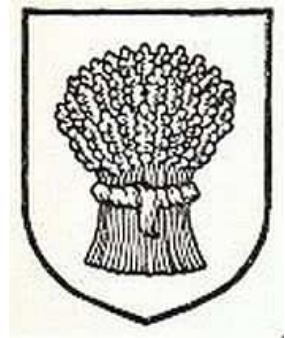


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Think Piece

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Trumped:
US Self-Sufficiency in Strategic Metals
or “fake news”?

January 2018

Trumped

Self-sufficiency as Fake News

- + For the first time in decades the highest level of the US Administration has shown interest in the US's woeful strategic position in key industrial and technological metals
- + The mining community took the development to its heart and investors fired up a year-end rally in metals stocks
- + The main benefit will probably come in an awareness of recycling potential and possibly a ban on exports of technology metal scrap
- + The USGS might be more resourced than it has been in recent decades
- + The development will, maybe, rein in the EPA from some its more extreme positions
- ✗ POTUS does not have unbridled say in such matters, with Congress controlling the purse strings and States being a blocking force in many specific mine approvals
- ✗ The Executive Order gives the impression that the US might have hitherto "unknown resources" when in fact most mineral deposits are well-known and it's will and dedication of capital that is lacking
- ✗ Stockpiles are the easy way to kick-start US resource production but the EO does not mention them and Congress declines to fund them

Chickens Come Home to Roost

For veterans of the mining space there are price cycles and demand cycles and then US political cycles. The latter is usually triggered by some sort of foreign supply scare and in recent times the issue has been China. So here we are again, seven years after the Rare Earth scare when mining entrepreneurs tried to spook the US Congress into focusing on the issue of US strategic vulnerability in technology metals (to no avail) and now in 2018 issue has returned to the fore, this time without a specific nemesis. The impetus has (seemingly) not come from the (mining) industry side but from some other source and it has been taken up by none other than the President of the US.

This is probably the first time that a POTUS has grasped the nettle of strategic minerals since the 1960s. Back in those days the US rode high in a Pax Americana-driven economy and global domination in almost everything and the idea that the US should have a strategic stockpile of all the metals it might need in a war was taken for granted.

We were bemused by the superlatives issuing from the mouths of the pundits and adepts of the

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Supercycle from 2003 to 2011, because the prices achieved for most metals in that time were nowhere near (in inflation-adjusted terms) the levels that metals had achieved in their apogee during the years before the First Oil Crisis and the other economic traumas of the early 1970s.

A pincer movement from the late 1980s involved government budgets coming under pressure (thus ceasing and reversing stockpiling), the collapse of the Soviet Union removing the main Cold War threat (with metals destocking being part of the “peace dividend”), the rise of domestic environmentalism and China sabotaging the price of many key metals with aggressive (i.e. loss-leading) pricing. The US mining industry with a high cost base was first against the wall when this revolution swept through.

The long years of neglect have brought us to where we are now. The brief flurries of concern in the halls of Congress are nothing more than drafts of hot air in the corridor of power. We have never heard a concern about resource security (excepting when it comes to oil) issue from the mouth of a Secretary of Commerce, Defence or the Interior, and certainly not the President, until now.

And then, out of nowhere came the Christmas gift that was delivered to the mining sector in the form of an Executive Order which can be read in its entirety here:

<https://www.whitehouse.gov/presidential-actions/presidential-executive-order-federal-strategy-ensure-secure-reliable-supplies-critical-minerals/>

The “Findings” section of the Executive Order reads:

“The United States is heavily reliant on imports of certain mineral commodities that are vital to the Nation’s security and economic prosperity. This dependency of the United States on foreign sources creates a strategic vulnerability for both its economy and military to adverse foreign government action, natural disaster, and other events that can disrupt supply of these key minerals. Despite the presence of significant deposits of some of these minerals across the United States, our miners and producers are currently limited by a lack of comprehensive, machine-readable data concerning topographical, geological, and geophysical surveys; permitting delays; and the potential for protracted litigation regarding permits that are issued. An increase in private-sector domestic exploration, production, recycling, and reprocessing of critical minerals, and support for efforts to identify more commonly available technological alternatives to these minerals, will reduce our dependence on imports, preserve our leadership in technological innovation, support job creation, improve our national security and balance of trade, and enhance the technological superiority and readiness of our Armed Forces, which are among the Nation’s most significant consumers of critical minerals”.

All this is mom-and-apple-pie stuff, and that mining can be good for an economy is no news in our sector. Reduction on dependence on imports and job creation are new angles where previously only exposure to Chinese (or Russian) blackmail or supply difficulties in a war situation have been used to “scare Congress” (which didn’t work anyway).

The undertone to all this is motivating the private sector to take initiatives. Ironically most of the

initiatives in mining in the US at this time are being taken/made by foreign companies, particularly Canadian miners. US corporates have, by and large, lost their mojo when it comes to mining. The top levels of US mining have shrunk from several handfuls of large cap names in the 1970s to a rump of Freeport, Hecla and Couer these days. Oils and railroads that once spawned mining ventures have retired from the fray and diversified industrials that once included mining in their vertical integration endeavours have retired from the fray, victims of university textbook admonitions towards “focused business verticals” and self-supporting cost-centres.

A good example of different thinking is noticeable in the case of European machine tool makers that are investing in, or doing offtakes, with non-Chinese Tungsten miners even at a loss (i.e. buying at prices than the Chinese alternative) to guarantee their supplies. Then again the US has largely let its machine tool industry go to the wall. Maybe there is no coincidence in this evolution.

The key thing here is that one can make the ground fertile for mining investment but it may not be US corporates that seize the opportunity. Then again resource independence, no matter who delivers it, is still worth the effort.

Policy Initiatives?

The “Policy” section of the EO reads:

“It shall be the policy of the Federal Government to reduce the Nation’s vulnerability to disruptions in the supply of critical minerals, which constitutes a strategic vulnerability for the security and prosperity of the United States. The United States will further this policy for the benefit of the American people and in a safe and environmentally responsible manner, by:

(a) identifying new sources of critical minerals;

(b) increasing activity at all levels of the supply chain, including exploration, mining, concentration, separation, alloying, recycling, and reprocessing critical minerals;

(c) ensuring that our miners and producers have electronic access to the most advanced topographic, geologic, and geophysical data within U.S. territory to the extent permitted by law and subject to appropriate limitations for purposes of privacy and security, including appropriate limitations to protect critical infrastructure data such as those related to national security areas; and

(d) streamlining leasing and permitting processes to expedite exploration, production, processing, reprocessing, recycling, and domestic refining of critical minerals”.

There are some good ideas in here but mainly in the last policy where torturous approval processes have stalled approvals. However in many areas it is the states that have the say, not the federal government. So it is unlikely that uncooperative states will cease to be so.

The references to the electronic access to data are intriguing. The USGS is still an impressive organization though its days of producing intensive studies of specific deposits may be behind it. It is however one of the best (if not the best) if having its back-book of work on-line. Is this a reference to data that is NOT sourced from the USGS?

We have never perceived that “lack of access to data” has been a meaningful drawback to explain the current lack of activity by US groups or on US mineral prospects.

Implementation

The “Implementation” section of the EO calls for the following action:

“Within 180 days of the date that the Secretary of the Interior publishes a list of critical minerals under section 2 of this order, the Secretary of Commerce, in coordination with the Secretaries of Defense, the Interior, Agriculture, and Energy, and the United States Trade Representative, shall submit a report to the President through the Assistant to the President for Economic Policy, the Assistant to the President for National Security Affairs, the Director of the Office of Management and Budget, and the Director of the Office of Science and Technology Policy. The report shall include:

- (i) a strategy to reduce the Nation’s reliance on critical minerals;*
- (ii) an assessment of progress toward developing critical minerals recycling and reprocessing technologies, and technological alternatives to critical minerals;*
- (iii) options for accessing and developing critical minerals through investment and trade with our allies and partners;*
- (iv) a plan to improve the topographic, geologic, and geophysical mapping of the United States and make the resulting data and metadata electronically accessible, to the extent permitted by law and subject to appropriate limitations for purposes of privacy and security, to support private sector mineral exploration of critical minerals; and*
- (v) recommendations to streamline permitting and review processes related to developing leases; enhancing access to critical mineral resources; and increasing discovery, production, and domestic refining of critical minerals”.*

We can see action as most likely on the recycling issue. The US government through the military has access to one of the biggest troves of Rare Earths and other specialty metals of any component in the US economy. We have heard tell of vast stockpiles of disused equipment that the US government will NOT currently sell for scrap because of the possibility that the redundant items in which the metals are housed (e.g. night-vision binoculars) might be reverse engineered by the Chinese when they get their hands on a shipload of seemingly innocuous scrap. At least the military have their heads screwed on but few others in the US economy have realized that they are leaking information (and intellectual property)

more than mere metals, when they sell some scrap items (PC drives, old cellphones) for export. Never has the old saying “one man’s trash is another man’s treasure” been more apt.

To force the recycling effort the “easiest” solution is an export ban on scrap containing certain technology metals. It does not mean an immediate response will be achieved in mine opening, but coupled with a stockpile building campaign and possibly linked to only buying domestically-produced or recycled metals with an adequate audit trail, then a new industry will be spawned. This would be “beating the Chinese at their own game”. The Chinese have in recent years shifted from *angsting* about being the initial producer of a certain metal (e.g. Antimony, REE or Lithium) to wanting to control the conversion of concentrates of such metals (or their recycling processes). They are not wrong in this.

One means by which this is being done in Europe is via a seemingly unworkable EU *diktat* that automobile companies must retrieve the Lithium Ion batteries from the EV and HEVs they produce at the end of their useful life and recycle them. This is fundamentally impractical, but as so few vehicles are produced so far and even less have come up for scrapping thus the unworkability of it has not become apparent. The easier way to enforce this is to block the export of the life-end batteries so it becomes an issue for scrap companies.

In some way this is already happening, *de facto*, with the Chinese refusing to accept certain types of copper scrap lately (e.g. motor windings) which is forcing holders of this material to come up with other export (or processing) solutions for what has hitherto been a monetizable asset. It is a short step from the Chinese banning imports of undesirable scrap to the EU and US banning certain exports of desirable scrap and forcing onshore conversion.

The other concept outlined here of “*accessing and developing critical minerals through investment and trade with our allies and partners*” is a fraught one. The Trump administration began with vilifying the Chinese, then a love-in began and they were referred to as valuable partners worthy of emulation. Ironically one might see some of the actions that might come from this EO being emulations of Chinese policy, that the Chinese will be less than thrilled to see invoked in the US. It also begs the questions as to who are the “allies and partners”? Producers of Lithium in Australia for instance are in the thrall to (and owned partly or wholly by) the Chinese. This is spreading to Argentina now. Canada allowed the only Antimony mine (Beaver Brook) in its territory to be sold to the Chinese, and shut down, for the greater good of the Motherland. Even the once-hallowed Mountain Pass Rare Earth mine in California had a credible Chinese suitor at one point.

Certainly, the US’s allies could provide most of what the US requires in strategic and even base metals but aren’t necessarily doing that, not only because their offtake agreements send the product to nations with which the US has competing interests but also because US companies (e.g. Apple) prefer to buy (and manufacture) components containing scarce or critical metals in China. The US can verily not lean on allies when its own companies are part (and maybe the biggest part) of the problem.

Finally the concept of streamlining approval processes definitely is a case of “Physician, Heal thyself”

when it comes to the actions of the EPA, the BLM and Forestry Service BUT much of the approval process for new mines (or reopenings) is in state's remit, and intransigence on their part is not easily overcome by Federal *diktat*. However we would note that it has been Federal offices more than state ones that were footdraggers during the Obama and Bush Jr years, so maybe the new EO to Federal agencies will clear or loosen the logjam.

That said, slow approvals are not the reason for the woeful state of US mining. Changes in those processes would only speed up those projects that are already being considered. There will be no revolution in US self-sufficiency in critical metals that emanates from jazzing up some gold mines. The problems lie with the US having long suppressed its own uranium mining industry by promoting a "Buy Russian" policy. Then there are the tech firms buying products from China (many of their own manufacture that utilise Chinese Rare Earths and other technology metals). Chile is now moving for Lithium producers there to process concentrates onshore (and the same process is happening spontaneously in Australia). The US has no such requirements on Lithium produced from US mines. The US denies itself access to Cuban cobalt production (ironically from the Moa Bay mines developed with US government money during WW2) because it prefers to pander to the archaic fantasizing of the Cuban-American community in Florida and NJ. We could go on.

Reality Check

First and foremost we should look at the realities. The current POTUS (somewhat ironically, *potus* is a term for a houseplant in Latin America) is one year into his term. The last year of any president is generally regarded as one in which the incumbent is a "lame duck". If he has two terms then that leaves six years for potential action but if he is a one-termer then that leaves only two years. Mid-term elections do not look good for the Republicans so that implies a potential loss of what is already a tenuous, shifting and frankly downright ornery majority. The "best case" scenario for POTUS is that "his" party maintains a thin majority but that also comes with a bunch of troublecausers and *refuseniks* that mean that a majority is not necessarily a majority. Then there are the other problems (i.e. legal) that POTUS faces which we shall not go into here. The auguries though look strong for early onset lame duck status (which may have already happened).

So let's move onto less contentious realities:

- ✘ Despite extensive lip-service Congress members and Senators of all political colours have, by and large, shown little to no interest in strategic metals. Despite all the Rare Earth kerfuffle in 2010 and other China-dependence scares and attendant gum-flapping, nothing substantive has happened to reverse decades of neglect of the US mining industry and its strategic interests in key metals. The key word here is "money" and there are few, if any, votes in mining strategic metals.

- ✘ With the best will in the world the US cannot "regain" its resource independence in metals that

frankly don't appear in sufficient quantities in the US to be exploited, even if the funds were available.

- ✗ The best indicator of this is to go back to World War II where the US had to develop the Moa Bay nickel mines in Cuba to get access to this key metal, and was forced to buy all its tin from Bolivia because the Alaskan resources in this metal were so skinny and inaccessible as to not move the dial.
- ✗ In Aluminium we might note that the US doesn't have bauxite of any substance.
- ✗ Chrome and Manganese are two alloy metals which the US is under-resourced and always has been
- ✗ We could go on down the Periodic Table and there are quite a number of metals that seem prosaic (e.g. Antimony) but that the US does not have sufficient known resources to cover current domestic demand
- ✗ In current hot topic, Cobalt, the US has some exploitable resources but not enough to cover potential domestic demand if the US were to "get serious" about EVs and HEVs in the way China has. Why? Because there are a few primary Cobalt deposits (e.g. Idaho) but none of the big Ni/Co or Cu/Co deposits that might guarantee self-sufficiency
- ✗ The US would be really pushing it to hope that the meagre and patchy Lithium resources that it possesses might prove sufficient in a serious conversion to EVs and HEVs
- ✓ The US has self-sufficiency and global dominance in one metal only, Beryllium, and this is solely because the Pentagon has used its wiles over the decades to achieve what it wanted and favour a "champion" (i.e. Materion) in this metal
- ✓ The US has the potential to become self-sufficient in "big" base metals like Copper, Zinc and Lead. However to do so would require exploiting most known resources. Likewise Moly could achieve self-sufficiency from mothballed mines and well-known resources (some in Rocky Mountain beauty spots)
- ✓ Less transited metals like Gallium, Indium, Germanium and Tellurium could be supplied in sufficient amounts in the US as by-products of other metals/mineral production but that would require a big push in other metals
- ✓ Rare Earths could be self-sufficient just from the few deposits outlined in the last REE boom. Ironically it was the worst major REE deposit (Mountain Pass) that was brought to production

rather than the much better (and cheaper) ones available. In any case that came to grief

Thus might we say “We hold these Truths to be self-evident...” and indeed these factors are obvious to us in the mining industry from experience, but one wonders what “brains trust” still remains in the cobwebbed inner regions of the US bureaucracy that might know these truths also?

Conclusion

Mining entrepreneurs are well ahead of the US President as merchants in “fake news” and their press releases mastered the art when he was still in short pants. Indeed, it was Mark Twain who defined a mine as “a hole with a lair standing at the top” well before anyone even invented the press release.

That said, the goal of this EO is worthy indeed. It is not a populist measure because if mining was a vote getter the desperadoes of the political class would have seized upon it long ago. In some places mining is a vote loser and yet the biggest hurdle here is going to be the US corporate sector who won't want to pay more for their inputs and want free rein to source their inputs and dispose of their scrap as they see fit. An effective mining and metals self-sufficiency policy must by its very nature cut across their interests. They have shown themselves, to mix some metaphors, willing to sell out for thirty pieces of (foreign-mined) silver and will fight to the (US economy's) death their right to freedom of action in sourcing and disposal.

We return again to the humble, yet shining, example of Beryllium, the ONLY metal that the US dominates, and that is specifically because of a cunning, intelligent and long-standing policy of the Defense Department. This should be a model to be repeated across a swathe of technology metals and minerals. If the US declared tomorrow that by 31st of December 2020, all US nuclear power plants must use US-sourced Uranium then a swathe of mines that are either mothballed or on the cusp of production would reopen. If all wind turbines had to use REE's from recycled or mined sources in the US then the demand to clear up the Defense Department's vast stockpiles of old gear would be triggered. The same could be demanded for recycled lithium ion batteries in all new EVs and HEVs manufactured in the US. We could go on. This is not rocket science.

In summation, self-sufficiency should be made of sterner stuff. There is a certain naivety in thinking that mining can be reactivated in the US through positive vibes alone. The US corporate sector needs to be dragged screaming and kicking to the table. They have shown in the past that their attachment to getting lowest-priced products/inputs means they will “trade with the enemy” and indeed structure themselves and their operations to be totally dependent upon that “enemy”. Thus some hard decisions will have to be made and these will revolve around export bans and “Buy American” content rules particularly when it comes to technology and strategic metals. A recycling strategy (and attendant ban on scrap exports) would be the first serious signs of seriousness. Otherwise it will all be so much “fake news”.

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