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Biden's Green Energy Dilemma On Critical Minerals

David Blackmon09:36am EDT

"All these investments are very long term – you can't just turn this on. It's not like Santa Claus makes this stuff – you've got to build it."

That's what James Calaway, industry veteran and Executive Chairman of inoeer, told me when he agreed to sit down for an interview recently. ioneer is a leading U.S. company focused on extracting and producing advanced lithium chemicals in America, a critical mineral integral to the production of state-of-the-art batteries and all manner of mobile devices.

Make no mistake about this: You cannot conduct a full, fact-based conversation about the topics of climate change, the energy transition, the Paris Climate Accords, the Green New Deal, or the stated climate goals of the Biden administration and other governments around the globe without including the security of supply of lithium in that conversation. Lithium, and other key minerals like nickel and copper, are integral to and inseparable from achieving any of those goals. You simply cannot have one without the other.

Clear enough?

The Troubles With Lithium

It is at this intersection between global and U.S. climate goals and the production and distribution of lithium that Mr. Calaway and ioneer enter the picture. It is there that they are able to play a crucial role in helping the United States wean itself away from its current near-100% reliance on a lithium supply chain controlled by China.

Here are some facts about lithium and U.S needs for this critical mineral:

- The United States currently uses roughly 35,000 tons of lithium per year;

- Unfortunately, the U.S. currently produces just around 5,000 tons of this mineral on an annual basis;
- If recent projections by institutions like the International Energy Agency (IER) are to be taken seriously, U.S. needs for lithium will rise rapidly, reaching 100,000 tons per year by 2025;
- By 2030, lithium consumption in the U.S. alone projects to rise to a stunning 700,000 to 800,000 tons per year, or 160 times its current domestic supply.

That picture kind of makes concerns over the U.S. importing about 35% of its daily oil needs seem picayunish by comparison, doesn't it?

Here is, in part, what the IEA had to say about this potential looming supply train wreck in its recent report titled "The Role of Critical Minerals in a Clean Energy Transition.":

The prospect of a rapid increase in demand for critical minerals – well above anything seen previously in most cases – raises huge questions about the availability and reliability of supply. In the past, strains on the supply-demand balance for different minerals have prompted additional investment and measures to moderate or substitute demand. But these responses have come with time lags and have been accompanied by considerable price volatility. Similar episodes in the future could delay clean energy transitions and push up their cost. Given the urgency of reducing emissions, this is a possibility that the world can ill afford.

...looking further ahead in a scenario consistent with climate goals, expected supply from existing mines and projects under construction is estimated to meet only half of projected lithium and cobalt requirements and 80% of copper needs by 2030.

Here's another thing to understand about the situation with lithium: Unlike some other minerals, like gold and platinum, its usage needs are not currently being supplemented in any meaningful way from recycling. Per the IEA report:

Base metals used in large volumes such as copper, nickel and aluminium have achieved high EOL recycling rates (Henckens, 2021). Precious metals such as platinum, palladium and gold have also achieved higher rates of recycling due to very high global prices encouraging both collection and product recycling. Lithium, however, has almost no global recycling capabilities due in part to limited collection and technical constraints (e.g. lithium reactivity in thermodynamic and metallurgic recycling)..."

One more little factoid here: Total 2019 production of lithium globally came to just 352,000 tons. That number must double by 2030 just to meet the projected needs of the United States, and multiply many times more than that to meet projected global demands.

Oh.

There are two main ways to extract lithium: One is to evaporate it from brine in which it is contained, and the other is to mine it from underground rock formations. Today, virtually all of the lithium produced globally from the mining of the granite-like rock in which most current reserves are contained is subject to a supply chain that is controlled by China, because that is the cheapest place to process it.

“If you look at our ally Australia, which is essentially where most of this lithium bearing granitic rock comes from, what they do is they dig it up – they blast it up, actually – they put it into what they call a concentrator unit until it is concentrated to 6% lithium,” Calaway said. “In its raw ore form, the produced rock ranges from about 1.1% to 2.4% lithium. Concentrating it to 6% reduces the amount of waste materials that must be hauled from the site to its place of processing.

Mined rocks sit in a stockpile on a waste pad at [+] © 2018 Bloomberg Finance LP

“This concentrate is then placed on big ships and sent to China where it enters into a very opaque world. A purposely opaque world, where they do things that no one else in the world has to date been able to do to economically produce the refined lithium chemicals that go into batteries. There are lots of opinions about that, but one would reasonably assume that it’s not exactly a good way to do things. If it was easy and economic to do it in the right way, my guess is that they would be producing lots of economic chemicals in Australia.”

This is the current situation, and it is not a pretty one for the environment, or for America’s energy security.

The Unique Geological Prize in Nevada

“Rhyolite Ridge is actually unique in the world,” Calaway explained in our interview. “On our 2,000 acres, out of the entire world, for reasons geologists will be debating forever, it turned out that there was a period of flow from under the earth 5 to 6 million years ago where a subset of the sediment contains reserves in which there is large quantities of boron and lithium together in the same sediment. This is not clay – with clay you can crush it with your hand. This is competent rock that you would have no chance of breaking with your hand. And in that rock there is an enormous reserve that after 4 years and a $125 million investment we now fully understand how to produce lithium chemicals at the lowest-cost on the planet.”

Outcropping at Rhyolite Ridge, Nevada with [+] ioneer

As Calaway describes it, during this period of time millions years in the ancient past, there were big volcanic flows into ancient calderas. The flows of this

magmatic rock came up into what were probably ancient lake beds and created a huge amount of lithium within sediments. This is a type of minerology in which a tiny sliver of Nevada is uniquely rich, and this sediment contains a potentially enormous lithium resource for the U.S. The two main places where this resource occurs are at Rhyolite Ridge, where ioneer operates, and at Thacker Pass, operated by Lithium Americas.

Taken together, these two mines, if fully approved by the Biden administration to commence operations soon, have the potential to supply over half of U.S. lithium needs through 2030, and to continue producing large quantities of this critical mineral for decades to come.

Where Rhyolite Ridge is concerned, Calaway is quick to point out that it is doubly unique due to the fact that it is the "only known resource that contains reserves in which there is boron and lithium together in the same sediment."

This is critical from a cost perspective, Calaway says, since "for every 1 ton of Lithium chemical – the stuff that actually goes into the batteries – we produce 9 tons of boric acid used in everything from making high performance glass for computers, tVs and gorilla glass for I phones. We produce beautiful quality boric acid that is already fully under sales contracts. When we take the revenues from the sales of our boric acid and deduct it from the total costs of operation, our all-in net cost to produce lithium is $2,500 per ton, which is $1,500 per ton lower than the next lowest cost lithium production worldwide."

This game changing potential from these two Nevada projects lies beneath a total surface footprint of roughly 6,000 acres of land, all owned by the federal government. To place that into context, the total federal acreage in Nevada alone amounts to about 57 million acres of land, or about 80% of the state's entire land mass. Thus, the tiny sliver of land we are talking about at these two mining operations combined is about .0001 of total federal land in the state, and about .00008 of Nevada's total land mass.

But there's just one catch: One radical group from the same environmentalist movement that pushes for all of these various climate change-related goals has formed up a roadblock opposing the permitting and approval of these crucial Nevada lithium production efforts.

When it comes to Rhyolite Ridge, what is the stated reason for that opposition? 10 acres of buckwheat.

Enter the Center

"Never in my wildest imagination would I have thought that the single challenge that we face to build this crucial lithium capacity in the United States would be 10 acres of buckwheat and extremist environmentalists," Calaway told me with a perplexed look in his face as he talked about the remaining challenges in the way of bringing this key resource out of the ground to market.

"These extreme anti-development groups like to say 'you don't need to produce this lithium here because there are reserves all over the place,' but after 14 years in leadership positions looking for and developing lithium, that just isn't true," he continued. "Just the other day, in a state senate hearing, a letter was sent in by the Center for Biological Diversity, and in this letter they basically said how dare these companies 'site' – that's the word they used, 'site' – these projects in environmentally sensitive areas?

"Well, it's not as if we have a building that we're just deciding to plop down somewhere – the resource is where it is. This is madness. But it shows you that they really have little knowledge of what it takes to find and develop a major lithium resource. You don't 'site' where these resources are; they are where they are."

It's an old story with the Center for Biological Diversity (CBD), an organization that Calaway accurately describes as an "extreme anti-development group." Founded in 1989 by a group of individuals including its most prominent leader, Kieran Suckling, CBD has long been known for the extreme rhetoric and tactics it uses, and its skill at manipulating and bullying the federal bureaucracy and warping the intent of major environmental laws like the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA).

Indeed, these are tactics that the group is proud of using. You don't have to take Calaway's word for it: All you have to do is read Suckling's own statements made during a 2009 interview with a publication called High Country News. In that interview, he boasts about CBD's tactics of bullying and intimidation of career federal employees, his contempt for reliance on science and data in federal permitting processes, and his organization's preference for hiring "philosophers, linguists and poets" to do the work of the group:

SUCKLING *...New injunctions, new species listings and new bad press take a terrible toll on agency morale. When we stop the same timber sale three or four times*

running, the timber planners want to tear their hair out. ***They feel like their careers are being mocked and destroyed — and they are.*** *So they become much more willing to play by our rules and at least get something done.* ***Psychological warfare is a very underappreciated aspect of environmental campaigning.***

HCN *Were you hindered by not having science degrees?*

SUCKLING *No.* ***It was a key to our success. I think the professionalization of the environmental movement has injured it greatly.*** *These kids get degrees in environmental conservation and wildlife management and come looking for jobs in the environmental movement. They've bought into resource management values and multiple use by the time they graduate.* ***I'm more interested in hiring philosophers, linguists and poets. The core talent of a successful environmental activist is not science and law. It's campaigning instinct.*** *That's not only not taught in the universities, it's discouraged. [emphasis added]*

This is the anti-science, pro-propaganda and intimidation philosophy that industries like oil and gas, coal and timber have been dealing with for more than 30 years now, and it is the philosophy and tactics that Calaway says CBD is now bringing to bear to try to halt these two important lithium projects in Nevada.

One irony here is that Calaway even agrees with CBD's stated belief that the planet is now facing an extinction crisis. "They [CBD] say that this buckwheat is at risk, and that is actually true. But it's due to climate change," he told me. "The United States is experiencing one of the biggest herbivorial events in the West in history. No one really knows right now how bad it is. We've had animals eating the Joshua trees due to lack of water and food. We've lost about 30% of the Sequoia trees to this event."

A hiker walks past a dying Joshua Tree as the [+] AFP via Getty Images

Calaway then recites a recent story of how CBD responded to the fact that many plants at the Rhyolite Ridge site have been impacted by the die-off. “Many plants on our site have also been impacted, and you know what CBD did? They claimed that our project induced humans to take spades out and dig up the plants,” he said. “We had employees subjected to physical threats over this, over something that’s just not true.”

But the story becomes even more grotesque. “Next, after U.S. Fish and Wildlife rushed to conduct studies concerning this allegation, as they were obliged to do under law, and clearly determined that it was a animal attack on the 10 acres of plants and not conducted by humans as alleged by CBD, CBD then went to the media with the propaganda claiming this this was all a ‘controversy.’ But the only real source of controversy was that they had made the accusation. So they created their own controversy. Unfortunately, many in the media just repeated their talking points.” Again, tactics that have been deployed for more than 30 years against all manner of human progress now being deployed against a critical piece of the energy transition.

CBD dramatically claims that the preservation of this 10 acres of buckwheat - which, by the way, ioneer, working in conjunction with the relevant federal agencies, has committed to doing as part of a very expensive and detailed long-term protection and conservation plan - is somehow "emblematic" of the need to preserve biodiversity as a whole.

But here's the thing: If we are to take seriously the rhetoric emanating from the Biden administration, the United Nations, the IER and the environmental movement as a whole, the ability to take advantage of massive, world-class sources of critical minerals like lithium to facilitate this energy transition is literally about saving the entire planet.

Does CBD's position on this seem like a logical tradeoff that the world can afford?

If Calaway sounds frustrated, that's because he is. He's frustrated with the CBD's tactics that are unhinged from facts, he's frustrated with news outlets that simply cut and paste CBD's often-outrageous assertions without critical examination, and he's frustrated with the rest of the environmental community, which so far has failed to speak out against those destructive tactics.

"We are fully committed to the co-existence of our buckwheat population and the development of this critical lithium operation, so we're not saying forget the environment. We're saying we need to have a deeply practical, proper risk tradeoff because our country and the world may depend upon it," he told me. "All we need to have happen is for the Biden administration to say that we have these two critical projects covering 6,000 of those 57 million acres of federal lands in Nevada on which we need to have a thorough butexpedited process, and put the burden of proof not only the companies doing the work and making enormous investments, but equally on these environmental extremists."

Why Doesn't the Biden Administration Act?

This is what the world is up against. Assuming the Biden administration is really serious about meeting its stated goals related to climate change in general and the energy transition specifically, its biggest roadblock does not come from industry or the Republican party: it comes from extreme elements of the same environmental lobby that claims to support those same goals.

Unfortunately, the Biden administration appears more concerned about preserving relations with groups like CBD than it does with ensuring the U.S. is

able to tap its own resources of strategic minerals like lithium. A May 25 Reuters report headlined "Biden looks abroad for electric vehicle metals, in blow to U.S. miners" details an administration strategy that focuses on obtaining these minerals from "ally countries" such as Brazil, Australia and Canada.

Reuters quotes two administration officials who said that the administration's focus is "part of a strategy to placate environmentalists," noting that the administrative approval of mining operations faces roadblocks "both from environmentalists and even some Democrats."

Reuters also reports that "[t]he U.S. government in April became the largest shareholder in mining investment firm TechMet, which controls a Brazilian nickel project, a Rwandan tungsten mine and is a major investor in a Canadian battery recycler." Note the absence of lithium from that discussion.

Note also that neither Brazil nor Canada are currently relevant where lithium production is concerned and, as we have seen is the case with Australia's lithium production, that production is shipped to China and processed there. Thus, the administration's strategy would still leave the U.S. reliant on a China-dominated supply chain for this critical resource, all as a part of a plan designed to avoid getting on the wrong side of radical groups like CBD.

This short-sighted strategic approach also ignores the crucial fact that climate change is a global issue, not a first-world issue isolated to the United States. To the extent the U.S. refuses to produce its own massive mineral resources and secures them internationally instead, it is absorbing resources that could be used by other, less prosperous nations to meet their own climate needs. Considered in that light, leaving this massive resource in the ground due to political considerations is irresponsible.

Surely there must be a better way. America has a massive, world-class resource waiting to be tapped beneath a tiny, remote sliver of ground in Nevada. Biden's own agencies believe that resource can be tapped while preserving the 10 acres of buckwheat. Why not do what the President is fond of claiming he does and follow the science?

This is something the President himself could resolve with the stroke of a pen, an action he has clearly demonstrated he is willing to take more often than any previous president in the nation's history.

If this stalemate continues, at some point the question must be asked: Why hasn't he already done it?