

Testimony of
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Resources
Sub-Committee on Energy and Mineral Resources

**“Strategic and Critical Minerals Policy:
Domestic Minerals Supplies and Demands in a time of Foreign
Supply Disruptions”**

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My thanks to the members of the House Sub-Committee on Energy and Mineral Resources for the opportunity to testify today. I am Daniel McGroarty, President of the American Resource Policy Network (www.AmericanResources.org), a newly-launched experts organization dedicated to informing the public -- and ongoing policy debates -- on the importance of developing U.S. mineral and metals resources and reducing American dependency on foreign sources of supply. I am also a member of the Board of Directors of Colorado Rare Earths, a public-held company currently developing Rare Earths properties, with the aim of adding to the domestically produced supply of metals critical to our green-tech economy and our cutting-edge defense systems. The subject before this sub-committee – the concept of

critical metals and minerals, and the potential for supply disruption – is an issue of enduring interest to me.

The Rare Earths

In recent months, the Rare Earths have put this issue on the front page – particularly since last fall, with the apparent embargo imposed by China against Japan, in the wake of a dispute over claims involving mineral rights beneath the East China Sea.

With China providing 97% of the world's Rare Earths supply, that episode underlined for the U.S. the dangers of resource dependency, and sparked an acceleration of interest in the U.S. policymakers.

Whether this episode constituted a test-firing of China's "resource weapon," or whether the shut-off was due to more benign factors continues to be debated. Even if there were no geo-strategic motive behind China's supply interruption, there is the fact that Chinese demand for Rare Earths – and dozens of other metals and minerals – is surging, with only a minor pause due to the global economic downturn. With 1.3 billion people and an 8 to 9 percent annual economic growth rate, Chinese mining officials have begun to float the possibility that China may be a net importer of Rare Earths as early as 2015.

So, whether China withholds its Rare Earths supply for geo-strategic purposes, or consumes an ever-increasing amount of the metals it used to export to the so-called "Rest of the World," the result will be the same: A shortage of a group of metals critical to our technological and economic development, as well as our national security.

In April, I presented as a panelist – the only American presenter -- at the 2011 Rare Earths Markets Seminar, in Sanya, China. I'd like to share with the sub-committee a recurring theme in my informal conversations with the Chinese attendees. Ideology aside, for a Chinese technocrat, pragmatism rules the day. They hear that the U.S. is studying the Rare Earths situation, issuing reports, preparing bills and even considering participating in a possible WTO action. They also hear that American companies – Molycorp being the most prominent, but others including Colorado Rare Earths – are pressing forward to develop rare earths mines. But their immediate question is: When will mining begin? Do you have your permits? How much will the mine produce? They simply do not take the U.S. seriously on this issue – not compared to

Australian companies or Canadian companies -- and that's an ominous sign. The message was unmistakable: If there's a resource race, China is in full sprint, and they see us standing at the starting line.

Profile of Dependency

And the Rare Earths are simply the most prominent group of metals where the U.S. has a significant dependency. Consider what I call the single scariest page in any document to come off the presses of the U.S. Government Printing Office: Page 6 of the U.S. Geological Survey's (USGS) Mineral Commodity Summaries, 2011. There you'll find a chart titled: "2010 U.S. Net Import Reliance for Selected Nonfuel Mineral Materials."

The Rare Earths, taken as a group, are just 1 of 18 metals and minerals for which the U.S. is 100% dependent on foreign sources of supply. Add another 13 metals and minerals for which our dependency is 80 to 99 percent.

Compare that with foreign oil, where the U.S. imports "only" 57%.

In fact, if oil were on the USGS list, it would appear in 42nd place – with 41 metals and minerals above it.

The names may be exotic – indium, thorium, vanadium, tantalum, germanium – but the industrial sectors affected constitute a cross-section of the U.S. economy, from aircraft engines, auto batteries, compact fluorescent bulbs and flat-screen displays to the wind turbines we hope will power clean energy and weapons systems we count on to protect us.

Copper: A Mainstay Metal

So-called technology metals may grab the spotlight, but mainstay metals like copper are also seeing rising demand. This may run counter to our own personal perceptions – as we think of PVC replacing copper pipe in household plumbing, or fiber optics displacing copper wire in telecomm – but that's misleading. Copper continues to be a critical material in electronics, building construction, durable goods and automobiles. In the last category, for instance, hybrid vehicles require double the amount of copper as gas-fueled automobiles.

Copper is critical for defense applications as well.

Department of Defense reports show that, by volume, copper ranks second – behind aluminum – in annual consumption for defense industrial applications.

But what about the general level of U.S. dependency for foreign-sourced copper?

Compared to near 100 percent dependency for Rare Earths, the fact that the U.S. today imports 30 percent of the copper we use from foreign sources may seem manageable, even acceptable. But to put that number in some historical perspective, I ask the sub-committee to look back to 1993 — the year the last metric ton of copper was sold out of the National Defense Stockpile.

In 1993, U.S. Mines produced 1.8 million metric tons of copper — roughly 60% more than in 2010. Our net import dependency was 7% -- not 30% as it is today. Half of what we did import came from Canada. Today 60% of our copper imports come from Chile, Peru and Mexico.

While total reserves are not a perfect proxy for exploration efforts, nonetheless -- since 1993, world copper reserves have more than doubled. Over that same period, U.S. copper reserves have declined — from 15% of the world total, to just over 5%.

I do not present these statistics as an argument for a return to the stockpile concept as it existed at the close of the Cold War. My purpose is to suggest that the realities that prevailed less than 20 years ago -- when we effectively stopped thinking about the strategic aspects of mineral and metals supply — no longer pertain.

As for disruption – the key concern of this sub-committee—OSD Defense Planning Scenarios show that copper is among the metals vulnerable to PSD – Peacetime Supply Disruption. Another OSD study lists copper as a metal that has – and I quote – “*already* caused some kind of significant weapon system production delay for DoD.” According to MIT’s Dr. Elisa Alonso – one of American Resource Policy Network’s experts – “...the risk of copper disruption is significantly greater than for other major metals (e.g., iron and aluminum) and is at or near to a historical high.”

Now, to be sure, we live in a globalized economy, and indeed — if the U.S. were to simply stop mining copper today -- there are known copper prospects in a number of countries. We might turn to Chile, Peru and the Philippines for

increased copper supply. Then again, world demand might be met via development of known copper reserves in Russia, Angola, Afghanistan, DRC Congo, or China -- including decisions taken in Beijing to exploit copper reserves in the Tibet Autonomous Region. And there is copper in Pakistan and Iran. With the exception of Pakistan — rated “Partly Free” — all of the latter group are rated “Not Free” in the current Freedom House index. So while the world copper market does offer choices, we may well find many of those choices unpalatable from a policy perspective.

Rhenium: Where Base and Technology Metals Meet

In the end, the so-called base metals and technology metals are not so easy to separate. Take my third example this morning: Rhenium, a relatively obscure element, Atomic Number 75 on the Periodic Table.

In the commercial economy, rhenium is used to process lead-free gasoline, in gas-to-liquid power plants and in jet engines like those found on the Boeing 777. In the national security sphere, rhenium is used in the small rocket thrusters that reposition satellites in geo-sync orbit, as a super-alloy in the high-performance jet engines that power the F-15, F-16, f-18 and the new F-35 Joint Strike Fighter – as well as in stealth aircraft. Rhenium is prized for its ability to retain its strength, shape and conductive properties at extremely high temperatures.

While global copper production is 16,000,000 metric tons and global rare earths production is more than 100,000 metric tons – rhenium production is 52 tons, worldwide. That’s roughly the weight of a dozen SUVs.

The catch is that rhenium isn’t mined; rather, it is recovered – extracted as a by-product during the processing of copper and molybdenum, by special scrubbers that capture rhenium particles in the flue-dust thrown off by the roasters.

Right now, the U.S. imports 86 percent of its annual rhenium requirement, much of it in recent years from Chile and Kazakhstan. More could be done to capture rhenium from domestic copper and moly mining, which otherwise literally goes “up in smoke.”

Once again, the U.S. has critical questions to ask about a critical material. Will the market supply sufficient rhenium for our commercial and national security

needs? Are we comfortable with the geo-political risk implicit in an 86% dependency on foreign supply? Should we add rhenium to the National Defense Stockpile – or otherwise incentivize American copper and moly producers to invest in the technologies necessary to capture rhenium now lost in the roasting process?

These same sorts of questions can be asked about several dozen metals and minerals, and it is my hope they will be.

Encouraging Domestic Supply

Whether we are talking about copper, rare earths, rhenium or others among the dozens of metals and minerals where the U.S. presently relies on significant levels of foreign supply, it is time to consider whether U.S. policy is impairing our ability to develop domestic supply – and how we can remove obstacles that will allow the U.S. to achieve a greater degree of resource independence.

Clearly, the U.S. Congress is turning its attention to critical metals. Remedies under discussion range from reviving the National Defense Stockpile to utilizing loan guarantees, and re-examining a mining permitting process that routinely runs 7 or 8 to 10 years to bring a new American mine into production. In the House, several bills on Rare Earths have been introduced, including Congressman Mike Coffman's RESTART Act, which, among its provisions, directs that federal agencies expedite the permitting process for Rare Earths "without waiving environmental laws." A comprehensive review of U.S. permitting processes is also central in the draft bill being circulated by Senator Lisa Murkowski. The argument for such a review is evident in independent reports like the Behre Dolbear Group's "2011 Ranking of Countries for Mining Investment" survey - known in mining circles as the "Where Not to Invest" Report – where the U.S. once again ranks worst – dead last -- among 25 mining nations in the length of its permitting process.

Critics of U.S. mining will assert that any re-assessment of our permitting practices will involve weakening or watering down our requirements – the assumption being that a process that lasts a decade or more is the price we pay for safe and environmentally sound mining projects. The choice will be cast as trading developed nation standards for a 3rd World “anything goes” approach. From a public policy perspective, that's not at all the case. Australia, for instance – one of the world's most prosperous nations, and no one's candidate for a country that is an environmental scofflaw – manages to permit new

mining projects in one to two years.

Reviewing our own permitting process with an eye towards rationalizing that process is not at all a matter of cutting corners – quite the contrary: Mining projects developed here in the U.S. are, on balance, likely to be conducted with higher standards of safety, against stronger environmental strictures, with better benefits to the surrounding communities than projects in many parts of the world. And projects developed here will lessen if not eliminate the “surety of supply” issue and fear of materials disruption that concerns this sub-committee.

We cannot maintain our modern economy without a steady supply of metals and minerals. Those we do not possess here at home, we must source from other countries. But those we possess but choose not to produce perpetuate a needless foreign dependence – leverage that other nations may well use to America’s disadvantage.

I commend the Congressmen and -Women who called today’s hearing, a step that suggests critical metals and their continued supply are beginning to receive the attention they deserve — given their importance to our economy, our technological progress and our national security. Thank you.

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