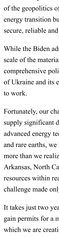


American Mineral Supply Chains for 21st Century Energy Security

By Rich Nolan
March 23, 2022

As energy markets are turned upside down by Russia's invasion of Ukraine, a new narrative is emerging about energy security in the 21st century. The story goes, break reliance on oil and gas and the United States can finally defang the power of petro-dictators and insulate American consumers from volatility at the gas pump. As it good as it sounds, I'm reminded of the old adage, "amateurs talk strategy; professionals talk logistics."

While the electric vehicle (EV) revolution and energy transition are barreling forward, the material supply chains to back such efforts do not yet exist. Doubling down on an EV and renewable future without first scaling up the industrial base to build it – particularly the mining and processing of essential materials – is a recipe for failure.



Electric vehicles, wind turbines, solar panels, and the vast charging and transmission networks to support them are considerably more minerals intensive than the energy infrastructure proponents hope they replace. Energy-driven mineral demand is soaring to extraordinary levels with demand for some essential metals like lithium expected to jump 40-fold in less than two decades. And, unfortunately, existing mineral supply chains and markets are less secure, have more single points of failure and are less transparent than those for oil and natural gas.

The U.S. is particularly poorly positioned for this soaring demand. Our reliance on mineral and metal imports is already a grave vulnerability. Imports meet more than one-half of the U.S. consumption for 47 nonfuel mineral commodities, and we're 100% net import reliant for 17 of those.

Perhaps most troubling of all, many of the mineral and metal supply chains most essential to the energy transition and EVs are dominated by China. China controls 80% of the global rare earth mineral market and 60% of the lithium market. China's control of other key battery metals like graphite is nearly as complete.

And China is hardly the only problem to be navigated. Consider Russia's importance to the global nickel market or the Democratic Republic of Congo's singular importance to global cobalt production, both metals critical to the EV future.

The U.S. is poised to pivot away from the geopolitics of the barrel into the clutches of the geopolitics of the battery and solar panel. This is not an argument against the energy transition but rather a warning that the U.S. must rise to the occasion to build secure, reliable and responsible material supply chains—and do so immediately.

While the Biden administration has shown important leadership in identifying the scale of the materials challenge and signaled willingness to address it, comprehensive policy to attack the problem has yet to materialize. Russia's invasion of Ukraine and its effect on global commodity markets has added new urgency to get to work.

Fortunately, our challenge is one of policy, not geology. We have the resources to supply significant domestic production for many of the metals most essential to advanced energy technologies. From nickel and cobalt to graphite, copper, lithium and rare earths, we have them, and with further exploration and mapping, likely even more than we realize. Promising lithium reserves and projects in Nevada, California, Arkansas, North Carolina and even Maine speak to the variety and breadth of the resources within reach. But producing these resources remains an enormous challenge made only more difficult by self-imposed barriers.

It takes just two years to build a battery megafactory but it can take a decade just to gain permits for a mine needed to supply just one of the metals for it. The speed at which we are creating demand for these minerals and metals is only growing increasingly out-of-sync with our ability – and that of our allies – to bring supply online to match it.

There is now bipartisan recognition in Washington that the market alone cannot address these supply shortfalls or our alarming import reliance. Senators Lisa Murkowski (R-Alaska) and Joe Manchin (D-W.Va.) recently wrote to President Biden calling on him to invoke the Defense Production Act to tackle the mineral problem head on. As they have rightfully identified, there's not a moment to lose to build the responsible, domestic material supply chains we know our economy and national security demand.

We've seen the power of the DPA to ramp up production of vaccines, ventilators and other essential medical equipment during the toughest days of pandemic. The DPA is a critically important tool to cut red tape and provide financial incentives to address our most acute problems and do so quickly. Our mineral insecurity and the collision course it's on with our energy and climate ambitions deserves the decisive action the DPA can provide. Professionals don't just talk energy security, they build supply chains.

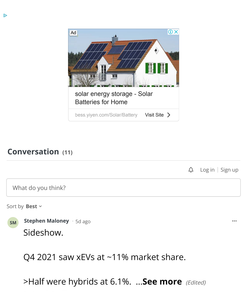
Rich Nolan is president and CEO of the National Mining Association.

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