

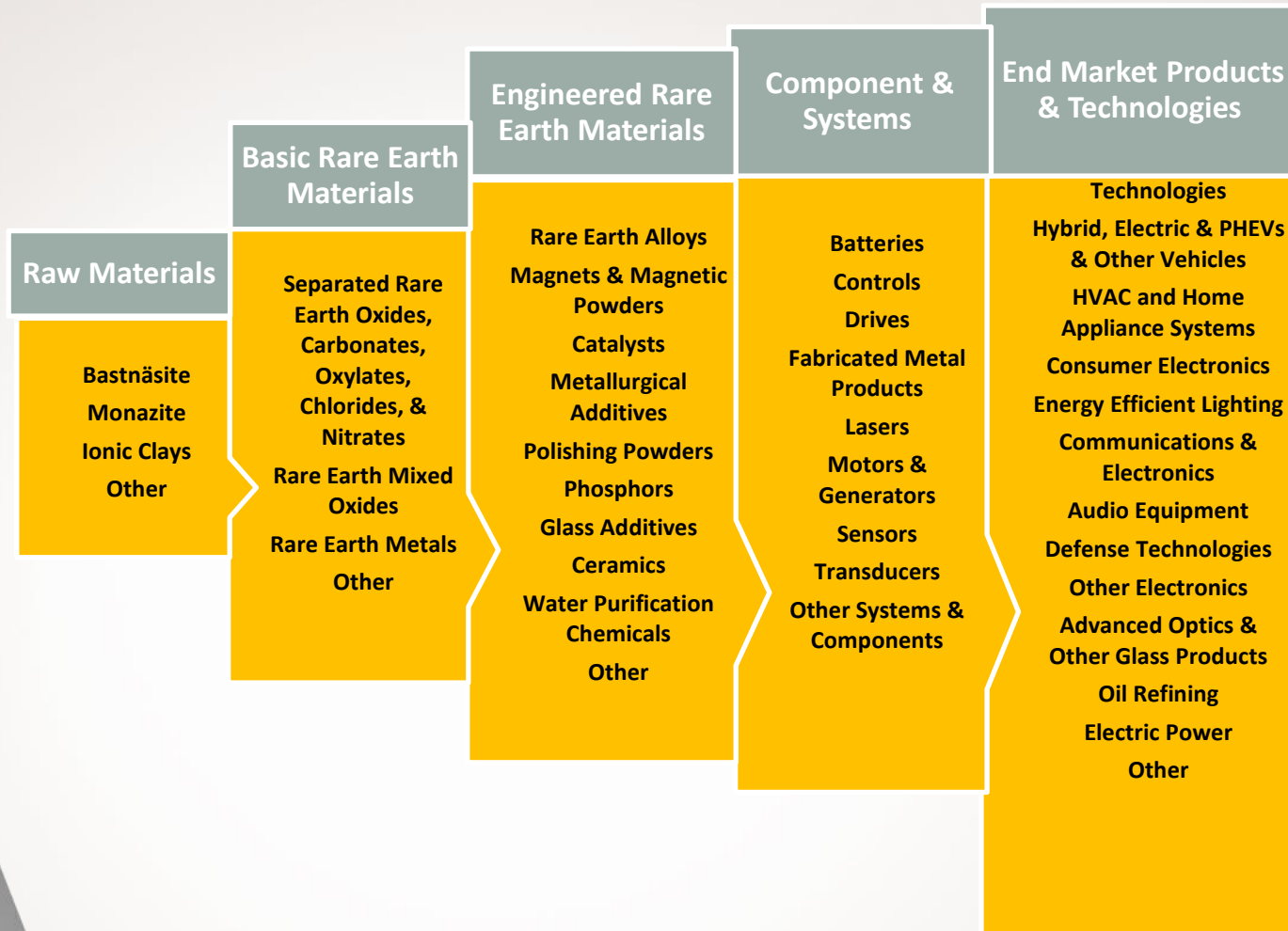
The Economic Benefits of the North American Rare Earths Industry

Dr. Kevin Swift
Managing Director
ACC Economics & Statistics Department

April 2, 2014

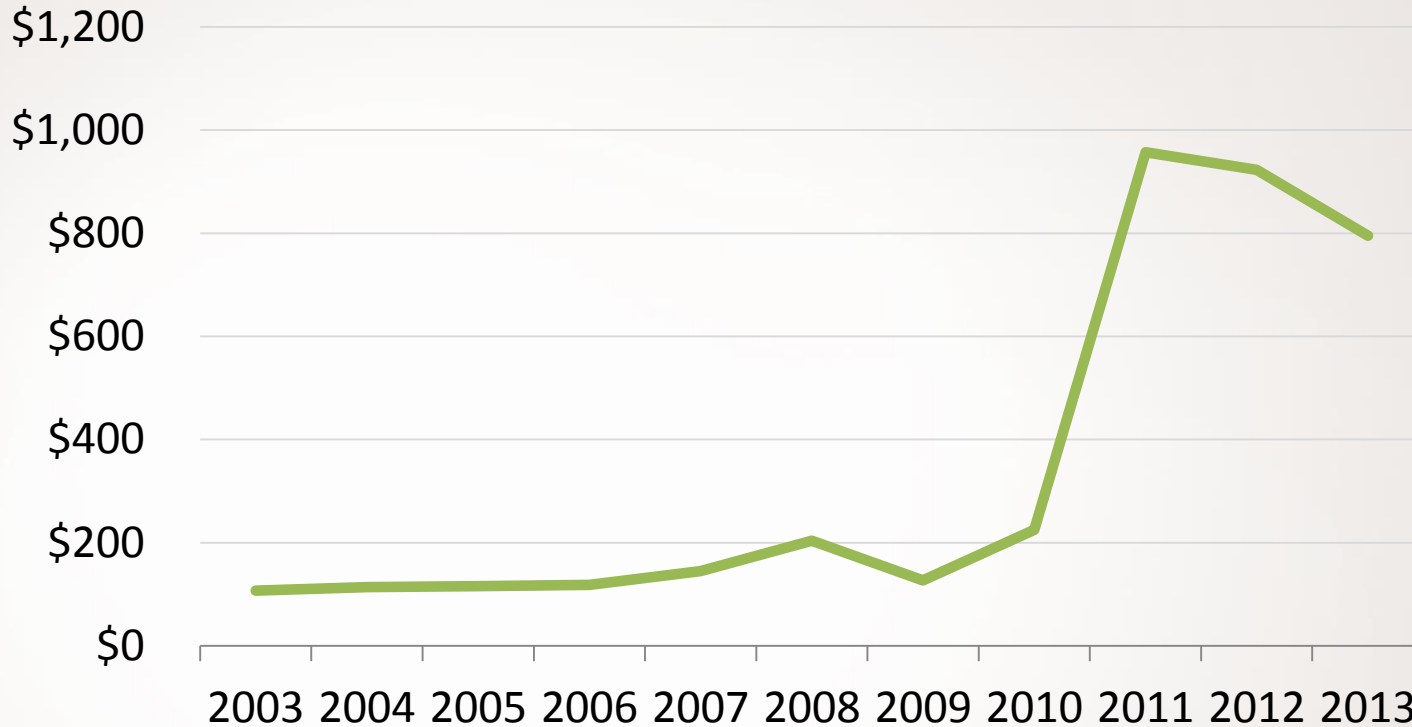


The Rare Earth Value Chain



Trends in North American Rare Earth Shipments

Millions of Dollars



Sources: Bureau of the Census, Bureau of Labor Statistics, Statistics Canada, and American Chemistry Council
Note: This includes both mining and manufacturing of basic rare earth materials.

Direct Impacts (N.A.)



Rare Earth extraction/separation/processing resulted in nearly \$1 billion worth of products shipped in 2011 and in 2012

Reduced to \$795 million in 2013 but overall trend has been up

Employs about 1,050 people, many of them chemical engineers, chemists, scientists, IT professionals, etc.

Annual payroll of \$116 million in 2013

Over \$53 million in annual taxes

Upstream Impacts (N.A.)



In addition to the direct (jobs and output) value of the industry the indirect and induced effects on other sectors of the economy can be quantified:

- **Indirect – employment and output supported by the sector via purchases from its supply chain.**
-
- **Induced – employment and output supported by the spending of those employed directly or indirectly by the sector.**

Upstream Economic Impact of the Rare Earth Industry

Impact Type	Employment	Payroll (\$ Million)	Output (\$ Million)	Taxes (\$ Million)
Direct	1,049	\$116	\$795	\$53
Indirect (Supply Chain)	2,550	\$175	\$717	\$71
Payroll-Induced	2,738	\$131	\$418	\$52
Total	6,337	\$422	\$1,930	\$176

Downstream End-Use Markets



Rare Earth Compounds are used in a vast array of intermediate and end-market products & technologies.

- Aerospace and Defense
 - Chemicals and Oil Refining
 - Clean Energy
-
- Electronics
 - Health Care
 - Transportation

North American Economic Activity Supported by Rare Earth Chemistry

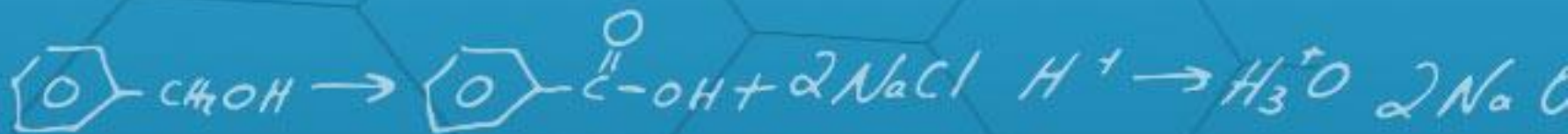
Industry	Revenues (\$ Millions)	Employment (thousands)	Payroll (\$ Millions)
Rare Earth Compounds	\$795	1.1	\$116
Intermediate Products	\$43,910	114.1	\$6,850
End-Market Products & Technologies	\$285,645	504.7	\$30,741
Total – Downstream Customer Sectors	\$329,645	618.8	\$37,591

US Economic Activity Supported by Rare Earth Chemistry

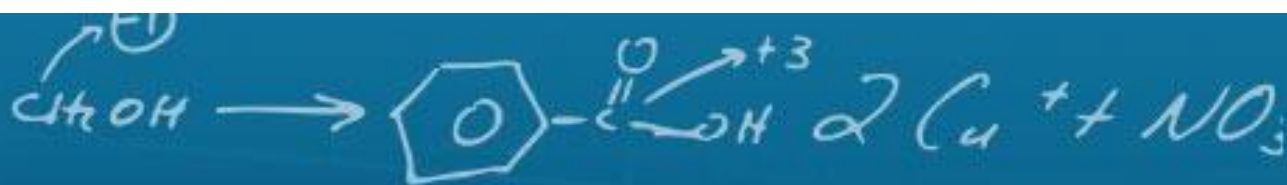
Industry	Revenues (\$ Millions)	Employment (thousands)	Payroll (\$ Millions)
Intermediate Products	\$39,196	101.8	\$6,110
End-Market Products & Technologies	\$259,365	433.5	\$27,258
Total – Downstream Customer Sectors	\$298,561	535.2	\$33,368

Canadian Economic Activity Supported by Rare Earth Chemistry

Industry	Revenues (\$ Millions)	Employment (thousands)	Payroll (\$ Millions)
Intermediate Products	\$4,714	12.3	\$740
End-Market Products & Technologies	\$26,371	71.3	\$3,483
Total – Downstream Customer Sectors	\$31,084	83.6	\$4,223



Conclusions:



57 La 138.9055	58 Ce 140.116	59 Pr 140.50765	60 Nd 144.24	61 Pm	62 Sm
----------------------	---------------------	-----------------------	--------------------	----------	----------

1

Rare Earth Elements are Used in a Vast Array of Manufactured Products.

The Direct and Indirect Economic Impacts are: \$1.9 B in Output, and; Over 6,000 Jobs with a \$422 M Payroll

2

3

The Industry Supports Downstream Industries that have an Output of \$329.6 B, 618,800 Jobs and a \$37 B Payroll



RARE EARTH TECHNOLOGY ALLIANCE

www.RareEarthTechAlliance.com