Michael S. (Mickey) Fulp
Contact@MercenaryGeologist.com

www.MercenaryGeologist.com
www.MercenaryGeologist.asia
MercenaryGeologist.FM
Twitter: @mercenarygeo

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Strategic, Critical, & Specialty Metals:

What Should a Junior Resource Company Do ?

New Orleans Investment Conference

October 25, 2012

Michael S. (Mickey) Fulp, M.Sc., C.P.G. **www.MercenaryGeologist.com**

What are "Strategic Elements"?

- Electric Metals
- Doping Agents
- Technology Metals
- Critical Metals
- Rare Metals
- Strategic Metals
- *Specialty or Minor Metals*

What Makes a Metal *Critical*?

- Essential Role : Modern Industrial Applications
- Major Tonnage : Mined, Processed, & Used
- Trades on World Open Market *or*
- Trades as Bulk Dry Commodity

What are the "Critical Metals" ?

- Iron
- Aluminum
- Copper
- Ferrous Alloys: Ti, Cr, Mn, Ni, Mo
- Zinc, Lead, Tin
- Uranium

Critical Metals (Red)

1 H Hydrogen 1.00794																	2 He Helium 4.00260
3 Li Lithium 6.941	4 Be Beryllium 9.01218											5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.0067	8 O Oxygen 15.9994	9 F Fluorine 18.9984	10 Ne Neon 20.180
11 Na Sodium 22.9898	12 Mg Magnesium 24.305											13 Al Aluminum 26.9815	14 Si Silicon 28.0855	15 P Phosphorus 30.9738	16 S Sulfur 32.066	17 Cl Chlorine 35.453	18 Ar Argon 39.948
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.9559	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.723	32 Ge Germanium 72.61	33 As Arsenic 74.922	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.9059	40 Zr Zirconium 91.224	41 Nb Niobium 92.9064	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.906	46 Pd Palladium 106.42	47 Ag Silver 107.868	48 Cd Cadmium 112.411	49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.904	54 Xe Xenon 131.29
55 Cs Cesium 132.905	56 Ba Barium 137.33		72 Hf Hafnium 178.49	73 Ta Tantalum 180.948	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.078	79 Au Gold 196.967	80 Hg Mercury 200.59	81 Tl Thallium 204.383	82 Pb Lead 207.2	83 Bi Bismuth 208.980	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
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Lanthanides	57 La Lanthanum 138.906	58 Ce Cerium 140.116	59 Pr Praseodymium 140.908	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.96	64 Gd Gadolinium 157.25	65 Tb Terbium 158.93	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93	68 Er Erbium 167.26	69 Tm Thulium 168.93	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.97
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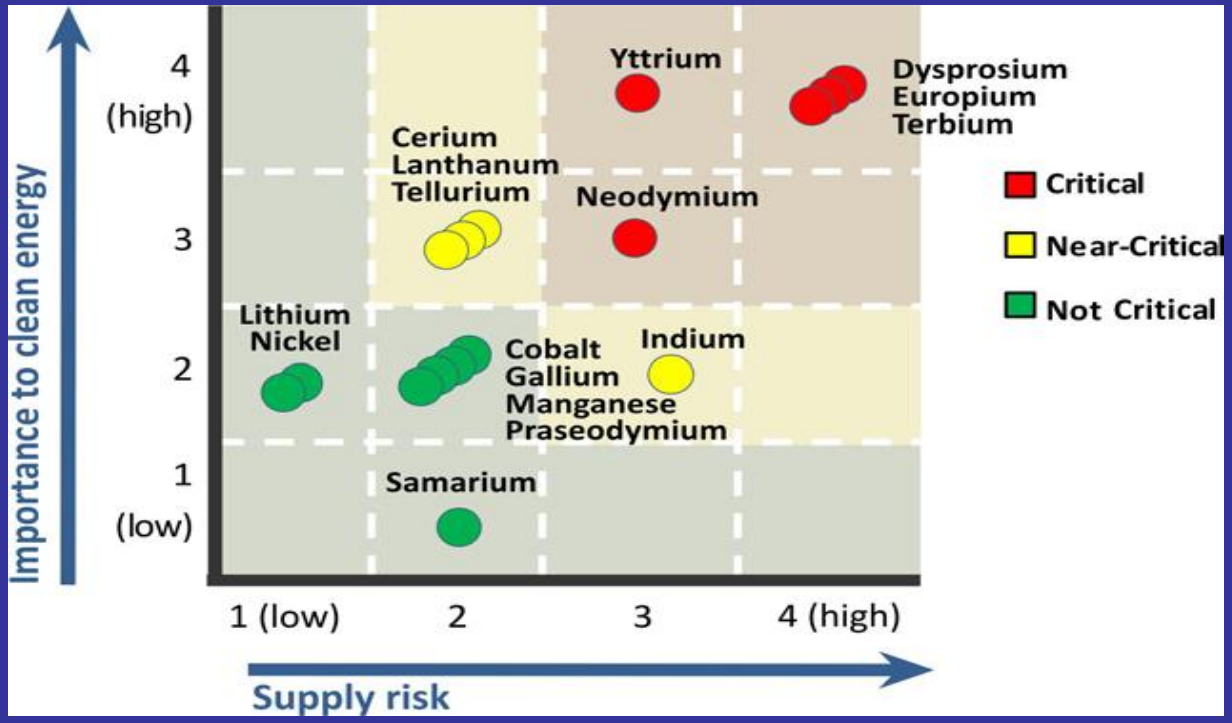
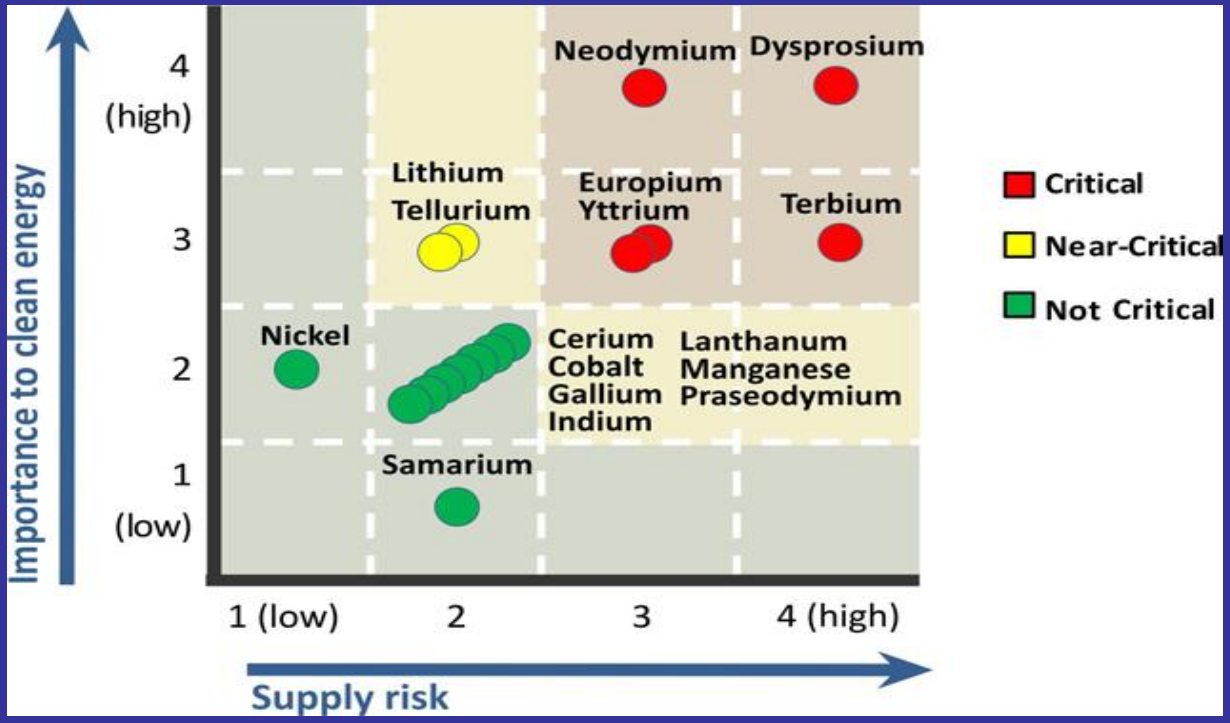
DOE Critical Metals 2011 - 2015



DOE Critical Metals 2015 - 2025



DOE "Critical Metals"

- 2011 – 2025: 5 – 7 REEs, Te, ± Li
- Growth of "Clean Energy" Applications
- Wind Turbines, EVs, PVs, Efficient Lighting
- Government Solution: Interagency Coordination
- Studies, Research, Plans, International Workshops

Homeland Security "Strategic Metals"

- National & Economic Security
- Public Health & Safety

- Titanium, Chromium, Manganese, Cobalt
- Germanium
- Niobium, REEs, Tungsten

2011 U.S. NET IMPORT RELIANCE FOR SELECTED NONFUEL MINERAL MATERIALS

Commodity	Percent	Major Import Sources (2007–10)[1]
ARSENIC (trioxide)	100	Morocco, China, Belgium
ASBESTOS	100	Canada, Zimbabwe
BAUXITE and ALUMINA	100	Jamaica, Brazil, Guinea, Australia
CESIUM	100	Canada
FLUORSPAR	100	Mexico, China, South Africa, Mongolia
GRAPHITE (natural)	100	China, Mexico, Canada, Brazil
INDIUM	100	China, Canada, Japan, Belgium
MANGANESE	100	South Africa, Gabon, China, Australia
MICA, sheet (natural)	100	China, Brazil, Belgium, India
NIOBIUM (columbium)	100	Brazil, Canada, Germany, Russia
QUARTZ CRYSTAL (industrial)	100	China, Japan, Russia
RARE EARTHS	100	China, France, Estonia, Japan
RUBIDIUM	100	Canada
SCANDIUM	100	China
STRONTIUM	100	Mexico, Germany
TANTALUM	100	China, Germany, Kazakhstan, Australia
THALLIUM	100	Russia, Germany, Kazakhstan
THORIUM	100	France, India, Canada, United Kingdom
YTTRIUM	100	China, Japan, France, United Kingdom
GALLIUM	99	Germany, Canada, United Kingdom, China
IODINE	99	Chile, Japan
GEMSTONES	98	Israel, India, Belgium, South Africa
GERMANIUM	90	China, Belgium, Russia, Germany
BISMUTH	89	China, Belgium, United Kingdom,
DIAMOND (dust, grit and powder)	89	China, Ireland, Republic of Korea, Russia
PLATINUM	88	Germany, South Africa, United Kingdom, Canada
ANTIMONY	87	China, Mexico, Belgium
RHENIUM	87	Chile, Netherlands, Germany
STONE (dimension)	85	Brazil, China, Italy, Turkey
POTASH	83	Canada, Belarus, Russia
VANADIUM	80	Rep. of Korea, Canada, Austria, Czech Republic

BARITE	78	China, India
SILICON CARBIDE	76	China, Brazil, Vietnam, Norway
TIN	76	Peru, Bolivia, Indonesia, China
COBALT	75	China, Norway, Russia, Canada
SILVER	75	Mexico, Canada, Peru, Chile
ZINC	73	Canada, Peru, Mexico, Ireland
TITANIUM (sponge)	69	Kazakhstan, Japan, China, Russia
TITANIUM MINERAL CONCENTRATES	68	South Africa, Australia, Canada, Mozambique
PEAT	63	Canada
CHROMIUM	60	South Africa, Kazakhstan, Russia, China
PALLADIUM	56	Russia, South Africa, United Kingdom, Norway
MAGNESIUM COMPOUNDS	53	China, Canada, Brazil, Austria
NICKEL	47	Canada, Russia, Australia, Norway
SILICON (ferrosilicon)	42	China, Russia, Venezuela, Canada
NITROGEN (fixed), AMMONIA	41	Trinidad and Tobago, Russia, Canada, Ukraine
GARNET (industrial)	39	India, Australia, China, Canada
GOLD	36	Mexico, Canada, Colombia, Peru
TUNGSTEN	36	China, Bolivia, Canada, Germany
COPPER	35	Chile, Canada, Peru, Mexico
MAGNESIUM METAL	35	Israel, Canada, China
PERLITE	27	Greece
SULFUR	24	Canada, Mexico, Venezuela
SALT	22	Canada, Chile, Mexico, The Bahamas
BERYLLIUM	21	Russia, Kazakhstan, Japan, Russia
MICA, scrap and flake (natural)	20	Canada, China, India
VERMICULITE	20	China, South Africa, Australia, Brazil
ALUMINUM	13	Canada, Russia, China, Mexico
GYPSUM	13	Canada, Mexico, Spain
PHOSPHATE ROCK	13	Morocco, Peru
IRON and STEEL	9	Canada, European Union, China, Mexico
IRON and STEEL SLAG	8	Japan, Canada, South Africa, Italy
CEMENT	6	Canada, China, Republic of Korea, Mexico
PUMICE	5	Greece, Mexico, Iceland, Montserrat
DIAMOND (natural industrial stone)	3	Botswana, South Africa, Russia, Namibia
LIME	1	Canada, Mexico
STONE (crushed)	1	Canada, Mexico, The Bahamas

USA: Net Reliance on Foreign Sources

USGS: 67 Mineral Commodities

- 19 > 100 % ; 31 > 80 % ; 43 > 50 %
- 10 < 20 %
- 10 of 19: China Is Major Supplier
- Critical Metals: Mn, Cr South Africa & Gabon

Specialty or Minor Metals

- Non - Essential to World Economic Health
- Small Tonnages & Total Value
- Large Mines: By-product or Co-product
- Small Mines: Concentrating, Processing, Refining

Specialty or Minor Metals

- Sales & Market Opacity
- Do Not Trade on Open Markets
- Off - take or Spot Contracts
- Monopoly or Oligopoly
- Country, Company, or Deposit

Specialty Metals (Green)

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Specialty or Minor Metals

- Li, Be
- Sc, V, Co, Ga, Ge
- Zr, Nb, Cd, In, Sb, Te
- Hf, Ta, W, Re, Tl, Hg, Bi
- Y & Lanthanides (REEs)

- Mercenary Musings Radio w/ Rob Graham

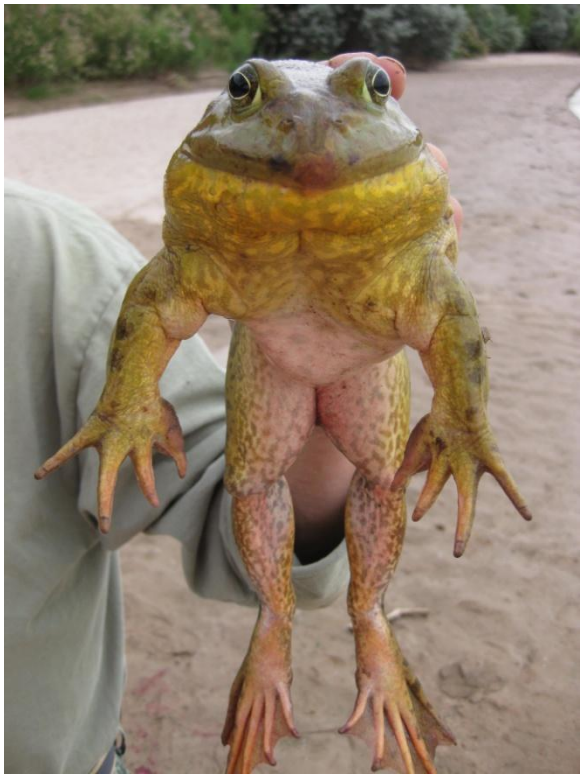
Juniors, Metals, & Projects

- The Good, The Bad, & the Butt - Ugly
- Metal, Deposit Type / Size, Supply / Demand
- Butt - Ugly: Most Specialty Metals
- Good: REEs, Sb, W, (Graphite)
- Rules of Thumb: Always Exceptions
- Specific Companies: Li, Be, Nb

Due Diligence Checklist

- Share Structure, People, Projects; Undervalue to Peers
- Every Good Geologist Knows that Grade is King
- Junior Resource Companies *Mining the Stock Market*
- "A Mine is a Hole in the Ground with a Liar Beside It"
- A Day without Learning is a Day Wasted

Beware of Frogs Masquerading as Princes



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Monday Morning Musings from Mickey the Mercenary Geologist

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