

## Strategic Metals: China's got the Pentagon shaking in its boots

Written by Energy & Capital - Hard Assets Investor  
Wednesday, 15 September 2010 08:16

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### What's got the Pentagon so worried?

With more than 97% of the world's rare earth metals produced in China, its recent announcement of a 72% reduction in exports could screw the US military...

The Pentagon is scrambling for alternatives, but they don't really have time to scramble.

Rare earth resource demand must be met.

Without these metals, technological advancements are history. The world in which we have become accustomed to living in and the way in which we work, communicate, and progress will change drastically.

And not just for the military...

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## Strategic Metals: An Introduction

### What Are Strategic Metals?

Some time back in the last quarter of the 20th century, strategic metals came to be defined generally as metals vital to modern technology and industry, but that have sources susceptible to disruption. In other words, they are metals you really need, but someone else has.

Strategic metals are distinct from "precious" metals, like silver and gold, because most are not as vital to either technology and industry in the same way. Likewise, they differ from "base" metals, such as copper, lead, iron and zinc, in that those metals are relatively abundant in locations around the world.

While some strategic metals like chromium, manganese or tungsten are produced on a relatively large scale, many others are produced in extraordinarily small quantities. For example, only an estimated 140 tonnes of germanium was produced in 2010, while only an estimated 10 tonnes of thallium, a highly toxic element, was produced.

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A large number of strategic metals are actually byproducts from base metal refining—some are even byproducts of byproducts!

### Which Metals Are Strategic?

Sounding somewhat like the lyrics from Harvard mathematician Tom Lehrer's song "The Elements," the strategic metals are usually considered to include:

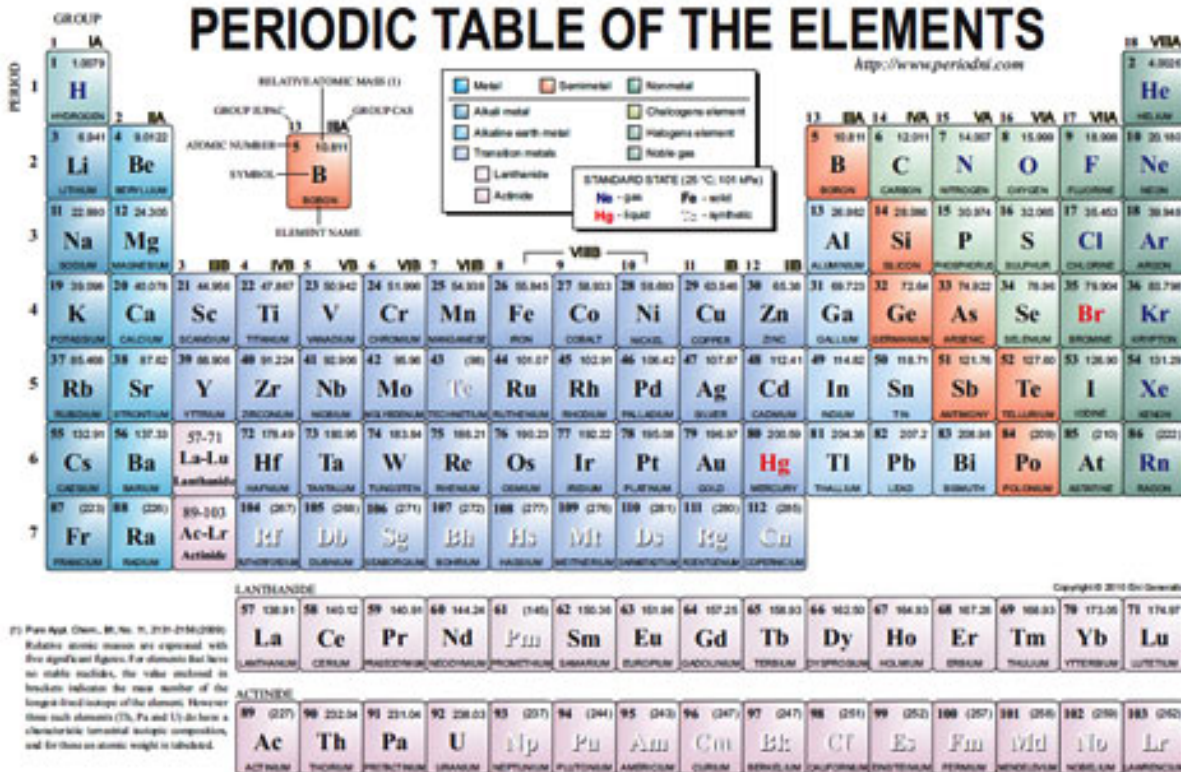
<i>Strategic Metals A-F</i>	<i>Strategic Metals G-L</i>	<i>Strategic Metals M-R</i>	<i>Strategic Metals S-Z</i>
Antimony (Sb)	Gallium (Ga)	Magnesium (Mg)	Selenium (Se)
Arsenic (As)	Germanium (Ge)	Manganese (Mn)	Strontium (Sr)
Beryllium (Be)	Hafnium (Hf)	Mercury (Hg)	Tantalum (Ta)
Bismuth (Bi)	Indium (In)	Molybdenum (Mo)	Tellurium (Te)
Cadmium (Cd)	Iridium (Ir)*	Niobium (or Columbium) (Nb)	Thallium (Tl)
Chromium (Cr)	Lithium (Li)	Osmium (Os)*	Titanium (Ti)
Cobalt (Co)		Rare Earth Metals‡	Tungsten (W)
		Rhenium (Re)	Vanadium (V)
		Rhodium (Rh)*	Zirconium (Zr)
		Ruthenium (Ru)*	

\*Platinum group metals (PGM), a group that also includes platinum (Pt) and palladium (Pd).

‡Rare Earth Metals: Usually taken to include the so-called lanthanides, which include lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), promethium (Pm), samarium (Sm), europium, (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb) and lutetium (Lu), scandium (Sc) and yttrium (Y).

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<http://www.periodic.com> is a free online periodic table of elements. It provides information on the chemical and physical properties of all 118 elements. The table is color-coded by groups and includes a legend for element types. It also features a search function and a list of elements with their atomic numbers and symbols.