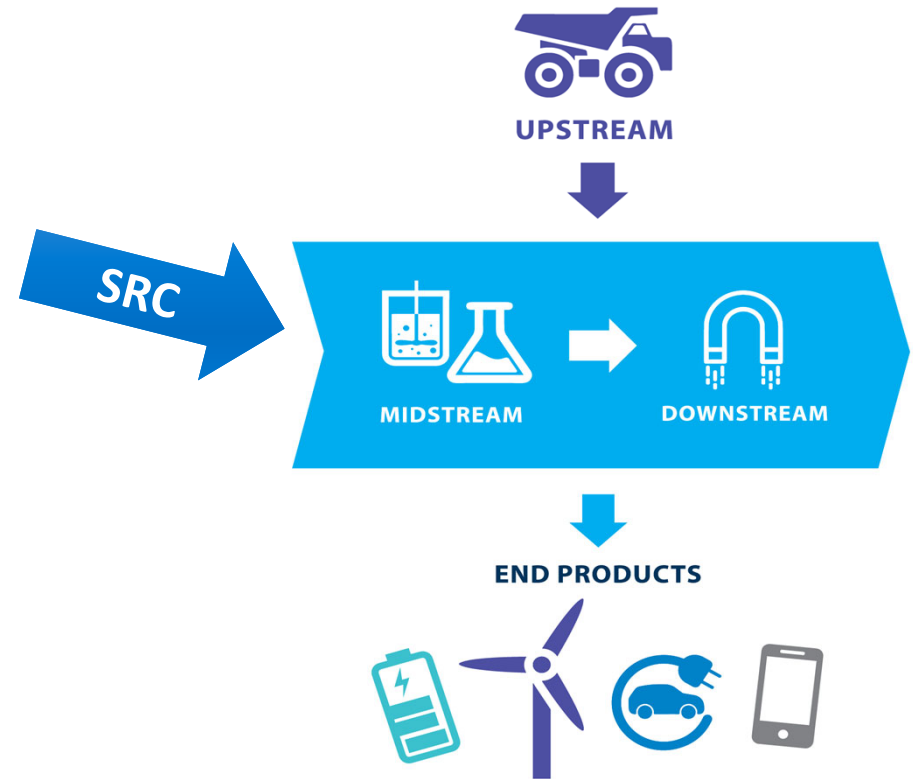
Canadian REE Sector



- Canada has the 5th largest REE resources in the world: exploration ongoing, production still 10 years away
 - Missing link – Gap in Global Processing capacity
 - Saskatchewan is ideal as a center for industrial development and REE processing
 - Strong regulatory and environmental standards
 - Support from government: domestic and international
 - Strong mining industry, culture and capability
 - Infrastructure, power, resources
- Challenge is to build a value-added, fully integrated REE processing supply chain in Canada

SRC Rare Earth Processing Facility

- With the support of the Government of Saskatchewan, SRC is pioneering a **first of its kind mineral-to-metal** REE processing facility.
- Objectives:
 - Demonstrate: Techno-economic viability of Rare Earths processing in Canada
 - Foster Saskatchewan as a REE Technology Hub
 - Support the development of domestic REE supply chain



Future Focused Investment



*Human
Capital*



*Intellectual
Property*



*Supply
Chain*



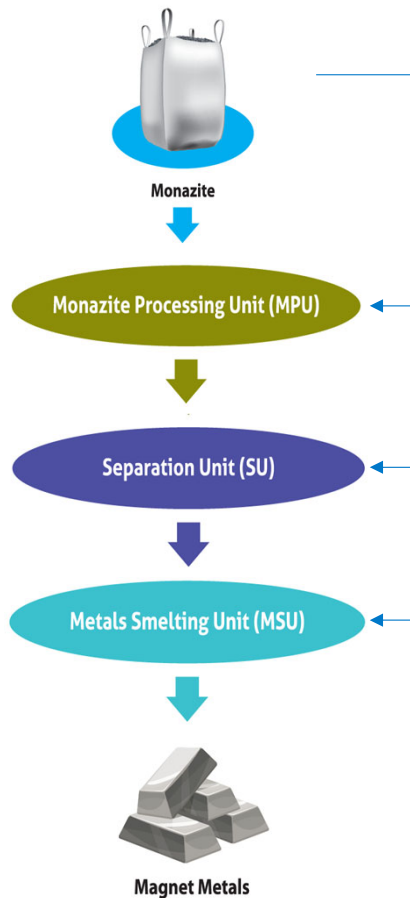
*Specialized
Equipment*



Environment

SRC REPF is a part of the Government of Saskatchewan's 2030 growth plan

SRC Rare Earth Processing Facility



**Yearly Production Capacity (MT)	
Nd/Pr Metal Alloys	400
Dysprosium	20
Terbium	5 MT
Samarium	40 MT
Other REE Products	1200 MT

**up to design max

SRC's REE facility is both vertically and laterally integrated to mitigate market volatility challenges and enhance market competitiveness.

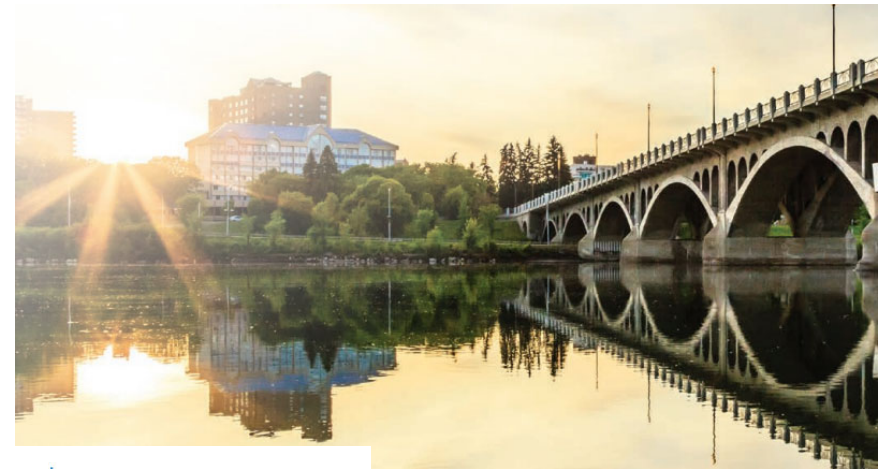
The SRC Rare Earth Processing Facility will produce enough metals to create 500,000 electric vehicles annually.



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Sustainability at its Heart

- SRC prioritizes sustainability, building an eco-friendly facility with **zero-liquid discharge**, minimizing ecological impacts.
- Approximately 40% of the capital is dedicated to achieve the highest sustainability standards.



Controls	SRC's Ability
Separation of radioactive substances	✓
Proper handling and waste disposal	✓
Engineering control to eliminate soil and ground water contamination	✓
100% recycling of all the process water and chemicals	✓
Power generation from renewables	✓

In-House Innovation



Canada's first Solvent Extraction Prototype Cells

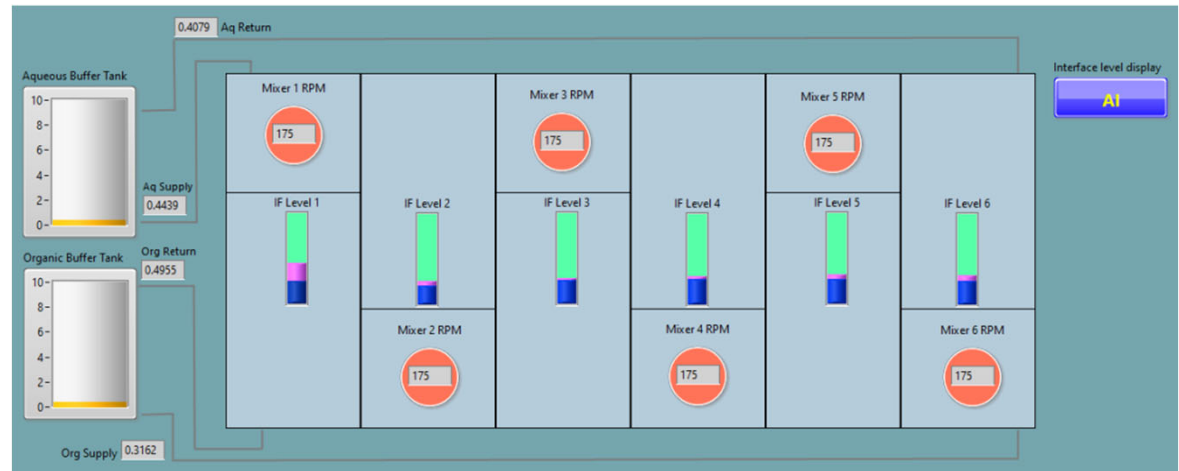
- SRC revolutionizes REE engineering, with in-house fabrication of proprietary equipment for rare earth separation.
- Automation and AI driven controls boost efficiency and cut operational cost, while maintaining top tier quality.



In-House Innovation

Automation and AI

- State of the art AI-based interface level sensors for multi-phase measurements, developed in house (hardware and software)
- Unique, SRC designed automation system with AI for process control and optimization

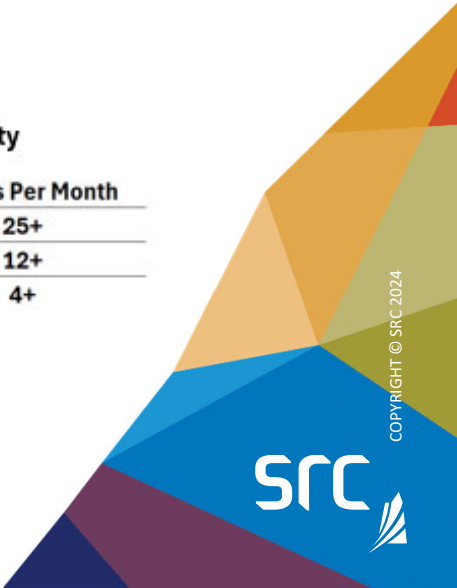
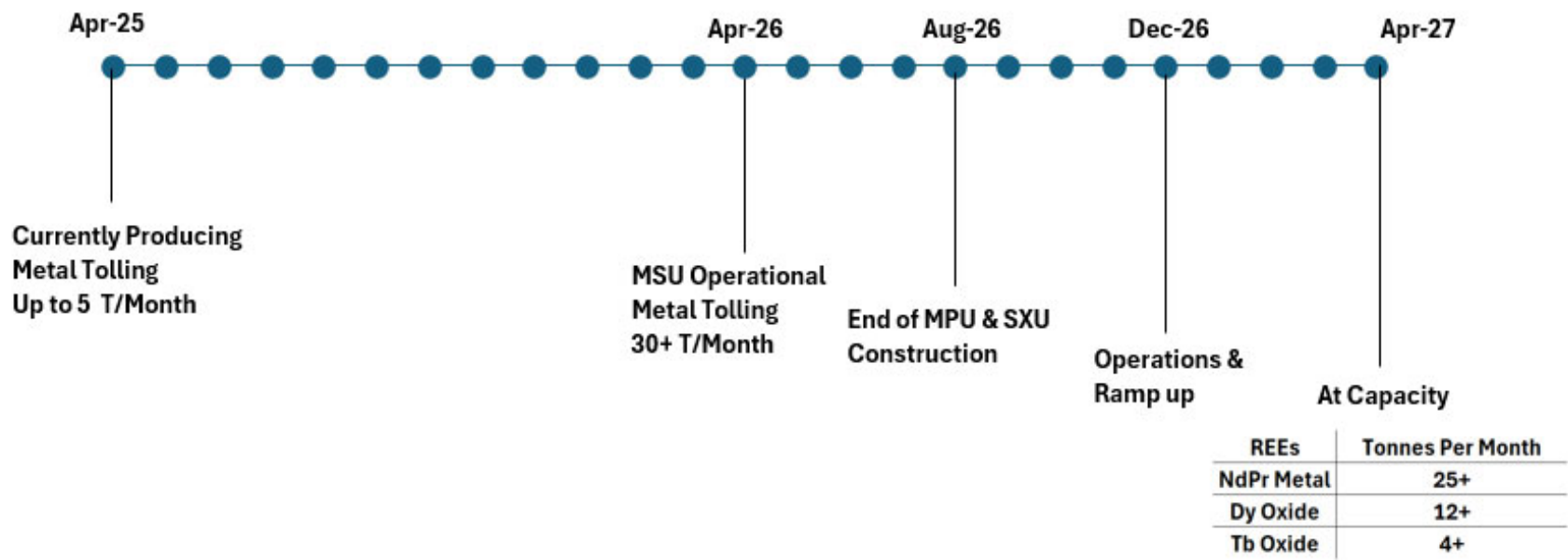


In-House Innovation: SRC-Designed Metal Smelting

- Designed of Metal Smelters equipped with automatic feeding and mixing
- Recycle ~100% of production waste
- Significant reduction in operation costs
- Conversion efficiency over 98%
- Currently in commercial operation

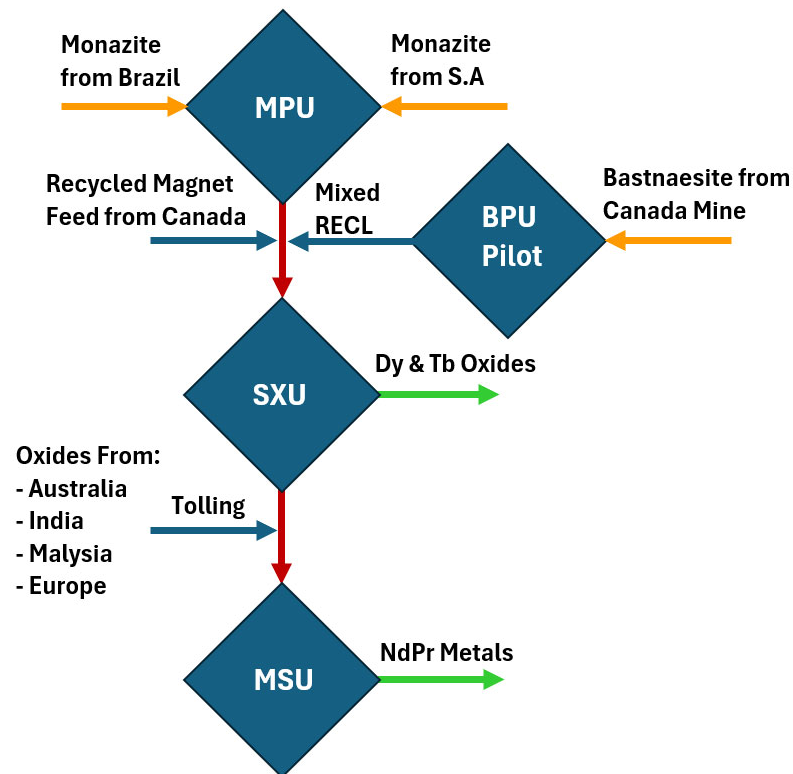


SRC REPF Development Timeline (est)

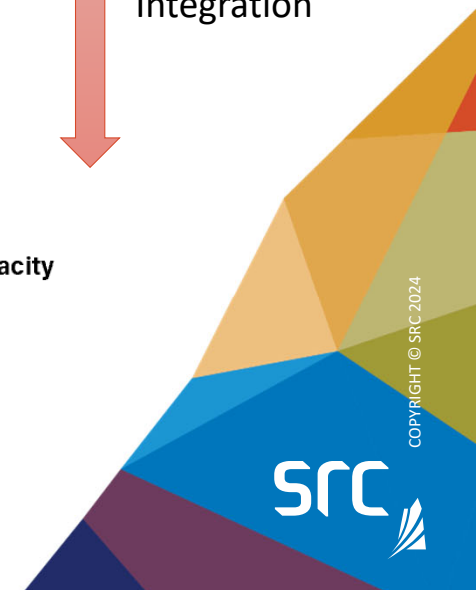
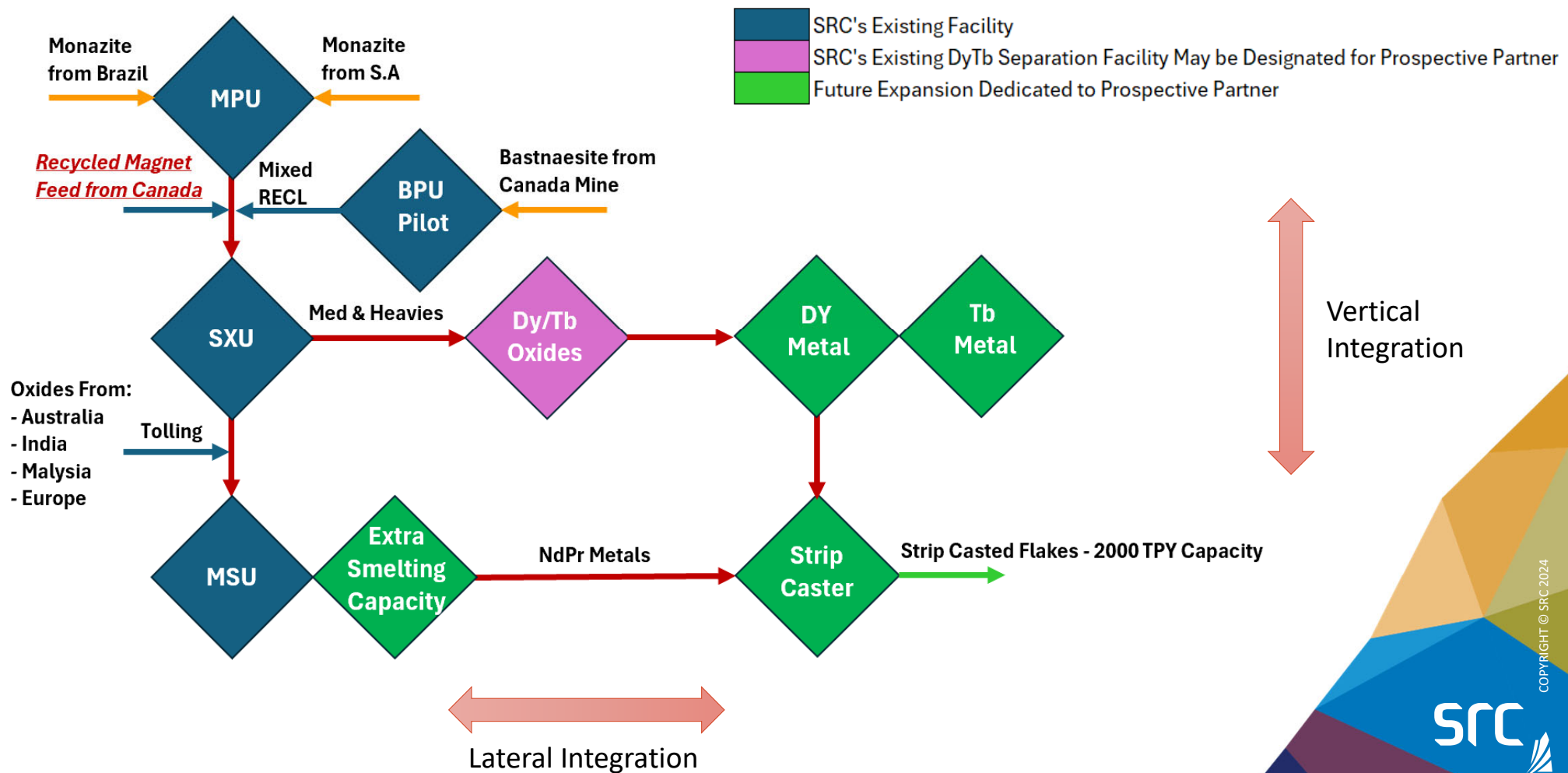


REE Facility Traceable Supply Chain

- Geographic origin and supplier tracking
- End to end tracking of raw material to final product
- Compliance with industry and environmental regulations
- Real time data logging at each processing step
- ISO certified labs – purity analysis of rare earth products
- Safe handling of NORM and Non-NORM waste products



Future Downstream Expansion



Our Vision – Industry Catalyst

- SRC's facility is the first critical step in building a fully integrated REE hub in Saskatchewan
- Saskatchewan is becoming recognized for our REE processing expertise and technology as a global leader in the World's REE supply chain



SRC is committed to establishing a Rare Earth Processing Hub in Saskatchewan



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