Rare Earths are a National Security and Economic Issue. The GAO has determined that China can halt the procurement of multiple RE-dependent U.S. weapons system

Image, Rare Earth Oxides: Gd, Pr, Le, Dy, La, Ce

China's Monopoly Control Also Increasingly Forces Western Corporations & Technology To Move Inside China

Before 1986 China was considered a non-entity in rare earth refining, metals, alloys, magnets and technology

In 1986 China initiated Program 863, intended to establish China as the global leader in Rare Earths and other technologies

By 2008 China was the leading RE mining, refining and advanced metal, alloy and magnet producer in the world

By 2010 China had full control of RE resources at every level and was able to force multi-national technology firms to relocate factories inside China in exchange for guaranteed supplies

By 2012 China leveraged a $3 billion market: mining, oxides & metals, into $4.6 trillion in value added goods

Nearly every one of Baotou City's 2.5 million inhabitants are directly or indirectly committed to the advancement of China's Rare Earth program

Baotou's population is about 15 times larger than the U.S. Manhattan Project during the peak of the war effort

Nearly all high value-added techology in a modern economy requires Rare Earths

China is draining the world of its high-value manufacturing jobs, technology & IP

China's monopoly is undermining the economic stability of the U.S. and our allies

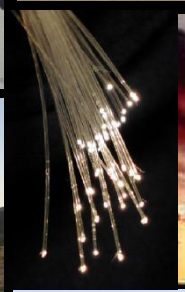
The status quo is not sustainable, cooperative action is required

China’s monopoly undermines U.S. leadership and the sustainability of our technological advancement because most of the worlds advanced metallurgy, materials science and advanced electronics are ultimately drawn into China’s sphere of control.













The U.S. must regain control of this space.

Current U.S. Thorium Policy Is the Basis of Chinese Primacy in Rare Earths

Monazite is the 2nd most common RE mineralization and the #1 source of Heavy REs, so why aren't we using it ?

U.S. Regulations force RE producers to avoid Thorium – so U.S. miners only develop low Thorium deposits

Low Thorium deposits typically do not have recoverable Heavy REs

- Exceptions are rare and incompatible with demand
- Bastnaesite deposits do not contain economic levels of Heavy Rare Earths
- China's indifference to Thorium and its supply of Ionic Clays assure continued dominance in Heavy Rare Earths

U.S. Thorium policy plays into the hands of China

Heavy RE Monazite & Apatite are Abundant in Mining Waste

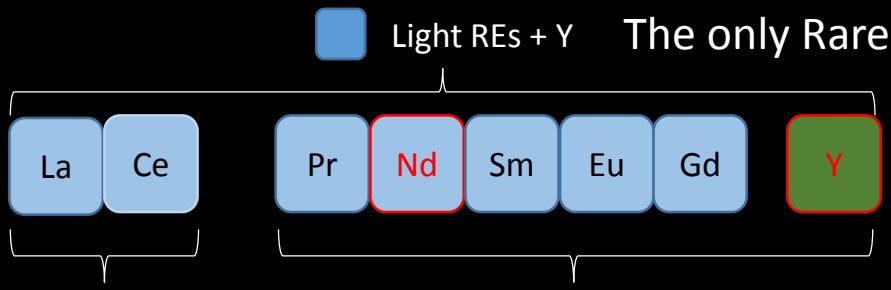
Thorium Bearing Monazites, Apatite & other RE Phosphates are typically dumped as tailings by some of the following:

- Phosphate Mines
- Heavy Mineral Sand – Titanium / Zircon Placer Mines
- Iron Ore Mines, Uranium, Aluminum, Copper, Cobalt, etc.
- Rare Earth / Bastnaesite Mines

Resolve the Thorium issue and you have resolved the rare earth issue, including heavy rare earths

By utilizing existing Thorium bearing resources from existing mines the rare earth supply chain becomes broad and deep

Because the U.S. also lacks domestic Rare Earth processing, U.S. producers ship high value Light REs to China

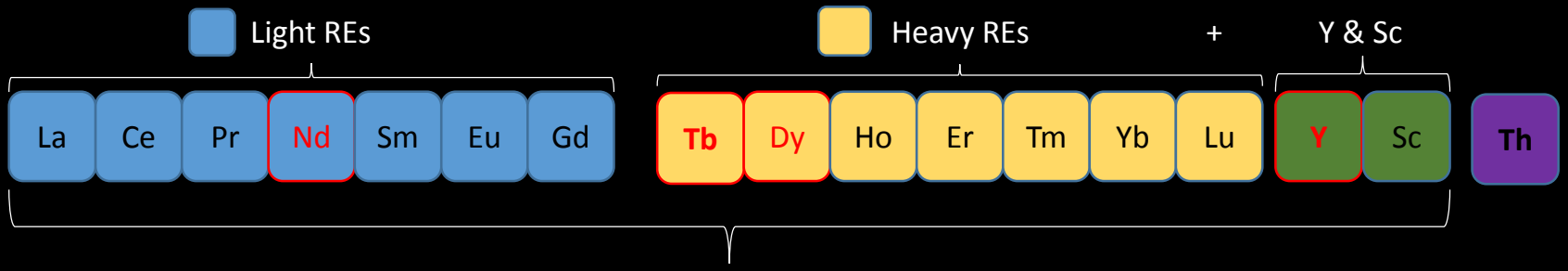


The only Rare Earths currently mined in the USA.
From a typical Bastnaesite deposit.

DoE classifies Nd, Tb, Dy and Y as the most critical elements.

U.S. produces only Nd and Y and ships most of it to China for processing, along with other high value elements.

FULL Rare Earth distribution: common in Monazite and other Thorium bearing deposits



Rare Earths consist of the full Lanthanide Series plus Yttrium and Scandium (Y + Sc)

*La and Ce make up over 80 % of U.S. domestic production and are currently selling at a loss or have no markets. China extracts all of the valuable resource under this 'free market' approach.

A significant part of our Nations defense systems are heavy RE dependent

Heavy RE Dependent Technologies

None of these are currently produced in the USA

Tb — Magnets, Lighting & Phosphors, Fuel Cells – Automotive, Wind Turbines,
Defense Applications: Terfenol-D Sonar , Guided Ordinance, Lasers

Dy — Magnets, Nuclear Control Rods, Lasers – Automotive, Wind Turbines
Defense Applications: Terfenol-D Sonar , Guided Ordinance

Ho — Magnets, Nuclear Control Rods, Lasers, Microwave Equipment
Defense Applications: Rail Gun, Direct Energy Weapons, EMPs, Electro-Lasers

Er — Industrial & Medical Lasers, Fiber Optics, Nuclear Control Rods, EU Currency
Defense Applications: Infra-Red CM, LADAR, Communications

Tm — Super Conductors, X-Ray, Industrial & Medical Lasers, Optic Display, EU Currency
Defense Applications: Magnets, CTH YAG Lasers

Yb — X-Ray, Optics, Steel Alloy, Stress Instrumentation, Solar Cells, Lasers
Defense Applications: Advance Photonics Phase-Lock Array Lasers

Lu — Nuclear Dating, Metal Alloys, Catalysts, Medical Imaging and Treatments
Defense Applications: Active / Passive Infra Red Cameras, Scintillators

Sc — Supper Aluminum Alloys, Specialty Lighting, Lasers, Fuel Cells
Defense Applications: Air Frame Alloys and Missile Hardening

Y — Phosphors, Electrodes, Super Conductors, Lasers, Catalysts
Defense Applications: Guided Ordinance, Lasers, Communication, Radar

Under the current *'free market'* approach (Molycorp's Mt. Pass) the problem is grossly exacerbated because Molycorp send all of its valuable light REs to China also.

Rare Earth Distribution % | By Mineralization

	Mt. Pass Bastnaesite	China Byan Obo	HRE-China Laterite		Selected Monazite	Pea Ridge* Breccia	Pea Ridge** RE-Apatite	Florida Phosphate
Lanthanum	33.8	27.1	1.8		21	27.5	18.6	25.6
Cerium	49.6	49.8	0.4		45	38.8	34.6	21
Praseodymium	4.1	5.15	0.7	Light Lanthanides	5.0	4.4	3.5	5
Neodymium	**11.2**	**15.4**	**3.0**		**19**	**15.4**	**12.7**	**12.1**
Samarium	0.9	1.15	2.8		3.0	2.1	2.5	5
Europium	0.1	.19	0.1		0.2	0.3	0.3	0.7
Gadolinium	0.2	0.4	6.9		2.6	1.5	2.8	2.4
Terbium	**0.0**	**0**	**1.3**		**.29**	**0.3**	**0.5**	**0.7**
Dysprosium	**0.0**	**0.3**	**6.7**		**1.1**	**1.5**	**2.8**	2.8
Holmium	0.0	0	1.6		.13	0.3	0.5	0.7
Erbium	0.0	0	4.9	Heavy Lanthanides	.27	0.8	1.8	3.6
Thulium	0.0	0	0.7		.02	0.1	0.2	0.3
Ytterbium	0.0	0	2.5		.12	0.9	1.5	1.4
Lutetium	Trace	0	0.4		.02	0.1	0.2	0.5
Yttrium	**0.1**	**0.2**	**65.0**		**3.3**	**5.7**	**17.5**	**18**
Scandium	0.0	0.0	Trace		Trace	Trace	Trace	0.5
Percent Heavy	**0.0%**	**0.3%**	**18.1%**		**4.7%**	**4%**	**7.5%**	**10%**
Heavy + Y	**0.1%**	**0.5%**	**83.1%**		**8%**	**9.7%**	**25%**	**28.5**
RE in Ore	8%	5%	0.2%		+50%	12%	3%	3%
Percent Th	0.1%	0.3%	>.1%		8%	3.5%	1%	10.5%***

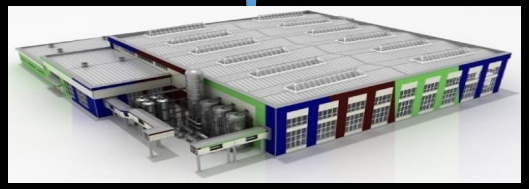
USGS Data - In order of Geologic Occurrence – Bastnaesite, HRE Laterite, Monazite, Apatite

*Pea Ridge RE resources: Breccia Pipes (primarily Monazite / limited Xenotime).
**Rare Earth Enriched Apatite (Monazite / Xenotime), a no-cost byproduct of iron ore mining.
***Total Actinides = Thorium and Uranium (USGS data), but totals 2 times U.S. annual rare earth demand.

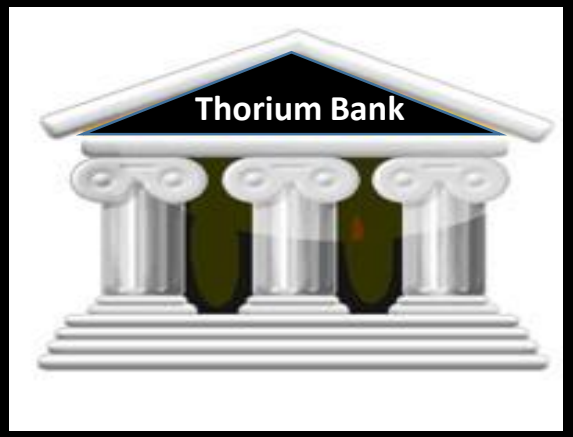
One single non-rare earth mine in the U.S. dumps over 100% of U.S. annual consumption every single year. Historically this same mine was the exclusive domestic producer of all U.S. heavy rare earths.

Multiple non-RE mining companies provide Monazite, Apatite & other Th-bearing RE to the co-operative, currently a waste byproduct of some other commodity

Multiple RE Suppliers – RE is a byproduct



Thorium liability



The Th-Bank assures that Thorium is no longer released back into the environment

Thorium Bank holds all Actinide liabilities, but has Congressional authority to develop "Uses & Markets for Thorium, including Energy"

RE Refinery Co-op / oxides, metals, alloys, etc.

Not Endorsements – Potential Co-op Owners

U.S. Aerospace U.S. Defense Ind. U.S. Auto Ind.

Japanese Industry, Korean Industry, EU Industry, N.A.T.O

JOGMEC AIST

Japanese, Korean and EU Government Entities

European Commission

RE end-users own and control the Co-operative and off-take, but share profits with suppliers

Centralized Th-Bearing Rare Earth Refinery Cooperative

RE Components

RE Fabricators

Large OEM Technology Companies:
Aerospace, Electronics, Auto
Defense Contractors

Privately funded Rare Earth Refinery provides fully integrated value chain for rare earth chemicals, oxides, metals, alloys, magnets, etc.

Research Facility Partners:
OSD - ASD R&D (TE)
DoD, DoE, DARPA, ARPA-E

Shared University Tech Resource Facility

OEM rare earth end-users, defense contractors, the U.S. Defense Logistics Agency and national programs such as JOGMEC, KORES and the UE.

RE Patent Owners

Future Applications

Shared Corporate Industrial Development & Research Facility

IP owners, fabricators, component makers and new technology applicators will support the cooperative internally or externally

So, where does the Rare Earth Cooperative get its supply of Rare Earths ?

From existing non-rare earth mining companies who currently dump rare earths to avoid the accumulation of Thorium.

How big is the potential for capturing rare earths as a byproduct of existing mining operations in the USA?

Rare Earths from current existing and operating mining operations could exceed 5 times U.S. demand, or nearly 50% of global demand.

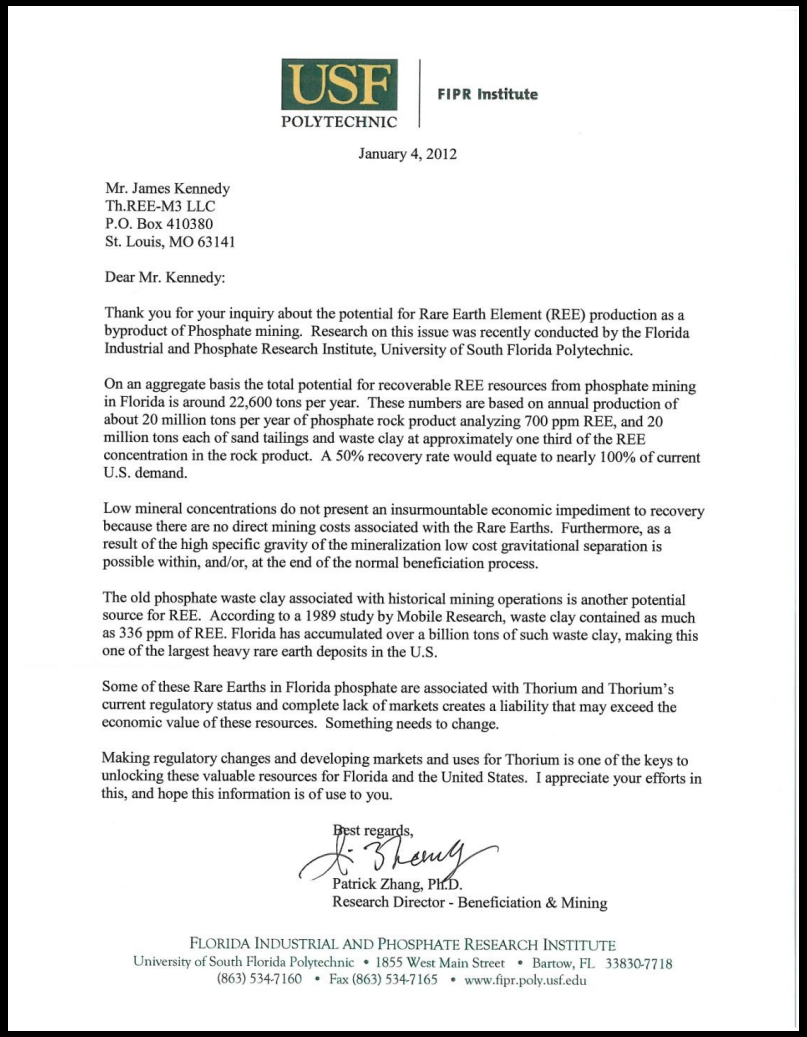
From just the 2 sources that follow, annual REE availability exceeds 3 times U.S. demand.

There is no shortage of Rare Earths

Research conducted by The Florida Industrial & Phosphate Research Institute and USF confirms that the Phosphate mining industry in Florida dumps about 22,600 tons of rare earths* every year – due to Thorium content.

Assuming a 50% recovery, Florida alone could cover nearly 100% of current U.S. rare earth requirements.

*Apatite = Heavy REs



USF POLYTECHNIC | FIPR Institute

January 4, 2012

Mr. James Kennedy
Th.REE-M3 LLC
P.O. Box 410380
St. Louis, MO 63141

Dear Mr. Kennedy:

Thank you for your inquiry about the potential for Rare Earth Element (REE) production as a byproduct of Phosphate mining. Research on this issue was recently conducted by the Florida Industrial and Phosphate Research Institute, University of South Florida Polytechnic.

On an aggregate basis the total potential for recoverable REE resources from phosphate mining in Florida is around 22,600 tons per year. These numbers are based on annual production of about 20 million tons per year of phosphate rock product analyzing 700 ppm REE, and 20 million tons each of sand tailings and waste clay at approximately one third of the REE concentration in the rock product. A 50% recovery rate would equate to nearly 100% of current U.S. demand.

Low mineral concentrations do not present an insurmountable economic impediment to recovery because there are no direct mining costs associated with the Rare Earths. Furthermore, as a result of the high specific gravity of the mineralization low cost gravitational separation is possible within, and/or, at the end of the normal beneficiation process.

The old phosphate waste clay associated with historical mining operations is another potential source for REE. According to a 1989 study by Mobile Research, waste clay contained as much as 336 ppm of REE. Florida has accumulated over a billion tons of such waste clay, making this one of the largest heavy rare earth deposits in the U.S.

Some of these Rare Earths in Florida phosphate are associated with Thorium and Thorium's current regulatory status and complete lack of markets creates a liability that may exceed the economic value of these resources. Something needs to change.

Making regulatory changes and developing markets and uses for Thorium is one of the keys to unlocking these valuable resources for Florida and the United States. I appreciate your efforts in this, and hope this information is of use to you.

Best regards,

Patrick Zhang, Ph.D.
Research Director - Beneficiation & Mining

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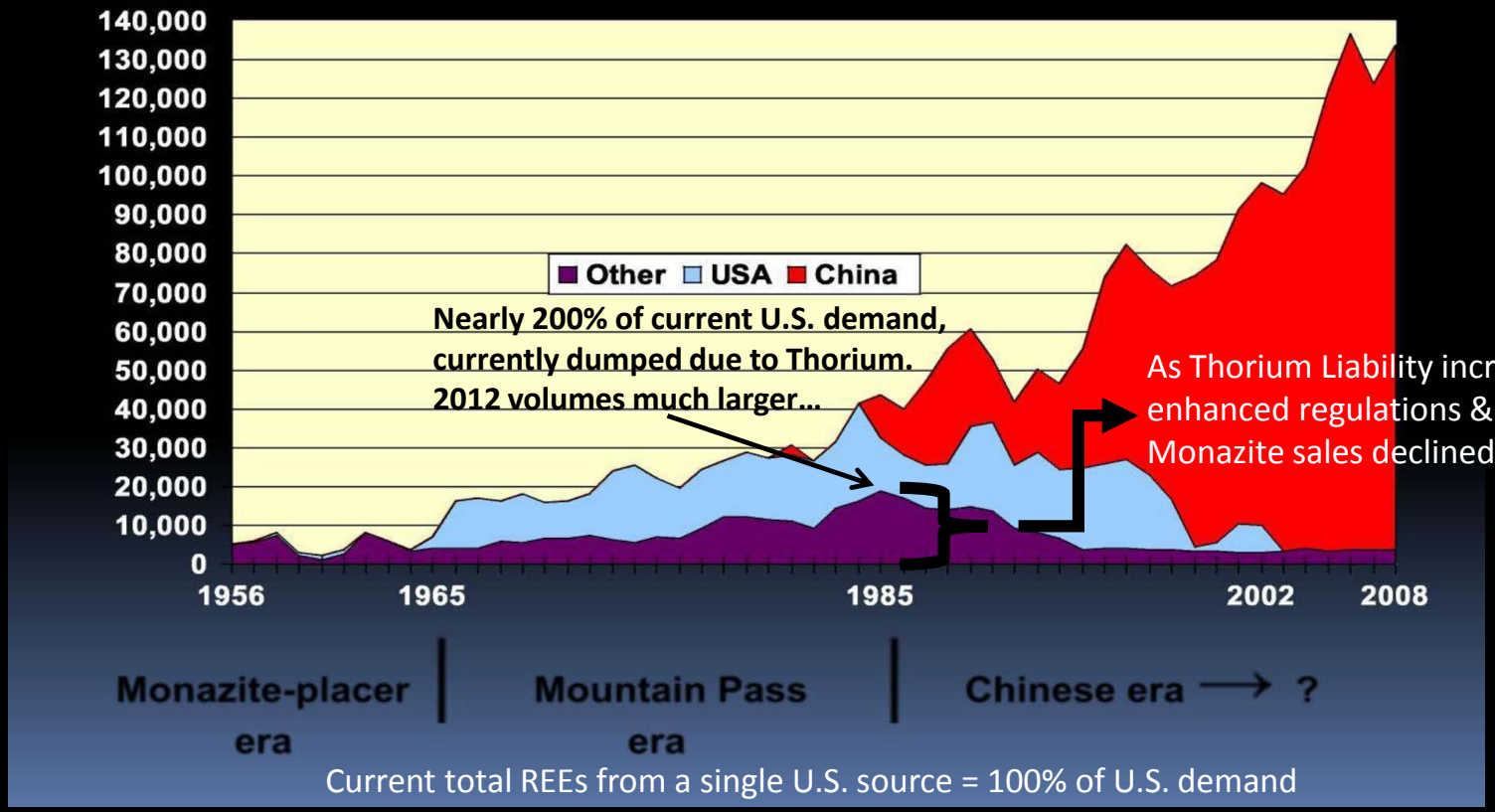
Pre-Mt. Pass era – Nearly all REEs were a byproduct of Heavy Mineral Sands

100% of domestic heavy rare earth production came from mineral sands

by Gordon Haxel, Greta Orris, and James Hedrick, updated by Hedrick

Nearly all REE came from the heavy Mineral Sands mining industry as a Monazite byproduct.

In 1985 the Mineral Sands industry was producing over 10,000 tpy of REEs as a byproduct



Current total REEs from a single U.S. source = 100% of U.S. demand

Changes in interpretation and enforcement of NRC regulations in the 1980s ended all heavy rare earth production in the USA and sent the entire U.S. rare earth industry into steep decline

Thorium and all other Actinides will be transferred to the “Thorium Storage, Energy and Industrial Products Corporation”

DBA: The Thorium Bank

The Thorium Bank will act as a:

1) Strategic reserve for the safe storage of Thorium

2) Private corporation authorized by Congress to develop commercial

    a) uses and markets for Thorium, including

        i) non-energy, medical and industrial materials

        ii) Thorium energy systems

Funded by U.S. & multi-national entities and sovereign governments

Safe Storage

Energy

Defense & Space Applications

Th Bank

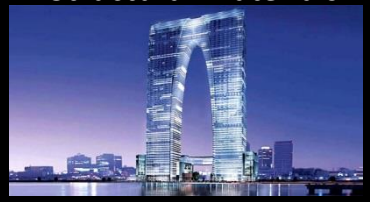
Thorium Storage, Energy & Industrial Products Corporation

Industrial Uses

Computing & Electronics

Advanced Alloys

Structural Materials



Energy Systems