

Senate Committee on Energy and Natural Resources

Hearing

to Examine the Status & Outlook for U.S. and North American

Energy and Resource Security

366 Dirksen Senate Office Building

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Written Testimony of

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My thanks to Senator Murkowski, Committee Chair, and to Ranking Member Senator Cantwell for the opportunity to appear here this morning. My name is Daniel McGroarty. I am principal of Carmot Strategic Group, an issues-management firm based here in Washington, D.C. Strategic resource issues are a core element in my practice.

As noted in my disclosure, I advise Texas Mineral Resources, Graphite One, American Manganese, and Rio Tinto – companies that are working to develop new sources of metals and minerals ranging from Copper and Graphite to Cobalt, Manganese and Rare Earths. I also run the American Resources Policy Network, a virtual think tank that focuses on all aspects of domestic non-fuel resource production – and I consult to the Institute for Defense Analyses (IDA), which supports the Departments of Defense and Homeland Security, the Joint Chiefs' Joint Staff and the Intelligence Community on issues related to strategic materials and resource security. In terms of my testimony today, the views I express are my own.

The focus of today's hearing – the outlook for U.S. and North American energy and resource security – offers a starkly differing portrait: on the energy side, the emergence of a vibrant oil and natural gas sector after generations of energy dependence, driven by technology advances and market demand – a resurgence so remarkable that we are now seeing the U.S. transformed into an energy exporter.

On the hard-rock side of the resource sector, the picture is dramatically different – a deepening dependency on foreign supply for more and more metals and minerals.

According to the most recent USGS Minerals Commodity Summary, the United States is 100% import-dependent for 20 metals and minerals – up from 19 in 2015. Meanwhile, there are now 50 metals and minerals for which we are more than 50% import-dependent – compared to 43 just one year ago. That’s roughly half the naturally-occurring elements on the Periodic Table.

As for where our metals and minerals come from, the USGS map shown here – a geo-political heat chart – shows which nations provide the minerals for which the U.S. is more than 50% import dependent. Of the 50 metals on that list, China is a significant supplier of 28. That’s up from 21 just one year ago.

MAJOR IMPORT SOURCES OF NONFUEL MINERAL COMMODITIES FOR WHICH THE UNITED STATES WAS GREATER THAN 50% NET IMPORT RELIANT IN 2016



Source: U.S. Geological Survey

As just one indicator of our resource reliance on China, in the 206 pages of the current USGS report, the word “China” appears 384 times.

Let me share with the Committee a quick snapshot of the degree of our dependency. We are 100% dependent for Graphite and Manganese, needed in the Lithium Ion batteries that power our electric cars and so many other tech devices we carry with us every day – as well as the drones flying over Iraq, Afghanistan and our southern border. We’re 100% dependent for the Rare Earths used in wind turbines – and in our F-35 joint strike fighter. We’re 100% dependent for the Indium that conducts heat from our finger tips to our smart phone touch screens – and enables our special operators’ night vision goggles. We’re 99% dependent on the Gallium needed for solar panels as well as missile defense radar. We’re more than 80% dependent on imported Rhenium used in jet fighter turbines – more than 70% dependent for the Tellurium used in solar panels, and for the Cobalt used in EV batteries, permanent magnets and jet aircraft super-alloys.

As these examples make clear, at a time when we are engaged in a serious national debate on how best to revive American manufacturing, we are increasingly dependent on foreign sources for the

metals and minerals we need for major weapons platforms, alternative energy applications, and all manner of high-tech devices from smart phones to smart bombs.

And this, in spite of the fact that the U.S. is resource-rich, blessed with known resources of dozens of the critical metals and minerals that are shaping our 21st Century.

Without in any way diminishing the dangers of our resource dependency, I do want to note some positive developments taking place – largely in the area of novel metals and minerals processing. These are advances arising out of necessity – the need to efficiently extract minerals from low-grade deposits. In some cases, this effort is driving process improvements that point to the ability to extract minerals from unconventional sources, feedstocks if you will. I’m talking about historic mine waste piles, eWaste, and potentially and perhaps most interesting, extracting rare metals from coal deposits.

As for policy reforms that could reverse U.S. dependency and enhance our resource security, I’ll limit myself to a few brief points. As this Committee knows well, federal permitting reform is key -- particularly for metals and minerals known to be critical and strategic. But any change in federal policy will need to tackle the “co-product challenge:” The fact that dozens of the critical metals and minerals needed for tech applications are not mined in their own right – but are recovered as “by-products,” or given their rising importance, “co-products,” of major industrial minerals not often thought of as critical. In a study done with co-author Sandra Wirtz, we found that five “gateway” metals – Aluminum, Copper, Nickel, Tin and Zinc – provide our access to 25 of the more arcane “technology metals” discussed here.¹

And from the Executive Branch, we should not underestimate the power of a clear presidential pronouncement that resource security is every bit as critical to U.S. economic and military strength as we now know energy security to be.

But there are other positive steps, supported by Congress and translated into policy and programs by key departments: Reclamation programs supported by the Department of Energy and the Critical Materials Institute to extract Rare Earths from coal deposits, from waste piles left behind by prior mining, and to advance recycling efforts to recover rare metals from eWaste. Add to that projects backed by the Defense Logistics Agency to encourage domestic production of metals and minerals needed for advanced weapons platforms. But in a \$4 trillion dollar budget, spending more than \$10 billion each day, every day, the collective funding for these innovative efforts amounts to just a few hours of federal spending – at a time when state-backed enterprises from China and Russia are focused on locking up metals and mineral deposits worldwide. On a geo-political level, a resource war is under way, and the U.S. has not entered the battlefield.

If we are serious about ensuring U.S. military power and reviving American manufacturing, we must reverse the deep dependency on foreign metals and minerals, and treat American resource security with the same seriousness – and one would hope, the same success – as our approach to American energy security.

¹ http://americanresources.org/wp-content/uploads/2012/09/ARPN_Fall_Quarterly_Report_WEB.pdf

Thank you.

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