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OPPORTUNITIES TO COUNTER THE PEOPLE'S REPUBLIC OF CHINA'S CONTROL OF CRITICAL MINERAL SUPPLY CHAINS THROUGH INCREASED MINING AND PROCESSING IN THE UNITED STATES AS WELL AS INTERNATIONAL ENGAGEMENT AND TRADE

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

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THURSDAY, SEPTEMBER 28, 2023

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The Committee met, pursuant to notice, at 10:05 a.m. in Room SD–366, Dirksen Senate Office Building, Hon. Joe Manchin III, Chairman of the Committee, presiding.

OPENING STATEMENT OF HON. JOE MANCHIN III, U.S. SENATOR FROM WEST VIRGINIA

The CHAIRMAN. We are here today to continue the Committee's work securing our critical mineral supply chains and countering the People's Republic of China's control over so many of the materials which have become essential to our modern lives. Just after the passage of the Bipartisan Infrastructure Law and on the heels of Putin's invasion of Ukraine, this Committee held a series of hearings on critical minerals in early 2022. We recognize the growing risk of our country's reliance for minerals on nations who do not share our values. Just like Putin weaponized Russia's oil and gas resources to try to scare off Europe from supporting Ukraine, Xi Jinping and the Chinese Communist Party are more than willing to use critical minerals as leverage to put Americans and the free world at risk. In fact, China is already doing so.

Just last month, Xi Jinping's government announced export restrictions on gallium and germanium, two critical minerals that are needed for semiconductor fabrication. This is just a small preview of what could come in the future. And some of the decisions that the Administration has been making seem to be increasing our risk instead of reducing it. That is why it is so important that Congress has made progress to strengthen supply chains and onshore vital manufacturing, including through the Inflation Reduction Act, the Bipartisan Infrastructure Law, CHIPS and Science, and the National Defense Authorization Acts. However, our work is still not done.

I want to thank my dear friend Dan Yergin, who I am grateful to have testifying before us today. He will help us better under-

stand how the global landscape for critical minerals has changed in the wake of those legislative efforts. Dr. Yergin and his team have done extensive study of the supply and demand outlook for copper, lithium, cobalt, and nickel, including a focus on opportunities to produce these resources domestically as well as with our free trade partners. It will come as no surprise that I want to discuss our best options to pivot away from China, particularly when it comes to electric vehicle supply chain. Let me be clear—I fully support realistic and responsible approaches to reducing emissions in the transportation sector, and EVs are an important part of that equation, but so long as China and other countries that don't share our values control the supply of critical minerals required for EVs, I will strongly oppose moving too quickly toward an EV-dominated future.

Thanks to innovation and investment in our domestic oil industry over the last two decades, there is no longer a risk that foreign adversaries could force us to ration gasoline like we saw in the 1970s. We must deploy the same innovative spirit and entrepreneurship to ensure that no American has to wait in line for the rationing of Chinese batteries. The chart behind me shows just how dire the threat is.

[The chart referred to follows:]

Global Share of Mining/Processing: 2023

	US & FTA	China	Rest of World
Lithium - Mined	69.00%	18.00%	13.00%
Lithium – Processed	31.00%	62.00%	7.00%
Nickel – Processed	14.90%	13.10%	72.00%*
Cobalt - Mined	5.50%	0.60%	93.90%**
Cobalt - Processed	9.00%	76.30%	14.70%
Graphite - Mined	1.00%	65.30%	33.70%
Graphite – Spherical (Processed)	2.40%	97.50%	0.10%

**Primarily Indonesia*

***Primarily DRC*

BENCHMARK MINERAL INTELLIGENCE

ENERGY & NATURAL RESOURCES Democrats

The CHAIRMAN. When it comes to the EV battery supply chain, depending on the mineral, China and Chinese-controlled entities and countries, like Indonesia, process anywhere from 60 to 100 percent of all the minerals needed for batteries in electric motors. And their dominance is not just in minerals, it is also in battery manufacturing. China is responsible for 74 percent of the world's cathode production, 92 percent of anode production, and 76 percent of lithium-ion battery cell production. They simply have cornered the market.

With numbers like these, it is frustrating that the Administration continues to try to water down the sourcing requirements for EV batteries clearly stated—and I say clearly stated because we wrote it out in the IRA. This is what the Administration is administering to try to get more out quicker and be more dependent on China than we already are.

[The Chairman refers to a second chart, which follows:]

The IRA included **strong** sourcing requirements for the extraction and processing of critical minerals in order to get a portion of the consumer Clean Vehicle Tax Credit

	% of minerals that must be extracted or processed in the U.S. or Free Trade Agreement countries, or recycled in North America according to the IRA	% of minerals that must be extracted or processed in the U.S. or Free Trade Agreement countries, or recycled in North America according to Treasury Guidance
2023	40%	20%
2024	50%	20%
2025	60%*	30%*
2026	70%*	35%*
2027	80%*	40%*
2028	80%*	40%*
2029	80%*	40%*
2030	80%*	40%*
2031	80%*	40%*

These percentages have effectively been **cut in half** by the "50% of value-added test" included in Treasury's interim guidance.

*Minerals from Foreign Entity of Concern are not permitted

ENERGY & NATURAL RESOURCES Democrats

The CHAIRMAN. They are reducing—in 2023, the bill stated you had to have 40 percent—40 percent—from the U.S. or free trade countries. They cut that down to 20, in half. Again, in 2024, it goes to 50. They kept that at 20. 2025—60. They kept that at 30. 2026—cut it in half, from 70 to 35. You can see the trend. This is what you hear me complain about all the time.

They are trying to administer a piece of legislation they never passed. And I am just waiting for them to get out of the interim. They are on the interim as far as they have not filed to follow the rules. They are operating under the interim right now because we can't sue them. As soon as they go into their final ruling, there will be somebody damaged. They can sue. We will do an amicus brief and stop this craziness. This is what I am dealing with. So when people say why are you upset about your bill—the bill is well balanced. We are producing more energy than ever before. We are producing more energy in this country than ever before. And we can do the same with minerals that we have that we have not even touched yet.

So with numbers like these, it is frustrating that the Administration continues to try to water down the sourcing requirements for EV batteries clearly stated in the IRA. Through guidance, the Administration is attempting to cut the critical mineral sourcing percentage requirements in half, as we just showed you, pretending battery component manufacturing is the same as critical minerals processing and proposing fake "free trade agreements" that circumvent the law. And the Administration still has not published the "Foreign Entity of Concern" guidance required in the IRA to prevent bad actors from receiving taxpayer dollars. The chart, as we said, a stark difference behind me was between the strong critical mineral sourcing requirements explicitly spelled out in Section 13401 of the IRA and Treasury's attempt to lower the bar through guidance. As you can see, Treasury is effectively cutting the requirements in half, making it harder to secure the supply chain here at home and with our partners.

The Administration appears to care more about getting EVs on the road than our energy security and competition with China. With so many of our mineral resources on federal lands, I appreciate Deputy Secretary Beaudreau joining us to discuss the Interior Department's role as part of the solution. While Congress has given the Administration tools to secure our supply chain in recent legislation, I am incredibly frustrated that the bipartisan demand for urgency seems to be going unheard. Benchmark Mineral Intelligence estimates that at least 336 new mines are needed for graphite, lithium, nickel, and cobalt to meet EV demands prior to 2035. However, an insufficient number of new mines are currently in development to meet that demand, while those projects that are under development face long time frames and considerable risk. When we refuse to allow mining and processing here in a timely fashion, we encourage it to occur in countries with lower environmental and labor standards than we would permit at home. No one in the Administration or Congress denies this reality.

Personally, I have been speaking to members in the Congo who are basically being exploited and they are desperately in need of changing how they do business there and China having a strangle-

hold on them. And they are willing to fight, but it is going to be very hard. But we have not seen any major projects approved by the U.S. Forest Service or the Department of the Interior at any point during this Administration. What we have seen is environmental impact statements for mineral projects rescinded to undergo years of additional review and consultation with no end in sight. Other projects, including one that has received Defense Production Act funding so that the Department of Defense can manufacture desperately needed ammunition, have seen their schedules slip over and over again. And we have heard troubling reports that Department of Energy grant funding is being withheld for mineral processing that would enable new mining while recycling projects already have their cash in hand.

Not only has the Administration delayed the minerals projects that we need, they appear to be taking the position that we don't have a permitting problem at all for critical minerals. The Bipartisan Infrastructure Law directed the Department of the Interior to make critical mineral permitting improvements and then report back to Congress within one year on progress and additional recommendations. But instead of getting the report the law requires, the report we received earlier this month, ten months late, does not describe any concrete actions that have been taken to speed up permitting or establish timelines as required by the Bipartisan Infrastructure Law. While I do support the intent of some of the Administration's non-permitting recommendations—like reasonable reforms to the Mining Law of 1872 to ensure a fair return for taxpayers and addressing abandoned hardrock mines—none of that does anything to secure the supply chains for minerals or for the EV batteries that this Administration so desperately wants.

It is seeming more and more like this Administration's strategy is focused on talking about new mining, but doing very little to actually permit and use resources we have beneath our feet. I am committed to keep working on a bipartisan basis in our Committee to correct this course. We must also acknowledge that while we can provide much of the minerals that we need domestically, we can't produce or process every mineral in the quantities that we need here in the United States or even just in North America. So we need to ensure that we are working with trusted, reliable partners when it comes to overseas mineral sourcing. That means looking to friends like Canada and Australia, free trade partners, and our NATO allies to help us secure our mineral supply chains. But it does not mean ignoring our democratic values, labor standards, or environmental priorities to buy from anyone willing to sell us minerals or batteries.

In closing, if we don't address our dependence problem and look for innovative ways to onshore the critical mineral supply chain, it will compromise our energy security and handicap us in a global marketplace. Let me be very clear—the reason the bill was written the way it was—I didn't want to give 75 cents credit to EVs, to the car makers. And I think they have a good product. The market will go. That's where the market will take you. But in order to do that, we made a compromise. If we can develop our own supply chain, not dependent on China and areas of the world that we share no values with whatsoever that can hold them hostage, the same way

that Putin has held energy as a hostage and a weapon, then I would be happy to work with you. I tried in good faith to do that. And we have a bill that we all passed. This law passed. It's a good piece of legislation that they do not wish to adhere to because it's not the time frame that they wanted. That is the problem I have.

So I am going to continue to fight, and we cannot let this happen. And with that in mind, I can't help but take the opportunity with the Deputy Secretary to bring up the Inflation Reduction Act's oil and gas leasing provisions. I have been concerned about the efforts of the Administration to throttle back oil and gas leasing and production. So I made sure that that the IRA tied Interior's ability to issue wind and solar leases to the Department holding significant oil and gas lease sales both on and offshore, simply stating that you cannot go out and do what you want unless you do everything that we need. We are going to basically be able to extract the oil and gas that we need in the properties and basically, our BLM land and offshore, basically, with the Gulf and do that as we are basically developing the resources that we need for minerals. As we all know, not only are we nearing the end of the Fiscal Year on September 30, we are coming up on two major oil and gas deadlines: the release of the long-delayed five-year offshore leasing program and the Inflation Reduction Act's final mandate, Gulf of Mexico Lease Sale 261. Unfortunately, as a result of the Administration's own actions, they have managed to delay Lease Sale 261 until no later than November 8, according to a recent Fifth Circuit order.

Let me review just how ridiculous this is. First, the Administration allowed environmental groups to hijack the leasing process by agreeing to a voluntary settlement related to the Rice's whale that bypassed Interior's normal procedure and set them up to lose in court. The settlement imposed new restrictions on oil and gas in the Gulf and would have removed six million acres from the lease sale. Then, when the federal judge determined Interior's changes to the lease sale were likely unlawful and ordered the sale to proceed as originally proposed, Interior said they did not have enough time to course-correct and meet the September 30 deadline set by Congress. Why not? Because according to Interior, they need more time to follow normal procedures, the same procedures that the Administration was willing to bypass to appease environmental activists in the settlement agreement. You can't make this crap up. You just can't. It's real.

This is just the latest example in which this Administration has not gotten the message. Trying to rewrite an energy security law passed by Congress through Administration action is not a winning strategy. And they are finding out the hard way. And they are delaying everyone's production. I want everyone to know that I will support anyone who suffers damages as a result of this Administration failing to implement the IRA in alignment with the intent and the letter of this very balanced law because the reality is, we will get closer to achieving our shared goals—not Republican goals, not Democrat goals, but American goals—for oil and gas, for critical minerals, and for many other energy sources if we embrace the balanced approach in the IRA. As ten of my Republican colleagues stated in their amicus brief related to Lease Sale 261, and I have

said this: that bill that was put together—the IRA was done with all the consideration working with my partners on the Republican side and Democrat side for over five years. The IRA was a result of that considerable deliberation concerning the economic, energy, environmental, and strategic interests of the United States, and the IRA balances diverse, complex, and overlapping considerations, including growth and conservation, domestic needs and global positioning, and security and diplomacy. That was what my friends said. I could not agree more with my Republican friends on this and I will continue to do everything in my power to ensure the law is implemented in that manner.

We are already on track to realize the benefits of these energy laws that we have recently passed. We are producing, as I have said before, more energy of all kinds in 2023—37 trillion cubic feet of gas will be produced this year. Never before. And 4.6 billion barrels of oil from the United States. Never that much before. And doubling the amount of solar and battery projects, doubling the amount in one year. Never done before. If we work on a bipartisan basis to implement the all-of-the-above energy policy established by the IRA and the Infrastructure Law, then we can build even more on this success. So I look forward to hearing from our witnesses today to understand how we can find a realistic path forward without sacrificing our energy and national security.

And with that, I am going to turn to the Ranking Member, my friend, Senator Barrasso.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM WYOMING

Senator BARRASSO. Well, thanks so much, Mr. Chairman, for your very strong statement on the importance of the hearing today and why we are holding the hearing because, as a nation, I agree with you, Mr. Chairman, we are highly dependent on imports of critical minerals and materials. Many of the countries that supply these resources are adversaries and they clearly, as you said, don't share our values. A Biden Administration official went so far as to call our mineral dependence a "clear and present danger." And he met with members of this Committee just last week as we sat around to discuss the concerns that we share. That is one of the few statements from this Administration that I agree with because the projected mineral demand is increasing in an amount that is well known to all of us, and it does not seem to be understood by the Administration.

The world demand for copper is expected to increase by 300 percent by 2040. The Economist, last week, had an article about this. It said, where you going to go for the copper? This Administration has shut down a copper mine in northern Minnesota, so where are they going to go? Well, The Economist pointed out in their article, well, there is this place between the border of Iran and Pakistan where we can go to get the copper when we need it. The demand is up by 300 percent.

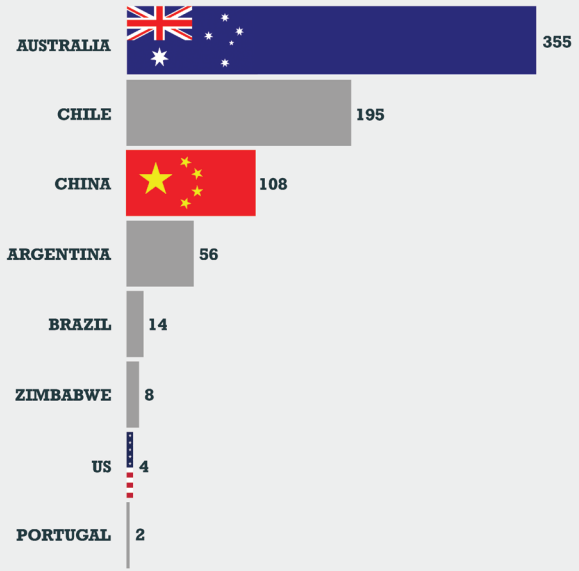
Nickel demand is expected to increase by 1,900 percent. Graphite demand expected to increase by 2,500 percent. Lithium demand to increase by 4,200 percent. Much of this demand has been generated from President Biden's policies compelling, mandating the use of

electric vehicles, solar panels, and wind turbines. The United States depends on imports for the vast majority of the minerals used in these products. China is a top producer of lithium and rare-earth elements. The Democratic Republic of the Congo is a major producer of cobalt and copper, and Indonesia produces nearly half of the world's nickel. These nations do not share our values. China ruthlessly exploits a religious and ethnic minority as a source of forced labor in its mining industry. The Congo has tens of thousands of children mining cobalt. Indonesia is clear-cutting vast areas of its tropical rain forest to access its nickel reserves. No moral or ethical sacrifice, including slavery and child labor, seems to be too great for Joe Biden's so-called green transition.

America's dependence on foreign minerals is not only shameful and reckless, it is unnecessary. We have more of the resources that we need right here at home, including copper, including lithium, including nickel, graphite, cobalt; yet this Biden Administration's bone-headed policies make it clearly impossible to access them. Recently, Mr. Chairman, scientists reported that the United States may be home to the largest known lithium deposit in the world. In fact, our nation's lithium reserves are estimated to be more than three times larger than China's, yet China's lithium production is 27 times larger than ours. You can see it on the chart.

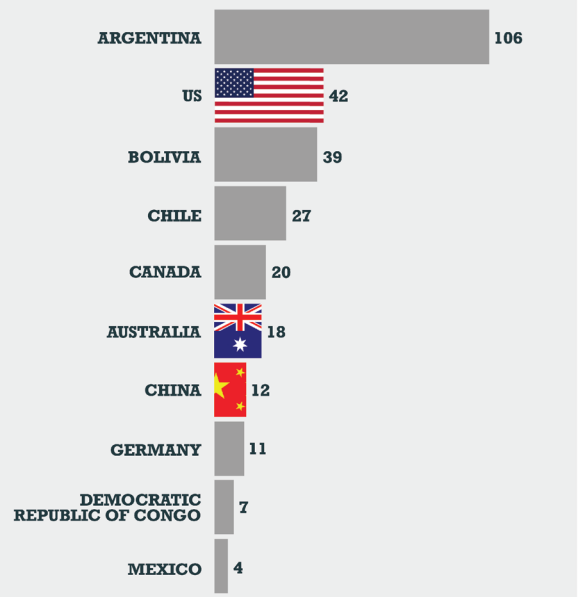
[The chart referred to follows:]

TOP COUNTRIES BY NATIONAL LITHIUM PRODUCTION (Mt)



AS OF DEC. 31, 2022

TOP COUNTRIES BY LITHIUM RESERVES AND RESOURCES (MMt)



AS OF MARCH 31, 2023

SOURCE: S&P GLOBAL MARKET INTELLIGENCE

Senator BARRASSO. Look at these comparisons of where we get things from and where they exist. The two bar graphs show lithium production and lithium reserves listed by country. We are number two in terms of availability. China is number three in terms of production. Even compared to countries with robust environmental standards, we are laggards. Australia has less than half of our reserves, but it produces 88 times more lithium than we do. This is ridiculous and unacceptable.

The Biden Administration seems gleefully intent on keeping us dependent on foreign minerals. It senselessly revoked leases for a project in Minnesota that would have produced nickel and cobalt for electric vehicle batteries. It carelessly revoked approval of a road in Alaska that was needed to develop copper. It recklessly delayed a land exchange necessary for a copper mine in Arizona. And it foolishly proposed withdrawing ten million acres from mineral development across six states in the west, including Wyoming. If it were not enough, this Administration recently issued recommendations that would make it even harder to mine on federal lands. There is an interagency working group that is headed by Mr. Beaudreau, and he is one of our witnesses today, and the working group wants to fundamentally change the mining claims system. It wants to add new fees and is proposing more authority for the Administration to withdraw lands from mineral production. Since many of our nation's mineral resources are on federal lands, the group's recommendations will mean less, not more, mineral production here in the United States and more dependence on our enemies.

It is a disgrace. I have said it before. Biden's agenda is not a transition from fossil fuels to sunshine and wind. It is a transition from American energy to foreign minerals. It is a transition from American strength and independence to American weakness and dependence. We must change this reckless course that we are on. We have abundant minerals and abundant energy resources here at home. We only need an Administration with the courage and the common sense to use them.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Barrasso.

First of all, I want to thank all three of our witnesses for being with us today. I appreciate the efforts you made to be here and we look forward to hearing from you.

We have with us today the Honorable Tommy Beaudreau, Deputy Secretary at the Department of the Interior and Chair of the Interagency Working Group on Mining Laws, Regulations, and Permitting.

We have Dr. Daniel Yergin, Vice President of S&P Global.

And we have Mr. Mark Compton, Executive Director of the American Exploration and Mining Association.

So now we will hear their remarks and we will start with the Honorable Tommy Beaudreau.

STATEMENT OF HON. TOMMY P. BEAUDREAU, DEPUTY SECRETARY, U.S. DEPARTMENT OF THE INTERIOR

Mr. BEAUDREAU. Thank you very much, Chairman Manchin, Ranking Member Barrasso, and members of the Committee.

Thanks for the opportunity to provide testimony today on the Administration's commitment to updating our mining policies and promoting sustainable and responsible domestic production of critical minerals. In addition to serving as the Deputy Secretary at the Interior Department, which oversees hardrock mining on public lands, I am the co-chair of the Interagency Working Group on Mining Laws, Regulation, and Permitting. In many ways, today's hearing mirrors a conversation that Dr. Yergin and I had in Houston earlier this year at the IHS CERA conference, which was appropriately titled, "Big Shovels: Supplying the Minerals for the Energy Future." It is a pleasure to be with you again today, Dr. Yergin. It is also a pleasure to join Mr. Compton from the American Exploration and Mining Association. Leadership from the mining industry is going to be essential to this effort.

Earlier this month, the working group released its final report, which includes more than 60 specific recommendations to improve and accelerate the way we site, permit, oversee, and reclaim mines on public lands in the United States. This report is the product of President Biden's direction under Executive Order 14017 regarding securing America's supply chains and the Bipartisan Infrastructure Law. The reasons for the President's and Congress's focus on mining reform are clear. Reliable and responsible sources for critical minerals, including lithium, cobalt, nickel, and graphite are essential to the clean energy and technology revolutions that are shaping our future for the better. This working group's effort kicked off in May of last year with an unprecedented roundtable at the White House that, for the first time, brought together communities, including the mining industry, local governments, tribes, labor, federal and state partners, academics, and environmental advocates to have a serious conversation about how to meet our needs for these critical minerals while respecting local communities and keeping our lands and waters clean and safe.

After hearing all of these viewpoints and receiving nearly 27,000 written comments from the public, the working group identified key changes that will help mine permitting become more efficient and improve our ability to produce our own domestic resources while better engaging and protecting communities impacted by potential mines, especially tribes and rural communities. The biggest takeaway from the report is that our 150-year-old law, signed into law by President Grant for accessing minerals on public lands, needs to be reformed to meet the urgency and standards of the 21st century. I am not saying we need to rewrite the American mineral laws every century, but maybe every other century we should take a hard look at whether these laws are providing the tools we need to meet today's national security and economic imperatives for critical minerals. The 1872 Mining Law clearly does not do that.

If we are to seize the opportunities for domestic sourcing of critical minerals, we need to employ the same tools that have been so successful in standing up thousands of megawatts of renewable energy on public lands and offshore. This includes leasing programs that target resources while reducing conflicts with local communities, wildlife habitat, and essential water resources. Moreover, unlike companies that develop energy minerals like oil, gas, and coal from public lands, companies that mine for hardrock minerals

pay no royalties to the American taxpayer. This is one of the reasons we do not have the funding necessary to address the estimated 500,000 abandoned hardrock mine sites that create safety hazards and pollute the land and water throughout the country. Recall the Gold King Mine incident that turned the Animas River in Colorado orange in 2015. Moreover, important to addressing the prolonged permitting process in this country is the recognition that there is no way to incentivize companies to use their existing mining claims. It is common for speculators to stake claims and sit on them for decades with no intention of ever producing the minerals.

The second biggest takeaway from the report is that the way the government and mining companies engage tribes and communities is often too little and too late. Mining companies may spend years and millions of dollars planning for a mine before the public is given details about the proposal and an opportunity to weigh in. This is a recipe for local opposition, lawsuits, and protracted permitting delays. Despite the need for legislative reform, which we will work with Congress on, we are taking on significant reforms through the Bureau of Land Management as we speak. I look forward to discussing those reforms and answering the Committee's questions.

[The prepared statement of Mr. Beaudreau follows:]

Statement of
Tommy Beaudreau, Deputy Secretary
U.S. Department of the Interior Before The
Senate Energy and Natural Resources Committee
Hearing on
"Examine opportunities to counter the People's Republic of China's control of critical mineral supply chains through increased mining and processing in the United States as well as international engagement and trade"
September 28, 2023

Chairman Manchin, Ranking Member Barrasso, and Members of the Committee, thank you for the opportunity to provide testimony on the Biden-Harris Administration's commitment to a whole-of-government effort to update our mining policies, reform the General Mining Law of 1872 (Mining Law), strengthen permitting efficiency, and promote the sustainable and responsible domestic mining, processing and recycling of critical minerals.

Over the last 150 years, the management of our public lands – through the Department of the Interior (Department) and its Bureaus – has evolved to meet the needs of our nation and to more effectively steward our public lands and resources. However, much of the mining on our nation's public lands continues to be governed by a deeply outdated law passed shortly after the Civil War, creating significant management challenges and inefficiencies. The Administration recognizes the important role mining will continue to play in the modern economy and the growing need for responsibly sourced critical minerals to meet our climate, infrastructure, and global competitiveness goals, but has concluded that fundamental reform of the Mining Law of 1872 is necessary to provide an adequate structural framework and remove impediments to a robust, environmentally, and socially responsible domestic mining industry.

The Administration understands that in order to strengthen the domestic mineral supply chain, with robust environmental protection and stakeholder engagement, we need to overhaul how we approach mining on federal land. The Department is committed to working with Congress, the mining industry, Tribes, mining communities, workers and unions, and environmental and community organizations as well, to consider reforms that provide certainty and stability for the industry, strengthen domestic mineral supply chains, advance environmental sustainability, foster early and meaningful community engagement, and ensure a fair return to taxpayers.

Laws Governing Mining on Federal Lands

Since its enactment in 1872, the Mining Law has shaped domestic mineral production on Federal lands. Initially, the Mining Law allowed for the development of nearly all mineral resources with no return to the taxpayer. In 1920, Congress enacted the Mineral Leasing Act (MLA), removing petroleum, natural gas and other hydrocarbons, as well as phosphates, sodium, sulfur, and potassium, from disposal under the Mining Law, creating a leasing-based system for these minerals. In 1947, the Materials Act removed "common varieties" of certain widespread minerals of common occurrence, such as sand and gravel, from disposal under the Mining Law and instead made them subject to sale or permit.

Today, however, almost all hardrock minerals on Federal Land remain subject to disposition under the Reconstruction-era Mining Law. Significantly, the Mining Law also applies to the critical minerals that are needed to support our modern economy and fuel our transition to renewable energy– minerals like graphite, lithium, and cobalt. Moreover, the Mining Law does not provide for royalties on hardrock minerals, meaning the taxpayer does not receive a return for the production of these resources from public lands. Finally, mining does not operate like coal, oil and gas leasing nor renewables under a leasing process. Leasing processes have been demonstrated to drive development to the highest valued, lowest conflict areas, increasing value for the taxpayer and speed development.

Management of Mining Under the Mining Law

Lands that are open to exploration and the location of new mining claims under the Mining Law include BLM-managed public domain lands, National Forest System lands reserved from the public domain and managed by the United States Forest Service (USFS), and certain split-estate lands where the mineral estate is reserved to the United States while the land surface is owned by Tribal, State, or private entities. Additionally, there are also some mining claims on National Park System and National Wildlife Refuge System lands.

Management of mineral development under the Mining Law has evolved over time with the need to balance competing uses of public lands. Prior to 1981, there were no regulations in place to regulate prospecting, exploration, and mining activities under the Mining Law on BLM-administered public lands. The BLM's surface management regulations, promulgated under the Federal Land Policy and Management Act (FLPMA) in 1981 and revised in 2001, provide a framework to prevent unnecessary or undue degradation of public lands during mining and reclamation under the Mining Law. To ensure that mining on public lands occurs in an environmentally-sound manner, operations must comply with other state and Federal laws, including the Clean Water Act, Clean Air Act, Endangered Species Act, Wilderness Act, the National Environmental Policy Act, and the National Historic Preservation Act. Certain exploration operations, known as notice-level operations, do not require Federal approval and therefore are not subject to the National Environmental Policy Act.

Under FLPMA, the BLM is responsible for administering mining claims on all Federal lands, regardless of surface ownership or management, while the relevant surface management agency generally oversees mineral exploration, development, and reclamation. The BLM is also responsible for conducting mineral examinations to determine if the mining claim is a valid existing right under the Mining Law. Additionally, the BLM administers the collection of the annual maintenance fee for each mining claim, as well as location fees for new mining claims. Since 1976, more than 4 million unpatented mining claims have been filed, covering more than 23.8 million acres of Federally managed lands. In FY 2022, the BLM collected a total of almost $94 million in fees associated with nearly 489,100 active mining claims on Federal lands. This is the highest number of active mining claims this century, an indication of significantly increased interest in mineral exploration and development on Federal Lands.

The Mining Law does not require reporting the type or quantity of minerals produced on Federal lands to the Department. Therefore, the Department is only able to track notices or authorized plans. At the end of FY 2022, there were 684 active mining plans of operation and another 748

active mining notices on Federal Lands. The Department does not have an accurate account of total production occurring on Federal lands, including for critical minerals, from these plans and notices.

FLPMA also requires the BLM to inventory abandoned mine sites on public lands and provides the authority to withdraw Federal lands from the operation of the Mining Law, subject to valid existing rights. In 2020, The Government Accountability Office reports that there are at least 532,652 abandoned hardrock mine features on lands under Forest Service, BLM, Park Service, or EPA jurisdiction, with the estimated reclamation costs running into the tens of billions, according to the Environmental Protection Agency.

Reforming Mining on Public Lands

Since taking office, the Biden-Harris Administration has outlined a whole-of-government approach to ensure that U.S. mining activity is responsible and that mine permitting is efficient. Understanding that resilient supply chains are necessary to revitalize and rebuild domestic manufacturing capacity while maintaining America's competitive edge in research and development, in February 2021, President Biden issued Executive Order (EO) 14017, "America's Supply Chains." The EO directed a government-wide approach to assess the vulnerabilities in, and strengthen the resilience of, critical supply chains of various goods, including critical and strategic minerals essential to the economic and national security of the United States.

The EO also initiated a 100-day supply chain review requirement, and the Administration published its findings in a report in June 2021 titled, "*Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-based Growth.*" Consistent with a recommendation of the 100-day review, on February 22, 2022, the Department announced the launch of an Interagency Working Group (IWG) comprised of experts in mine permitting, public engagement, and environmental law from across the Federal government. The IWG was charged with reviewing laws, regulations, policies, and permitting processes pertaining to hardrock mineral development. The IWG's efforts also addresses section 40206 of the Bipartisan Infrastructure Law (Public Law 117-58), which requires the Department and the U.S. Department of Agriculture to submit a report to Congress identifying legislative and regulatory recommendations to improve the timeliness of permitting activities for exploration and development of domestic critical minerals. In February 2022, the Department also released an updated list of 50 critical minerals, as required by the Energy Act of 2020.

IWG Report Findings

On September 12, 2023, the Biden-Harris Administration released its final report from the IWG containing recommendations to reform and improve the way mining is conducted on public lands. The report provides more than 60 recommendations to Congress and Federal agencies, including recommendations for increasing public and Tribal engagement, making permitting processes more consistent and predictable for industry, ensuring a fair return to taxpayers, and protecting impacted communities and workers, as well as environmentally and culturally sensitive lands. The report also identifies reforms to revitalize Federal support for research into advanced, lower-impact mining and exploration technologies and methods, workforce development, and the need for increased resources to address the legacy of abandoned and

unreclaimed hardrock mining sites that continue to pollute land and water throughout the country. Finally, the report recommends moving to a leasing system, which could drive greater development of critical minerals in high value, low conflict areas.

As part of IWG's review, the Department considered input received during dozens of meetings — including with industry, states, stakeholders, and the public — multiple government-to-government consultations with Tribes, and a review of over 26,000 comments from the mining industry, state officials, Tribes, equipment manufacturers, academics, legal experts, environmental justice experts, the public and more. These comments were carefully reviewed, and their input formed the foundation of the final report.

The report addresses several key policy considerations for domestic mineral production: first, demand for hardrock minerals, and critical minerals in particular, is growing at an exponential rate; second, the United States depends heavily on foreign nations—in some cases non-allied nations—to produce and refine many of the minerals that are in high demand and critical to our economic and national security; and third, efforts to address mineral supply chain challenges are complicated by the Reconstruction-era mining law promoting free access to minerals that are found on Federal land, which is inconsistent with how minerals are accessed in other modern jurisdictions. The rapid buildout of a clean energy economy is fueling a significant increase in demand for responsibly sourced critical minerals that power everything from consumer electronics to electric vehicle batteries. Recommendations from the IWG report will help ensure a sustainable and responsibly sourced domestic supply of minerals, which are key to meeting the nation's climate, infrastructure and global competitiveness goals.

Recommendations from the IWG report aim to ensure a sustainable and responsibly sourced domestic supply of minerals, which are key to meeting the nation's climate, infrastructure and global competitiveness goals. These recommendations, if adopted, could work in tandem with historic investments from the Bipartisan Infrastructure Law, the Inflation Reduction Act, and the Defense Production Act in critical minerals mining, processing, and recycling in the U.S., as well as diplomatic efforts to diversify international supply chains and ensure that China does not capture even more of the international market.

Conclusion

The IWG concluded that fundamental reform of the Mining Law of 1872 is necessary to achieve the best outcomes for communities and Tribes impacted by mining, as well as the mining industry and to advance America's vital clean energy, climate, and manufacturing goals. The Report also outlined dozens of steps the Department can take within the Mining Law's antiquated framework to begin addressing some of the challenges of mineral development on Federal land. The Department looks forward to working with Congress and this Committee to continue to build areas of consensus around potential reforms to our mining laws and regulations. I appreciate the opportunity to testify today and would be happy to answer any questions.

The CHAIRMAN. Thank you, Mr. Beaudreau.
And now we have Dr. Yergin.

STATEMENT OF DR. DANIEL YERGIN,
VICE CHAIRMAN, S&P GLOBAL

Dr. YERGIN. Mr. Chairman, Ranking Member, members of the Committee, it is an honor to be here to have a chance to talk with you about these urgent questions of minerals, which you have been discussing since 2021. As Deputy Secretary Beaudreau said, we are moving from that term that headline writers like, "Big Oil," to "Big Shovels," which means a lot more mining. And I was thinking, since you had your original hearings on minerals, there have been a number of alarming messages from international organizations and from governments, including the U.S. Government, about the need and the urgency of minerals. The IMF, for instance, has warned that the pursuit of net-zero emissions will "spur unprecedented demand for some of the most crucial metals," leading to "soaring costs" and shortages that could derail or delay the energy transition.

But how much will be needed? It sometimes seems like an abstract question, but one way to think about it is that the State of California has in effect passed a regulation saying that every new car sold in the State of California after 2035 will have to have two and a half times more copper than every car that is now sold. Now, the regulations didn't say that, but they said that they are going to be EVs, and EVs use two and a half times more copper for every single car. You can say the same thing with offshore wind and so forth. So at S&P Global, we have tried to examine what are the mineral requirements and have done it in our two studies that the Chairman referred to: "The Future of Copper" and then a study on the Inflation Reduction Act and its impact on minerals.

We came up with this idea of energy transition demand to differentiate this as new consumption—consumption coming from EVs, on and offshore wind, solar panels, charging stations, battery storage. And this is different from the traditional demand, which is, for instance, the electric wiring in your houses. So our key findings are what have already been described by both the Chairman and the Ranking Member—we see copper demand, in order to meet the various goals out there, having to double by 2035 and other mineral demands growing by 23 times for the United States. And securing these minerals to meet demand will be challenging for all the reasons—capacity, trade patterns, sourcing requirements, geopolitical tensions, and the long and complicated lead times for permitting and judicial reviews for developing new mines. So this will require an expanded international and domestic supply base and a realignment of trading patterns to go forward. Those were our numbers before the IRA. Since the IRA, we went back and looked at the numbers again and said that the demand for the four minerals that we are talking about will each increase on top of that big increase by another 12 to 15 percent to meet the demands that are laid out by the IRA.

It is also important to recognize that other countries will be competing for these resources, so, at the same time, the EU, Japan, China, and other countries. And so this will further test the ability

of the U.S. to get these resources. The Chairman talked about the concentration. I think there are two important parts of concentration. One is the processing that has already been cited and the dominance of China in those numbers—70 percent for nickel and cobalt, for instance. And then, it is production. Think about it this way as a comparison: Three countries produce 40 percent of crude oil—the United States, Saudi Arabia, and Russia. Two countries produce 40 percent of copper. One of them is Peru, which has had seven presidents in the last few years and the other is Chile, which is just in the process of nationalizing its lithium resources, which are considered, at this point, the largest in the world. And then, there is the matter of the "obsolescing bargain," which is that governments, as prices go up, will renegotiate, drive up prices, and that will inhibit investment.

I just want to say something now about permitting. We looked at 127 mines that began production between 2002 and 2023, and if based upon that, if you started a new mine today, you would not see production until 2040. In 1956, the U.S. Bureau of Mines, which I believe is part of the Department of the Interior, said it would take three to four years to bring a new mine on in the United States. Today, it would take about five times as long to do that. And we do have significant untapped resources—enough copper to meet 20 years of demand that is untapped at this point. So much depends on what happens above ground in terms of permitting, in terms of regulation. So I think it's very clear from everything that is going on that the policy efforts to stoke this energy transition demand for minerals will be very effective, as the research shows. However, as you are doing with this Committee, greater attention needs to be paid to securing enough supply to undergird these demand ambitions, both domestically and internationally.

Thank you.

[The prepared statement of Dr. Yergin follows:]

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U.S. Senate Committee on Energy and Natural Resources

Hearing on "Critical Minerals"

Prepared Testimony by Dr. Daniel Yergin, Vice Chairman of S&P Global

September 28, 2023

Daniel Yergin, vice chairman of S&P Global, is the author of *The New Map: Energy, Climate, and the Clash of Nations* and of *The Quest: Energy, Security, and the Remaking of the Modern World.* He received a Pulitzer Prize for his book, T*he Prize: the Epic Quest for Oil, Money, and Power.* He holds a BA from Yale University and a Ph.D. from Cambridge University. He is chairman of the CERAWeek energy conference.

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Mr. Chairman, Ranking Member and members of the Committee, it is an honor to address the United States Senate Committee on Energy and Natural Resources. I appreciate the invitation to participate in this important hearing. It is timely – and indeed urgent – to discuss critical minerals.

The move towards renewables and electric vehicles will motivate a fundamental shift in the energy foundations of the U.S. economy – from a fuel-based system towards a system increasingly weighted to minerals. This will be a very big change from hydrocarbons, which today provide 80% of U.S. energy, to minerals, which today are a small part of the overall energy system. "Big Oil" is a term long favored by headline writers, but this, in shorthand, is the shift from "Big Oil," to "Big Shovels." In other words, this implies a great deal more mining.[1]

This is hardly something that will happen with ease. The "energy transition" will not be linear. Rather, as S&P Global describes it in the new study *Shaping a Living Roadmap for the Energy Transition,* it will be "multidimensional," unfolding at different paces in different parts of the world, and indeed at different paces across the U.S. economy.[2]

One of the fundamental gating items will be the timely availability of sufficient minerals – the demand for which will grow enormously. But will those supplies be available? A host of governments and international organizations – the U.S. administration, Japan, the European Union, the United Kingdom, the World Bank, the International Monetary Fund, and the International Energy Agency – have all raised alarm about the sufficiency of mineral resources, their processing, and their sourcing. The IMF, for example, has warned that the pursuit of net-zero emissions by 2050 will "spur unprecedented demand for some of the most crucial metals," leading to "soaring costs" that could "derail or delay the energy transition itself."[3]

But how much will be needed? That is a critical question. It may seem abstract. But think of it this way: the state of California has in effect declared that

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[1] Daniel Yergin, *The New Map: Energy, Climate and the Clash of Nations (*New York: Penguin, 2021)
[2] Shaping a Living Roadmap for the Energy Transition, https://www.ief.org/focus/ief-reports/gesi-shaping-a-living-roadmap-for-energy-transition
[3] https://www.imf.org/en/Blogs/Articles/2021/11/10/soaring-metal-prices-may-delay-energy-transition

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all cars sold in the state from the mid-2030s onward should have two and a half times more copper than a combustion car. Of course, what the regulation actually says is that they must be electric vehicles, but each electric vehicle will, in fact, use two and a half times more copper. Similarly, offshore wind uses much more copper than on-land power generation. That is why it is so important to understand the scale of the requirements. In response, S&P Global, drawing upon its databases and analytic capabilities, has sought to calculate what the demand for these critical minerals will be.

S&P Global has done so in two studies, both of which are intended to contribute to an understanding of the mineral requirements and challenges: *The Future of Copper: Will the Looming Supply Gap Short-Circuit the Energy Transition?* and *Inflation Reduction Act: Impact on North American Metals and Minerals Market.*[4] These studies form much of the basis of my testimony today. They do not make policy recommendations. They are part of S&P's continuing work to understand the key issues for assuring the mineral supply required for the energy transition.

It is particularly important to understand what is ahead, for we are at the beginning of a global energy transition that will transform the global economy and drive a substantial strengthening in demand for minerals. An electrified future uses minerals such as cobalt, lithium, nickel, and copper much more intensively than today.

At S&P Global, we have classified and quantified this new consumption as "energy transition demand" – consumption coming from EVs, on- and offshore wind, solar panels, charging stations, battery storage, etc. This is different from traditional demand, such as, for instance, the wiring that goes into housing construction. The United States faces considerable obstacles ensuring enough supply to meet both energy transition demand and traditional demand.

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[4] *The Future of Copper: Will the Looming Supply Gap Short-Circuit the Energy Transition?*, https://www.spglobal.com/marketintelligence/en/mi/info/0722/futureofcopper.html; and *Inflation Reduction Act: Impact on North America Metals and Minerals Market*, https://cdn.ihsmarkit.com/www/prot/pdf/0823/Impact-IRA-Metals-Minerals-Report-FINAL-August2023.pdf

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The Inflation Reduction Act will accelerate this energy transition demand for minerals even more. Our recent research demonstrates that there is no one way to bridge the impending gap between supply and demand – but rather that several facets will be necessary in a solution.

Our key findings from both studies are:

- Demand both globally and in the United States will grow substantially in the coming decades for minerals such as copper, lithium, cobalt, and nickel. Our research shows that energy transition demand for copper will double over the next 12 years on a global basis, while demand for the other three critical minerals is expected to grow 23 times over the same period in the United States.
- Securing enough supply of these minerals to meet demand will be increasingly challenging for the United States given current planned capacity increases, existing trade patterns, new sourcing requirements, geopolitical tensions, and the long and complicated lead times for permitting and developing new mines.

The United States is currently reliant on imports for much of its current cobalt, lithium, nickel, and copper demand. As demand for these minerals continues to grow on a global basis, securing supply will require a combination of an expanded international and domestic supply base and a realignment of trading patterns if a potential shortage of minerals that threatens to short-circuit the energy transition is to be avoided.

Increasing mineral demand

But what to expect in terms of demand? Starting with the 2050 goals proposed by the U.S. administration and the European Union and to understand their impact on the energy transition demand, our studies undertook a detailed

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bottom-up analysis by sub-technology to examine the mineral requirements to arrive at total energy transition demand.

Our research shows that energy transition-related U.S. demand for the critical minerals lithium, nickel, and cobalt, taken together, will be 23 times higher in 2035 than it was in 2021. For copper, total demand will be twice as high over the same period. In the pre-IRA analysis, this is equivalent to compound annual growth rates of 25% per year for the three critical minerals and 4% per year for copper. While the steep upward trend was established pre-IRA, it is even higher post-IRA – with a 26% increase per year for the three critical minerals and 5.2% increase for copper.

Compared with our outlook before the IRA, in 2035 the post-IRA analysis for the United States projects:

- Lithium demand: 15% higher
- Cobalt demand: 13% higher
- Nickel demand: 14% higher
- Copper demand: 12% higher

While copper is not currently classified by the U.S. Geological Survey (USGS) as a "critical mineral," it is the "metal of electrification" and it is indeed critical to the energy transition given central importance of electrification in decarbonization technologies. In addition, the United States Department of Energy added copper to its critical minerals list in early August.[5] Canada has also listed copper on its critical mineral list as a necessary input for priority supply chain.[6] Copper does not meet the European Union critical mineral thresholds but is included on the critical minerals list as strategic raw materials in line with the Critical Raw Materials Act.[7]

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[5] U.S. Department of Energy Releases 2023 Critical Materials Assessment to Evaluate Supply Chain Security for Clean Energy Technologies | Department of Energy

[6] https://www.canada.ca/en/campaign/critical-minerals-in-canada/critical-minerals-an-opportunity-for-canada.html

[7] https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en

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More than two-thirds of U.S. energy transition-related volumetric demand for the four metals is for copper. Post-IRA, U.S. demand for copper from energy transition related-infrastructure and EVs will increase to nearly 2.6 million metric tons in 2035. This is solely energy transition-related demand dominated by demand for copper in electric vehicles, renewable energy technologies, and electricity transmission and distribution. Lithium, cobalt, and nickel are critical in the energy transition space for battery manufacturing for EVs and energy storage systems. The 2.6 million metric tons of demand for copper that we project will be required in 2035 in the United States post-IRA compares to about 700,000 metric tons for nickel, 112,000 metric tons for lithium, and 53,000 metric tons for cobalt.

In our *Future of Copper* study, we found that global copper supply will need to double by 2035 to meet the United States and European Union's 2050 climate goals, while, over the same time frame, U.S. energy-transition copper demand alone is expected to more than double.

There are two obvious ways to modulate the pressures on mineral supply. One, of course, is through technological innovation, and strong incentives will continue to stimulate innovation. Breakthroughs and disruptive technologies can certainly change the balance. But the time frames envisioned for the shift to electrification are short, and innovation and deployment in materials generally takes longer than, for instance, in software. Second, domestic battery recycling will reduce the net demand for nickel, lithium, and cobalt, but only, it seems, in the longer term. The U.S. battery recycling industry is nascent, and recycling activity will only start scaling up when electric vehicles start reaching end of life. Recycling will have to address both the collection of dispersed materials and permitting of recycling facilities. There are already important initiatives aimed at applying innovation to recycling processes, including seeking to continue the progress in large-scale recycling at industrial levels.

It is important to recognize that other countries will be competing for the same supply at the same time as countries shift toward more renewable energy capacity, EVs, and electrification of their energy supply. This will further test the United States' ability to source additional volumes from outside the country.

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These staggering projections underscore the challenge of increasing supply to the United States.

Securing supply

As demand for nickel, lithium, cobalt, and copper surges, the United States will be increasingly reliant on imports. However, these will be made more challenging to secure because of the IRA's sourcing requirements of production and/or extraction. Per IRA sourcing requirements, supply must originate from the United States or countries with a Free Trade Agreement with the United States (FTA countries). The U.S. administration is seeking to address this roadblock with the Minerals Security Partnership and with specific "critical minerals agreements" with allies and other countries. The requirements around "foreign entity of concern" will further complicate, given mainland China's dominant position in mining and processing minerals. Defining what that means operationally will have a major impact on the future availability and flow of minerals. Under the IRA, at least 50% of battery components of electric vehicles seeking tax credits in the United States must be finally assembled in North America, and this rises to 100% by 2029.

Of the four materials covered in our study analyzing the impact of the IRA on North America metals and mineral markets, only lithium is likely to be sufficiently supplied to the United States under the IRA's domestic content requirements, given already-planned capacity additions in the United States and other FTA countries such as Chile, Canada, and Australia.

Cobalt and nickel are both unlikely to be sourced at levels high enough to meet demand.

While there is enough cobalt produced in FTA countries to meet the IRA domestic sourcing requirement, the United States does not currently source most of its cobalt from those countries. Doing so would require a challenging

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reorientation of trading patterns across several countries given intense international competition for resources.

Nickel is the most challenging in terms of supply. There does not appear to be enough nickel supply in FTA countries to meet demand under the IRA requirements—even if all primary nickel production in FTA countries was exported to the United States.

While copper is not subject to sourcing requirements under the IRA, ensuring access to enough supply to meet U.S. demand post-IRA is also at risk. The United States will become more reliant on imports as growing demand for energy transition-related end markets outpace domestic supply.

For example, the United States relies on one country, Chile, for 60% of refined copper imports. However, for Chile, the United States accounts for only 20% of its refined copper exports, while China accounts for more than 40%. The United States could struggle to secure additional supplies from Chile if other markets that represent a larger share of Chilean exports also compete for that supply.

Concentration of minerals is a further concern. Three countries produce about 40% of the world's oil – the United States, Saudi Arabia, and Russia. By comparison, two countries produce about 40% of the world's copper – Peru, which has gone through seven presidents in the last few years, and Chile, where the government plans to take control of the country's lithium reserves, considered the world's largest. In general, as prices rise, governments of resource-holding countries will seek – in what has been called the "obsolescing bargain" – to redo agreements to increase their control and their share of revenues, which will tend to delay or inhibit new investment that would otherwise expand output.

The increasing reliance of the United States on imports as energy transition demand grows places new emphasis and urgency on challenges such as long lead times and permitting complexities that prolong development of domestic resources. S&P Global data on 127 mines across the world that began production between 2002 and 2023 shows that a major new resource discovery today would likely not become a productive mine until 2040 or later.

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In addition to emerging and intensifying competition for sourcing minerals into the United States through trade, increasing supply globally to meet rising demand from the rest of the world will be challenging. In our *Future of Copper* study, we identified a chronic gap between worldwide projected copper supply and demand that will begin later in this decade and will have serious consequences in terms of actually achieving the goal of Net-Zero Emissions by 2050.

The shortfall will reach a high point in 2035, under what has become our base case – our Rocky Road Scenario. This case is structured around a continuation of current trends in capacity utilization of mines and recycling of recovered copper. This would mean a 20% shortfall from the supply level required for the Net-Zero Emissions by 2050 target. Substitution and recycling will not be enough to meet the demands of EVs, power infrastructure, and renewable generation. Unless massive new supply comes online in a timely way, the goal of Net-Zero Emissions by 2050 runs the high risk of being short-circuited and remaining out of reach.

Set against the backdrop of a potential shortfall on a global basis for minerals, competition for mineral exports will intensify further, underscoring the need to increase domestic supply in addition to securing strong trade relationships. While more mining is part of the equation, increasing mineral processing capacity is just as important – and possibly even more so given mainland China's enormous footprint in the processing of cobalt, lithium, nickel, and copper. Globally, about 70 percent of nickel and cobalt, 60 percent of lithium, and almost half of copper are refined in China.[8]

Yet, even though its untapped physical endowment is quite large, the United States currently imports a large percentage of minerals. For example, copper represents a particular opportunity in the United States. The country possesses what is estimated to be more than 70 million tons of an untapped

[8] https://www.brookings.edu/articles/chinas-role-in-supplying-critical-minerals-for-the-global-energy-transition-what-could-the-future-hold/

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copper endowment, equivalent to more than 20 years of U.S. copper demand, even at the level of peak energy transition-related demand in 2035.

However, accessing future supplies underground depends on what happens above ground.

Above Ground

While policymakers in the United States have clearly recognized the strategic importance of critical minerals and mining more generally, the response is far from clear. Permitting and post-permit litigation risks, social license to operate, and political and environmental issues around mining – all these continue to be major above-ground challenges.

The complexity of permitting mines in the United States is reinforced by the long lead times also required elsewhere around the world. Multidimensional challenges make the development of mines a generational endeavor, spanning decades and requiring hundreds of billions of dollars. Projects under development today would likely not be sufficient to offset the projected shortfalls in copper supply, even if their permitting and construction were accelerated. A 1956 U.S. Bureau of Mines report stated that copper mines may take as long as "three to four years" to construct and deliver product – a process that would have included permitting along with everything else. Today, by contrast, the permitting process alone can take 7-10 years – or longer – to be followed by extended judicial processes. The result can extend total project time from discovery to production to 15 or 20 years or more, as delays get extended. That length of time is half or more of a professional's entire career. Controversy over environmental issues and issues involving local populations add further to the risk of delay – and greater cost – in both mature and emerging economies.

Conclusions

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Policy efforts to stoke energy transition demand for minerals will be very effective, as our research shows. However, greater attention needs to be paid to securing enough supply to undergird these demand ambitions.

New technology and innovation could help increase supply directly. If such innovation addressed the environmental and social concerns of a growing portion of investors, then it would also attract more capital into the industry and increase supply indirectly.

While solidifying trade relationships with FTA countries will help, that alone will not be enough to secure supply for the United States. Sourcing mineral imports from friendly countries is one way to meet the sourcing requirements stipulated in the IRA, but rising demand from other countries means increased competition for minerals and that availability of imports should not be considered a given. Additional domestic capacity for both the mining and processing of minerals is required, as that is the only way to guarantee supply domestically.

However, policy solutions will be necessary to foster this, as permitting challenges have created both bottlenecks for bringing capacity online and disincentives against exploration and investment.

The CHAIRMAN. Thank you, Doctor.
And now we will have Mr. Compton.

STATEMENT OF MARK COMPTON, EXECUTIVE DIRECTOR, AMERICAN EXPLORATION AND MINING ASSOCIATION

Mr. COMPTON. Thank you, Mr. Chairman.

Chairman Manchin, Ranking Member Barrasso, members of the Committee, I want to start by thanking the Committee for highlighting mineral security issues as well as your work to create an environment in which the U.S. mining industry can succeed and safely and responsibly provide the raw materials our nation requires for our national defense, economic well-being, and energy security. Unfortunately, a lack of access to our mineral-rich federal lands and a lengthy, inefficient federal permitting system have resulted in our unsustainable dependence on foreign countries for nearly 50 minerals and has empowered our adversaries to weaponize minerals against us. These supply chain concerns have led to bipartisan acknowledgement of the need for more domestic mineral production. Although we may need to obtain some minerals from our allies, we must responsibly utilize our own resources whenever possible. As Dr. Yergin pointed out, the surging global demand for minerals means other countries will be competing for the same limited supplies, challenging our ability to obtain minerals from abroad.

Americans and the environment lose when we offshore our mineral requirements. It makes no sense to create mining jobs elsewhere, import minerals from countries with inferior environmental protection and worker health and safety standards, and to generate the CO_2 by shipping minerals from faraway places. Because hardrock mineral deposits are rare geologic phenomena, it is imperative that mineralized lands remain accessible to mineral exploration and development. Mines can only be developed in those few places where economically viable deposits were formed and geologists have discovered them. We can't choose where they are located and we can't move them. More than half of federal lands are already off limits or severely restricted to mining. Further restricting access to mineral resources threatens our mineral security and chills investment. If we cannot invest in mineral exploration, we cannot discover that needle in a haystack deposit. According to the National Academy of Sciences, only one in 1,000 prospects actually becomes a producing mine.

Now, there are complex logistics of mining that cannot be changed. But what can be changed is putting the right policies in place to prevent unneeded bureaucratic hurdles to domestic production. And those policies include providing adequate land access and minimizing permitting obstacles. For the past 18 months, we worked closely and in good faith with the Biden Administration's Interagency Working Group on Mining Regulations, Laws, and Permitting (IWG). We viewed the IWG process and development of its report as an opportunity to identify ways to eliminate some of the current barriers to discovery and developing minerals on public lands. Unfortunately, the recommendations in the IWG report related to the mining law will make exploration and mine development harder because they propose eliminating security of land ten-

ure and burden future mines with a confiscatory royalty. Given the skyrocketing demand for minerals, now is an especially bad time to upend this law and implement such proposals.

In a broader context, the IWG report, BLM's proposed conservation rule, along with other administrative actions, will ultimately place more lands off limits to mining and ultimately increase our dependency on China and other countries for minerals. We applaud the important NEPA streamline amendments that were in the Fiscal Responsibility Act, but CEQ's proposed NEPA rules will only lengthen the NEPA process and spawn yet more litigation. The bipartisan interest in further permitting reform, though, is very encouraging. And we look forward to future dialogue in this Committee on Chairman Manchin's and Ranking Member Barrasso's permitting bills and in the Environment and Public Works Committee as well. I would also like to thank the Chairman and Ranking Member for their leadership in boosting the mining workforce of the future by introducing the Mining Schools Act and this Committee's markup of that important legislation last week.

So we look forward to working constructively with you to seize upon this generational opportunity to ensure that "made in America" includes "mined in America," and sourcing minerals from U.S. mines that use state-of-the-art environmental protection measures, put a premium on worker health and safety, and are committed to the communities in which they operate. I look forward to answering any of your questions.

[The prepared statement of Mr. Compton follows:]

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Senate Committee on Energy and Natural Resources
Hearing to Examine Opportunities to Counter the People's Republic of China's Control of Critical Mineral Supply Chains
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I. Introduction

I want to start by thanking the Committee for highlighting mineral security issues and your work to create an environment in which the U.S. mining industry can succeed in safely and responsibly providing the raw materials our nation requires for our national defense, economic well-being and energy security.

A lack of access to economically viable mineral deposits and a lengthy, inefficient federal permitting system have resulted in our unsustainable dependence on foreign countries for nearly 50 essential minerals and has empowered our adversaries to strategically weaponize mineral supply chains against us. These supply chain concerns have led to bipartisan acknowledgement of the need for more domestic mineral production.

Although we may need to obtain some minerals from our allies, we must responsibly utilize our own resources whenever possible. The surging global demand for minerals and raw materials means other countries will be competing for the same limited supplies, which will challenge our ability to obtain minerals from abroad.

Americans and the environment lose when we offshore our mining and mineral requirements. It makes no sense to create mining jobs elsewhere, import minerals from countries with inferior environmental protection and worker health and safety standards, and to generate CO2 by shipping minerals from faraway places.

Because hardrock mineral deposits are rare geologic phenomena, it is imperative that mineralized lands remain accessible to responsible mineral exploration and development. Mines can only be developed in those few places where economically viable deposits were formed, and geologists have discovered them. We cannot choose where they are located or move the mineral deposits from areas of competing interests. The answer must be facilitating greater investment in environmentally safe and innovative technologies within the U.S. and developing clean and safe domestic mines where these valuable mineral deposits are found. The U.S. must strive for mineral independence if we are to compete in the future world economy and demand for minerals.

Currently, more than half of federal lands are off-limits or severely restricted to mining. Further restricting access to mineral resources threatens our mineral security and chills investment. If we cannot invest in mineral exploration, we cannot discover that rare, "needle in a haystack" deposit. According to the National Academy of Science, only 1 in 1,000 prospects become a producing mine. This highlights the importance of allowing and promoting mineral exploration across our country.

It takes 10 years or more of drilling, geological analysis, baseline studies, project feasibility evaluations, and hundreds of millions of dollars of investment to advance a prospect from exploration to the *start* of mine permitting. Permitting the mine then takes at least several more years – and even longer if the project is litigated, which happens all too often and can add years before any ore can be produced.

Because it often takes two decades to get from exploration to production, minimizing the land access and permitting obstacles that impede domestic exploration and mining is imperative.

For the past 18 months, we have worked closely and in good faith with the Biden administration's Interagency Working Group on Mining Regulations, Laws and Permitting ("IWG"). We viewed the IWG process, and development of the report[1] released earlier this month, as an opportunity to identify ways to eliminate some of the current barriers to discovering and developing minerals on public lands.

Unfortunately, the IWG's report includes no recommendations that would encourage exploration and production of domestic minerals. While some of the recommendations in the report are intended to improve permitting processes, many of the proposed revisions would fundamentally change how mines are permitted, rights are created to explore for and develop minerals, and portend significant implementation challenges.

The Mining Law recommendations in the IWG report will make exploration and mine development harder because they eliminate security of land tenure and burden future mines with a confiscatory royalty. The conversion of mining claims into mineral leases may result in a blanket takings of property rights in violation of the Fifth Amendment. It's notable that the IWG admits that the report's Mining Law recommendations are likely to interfere with the administration's clean energy objectives stating, "...the transition to [a leasing system] could be complex administratively and complicate new exploration and developments efforts [that] may, in turn, cause short-term delays in efforts to meet clean energy and climate goals." (IWG Report, Page 99).

AEMA would like to thank Senator Cortez Masto for her September 12, 2023 news release highlighting the problems with the Mining Law recommendations on the IWG Report: "...these recommendations to impose new taxes and change the mining claims process would make it harder to create new mining projects in the U.S. at a time when too many companies are sourcing these materials from Communist China." We agree with Senator Cortez Masto. Given the skyrocketing demand for critical minerals, now is an especially bad time to upend this land tenure law and eliminate confidence in our country's system of property rights.

The Nation acknowledges the urgency of increasing domestic mineral production, strengthening our supply chains, and reducing our reliance on foreign minerals. However, the IWG Report, BLM's proposed Conservation and Landscape Health rule, CEQ's proposed amendment to NEPA regulations, among other proposals, would put more lands off-limits to mining, make mineral exploration and development more difficult, and increase our dependency on China and other countries for critical minerals.

II. Background on Hardrock Mining

American miners continue to play an indispensable role in building and defending our Nation. From foundations to roofs, power plants to wind farms, roads and bridges to communications grids and data storage centers, America's infrastructure begins and ends with minerals and mining.

[1] https://www.doi.gov/sites/doi.gov/files/mriwg-report-final-508.pdf

Minerals are also essential to fighting climate change, and for zero-emission technologies such as wind turbines, solar panels, storage batteries and EVs. As these technologies are deployed in ever-greater numbers, the demand for minerals is skyrocketing, and our Nation must do more to keep up. The International Energy Agency ("IEA") published a report at the end of July 2022 titled "Global Supply Chains of EV Batteries," and noted that demand for EV batteries will increase from 340 GWh today to about 3500 GWh by the year 2030. To meet that demand, 50 new lithium mines, 60 more nickel mines and 17 more cobalt mines would need to come into production.[2]

Congress has taken note of this surge in demand, and through the Infrastructure Investment and Jobs Act of 2021 and the Inflation Reduction Act, has decided that it is inappropriate, unwise and dangerous to rely on hostile, untrustworthy or unstable countries to supply our country's minerals. Notably, the Inflation Reduction Act contains provisions requiring automakers to source significant portions of their EV batteries and components from domestic supply chains, or from countries with which the U.S. has free trade agreements. In this regard, Congress has sent a clear message – **Now is the time to get serious about building a reliable mineral supply chain**. The U.S. mining industry stands ready to help build that supply chain right here in America.

AEMA members take great pride in finding and producing the metals and other important minerals America needs for national and economic security, as well as the materials people use in their everyday lives. We are proud of our members' contributions across the communities and regions where they operate, many of which are rural areas facing significant economic and social development challenges. Notably, the U.S. mining industry is the safest, most environmentally responsible mining industry in the world. Our members have repeatedly demonstrated that mining and protecting the environment are compatible, as mineral producers make possible the development of society's basic needs and consistently minimize modern society's impacts on the environment.

The challenge of finding and developing mineral resources in the U.S., or anywhere in the world, is very difficult because mineral deposits are geologically rare and hard to discover because most deposits are buried by tens to hundreds of feet of soil and rocks. Exploration and mining projects must undergo multiple lengthy stages of development. First, there is the initial identification of deposits that hold potentially developable mineral reserves. To this point, the U.S. has only explored and mapped the mineral potential on approximately 12 percent of our country's lands. The USGS estimates that it would take more than 10 years just to find and map all domestic resources, using modern technologies, with at least another 7 to 10 years to get those resources to market. Importantly, mining companies often do most of this work themselves and cover all the investments needed to advance a potential mineral deposit towards an operating mine. No taxpayer monies are used to discover mineral deposits and develop them into mines that produce the raw materials needed to build and maintain our society, that employ people at high-paying jobs, and that pay local, state, and federal taxes.

It is also important to recognize that many federal lands across the western U.S. already have been closed to exploration and mining. Further restrictions would inevitably prevent mineral

[2] https://iea.blob.core.windows.net/assets/4eb8c252-76b1-4710-8f5e-867e751c8dda/GlobalSupplyChainsofEVBatteries.pdf

discovery and mining in areas where there is insufficient information to determine where critical and strategic minerals exist and could potentially be developed. There is no clear reasoning for such harmful restrictions, which limit our ability to extract our Nation's critical and strategic minerals where they may be located and have the potential to be discovered if these lands were not off limits to exploration and development.

AEMA's members operate their respective exploration and mining activities in a responsible manner through a wide range of social and environmental conditions across the U.S. Their operations are subject to extensive federal, state and local permitting processes providing ample opportunity to ensure resource protection. To meet our imminent metal and mineral needs, the Congress and the administration should be focusing on how to expand areas that should be open to potential mining and exploration activities, instead of looking for ways to restrict regions from exploration.

After a potential deposit is identified, which often takes years of exploration-level permitting to ascertain, mining companies must determine a path to confirm the nature and scale of any developable resources. They must identify the amount of additional exploration necessary to properly define the mineral deposit, gain approvals to conduct further studies, and then explore and report on the exploration results. Defining the deposit generally requires multiple years of drilling to establish the extent and quality of any valuable mineralization. This process can take up to several decades for large and complex orebodies. Exploration drilling and associated activities require significant investment, especially since they are often undertaken in geographically remote and challenging areas where access and infrastructure are limited. It is worth noting that only about 1 in every 1,000 prospective exploration targets has the potential to become a producing mine.[3] It's also noteworthy that a single deposit is rarely confined to one tenure type—that is, it may consist of a combination of federal tenure, private tenure or even State lands where any successful operation could, for example, provide a revenue stream to the school children of that State.

In the event a mineable resource is defined, the work continues for mining companies to determine whether there is an economically feasible mine development scenario. This generally involves preparation of a Feasibility Study, sometimes preceded by a Pre-Feasibility Study, and requires several additional years to produce information sufficient to support a mine investment decision. Multiple years of baseline data collection and analysis are often undertaken to provide information for the feasibility work as well as for future permitting. While mining companies may start their pre-permitting work early, including at the exploration stage through Feasibility Study preparation, they often do not submit formal applications until a developable project is identified through the Feasibility Study.

Thus, while it is easy to focus on a single part of the mineral development process, it is important to recognize all of the crucial stages involved with development of an operating mine. When projects require 15-20 years, or more, to take a potential mineral resource to the point of mine construction, any government action that could lengthen this process or create disincentives, or create risk to the security of tenure, should be carefully weighed in terms of its ramifications. Moreover, even when a project has matured through the permitting process, litigation and other actions that jeopardize or delay further development of ancillary facilities at mine sites can have

[3] https://burgex.com/improving-mineral-exploration/#:~:text=The%20success%20rates%20are%20low,producing%20mine%20(at%20best).

severe consequences. Based on current trends and impediments that would arise from implementation of many of the recommendations in the IWG Report, the next domestic mining project to help fill this Nation's critical needs could be decades away from providing any substantial benefit.

III. Efficient Mine Permitting is Needed – the CEQ Phase 2 Proposal is a Step Backwards

Effective implementation of the Infrastructure Investment and Jobs Act of 2021 (also known as the Bipartisan Infrastructure Law) is dependent on the critical and strategic minerals and materials that our members mine. However, according to a 2021 report by the Wilson Center:

The U.S. faces a troubling scenario when it comes to the supply chain for critical minerals. Rapidly increasing demand, under-developed national resources, intense international competition, and years of neglect in this issue area place the U.S. at a distinct disadvantage vis-à-vis China in securing access to the metals and Rare Earth Elements that are vital for the energy transition and for geopolitical ambitions.

Most notably, we are failing to develop infrastructure or minerals projects in a timeframe that would allow the U.S. to achieve its ambitious clean energy objectives, reduce our reliance on China and other adversaries for strategic minerals, and strengthen our minerals supply chains. This is largely due to lengthy permitting delays and uncertainties which place the U.S. at a competitive disadvantage for purposes of attracting investments in mineral development.

The permitting of comparable mining projects in Australia and Canada, which have similar environmental standards and practices as the U.S., takes between two and three years, compared to the seven to ten years, or more, required to permit a mine in the U.S. Given the comprehensive scope and effectiveness of U.S. environmental protection laws and the federal land management agencies' regulations governing mineral projects, these delays do not yield any substantive environmental benefits, as mining is governed by exhaustive federal and state environmental, ecological, reclamation, and financial assurance laws and regulations to ensure operations are fully protective of public health and safety, the environment, and wildlife. U.S. mining is arguably the most heavily regulated mining industry in the world, making U.S. mines the cleanest and safest mines in the world. However, the delays contribute significantly to the additional costs and risks that project proponents are required to bear. The adverse impacts stemming from permitting delays extend far beyond corporate boardrooms – as they hurt local communities that must wait for the jobs, tax revenues, and other investments and socioeconomic benefits associated with exploration and mining.

There are real world consequences caused by permitting delays. The unpredictable nature of delays, alone, can reduce a typical mining project's value by more than one-third, or as much as one-half before production even begins. The challenges of our federal environmental review and permitting processes, and how they adversely affect our supply chain of critical minerals, were recently detailed as part of the aforementioned Wilson Center report.[4] Just last month, S&P Global published a report entitled "Inflation Reduction Act: Impact on North America metals and mineral markets,[5] which identified protracted permitting as a key factor in the shortage of

[4] https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/critical_minerals_supply_report.pdf
[5] https://cdn.ihsmarkit.com/www/prot/pdf/0823/Impact-IRA-Metals-Minerals-Report-FINAL-August2023.pdf

critical minerals, stating: "extended and uncertain timelines for permitting in the U.S. and around the world are a major obstacle to bringing new [copper] supply online to narrow that shortfall." This report cites the complexity of lengthy, multi-agency permitting processes and post-permit litigation risks as the primary reasons that permitting is so difficult and fraught with uncertainties.

Domestic permitting delays halt investments in U.S. mining projects. Yet, our Nation needs these investments to remain competitive and to improve our supply chain independence. According to the USGS' Mineral Commodity Summaries 2023, our country's import dependence for key mineral commodities has doubled over the past two decades, with the U.S. now 100 percent import-reliant for 15 of its key minerals and more than 50 percent import-reliant for an additional 36 key mineral commodities. This foreign reliance continues despite the existence of significant mineral deposits of many of these commodities within our borders. Moreover, U.S. mineral import reliance continues to increase as mineral demand from essential industries, such as energy and transportation, soars. Notably, the World Bank sees mineral demand for advanced energy technologies jumping by nearly 500 percent by the year 2050.[6] Copper demand alone may rise as much as 350 percent by 2050, according to one estimate.[7]

AEMA wants to emphasize that it is not the rigor of substantive environmental protection laws and regulations that is a problem. Our members' projects are designed and operated with state-of-the-art environmental safeguards, and all our mining projects are fully bonded, and are carefully reclaimed when mineral exploration and mining activities are complete. Instead, it is the duplicative and bureaucratic federal permitting process – and associated litigation and administrative delays – that have caused major problems. For mine projects that involve federal permits and authorizations, the National Environmental Policy Act ("NEPA") process consistently causes lengthy federal permitting delays and frequently results in subsequent litigation.

In recognizing the challenges associated with NEPA, the impacts of litigation must be considered because lawsuits are frequently the final step of the NEPA process for many projects. Typically, it is the agencies' NEPA analyses and decisions and the federal permits for hardrock mining projects which are litigated in federal courts. Because NEPA litigation is so common, at least two to three years, or more, of litigation can exacerbate delays of proposed mining projects. While some level of litigation risk is a reality we will always have in the U.S., the mining industry faces consistent and unnecessary litigation hurdles based on the fact that NEPA policies and procedures are developed and implemented on an agency-by-agency, project-by-project basis. This project-by-project approach leads to inconsistencies that make various courts the arbiters of compliance and causes confusion across the industry as to how NEPA should be applied. Costly and time-consuming lawsuits burden projects and federal agencies and hurt communities waiting for jobs, tax revenues and other project-related benefits to materialize.

Unfortunately, the White House Council on Environmental Quality's Phase 2 NEPA proposal is a step in the wrong direction. While it adopts, as it must, elements of the Fiscal Responsibility Act ("FRA"), its provisions run contrary to the intent of the FRA, which is to create less complexity and unpredictability in the review process, not more. The proposed rule would make

[6] https://pubdocs.worldbank.org/en/961711588875536384/Minerals-for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition.pdf

[7] (https://www.sciencedirect.com/science/article/abs/pii/S0959378016300802

dramatic changes to how NEPA is implemented and, in most cases, increase the complexity of the analysis that agencies will need to perform, delaying decision-making, driving increased litigation, and ultimately blocking the construction of much-needed projects. What is striking in the proposed rule is that there is virtually no recognition of how each new or changed requirement would be implemented at the local level and how critical project timelines could be adversely impacted. The proposed rule includes no new provisions that would streamline or simplify the NEPA process and repeals provisions of the 2020 Rule that were intended to shorten permitting time frames and discourage litigation. The proposed rule adopts the time limits from the FRA, but gives agencies no tools to meet those requirements and imposes no consequences if they fail. Moreover, it creates new substantive mandates and unnecessarily changes wording in a manner that will create fodder for litigation and further delays of projects.

Finally, it should be noted that advancing metal and mineral projects towards development is a costly and time-consuming process. Where the federal government is involved, evaluation of a mineral project requires experienced and well-trained personnel resources who understand a project's complexities, including the local and national importance of projects as well as concerns about their potential social, cultural, and environmental effects. The burden of balancing these complexities is often shouldered by inadequately staffed agencies or inexperienced staff in U.S. Army Corps of Engineers district offices, BLM field offices, and Forest Service ranger districts.

What has been notably lacking in this administration is any recognition of the negative social and environmental implications of not allowing domestic mining projects to move forward, and of agencies not having the resources or education necessary to timely evaluate mining projects. We believe this information and education is an essential part of the decision-making process if our country has any hope of meeting its long-term mineral needs. Congress appropriates dollars to encourage mineral development and speed permitting, but those dollars never turn into new project managers, mining engineers, geologists, hydrologists, or other well-trained resource specialists in the field.

IV. Recommendations in the IWG Report will Exacerbate our Dependence on Foreign Minerals

Since 1970, Congress has consistently and repeatedly recognized that minerals and mining are essential to all facets of our economy, society, and national defense. The Mining Law, as amended (30 U.S.C. 21a et seq.), the Mining and Minerals Policy Act of 1970 (30 U.S.C. § 21(a)) ("MMPA"), the National Materials and Minerals Research Policy Act of 1980 (30 U.S.C. §§ 1601-1605) ("MMPRDA"), the Infrastructure Investment and Jobs Act of 2021 (30 U.S.C. §§ 1607, et seq.) (also known as the Bipartisan Infrastructure Law) ("IIJA"); and the Inflation Reduction Act of 2022 (H.R. 5376) ("IRA") all direct the Executive Branch agencies to respond to the Nation's need for domestic minerals (see e.g., 30 U.S.C. §§ 21a and 1602) and direct the Department of the Interior ("DOI") to streamline the permitting processes for domestic mineral development. IIJA Section 40206; IRA § 13401.

Unfortunately, the IWG's report begins with the false narrative that U.S. miners receive some kind of bargain by operating on federal lands and that they operate freely under historic laws dating back 150 years – mostly notably in reference to the Mining Law. Neither of these

statements is accurate, and they ignore the fact that the Mining Law is an essential land rights or land tenure law. There are many land use and environmental statutes, as well as amendments, regulations, and policies that have been enacted or promulgated since the Mining Law, all of which regulate mineral activities subject to the Mining Law. Nevertheless, throughout these many decades of amendments to the Mining Law, Congress has preserved its basic premises: self-initiation and security of land tenure for U.S. citizens in the public domain. This preservation of statutory property rights has enabled strictly regulated, responsible mining to be developed on federal lands. These mines must employ effective environmental protection measures and comply with stringent permitting requirements. Today's mining companies are held to the highest environmental protection, reclamation, financial assurance, and worker health and safety standards.

The IWG acknowledges that the U.S. mining industry's environmental protections are strong, and that neither mining regulations nor financial assurance requirements need to be changed. Many of the report's recommendations are focused on social responsibility issues. While acknowledging we can always do better, for a long time the mining industry has been committed to meaningful, respectful dialogue and engagement with Tribes and local communities to improve projects and bring a variety of benefits to stakeholders. It is our recommendation that the federal government follow suit and improve their own consultation processes. Undermining the basic mineral and property rights statutes that promote exploration and provide security of land tenure will not improve the permitting process.

Given our Nation's need for a strong domestic supply, and the proven benefits that modern mining provides to local communities, the federal government should not consider adding restrictions or making changes to the Mining Law (and its basic property rights provisions) in ways that would discourage or disincentivize mineral development that requires tens of millions of dollars in high-risk investments to make a discovery. Changes such as the imposition of a royalty burden, if not carefully thought through, could result in many mining projects becoming cost-prohibitive and therefore will not be able to attract project financing. More draconian changes, like imposition of a leasing system on claim holders, could preclude most if not all future metals mining on federal lands.

Developing new federal restrictions or federal programs could yield years of policy and implementation uncertainties. These uncertainties are likely to disincentivize investment in exploration and push exploration and mining companies away from U.S. mineral development opportunities instead of helping them increase domestic investments.

A. Leasing Proposal

The Mining Law[8] governs property rights and the process by which U.S. citizens may explore for and obtain hardrock mineral rights on western public domain lands. This legal framework should not be changed. Under this Act, our citizens may take their own initiative to explore for minerals that could potentially discover a mineral deposit that can become a successful mine. Once a deposit is identified, exploration and mineral development activities are subject to environmental protection mandates and permitting approvals, put in place by our country's federal and state agencies and mandated under our system of cooperative federalism.

[8] General Mining Act of 1872 § 1, 17 Stat. 91.

The central purpose of the Mining Law is to provide certainty with respect to obtaining the necessary property interests and land rights on public domain lands that are still open to mineral entry. In fact, an essential component of this law is the protection and security of tenure claimants rely on to justify large expenditures when locating and developing valuable mineral deposits on public lands. Replacing the Mining Law with a leasing system would eliminate this self-initiation and security of land tenure crucial to motivate and enable mining claimants and miners to search for mineral deposits across public domain lands. In fact, most leasing systems add years and layers of unpredictability (primarily due to governments and their agencies) to the ability of miners to acquire, own or develop any discovered mineral deposits. This unpredictability disincentivizes investment in the exploration and production of U.S. minerals and would result in shifting investment overseas. In this regard, leasing system proposals resembling those in bills introduced in the 117th Congress to overhaul the Mining Law would directly conflict with the Biden administration's claimed policies to increase domestic critical mineral production.

The system already implemented under the Mining Law is an effective way for the public to benefit from private-sector investment in the exploration and development of hardrock mineral deposits. This self-initiation process leverages private-sector investment in a way that develops minerals, including most critical minerals, creates jobs, results in widespread tax revenues, and feeds our country's mineral supply chains. Instead of U.S. taxpayers, or the federal government, shouldering the risks of exploration and development, those burdens are carried completely by the private sector. Self-initiation enables prospectors and geologists to pursue their theories about where mineral deposits exist and ultimately identify and delineate promising mineral targets. This process requires a lot of expertise together with trial and error. In fact, as indicated above, the National Research Council/ National Academy of Science has stated that 1,000 mineral targets must be identified in order for a single hardrock deposit to become a mine.[9]

By contrast, a leasing system would discourage investment in exploration and development of hardrock minerals. It would shift the burdens of exploration and development from the private sector to the government and U.S. taxpayers, and it would result in a loss of revenues to the country. In this regard, the current mining claim system generates annual maintenance fees for both developed and undeveloped claims, recently resulting in more than $100 million in annual revenues for the U.S. treasury.[10] Under a new leasing system, there would be no such fees collected for undeveloped mining claims or areas, and a drop-off in new exploration targets, mining claims, and potential mines would result in a significant decrease in federal revenues.

Notably, recent legislative attempts in the 117th Congress and in previous sessions to change the Mining Law into a leasing system copied the hardrock leasing program previously implemented for federally acquired lands.[11] This 75-year-old system has a proven track record of being both impractical and unproductive in terms of exploration, mineral production and generation of meaningful royalty revenues. If such a program were to be implemented for hardrock minerals across western public domain lands, it would destroy the self-initiation process and the security of land tenure needed to incentivize private exploration for minerals. Instead of private investment, the federal government would be required to decide when and where geologists look

[9] Hardrock Mining on Federal Lands, page 24.
[10] https://www.blm.gov/sites/default/files/docs/2022-07/Public_Land_Statistics_2021_508.pdf, page 160.
[11] The Minerals Leasing Act for Acquired Lands of 1947, 30 U.S.C. §§ 351-359

for minerals and how long developers should operate their mines. These governmental conditions and restrictions would bottle-neck the supply of critical minerals and diminish incentives for any mineral investment in federal lands. Our country's supply chains would be negatively affected, and there would be an increased reliance on foreign minerals. Unlike the leasing systems currently set-up for coal, oil and gas (which work because most of these deposits are already discovered in relatively well-understood geologic settings), hardrock development requires ongoing exploration in geologically complex terrains and costly geological work to find and identify the grade, depth, size and economic viability of each hardrock deposit. Then, even once a deposit has been sufficiently defined through drilling and exploration, it often requires hundreds of millions or even billions of dollars to develop and build the mining and processing facilities required for the extraction and processing of hardrock minerals.

Hardrock mineral deposits are very different from oil, gas, and coal deposits because, most hardrock mineral deposits occur in areas with much more complex and diverse geology. Additionally, hardrock deposits typically have unique geologic, geochemical, and metallurgical characteristics which make each valuable mineral deposit different and result in many deposits being difficult to discover and develop. Generally, neither the federal government nor the mineral prospector knows beforehand where hardrock mineral deposits are located, and they need flexibility to explore large swaths of potentially mineralized zones. This unpredictability is one of the reasons that hardrock leasing on acquired lands has failed, even though there is promising geology on acquired lands.

In his July 2021 testimony before the Subcommittee on Energy and Mineral Resources, U.S. House of Representatives, Jim Cress provided a detailed and informative discussion of the many reasons why the federal hardrock mineral leasing program on acquired lands has failed. Some of the reasons he identified for failure include the following:

- The hardrock mineral leasing program was not designed to promote discovery and development of hardrock minerals;
- The hardrock mineral leasing program contains no rights of self-initiation or rights to mine any discovered minerals;
- Prospecting licenses or permits require prior consent from the surface management agency, are typically multi-year efforts to obtain through a NEPA process, are limited to two years with a maximum four-year discretionary extension to make the "discovery", and are restricted to 2,560 acres per permit and a 20,480-acre per person/company per state limit; and
- Hardrock mining leases are limited to a primary term of 20 years, which is not long enough to develop and mine most deposits. This artificial time constraint is not in the public's best interest. A mining lease must provide security of tenure for as long as it takes to develop and mine a deposit.

In October 2021 testimony before this Committee, Barrick General Counsel Rich Haddock explained how the principles of security of tenure and self-initiation were essential to the continued viability of the domestic minerals industry and how important those principles are to continued investment in exploration in the U.S.

A recent situation which highlights industry security of tenure concerns with the existing leasing scheme on acquired lands is the Biden administration's decision to cancel the Twin Metals

mineral leases in the Superior National Forest in Minnesota. This cancellation vividly illustrates the risks associated with a leasing system and its lack of security of tenure, as the government used its discretion to cancel leases on acquired federal lands after the mining company invested hundreds of millions of dollars to explore and develop mineral deposits under its leasehold acreage.[12] This rescission of leasehold rights clearly demonstrates the perils of relying on a mineral leasing scheme. Adoption of such mineral leasing procedures, and the implementation of blanket control by the federal government over mineral rights on western public domain lands, would similarly eliminate any security of tenure that is essential for the exploration, discovery, and development of hardrock minerals.

Based on the current extraordinary demand for minerals to build clean energy infrastructure, to power EVs, and to electrify the Nation, this is an exceptionally inappropriate time to make sweeping changes to the land tenure system in the Mining Law. Even if a satisfactory leasing scheme were implemented that provided security of tenure, this is the wrong time to seek such changes because, as noted in the IWG report, the transition from claims to leases would impede the administration's clean energy objectives. Eliminating or phasing out mining claims and substituting a leasing system would dramatically slow mineral exploration and development, thereby amplifying our current supply-chain challenges. The net result would be reduced mineral production during a multi-year transition period and an increased reliance on foreign minerals.

It is also worth noting that the U.S. Constitution prohibits governmental "takings" of mining claim rights without just compensation.[13] A taking occurs if there is (1) an "actual" taking by the government, whereby it physically or legislatively confiscates property interests, or (2) a "regulatory" taking whereby legislation or regulations deprive the private owner of its economically reasonable use of the property. Whenever government action constitutes a taking — even a partial taking — it is required to pay the property owner just compensation or fair market value to cover the loss. Courts have consistently ruled that mining claim rights are protected under the Fifth Amendment. [14]

To avoid constitutional takings claims, and the attendant risks of litigation and potential damages, any leasing scheme implemented by the federal government for hardrock minerals would have to be limited in nature and include savings or grandfather clauses so that the law does not adversely affect the rights of current mining claim owners. Otherwise, any reduction to the actual property interests held by these mining claim owners, including the imposition of lease term limits or transformation of mining claims into leases, would trigger Fifth Amendment takings concerns.[15] For a fuller discussion of these constitutional taking issues, attached hereto as Attachment 1 is AEMA's July 2021 white paper entitled "Mining Law Fifth Amendment Takings Analysis" which more thoroughly discusses the protected rights and interests held by mining claim holders and those who have relied on the Mining Law.

Another recent threat to the future of mining on U.S. public lands is the U.S. Ninth Circuit Court of Appeals decision in litigation challenging the Forest Service's approval of the Rosemont

[12] Twin Metals Minnesota has invested over $500 million to develop a world-class critical minerals deposit containing nickel, cobalt, copper, platinum, and palladium, all of which have essential clean energy applications. https://www.mprnews.org/story/2022/02/15/mn-dnr-suspends-environmental-review-of-controversial-twin-metals-mine-proposal
[13] U.S. CONST. amend. V ("[N]or shall private property be taken for public use, without just compensation.").
[14] See attached American Exploration & Mining Association July 2021 white paper entitled "Mining Law Fifth Amendment Takings Analysis."
[15] See supra note.

Mine, Rosemont Copper Company's proposed Arizona copper mine. The court's decision incorrectly restricts the rights to use public lands for certain ancillary purposes to develop claims that contain a discovery of a valuable mineral deposit and interprets the Mining Law in a manner that could interfere with claim owners' Mining Law rights to use public lands to explore for and develop minerals.

The Rosemont ruling incorrectly required consideration of land tenure in the Forest Service's permitting review. The land tenure status has no bearing on or relevance to the environmental impacts assessed and any required mitigation for such impacts. BLM's and the Forest Service's regulations govern all aspects of locatable mineral activities to ensure all mineral activities comply with environmental protection mandates and to confirm that all mining facilities are reasonably incident to the mining project. Claim status is irrelevant in determining the applicability of these regulations.

We therefore strongly support the bipartisan Mining Regulatory Clarity Act (S.1281). This bill clearly recognizes that maintaining certainty in security of land tenure is essential for mining to occur on public lands and is especially important in light of the skyrocketing demand for minerals.

B. Hardrock Royalty Proposal

For many years, the mining industry has presented testimony in hearings before Congress explaining why a gross royalty structure, like that used in the federal oil and gas royalty program, is unworkable for hardrock minerals and would lead to significantly less mining on federal lands. This testimony demonstrates that using coal, oil, and gas royalty programs as a template for a hardrock royalty would be impractical due to the different geologic characteristics of oil, gas, and coal as compared to hardrock minerals.[16] Moreover, oil, gas, and coal are more abundant than hardrock mineral deposits, making these energy minerals easier to find, develop, and produce. By comparison, discovering and developing a hardrock mineral deposit takes much longer and requires a much larger investment.

Additionally, the raw minerals produced at most hardrock mines are not salable, as they must undergo costly processing steps to create a product that can be sold. Although federal royalties for oil, gas, and coal are often referred to as gross royalties, these are actually more comparable to a net royalty in that they are based on the value of the *marketable* products extracted from the well or a mine (See Attachment 3, at 5). If a workable federal hardrock royalty is desired, that royalty should only be effective at the point in time when value-added steps have created a marketable product from the mine. Then the costs incurred by the mine operator to produce the marketable product would need to be deducted in the royalty calculation.

Although the federal government, through the Mining Law, has made land available for mineral exploration, it currently contributes nothing to the immense costs and efforts required to find, produce, and process valuable hardrock minerals. Without relying on federal subsidies, mining companies invest their own funds in a way that greatly benefits federal taxpayers at the end of

[16] See, e.g., Hearing to Examine and Consider Updates to the Mining Law of 1872, Senate Committee on Energy and Natural Resources, Statement of Rich Haddock, (Oct. 5, 2021); Testimony of Katie Sweeney, Executive Vice President and General Counsel, National Mining Association (Oct. 5, 2021).

these processes, creating valuable minerals from their raw unusable state in the ground. Despite the costs and daunting odds against discovering a valuable mineral deposit and development of a mine, the Mining Law stimulates self-initiated private-sector investment in a way that transforms undeveloped federal land into mining operations and results in jobs, taxes, and critical minerals the country needs.

A gross royalty is also inappropriate because it has a very different effect on mining investment than a net royalty, especially during price cycles. Royalties assessed on gross proceeds discourage investment by raising economic risks and increasing the initial outlay required to commence operations. As a result, projects subject to gross royalties generally require higher pre-tax and after-tax rates of return to accommodate this increased risk. By comparison, net royalties have a smaller effect on the variability of after-tax rates of return and are less of a deterrent to ongoing investment.

When commodity prices decrease, the rate of return required to justify mining investment increases more dramatically under a gross royalty than under a net royalty. Because most mine operating costs are fixed, a gross royalty takes a bigger piece out of the mine's reduced income during periods of low commodity prices. A gross royalty is especially problematic during times of low commodity prices because it causes a greater reduction in cash flow during periods when profits are already depressed. During low commodity price cycles, low-grade ores often become uneconomic to mine and process and become waste which is not processed or not mined at all. This shortens the life of the mine and reduces the total amount of minerals (including critical minerals) produced from the mine. In this way, gross royalties would contribute to premature mine closures with the effect of lost jobs; reduced local, state, and federal tax revenues; decreased royalty payments; and business losses for the mine's vendors and suppliers. Moreover, a gross royalty could render some valuable discoveries uneconomic to mine implicating takings issues and exacerbating our country's reliance on foreign minerals.

By comparison, a net proceeds or net income royalty would not force mines to operate at a loss because the royalty owed is automatically reduced during periods of low prices, and it increases again when prices start to rise. A net royalty would allow mining operations to continue during periods of low commodity prices and also enable maximum recovery of low-grade ore during periods with higher prices. Because mineral demand is cyclical and commodity prices fluctuate, a net royalty provides a better incentive to explore for minerals on federal lands in spite of variable mineral demand and commodity price cycles.

If the federal government were to impose a royalty burden on existing mining claims (or rights already vested under the Mining Law), such an imposition would trigger Fifth Amendment takings concerns, similar to those that would result from a leasing scheme. As discussed above and in Attachment 1, the seizure or reduction of any privately held property interest constitutes an actual (per se) taking and requires compensation under the U.S. Constitution. This concept applies to partial actual takings, which take a portion of the overall property rights, and it applies to seized reductions of the claim holder's net revenue interests (the basic purpose behind imposition of any royalty burden). In fact, the Fifth Amendment's restriction against actual partial takings has been applied to mining claims on multiple occasions, not only in federal actions, but cases where the government's power of eminent domain has been exercised to condemn easements or right of ways through mining claims. To avoid constitutional takings issues, and the attendant risks of litigation and potential damages, any royalty scheme

implemented by the federal government would have to be limited to future mining claims and avoid imposing royalty burdens on the existing property rights of current mining claim owners and their successors in interest. See Attachment 1 for a complete analysis of these constitutional takings issues.

C. Placing More Lands Off Limits to Mining

Another serious problem with the IWG report is the recommendation that BLM should use land use planning to pre-identify lands that are suitable and unsuitable for mining analogous to the processes that BLM has previously used to identify suitable and unsuitable solar and wind energy development zones. We strongly disagree with this approach. If these zones were identifiable using available information and without the expensive and time-consuming mineral exploration drilling that is necessary to prove a discovery, mining companies would already be working in these areas.

Similarly, the BLM's proposed Conservation and Landscape Health Rule fundamentally violates the Federal Land Policy and Management Act ("FLPMA") in multiple ways, including illegally adding "conservation" as a "use" when Congress did not include it in FLPMA's specific list of uses (FLPMA Section 103(l)); redefining key terms already defined by Congress in FLPMA, "multiple use" and "sustained yield" (FLPMA Section 103(c and h)); contorting the scope and definition of "areas of critical environmental concern" beyond FLPMA's scope and using current administration "conservation," "restoration," and "ecosystem resilience" policies to impermissibly withdraw public lands from public use in violation of FLPMA § 204. The BLM proposal would unlawfully *de facto* withdraw lands from mineral entry as § 6102.4(a)(4) "would preclude the BLM, subject to valid existing rights and applicable law, from authorizing other uses of the leased lands that are inconsistent with the authorized conservation use." 88 Fed. Reg. at 19591. This violates FLPMA's requirements and express limitations on withdrawing lands from mineral entry.

Under FLPMA, BLM must balance all multiple uses; it cannot pick and choose which land use directives to emphasize and which ones to subordinate or pre-emptively deny. Given our Nation's need for a strong domestic mineral supply, and the proven benefits that modern mining provides to local communities, the federal government should not consider adding restrictions that would discourage or disincentivize mineral development. Now is the time for BLM to stop subverting Congressional mandates and, instead, work to facilitate the development of the critical resources that are needed now and available on America's public lands, for national security and the economic well-being of all Americans. Because BLM lacks the authority to reduce the scope of allowable multiple uses on public lands, BLM cannot proceed with the Proposed Rule and should withdraw it immediately.

V. AML Funding Options Need Not Rely on Royalties or New Fees

With respect to Abandoned Mine Land ("AML") reclamation funding, amending the Mining Law to impose new fees or royalties is not the only way to create an AML reclamation fund. Recognizing the importance of developing a funding source to reclaim hardrock AML sooner rather than later, AEMA points to the annual claim maintenance fees and service fees (together, "Claim Holding Fees") already paid by mining claim holders as a potentially significant source of funding. Annually, BLM collections exceed the cost for BLM to administer the Mining Law.

For example, BLM's 2020 Public Lands Statistics Report shows BLM collected $69,420,974 in Mining Law fees in Fiscal Year 2020 and Congress appropriated $40,196,000 for Mining Law Administration program operations, including the cost to administer the mining claim fee program, with the excess of $29,224,974 deposited to the general fund.[17] Similarly, in Fiscal Year 2021, BLM collected hardrock mining fees of $100,820,256 and was authorized to retain $39,696,000 for Mining Law Administration program operations, including the cost to administer the mining claim fee program, with the excess of $61,124,256 deposited to the general fund.[18] Congress has provided no directive to use these excess Claim Holding Fees for public land management but could easily direct them towards AML efforts. We are pleased that the IWG report recommends using excess claim fees not needed to pay for BLM"s administration of the Mining Law program to help fund an AML reclamation program.

Section 40704 of the Infrastructure Investment and Jobs Act established a new abandoned hardrock mine reclamation fund to jumpstart abandoned mine cleanups. Additionally, there are at least eight states that generate revenue to work on abandoned hardrock mines. Revenue sources include mine license taxes and royalties on oil and gas, hardrock mines, and other mineral extraction, and other sources such as the state general fund.[19] If these funds were pooled with the federal Claim Holding Fees and spent efficiently, much could be accomplished. For example, the federal agency-Colorado model of collaboration on a watershed approach could be deployed uniformly nationwide to maximize efficient use of resources.[20] Nevertheless, liability issues still often prevent public-private partnerships from capitalizing on these initiatives on a wider scale. By passing Good Samaritan legislation, Congress can begin to remove these common hurdles and achieve faster results.

AEMA has a number of other suggestions to generate AML reclamation funding. For example, a ***voluntary*** mitigation system could be established to enable new mine applicants or existing operators to fund reclamation of AMLs in which they had no prior ownership or involvement in the regions where they operate. Any voluntary reclamation activities could further be considered as "sustainability credits" or social license credits to "offset" and be included in the overall evaluation of environmental and social impacts of new mining development projects. For such an approach to work, the federal and/or state agencies would need to maintain a list or "pool" of AML sites or eligible projects to which the funding or reclamation work could be directed in order to prioritize where the AML reclamation work would be performed. Additionally, to enable actual reclamation work, Congress must enact Good Samaritan legislation to eliminate liability for conducting such voluntary reclamation work.

Most legacy sites have environmental impacts because environmental laws did not exist at the time of historic mining operations, and waste management practices were at best rudimentary at most old mine sites. Environmental impacts also resulted from the limited mineral processing technologies that were historically available that left behind residual metals that were unrecoverable at the time that are now leaching out of old mine wastes and contaminating ground water and surface water at some AML sites. Robust environmental laws are now in place throughout the U.S., and mineral processing technologies have advanced over the years. The

[17] https://www.blm.gov/sites/blm.gov/files/docs/2021-08/PublicLandStatistics2020.pdf, Table 3-32, page 158.
[18] https://www.blm.gov/sites/default/files/docs/2022-07/Public_Land_Statistics_2021_508.pdf, Table 3-32, page 160.
[19] GAO Report: "Abandoned Hardrock Mines, Information on Number of Mines, Expenditures, and Factors That Limit Efforts to Address Hazards," at 29-30.
[20] *See Id.* at 36-37.

result is that what was a "waste" historically may now have recoverable mineral value with today's technologies. Studies done at Idaho National Labs, Los Alamos National Labs, with the Critical Minerals Institute, among others, have documented that there are rare earth element ("REE") deposits and other critical minerals at a number of AML sites. Accordingly, the remining and reprocessing of mine tailings and waste could serve both to reclaim some or all of an AML site and result in the responsible production of valuable minerals. "Waste" deposits at certain AML sites could hold sufficient mineral reserves that little or no additional funding would be required if remining and reprocessing options, along with liability relief for legacy issues, were available. Again, Good Samaritan legislation to relieve liability concerns is needed to enable most such remining and reprocessing opportunities.

For over two decades, starting with the "Good Samaritan Abandoned or Inactive Mine Waste Remediation Act", S. 1787, introduced by Senator Baucus in 1999, the mining industry has advocated for bi-partisan legislation to facilitate AML cleanup by addressing the Clean Water Act and CERCLA liability issues that are a serious barrier to Good Samaritan AML cleanup efforts. AEMA has actively worked with numerous members of Congress, EPA, non-profit organizations such as Trout Unlimited, the Western Governors Association, the National Mining Association, and industry members to build coalitions to craft workable legislation to facilitate AML cleanups.

AEMA thus strongly supports S. 2781, the current Good Samaritan legislation that Senators Heinrich and Risch introduced this month in the Senate Environment and Public Works Committee. That legislation establishes a pilot program for fifteen Good Samaritan remediation projects of orphan mine sites on federal, state, tribal and private lands. The pilot program is limited to orphaned sites (i.e., sites without a liable responsible owner or operator). This pilot program targets environmentally lower risk projects and involves activities designed to result in partial or complete remediation of the orphan mine site, improving or enhancing water quality or site-specific soil quality, or otherwise protecting human health and the environment. EPA and the BLM and Forest Service would coordinate application review and permitting, with EPA leading the non-public land projects and the BLM and Forest Service leading projects in their respective land management areas.

Under this proposed program, applications must document baseline site conditions and include a detailed remediation plan. For projects on federal public lands, reprocessing of materials is only allowed if the federal land management agency has approved reprocessing as part of the remediation plan, and the proceeds are used to defray costs of remediation. Any remaining proceeds must be deposited into a Good Samaritan Mine Remediation Fund, which is also established by this legislation. The fifteen AML remediation pilot projects authorized in this bipartisan bill would begin to pave the way towards addressing liability issues at AML sites. We strongly urge Congress to pass S. 2781.

VI. Addressing Workforce Issues

Our nation faces another critical shortage that jeopardizes our ability to produce the necessary quantity of these minerals efficiently, safely, and sustainably: a lack of college graduates sufficiently skilled in the key geological and engineering disciplines (mining, metallurgical, mineral processing, and geological) needed to design, build, and operate mines and mineral processing facilities. The mineral exploration, extraction and processing industry struggles to

hire qualified engineers and scientists who specialize in these disciplines, and the shortage grows more acute each year. Enrollment in the Nation's 14 accredited mining schools has been declining in the last several years. Currently only about 600 students are enrolled in the mining education programs nationwide. In comparison, many thousands of students graduate from Chinese mining schools annually. Nearly three quarters of industry executives said this talent shortage is holding them back from discovering and delivering on production targets and strategic objectives, according to a survey by global consultancy McKinsey & Company.

We must strengthen our domestic schools that offer the degree programs vital to upstream mineral development and production, as well as to mid- and downstream manufacturing of products that use those minerals. Therefore, we applaud your leadership in revitalizing university-level mining programs through the Mining Schools Act of 2023 (S. 912), and we urge the full Senate's timely consideration of the bill.

VII. Conclusion

Our domestic mining industry faces many barriers that serve as disincentives to mineral exploration, development and investment. The protracted mineral exploration and mine permitting processes are fraught with uncertainties, take too long, and cost too much. This is a bipartisan problem, spanning multiple administrations. Moreover, it is often noted that the U.S. has become a less attractive jurisdiction for investment; it is not necessary to "follow the money," as the saying goes, when one can simply count the permit applications. Congress has repeatedly and recently enacted bi-partisan directives to correct this problem that the agencies, unfortunately, have ignored.

On August 9, 2022, *E&E Daily* reported "The number of [mine plan] applications over the last decade has declined almost every year since 2011, suggesting the matter is more complex than merely which president — and political party — is in charge of the federal government. Last year, BLM only received 32 new mine applications — a far cry from the 72 applications it received in 2011." It is no surprise then, as the BLM and the Forest Service receive fewer applications, they issue fewer approvals.

The perennial push to overhaul the laws and regulations governing hardrock mining in the U.S. sends strong and continual signals that mining is not welcome here. These factors, paired with relentless and costly litigation, impede investment in U.S. mineral exploration and development and adversely affect proposed minerals projects. The looming and constant specter of unfavorable legislative proposals raises persistent uncertainty about U.S. mining policies. This overall picture of perceived instability and unpredictability makes companies reluctant to invest the hundreds of millions (and sometimes billions) of dollars necessary to explore for minerals on our lands and develop mines. The importance of keeping public lands open to mining by maintaining the current mining claim system and reducing uncertainties cannot be overstated.

Stability and predictability incentivize investment and development. Yet, AEMA is concerned about upheaval as the IWG ponders replacing the existing mining claim system with a leasing system that would not only chase off investment, it would almost completely halt domestic production of minerals–even in a best-case scenario–while agencies figure out how to implement a new regime of laws and regulations. This comes at a time when energy transitions are

generating skyrocketing demand for battery minerals like lithium, manganese, cobalt, nickel and graphite, and demand for many other critical minerals and materials is on the rise as well.

Realizing efficiencies in the permitting process would also incentivize exploration for and development of domestic minerals. Just as investment flees uncertainty, investors will always prefer faster returns. The current lengthy permitting process in the U.S. is a significant disincentive that makes it less attractive for companies to pursue U.S. minerals projects when similar projects can be permitted in Australia and Canada in a fraction of the time. It is also important to note that streamlining of the permitting process can be accomplished without weakening our country's environmental laws and regulatory standards.

We look forward to working constructively with you to seize upon this generational opportunity to ensure Made in America includes "Mined in America," and to ensure that minerals are derived from U.S. mines that use state-of-the-art environmental protection measures, put a premium on worker health and safety, and are committed to the communities in which they operate.

Sincerely,

Mark Compton
Executive Director

The CHAIRMAN. First of all, let me thank all three of you. I appreciate it very much. We will start with the questioning now.

Dr. Yergin, I respect you because you have been all over the world. I run into you in different places too, but basically looking and seeing what the facts are and what we are dealing with. The pressure now with us coming on so strong with the demand for EVs, the way the Administration is pushing our electric vehicles out the door quicker and not adhering to the law because they want to get more vehicles on the road, more dependency. How much of a strain is that putting on the world market and basically, us being able to meet the demand coming from different places? My thing—what I said is that I remember the 1974 oil embargo. I remember waiting in line to get my gas so I could go to work. I remember all that. And I just, I don't want to be waiting——

Senator KING. You weren't old enough to drive then.

[Laughter.]

The CHAIRMAN. You were my instructor.

[Laughter.]

The CHAIRMAN. Anyway, with that, like I just said, I don't want to wait in line if I need a new battery or something, for China to basically to say whether I can drive my vehicle or not. That is all I was concerned about. I think EVs are wonderful. People like them. They are great and all that and you buy what you want, but we are incentivizing people, almost bribing them to buy them and then putting them in a very perilous situation.

Tell me what it's doing to the world market, as you see it, with changes going on around the world. I have talked to people in the Congo. They are totally upset, but it's a different controlled environment. Tell me what you are seeing.

Dr. YERGIN. Well, what is happening is basically trying to—you know, normally energy transitions take about 100 years, and this is trying to do one in 25 years. And that has never been done before and it is putting pressure on the system. And that is why, one of the things I wanted to emphasize, that it's not just demand from the United States, but it's demand from elsewhere in the world that is happening at the same time. So it is going to put enormous pressure on the system and I just don't see how the mining is going to catch up—the supply is going to catch up—and so that will mean prices going up.

It will mean shortages. And then, as has been pointed out by you and Ranking Member Barrasso, there is a real imbalance on, particularly, the processing of it. And you know, it's unbalanced to do that. And it is quite concerning about just how concentrated, at this point, the supplies are, just from a few countries. So I don't envision a sort of 1973 in the sense of a collusion of countries, but you can imagine very tight markets and shortages and a few countries being in very tight control of supply.

The CHAIRMAN. Mr. Beaudreau, I know that you have been through different Administrations seeing, basically, the balances of need. And you and I have had conversations. You know that I think we are out of balance in what we are producing and what we could produce and what we need. With that, the Administration does not seem to have the urgency to try to get permits and try to make sure that we are able to provide our own resources here

with the minerals and deposits we have. What can we do to change that? What do you think really needs to be done for us to make a substantial change in how we extract in America?

Mr. BEAUDREAU. Yes, thanks very much, Chairman Manchin.

First of all, I share all the views expressed about the need to accelerate reliable and domestic sourcing of critical minerals. This is the fundamental work of the working group, consistent with the executive order and with the direction from Congress under the Bipartisan Infrastructure Law. The trick is, and the hard work is, how do we actually accomplish that? There are some fundamental principles, even setting apart legislative reform of the 1872 Mining Law, and that means proactive community engagement in order to do deconfliction. This is why it takes way too long to permit a mine in this country, because of community conflict, because of litigation, because of a history of environmental impacts, including to tribes, that is still very much on people's minds. Second, as part of that, communities need to see the benefit of mining activity so that communities don't feel imposed upon, but rather feel invested in these developments. So those are the types of administrative reforms that I am having conversations with the mining community about and also conversations within the Bureau of Land Management on how we can implement administratively.

The CHAIRMAN. I am going to ask all three of you just one quick question as I am wrapping up my time—what is the greatest obstacle you think that we face and the most urgent need that we have? Would you say it's permitting or do you have something else that you think that is basically impeding us from moving forward? Our permitting reform is the most critical thing we are facing. If not, we are not going to be able to meet, not only the demands of the market, but we are not going to be able to meet the ability for us to even implement any of the laws that we have right now to the fullest.

Mr. Beaudreau, I will start with you, if you would. How are your feelings on that? Is it permitting?

Mr. BEAUDREAU. I agree. One of the biggest challenges is permitting—allowing for responsible mining to go forward. I think there are many examples where there are responsible mines, including mines that have been permitted in this Administration, such as lithium mines in Nevada. And so, it can be done. I am fully confident. The timelines do need to be reduced.

Dr. YERGIN. I think that permitting and the judicial review that goes on is absolutely the biggest obstacle. I mean, you realize that sometimes the permitting process will be half of the person's professional career. It can take that long. And also, what that does to the ability to have capital available to undertake these projects.

Mr. COMPTON. Thank you, Mr. Chairman.

You know, it's hard to disagree about the importance of permitting.

The CHAIRMAN. Nothing more important than permitting?

Mr. COMPTON. Well, but what I would point out is, without access to mineral deposits first, and the security of tenure to be able to know that if you discover a deposit, that you are going to be able to develop that, then permitting never even comes into play.

The CHAIRMAN. Let me just say for the Committee's sake of information, I want to compliment both of our staffs—our Republican friends and their staff on this side, Senator Barrasso's, and our staff on the Democratic side. They have been working diligently on permitting reform. And hopefully, we hope to bring something to the Committee that you all can work on because most of it is in our jurisdiction. We have been meeting with Senator Carper. To a certain extent, he has some in his jurisdiction of EPW. We could surprise the world if we can get something done before the end of the year. And we are going to have some substantial, I think, recommendations hopefully towards that period. So we are working diligently on this. We have the same conclusion you all have.

Senator Barrasso.

Senator BARRASSO. Well, thank you, Mr. Chairman. And I appreciate all the cooperation that we have had as we work together on the permitting issues, and the work continues.

Mr. Compton, as I mentioned in my opening statement, this interagency working group, they recently released a report that contains 65 recommendations. The recommendations include imposing new royalties and fees on mining and elimination of a mining claim system that encourages resource exploration. All these recommendations, if they adopted all of them, would they, on balance, increase or decrease mineral production on federal lands in America?

Mr. COMPTON. Well, thank you for the question, Ranking Member Barrasso. As I said in my opening statement, you know, I think ultimately the IWG report, especially taken in context with other administrative actions, will increase our reliance on China and other countries for our mineral needs. The report really was a mixed bag, I would say, but the mining law recommendations in there, this is not the time to completely upend our system. The report even acknowledged that converting to a leasing system would cause significant delays in our clean energy objectives.

Senator BARRASSO. So then, Secretary Beaudreau, simple questions. They are not meant to be trick questions, you know—please, on balance, is it better to mine cobalt here at home or with child labor in the Congo?

Mr. BEAUDREAU. Of course it's better to have reliable, domestic sources for critical minerals.

Senator BARRASSO. Is it better to mine lithium here at home or slave labor in China?

Mr. BEAUDREAU. Of course it's better to have reliable supply chains for all of these critical minerals.

Senator BARRASSO. Is it better to mine nickel here at home or razing the rain forest in Indonesia?

Mr. BEAUDREAU. As I have said, and as is the purpose of the interagency's work, it is to advance the cause of developing reliable sourcing and supply chains for a host of critical minerals necessary for clean energy and technology development.

Senator BARRASSO. So then, why is the Administration and the Secretary blocking access to minerals and making it more difficult, as we just heard, to mine them here at home?

Mr. BEAUDREAU. So I think, as members of this Committee know, I am a serious person on these issues, and having a lot of

experience across energy projects as well as mining projects, fundamentally, we need a system and we need to implement reforms that enable that type of development. The main barrier to unlocking America's resources here is conflict and litigation and uncertainty about the permitting process. We need to take that on. That is what the report is intended to do.

Senator BARRASSO. So the Administration also has issued mineral withdrawals—26 mineral withdrawals or proposed mineral withdrawals in just the last two and a half years since taking office. In January, the Department withdrew 225,000 acres from a site containing 95 percent of our nation's nickel reserves, 88 percent of our nation's cobalt reserves, and 34 percent of our nation's copper reserves. We are talking about withdrawals that the Administration has done, and the Secretary sat here and seemingly took great credit for it. The Biden White House has said that over-reliance on foreign sources and adversarial nations for critical minerals and materials poses national and economic security threats, yet your Department of the Interior continues to make it harder to develop the resources, and we have them right here at home.

How do these mineral withdrawals that your Secretary came here and talked about, how does that help us reduce our nation's dependency on foreign minerals?

Mr. BEAUDREAU. So let's talk about where those withdrawals happened. So as an Alaskan, the right place to mine for some of these materials is not in the richest, most abundant salmon fishery in the entire world. As a supporter of a host of economic activity, the right place to mine for some of these materials is not in the Boundary Waters of Northern Minnesota, which is the biggest economic driver in that part of the state. And so, these things do have to be viewed in context. Unfortunately, under the existing laws, the only blunt instrument available to the Department, and this is why we need more tools, is something like a mineral withdrawal. We need to be able to have a much finer and targeted approach to the development of critical minerals.

Senator BARRASSO. So Mr. Compton, and then to Dr. Yergin, we are developing only a small fraction of our nation's lithium reserves, especially compared to Australia. Is there any reason that we should be so far behind a nation with similar environmental and labor standards as we are with Australia?

Mr. COMPTON. No, of course, there is absolutely no reason. We should be, you know, even if we considered ourselves average in permitting with some of these countries, I don't think it's the United States' place to celebrate being average either. So yes, we have a lot of work to do on our permitting to get out ahead.

Senator BARRASSO. So Dr. Yergin, you know, how can we, here at home, drive up our mineral production to levels closer to Australia, specifically with lithium?

Dr. YERGIN. Well, I think if we look at Australia and Canada, they have more efficient permitting processes and they get on with it and see it as important, as opposed to—and they are both countries with strong mining traditions, so they don't have the kind of divisions that we do. We do see, actually, of the four minerals that we have talked about, particularly three of them, the U.S. has the

best prospects. Lithium is our best prospect to become a bigger, a much bigger producer. We are best positioned in that, we think——

Senator BARRASSO. So as my final question——

Dr. YERGIN. I'm sorry.

Senator BARRASSO. No, well, just the Chairman and I were just talking about the fact—how about the court systems and how it drags on, because I think Secretary Beaudreau just talked also about the litigation involved in slowing all of this down.

Dr. YERGIN. Yes, well, that's why I said it's not only permitting, but it's the judicial review that goes on and on that is unique to our system that makes it so difficult to do it. And even if you wanted to get going now, it's going to take time to get going, but when you look at 20 years to get a project going, you know, we are talking about 2040, 2043.

Senator BARRASSO. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Hickenlooper, up early.

Senator HICKENLOOPER. I wouldn't go that far.

Let me start with you, Mr. Beaudreau—Tommy, if I could be so bold. Interior's work, including the USGS critical mineral list, helps inform a lot of the approach you are taking, that our country is taking, to these critical supply chain issues. How does the USGS information help other agencies as they work to try to enhance our mineral processing capabilities, strengthen ties with our foreign allies on securing the minerals we need for this clean energy future and the Bipartisan Law, including funding to map out our nation's critical resources—how is that work progressing from your point of view, and what benefits is that mapping going to provide?

Mr. BEAUDREAU. Thank you, Senator.

I think it gets at an issue, an important issue that Mr. Compton raised, about the locatability of these minerals. And so, one way that the Interior Department and the Federal Government and the USGS, in particular, can help is with the development of geologic information that can inform both the permitting process as well as prospecting, and provide certainty to the industry about where there are high-value resources and also potentially reduce conflict. And so, I view that as incredibly important work. And we are lucky to have the USGS as focused on it as they are and their work is progressing very well.

Senator HICKENLOOPER. Great, thank you.

And I'm not going to ask a question on this, but obviously, Colorado has the Colorado School of Mines. There are a number of great mining schools out West. And the Chair and the Ranking Member have led on the Mining Schools Act. And obviously, I think, how we get the next generation of engineers—and geologists—and make sure we are recruiting them, training them, and retaining them is important. But I'm going to submit that in writing so I can get a chance to ask Dr. Yergin a question. Hopefully, I will get to all three of you.

Dr. Yergin—Daniel, if I could be so bold, you are an expert in global oil production and yet, back in those dark days in the 1990s, no one really foresaw or was able to predict the amazing innovations that would take place that would take us from a struggling producer to really the global leader. And I guess my question is,

what do you see—what things can we be doing to push the innovation in our critical minerals? So whether it's through substitution, through its efficiencies, you know, how do we find some way of achieving some of those? Obviously, very few people—you probably had some notions—but very few people saw that shale revolution coming. Are there other revolutions coming in terms of copper and, say, lithium?

Dr. YERGIN. Well, the shale revolution did come as a surprise and it was transformative. It took us from being the largest importer of oil in the world to the largest producer of oil. U.S. LNG, based on shale, is 40 percent now of Europe's LNG supply and it has been a very important answer to Mr. Putin.

At this point, and I'm not a technologist, but we don't understand, we do not see that there is some incredible breakthrough like the shale revolution that will, you know, really transform the mineral situation. But the two things that can—there is obviously an enormous amount of research going on in battery technology, also in terms of making mines more efficient and so forth. And then, you know, we will see as time goes on, recycling will become more important, but you are starting from a very small base in terms of doing that, and just collecting and processing itself is a major industrial activity.

Senator HICKENLOOPER. Yes. I think where there are other opportunities like distributed energy resources, some of those, you know, investments will accelerate faster than people think, but I agree with you, I think that we haven't seen where those innovations are, but they are probably there. And I guess, at some point, part of the role of this Committee is to figure out how do we incentivize and make sure that we are doing it.

Dr. YERGIN. Absolutely. You know, the research part of it is so important and it may well come as a surprise. It's just that there is not anything obvious there and that the time frame for mining is two or three times longer even than the time frame for oil and gas.

Senator HICKENLOOPER. Right.

And Mr. Compton, I'm going to make this—I'm going to leave out all the bulk. You obviously understand business risk and what mining companies are facing, in that there is always uncertainty when we are trying to attract investment capital for some of these critical projects. Do you see a role for the Federal Government to act as kind of a market smoother, you know, through stockpiling certain essential minerals or through commitments to buy and sell if certain conditions are triggered so that we don't, at least, have the roller coaster affects that sometimes the markets create?

Mr. COMPTON. Thank you, Senator.

I think the Federal Government has the ability to be a market smoother just by reducing the uncertainty over how our mining system operates. Perpetual threats, really, to upend our system when, as Dr. Yergin points out, you know, you are a good 20 years from exploration to being able to get ore out of the ground. If we are going to be able to meet those growing mineral demands, we have to incentivize exploration and production now. And from the investment community standpoint, like when they saw the Interagency Working Group's report come out earlier this month, I know

one of our members who is a consultant said he spent three days on the phone with his clients talking them down off the ledge. You know, he was able to talk them down, but how many others in the investment community are we not able to get that message to?

Senator HICKENLOOPER. I appreciate that, and I have more questions I will submit in writing.

I yield back to the Chair. Thank you. Thank you all for being here today.

The CHAIRMAN. Thank you.

And I turn to our birthday boy today, Senator Bill Cassidy.

Senator HOEVEN. Thirty-nine.

Senator CASSIDY. Some anniversary of 39, so anyway.

Mr. Beaudreau, I'm from Louisiana. You know what question I am going to ask you. How is our five-year leasing plan coming for oil and gas development in the Gulf of Mexico?

Mr. BEAUDREAU. We missed your birthday by one day. We will be publishing the five-year program tomorrow.

Senator CASSIDY. That is fantastic. And my birthday will be—no inhibitions and no restrictions by the Administration—that will be the birthday present?

[Laughter.]

Mr. BEAUDREAU. The birthday present to Chairman Manchin is that the program is definitely informed by the IRA and the connection that the IRA makes between offshore oil and gas leasing and renewable energy leasing.

Senator CASSIDY. So then, staying on the ocean bed, Dr. Yergin, you mentioned we need kind of this technological breakthrough in order to source these critical minerals, but I am told the ocean beds are full of it, and that we actually have the technology to mine off the ocean bed. And intuitively, to me, if you are just scraping rocks off the bottom, it is not the same as an open-pit mine. Are we anywhere close to deploying that technology as a means to address this issue?

Dr. YERGIN. I think it's very early days. There are some companies that are working on it and have been pursuing it for a couple of years—lot of minerals there—but there will be a lot of controversy as well about scraping the bottom of the ocean, I think.

Senator CASSIDY. There would be, but nonetheless, there is controversy about anything, right?

So Mr. Beaudreau, is there any effort by the Administration to pursue the mining of minerals off the ocean floor?

Mr. BEAUDREAU. So I don't want to open up a whole other can of worms, which was, you know, a big knock-down, drag-out, including during the Obama administration, but one area that would be helpful is Law of the Sea implementation, which provides a framework for accessing——

Senator CASSIDY. And I understand that we are actually losing territory because of our delay in implementation, or at least adoption of the treaty, but that if we adopted it, that could potentially open up the next version of the shale revolution to address that need.

Mr. BEAUDREAU. I think that is one of the reasons to adopt the Law of the Sea Treaty.

Senator CASSIDY. Let me ask you, going back to lithium mines, and you say it will take however long in order to permit. In the county in Arkansas that borders Louisiana, they are now mining lithium from the prehistoric ocean, which is below the Smackover Formation. Now, of course, I am looking at that saying that that prehistoric ocean extends about 25 miles south into Louisiana. And so, I am interested in exploring that, intuitively, and by the way, Exxon has just made a big investment there, so this is more than a conversation piece, it's money being staked. Intuitively, to me, if you are extracting from deep down and you are processing above, that that is going to be less problematic in terms of permitting than if you have an open-pit mine. Knowing that I have given you a theoretical, but does that intuition sound good to you, and is there anything USGS could do to see if those subterranean resources are viable?

Mr. BEAUDREAU. Yes, and I think this goes to an earlier question at Dr. Yergin. There is massive opportunity for technological development, especially with respect to lithium. And so, one of the efforts from—so mining and sourcing are all-important, but one of the main and most promising lines of effort is technological development, both brining, and there is a project we are working on in Southern California focused on deriving lithium from other activities. And I think the type of opportunities you are describing, while they require further technological development, are activities that should be supported——

Senator CASSIDY. But it seems as if this is already taking place. Again, they have been processing lithium out of this Smackover Formation in Arkansas for some time now. I think they may also be getting cobalt, but I am a little bit kind of having to think about that twice. So I just encourage that because I think in the Bipartisan Infrastructure bill, we actually had dollars for USGS to go out and find more resources. And of course, I would like them to find them in my state for all the reasons, not least of which is, it would supply the rest of the United States with a needed resource.

Mr. BEAUDREAU. Yes, I understand and agree.

Senator CASSIDY. Lastly, in your analysis, on your life cycle analysis of greenhouse gas emissions, et cetera, associated with new developments in the United States, do you take into account the life cycle of greenhouse gas emission profile of a project overseas? So for example, if we are trying to supplant cobalt coming from the Congo that is used with child labor and goes to China, where they use coal as primary feedstock for energy, yes, we may have a little bit of a footprint here, but it's substantially less than the life cycle of the other. Is that taken into consideration, because sometimes it seems like we make the perfect enemy of the good?

Mr. BEAUDREAU. Yes, so, I agree completely that when you are looking at any particular project, viewing it within a global context is important. And I think one of the opportunities and benefits for more reliable permitting of critical minerals in the United States is exactly what you described, it is reduce carbon footprint.

Senator CASSIDY. Yes, but again, are we comparing ourselves to that which we would be competing against or are we comparing ourselves to some pure standard? Because it seems oftentimes that we are comparing ourselves to a pure standard, not recognizing

that we, as somebody mentioned earlier, are actually doing it with the lowest carbon footprint in the world, oftentimes.

Mr. BEAUDREAU. Yes, so in the realm of permitting critical minerals, while relevant, carbon emissions are often the less significant impacts compared to, in particular, impacts on water resources.

Senator CASSIDY. Thank you. I yield. Thank you.

The CHAIRMAN. Senator Cortez Masto.

Senator CORTEZ MASTO. Thank you, Mr. Chairman. Thank you to the Ranking Member for this important hearing, and thank you to all the panelists. I appreciate all of your comments.

I say this time and again—Nevada, my home state, has 85 percent of federal public land and has the largest mining program on public land in the country. It supports nearly 33,000 jobs in the state. It's the key contributor to our economy. It's a social safety net for many rural and remote communities in my state. So as we are having this conversation, and as we take the necessary steps to address climate change, I agree, we have to do so in a fashion that makes America more productive, secure, and self-reliant. At a very basic level, this means we have to produce minerals in the United States and not solely rely on foreign sources. And I think we have all been talking about that.

Here's my conundrum, and I am going to ask the Deputy Secretary this first question—I understand the Administration has this all-of-government approach to addressing our future security needs when it comes to our clean energy, including, as it pertains to mining. But here's my struggle—just last week, the Federal Permitting Improvement Steering Council imposed new limits, or actually proposed imposing new limits, on eligible entities to be considered for the FAST-41 expedited permitting process. The Council's proposed limits would remove mining as a covered sector and limit eligibility to just critical mineral projects. What does that mean? That means that copper mines would be ineligible, despite being a critical material according to the Secretary of Energy.

How can this happen just after the report that was put out that said mining is critical to our future and our needs? Can you address what is happening? It seems like the Administration, even though they have this all-of-government approach, many pillars of it are not talking to one another. And I don't know if you have a response, Mr. Beaudreau, but I would sure love to hear one.

Mr. BEAUDREAU. Yes, no, thanks very much, I do have a response. I actually participated in a FPISC meeting yesterday, where we talked about, specifically, this issue. And so, on the one hand, the proposal to include mining as a covered activity under FAST-41, I think, is very positive. And that's what it is. It's a proposal to do that. It is a draft. And we are having exactly that conversation about whether these sort of parameters around qualification are the appropriate ones. And so, we do hear you on that. And it's an active conversation and one that I will carry forward into the steering council.

Senator CORTEZ MASTO. Thank you.

And let me put one other thing out there, because I know the new proposal specifically identifies the USGS critical mineral list for utilization. But unless I am wrong, Department of Energy and the Department of Defense have their own lists of strategic and

critical materials that are central to our energy and national security that include more minerals that are on that USGS critical mineral list. So how is that—hopefully there is a coordination around these so that all of the agencies are working together as well and not limiting access to these essential minerals that we need.

Mr. BEAUDREAU. So I think part of the complexity there is distinctions between, you know, energy-related minerals and other types of minerals. So for example, on the USGS list they don't include, you know, uranium, plutonium, et cetera. I agree with you that having a multitude of lists about what is critical and applying, you know, that adjective creates a lot of confusion. And so, I do think, you know, bringing perspective into sourcing, as opposed to whether you are on the list or off the list, makes sense.

Senator CORTEZ MASTO. Thank you.

And so, Mr. Compton, I only have a few seconds left, but I have a couple of questions with respect to the interagency working group mining reform report. You touched on one, the distinction between the claim location system and the leasing system. Can you talk about, also, the seven cents per ton tax on moving unprocessed ore, because it may sound good, but what does it actually mean in practical implementation?

Mr. COMPTON. Thank you for the question. In all due respect, I am not sure that it even sounds good.

[Laughter.]

Mr. COMPTON. You know, we affectionately, or maybe not so affectionately, refer to that as a dirt tax. There really is no explanation for why there would be a tax just for moving dirt or how many times that dirt movement is taxed. I mean, because you move overburden several times throughout a mining process. So seven cents per ton may sound like a miniscule amount, but when you consider the massive amounts of earth that needs to be moved to uncover some of these deposits, we have estimated that it would cost several hundred million dollars per year to the mining industry, much of which, obviously, would be in Nevada.

Senator CORTEZ MASTO. And moving dirt is not unique, or, excuse me, is part of the hardrock mining process, isn't that correct?

Mr. COMPTON. You cannot unearth these deposits without it, yes.

Senator CORTEZ MASTO. Thank you. My time is up. Thank you.

The CHAIRMAN. Thank you, and I agree wholeheartedly with you, Senator.

I can't believe I'm saying this, because it's Senator Hoeven's turn.

Senator HOEVEN. Thank you, Mr. Chair.

The CHAIRMAN. You are early.

Senator HOEVEN. I came early because it was Cassidy's birthday.

The CHAIRMAN. I'm sure he's pleased he stayed and listened to you.

[Senator Cassidy not at the dais. Laughter ensues.]

Senator HOEVEN. You are on a roll today, I'll tell you.

[Laughter.]

Senator HOEVEN. Isn't he, Governor?

[Laughter.]

Senator HOEVEN. So Secretary Beaudreau, thanks for being here. We appreciate your willingness to come out to North Dakota as you

have and look forward to having you out there again. I think it's very important for you to get out on the ground, so I appreciate you doing that.

In the Fiscal Responsibility Act, we set timelines on EAs and EISs—one year on the EA, two years on an EIS. How are you coming with getting that implemented?

Mr. BEAUDREAU. Yes, thanks, and I do look forward to the next time I get to visit North Dakota.

We have established and, in fact, you know, components of this brought forward from the previous Administration a review process by which, at my level in the Department, we track NEPA documents, both for content and quality, but also timing. And it is through that process that we are implementing the timing requirements under this year's legislation.

Senator HOEVEN. Yeah, that's is going to be really important. I mean, we have got to bring certainty—just listening to all three of you—we have got to bring certainty to this process and that's an effort to do it. And I believe simplicity is really important. You know, when we talk about permitting reform, pretty soon it gets so confusing, and then everybody has their own interpretations. And that's why we pushed for that kind of simple regulatory requirement, you know, the one-year and the two-year time frame. So I think that's really important if we are going to get after these critical minerals like I think we all want to. Would you agree with that?

Mr. BEAUDREAU. I agree. The only addition I would make to it is, at the end of the day, these are the documents we get sued on. And so, I am very focused, always, on quality. And so, schedule, you know, certainty on timeline is essential, but nothing throws a project off like protracted litigation. And so the quality has to be there as well.

Senator HOEVEN. Right. Precisely where I am going. I think it was you, Dr. Yergin, that mentioned judicial review and how that is slowing us down. This goes to what Mr. Compton was talking about where in Australia or Canada it is taking, what, two or three years to get these permitted and here it's seven to ten. In our state, you know, with—and somebody else mentioned the, you know, the plays, like the shale plays, and in the Bakken, you know, we went from less than 100,000 barrels a day of oil production to 1.5 million a day at peak, but we put the right legal tax and regulatory framework in place to do it. And so, we have got to do that for critical minerals.

So to you, Dr. Yergin and then you, Mr. Compton, how do we get—including judicial review—how do we get that legal tax and regulatory structure in place? What is it going to take, or we are not going to get after these critical minerals and are we going to be dependent on places like China, right? I mean, isn't that really what it comes down to?

Dr. YERGIN. I think that's right. And I mean, at the end of the day, nothing happens if you don't have capital that is invested. And people are not going to invest capital if there is that high degree of uncertainty. I mean——

Senator HOEVEN. So even if Secretary Beaudreau gets those things implemented and we knock that down to say, a two-year or

three-year time frame, like Canada or Australia, if you get tied up in court for the next seven, it's still ten years, isn't it?

Dr. YERGIN. That's right. I mean, yes, so I don't know what you do about the judicial review side of it, but it isn't just the permitting, it's what goes on after that, and stage after stage after stage. And some of you know very well how some of these projects just go on as judicial review.

Senator HOEVEN. The point is, we have to do both if we are going to get this done.

Dr. YERGIN. Yes.

Senator HOEVEN. Mr. Compton.

Mr. COMPTON. Yes, thank you, Senator. If I could jump in on that too. You know, you are absolutely right. Litigation reform, I think, needs to be a central component of further permitting talks, and I am confident that that is going to be part of further meaningful permitting reform. But I can give you several ideas to include in that as well. You know, the 2020 NEPA regulations, put in place by the prior Administration, actually contain some very helpful litigation reforms. Those have been rolled back. But some things that could be done legislatively, you know, lowering the statute of limitations——

Senator HOEVEN. Well, isn't that it? We almost have to do it legislatively because otherwise new regulations get put in place that defeat the whole effort.

Mr. COMPTON. Yes, it certainly needs to be in statute. You know, limiting the agency's time to act on remand would be helpful.

Senator HOEVEN. So it's instructive, if we actually want to develop the mining here in this country, we'd better get after it statutorily or we are going to be subject to more regulatory burden that's going to stop it in its tracks.

Mr. COMPTON. Yes, sir.

Senator HOEVEN. Thank you.

The CHAIRMAN. Senator King.

Senator KING. Thank you, Mr. Chairman.

I want to just put this hearing in a little bit of perspective. We are not talking about rolling back mining regulations or shortening statute of limitations in order to have somebody make more money. We are trying to beat climate change. And we are in a race, and it's a race in a matter of months and years. I just heard on the radio this morning that glaciers in Switzerland have declined ten percent in the last two years. That is astounding if you think about that. These are glaciers that have been there for thousands of years. So we have to—this is an urgent environmental priority. And it strikes me that one of the problems is that we are treating this as sort of environmental growth or environmental protection, as if green energy is over here and permitting reform is over here and they are not related. They are intimately related.

For example, one of the things we haven't talked about today is grid access. We have environmental projects—wind and solar projects—that can't get on the grid because of the inadequacy of the grid. Well, that means there is going to have to be transmission. I was at a meeting last week on transmission. There are three major transmission projects in the West, the shortest of which has been at it 21 years from the time of the inception of the

project to the time it's going to go online. The longer, I think, is about 25 years. That is another example of exactly what we are talking about.

So I guess what I would like, and perhaps we could take this for the record, is some specificity about what makes it take 14 years to do a mine. In other words, how much is NEPA? How much is local permitting? How much is state? How much is litigation? Do you see what I am asking, Mr. Compton? It would help us, I think, if we knew exactly where the bottlenecks were and then we can move to try to address them. By the way, the comment about litigation reminded me of "*Jarndyce* v. *Jarndyce*," Dickens' famous case in Bleak House, where the lawyers passed the litigation on from generation to generation. You said half of a person's life could be spent permitting one project.

How about the role of state and local permitting, because we are all talking about federal permitting and NEPA, but aren't state and local permitting issues also at stake here, Mr. Compton?

Mr. COMPTON. They absolutely are, and we need better coordination between federal and state and local permitting and being able to, when one or the other has completed analysis, for the others to be able to use that analysis. But you are absolutely right, I mean, if we are truly going to tackle climate change, we have to get serious about this now. And to your point about the various phases of mining and the mining life cycle, every bit of those phases need to be constricted. You know, exploration can take up to ten years or more before we even get to the start of permitting. Having the USGS doing additional research and mapping and sharing that information with mining companies can help shorten that period of time.

Senator KING. That's a good example. I mean, I think what we need is a little bit of urgency on this issue because we are in a race with the warming climate and the catastrophic effects that is going to have on us, and it just can't be the sort of plodding—oh, it takes a long time to do a transmission project.

Let me change the subject a bit from mining. What about processing? There is a major production of lithium in Australia, which is a pretty friendly country, but 85 percent of the processing is in China. Do the permitting delays we are talking about here also apply to processing? Because that is where—it seems to me we need to be discussing that as well as getting the material out of the ground. Processing—it's no good unless it's processed.

Mr. Yergin, talk to me about processing.

Dr. YERGIN. Yes, I mean, processing often is a very intense, and in China, pretty environmentally heavy activity to do that. And so, you know, we used to have, I think, 12 copper smelters in the United States. I think we are down to two now. I think it would be pretty hard to actually build a new copper smelter and also go through the permitting of that. So it's not just the mining that we need to think about, but the, you know, the real choke point on the minerals beyond mining is where the processing is. And that is, you know, it does not get as much attention, but also needs to be looked at really carefully, because physically what is involved in building this, and are people willing to commit the capital to do it.

Senator KING. I do think that is an important subject that we should be talking about, Mr. Chairman, is processing as well as extraction.

Finally, I want to submit for the record an article by Bill McKibben in Mother Jones where the title of the article says a lot about what the article says. It's called "Yes in Our Backyards." And it's Bill McKibben's account of his journey from a strong environmental activist whose primary job was to stop things to the realization that in order to achieve a green energy future, we need to build things. That you can't—this is me, not Bill McKibben—you can't love EVs and hate lithium. And you can't love solar and wind projects and hate transmission. This is absolutely a part of it. And what bothers me sometimes is, that you will have a hundred units of environmental benefit from a project and eight units of environmental detriment and it doesn't get built, and you are missing—we are missing a major environmental benefit.

[The article referred to follows:]

ELECTRIFY EVERYTHING

Yes in Our Backyards

It's time progressives like me learned to love the green building boom.

BILL MCKIBBEN MAY+JUNE 2023 ISSUE

The United States is on the brink of its most consequential transformation since the New Deal. Read more about what it takes to decarbonize the economy, and what stands in the way, here.

I'm an environmentalist, which means I've got some practice in saying no. It's what we do: John Muir saying no to the destruction of Yosemite helped kick off environmentalism; Rachel Carson said no to DDT; the Sierra Club said no to the damming of the Grand Canyon. We're often quite good at it, and thank heaven; I'll go to my grave satisfied by, if nothing else, having played some part in stopping Big Oil from building the Keystone XL pipeline 1,700 miles across the heart of the continent. Right now I'm deeply engaged with American colleagues in trying to stop our big banks from funding fossil fuel expansion, and rooting on friends in Africa as they battle the giant EACOP pipeline, and watching with admiration as European confreres fight plans to expand coal mines at the expense of forests and villages. In a world where giant corporations, and the governments they too often control, ceaselessly do dangerous and unnecessary things, saying no is a valuable survival skill for civilizations.

But we're at a hinge moment now, when solving our biggest problems—environmental but also social—means we need to say yes to some things: solar panels and wind turbines and factories to make batteries and mines to extract lithium. And

new affordable housing that will make cities denser and more efficient while cutting the ruinous price of housing. And—well, it's a long list. And in every case there are both benefits and costs, all played out in particular places with particular histories. But what interests me is the search for some general principles that might make these disputes easier, at least for people of good will. I'm thinking of people like me: older white people, a class particularly used to working the system, and perhaps psychologically tilted toward keeping things the way they are.

Is there some way to calculate when the balance tips one way or the other? Some way to figure out when we should protest change and when we should just be quiet?

Let me start the search for such a rule by telling two stories about one place. I lived most of my life deep in rural America, and much of it in a red, hardscrabble, and very beautiful pocket of upstate New York, the southeastern Adirondacks. You can get a quick sense of its culture by knowing that it's represented in Congress by Elise Stefanik, though as always, it's more complicated than that.

First story. Three decades ago, in the early 1990s, our county decided it wanted to build a vast new landfill. Even though our tiny town was 30 miles from the city where almost all the waste was generated (Glens Falls, home to big paper mills), county officials chose a site in our remote township of Johnsburg, under the mountain where we lived, knowing we weren't likely to fight back—because we were poor, and few in number, and would probably just decide there was no use. But we did fight back. We organized meetings, held bake sales, had the kindergarten class draw pictures of the mountain. One local musician penned a good lyric:

They make the garbage in the south

And truck it to the north.

The workingman pays the tax

To ship it back and forth.

At the climactic meeting of the regional planning board, the Reverend Daisy Allen, longtime local preacher, rose and told the story of weak and whiny King Ahab, who, on the advice of evil Queen Jezebel, took a vineyard he coveted from a man named Naboth, by having him murdered to acquire the deed. "And he went to take possession," Daisy said, staring at the planning board. "But God spoke through his prophets and said 'Where Naboth's blood has been licked by dogs, so will yours be licked.'" And then she sat down. And then we won.

As it turned out, and as we suspected, the landfill was entirely unnecessary; it was a corrupt scheme sold to the county board by consultants who, it turned out, once we'd defeated their grand plan, had also sold a landfill to the county next door, and they were desperately happy to rent some of it to us. Our mountain remained mostly untroubled.

A little more than a decade later, another plan arose. There's a played-out garnet mine in Johnsburg, at the top of a hill on the edge of a vast state wilderness. And the owners of the mine wanted to put up 10 big wind turbines to generate clean power—this was in 2005, and it would have been one of the first big such developments in New York state.

In many ways it was the perfect site: There was already a road up the mountain, it had a big power line, and it was zoned industrial. But the turbines were indeed big—they would have been clearly visible even from deep in that very wild wilderness area. I knew those woods as well as anyone—I'd skied and hiked and paddled there for many years, I knew where the bear and coyote and martens lived. I'd found lost hikers deep in its trackless reaches, and I'd found much of my own love of wild places out there too. It meant as much to me as any place on Earth.

Most local people were okay with the plan—it would have created some jobs, and they were already worried about global warming; I had a neighbor who printed up buttons that just said "In My Backyard." But the region's biggest environmental group, supported mainly by people who lived at a distance and vacationed here, was opposed, on aesthetic grounds. The sight of those turbines would degrade the wilderness, they thought. They also, of course, came up with a bunch of spurious

arguments—at one hearing their representative argued that in a big storm the turbines might spin right off their support towers and then roll down the mountainside several miles and crash into the school. Which is not how wind turbines work.

It forced me to think more deeply than I had before. All things being equal, I'd just as soon not have to look up at those towers when I scaled some wilderness peak. But all things, I knew, *weren't* equal. Having written the first mainstream book on what we then called the greenhouse effect, I understood that the far deeper threat to this forest was that if we didn't quickly stop burning fossil fuels, then there wouldn't be a real winter to den up the animals; that if it kept warming, the birch and beech and maple that blazed red and yellow and orange in the early autumn would be replaced, at best, by drab hickory and elm. That the challenge to the character of the place I loved came from *not building* these wind turbines.

I wrote a piece for the *New York Times* saying just that, and earned in the process the enmity of some of the region's professional environmentalists (and they won the fight; there are no wind turbines). But it felt as if I'd been true to the place by saying no to one plan, and yes to another. The dump was just a stupid idea; the wind turbines, though they came with drawbacks, were a necessary one.

Electrify Everything

Here are more stories on why we need to, and how we could, electrify everything:

- Yes in Our Backyards. *It's time progressives like me learned to love the green building boom.*
- Think Globally, Build Like Hell Locally. *How can we decarbonize the economy when we can't even build housing?*
- The Little City That Could. *For Chelsea, Massachusetts, a new microgrid means energy resilience.*
- What "Electrify Everything" Actually Looks Like. *Get ready for a US building spree not seen in generations.*

Right now we're at a moment when we need to build in a way we haven't for quite a while, maybe since the days of the New Deal and the Second World War. The consensus among scientists and engineers who study this stuff is that we need to replace about a billion machines in America alone—regular cars with EVs or e-bikes, furnaces with heat pumps. And to run them on clean power, we need to build out lots of solar panels and wind farms and battery arrays. The factories to churn these things out are going up fast, in response to the incentives in the Inflation Reduction Act. But once this stuff has emerged from the factory, it needs to go in someone's basement, someone's kitchen, someone's…backyard. Transmission lines have to cross fields; railroad tracks need to be built through rights of way. Some NIMBY passion will need to be replaced by some YIMBY enthusiasm—or at least some acquiescence.

Grace J. Kim

So how do we decide where to put up a fight, and where to let the future proceed? It's quite possible that situational and instinctual reactions are the best we're going to ever do with such questions. But what follows are a few thoughts in search of a more general principle. And they derive from what I think is the most bottom line of bottom lines for this century: We are in an unprecedented and dire emergency, with the planet's temperature increasing quickly and dangerously; if we can't bring it under control, then it poses an existential risk to poor and vulnerable people around the planet, and then to everyone else—not to mention most of the other species, and all the generations that come after us. This is not some alarmist screed—it's the official policy of virtually every country on Earth, as enunciated in the Paris climate accord, but governments of course apply it haphazardly at best, still subsidizing fossil fuels even as—with instruments like the Inflation Reduction Act—they try to spur new clean energy developments, or with laws like California's SB 9 they try to create denser, more efficient cities.

So there's one general rule you could derive: If something makes climate change worse, then we shouldn't do it. That's the logic that Barack Obama used when he finally rejected the Keystone XL pipeline: "America is now a global leader when it comes to taking serious action to fight climate change. And frankly, approving this project would have undercut that global leadership." It's the rule that Joe Biden ignored this winter, when his administration approved the Willow Project, a massive new oil development in the Alaskan wilderness.

But if that rule helps you decide when to say no, it's a little less effective when figuring out the times to say yes. Here are a few frameworks that have helped me as I've tried to sort this out.

1) We don't live only in our backyard; we also share one.

It's utterly fine to protect your own community, your own neighborhood. If you don't do it, no one else will.

But we don't just live in a community; we also live on a planet where carbon crosses jurisdictional boundaries shortly after we spew it into the air. And so protecting one's backyard from any change has to be balanced against the cost it will impose on the larger whole. Imagine a community considering a new wind turbine or solar farm, or thinking about denser housing along transit corridors. These are the cheapest ways to cut carbon, and if we don't build lots and lots and lots of projects like this, then we won't be able to keep the temperature from climbing dramatically. And that in turn means utterly destroying some other backyard, indeed destroying all our backyards. This is not merely a possibility; it's a certainty, the stuff of daily headlines. For instance, because warm air holds more water than cold, we have bigger rainfalls than we've ever seen before. Last autumn Pakistan saw what may have been the greatest deluge since Noah, and tens of millions of people were affected. Mud houses simply melted away. Maybe you don't want to look at a solar panel, but no one wants to look at the scenes from that hideous flood, or contemplate a similar calamity befalling your own community. So the benefit of the doubt goes to saying yes, especially when you recollect that the damage from runaway global warming isn't confined to some faraway place with poor people you'll never meet. Their plight should be enough to make the moral case—but if it isn't, by this point we know that it's our own places at risk as well. California used to be the world's ideal—the Golden State. Now it's increasingly a cautionary tale, of the wildfires that break out when you don't control the temperature, of "bomb cyclones" that dump a year's worth of rainfall in a month, and of the homeless camps that inevitably arise when the only houses still available are too expensive for most people to afford. And if the fate of California or Florida or Texas doesn't worry you that much—if you think that it's "their fault for living along the Gulf," rest assured that climate change (not to mention the migration it sets off) will bring upheaval everywhere.

2) We don't live only in our own moment—we're accountable for past behavior.

All of us focus on the present and the future, but sometimes that's a way of avoiding accountability for the past; replacing your gas furnace with an electric heat pump is a wonderful step, but it doesn't magically erase all the carbon that poured out of that furnace over the decades, carbon that produces a very real debt. Every corner of America has poured huge amounts of carbon into the atmosphere, over several generations. The United States, which now makes up 4 percent of the world's population, has put 25 percent of the entire world's CO2 into the atmosphere, which continues to do damage: The carbon from the tailpipe of my family's Plymouth Fury when I was practicing for my driver's license in the 1980s is up there still.

Some NIMBY passion will need to be replaced by some YIMBY enthusiasm—or at least some acquiescence.

We don't get to pretend that isn't relevant—that we (and especially the affluent "we" of the American suburbs) haven't built up a carbon debt that will be paid by people of future generations, a debt that in fact is being paid right now by the people watching as their homes disappear in forest fires, or the Atlantic floods their streets at every storm. In the same way, we know—or should know—that a big reason some places are leafy suburbs and some places are not is because the government helped "redline" communities nearly a century ago, with effects that are still playing out. (A crazy fact: The neighborhoods that the government graded D back in the 1930s, essentially setting them off limits to investment, are now 5 or 10 degrees hotter than the places that the government graded A.) That's our history—and if we fight to keep affordable housing out of our communities, we deny the reality of that history.

Again, I think, the benefit of any doubt goes squarely to saying yes. But it's important to remember that history cuts both ways, of course: Proposing new developments on, say, land that's all that Native Americans have left of the continent they

once possessed should warrant a much harder look; ditto for Black and Latino communities that have been systematically stuck with everything others don't want. If Indigenous groups don't want a lithium mine on sacred territory in Nevada, that's a reasonable argument; repeating the mistakes of our history at this point is truly unforgivable. And of course all this is complicated by the fact that if we can't make a quick energy transition, then the impact of *that* will be felt most by the poorest; when we think about coastal flooding, we should think less about Miami Beach and more about the low-lying deltas of Asia—the Mekong, the Brahmaputra. They could be wiped out by rising tides, but they lack political power, and hence we don't pay them much attention.

In general, more Americans have been winners than losers from our history, at least in global terms; if we fall into that category, that should temper our defensiveness.

3) Idealism involves realism.

Sometimes figuring this one out is easy, because sometimes idealism is fake. If someone who has never worked on affordable housing suddenly opposes a new development because it's not 100 percent affordable, then that's a tell. And sadly those someones are the most likely to have access to lawyers who know how to make "environmental laws" do things their authors never envisioned. Laws like the National Environmental Policy Act and the California Environmental Quality Act were written in the hope of making America *as a whole* a cleaner place, and a fairer one; that they're too often used to delay the transition to a greener energy system, or to enshrine existing housing patterns, goes beyond irony (see *The Green Movement's Best Weapon Has Become a Problem.*)

But those cynical fights are the easy calls. Often it's a harder call, because we live in a world with deep problems, many of them crosscutting and all of them worthy of attention, and because people of good faith understandably want to take them on. In January, a researcher I admire—Providence College professor Thea Riofrancos—published a trenchant study on the future of renewable energy. Riofrancos, who has done much work in Latin American mining regions, described the havoc that lithium extraction may wreak, and then explained that we'd need a lot less of it if Americans would simply drive smaller cars and take the bus more. "An exclusive focus on greenhouse gas emissions and vehicle efficiency could lead to burden shifting from one impact and particularly affected communities to a different impact affecting different communities," she and her collaborators write. "This report intends to empower people and policymakers across the country with the arguments, evidence, and proposals they need to advocate for a maximally just transportation future."

Everything that she describes is correct—car culture is dangerous and inequitable, and anyone who's traveled to Europe is instantly reminded that you can successfully run a continent with small cars and good trains. But remember, Americans start from the point where public transit accounts for only a sixtieth as many vehicle miles traveled as cars and trucks; we could increase its share by 10 times (which we should, and which will not be easy) and we'd still have almost all our travel conducted by private cars and trucks. There are promising signs that e-bikes could help too—plans like Denver's subsidy of e-bike purchases should spread across the nation. But we've built a physical landscape—sprawling suburbs—that is uniquely hard to convert to sane transit quickly.

Grace J. Kim

Riofrancos knows all that, and her report doesn't call for a ban on lithium mining (though it may be used to that end). But the report also doesn't try to calibrate the relative costs of delay—that slowing down lithium mining likely means extending the years we keep on mining coal, that more than 6 million people a year die from the effects of breathing the byproducts of fossil fuel combustion, and that we're dancing on the edge of the sixth great planetary extinction. I had an inspiring conversation with Riofrancos, who argues that we can figure out ways to overcome the identification of masculinity with oversize vehicles, that Gen Z is ready for a new transport paradigm, and so on; it truly is ridiculous that the White House has Joe Biden posing with an electric Hummer. But I also know how hard this is—I think I may have organized the first big demonstration against SUVs in this country more than two decades ago, and there's no campaign I've ever been involved in that's been less successful. So it's a daunting thought that the new Ford F-150 Lightning pickup has to be an adversary instead of an ally as we try to change the emissions profile of the most carbon-intensive population the world has ever known.

Idealists like me, and those who have fought for everything from affordable housing to wild condors, have to figure out for themselves what an acceptable level of realism looks like—not giving up the fight for systemic change, but also not letting lovely goals overwhelm the gritty needs. One way may be to back up a little and think of the slightly longer term. Hence:

4) Emergencies demand urgency.

If you build, say, a solar farm now, it doesn't need to be forever; in a generation, if we've actually started using less energy, or we've actually figured out cheap, safe fusion reactors, then the people who come after us can take it down. But if we

delay, then we won't get to that moment intact—we will break the planet, and those people who come after us will have lost their options (except the option to curse us out). Because climate change is the perfect example of a *timed test*: The Intergovernmental Panel on Climate Change has explained that unless we can cut emissions in half by 2030, even the tepid targets we set at Paris will go by the board.

So the general tactic used by the opponents of projects—delay it until it goes away—is in effect a form of climate denial. Making the perfect the enemy of the good is, in such a case, more like making the perfect the enemy of anything at all. When you're in an emergency, acting at least gives you a chance; not acting guarantees an outcome, and not a good one.

Sometimes this is not just sad but truly despicable: The futurist Alex Steffen coined the term "predatory delay" to describe the ways that some make money off foot-dragging, sometimes masquerading as environmental impact studies. Think of an oil company squeezing a few more years out of its business model. But even its more innocent form is…not always so innocent. If you figure out how to slow down a new housing project for four or five years, then the value of your home may go up, but someone else gets to live that four or five years under a bridge.

Most of these factors (global impact, history, timing) lead one to saying yes to some new projects right now, if they can start to alleviate the very real crisis we face. In the largest sense they're a way to prevent disastrous change. But it's often hard to see the big picture, and on a smaller scale almost all of us have an attachment to the status quo, and a reluctance—an innate and useful conservatism—to seeing things change. We like, for instance, the landscapes we know, and resent intrusion on them. In Vermont, where I live now, the public service commission recently rejected an 8-acre solar farm, solely on "aesthetic" grounds; in the even bluer San Francisco Bay Area, well-intended environmental review laws have been twisted to endlessly delay the housing development desperately needed to keep people from sprawling out into fire-prone mountain towns. If we're going to avert climate catastrophe, that can't be standard practice, and yet that instinct can come from a good place. We've learned to love the world around us, and to value thriving urban neighborhoods; that's been a core hope of environmentalists from the start, be they Aldo Leopold or Jane Jacobs.

If you figure out how to slow down a new housing project for four or five years, then the value of your home may go up, but someone else gets to live that four or five years under a bridge.

But we can use that love to develop a new aesthetic, I think, if we let ourselves be fully open to the moment in which we live. Vermont, for instance, has a lot of cornfields; in the valley where I live now, they're the most common use of open ground. Of course, they themselves were once a dramatic break with the past, when forests covered this land. And if you squint, they take on a different appearance. What is a corn plant, after all, but a solar collector of a different sort? And actually a remarkably inefficient one: You have to dump a lot of nitrogen fertilizer on them to make them grow, which quickly washes into Lake Champlain, causing enormous and expensive algae blooms. And the corn gets fed to dairy cows—but we have more milk than we need, so we have to prop up the price, and the big farms depend on cheap labor from other countries. It's not a great system.

Electrons, by contrast, are a crop we badly need. And a solar array on one of those fields doesn't actually damage the soil; if anything, it helps the soil retain moisture and nutrients. And farmers (who can get a steady price for this new harvest of clean power) are also learning to graze goats in between the panels, or to raise vegetables beneath their shade. Growing the wrong crop is not just a Vermont story. In Iowa, corn capital of the world, nearly 60 percent of the crop currently goes to make ethanol for cars—we're already growing energy, just inefficiently, since you could get the same mileage from EVs by installing solar panels on a small fraction of the acreage.

So maybe we could learn to think a little differently—maybe we could gaze up at wind turbines on the ridge and take pleasure in seeing the breeze made visible. And in seeing ourselves taking responsibility for something we need—energy—instead of pawning the costs off on poorer people somewhere else, or on the people who will come after us. My backyard is somewhat dominated by a moderately ugly steel stalk from which sprout a dozen solar panels; I would be lying if I said it was beautiful, but I've retrained my eye to see it as pretty in its own way. (And oddly, other creatures don't seem to mind it—among other things, it boasts some truly epic wasp nests.) It's not easy to retrain our eyes, but it's easier than altering the laws of physics.

None of these considerations infallibly spit out a default answer; every plan and project will be a little different. But all of these factors, I think, should incline us toward supporting—perhaps grudgingly, and against our first impulse—new developments that address present crises and past injustice. To go back to my earlier examples, a new landfill in a poor part of the county would have done nothing much for anyone (except the consultants with the contract to build it), but a new wind turbine, though it came with costs, could justify them. It would have helped the local economy a little, and the world a lot; it would have paid down a substantial carbon debt, and taught us a slightly different way to look at the world.

There have been many times when we've needed to say no; progressive values have demanded it, and those values have been in easy congruence with the part of each of us that's naturally, and properly, conservative, which is to say suspicious of change. Saying no is relatively simple, and sometimes right. But we live in a moment when our future—and the future of everyone and everything—depends on sometimes learning to offer a resounding yes.

Senator KING. So thank you all for your testimony today.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator.

Now we have Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman. Great hearing, a great panel. Thank you for this.

You know, we have all recognized that when it comes to minerals, we can't define or pick where the location is. The location is where they are. And so, often, part of the challenge as we are trying to access minerals is how do we access them? How do we get them to the processing facilities? And in Alaska, of course, we are particularly challenged because of our vast distances. We have got a community in the interior of Alaska—Fairbanks. You are probably not going to find a more pro-mining community, but that community is divided right down the middle right now because there is a very significant mining prospect about 250 miles from Fairbanks and they are moving forward. There will be great benefits to the native village that is situated nearby. But they are going to be trucking that rock 240 miles to another mine site for the processing.

And it's the access that has really confounded folks. And as I have shared with some in the Administration, I read articles where, here in the Biden Administration, we are proposing to send $150 million, working with an Australian mining company, for a mine in Africa. And to help advance that mine, we are putting forward $250 million to help advance a rail line to Tidewater to help facilitate that. I can tell you the people of interior Alaska would certainly appreciate some assistance from our own government with how we might be able to do a rail extension to get those resources more safely out. We have other mining projects, and the Deputy Secretary and I have had multiple conversations about Ambler—again, a very lucrative and prospective mineral deposit in the interior of the state, but in order to access it, it will require a mine of several hundred miles, and that has faced its own challenges.

So Deputy Secretary, I would like to ask you for the record just for a confirmation here on the Ambler project. When we had Secretary Haaland before this Committee, May 16th of 2023, and I asked her when we should expect to see the Record of Decision finalized, she indicated—she said, yes, the ROD by 2023, that continues to be the plan. Then, a few days later, on May 19, we have a DOJ attorney submit to the U.S. District Court a court-ordered update that now claims that a final SEIS is not anticipated until 2024—not expected to be signed until the second quarter of 2024. So again, Alaskans want to know, you know, you are talking about how we are going to do a better job of expedited permitting. That's what this working group was kind of designed to do. And yet, in a matter of four days, we see a six-month slippage. So for the record, if you can just share where we are with the Record of Decision on Ambler?

Mr. BEAUDREAU. Yes, thanks very much. We will be publishing the Draft Supplemental EIS in the coming weeks. We are still on that timeline to complete that process and issue a Record of Decision in the second quarter of next year.

Senator MURKOWSKI. The second quarter of 2024. So what the Secretary stated before the Committee that it would be the end of 2023 is not accurate. It is now second quarter of 2024.

Mr. BEAUDREAU. The updated schedule we submitted in the litigation, which is why we have to do the supplemental analysis, is still the schedule that we are on.

Senator MURKOWSKI. Let me ask about the Department's Interagency Working Group. The Chairman has raised that and apparently there is a little bit of back and forth in terms of what has been produced by this report. The report acknowledges its requirements under the infrastructure bill, but when you parse through the pages of it—169 pages—it's tough to find where the report actually addresses many of the issues that are required by the law, whether it's the period of time that is typically required to complete each step, the processing of applications, operating plans, leases, license, permits. And so, I think we were pretty clear in the infrastructure bill that this is what we expected. We didn't just expect a report saying this is in response to your query, but we actually asked for some time frames for these activities. So can you give me some more clarity on the time frames and kind of what the Department is doing to address some of these data gaps?

Mr. BEAUDREAU. Yes, I am happy to have a follow-up conversation on all of that, those questions. Fundamentally, one of the challenges we have, which is the reason why one of the core recommendations is a leasing program, understanding that a lot would have to be thought through for a program like that, is we don't have a lot of control over the process. We don't have control over when we can expect to receive a mine plan of operations. We don't have control over diligence requirements, et cetera, that we do have in other contexts, including oil and gas, including renewable energy. And so part of what I would like to see is a permitting structure that can hold us accountable, but also hold operators accountable for responsible development.

And I will just note that anyone who thinks Canada is the perfect model for this activity should talk to Senator Murkowski.

Senator MURKOWSKI. Yes, thank you for that. We do have a couple little issues there.

Mr. Chairman——

Senator KING [presiding]. I am the acting Chair.

Senator MURKOWSKI. Okay, Mr. Acting Chairman, I will direct to you. I would like to do some follow-on with regards to the working group, but I was going to ask Dr. Yergin. My time is expired, but the big question here is how we move the needle now. We are all talking about the urgency. We can talk about how it's going to be 35 percent more, it's two times more, it's 17 times more—the urgency is clearly there. We recognize that. And yet, we are not moving the needle like we need to. And we can say we have got to legislate on the permitting side, and we have to do that, but we have to recognize that we have got litigation that we have to deal with. But we also have this issue of social license to operate. And that kind of drives the litigation piece of it, and in fairness, it influences the politics on the permitting side and all that goes on there.

And so I don't want it as a question for the record, but——

Senator KING. Senator, could you defer the answer? Can you defer the answer until we let our two remaining Senators——

Senator MURKOWSKI. Yes. No, no, no—I'm not going to ask the question. I'm just going to put it out there because I would like somebody else to ask that because I'm going to be waiting around because the conversation is just too good.

Senator KING. Thank you.

Senator Kelly.

Senator KELLY. Thank you, Mr. Chairman.

Dr. Yergin, so we have a few companies in Arizona. One in particular is a business called Urbix that does processing of graphite. And I am concerned that some of the joint ventures that are currently being formed in some of these free trade jurisdictions with Chinese partners are skirting the intent of the Bipartisan Infrastructure Law and the Inflation Reduction Act. And it is potentially subsidizing our competitors instead of helping businesses like the one I mentioned, Urbix, who is in Maricopa County, who processes graphite.

So Dr. Yergin, have you seen these joint ventures? What do you know about them, and what impact do you expect that they have on U.S. domestic jobs and U.S. production?

Dr. YERGIN. Well, I have not studied them in detail, but the fact is that, you know, the reality was that until about 2019, 2020, people just were not paying attention much to this issue at all and the way that industry developed globally is, with China being a very important, you know, important, predominant player. And so, I think the reality is that those entities exist. I don't know whether the specific ones are competing with the companies that you are talking about, but this issue of critical minerals is so entangled with our changing relationships with China and they are not what they were four or five years ago. And it is not going to get easily untangled at this point. But you can try and, you know, continue to shift the balance, which is what the recent legislation is aiming to do.

Senator KELLY. Yes, we have heard that, you know, as Urbix and companies like them try to sign contracts, it's often challenging because of, you know, the joint ventures that exist in these free trade jurisdictions.

Dr. YERGIN. Right.

Senator KELLY. So it does need to be addressed and we have to get this back on track.

Mr. Compton, so Arizona is leading the way in resource development that is going to help power this clean energy economy for decades. And the first and only mine in the FAST-41 process is a mine called South32, the Hermosa project. It's in Santa Cruz County. And this is the only domestic advanced mine development project that can produce two critical minerals—zinc and manganese. So Mr. Compton, I am sure many of your members are watching this FAST-41 process closely, and what outcomes do you feel will make the process more appealing to your members?

Mr. COMPTON. Well, thank you for that question, Senator.

Yes, actually, South32 and their Hermosa project is a member of ours as well. And so we have been watching that very closely, as I am sure many of our members are. You know, we were very

pleased to have mining added as a covered sector a couple of years ago. As you note, the Hermosa project is the first one to be on the permitting dashboard. You know, ultimately, the whole FAST-41 process was implemented to permit large infrastructure projects in a more timely manner. And so that is what we need to see out of this process, is expedited permitting, and doing so, by the way, in a way that does not take, you know, short shrift to our environmental regulations.

And so, one of the things for me is if we can do it for these large infrastructure projects without short-changing our environmental laws and regulations, why can't we do that for all projects? So that's why it—you know, the process with FAST-41, with more transparency, better agency coordination, it's all things that we need in permitting for all projects. That's why it was frustrating, and this came up a little earlier in the hearing, that FPISC, last week, proposed to now limit the mining projects that would be available under FAST-41 to only those designated as critical mineral projects. I understand that the Hermosa project is, and that is great, but we have an awful lot of projects out there that may not be necessarily deemed critical according to the USGS, but I would submit that the entire periodic table is critical.

Senator KELLY. Thank you, and thank you, Mr. Chairman.

The CHAIRMAN [presiding]. Thank you.

And now we have Senator Hawley.

Senator HAWLEY. Thank you, Mr. Chairman.

Mr. Beaudreau, let me start with you. Are you aware that there is currently a strike going on nationwide by auto workers in this country?

Mr. BEAUDREAU. I am aware of the auto workers strike.

Senator HAWLEY. So I just returned from my home State of Missouri, where in Wentzville, Missouri—that is right outside St. Louis—about 4,000 workers are striking. I was on the picket line with them on Monday, talking to them about their concerns, what it is they hope for, for their future. I talked to folks who were as young as 20 and had been there for a couple of months and folks who had been there for 40 years and were nearing retirement. And one thing I heard consistently is they are worried about the future of their jobs, you know, the younger workers—are there going to be autoworking jobs in this country after this Administration finishes forcing the auto industry into an electric vehicle production that is made predominately overseas? I'm sure you know where most electric vehicles are made in the world.

Mr. BEAUDREAU. It is an enormous priority for the Administration and part of the reason why the President himself joined auto workers in the strike to——

Senator HAWLEY. Where are most—where are 54 percent of electric vehicles made globally?

Mr. BEAUDREAU. The entire point of——

Senator HAWLEY. Where are 54 percent of electric vehicles made globally?

Mr. BEAUDREAU. The whole point is——

Senator HAWLEY. No, I am asking you a question. Where are 54 percent of electric vehicles made globally?

Mr. BEAUDREAU. I don't know.

Senator HAWLEY. You don't know?

Mr. BEAUDREAU. I don't know about that number. I know that——

Senator HAWLEY. The answer is China. Where is the critical——

Mr. BEAUDREAU. And the point——

Senator HAWLEY. Wait, hold on a minute, hold on a minute. Where is 73 percent of cobalt refining? Where does it take place globally?

Mr. BEAUDREAU. Overseas.

Senator HAWLEY. Where specifically?

Mr. BEAUDREAU. Probably China.

Senator HAWLEY. Yes, China. Where is most cobalt mining performed? Who owns most of the cobalt mines in the world?

Mr. BEAUDREAU. Probably most of that sourcing is in Africa.

Senator HAWLEY. China has the majority. Seventy-seven percent of electric vehicle cathodes are made in China. Ninety-two percent of anodes are made in China. Sixty-six percent of battery cells are assembled in China. The New York Times recently did a report on this. The New York Times, not a notably right-wing publication. They said, can the world make an electric car battery without China? Their conclusion—the only winner so far is China.

My question is, why would we want to make our auto industry dependent on supply chains in China? Why is that a good idea?

Mr. BEAUDREAU. We don't.

Senator HAWLEY. Then why are you doing it?

Mr. BEAUDREAU. The entire point of this conversation, the entire point of this hearing, is to domesticate and make more reliable the sourcing of the materials——

Senator HAWLEY. Then why are you shutting down critical mining in the United States?

Mr. BEAUDREAU. We are not.

Senator HAWLEY. You are. Why did you close the Twin Metals Mine in this country earlier this year, 225,000 acres in Minnesota, which mines critical minerals like copper, nickel, cobalt?

Mr. BEAUDREAU. Again, the entire point of this conversation is to do mining in a responsible way that also reconciles with——

Senator HAWLEY. In a responsible way? First of all, answer my question. Why did you close the Twin Metals Mine?

Mr. BEAUDREAU. Because of the threat to the Boundary Waters, which is one of the largest economic drivers in Minnesota.

Senator HAWLEY. So you think that we shouldn't have critical supply chains in the United States, jobs, good-paying jobs, with labor protections in the United States?

Mr. BEAUDREAU. Not at the expense of one of the richest fisheries in the United States, in the world, such as in Alaska and the Pebble Mine, not at that——

Senator HAWLEY. The Twin Metals Mine isn't in Alaska. It's in Minnesota. It's 225,000 acres in Minnesota.

Mr. BEAUDREAU. Correct. And my point is, as we look to accelerate the development of domestic critical mineral mining, we have to do it in a way that does not conflict with and deplete other important aspects of the economy. In northern Minnesota, that includes the recreation economy and the Boundary Waters, which is one of the main drivers of tourism——

Senator HAWLEY. So you are going to prioritize recreation over good-paying jobs here in this country for mining? You are going to withdraw this mine that has been online and now shutter it?

Mr. BEAUDREAU. The number of jobs generated by the Boundary Waters and tourism dramatically outpaces the potential of that mine.

Senator HAWLEY. I thought it was critical that we had supply chains in this country, and yet you are shutting down critical mineral production in this country. Do you know instead what that is making us reliant on? Do you know what China's labor practices are, for instance, at their cobalt mine in the Democratic Republic of the Congo? Have you seen the reporting on this?

Mr. BEAUDREAU. You will get no argument from me that domestic sourcing——

Senator HAWLEY. They use child labor, is the answer to my question. Child labor in harrowing conditions.

Mr. BEAUDREAU. Child labor and also religious minorities.

Senator HAWLEY. China uses Uyghur labor, slave labor.

Mr. BEAUDREAU. Yes, yes, they do. Yes, they do.

Senator HAWLEY. And yet you are making us dependent on imports from the Democratic Republic of the Congo, controlled by China, from Chinese-controlled and owned mines all across the world. You are shutting down our mines here in the United States.

Mr. BEAUDREAU. Well, we disagree about all of that.

Senator HAWLEY. Would you support—well, facts are facts, and sometimes they are tough, but what's going to be really tough is when we don't have any auto jobs left in this country because you shipped them all overseas, when we can't mine anything in this country because you are shutting it all down. And we all know why, it's in pursuit of your radical environmentalist agenda. That's the real answer here.

The CHAIRMAN. Senator, your time is up.

Let me just say this, Senator, that first of all, the Twin Metals project has never operated. It has never been operational.

Senator HAWLEY. You know, Senator, with due respect, I have sat here and listened to my colleagues who went two and three minutes over. So I have been very patient. I think I am the last person to question. Maybe it's Senator Lee.

The CHAIRMAN. No, you are not. Senator Lee is waiting for you.

Senator HAWLEY. Okay. Well, I would be happy——

The CHAIRMAN. You can come back and we'll have a second round.

Senator HAWLEY. That would be fine. I will sit here. I am happy to do it. I am sure you will give me some time.

The CHAIRMAN. Sure. We are not here to berate. We are basically here to try to get information on how to do it. We have passed legislation, which I don't think you voted for, that gave us more dependency as far as——

Senator HAWLEY. Senator, I am here to ask questions and to get answers.

The CHAIRMAN. Well, you are here to—it's demagoguery. I mean, you are basically attacking every witness we have. You always have. I'm sorry, we just disagree, okay? I will come back to you.

Senator Lee.

Senator LEE. Mr. Beaudreau, thank you for being here today. I want to get to some issues about mining here in just a moment, but before I do that, I need to ask you very quickly about a couple of things. First of all, Interior's contingency plan for the potential government shutdown this weekend. I am frustrated, surprised, upset, if not angry that Interior still hasn't published its plan for the national parks. You know, communities rely on that plan for what will potentially happen here in just a few days if the government shuts down—communities surrounding our national park units—and it's important.

So you must understand the huge economic impact that shutting down national parks would have on individuals and communities across the country, but especially in Utah, where we have a lot of national park units. So just yes or no, because I don't have a whole lot of time here. Does the Interior Department plan to keep national park units open in the event of a shutdown?

Mr. BEAUDREAU. So to answer the question, I spoke with Governor Cox this morning. I spoke with Governor Gordon last night from Wyoming. We are aware of the potential for a shutdown. Obviously, the best thing that could happen is not to shut down the government, not to shut down our parks, but we will work with the State of Utah, as we always have, to ensure that we minimize that type of economic disruption.

Senator LEE. Okay, I appreciate that.

Mr. BEAUDREAU. And there are mechanisms to do that.

Senator LEE. I appreciate that and I appreciate you reaching out to Governor Cox around that. We do have plenty of ways to do this, as I pointed out in a letter that I sent to Secretary Haaland just a few days ago. You should be designating as essential as many park and land management employees as possible and using FLREA fee revenues to fund essential operations. Unfortunately, it sounds like some states, including Utah, may be forced yet again to use state funds to keep our national parks open. We are grateful to have lots of national parks in Utah. It's one of the things that goes along with that. I introduced legislation this week to make sure that these states that utilize state resources to keep those open in the event of a shutdown, in the event that you decide to shut down the park units, to make sure that those states are repaid by the Federal Government in a timely manner just as we repay in a timely manner federal workers for work during a shutdown.

Yes or no—will Interior support that effort on that bill?

Mr. BEAUDREAU. Again, the best thing that could possibly happen is that we avoid this by avoiding a shutdown. And I know folks in the Senate are working very hard in that way. I don't have any pending legislation in front of me on that. I think there is a history of that type of legislation, however.

Senator LEE. Okay, I would ask you to take a look at that. And my hope and my request is that you not oppose it.

Now, let's talk about the recent decision by Interior to lock up 960,000 acres in Northern Arizona, a shameless abuse of the Antiquities Act. This land contains the purest uranium deposits in North America, a critical fuel for nuclear power, which, in turn, is going to be vital for the objective of achieving a so-called carbon-free fu-

ture. Instead of accessing our pure reserves here at home, the Biden Administration would rather, apparently, have us be completely dependent on Russia, which supplies almost half of our enriched uranium supply today. Mr. Beaudreau, do you realize—do you really believe that restricting and blocking up access to highly mineralized federal lands in the U.S. will help counter Russian and Chinese control of mineral supply chains?

Mr. BEAUDREAU. So the example you are pointing to, I think, really highlights the challenge we have in this space. So the example you are pointing to is the recent national monument designated by President Biden to protect the watershed around the Grand Canyon, one of the most iconic places in the world, one of the most important national parks outside of Utah. And it was a monument proposal sponsored by a coalition of tribes which have borne the brunt of uranium development and other types of mineral development. And so those are exactly the types of issues that, in order to—consistent with what Senator Hawley is advocating for—centralize and make more sound supply chains in the United States, we have to deal with.

Senator LEE. We do have to deal with it, but you have a whole lot more to deal with now that you have abused the Antiquities Act yet again in this manner. It baffles me, absolutely baffles me that the Biden Administration, on one hand, thinks it can magically change the weather by pushing for a rapid energy transition where the United States becomes a green wonderland full of solar panels and big batteries and everyone drives around in a $60,000 SUV. But then on the other hand, at the very same time, you are doing everything you can to lock up uranium in Arizona, nickel in Minnesota, copper in Alaska, thinking that if you stop mining from happening here in the U.S. and leave it to the child laborers in Congo, you will have magically saved the climate and the planet. This madness needs to stop.

The CHAIRMAN. Thank you, Senator.

And we are going to go with our second round. Let me just say this to Senator Hawley. I am sorry if you believe I have been differential, but on that, I know the busy schedules you have and other different committees. Everything that you were saying, we feel the same, and it has been bipartisan on both sides.

And I am going to go to Senator Murkowski first, for her second round and then come right back——

Senator HAWLEY. At this time, Mr. Chairman, I have to say this though. Let's not—don't characterize my questions as demagoguery when I am trying to get answers.

The CHAIRMAN. Sir——

Senator HAWLEY. We have had people in front of here up at this Committee——

The CHAIRMAN. We have been through this because everybody, basically, has asked the same questions you were on that——

Senator HAWLEY. Senator, you don't get to control what questions I ask or don't ask.

The CHAIRMAN. No, no, I understand——

Senator HAWLEY. And quite frankly, I think what you are doing is abusive and I am going to call you out on it. Okay?

The CHAIRMAN. Oh, I'm going to call you out many times too.

Senator HAWLEY. Well, that's fine.

The CHAIRMAN. That's not a problem, but I am the Chairman right now and you are out of order.

Senator Murkowski.

Senator MURKOWSKI. Mr. Chairman, this is a Committee that, historically—I have been on this Committee now for 20 years, maybe 21, I don't know. But we are a Committee that I think has been viewed both internally here in the Senate and externally as a Committee that really likes to focus on policy. We really like to focus on the hard things because there are hard things when it comes to how we power, how we move our country, how we can be competitive. And so, I think the good debate, the hard questions are good, are fair, and I would just encourage all of us that how we approach our questions—there is a level of respect that comes with all of it. We're really trying to get answers to the hard questions, it's how we treat one another, how we treat our witnesses with respect, and how we really try to get good value from this.

I want to go back to the question that I asked, and I do apologize, Senator Hawley, because I had gone over my time. Well, I think we kind of took advantage of the fact that the Chairman was not in his chair at that time. That's my bad. But I really do want to know the answer. And it may not be answerable, but Dr. Yergin, you have more expertise in these areas than anybody I know. You have seen us move from a country of vulnerability—great vulnerability and exposure when it came to our oil resources, to figuring out how we then become that lead country, exercising that extraordinarily global position where we can influence what goes on with the markets. We have a role that we should be proud of in this country and we should all—Republicans and Democrats, I don't care what administration you are part of—should want to try to encourage and continue. And unfortunately, with critical minerals, it's a little bit of déja vu all over again. We can see ourselves getting trapped in that same place where we have the resource here, but for a multitude of different reasons, far too often, it just comes down to the politics of it. We lock it off from ourselves. We make ourselves vulnerable on others. And that's a dangerous place to be, particularly at a time when we see China eating our lunch in many of these areas when it comes to the ability to process.

Really, when it comes to mining in places where—and I agree with you, Deputy Secretary, there are places that we should not be mining, and I think we know that. But we also know that we do it better, safer, cleaner here in this country. So let's figure out how we make it happen as we did with oil and the success that fracking brought. So I raise the question. You have heard it already. We stall ourselves out by permitting issues that we haven't been able to get on top of, and despite what we did in the last measure, where we said, okay, we are going to put some timelines here on EAs. That's not enough. It's not enough. And if we think that that's good enough, we are fooling ourselves. The litigation piece of it is, you talk to anybody that's trying to develop oil, gas, minerals, they are baking litigation time into their project planning, into their base budget. It is a reality that is just awful. But so much of that then comes from—you have to get the social license to operate.

So we are talking about it all the time. Are we just talking to ourselves? Why can't we get people in this country, young people, particularly, to get what Senator King was pointing to, which was that the environmental considerations here are equally important. What do we have to do? I guess I am asking you to be the marketing man here.

Dr. YERGIN. I think that is a pretty big question. I think it's, you know, I think it's a question—I was thinking as you were pointing this out—it's late to the party. I mean, until a few years ago, mining was something that did not attract capital. It was not very interesting in the United States. It has really changed because of the discussion about energy transition and EVs, but also because of the geopolitics. So it's really an effort of catching up. And I think it is a communications thing to understand that, you know, as the IMF, as I quoted at the beginning, says you are not going to have the energy transition if you don't have the minerals. And that is just a fundamental factor. And I think——

Senator MURKOWSKI. But we have the minerals.

Dr. YERGIN. Yes.

Senator MURKOWSKI. We just need to access them.

Dr. YERGIN. Yes. And I think it was interesting, I think Senator Hoeven mentioned the seven to ten, you know, delays. That actually comes from a study that one of our predecessor companies did in 2015. I think it's really time that we have to really look at that again because I suspect that it's actually a longer time frame now. But I think this Committee and what you are doing is trying—is reversing it, but it's just something that's not going to happen overnight and mining is a long-time-horizon industry.

The CHAIRMAN. Thank you, Sir.

Senator Hawley.

Senator HAWLEY. Mr. Beaudreau, let's come back to the question of the Congo that we were talking about. So if you are opposed to the child labor practices of China in the Congo, will you support the legislation introduced by some of our colleagues in the House that would prohibit all imports of cobalt mined using child or forced labor?

Mr. BEAUDREAU. I'm sorry, I'm not familiar with that legislation.

The CHAIRMAN. Mr. Beaudreau, if you could put on your microphone so we could—just put it over toward you because I think—there you go, like that.

Mr. BEAUDREAU. I am not familiar with that legislation. I do agree with you that those types of practices are practices that we need to eliminate from our sourcing of critical minerals.

Senator HAWLEY. So you would support a prohibition? You would support a ban on imports, in principle, of any of these critical minerals that have been mined using child labor?

Mr. BEAUDREAU. No, I support working hard——

Senator HAWLEY. Why not?

Mr. BEAUDREAU [continuing]. To transition away from sources that use those types of practices.

Senator HAWLEY. Well, why not ban it? Why not say if it's got child labor in the supply chain, we are not going to import it in this country. We are not going to——

Mr. BEAUDREAU. I think that would have massive implications——

Senator HAWLEY. Wait, I'm not done yet. We are not going to prop up child labor in this country or fund it.

Mr. BEAUDREAU. I think an abrupt ban would, again, I haven't studied this issue. One of the questions I would ask in connection with a ban like that would be what the impacts, including economic disruption of such a ban would be.

Senator HAWLEY. Well, the impact would make slave labor and child labor extremely expensive. It would make American labor a lot more attractive. That's what it would do. It would incentivize jobs with labor protections in this country. Shouldn't we want that?

Mr. BEAUDREAU. Again, I haven't reviewed that legislation. I don't know what the impacts of it would be. I agree with you that getting reliable sourcing that does not associate with those types of practices should be the goal of the United States.

Senator HAWLEY. But you can't agree that we should ban it?

Mr. BEAUDREAU. Again, I haven't studied the legislation. It's hard for me to answer that question.

Senator HAWLEY. Well then, what, I guess—let me just ask you a broader question then. What steps are you taking to decouple American mineral production from slave labor then?

Mr. BEAUDREAU. Slave labor is completely illegal in the United States; has been since the 19th century. And so the domestic sourcing in the United States is preferable over activities like you are describing in the Congo.

Senator HAWLEY. But, yeah, obviously, but our—we are reliant, as you and I talked about in our first round of questioning—we are heavily reliant on supply chains that is shot through with slave labor and child labor—in China, in the Congo, elsewhere. So my question is, what are you doing to decouple us from those supply chains? You won't support a ban on child labor, so what do you propose now?

Mr. BEAUDREAU. This was the purpose of the interagency working group that I chaired. This is the entire thrust of the report that we issued earlier this month, is how do we increase the reliable sourcing of these materials? I think Dr. Yergin makes an excellent point about refining as well, to decouple, again, our reliance on sources that involve practices that are abhorrent to us.

Senator HAWLEY. Well, all I can say is, I don't know why it makes any sense to be shutting down critical mineral supply chains in this country, shutting down mines in this country, mandating further reliance on China and other overseas supply chains that are dependent on slave labor and child labor while workers in our country are facing the loss of their jobs. I think it's just crazy, to be honest with you. I think it's just crazy.

And Mr. Chairman, I have to say, in conclusion, you may not like my questions, but I am going to keep asking them. I made a commitment to the people of my state. I am going to come right here. I am going to be a bulldog. I am going to ask the questions. And you can interrupt me as much as you want, cut me off, take my time away, but I promise you, I am not going to stop.

The CHAIRMAN. I would never—let me just tell you one thing. I agree with what you are saying, I just don't like the way you say it. How is that?

Senator HAWLEY. That's your right, but you know——

The CHAIRMAN. We have a different——

Senator HAWLEY. I am going to keep on keeping on.

The CHAIRMAN. Here's the thing: we all agree, you know, if you would have been able to be here, and I know because of other committee assignments, but we were going through all of these things. That was the only thing I got frustrated on.

So with that being said, there is not a person here who doesn't understand. We are absolutely upset. This whole thing about the Congo, I have been speaking to people down there. It's horrible what's going on. They want to change. They are going to have our help. And I agree with you, we should not accept any child labor. I am on the bill, I think. But with all that being said, we have to do more permitting here. We have got to do it because basically we are allowing our whole EV dependency now, moving that market quicker than what we can ever supply. And my whole reason to basically fight this Administration is because I don't want to become dependent—basically our transportation mode—on an unreliable supply chain. That's what will happen. I have waited for—I was old enough in '74—we talked about that oil embargo. I had to wait in line to buy gas to go to work. I don't want to wait in line to buy a battery from China to go to work.

So I agree. We are on the same path, I think. We just have a different way of approaching it, that's all. And I respect that.

Okay, with that, we have Professor Daines, who is going to explain to us exactly why we are messed up.

Senator DAINES. I have been promoted to professor.

The CHAIRMAN. Well, I am going to because I see you have a chart.

Senator DAINES. Tell you what——

The CHAIRMAN. I feel like I am in a classroom now.

Senator DAINES. Yes, so I get to geek out from my old days of being a chemical engineer here today. So Chairman Manchin, thank you.

Behind me is the U.S. Geological Survey's most recent graph showing the United States' mineral import reliance. And this comes right out of the report, the U.S. Department of the Interior, U.S. Geological Survey here, which is a really good report.

[The chart referred to follows:]

Figure 2.—2022 U.S. Net Import Reliance[1]

Commodity	Net import reliance as a percentage of apparent consumption	Major import sources (2018–21)[2]
ARSENIC, all forms	100	China, Morocco, Belgium
ASBESTOS	100	Brazil, Russia
CESIUM	100	Germany
FLUORSPAR	100	Mexico, Vietnam, South Africa, Canada
GALLIUM	100	China, Germany, Japan, Ukraine
GRAPHITE (NATURAL)	100	China, Mexico, Canada, Madagascar
INDIUM	100	Republic of Korea, Canada, China, France
MANGANESE	100	Gabon, South Africa, Australia, Georgia
MICA (NATURAL), sheet	100	China, Brazil, Belgium, Austria
NIOBIUM (COLUMBIUM)	100	Brazil, Canada
RUBIDIUM	100	Germany
SCANDIUM	100	Europe, China, Japan, Philippines
STRONTIUM	100	Mexico, Germany, China
TANTALUM	100	China, Germany, Australia, Indonesia
YTTRIUM	100	China, Germany, Republic of Korea, Japan
GEMSTONES	99	India, Israel, Belgium, South Africa
BISMUTH	96	China, Republic of Korea, Mexico, Belgium
NEPHELINE SYENITE	>95	Canada
RARE EARTHS,[3] compounds and metals	>95	China, Malaysia, Estonia, Japan
TITANIUM, sponge metal	>95	Japan, Kazakhstan, Ukraine
POTASH	94	Canada, Russia, Belarus
DIAMOND (INDUSTRIAL), stones	89	South Africa, Congo (Kinshasa), India, Sierra Leone
IRON OXIDE PIGMENTS, natural and synthetic	87	China, Germany, Brazil, Canada
ANTIMONY, metal and oxide	83	China, Belgium, India
CHROMIUM, all forms	83	South Africa, Kazakhstan, Russia, Germany
STONE (DIMENSION)	82	Brazil, China, Italy, India
PEAT	81	Canada
TITANIUM MINERAL CONCENTRATES	81	South Africa, Australia, Madagascar, Canada
ABRASIVES, silicon carbide	79	China, Brazil, Netherlands, South Africa
TIN, refined	77	Peru, Indonesia, Bolivia, Malaysia
COBALT	76	Norway, Canada, Finland, Japan
ZINC, refined	76	Canada, Mexico, Peru, Spain
ABRASIVES, fused aluminum oxide	>75	China, Canada, Brazil, Austria
BARITE	>75	China, India, Morocco, Mexico
BAUXITE	>75	Jamaica, Brazil, Guyana, Turkey
TELLURIUM	>75	Canada, Germany, China, Philippines
GARNET (INDUSTRIAL)	69	South Africa, China, India, Australia
RHENIUM	69	Chile, Canada, Germany, Kazakhstan
SILVER	69	Mexico, Canada, Poland, Chile
PLATINUM	66	South Africa, Germany, Switzerland, Italy
DIAMOND (INDUSTRIAL), bort, grit, dust, and powder	62	China, Republic of Korea, Ireland, Russia
ALUMINA	59	Brazil, Australia, Jamaica, Canada
NICKEL	56	Canada, Norway, Australia, Finland
ALUMINUM	54	Canada, United Arab Emirates, Russia, China
VANADIUM	54	Canada, China, Brazil, South Africa
MAGNESIUM COMPOUNDS	53	China, Israel, Canada, Brazil
GERMANIUM	>50	China, Belgium, Germany, Russia
IODINE	>50	Chile, Japan
MAGNESIUM METAL	>50	Canada, Israel, Mexico, Taiwan
SELENIUM	>50	Philippines, Mexico, Germany, China
TUNGSTEN	>50	China, Germany, Bolivia, Vietnam
ZIRCONIUM, ores and concentrates	<50	South Africa, Senegal, Australia, Russia
SILICON, metal and ferrosilicon	45	Russia, Brazil, Canada, Norway
LEAD, refined	42	Canada, Mexico, Republic of Korea
COPPER, refined	41	Chile, Canada, Mexico
FELDSPAR	39	Turkey, Mexico
SALT	29	Chile, Canada, Mexico, Egypt
PERLITE	28	Greece, China, Mexico
PALLADIUM	26	Russia, South Africa, Italy, Germany
LITHIUM	>25	Argentina, Chile, China, Russia
BROMINE	<25	Israel, Jordan, China
CADMIUM, unwrought	<25	Australia, Germany, China, Peru
MICA (NATURAL), scrap and flake	24	Canada, China, India, Finland
CEMENT	21	Canada, Turkey, Greece, Mexico
VERMICULITE	20	South Africa, Brazil

[1]Not all mineral commodities covered in this publication are listed here. Those not shown include mineral commodities for which the United States is a net exporter (abrasives, metallic; boron; clays; diatomite; gold; helium; iron and steel scrap; iron ore; kyanite; molybdenum; rare earths, mineral concentrates; sand and gravel, industrial; soda ash; titanium dioxide pigment; wollastonite; zeolites; and zinc, ores and concentrates) or less than 20% net import reliant (beryllium; gypsum; iron and steel; iron and steel slag; lime; nitrogen (fixed)—ammonia; phosphate rock; pumice and pumicite; sand and gravel, construction; stone, crushed; sulfur; and talc and pyrophyllite). For some mineral commodities (hafnium; mercury; quartz crystal, industrial; thallium; and thorium), not enough information is available to calculate the exact percentage of import reliance.

[2]Listed in descending order of import share.

[3]Data include lanthanides.

Senator DAINES. I want everyone to take note of the highlighted portions that show—and I recognize this is an eye chart—but just to summarize it, look at everywhere it's highlighted—that's Russia or China. So the yellow is China. The orange is Russia. Of the 65 minerals on that list, we rely on China or Russia for over half of them. That should be a wake-up call for all of us.

I remember, as I think everybody here is old enough to remember 1973, and we were going through, you know, with the Jewish religious calendar, we just came through Yom Kippur. The War of Yom Kippur, 1973, was a wake-up call to the world, as it exposed the dependencies we had and kind of our single point of failure on the Middle East for oil. And of course, the Strait of Hormuz, it was blockaded. We saw oil prices skyrocket. And in fact, those skyrocketing oil prices contributed to some of the inflationary pressures we saw that, by 1981, a 30-year fixed mortgage was 18.6 percent. What I am concerned about is we are headed down a path where we could repeat the same mistakes that were made back in the '70s as we look forward in terms of a more renewable type of economy, more dependencies on electricity as supply for cars and so forth, that China and Russia become the "OPEC" of critical minerals.

Simply put, we need to be mining more in the U.S., because what came out of the War of 1973, the War of Yom Kippur, was a rallying cry—we need energy independence. And you know, we have been working on that now in the United States to develop more made-in-America oil, gas, and coal, to ensure we are decoupled from dependencies in terms of kind of the ultimate supply chain failure, and that is an energy supply chain failure. This could be another situation that faces us if we don't find ways to bring more of these critical mineral mining operations to the United States or to friendly countries.

Deputy Secretary Beaudreau, the Department of the Interior recently released their recommendations to reform mining. In it, you suggested raising taxes, lengthening the permitting process, withdrawing more land from development, and slapping a new royalty on mining operations. All these recommendations are not going to make it easier to mine domestically, it will make it harder. They will drive us further in a dependence on China and Russia rather than promoting and incentivizing U.S. mineral independence.

Mr. Beaudreau, do you agree that your recent recommendations are a step backward for mineral independence, and why would the Department think that creating more costs and more regulatory hurdles for mining projects is the best idea when we are faced with the reality of Chinese and Russian mineral dominance?

Mr. BEAUDREAU. So the goal of the report and the recommendations in the report is to combat exactly the situation that your chart depicts. In order to do that, there are fundamental things that have to be addressed. One is the legacy and history of conflict that the mining activities in the United States have posed for communities across the United States. Some of that is reflected in the over 500,000 abandoned hardrock mines that dot the United States, especially in the American West. So any discussion about royalties reflected in the report is meant to help address that. It's the same thing that we do with mine reclamation for the coal in-

dustry. It's the same thing we do with decommissioning and reclamation with the oil and gas industry. And so, again, that is to build a sustainable system for mining in the United States that has social license.

Senator DAINES. Mr. Compton, one of the great things about democracy——

Mr. BEAUDREAU. He disagrees with me on some of that.

Senator DAINES. Right. Well, I was going to say one of the great things about democracy is that we allow to have different points of view, and by the way, you know, Mr. Beaudreau, I have great respect for you and I am grateful for what you do in Interior, and I was supportive of you in your nomination and I am glad you are where you are at, but I think we can also respectfully disagree.

And Mr. Compton, you may have a different view, but what do you think?

Mr. BEAUDREAU. He and I have that same relationship, by the way.

[Laughter.]

Mr. COMPTON. Yes, with all due respect to the Deputy Secretary, I do disagree with him on the outcome or the proposed outcomes in the working group's report. And you know, unfortunately, I think it's just consistent with what we have seen from the Administration. We talk a really good game about securing our mineral supply chains, beginning with the President's America's Supply Chains executive order within a month of coming into office. All too often what we are seeing with actions on the ground, they are decidedly anti-mining.

And you know, I get where the Deputy Secretary is coming from in changing the dynamic on how mining is conducted here, but we have done that. The industry has been committed for a long time to early and proactive engagement with stakeholders, communities, tribes. As a matter of fact, I think the Federal Government, through their formal consultation process, can learn a lot from the mining industry. But we are never going to, as much as we are all for early engagement, we are never going to deconflict every mineral project. There are those out there that are just simply opposed to mining. It came up earlier, you know, "yes, in my backyard," but we have an awful lot of "no, in my backyard."

And so the fact is that all the early engagement, we are all for that. But we are not going to deconflict this. We are still going to be facing litigation. And that's why I look forward to additional permitting reforms from this Committee that can address that.

Senator DAINES. Yes.

Mr. Chairman, I know, but just on the litigation, I am going to make a final comment and then——

The CHAIRMAN. I am just glad Senator Hawley is not here.

Senator DAINES. You hit on another topic here that I don't have time to continue the dialogue here, which I think has been thoughtful, but we have been trying to get a copper mine permitted in Montana for 30 years and they have been through one EIS. I used to be an old Procter & Gamble manager and we used to make shampoo and mouthwash and toothpaste. It was just lather, rinse, repeat. It's lather, rinse, repeat right now on the litigation because we are in the Ninth Circuit Court. And I think without—I know

the Chairman has been as passionate as I am about permitting reform. It is badly needed.

The CHAIRMAN. We're getting there.

Senator DAINES. But it is necessary, but I would argue not sufficient without litigation reform and a change and just more better balance in our courts, particularly starting with the Ninth Circuit.

The CHAIRMAN. Senator, before you came, before you were here——

Senator DAINES. Yes.

The CHAIRMAN. I know you had other assignments and——

Senator DAINES. Right.

The CHAIRMAN. But we talked about that. I brought the Committee up to state that both our Republican staff and our Democrat staff have been working very close and we are getting agreement and then we know where our challenges are and we are going to try to overcome those to have something I think that both sides will be very pleased with, and some permitting reform. We are very hopeful for that.

Senator DAINES. Well, and I just want to commend——

The CHAIRMAN. But what you are saying right now, judicial reform is something that is——

Senator DAINES. It is, because it becomes—that Article III jumps in here and suddenly undercuts everything we have done. I mean, 30 years with state-of-the-art mining practices in Montana.

The CHAIRMAN. You have the Ninth Circuit. I have the Fourth.

Senator DAINES. Yes, we call it the "ninth circus" out there in Montana, Mr. Chairman.

Thank you.

The CHAIRMAN. Okay. Let me just say this to all of you. I think you know how interesting this is and how essential it is for our country to move forward. I can always talk about the passion that people have for where we are going and what, basically, what we need for our country to be more self-reliant and not dependent on foreign supply chains. I'm sorry for sometimes the dialogue and everything. I can't speak to that. I can try to control it the best I can.

But with that being said, we all have the same, I think, commitment, intent, both Democrats and Republicans, to be more self-reliant, not to be dependent, and basically make sure we can do what we can do. We can't ask other countries to do what we won't do for ourselves. That is the biggest challenge that we have. And hopefully we can get permitting reform that, Secretary Beaudreau, that will help your agency give a clear pathway forward to what needs to be done and why we are behind you to get it done. And hopefully we can make that change.

But with that being said, I have a letter from the American Critical Minerals Association, as well as a statement from the National Mining Association addressed to this Committee. I would like to enter into the record these two pieces of testimony without objection.

I don't see any and I don't hear any.

So both organizations commend the bipartisan efforts of the Committee, recommend some common-sense solutions such as permitting reform, and highlight the need to act with urgency to address critical mineral supply chains.

[The letter and statement referred to follow:]

American Critical Minerals Association

September 28, 2023

Senator Joe Manchin III
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, DC 20510

Senator John Barrasso
Ranking Member
Committee on Energy and Natural Resources
United States Senate
Washington, DC 20510

Dear Chairman Manchin, Ranking Member Barrasso, and Members of the Committee,

As you convene today's hearing "to examine opportunities to counter the People's Republic of China's (PRC) control of critical mineral supply chains through increased mining and processing in the United States as well as international engagement and trade," the American Critical Minerals Association (ACMA) applauds your commitment to seeking solutions that will ensure the United States is moving strategically and expeditiously towards countering Chinese control of the global critical mineral supply chain.

ACMA is an industry association that welcomes members from across the critical minerals supply chain, including raw material producers, processors, recyclers, suppliers, manufacturers, and end users, as well as academic institutions and other stakeholders. ACMA's mission is to support the advancement of the domestic critical mineral processing and recycling sectors in a sustainable and responsible manner and for the benefit of our nation's economy and security. Therefore, ACMA encourages Congress to advance policies that will support the growth of an independent and secure critical minerals supply chain – whether streamlining responsible permitting of the upstream extraction of minerals, funding and advancing innovative separation and recycling technologies, or establishing multilateral agreements with allies that share our interests.

In recent years, the rapid transition of the United States energy sector and drive toward electrifying the transportation sector has laid bare the reality that our nation is heavily reliant on foreign actors for certain minerals essential to the supply chains of U.S. manufacturers. In its inaugural review of the global critical minerals supply chain, the International Energy Agency noted that, as we experience increasing demand for critical minerals in the energy and transportation sectors, "a combination of volatile price movements, supply chain bottlenecks and geopolitical concerns has created a potent mix of risks for secure and rapid energy transitions."[1]

It is also increasingly apparent that the national security and economic risks associated with our reliance on foreign sources of minerals transcend any single economic sector, such as energy or transportation. In fact, those risks can also impede the operations and growth of our national defense systems, as well as aerospace and additional manufacturing interests such as the production of semiconductors, electronics, specialty steel, and medical devices.

One of the most acute monopolies over any individual mineral is that of China over lithium. It is no secret that China's dominance over the refining and processing of lithium is the direct result of a decades-long and deliberate industrial plan put in place by the PRC. While China holds less than 7% of the world's known

[1] International Energy Agency. Critical Minerals Market Review 2023. Pg.4. Available at www.iea.org. Accessed September 20, 2023.

supply of lithium, it produces nearly 60% of the world's refined lithium.[2] An often cited but highly illustrative statistic demonstrates China's influence – particularly when you consider that, from 2017 to 2022, demand for lithium tripled globally.[3] With the growing demand for electric vehicles, solar panels, energy storage, and other clean energy technologies, this imbalance will be further exacerbated without aggressive and strategic U.S. leadership.

Another example highlighting China's monopoly over critical minerals involves gallium and germanium – materials needed in the production of computer chips and other applications, and typically produced through bauxite and zinc smelting. Germanium is also found in coal fly ash. The Critical Raw Materials Alliance (CRMA) notes that the majority of gallium production (approximately 80%) is located in China.[4] Similarly, 60% of the world's supply of germanium is produced in China, with 60% from zinc ores and 40% from coal fly ash.[5] On July 3, 2023, China announced it would impose export restrictions on these two minerals, citing national security interests.[6] In August, Chinese exports of these materials reached zero.[7]

While we may not yet have experienced the full effect of these recent export restrictions, it is abundantly clear that diversification of supply is more important than ever. In addition to identifying opportunities to build out production of these "niche" minerals, the United States should support the efforts of allies such as Germany and Japan to grow their capacity to manufacture and export gallium and germanium. The production of and access to these and other "niche" minerals must be part of a comprehensive and strategic plan for breaking our reliance on the PRC's supply over critical minerals.[8]

Although efforts to produce rare earth elements (REEs) in the United States are underway, we currently have no operational mines supplying these minerals. Fortunately, efforts by this Committee, the Department of Energy, and universities such as the West Virginia University and the University of North Dakota are resulting in promising and scalable opportunities for the domestic production of REEs.[9]

Domestic mining operations, multilateral agreements, and innovative technologies such as advanced separation techniques capable of extracting rare earth elements from coal and coal byproduct, are vital solutions to diversifying the upstream supply of critical mineral resources. These efforts are noticeably expanding – especially in the United States, Australia, Canada, and other allied nations.

However, it is imperative that we continue to examine opportunities to diversify the entire supply chain given how much of China's position lies in its monopoly over processing and recycling. Diversification in critical mineral exploration and extraction will only pay dividends in growing a more diverse and democratic global supply chain if refining, processing, and recycling capacity also grow. The ability to reclaim and recycle critical minerals embedded in products at end-of-life (EOL) that are already sitting within our borders presents an important opportunity.

As highlighted in testimony before this Committee in 2022, Abigail Wulf of SAFE's Center for Critical Minerals Strategy, stated that, "Investing in critical minerals processing also helps to promote improvements in critical minerals recycling. Mineral processing and mineral recycling are two sides of the

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[2] USGS. Lithium Fact Sheet 2023. U.S. Department of Interior. https://pubs.usgs.gov/periodicals/mcs2023/mcs2023-lithium.pdf. Accessed September 20, 2023.
[3] IEA at pg. 5.
[4] The Critical Raw Materials Alliance. www.crmalliance.eu/gallium. Accessed September 24, 2023.
[5] The Critical Raw Materials Alliance. www.crmalliance.eu/germanium Accessed September 24, 2023.
[6] Reuters, "Companies respond to China's curbs on gallium and germanium exports," July 7, 2023. www.reuters.com. Accessed September 24, 2023.
[7] Reuters, "China exported no germanium, gallium in August after export curbs," September 20, 2023. www.reuters.com. Accessed September 24, 2023.
[8] IEA at pg. 8.
[9] U.S. Department of Energy, "Biden-Harris Administration Invests $16 Million to Build America's First-of-a-Kind Critical Minerals Production Facility." www.doe.gov. Accessed September 24, 2023.

same coin."[10] Since numerous minerals can be reclaimed and reused with little to no degradation in quality and performance,[11] growing recycling capacity alongside expanded mining operations and processing capacity is simply common sense.[12]

ACMA applauds you and your colleagues for your leadership and urges rapid advancement of policies that:

- Streamline permitting for domestic mining and processing of critical minerals in an environmentally responsible and sustainable manner;
- Advance additional funding to incentivize the development, deployment, and scaling of processing and refining capacity in the United States;
- Encourage greater collaboration between United States and multinational minerals interests seeking to diversify the global minerals supply chain and reduce reliance on Chinese exports;
- Ensure that the federal government is finalizing grants and Title XVII opportunities designed for the advancement of critical minerals interests in a timely manner;
- Direct comprehensive data collection and analysis of technological barriers to better understand the potential for critical mineral resources to be reclaimed and recycled from end-of-life products;
- Further incentivize domestic recycling initiatives for the reclamation and reuse of critical minerals from end-of-life products across the economy;
- Advance workforce development proposals such as the Mining Schools Act of 2023 to ensure our nation's next generation of workers is prepared to meet the future needs of our manufacturing sector;
- Implement policy and regulations that reflect the reality between our existing supply chains and the need to rapidly diversify;
- Support continued use of the Defense Production Act to grow domestic processing and recycling capacity; and
- Protect and ensure favorable implementation of the advanced manufacturing production tax credit and other incentives to support our nation's manufacturing capabilities.

Whether for batteries, defense applications, clean transportation, renewable energy, medical devices, semiconductor production, or other manufacturing needs, our nation and our allies need a critical minerals supply chain that is secure, sustainable, and free from the geopolitical agenda of foreign nations that do not share our values nor interests. The American Critical Minerals Association is grateful for this Committee's examination of these vital issues and looks forward to providing continued support for bipartisan efforts to advance policy goals that will secure our clean energy future and regrow our nation's manufacturing sector.

Sincerely,

Sarah Venuto
President, The American Critical Minerals Association

cc: Members of the Committee on Energy and Natural Resources

[10] SAFE Center for Critical Minerals Strategy. Testimony Submitted by Abigail on behalf of Secure America's Future Energy. March 31, 2022. Available at www.energy.senate.gov. Accessed September 24, 2023.
[11] Gregory Barber. "Recycled Battery Materials Can Work as Well as New Ones." www.wired.com. Accessed September 23, 2023.
[12] According to the IEA, "the projected surge in spent volumes suggests immense scopes for recycling. Policy makers can help realise the potention through three specific actions: (i) facilitating the efficient collection and transport of spent batteries; (ii) fostering product design and labelling that help streamline the recycling process; and (iii) harmonising regulations on international movement of batteries." The Role of Critical Minerals in Clean Energy Transitions. ww.ies.org/reports. Accessed September 24, 2023.

Testimony for the Record

U.S. Senate Committee on Energy and Natural Resources

"Hearing to Examine Opportunities to Counter the People's Republic of China's Control of Critical Mineral Supply Chains"

September 28, 2023

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America's mining industry supplies the essential materials necessary for every sector of our economy – from technology and healthcare to energy, transportation, infrastructure and national security. The National Mining Association (NMA) is the only national trade organization that serves as the voice of the U.S. mining industry and the hundreds of thousands of American workers it employs before Congress, the federal agencies, the judiciary and the media, advocating for public policies that will help America fully and responsibly utilize its vast natural resources.

We work to ensure America has secure and reliable supply chains, abundant and affordable energy, and the American-sourced materials necessary for U.S. manufacturing, national security and economic security, all delivered under world-leading environmental, safety and labor standards. The NMA has a membership of more than 280 companies and organizations involved in every aspect of mining, from producers and equipment manufacturers to service providers. The NMA appreciates the opportunity to offer testimony on behalf of the mineral and hardrock mining industry.

Introduction

Despite being home to vast mineral resource reserves, the U.S. is facing grave mineral supply chain challenges. Our import reliance has been a well-documented and increasingly problematic issue for decades and has now become a crisis, exacerbated by pandemic and war-related supply chain challenges, and exponentially increasing mineral demands due to the electrification of our economy.

There is recognition by some within the Biden-Harris administration of the immense challenge we now face and the importance of domestic mining to nearly every piece of the President's agenda. Several of the administration's early actions, including its comprehensive supply chain review, made clear the inherent vulnerabilities of our overreliance on mineral imports, the need for domestic mining support and lack of domestic processing capabilities. The administration also worked to jumpstart the availability of mined materials by using the Defense Production Act to support domestic strategic mineral and material production and processing.

Solutions to meet anticipated mineral demand while simultaneously rebuilding our domestic supply chains must be comprehensive and include increased domestic mineral production and processing, strategic alliances with allied nations, increased recycling, and the reprocessing of mine waste. Every tool will be needed to meet the speed and the scale of the demand now upon us, and the domestic mining industry – and our ready and capable workforce – must be at the center of this holistic effort.

China Dominates an Uneven Global Playing Field

China is the primary producer and/or supplier of mineral commodities listed as essential to U.S. economic and national security.[1] It controls more than 80-90 percent of global rare earth element (REE) production, nearly 90 percent of global mineral processing capabilities, as well as the market prices for rare earth elements at each step of the process. China refines 68 percent of the world's cobalt, 65 percent of nickel, and 60 percent of battery grade lithium needed for electric vehicle batteries and energy technologies. Goldman Sachs Research also estimates the extent of the vertically integrated nature of China's dominance, with 65 percent of battery components, 71 percent of battery cells, and 57 percent of the world's EV's being made in China.[2]

China has repeatedly and strategically flooded the global market with rare earths at subsidized prices, driven out competitors, and deterred new market entrants.[3] In 2010, China used its control of rare earths as geopolitical leverage and temporarily cut supplies to Japan over a maritime dispute. Geopolitical aggression continues to manifest through China's willingness to weaponize its mineral supply dominance. In August 2023, China blocked the export of gallium and germanium, two critical minerals essential for the manufacture of semiconductors, for which the U.S. is entirely reliant upon China. This breakdown of trade led to skyrocketing prices for the minerals and required a drawdown of limited stockpiles that will last two to three months at most.[4]

As illustrated by the following USGS data, China's share of global mineral production and processing has grown markedly since 1990 for many mineral commodities.

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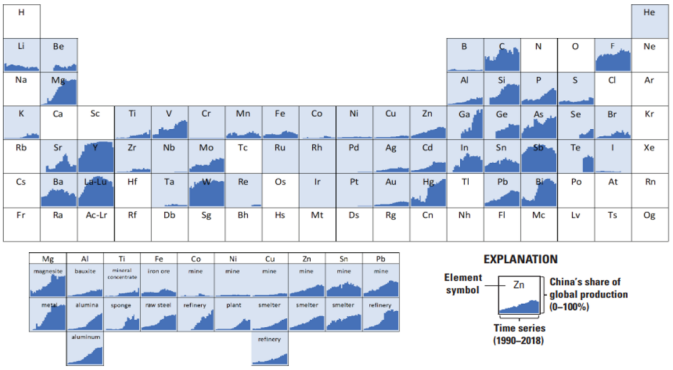
[1] Notably this reliance comes despite existing U.S. resources. In the 2022 Mineral Commodity Summaries, the USGS indicated the U.S. had an estimated 48 million metric tons (mt) of copper that can be mined and processed economically, 69 million mt of cobalt, 340 million mt of nickel and 750 million mt of lithium. Regardless, in 2021, the U.S. imported 48 percent of U.S. consumption of nickel, 76 percent of cobalt, 45 percent of copper, and more than 25 percent of lithium.

[2] Goldman Sachs, "Resource realism: The geopolitics of critical mineral supply chains," Sept. 2023. https://www.goldmansachs.com/intelligence/pages/resource-realism-the-geopolitics-of-critical-mineral-supply-chains.html

[3] Department of Defense, "Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States," Sept. 2018. P. 33. https://media.defense.gov/2018/Oct/05/2002048904/-1/-1/1/ASSESSING-AND-STRENGTHENING-THE-MANUFACTURING-AND%20DEFENSE-INDUSTRIAL-BASE-AND-SUPPLY-CHAIN-RESILIENCY.PDF

[4] Reuters, "China gallium, germanium export curbs kick in; wait for permits starts." August 1, 2023; https://www.reuters.com/markets/commodities/chinas-controls-take-effect-wait-gallium-germanium-export-permits-begins-2023-08-01/

China's share of global primary mineral commodity production over time[5]



China's near-monopolistic control over global REE supplies and the vulnerability of mineral supply chains has been reinforced by the opaque nature of mineral commodity markets. This dominance and China's manipulative market practices have emerged as major threats, wreaking havoc on domestic operators' ability to compete.

As described in the findings by the bipartisan congressionally authorized *U.S.-China Economic and Security Review Commission*, "China has subverted the global trade system and moved further from the spirit and letter of its obligations under its WTO accession protocol. China's subsidies, overcapacity, intellectual property theft, and protectionist nonmarket policies exacerbate distortions to the global economy. These practices have harmed workers, producers, and innovators in the United States and other market-based countries." [6]

Earlier this year, Jervois Global announced it was suspending its Idaho Cobalt Operation, citing low commodity prices, which is widely attributed to China's influx of capacity and manipulation of the market. A similar situation occurred when Molycorp operated the Mountain Pass rare earth mine in California. The company saw a way to capitalize on market opportunities to reduce our import reliance on REE's following the 2010 China-Japan dispute. After taking on considerable liabilities to expand the project's capacity, they were eventually bankrupted by artificially depressed commodity prices. Today, MP Materials owns and operates the Mountain Pass mine,

[5] For selected elements of the periodic table, the figure displays a time series of China's estimated share of global production for various associated mineral commodities for the years 1990–2018. In the periodic table, production refers to primary production or mine production. In the subfigure below the periodic table, multiple supply chain stages or forms are displayed for each mineral commodity. Elements not assessed are white. For a few mineral commodities (gallium, germanium, indium, selenium, silicon, strontium, and tellurium), data are not available for all years in the time series.
[6] U.S.-China Economic and Security Review Commission, 2022, Executive Summary; p. 16. https://www.uscc.gov/sites/default/files/2022-11/2022_Executive_Summary.pdf

which has seen greater operational success due to vertical integration at domestic operations and increased federal support.[7]

It is important to remember that China's strong supply chain position does not result from an inherent advantage in reserves for most materials, but rather from heavy non-market activities and government subsidization of mining, processing and manufacturing industries and excesses capacity. With its much longer planning horizon, China has pursued its "Going Global" strategy since the late 1990s, which continues to deploy significant direct investments across the globe to secure mineral supply chains. [8] [9]

Insufficient and Uncoordinated Minerals Policy

As we enter the most mineral and metal intensive era in human history, understanding how mineral demand relates to the Biden administration's energy transition goals is critical. A 2021 International Energy Agency report stated that "to hit net-zero globally by 2050, would require six times more mineral inputs in 2040 than today."[10]

Similarly, a 2022 S&P Global report on copper demand also stated that, "substitution and recycling will not be enough to meet the demands of electric vehicles (EVs), power infrastructure, and renewable generation. Unless massive new supply comes online in a timely way, the goal of Net-Zero Emissions by 2050 will be short-circuited and remain out of reach." [11] Further, Benchmark Mineral Intelligence estimates that more than 300 new mines are needed over the next decade to meet EV and other clean energy technology demands.[12]

International competition for minerals is becoming fierce and nearly every other Western ally – aside from the U.S. – is prioritizing ramping up domestic mining

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[7] Grist, "A once-shuttered California mine is trying to transform the rare-earth industry," June 2023. https://grist.org/energy/a-once-shuttered-california-mine-is-trying-to-transform-the-rare-earth-industry/

[8] Humphries, Marc. Congressional Research Service, "China's Mineral Industry and U.S. Access to Strategic and Critical Minerals: Issues for Congress," March 20, 2015. http://fas.org/sgp/crs/row/R43864.pdf).

[9] *See also*, USGS 2020 Investigation of U.S. Foreign Reliance on Critical Minerals (There are instances where the mineral deposit or mining and mineral processing operation of a commodity is partially or completely owned and (or) controlled by foreign companies with strong ties to their governments. For example, Chinese firms have purchased equity stake in lithium deposits and operations in Australia and Chile, niobium operations in Brazil, a rare earth deposit in Greenland, and cobalt operations in the D.R. Congo, Papua New Guinea, and Zambia (S&P Global Market Intelligence, 2020). Investigating China's investment in cobalt assets worldwide, Gulley and others (2019) found that when taking into account Chinese companies' ownership in foreign assets on an equity-share basis, China's share of global cobalt production increases from 2 to 14 percent for cobalt mine materials and from 11 to 33 percent for cobalt intermediate materials (figure 6). Furthermore, if the Chinese companies' equity shares of the production from these assets are assumed to be as secure as its domestic production, then these acquisitions have the effect of reducing China's NIR from 97 percent to an adjusted 68 percent, thereby reducing China's exposure to supply disruptions (Gulley and others, 2019).) p. 8.

[10] https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/executive-summary

[11] https://www.spglobal.com/marketintelligence/en/mi/info/0722/futureofcopper.html

[12] https://source.benchmarkminerals.com/article/more-than-300-new-mines-required-to-meet-battery-demand-by-2035

operations. In the last year, Canada released its strategy to position itself as the "global supplier of choice for clean energy minerals:" [13] the United Kingdom released its critical minerals strategy;[14] and the European Union unveiled a comprehensive proposal including various permitting efficiency actions to ensure the EU's access to a secure, diversified, affordable and sustainable supply of critical raw materials.[15]

Despite significant efforts by individual agencies to secure our supply chains, the U.S.-China Economic and Security Review Commission found that:

> *"The current ability of the U.S. to overcome the scale and scope of China's harmful policies is undermined by the lack of a coherent strategy and fragmented authorities to mobilize resources, coupled with a deficiency in new tools to address economic injury. The U.S. is also impeded by its self-imposed barriers to employing and underutilization of available tools and its difficulties in data sharing and analysis."* [16]

What we are seeing is an explosion in mineral demand colliding with a geopolitical arms-race for development and control of integrated mineral supply chains. Matching the speed and scale of this rising demand requires the U.S. to recognize that mineral policy is now energy, climate and national security policy. To compete, we need access to our vast mineral resources and a permitting regime that enables the mining sector to respond to market signals and meet demand.

The right policies to support domestic mineral production and our supply chains are more important than ever. Unfortunately, U.S. minerals policy under the current administration has shown significant signs of regression, despite its initial assertions of prioritizing minerals, domestic supply chains and American workers.

Disjointed Federal Mineral Policies

Interagency Working Group on Mining Regulations, Laws and Permitting

On September 12, the White House Interagency Working Group (IWG) on Mining Regulations, Laws and Permitting released its report, *"Recommendations to Improve Mining on Public Lands,"* which is 168 pages and contains 65 separate recommendations. While some recommendations are overall supportive of domestic mineral supply chains and should be pursued, the report largely includes problematic

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[13] Natural Resources Canada News Release, "Countries Commit to the Sustainable Development and Sourcing of Critical Minerals," Dec. 12, 2022. https://www.canada.ca/en/natural-resources-canada/news/2022/12/countries-commit-to-the-sustainable-development-and-sourcing-of-critical-minerals.html

[14] Department for Business, Energy and Industrial Strategy, "Resilience for the future: The UK's critical minerals strategy, 22 July 2022. https://www.gov.uk/government/publications/uk-critical-mineral-strategy/resilience-for-the-future-the-uks-critical-minerals-strategy

[15] European Union's Critical Raw Materials Act, March 16, 2023. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan/european-critical-raw-materials-act_en

[16] U.S.-China Economic and Security Review Commission, 2022, Executive Summary; p. 16. https://www.uscc.gov/sites/default/files/2022-11/2022_Executive_Summary.pdf

recommendations that would place a chokehold on domestic mineral supply chains stifle congressional actions to incentivize a robust and responsible domestic mining and manufacturing industry.

Specific problematic recommendations include: conversion of the Mining Law's locatable system to a leasing system; imposition of a 4-8 percent net royalty – while the report indicates it does not take a position on whether the royalty should apply to existing mining claims, it notes that only by doing so is significant funding raised to address legacy sites; imposition of a highly burdensome dirt tax; use of the federal land management planning process to identify areas where hardrock mining is presumptively appropriate and presumptively inappropriate; increased claims maintenance fees particularly if no exploration or production occurs within a specified time; prioritization of project applications that "maximize best environmental and social practices."

Over the years, those opposed to any kind of mining activity have sought to disrupt mining in the U.S. through variations on four main, flawed and punitive mechanisms designed to discourage investment in mining by making it unprofitable and unworkable: converting the locatable system, which is uniquely suited to hardrock mining, to a leasable system; seeking excessive royalties and other unnecessary financial burdens; imposing prescriptive and duplicative operational standards; and introducing unprecedented authority to deny projects that comply with all laws and regulations.

With so many variables at play within a mining project, the importance of regulatory certainty in attracting investment in mining projects cannot be overstated. Mining is a capital-intensive process that takes years of exploration, engineering, design and development before minerals can be produced. Unlike coal, and oil or gas exploration, concentrations of useful minerals that are rich enough to form ore deposits are rare with approximately 1 out of 1,000 deposits having the qualities that allow them the chance of being transformed into an operating mine. Coupled with the complex state and federal permitting process, significant time may pass – the NMA has member companies whose projects have been more than 20 years in the making and billions of dollars invested before bringing in a single dollar in return – impacting the ability of mining companies to attract investment capital.

It should come as no surprise that investors favor projects where they are likely to get the earliest return on their investment and where they know they have the necessary security of title and tenure from the time of location through mine reclamation and closure. As a result, investment dollars for mineral exploration and development tend to flow to countries with a stable political environment, strong economy, an efficient permitting system and predictable regulatory climate. Further, unlike other countries where mining is driven by government investment, U.S. mining is primarily a private enterprise. These unique factors taken together make the existing claim location system, with its requisite security of tenure, the most appropriate for the U.S. to promote mineral exploration and development on federal lands. Upending this system would create substantial regulatory uncertainty that would jeopardize the nation's ability to attract investment in domestic mining.

While some of the recommendations address low-hanging permit improvements, such as additional funding for land management agencies, broadened use of the Nevada Bureau of Land Management permitting process model, pre-application meetings, and project tracking, it fails to even address Section 40206 of the Infrastructure Investment and Jobs Act (IIJA), which requires the Department of the Interior (DOI) and the U.S. Department of Agriculture (USDA) to submit a report to Congress implementing already enacted steps to increase the timeliness of permitting activities for the exploration and development of domestic critical minerals. The DOI and USDA have repeatedly failed to comply with the law and the report provides no definitive direction or answer on when these already enacted permitting reforms needed to be implemented nor does it address how the National Environmental Policy Act (NEPA) permitting improvements included in the Fiscal Responsibility Act will contribute to permitting improvements. Despite several oversight requests to DOI for updates on this requirement by members of this committee, it is clear that the administration has "misplaced priorities or perhaps a willingness to ignore certain requirements." [17]

Federal Permitting Improvement Steering Council

On September 21, the Federal Permitting Improvement Steering Council (FPISC or Council) proposed[18] to amend its existing regulations to limit application of the FAST-41 permitting process to projects that involve primary or byproduct production of "critical minerals" as defined by the U.S. Geological Survey. This proposed change is a sudden and shortsighted departure from Council's 2020 vote to add all mining as a covered sector, without bias to the type of mineral, to the list of covered sectors eligible for the FPISC permitting process. This recent narrowing of eligible projects is contrary to both the administration's infrastructure objectives and the will of Congress and hamstrings the already limited activity by the Council, which to date has accepted only one mining project to the program.[19]

By limiting the type of mining projects eligible for the FPISC permitting process, the Biden administration is wrongfully denying timeliness, efficiency, predictability and transparency to mining projects while continuing to call for more secure mineral supply chains. These platitudes are shallow attempts to distract from the administration's anti-mining agenda and to placate critics who would prioritize a robust domestic mineral supply chain over maintaining the status quo by increasing our nation's mineral import reliance.

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[17] Senate Committee on Energy and Natural Resources, "Manchin Questions Haaland About Interiors Leasing Plans and Failure to Meet Deadlines," May 2023. https://www.energy.senate.gov/2023/5/manchin-questions-haaland-about-interior-s-leasing-plans-and-failure-to-meet-deadlines.

[18] Revising Scope of the Mining Sector of Projects That Are Eligible for Coverage Under Title 41 of the Fixing America's Surface Transportation Act; https://www.govinfo.gov/content/pkg/FR-2023-09-22/pdf/2023-20270.pdf

[19] South32, "Hermosa confirmed as the first FAST-41 mining project," May 2023. https://www.south32.net/news-media/latest-news/hermosa-confirmed-as-the-first-fast-41-mining-project.

Access to Federal Lands

Access to federal lands for mineral exploration and development is critical to maintaining a strong domestic mining industry. These lands historically have provided, and will continue to provide, a large share of the metals and hardrock minerals produced in this country. That said, half of these lands are either off-limits or under restrictions for mineral development, rendering unknown amounts of resources on adjacent state and private lands inaccessible because of federal land restrictions.

The Biden administration continues to pursue a myriad of policies, rulemakings, determinations and designations designed to limit or restrict access on a huge scale to highly mineralized federal lands. This includes mineral withdrawals, monument designations, preemptive permit vetoes, mitigation policies and conservation initiatives, and proposed rules, to name a few – all with the expressed purpose of denying mineral development on federal lands. At best, these are short-sighted policies – and at worst, they are self-sabotage. A *Wall Street Journal editorial* [20] from earlier this year may have put it best:

> *Wouldn't it be better for American workers and the environment to mine these minerals in the U.S.? At least the Administration is consistent on one point: It wants to keep all U.S. natural resources that could be strategic energy assets in the ground.*

While mining is certainly not appropriate on all federal lands, the administration's actions threaten access and should not occur without more informed decisions regarding the mineral potential of the underlying lands. If the U.S. is to supply the essential materials necessary for nearly every sector of our economy, we must ensure continued access to our public lands for responsible mineral development.

Inflation Reduction Act Implementation

Although we should secure and grow strong partnerships with like-minded allies such as Canada, Korea, Japan, Australia and others, we must also vertically integrate our own domestic abilities for mineral supply chains to ensure we are able to support our allies just as they support us, and to limit any future potential shocks to any one supply chain.

Luckily, Congress has acted, most recently through the Inflation Reduction Act (IRA), which provides coordinate opportunities to support an all-of-the-above energy policy. If implemented as designed, the IRA will ensure American leadership in mining and manufacturing and support energy and national security.

The objectives of the IRA can be met as long as strong guardrails are provided during the implementation of the tax credits and financial incentives, including for the Clean

[20] Wall Street Journal, "Biden's Green-Energy Mineral Lockup. The feds block mining that is essential for making EV batteries" January 29, 2023, https://www.wsj.com/articles/biden-administration-mining-duluth-complex-minnesota-superior-national-forest-deb-haaland-electric-vehicles-11674860178.

Vehicle Tax Credit. The Treasury and the IRS should promptly issue guidance that adequately enforces foreign entity of concern rules to prevent minerals processed by China or Chinese-owned companies and individuals or other non-allied foreign nations from being eligible for any provisions within the IRA intended to benefit domestic mineral supply chain security.

Lack of Permitting for Domestic Mining

Unfortunately, since taking office, the Biden administration has permitted just two mine expansions requiring an Environmental Impact Statement (EIS). This signals clear intent of doubling down on our already outsized mineral import reliance from foreign sources rather than building secure, responsible mineral supply chains at home.

This lack of urgency and coordination along with intentional subversion of the intent of the Inflation Reduction Act and congressional authority by pursuing efforts to solidify and fund mineral supply chains through foreign sources – some with known history of human rights and environmental issues and others with insufficient mineral reserves of their own – is extremely concerning.

Moreover, a key State Department official responsible for the Mineral Security Partnership recently reiterated the administration's desire to continue partnering with China to supply minerals to the U.S. when he said, "we are perfectly happy to work with them on this and right now we purchase many of the minerals from Chinese companies. It's about diversifying."[21]

With over $6 trillion worth of mineral resources here in the U.S., a highly trained and highly compensated workforce, and world-class environmental, labor and safety standards, the Biden administration must prioritize strengthening domestic mineral supply chains to help the U.S. meet ever-increasing demand for minerals for electrification, infrastructure and manufacturing needs. Doing so will support minerals and metals sourced, refined, processed, and smelted within our borders. The price of inaction is far too great not to act now.

A Path Forward

The mineral supply chain – from mining through smelting and processing – is a shell of our true domestic potential. Investing in this supply chain and reshoring essential capacity is critical to our own national security and economic competitiveness. We need federal policies that prioritize responsible domestic resource development and provide certainty to all mining operations. This begins by thoughtful implementation of the permitting provisions included in the bipartisan IIJA, following the congressional intent of the NEPA reforms included in the bipartisan Fiscal Responsibility Act, and ensuring access to mineralized federal lands.

[21] Bloomberg, "US Says It Can't Cut China Out of Critical-Minerals Supply Chain", Sept. 22, 2023. https://www.bloomberg.com/news/articles/2023-09-22/us-says-it-can-t-cut-china-out-of-critical-minerals-supply-chain?leadSource=uverify%20wall

These are important first steps to solving our nation's disjointed minerals policy. Much more needs to be done to provide certainty, restore investor confidence, and loosen the grip of geopolitical competitors and economic adversaries. This will ensure our nation's ability to meet the dramatic increases in minerals production that will be needed in the coming decades to keep up with new technologies, infrastructure, manufacturing, let alone the administration's energy transition goals.

The NMA applauds the work of this committee, and the legislation pursued both Chairman Joe Manchin (D-W. Va.), Ranking Member John Barrasso (R-Wyo.), Mining Subcommittee Chairwoman Catherine Cortez Masto (D-Nev.), Senator Jim Risch (R-Idaho) among many others, to reach a bipartisan, durable and necessary permitting solution that prioritizes domestic mineral security and mining workforce development. Regulatory certainty, real time limits on reviews and judicial review of federal agency actions, getting the decisions made by Bureau of Land Management state offices to the Federal Register for public comment and out of endless review in Washington D.C., responsible access to federal lands, and prioritization of the need to permit domestic mining to preserve U.S. competitiveness. These efforts will ease our nation's bureaucratic paralysis and provide for greater economic competitiveness and growth.

Conclusion

The United States is now at a critical fork in the road. We can act to secure our mineral supply chains through responsible domestic mining, processing, refining and manufacturing, or we can take a bad situation and turn it into a decades-long geopolitical Achilles' heel where minerals are weaponized similar to the way oil was in the 1970s and natural gas was after Russia's invasion of Ukraine a year ago.

Congress, and at times the administration, have taken substantive and historic steps to increase mineral supply chain security through supply chain assessments, tax incentives and federal loan and grant opportunities. But ultimately, without a coordinated and sufficient federal response that includes meaningful permitting reform and maintains access to mineralized federal lands, the U.S. will be watching the global competition for mineral and energy dominance from the sidelines. Providing additional funds or incentives for projects that will never be approved accomplishes nothing.

The good news is that America has the mineral reserves, a highly skilled and motivated workforce, and technical expertise to help meet global mineral demands in a responsible way.[22] The NMA appreciates the opportunity to provide comments to the committee and looks forward to working with Congress and the administration to support a robust domestic mineral supply chain for generations to come.

[22] NMA Careers in Mining. July 17, 2023. https://www.youtube.com/watch?v=5M5XanY78to

The CHAIRMAN. You all have been great and very helpful today and we are very grateful for that and I appreciate it. I know you made efforts to be here and I appreciate that more than you know.

So the members are going to have until the close of business tomorrow to submit additional questions for the record.

And with that, the meeting is adjourned.

[Whereupon, at 12:18 p.m., the hearing was adjourned.]

APPENDIX MATERIAL SUBMITTED

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

JAN 17 2025

The Honorable Mike Lee
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Chairman Lee:

Enclosed are responses prepared by the Department of the Interior to written questions for the record submitted following the Committee's September 28, 2023, hearing to: *"Examine opportunities to counter the People's Republic of China's control of critical mineral supply chains through increased mining and processing in the United States as well as international engagement and trade."*

Thank you for the opportunity to respond to you on these matters.

Sincerely,

Pamela L. Barkin
Legislative Counsel
Office of Congressional and
Legislative Affairs

Enclosure

cc: The Honorable Martin Heinrich
Ranking Member

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Questions from Chairman Manchin

Question 1: Will the Secretary "develop and publish a performance metric for evaluating the progress made by the Executive branch to expedite the permitting of activities that will increase exploration for, and development of, domestic critical minerals" by December 11 as required by Section 40206(e) of the Infrastructure Investment and Jobs Act?

Response: As required by Section 40206 of the Infrastructure Investment and Jobs Act, also known as the Bipartisan Infrastructure Law (BIL), the Department of the Interior (Department) developed and published a performance metric which can be accessed at the following url: https://www.blm.gov/policy/ib-2025-013

Question 2: Is the Department working with the Secretary of Agriculture and the US Forest Service to ensure the performance metric developed under 40206(e) is in alignment?

Response: In collaboration with the Interagency Working Group on Mining Laws, Regulations, and Permitting, development of the performance metric entailed coordination with multiple agencies within the Department of the Interior and the U.S. Forest Service.

Question 3: Will the Secretary commit to providing the annual report by the submission of the FY25 budget request as required by Section 40206(f) of the Infrastructure Investment and Jobs Act?

Response: The provision referenced in your question requires the Secretaries to submit to Congress a report no later than the date on which the President submits the first budget after publication of the performance metric referenced in the previous questions, and it is always our intention to follow the law.

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Questions from Ranking Member Barrasso

Question 1: Please provide a list of all mining plans of operation authorized by the Bureau of Land Management between January 20, 2021, and September 30, 2023, with the following information:

a) **Location;**
b) **Owner/operator;**
c) **Targeted mineral(s);**
d) **Acreage;**
e) **Date operations authorized;**
f) **Date modification(s) authorized;**
g) **NEPA type (categorical exclusion, environmental assessment, or environmental impact statement); and**
h) **NEPA identification number.**

Response: Please see the attached document titled "Mining Plans of Operations Authorized by the BLM 1/20/2021 – 1/29/2024"

Question 2: During the hearing I asked you how the 26 mineral withdrawals, which the Department has made or has proposed to make, help us reduce our nation's dependency on foreign minerals. You responded that "the right place to mine for some of these materials is not in the Boundary Waters."

a) **Are Twin Metals' leases, which the Department revoked on January 26, 2022, located within the Boundary Waters Canoe Area Wilderness?**

Response: The Twin Metals leases were adjacent to the Boundary Waters Canoe Area Wilderness, located within the Rainy River watershed and upstream of the Boundary Waters Canoe Area Wilderness.

b) **Was the 225,000 acres of minerals, which the Department subsequently withdrew, located within the Boundary Waters Canoe Area Wilderness?**

Response: The 225,504 acres are located in the Superior National Forest and, as noted in Public Land Order 7917, were withdrawn to protect and preserve the fragile and vital social and natural resources, ecological integrity, and wilderness values in the Rainy River Watershed, the Boundary Waters Canoe Area Wilderness, the Boundary Waters Canoe Area Wilderness Mining Protection Area, and the 1854 Ceded Territory of the Lake Superior Chippewa in northeastern Minnesota from potential adverse effects of mineral and geothermal exploration and development.

c) **Are there any mining operations in Canada near the Boundary Waters Canoe Area Wilderness? If so, please list the mining operations in Canada near the Boundary Waters Canoe Area Wilderness.**

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Response: The Department is aware of one operational mine in Canada near the Boundary Waters Canoe Area Wilderness. The Rainy River mine is a gold producing mine on the Canadian side of the border.

d) Please address my original question. How do the Department's mineral withdrawals or proposed withdrawals help us reduce our dependence on foreign minerals?

Response: The Department recognizes the important role mining plays in meeting the growing need for responsibly sourced critical minerals to achieve our shared climate, infrastructure, and global competitiveness goals. The President has made clear that the sustainable and responsible production of critical minerals is important to achieve our clean energy future, and we are committed to ensuring that important mining is done in the right way and in the right places. Withdrawals, like the one made by Public Land Order 7917, are intended to protect and preserve important natural and cultural resources. New tools are needed to implement a finer, targeted approach for the sustainable and responsible domestic production of critical minerals while reducing conflicts with local communities, wildlife habitat, and essential water resources. Reform of the Mining Law of 1872 recommended by the IWG would provide the tools needed and improve the way mining is conducted on public lands. The IWG identified key changes that would help mine permitting become more efficient and improve our nation's ability to produce a sustainable and responsibly sourced domestic supply of minerals while better engaging and protecting communities.

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Questions from Senator Hickenlooper

Colorado is home to the world-class Colorado School of Mines, which is already hard at work training the next generation of critical minerals experts. The Bipartisan Infrastructure Law authorized funding for a new USGS Energy and Minerals Research Facility on the Colorado School of Mines campus, and we look forward to the opportunities for research, education, and collaboration that this facility will bring.

Question 1: What are the main challenges the Department of the Interior sees in recruiting, training, and retaining the mining workforce we will need in the coming decades?

Response: The Department, like other government agencies and private businesses, faces competition for qualified specialists, particularly in science and engineering fields. We are taking action to address these challenges, for example, by working to incorporate funding provided by the Inflation Reduction Act and other authorities to fill positions, streamline the hiring process, take full advantage of veteran allowances, and use direct hire authority for qualified candidates.

Question 2: How will the new Energy & Minerals Research Facility help meet our nation's workforce and research needs?

Response: Siting this facility on the Colorado School of Mines campus will create opportunities for early hands-on experiences in the geosciences and allied fields. It will support research on the nation's energy and mineral future, and provide mapping, teaching, laboratory, and field employment opportunities to students that will help develop the next generation of geoscientists. In addition, the USGS scientists to be housed in the new facility are currently developing the nation's largest and most detailed geophysical surveys of the Earth's subsurface, evaluating energy and mineral resources that can sustain our economy for decades to come. This includes operating state-of-the-art laboratories supporting these evaluations.

This research will provide unique opportunities for collaborations to develop artificial intelligence/machine learning methods of analysis, and it will support the Colorado School of Mines in developing a workforce to drive high-tech innovation in not only energy and minerals fields, but natural hazards such as earthquake- and landslide risk, groundwater, and other crucial areas.

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Questions from Senator Risch

Question 1: The Interagency Working Group on Mining Laws, Regulations, and Permitting (IWG) final report contained a significant number of administrative recommendations.

- **What is the administration's timeline for implementing those administrative recommendations?**
- **Will you commit to frequent updates and transparency with congress and stakeholders, including the mining industry, as you pursue implementation of the administrative recommendations?**

Response: The IWG final report makes dozens of recommendations, including that federal permitting agencies adopt identified best practices for early and meaningful engagement with applicants, agency and intergovernmental partners, and impacted communities and Tribes prior to the start of formal environmental review. Meaningful and proactive engagement promotes early issue identification and efforts to avoid, minimize, and mitigate impacts, can lead to improved application quality, and reduce the need to revise or supplement application materials—all of which were identified by the Government Accountability Office as significant causes of delays in evaluating mine permit applications. We are working hard to put these steps in place to begin addressing some of the challenges of mineral development on federal lands. We are committed to working with Congress to continue to build areas of consensus around potential reforms to the mining laws and regulations.

Question 2: Do you believe our nation's environmental laws are sufficient to protect the environment and human health?

- **Why or why not?**

Response: Our nation's environmental laws and related regulations are an important foundation to conserving our fish and wildlife resources, keeping our rivers, lakes, and oceans clean, protecting and restoring our environment, and ensuring the health and safety of citizens in every state. It is necessary and important, however, that we are always vigilant in identifying new and evolving threats to the environment and public health, and that we are updating existing authorities and enacting new ones where necessary to address such threats.

Question 3: From a historical perspective, has more regulation, increased government control, higher costs, longer permitting timeframes, and less regulatory certainty attracted private investment or discouraged it?

Response: For locatable mineral development, the Department collaborated with other government agencies to create the IWG to evaluate mining on Federal lands. The IWG recommendations intend to streamline the permitting process, provide a fair return to the American people, and reduce litigation and conflict by facilitating upfront discussions with all stakeholders and parties of interest on the local, Tribal, and national levels. As such, overall costs and timeframes should be reduced.

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Questions from Senator Daines

Question 1: Deputy Secretary Beaudreau, if the legislative and administrative recommendations contained in the Department of the Interior's recently released "Recommendations to Improve Mining on Public Lands" were implemented do you believe that would result in more domestic mining or less domestic mining on public lands?

Response: As noted in the Interagency Work Group report, in order to meet the rapidly increasing demand for minerals, the United States, in coordination with our global partners, will need to rapidly and dramatically increase responsible mineral production. This need is widely accepted. We believe, however, that the Mining Law is an inadequate structural framework and ultimately serves as an impediment to a robust and responsible domestic mining industry. Since taking office, this Administration has outlined a whole-of-government approach to ensure that U.S. mining activity is responsible, and that mine permitting is efficient. The recommendations in the report will help ensure a sustainable and responsibly sourced domestic supply of minerals to meeting our climate, infrastructure, and global competitiveness goals.

Question 2: Deputy Secretary Beaudreau, in the recently released "Recommendations to Improve Mining on Public Lands" the Department of the Interior recommends a 7 cent per ton 'Dirt Tax' for displaced material. What would the economic impacts of that tax be on US mining operations? Please also specify the projected impact if this recommendation were implemented on existing Montana mines.

Response: As noted in the previous response, in order to meet the rapidly increasing demand for minerals, the United States, in coordination with our global partners, will need to rapidly and dramatically increase responsible mineral production. Currently, taxpayers are spending millions of dollars every year cleaning up orphaned and abandoned hardrock mine sites across 12 western states - at least 160,000 known sites. The Government Accountability Office estimated in 2020 that about 67,000 of these abandoned sites pose or may pose physical safety hazards and 22,500 pose or may pose environmental hazards. There is an urgent need for additional resource support to address these sites, particularly those that impact Tribes and other local communities with environmental justice concerns. Unlike for coal, where companies pay up to 22.4 cents per ton of coal mined to fund unreclaimed legacy coal mine sites, there is no similar system for hardrock mining. The Obama administration estimated a reclamation fee 7-cent per ton of displaced material would raise $200 million per year for abandoned hardrock mine reclamation. It is this fee that IWG encourages Congress consider adopting.

Question 3: Deputy Secretary Beaudreau, in the recently released "Recommendations to Improve Mining on Public Lands" the Department of the Interior recommends a new mining royalty. What would the economic impacts of that royalty be on US mining operations? Please also specify the projected impact if this recommendation were implemented on existing Montana mines.

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Response: It should be noted that no U.S. state or major mineral producing nation grants free access to minerals located on public land. As discussed at the hearing, the report recommends that Congress impose a variable 4- to 8-percent royalty on hardrock minerals produced from federal lands. A royalty would ensure first that taxpayers receive fair compensation for minerals extracted from their lands. Also, a share of royalty proceeds or lease revenue should be shared with the states where development occurs and communities most heavily impacted by that development. This will help to fund mineral development permitting programs, abandoned mine land remediation efforts, and provide resources to state and Tribal governments that provide infrastructure and services to mining dependent communities. It is the same thing we do with coal mine reclamation and with decommissioning and reclamation in the oil and gas industry.

Question 4: Deputy Secretary Beaudreau, how many new hard rock mines have been permitted and begun operation since January of 2021? If you have statistics on critical mineral mines specifically, please include.

Response: Please see the attached document titled "Mining Plans of Operations Authorized by the BLM 1/20/2021 – 1/29/2024". The BLM does not track whether a hardrock mining operator has begun operations.

Question 5: Deputy Secretary Beaudreau, how many pending or ongoing lawsuits are there on DOI permitted mines?

Response: The Department is a party to five pending or ongoing lawsuits involving existing or proposed mining operations under the Mining Law of 1872 on lands under the jurisdiction of the Department.

Question 6: Deputy Secretary Beaudreau, do you believe that, if implemented, "Recommendations to Improve Mining on Public Lands" will increase the costs to operate mines on federal lands?

Response: The IWG recommendations intend to streamline the permitting process, provide fair return to the American people, and reduce litigation and conflict by facilitating upfront discussions with all stakeholders and parties of interest on the local, Tribal, and national levels. As such, overall costs and timeframes should be reduced, particularly the costs to the American taxpayer.

Question 7: Deputy Secretary Beaudreau, do you believe that, if implemented, "Recommendations to Improve Mining on Public Lands" will increase the permitting length for mines on federal lands?

Response: The IWG recommendations intend to streamline the permitting process, including recommending that Congress provides adequate resource support for permitting agencies and activities. As such, overall costs and timeframes should be reduced, if implemented. As noted in response to questions from other members of this committee, the IWG recommendations take a

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holistic approach to permitting reform, promoting higher quality applications as well as more efficient and better coordinated application review.

Question 8: Deputy Secretary Beaudreau, many, if not all, mining projects on federal lands are subject to litigation. In one circumstance in Montana litigation and permitting has gone on for over 30 years. Frequently litigants are not members of the community impacted by the mine and are often opponents of all mining, no matter the location or circumstances. Would you support litigation reform that limits the timeline and extent of litigation to ensure permitted and locally supported projects can move forward?

Response: The IWG recommendations are intended to reduce litigation and conflict by facilitating transparency and early engagement with all stakeholders and parties of interest on the local, Tribal, and national levels. As required in section 40206 of the BIL, the Department, through the BLM and the Department of Agriculture, through the U.S. Forest Service, are developing a matrix to track and review timing milestones in permitting, allowing a focused effort to identify and resolve permitting roadblocks.

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Question 9: Deputy Secretary Beaudreau, on a per ton basis, what is the percentage of imports of critical minerals (as defined by USGS) that come in from China or Russia?

Response: The table below lists the average percentage of total U.S. imports of each critical mineral imported from China and from Russia over the years 2018-2021.

Average Percentage of Imports (four-year average over the years 2018-2021)		
	Source	
Critical Mineral	**China**	**Russia**
Aluminum	4	5
Antimony	63	-
Arsenic	57	-
Barite	38	-
Beryllium	0	-
Bismuth	65	-
Chromium	-	7
Cobalt	-	-
Fluorspar	-	-
Gallium	53	-
Germanium	54	8
Graphite (Natural)	33	-
Indium	18	-
Lithium	4	3
Magnesium Metal	-	29
Manganese	-	-
Nickel	-	-
Niobium	-	-
Palladium	-	34
Platinum	-	-
Rare Earths	74	-
Tantalum	24	-
Tellurium	12	-
Tin	-	-
Titanium Metal	-	-
Tungsten	29	-
Vanadium	13	-
Yttrium	94	-
Zinc	-	-
Zirconium metal	89	-

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Source: USGS Mineral Commodity Summaries 2023: https://doi.org/10.3133/mcs2023

Question 10: Deputy Secretary Beaudreau, what specific actions has the Department of the Interior taken that have materially increased domestic mining in the United States?

Response: Mineral development on the public lands, including hardrock mining, contributes to the national economy and provides for a domestic supply of minerals needed for multiple purposes. This Administration has outlined a whole-of-government approach to ensure that our domestic mining activity is responsible, and that mine permitting is efficient. As part of its FY 2024 and 2025 budget requests, BLM sought additional funds to enhance its capacity for reviewing and approving mining plans of operations and to enable the BLM to expedite this process and inspection capacity. The Department also led the IWG that reviewed the hardrock mining laws, regulations, permitting, and oversight of federal lands ensure mining operations meet strong standards.

Question 11: Deputy Secretary Beaudreau, what specific actions has the Department of the Interior taken that have materially reduced US import reliance on China?

Response: As noted in the previous response, this Administration has outlined a whole-of-government approach to ensure that our domestic mining activity is responsible, and that mine permitting is efficient. As part of its FY 2024 and FY 2025budget requests, BLM sought additional funds to enhance its capacity for reviewing and approving mining plans of operations and to enable the BLM to expedite this process and inspection capacity. The Department also led the IWG that reviewed the hardrock mining laws, regulations, permitting, and oversight of federal lands ensure mining operations meet strong standards. The Department also reviews operating plan applications as received from operators.

Question 12: Deputy Secretary Beaudreau, of the minerals both on USGS's critical mineral list and "Net Import Reliance" list which are being mined or can be mined in the United States?

Response: From the list of critical minerals, aluminum, barite, beryllium, cobalt, germanium, hafnium, lithium, magnesium, nickel, platinum group elements, rare earth elements, tellurium, titanium, zinc, and zirconium were produced in the United States in 2022. While deposits containing all the critical mineral commodities and the non-critical mineral commodities with 100 percent net import reliance can be found in the United States, the primary questions regarding potential domestic primary production are whether domestic resources (both identified and undiscovered) could account for a significant fraction of domestic demand and whether those resources could be produced legally and economically (*i.e.*, be classified as reserves).

Question 13: Deputy Secretary Beaudreau, of the minerals both on USGS's critical mineral list and "Net Import Reliance" list which are being mined or can be mined in Montana?

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Response: Critical minerals associated with active exploration and development projects in the State include cobalt, rare earth elements, and zinc. USGS data indicates that additional critical mineral resources in Montana include antimony, arsenic, chromite, manganese, nickel, tellurium, and tungsten. Among the non-critical minerals with greater than 90% net import reliance, Montana has significant potash deposits.

Question 14: Deputy Secretary Beaudreau, China is a major producer of both the critical minerals required for solar panels as well as the production of solar panel and solar panel components. Are there any ongoing or proposed actions the Department is taking to reduce or eliminate installation of Chinese manufactured solar products on federal lands?

Response: The Department follows the laws enacted by Congress. The Department does not regulate the importation of goods into the United States. With regard to the need to responsibly increase mineral production to meet our needs for critical mineral resources, the Administration has released its Fundamental Principles for Domestic Mining Reform, which will ensure our actions are conducted with strong environmental, sustainability, safety, Tribal consultation and community engagement standards. Moreover, the IWG's report contains additional recommendations to increase responsible mining.

Question 15: Deputy Secretary Beaudreau, what is the current status and projected timeline for the completion of environmental documents for the Spring Creek Coal Mine and the Bull Mountains Coal Mine in Montana?

Response: For the Spring Creek Coal Mine, the Office of Surface Mining Reclamation and Enforcement (OSMRE) released a draft EIS for a 45-day public comment period as posted in the Federal Register on September 4, 2024. The final EIS is scheduled for release in December 2024, with a Record of Decision following.

The current estimated completion date to correct deficiencies in the NEPA process on the mine plan amendment at Bull Mountains Mine is August 2025.

Question 16: Deputy Secretary Beaudreau, the Office of Surface Mining Reclamation and Enforcement announced they are preparing an Environmental Impact Statement for the Bull Mountains Mine in Montana. This is despite three previous Environmental Assessments that were prepared over the last eight years for this mine. The time frame for the completion of the EIS has slipped from July of 2024 to March of 2025. Will you commit that a Record of Decision be issued for the mine before March of 2025?

Response: As noted in the previous response, the current estimated completion date to correct deficiencies in the NEPA process on the mine plan amendment at Bull Mountains Mine is August 2025.

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Question 17: Deputy Secretary Beaudreau, it is my understanding the Bull Mountains Mine EIS has been selected to be part of the "Department Review Team." What does this process entail and why has the timeline only increased recently?

Response: The Departmental Review Team (DRT) clearance process is detailed in the Department's Environmental Review Memorandum No. ERM 10-11. As stated in that memorandum, it is intended to improve the approval process for EISs to maximize efficiency, empower frontline decisionmakers, and focus Departmental leadership where most needed to ensure effective and efficient implementation of the National Environmental Policy Act. The process requires the DRT to review and provide approval to proceed at a maximum of four stages while preparing an EIS, including: (1) the Notice of Intent; (2) the end of scoping; (3) the Notice of Availability for the Draft EIS; and (4) the Final EIS. Not all of these stages may be required, and the need for further DRT briefing will be assessed after each successive DRT briefing. In practice, the project teams schedule a month to complete each DRT review stage.

Question 18: Deputy Secretary Beaudreau, will you commit to completing the Environmental Impact Statement for the Spring Creek Coal Mine within the timeline and in an expeditious manner?

Response: As noted in a previous response, the OSMRE released a draft EIS for a 45-day public comment period as posted in the Federal Register on September 4, 2024. The final EIS is scheduled for release in December 2024, with a Record of Decision following.

Question 19: Deputy Secretary Beaudreau, how many Record of Decisions for new, existing or expanded coal mines have been approved for federal coal since January of 2021?

Response: No RODs have been issued since January 2021, but the Department has approved one new federal mining plan and one mining plan modification for coal mines during that time frame.

Question 20: Deputy Secretary Beaudreau, the Department of the Interior has not yet responded to my June letter requesting answers on why the Department not held oil and gas leases sales for Montana parcels in the last several quarters. Therefore please answer the following questions:

> **Question 20a: When will the Department reply to my June and September letters on this issue?**

Response: The Bureau of Land Management responded to your letters on December 7, 2023.

> **Question 20b: When will the Department offer Montana parcels on a congressionally mandated quarterly lease sale?**

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Response: Thirteen oil and gas parcels within Montana and North Dakota are scheduled to be offered in the oil and gas lease sale scheduled for January 22, 2025.

Question 20c: What is the total number of acres nominated in Montana since the September 2020 Lease Sale?

Response: The total number of acres nominated in Montana since September 1, 2020, is 43,368.832.

Question 20d: What is the total number of acres deferred in Montana, and the reason for each deferral, since January 20, 2021?

Response: Since January 20, 2021, BLM has deferred 55 parcels (22,130.39 acres) in Montana:

- 35 parcels (14,977.24 acres) for Low Preference (low development potential);
- 13 parcels (3481.01 acres) because of supplementary analysis required as a result of litigation (*see Western Organization of Resource Councils, et al. v. BLM*; 4:20-CV-00076-GF-BMM; 8/3/2022);
- 6 parcels (3,443.36 acres) because they were located within Greater Sage-Grouse habitat and big game corridors; and
- 1 parcel (228.78 acres) because of resource concerns associated with shallow fracturing in the same zone being used for domestic water and irrigation sources.

Nineteen Montana parcels (4,185.47 acres) have been moved out of deferral status and proposed for inclusion in future oil and gas lease sales.

Question 20e: What is the average length of time from when a parcel is nominated in Montana until it is offered at a lease sale since January 20, 2021?

Response: The BLM does not typically track the amount of time that passes from when a parcel is nominated until it is offered at a lease sale. Expressions of Interest (EOIs) are not automatically included on a sale when received, and the submission of an EOI does not guarantee those lands will be offered at auction.

Factors that the BLM considers when reviewing an EOI include whether the parcel is submitted on lands that are available and whether there are any environmental concerns. Additionally, if an EOI includes lands where the surface is managed by another agency, depending on the land status, the BLM is required to either consult with or obtain consent and recommendations from that agency before placing the lands on a competitive sale notice. In some cases, it may be necessary to update environmental documents to include current conditions or to respond to litigation. As a result, the timeframes to process an individual EOIs can vary.

Question 20f: What is the total number of leases and acres offered in Montana since January 20, 2021?

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Response: Since, January 20, 2021, the BLM offered 8 parcels totaling 2,833.67 acres in the June 2022 lease sale.

Question 21: Deputy Secretary Beaudreau, how many Full Time Equivalent Staff are employed at the BLM Field Office in Billings, Montana, to process or approve oil, gas, coal, or other mineral and energy related actions, or assist with Montanans who have questions on oil, gas, coal, or other mineral and energy related actions?

Response: BLM Montana/Dakotas has a total of 16 solid minerals-related positions and 45 oil and gas-related positions that provide direct support in processing or approval actions in support of these energy program areas. However, these positions are only those primary FTE staff with substantial roles/responsibilities in the BLM Montana/Dakotas State Office associated with processing/approving energy actions. The processing and approval of oil, gas, coal, or other mineral and energy related actions, as well as assisting the public with questions related to these matters, involves a range of personnel in direct or indirect capacities to support the overall program. Many of the processing and approval functions are centralized at the State Office, while other functions are delegated to district or field office staff. There are other specialists and staff support personnel that have indirect roles in reviewing, providing data, etc., to support these efforts, and those positions were not included in this response.

Question 22: Deputy Secretary Beaudreau, of the Full Time Equivalent Staff listed above how many are predominantly located in office and how many are predominantly teleworking?

Response: About 90 percent of the staff supporting the processing and approval actions (solids and oil and gas) predominantly work in the office; a portion of these employees work under situational telework agreements with supervisory approval.

Question 23: Deputy Secretary Beaudreau, in the BLM proposed rule on Onshore Oil and Gas Leasing, how is "important wildlife habitat" defined? And will there be publicly available maps that show these areas?

Response: The Fluid Mineral Leases and Leasing Process rule was published on April 23, 2024, and became effective on June 22, 2024. The Rule can be accessed via the Federal Register at the following url: https://www.federalregister.gov/documents/2024/04/23/2024-08138/fluid-mineral-leases-and-leasing-process

The BLM will identify if publicly available maps, beyond the maps within the onshore oil and gas lease sale environmental assessments, are needed to support the BLM's evaluations of expressions of interest for future oil and gas lease sales. The lease sale process also allows for public input to collect new information during the scoping, comment and protest periods.

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Question 24: Deputy Secretary Beaudreau, in the BLM proposed rule on Onshore Oil and Gas Leasing, it states that "BLM could then take the public comments into account when considering current and future sales." Does BLM intend to take public comments only on lands that they deem suitable for leasing? Or will they also take comments on lands that they deem unsuitable? Does BLM intend to publish maps showing areas they deem suitable or not suitable for leasing?

Response: The Fluid Mineral Leases and Leasing Process rule was published on April 23, 2024, and became effective on June 22, 2024. The Rule can be accessed via the Federal Register at the following url: https://www.federalregister.gov/documents/2024/04/23/2024-08138/fluid-mineral-leases-and-leasing-process

Under the new rule and under preexisting policy, BLM identifies the preference of oil and gas lease sale parcels as part of the onshore oil and gas lease sale environmental assessments. The 30-day scoping period identifies all of the parcels that BLM is considering to offer in an oil and gas lease sale. After the scoping period, the environmental assessment is updated to identify the preference criteria for each parcel, providing the public with an opportunity to comment on the lands under consideration. BLM will identify if publicly available maps, beyond the maps within the onshore oil and gas lease sale environmental assessments, are needed to support the BLM's evaluations of expressions of interest for future oil and gas lease sales.

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Question from Senator Cassidy

Question 1: During the hearing you told Senator Barrasso that under existing laws the only blunt instrument the Department has for mineral development in sensitive areas is a mineral withdrawal and that the Department needs more tools. You specifically said, "We need to have a much finer and targeted approach to the development of critical minerals."

- **What specific tools does the Department believe would help it balance various needs to further mine in the United States without having to, at times, default to a mineral withdrawal?**

Response: It is important that we continue to work toward meeting the nation's mineral needs. The IWG completed a full evaluation of Mining and the Mining Law and the report that it released on September 12, 2023, contained a number of recommendations that would provide the needed tools to balance conflicting issues and needs. These tools include things like Congress provide sufficient resources to ensure agencies have the expert staff they need to expediently process environmental analyses and permit applications; that Congress authorize the withdrawal of sensitive lands from future mining claims unless the claimant agree to protective development stipulations; and that Congress work with the Administration and stakeholders to development a transition from the current claim system to a hardrock leasing system.

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Questions from Ranking Member John Barrasso

Question 1: In recent years, several resource-rich nations have adjusted their policies governing foreign access to mineral reserves. For instance, Indonesia banned exports of raw nickel, Chile proposed requiring all lithium projects to partner with the state, and Namibia banned exports of some unprocessed minerals.

a) Do you expect mineral-rich nations to adopt more export restrictions as mineral demand increases in the coming years?
b) What impact do these policies have on supply chain stability, especially for the United States?

As demand for minerals goes up, there will be a tendency for resource-rich countries to seek to renegotiate terms, restrict exports and, increasingly, to capture more of the value chain by requiring processing within their borders. It can be accentuated by a change of government within the countries, whereby the government that negotiated the original deal has been replaced by another government. This overall picture is what the economist Raymond Vernon called the "obsolescing bargain" in relations between resource countries and companies. The consequence is to introduce more uncertainty and volatility – and more politics – into supply chains – and to hinder investment..

Questions from Senator James E. Risch

Question 1: In your opinion, will the Biden Administration's collective minerals policy (including limiting or blocking access to mineralized federal lands, IWG report recommendations, FPISC's proposal to limit mineral project consideration, failure to enact permitting provisions included in the bipartisan IIJA, following the congressional intent of the NEPA reforms included in the bipartisan Fiscal Responsibility Act) provide a sustainable path forward to ensure our nation has a robust domestic mineral supply chain required to meet current and future economic and national security demands? Please explain your answer.

The United States has an endowment of energy and minerals that other countries only wish they could have – both to meet energy needs and support national security. Environmentally-responsible development requires both access and timely decision-making. But the difficulties and uncertainties of permitting in the United States is a very big problem and one that creates significant obstacles both for economic and national security objectives.

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Questions from Ranking Member John Barrasso

Question 1: In his testimony, Deputy Secretary Beaudreau argued that the General Mining Law should be revised because it is 150 years old and is therefore "antiquated." Has Congress updated the General Mining Law since it was enacted in 1872? If so, how many times has Congress amended the General Mining Law, and please list each instance of Congress enacting a change to the General Mining Law.

Answer: The premise that the General Mining Law is unchanged or outdated is incorrect—the Mining Law has been amended scores of times through enactment of other federal laws.

To understand the relationship between the Mining Law and the various permitting and environmental statutes applicable to mining projects and in order to simplify and streamline the permitting process, one must first understand the ways in which the Mining Law already has been amended, directly and functionally. It is then necessary to understand the complex ***system*** of laws that govern mining activities and that, operationally, have amended the Mining Law. That the specific wording of the Mining Law's key provision, 30 U.S.C. § 22, has not been revised, does not mean that the law is unchanged. To end the inquiry there would require one to ignore the substantial body of other mineral leasing, federal land management, and environmental laws and regulations that build upon the Mining Law's foundation, many of which amend its application or otherwise limit permissible mining activities. Indeed, the courts have recognized on multiple occasions that the Mining Law already has been amended, noting, for example, that the "heart of [the Federal Land Policy and Management Act of 1976[1]] FLPMA amends and supersedes the Mining Law."[2]

United States' public land laws have developed in three broad phases, as reflected in Attachment 5, "Federal Laws Amending or Affecting the Mining Law of 1872." During the first phase (development and land disposal), Congress and the federal government incentivized development and settlement west of the Mississippi by, among other actions, donating land to settlers and timber companies,[3] promoting the development of the transcontinental railroad,[4] and granting rights to miners to promote mineral exploration and to reward them for discovering and developing valuable mineral deposits.[5] This phase lasted from *circa* the late 1840s through the early 1900s. In the second phase, from approximately 1890 through the present, Congress enacted statutes to reserve, acquire, or preserve certain types of public lands, either to federally

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[1] 43 U.S.C. §§ 1701-1782 (1976 and Supp. III 1979).
[2] *Mineral Policy Ctr. v. Norton*, 292 F. Supp. 2d 30, 33 (D.D.C. 2003).
[3] *See* Attachment 5, Section I., including the Preemption Act of 1841, the Donation Land Claim Act of 1850, and the Homestead Act of 1862.
[4] The Transcontinental Railroad connected the Central Pacific Railroad from Sacramento and the Union Pacific Railroad from Omaha on May 10, 1869, at Promontory Summit, Utah Territory.
[5] *See* Attachment 5, Section II., the Mining Laws of 1864, 1866, and 1872, 30 U.S.C. §§ 22-42, and the Placer Mining Act of 1870.

manage certain resources (e.g., timber), or for conservation and protection.[6] In the third phase, starting *circa* 1900 but predominantly from the late 1960s to the 1980s, Congress has adopted environmental protection and public safety laws.[7] All of these directly or functionally amend the Mining Law because they define which lands and minerals remain open to location under the Mining Law and dictate the environmental standards with which operators must comply.

Early in the first phase, the development of western public lands, Congress incentivized those who would develop public lands, such as by settling on the land and farming or by producing timber. It was during this era that Congress enacted the Mining Law to promote exploration for and development of domestic mineral resources. It is important to understand the Mining Law in the context of the other laws enacted to promote settlement and development of public lands during this early period. Contrary to mine opponents' mischaracterization of the Mining Law as a unique giveaway of public lands, the only unique aspect of the Mining Law is that it provides a mechanism to acquire title to the mineral estate on an unpatented claim and acquire title to the surface of the land if the claim is patented (a process that Congress has not allowed since 1994). By the early 1900s, Congress began differentiating certain public land uses—for timber, parks, cultural resources, wilderness, and military purposes. Nearly every such land withdrawal (including those under homestead acts) reduced the amount of land available for mineral entry. Thus, the laws listed in Attachment 1, Section I) directly amend the Mining Law by reducing the public lands to which it applies. Today, of the approximate 650 million acres of public lands managed by the federal government,[8] roughly 400 million acres have been withdrawn for conservation, preservation, or other federal purposes and are off-limits to mining.[9]

Federal mineral and mining laws have also amended the Mining Law. For example, the initial Mining Law did not differentiate among minerals, authorizing mineral entry for exploration and development of any type of valuable mineral deposit. The mining laws of 1866 and 1870 differentiated between lode claims and placer claims but still applied to all forms of deposit. Congress began to narrow both the geographic scope and the types of minerals available for mineral entry starting in the 1920s. First, the Mineral Leasing Act of 1920 removed certain nonmetallic minerals, including oil, gas, coal and other non-energy minerals such as phosphates and sodium, from the Mining Law. Additional minerals, including sulfur and potassium were removed from the Mining Law by subsequent leasing laws. In 1947, mineral withdrawals were extended to lands acquired under the Weeks Act or the Bankhead-Jones Farm Tenant Act of

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[6] *See* Attachment 5, Section I. These laws include The Creative Act of 1891, § 24, 26 Stat. 1905, 1103 (1891), the Organic Administration Act of 1897, 30 Stat. 34-36 (1897), the Antiquities Act, Pub. L. 59-209 (Session 1; 34 Stat. 225), the Weeks Act, the Wilderness Act of 1964, and the National Historic Preservation Act.

[7] *See* Attachment 5, Section III., including, the Federal Mine Safety Act of 1891, the Rivers and Harbors Appropriation Act of 1899, and more recently NEPA, the Bald Eagle and Golden Eagle Protection Act, the Endangered Species Act, the Clean Air Act, the Clean Water Act, the Solid Waste Disposal Act 42 U.S.C. §§ 6901, *et seq.*, and CERCLA, 42 U.S.C. §§ 9601, *et seq.*

[8] GAO Letter report to Senator Tom Udall entitled "*Hardrock Mining: Availability of Selected Data Related to Mining on Federal Lands*," May 16, 2019, available at: https://www.gao.gov/assets/gao-19-435r.pdf.

[9] John D. Leshy, *America's Public Lands – A Look Back and Ahead*, 67th Annual Rocky Mountain Mineral Law Institute, July 19, 2021.

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1937.[10] In 1916, Congress passed legislation authorizing the Secretary of Agriculture under general regulations to be prescribed by him, to permit the prospecting, development, and utilization of the mineral resources of the lands acquired under the Weeks Act. Congress passed an identical provision in the Act of March 4, 1917, and the re-enacted provision was codified at 16 U.S.C. § 520. These Acts permitted disposal of mineral resources occurring on lands purchased pursuant to the Weeks Act. The cumbersome and failed hardrock minerals leasing program on acquired lands governs the very limited amount of mineral production from these acquired lands.

In 1955, under the Surface Resources Act of 1955 (also known as the Multiple Use Mining Act of 1955), "common varieties" of mineral materials, including stone, sand, gravel, pumice, and clay were withdrawn from operation of the Mining Law. Instead of the Mining Law, these mineral materials were made available for "disposal" (meaning sale) by the federal agency managing the land where such minerals were located. Significantly, since October 1, 1994, Congress has also effectively amended the Mining Law by precluding "purchase" of mineral public lands through patenting.[11] In the annual omnibus bill, Congress has prevented the BLM from accepting any new applications for patents on mining claims, thereby retaining federal ownership of lands subject to mineral entry.

In addition to the aforementioned mineral and leasing laws, FLPMA was specifically enacted *to amend* the Mining Law.[12] FLPMA reflected a major shift in federal policy in that it stated federal land should remain under federal ownership. It phased out homesteading by repealing the pre-existing Homestead Acts and established a regulatory system for the BLM to manage the majority of federal lands available to mineral entry. FLPMA is "a complex statute, containing many interdependent sections in order to provide BLM with a versatile framework for its management efforts"[13] and requires that management to be consistent with principles of "multiple use and sustained yield."[14] These principles, which balance "the need for domestic sources of minerals, food, timber, and fiber from the public lands" with protection of the "quality of scientific, scenic, historical, ecological, environmental, air, and atmospheric, water resources, and archeological values,"[15] apply today.

Under FLPMA, BLM has adopted regulations[16] requiring, *inter alia*: BLM approval of a detailed Plan of Operations before surface disturbance greater than five acres; mining claim location fees; annual fees to maintain mining claims; financial guarantees for reclamation; and mining

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[10] Mineral Leasing Act for Acquired Lands of 1947, 30 U.S.C. §§ 351-359; *see also* the Weeks Act and amendments, 16 U.S.C. §§ 515, 520; the Reorganization Plan Numbered 3 of 1946, 60 Stat. 1097, 1099 (1946); and the Bankhead-Jones Farm Tenant Act of 1937, 50 Stat. 522 (1937).
[11] The Mining Law states that federal public lands "are hereby declared to be free and open to exploration and purchase" (30 U.S.C. § 22), but patents have been unavailable for 28 years.
[12] *Mineral Policy Ctr. v. Norton*, 292 F. Supp. 2d 30, 33 (D.D.C. 2003).
[13] *Rocky Mountain Oil & Gas Ass'n v. Watt*, 696 F.2d 734, 738 (10th Cir. 1982).
[14] 43 U.S.C. § 1732(a).
[15] *Id.* at §§ 1701(a)(8), (12) (emphasis added).
[16] 43 C.F.R. § 3809 (the "3809 Regulations").

reclamation. Persons holding existing claims were required to record their claims with the BLM, and all new claims and sites are required to be recorded with the BLM. Through the annual maintenance fee filing process, BLM now maintains current information on the location, number, and ownership of all unpatented mining claims, mill sites, and tunnel sites, while also obtaining funding from mining claim holders to administer the mining claim information system. None of this was originally required under the Mining Law, which specified simply that mining activities be conducted "according to the local customs or rules of miners, in the several mining-districts."[17]

Through FLPMA, Congress also repealed the homesteading laws that were essentially contemporaneous with the Mining Law. In marked contrast and after significant consideration, Congress did not repeal the land tenure components of the Mining Law and expressly retained their key elements. It is important to understand both the scope of FLPMA's amendments to the Mining Law as well as the aspects of the Mining Law that FLPMA explicitly preserved. FLPMA's amendments to the Mining Law are enumerated in Section 302(b) and state:

> Except as provided in section 314 [codified as section 1744], section 603 [codified as section 1782], and subsection (f) of section 601 [codified as section 1781] of this Act and in the last sentence of this paragraph, no provision of this section or any other section of this Act shall in any way amend the Mining Law of 1872 or impair the rights of any locators or claims under that Act, including, but not limited to rights of ingress and egress. In managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.[18]

Although the amendments listed above significantly changed the Mining Law, they were surgical. In enacting FLPMA, Congress carefully preserved the Mining Law's fundamental land tenure and self-initiation rights, and applied these rights to all lands open to location under the Mining Law, both on and off of claims and mill sites, without regard to whether a mining claim contains a discovery of a valuable mineral deposit, and without directing or limiting the property rights under the statute, which describe how mining claims can be used for mineral purposes that are reasonably incident to mining.

In addition to the above amendments, which directly changed the Mining Law, environmental protection and health and safety laws functionally amend the Mining Law and the uses which are authorized on federal lands.[19] For any mining activity on federal public land, for example,

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[17] Mining Law of 1872, 30 U.S.C. § 22. Moreover, those "local customs or rules of miners" still generally exist and are implemented by the state or local government. For example, mine claims must also be recorded with the state or county land records office in most mining districts.
[18] FLPMA Section 302(b), 43 U.S.C. § 1732(b).
[19] The WGA's National Minerals Policy Resolution recognizes this relationship, stating: "[t]he Mining Law has provided the framework for developing hardrock minerals on the public lands. It has been supplemented by a large body of federal, state, tribal and local environmental and reclamation laws and regulations (including regulations

whether managed by BLM or the Forest Service, the federal agency must undertake a review under NEPA.[20] If the mining activity is common and known by the lead federal agency to have minor environmental impacts, it may be subject to a categorical exclusion under NEPA. Otherwise, *before* any federal decision is made, NEPA review is required and may take anywhere from six months for a routine EA to over two years (in some cases, decades) for a final EIS and an agency ROD. This review process involves all federal, tribal, state, local, and citizen stakeholders, and requires extensive review of potential impacts (direct, indirect, and cumulative), based on site-specific environmental baseline studies for the environmental resources at a given site, including, for example, threatened or endangered species, Bald and Golden Eagles, migratory birds, other wildlife resources, grazing, surface and groundwater resources, air quality, historic and cultural resources, visual vistas, transportation and access, vegetation, hazardous and solid waste, noise, environmental justice, social and economic values, and climate change.[21]

The lead federal agency must also consult on a government-to-government basis with any tribes that may be affected by the proposed mining activity. This consultation is statutorily required under Section 106 of the NHPA (54 U.S.C. 306108), its implementing regulations at 36 CFR Part 800, and in certain instances it is required under the Archaeological Resources Protection Act (16 USC 470aa-470mm) and the Native American Graves Protection and Repatriation Act (25 USC 3001-3013). Consultation is also required under federal policies, including the Presidential Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships (Jan. 26, 2021); Executive Order 13175 of November 6, 2000 (Consultation and Coordination With Indian Tribal Governments); Presidential Memorandum of November 5, 2009, Executive Order 13007 of May 24, 1996 (Indian Sacred Sites); and numerous internal agency policies, manuals, handbooks and directives.

Moreover, a proposed mining operation will likely require other federal approvals in addition to a Plan of Operations, such as a Clean Water Act Section 404 permit from the Corps to dredge or fill a water of the United States or an adjacent wetland; a land exchange decision; or a federally-issued air quality permit. Each of these permit decisions must also be preceded by a NEPA review.

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promulgated by the federal land management agencies) to assure protection of the environment, wildlife, and cultural resources during mining exploration and development and to ensure reclamation of lands after active mining ceases." WGA Resolution, Section A.8, page 2; *see also* Sections A.10-12.

[20] NEPA, 42 U.S.C. § 4331, *et seq.*

[21] *See e.g.*, a recent example of a draft Environmental Impact Statement ("DEIS"), Goldrush Mine Project, Draft Environmental Impact Statement, issued by the BLM for public comment in June 2022, Attachment 6 and available at Goldrush Mine Project Draft Environmental Impact Statement (blm.gov). While not yet final, the process was initiated by an application for a Mine Plan of Operations submitted in January 2020. *Id.* at ES-1. The cost to prepare the DEIS was estimated to be $22,060,000, with the project proponent paying roughly $22 million. *Id.*, cover page.

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Question 2: The Interagency Working Group on Mining Laws, Regulations, and Permitting's September 2023 report suggested eliminating the current mining claims system in favor of a leasing system on the assumption that a leasing system would lessen conflict for mineral projects.

a) Do you agree that a leasing system would result in less conflict?
b) Do you believe there is any framework that could entirely eliminate opposition to mining projects?

Answer a):

The current hardrock leasing system on acquired lands demonstrates that a leasing system will not result in less conflict. The Twin Metals project in Minnesota is a prime example.

The Mining Law[22] governs property rights and the process by which United States citizens may explore for and obtain hardrock mineral rights on western public domain lands. The current legal framework should not be changed. Under this Act, our citizens may take their own initiative to explore for mineral deposits that could potentially discover a mineral deposit that can become a successful mine. Once a deposit is identified, exploration and mineral development activities are subject to environmental protection mandates and permitting approvals, put in place by our country's federal and state agencies and mandated under our system of cooperative federalism. One central purpose of the Mining Law, however, is to provide certainty with respect to obtaining property interests and land rights on public domain lands open to mineral entry. In fact, an essential component to this law is the protection and security of tenure claimants rely on to justify large expenditures across public lands when locating and developing valuable mineral deposits. Replacing the Mining Law with a leasing system would eliminate this self-initiation and security of land tenure crucial to motivate and enable mining claimants and miners to search for mineral deposits across public domain lands. In fact, most leasing systems add years and layers of unpredictability to the ability of miners to acquire, own or develop any discovered mineral deposits. This unpredictability disincentivizes investment in the exploration and production of U.S. minerals and would result in alternative investments overseas. In this regard, most leasing system proposals directly conflict with the Biden Administration's claimed policies to increase domestic critical mineral production.

The system already implemented under the Mining Law is an effective way for the public to benefit from private-sector investment in the exploration and development of hardrock mineral deposits. This self-initiation process leverages private-sector investment in a way that develops minerals, including most critical minerals, creates jobs, results in widespread tax revenues, and feeds our country's supply chains. Instead of U.S. taxpayers, or the federal government, shouldering the risks of exploration and development, those burdens are carried completely by the private sector. Self-initiation enables prospectors and geologists to pursue their theories about where mineral deposits exist and ultimately identify and delineate promising mineral targets.

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[22] Mining Law of 1872 § 1, 17 Stat. 91

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This process requires a lot of expertise together with trial and error. In fact, the National Research Council/ National Academy of Science has stated that 1,000 mineral targets must be identified in order for a single hardrock deposit to become a mine.[23]

By contrast, a leasing system would discourage exploration and development of hardrock minerals. It would shift the burdens of exploration and development from the private sector to the government and U.S. taxpayers, and it would result in a loss of revenues to the country. In this regard, the current mining claim system generates annual maintenance fees for both developed and undeveloped claims, resulting in more than $100 million in annual revenues for the United States treasury.[24] Under a new leasing system, there would be no such fees collected for undeveloped mining claims or areas, and a drop-off in new exploration targets, mining claims, or potential mines would result in a significant decrease in federal revenues.

Recent legislative attempts to change the Mining Law into a leasing system attempt to copy the hardrock leasing program previously implemented for acquired lands.[25] This 75-year-old system has a proven track record of being both impractical and unproductive in terms of exploration, mineral production and any generation of royalty revenues. If such a program were to be implemented for hardrock minerals across western public domain lands, it would destroy the self-initiation process and the security of land tenure needed to incentivize private exploration for critical minerals. Instead of private investment, the federal government would be required to decide when and where geologists look for minerals and how long developers should operate their mines. These governmental conditions and restrictions would bottle-neck the supply of critical minerals and diminish incentives for any mineral investment in federal lands. Our country's supply chains would be negatively affected, and there would be an increased reliance on foreign minerals. Unlike the leasing systems currently set-up for coal, oil and gas (which work because most of these deposits are already discovered and relatively well-known), hardrock development requires ongoing exploration and complex and costly geological work to find and identify the grade, depth, size and economic viability of each hardrock deposit. Then, even once a deposit has been sufficiently defined through drilling and exploration, it often requires hundreds of millions or even billions of dollars to develop and build the mining and processing facilities required for the extraction and processing of hardrock minerals.

Hardrock mineral deposits are very different from oil, gas, and coal deposits because, most hardrock mineral deposits occur in areas with much more complex and diverse geology. Additionally, hardrock deposits typically have unique geologic, geochemical, and metallurgical characteristics which make each valuable mineral deposit different and result in many deposits being difficult to discover and develop. Generally, neither the federal government nor the mineral prospector knows beforehand where hardrock mineral deposits are located, and they need flexibility to explore large swaths of potentially mineralized zones. This unpredictability is

[23] Hardrock Mining on Federal Lands, page 24.
[24] https://www.blm.gov/sites/default/files/docs/2022-07/Public_Land_Statistics_2021_508.pdf, page 160.
[25] The Minerals Leasing Act for Acquired Lands of 1947, 30 U.S.C. §§ 351-359

one of the reasons that hardrock leasing on acquired lands has failed, even though there is promising geology in acquired lands.

Answer b):

There will never be a project that everyone agrees with – no matter how much engagement is done. That being said, many AEMA members have found that tribes and local community members, businesses and organizations can be effectively engaged early in the life cycle of a mining project when there is a concerted effort by mineral exploration and mining companies to establish proactive and meaningful communication with all stakeholders. Stakeholder engagement effectively begins the moment a company becomes involved in a project, whether it is a greenfield project where activities involve surface prospecting that creates no disturbance, or a mining company taking over a current operating mine. In addition, stakeholder engagement lasts for the duration of a project's life. Modern companies understand that early communication with local community members, organizations and businesses, and tribal governments encompasses critical corporate outreach activities throughout the life of a project. Companies also understand that these relationships are most effective where they are mutually beneficial and create long-term positive impacts for all groups.

To create such relationships, meaningful stakeholder input into project development is always advisable. In particular, modern mining and exploration companies understand that company engagement of tribal governments should begin long before federal agencies start the government-to-government National Historic Preservation Act (NHPA) Section 106 consultation process. There are many examples of how companies' efforts to work collaboratively with all stakeholders, including tribes, have resulted in important improvements and refinements to a project proponent's proposed Plan of Operations to reduce project impacts, preserve public access, enhance environmental outcomes, and identify ways to benefit local communities. These benefits are not limited to cultural resources issues.

Numerous mineral exploration and mining companies are making a concerted effort to establish early and meaningful dialogues with tribal governments and local community members, businesses and organizations near their operations, whether it be an early-stage exploration project or a proposed mine. There is an industry-wide sincere desire to build long-term, collaborative and beneficial working relationships with all stakeholders, where companies are committed to making a proposed mine the best possible project for the area's economy and people in a socially and environmentally responsible manner.

Stakeholder engagement dialogues between companies, tribes, and local groups are already achieving productive and collaborative outcomes across the country. A leasing system clearly is not needed to achieve these goals.

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Questions from Senator James E. Risch

Question 1: In your opinion, will the Biden Administration's collective minerals policy (including limiting or blocking access to mineralized federal lands, IWG report recommendations, FPISC's proposal to limit mineral project consideration, failure to enact permitting provisions included in the bipartisan IIJA, following the congressional intent of the NEPA reforms included in the bipartisan Fiscal Responsibility Act) provide a sustainable path forward to ensure our nation has a robust domestic mineral supply chain required to meet current and future economic and national security demands?

- What should the administration do differently?

Answer:

The collective minerals policy outlined in Question 1 is counterproductive to ensuring a secure domestic mineral supply chain for our Nation's economic and national security.

Recent global events have exposed the United States' supply chain vulnerabilities, highlighting the importance of an abundant and affordable supply of domestic minerals for America's future. Global mineral demand is skyrocketing. As noted in a report from the International Energy Agency, keeping global temperature rise to below 2 degrees Celsius above pre-industrial levels will quadruple the demand by 2040 for the minerals needed to build wind turbines, solar panels, and electric vehicles. A faster energy transition — reaching net zero globally by 2050 as the Biden administration has called for— would require critical mineral inputs to increase sixfold by 2040.

Solar panels require silver, tin, copper, and lead; wind turbines use rare earths, copper, aluminum, boron, and zinc; electric vehicles are built with copper, aluminum, iron, molybdenum; and rechargeable storage batteries use lithium, vanadium, nickel, cobalt, and manganese. Approximately 40 percent of the gold now produced is used in electronics and computer chips that are needed for clean energy technologies to meet carbon emission reduction objectives to address climate change.

President Biden has promised to convert the entire U.S. government fleet – about 640,000 vehicles by 2030 – to EVs. That plan alone could require a 12-fold increase in U.S. lithium production to manufacture the lithium-ion batteries that power EVs, according to Benchmark Minerals Intelligence, as well as increases in output of domestic copper, nickel, and cobalt - and that's just for the U.S. government vehicle fleet. The magnitude of the minerals needed for a 100 percent EV market is even more staggering, and simply cannot be ignored.

The International Energy Agency (IEA) published a report at the end of July 2022 titled "Global Supply Chains of EV Batteries," and noted that demand for EV batteries will increase from 340

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GWh today to about 3500 GWh by the year 2030. To meet that demand, 50 new lithium mines, 60 more nickel mines and 17 more cobalt mines would need to come into production.[26]

Congress has taken note of this surge in demand, and through the Infrastructure Investment and Jobs Act of 2021 and the Inflation Reduction Act, has decided that it is inappropriate, unwise and dangerous to rely on hostile, untrustworthy or unstable countries to supply our country's minerals. Notably, the Inflation Reduction Act contains provisions requiring automakers to source significant portions of their EV batteries and components from domestic supply chains, or from countries with which the United States has free trade agreements. Congress has sent a clear message – Now is the time to get serious about building a reliable mineral supply chain. The U.S. mining industry stands ready to help build that supply chain right here in America.

Unfortunately, a lack of access to economically viable mineral deposits and a lengthy, inefficient federal permitting system has resulted in the United States being increasingly dependent on foreign sources of strategic and critical minerals. It's time that we, as a Nation, recognize this vulnerability and the vital importance of minerals to our national security, our economy, and our everyday lives.

We have heard a lot over the years about the importance of energy independence, but it is equally as important, if not more so, that we are minerals independent. Made in America must include "mined in America" and sourcing minerals from U.S. mines that use state-of-the-art environmental protection measures, put a premium on worker health and safety, and have financial assurances that guarantee reclamation when mining is complete.

Recycling will play an important role in meeting increasing metal demand, but it will not be enough. The IEA's report estimates that by 2040, recycling metals from spent batteries could only supply about ten percent of the minerals that will be needed.

The United States and our economy simply need more mines. According to the USGS' Mineral Commodity Summaries 2023, our country's import dependence for key mineral commodities has doubled over the past two decades, with the United States now 100 percent import-reliant for 12 of its critical minerals and more than 50 percent import-reliant for an additional 31 critical mineral commodities.[27] This foreign reliance continues despite the existence of significant mineral deposits of many of these commodities within our borders. Moreover, U.S. mineral import reliance continues to increase as mineral demand from essential industries, such as energy and transportation, soars. Notably, the World Bank sees mineral demand for advanced energy

[26] https://iea.blob.core.windows.net/assets/4eb8c252-76b1-4710-8f5e-867e751c8dda/GlobalSupplyChainsofEVBatteries.pdf
[27] U.S. Geological Survey, 2023, Mineral commodity summaries 2023: U.S. Geological Survey, https://doi.org/10.3133/mcs2023 at 6, 20.

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technologies jumping by nearly 500 percent by the year 2050.[28] Copper demand alone may rise as much as 350 percent by 2050, according to one estimate.[29]

In the United States, most hardrock mining takes place on federal land, after a lengthy and rigorous permitting process that involves local, state and federal regulatory agencies and many diverse stakeholders. Even after the mine begins operation, it must adhere to a myriad of environmental laws and regulations, and financial assurance instruments ensure that cleanup and restoration will take place when mining activities cease. However, mineral deposits are unique and rare. Unlike other economic development or infrastructure projects that have some flexibility in choosing where they are sited and can move accordingly - mineral deposits are where they are.

Almost every year, the federal lands available for mineral entry shrinks. According to the GAO, the federal government manages about 650 million acres, or 29 percent, of the 2.27 billion acres of land in the United States.[30] Former Department of Interior Solicitor, John Leshy (now a professor at the University of California Hastings College of Law), estimated in 2021 that of the approximate 650 million acres of public lands, roughly 400 million acres are set aside for conservation and preservation purposes and are functionally off-limits to mining.[31] He also calculated that during the period from 1980 to 2020, the acres of conservation and preservation lands grew from 250 million acres to 400 million acres.[32] Federal lands have been withdrawn from mineral entry to protect a variety of "special places," from national monuments and wilderness areas to military bases. For example, the National Conservation Lands System already includes 35 million acres of pristine, culturally diverse and scientifically important sites that have been withdrawn from mineral entry, including: 122 national monuments, 28 of which are managed by BLM; 23 national conservation areas; 30 National Scenic and Historic Trails; 200 designated Wild and Scenic Rivers; 260 congressionally designated Wilderness areas; and 491 wilderness study areas.[33]

Shrinking the available land base where mineral exploration and mining are allowed reduces the number of future mineral discoveries that can become mines. This ultimately increases the Nation's reliance on foreign minerals and thwarts the country's goals to increase domestic production and become more mineral independent. A 1999 report by the National Research Council of the National Academy of Sciences notes that "Only a very small portion of the earth's

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[28] https://pubdocs.worldbank.org/en/961711588875536384/Minerals-for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition.pdf
[29] https://www.sciencedirect.com/science/article/abs/pii/S0959378016300802
[30] GAO Letter report to Senator Tom Udall entitled "*Hardrock Mining: Availability of Selected Data Related to Mining on Federal Lands*," May 16, 2019, available at: https://www.gao.gov/assets/gao-19-435r.pdf
[31] John D. Leshy, *America's Public Lands – A Look Back and Ahead*, 67th Annual Rocky Mountain Mineral Law Institute, July 19, 2021.
[32] *Id.*
[33] BLM website: https://www.blm.gov/programs/national-conservation-lands

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continental crust (less than 0.01%) contains economically viable mineral deposits."[34] The Academy further noted that, on average, 1,000 mineral targets must be examined before discovering the deposit capable of becoming a mine. Every time we declare land off-limits to mining, we shrink the playing field and stack the odds higher against discovery.

Rather than asking whether additional lands need to be withdrawn, it would be more appropriate to ask whether some previously withdrawn lands with high mineral potential should become available for mineral exploration and development to address current critical minerals availability challenges. In light of our untenable and dangerous reliance on foreign minerals, it would be in the public's best interests to determine whether certain withdrawn lands that are not part of the National Park System or congressionally designated Wilderness are more valuable for their mineral resources compared to scenic, cultural, recreational or other land uses. This evaluation should consider how the modern environmental protection standards that would apply to potential mineral development would minimize environmental impacts, maximize protection of cultural resources and scenic landscapes, require reclamation when mining is complete, and enable multiple uses on these lands for mining and nearby recreational uses both during and after mining.

Effective implementation of the Infrastructure Investment and Jobs Act is dependent on the critical and strategic minerals and materials that our members mine. However, according to a 2021 report by the Wilson Center:

The United States faces a troubling scenario when it comes to the supply chain for critical minerals. Rapidly increasing demand, under-developed national resources, intense international competition, and years of neglect in this issue area place the U.S. at a distinct disadvantage vis-à-vis China in securing access to the metals and Rare Earth Elements that are vital for the energy transition and for geopolitical ambitions.

Most notably, we are failing to develop infrastructure or critical minerals projects in a timeframe that would allow the United States to achieve its ambitious clean energy objectives, reduce our reliance on China and other adversaries for critical minerals, and strengthen our critical minerals supply chains. This is largely due to lengthy permitting delays and uncertainties which place the United States at a competitive disadvantage for purposes of attracting investments in mineral development.

Notably, the permitting of comparable mining projects in Australia and Canada, which have similar environmental standards and practices as the United States, takes between two and three years, compared to the seven to ten years or more required to permit a mine in the United States. Given the comprehensive scope and effectiveness of U.S. environmental protection laws and the federal land management agencies' regulations governing mineral projects, these delays do not

[34] National Academy of Sciences/National Research Council, "Hardrock Mining on Federal Lands" (1999), P. 23-24, available at https://nap.nationalacademies.org/catalog/9682/hardrock-mining-on-federal-lands.

yield any substantive environmental benefits. However, they contribute significantly to the additional costs and risks that project proponents are required to bear. The adverse impacts stemming from permitting delays extend far beyond corporate boardrooms – as they hurt local communities that must wait for the jobs, tax revenues, and other investments and socioeconomic benefits associated with exploration and mining.

There are real world consequences caused by permitting delays. The unpredictable nature of delays, alone, can reduce a typical mining project's value by more than one-third, or as much as one-half before production even begins. The challenges of our federal environmental review and permitting processes, and how they adversely affect our supply chain of critical minerals, were recently detailed as part of the aforementioned Wilson Center report.[35]

In recognizing the challenges associated with NEPA, the impacts of litigation must be considered because lawsuits are frequently the final step of any significant NEPA process. Typically, it is the NEPA analyses and federal permits for hardrock mining projects which are litigated in federal courts. Because NEPA litigation is so common, our members routinely anticipate at least two to three years, or more, of litigation delays when planning their proposed mining projects. While some level of litigation risk is a reality we will always have in the United States, the mining industry faces consistent and unnecessary litigation hurdles based on the fact that NEPA policies and procedures are developed and implemented on a project-by-project basis. This project-by-project approach leads to inconsistencies that make various courts the arbiters of compliance and cause confusion across the industry as to how NEPA should be applied. Costly and time-consuming lawsuits burden projects and federal agencies and hurt communities waiting for jobs, tax revenues and other project-related benefits to materialize. The recommendations provided herein on how to reduce these litigation risks would benefit many stakeholders including federal agencies, companies, communities, and taxpayers.

Finally, it should be noted that moving metal and mineral projects towards development is a costly and time-consuming process. Where the federal government is involved, evaluation of a mineral project requires experienced and well-trained personnel resources who understand a project's complexities, including the local and national importance of projects as well as concerns about their potential social, cultural, and environmental effects. The burden of balancing these complexities are often shouldered by inadequately staffed agencies or inexperienced staff in U.S. Army Corps of Engineers (Corps) district offices, BLM field offices, and Forest Service ranger districts. What has been notably lacking in this Administration is any recognition or education of the negative implications, both social and environmental, of not allowing mining projects to move forward and of agencies not having the resources or education necessary to evaluate mining projects. We believe this information and education is an essential part of the decision-making process if our country wants to have any hope of meeting its long-term mineral needs.

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[35] https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/critical_minerals_supply_report.pdf

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Thus, while it is easy to focus on a single part of the mineral development process, it is important to recognize all of the crucial stages involved with development of an operating mine. When projects require 15-20 years, or more, to take a potential mineral resource to the point of mine construction, any government action that could lengthen this process, create disincentives, or restrict access to critical resources should be carefully weighed in terms of its ramifications.

Given our Nation's need for a strong domestic supply, and the proven benefits that modern mining provides to local communities, the federal government should not consider adding restrictions or making changes to the Mining Law (and its basic property rights provisions) in ways that would discourage or disincentivize mineral development. As further discussed below, changes, like the imposition of a royalty burden, if not carefully thought through, could result in many mining projects becoming cost-prohibitive or non-fundable, and more draconian changes, like imposition of a leasing system on claim holders, could preclude most if not all future metals mining on federal lands.

Since 1970, Congress has consistently and repeatedly recognized that minerals and mining are essential to all facets of our economy, society, and national defense. For example, the Mining and Minerals Policy Act (1970), the Federal Land Policy and Management Act (1976), the National Minerals, Materials Policy Research and Development Act (1980), the Energy Act (2020), the Infrastructure Investment and Jobs Act (2021), and most recently the Inflation Reduction Act (2022) all direct the Executive Branch agencies to respond to the Nation's need for domestic minerals.

Unfortunately, these Congressional directives have gone largely unheeded as more lands continue to be withdrawn from mineral entry and permitting timelines, costs, and risks have become intolerable. Our risky reliance on imported minerals is a direct result of five decades of ignoring Congress' clear directives that minerals should be mined from public lands to help satisfy the Nation's need for minerals.

The USFS and the BLM needs to consider the environmental and economic impacts of *not* developing the mineral resources in this area. Americans and the environment lose when we offshore our mineral requirements. It makes absolutely no sense to create mining jobs elsewhere and import minerals from countries with lower environmental and safety standards. President Biden's decarbonization aspirations demand that we minimize the carbon footprint of our minerals by getting them from domestic mines rather than creating the substantial carbon emissions to ship minerals from around the globe.

By keeping our existing mines operating and getting new mines in operation, the economic impact ripples out far and wide: to employees, mine suppliers, local economies and the downstream domestic industries we supply with our products. Not to mention the tax revenues mining generates for local, state and federal governments as a result of this economic activity. Few industries pack such an economic punch.

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The economic and environmental impacts of not developing critical mineral resources constitutes a major federal action, and consequently should be, at a minimum, fully analyzed as part of an environmental impact statement for any withdrawal proposal.

Question 2: What permitting reforms and land access policies are required to ensure that the U.S. a robust domestic mineral supply chain?

Permitting Reforms

As the Western Governors Association found in its June 2022 National Minerals Policy Resolution,[36] a "major factor contributing to the U.S. reliance on foreign sources of minerals is a duplicative and inefficient mine permitting system that discourages development of domestic resources." Before getting to federal permitting, NEPA review must be completed. Many states have their own separate but largely duplicative "state NEPA" pre-permitting environmental review requirement (e.g., California). Process improvements need to start with NEPA "to provide certainty and predictability"[37] by, among other measures consolidating duplicative NEPA review processes.

The federal environmental protection laws are supplemented by comprehensive, mining-specific federal regulations: Title 43 Code of Federal Regulations, Subparts 3802, 3809, and 3715, implemented by BLM; and Title 36 Code of Federal Regulations, Parts 219, 228, Subpart A, and 261 implemented by the Forest Service. These regulations "include review of the mining plan of operations, comprehensive permit, design, operations, closure, reclamation requirements, corrective action and financial assurance requirements, to ensure that the mining operations will not result in unnecessary or undue degradation of public lands"[38] or excessive disturbance of surface resources in national forest lands.[39] The mine permitting process would be improved if DOI/BLM and USDA/Forest Service started complying with existing laws, including the MMPA, the MMRPDA, and the IIJA.

In addition, most states have delegated authority to administer the Clean Water Act, the Clean Air Act, the Resource Conservation and Recovery Act, the Safe Drinking Water Act, and their respective permitting requirements under state laws with oversight by EPA. The "western states also extensively regulate hardrock mining operations on both private and public lands (state and federal), and uniformly impose permit and stringent design and operating standards, as well as financial assurance requirements to ensure that hardrock mining operations are conducted in a manner that is protective of human health and the environment, and that, at closure, the mined

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[36] Page 1, ¶A.4, WGA June 2022 National Minerals Policy (Policy Resolution 2022-08), available at https://westgov.org/images/editor/WGA-PR-2022-08-National-Minerals-Policy81.pdf and included as Attachment 2.
[37] *Id.* page 4, ¶ B.8.
[38] *Id.* page 2, ¶ A.11.
[39] *See* 36 C.F.R. § 228.4.

lands are returned to a safe, stable condition for productive post-mining use."[40] Under these state laws, the "western states have developed deep experience in mine permitting, regulation, and closure."[41] Federal agency acknowledgement of the states' expertise and consultation with the states to identify and eliminate federal duplication would also significantly improve the mine permitting process.

NEPA review and each significant permit process provide opportunities for public input. NEPA procedures can be improved without sacrificing information quality and could be managed to improve the timeliness and caliber of public input. At a minimum, the federal/state duplication of requirements should be streamlined and harmonized to improve the permitting process. This can be done without sacrificing information quality or diminishing public input. With the robust state system of laws and regulations governing mining, deference should be given to the states' traditional jurisdiction to regulate land use and delegated environmental programs.

NEPA Reform is a Critical First Step

NEPA's original intent was to inform agency decision-making about environmental consequences of proposed actions and to engage the public in that process. However, since its enactment, NEPA has become something entirely different and is instead, used as the weapon of choice to delay and thwart all manner of projects, not just mining projects. AEMA members generally do not view the substantive environmental laws as the problem; it is the process gantlet – especially the NEPA process gantlet – that creates uncertainty, delay, and renders projects uneconomic. That is precisely why most NEPA plaintiffs appeal NEPA decisions—to create uncertainties, delays, and cost overruns that make projects uneconomic.

The WGA also recognized the need to improve NEPA. WGA's National Minerals Policy Resolution states:

> Western Governors encourage the Council on Environmental Quality to pursue improvements to National Environmental Policy Act (NEPA) regulations and policies that will provide certainty and predictability in the NEPA process. Protracted completion of NEPA reviews and excessive NEPA litigation cause delays and impose unreasonable costs on a wide range of projects on federal lands. Western Governors support timely NEPA reviews and policies that provide clear guidance as to the scope of impacts of any major federal action. Reforming NEPA procedures is an important step toward securing a reliable, domestic source of critical minerals. Such NEPA reforms should also ensure that western states with significant amounts of public land are not put at a competitive disadvantage relative to other states.[42]

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[40] Attachment 2, WGA's National Minerals Policy Resolution, page 2, ¶ A.12.
[41] *Id.* page 3, ¶ B.6.
[42] Attachment 2, WGA's National Minerals Policy Resolution, page 4, ¶ B.8.

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AEMA strongly supports the WGA recommendations and has included specific suggestions to achieve greater certainty, predictability, and accountability and reduce litigation risks and delays. Specifically, DOI/BLM and the USDA/Forest Service, and the Corps, as appropriate, should each prepare agency-wide guidance providing step-by-step instructions for the NEPA review process—from a categorical exclusion to an EIS.

Such guidance would better ensure consistency across all offices of each agency and help to ensure project applicant and public understanding of uniform procedures. Each department must ensure they have adequately trained personnel. Each agency should review its respective regulations to clearly identify which actions include appeal rights, which do not, who has standing to appeal, and when those appeal rights are forfeited.[43] In short, NEPA appeals should be limited to issues raised during public scoping and comments on the Draft and Final EIS documents; no new issues should be permitted to be raised after the EIS has been completed. NEPA document preparation should permit active engagement by the project proponent, with agency oversight and final decision.

AEMA agrees with the NEPA reform measures in C. Borden Gray's (former White House Counsel) and Michael Buschbacher's (former attorney with the U.S. Department of Justice Environmental Division) article in *The Wall Street Journal*.[44] Their article includes the following practical suggestions for reducing NEPA litigation by narrowing the entities who have standing to challenge an agency's NEPA documents and project approvals:

- Limiting the right to sue exclusively to those who have suffered a "legal wrong," which they define as a violation of a legal right that would confer judicial relief if the defendant were a private party, while preserving judicial review for those suffering real harms; and

- Establishing a "proximate cause" standard for what kinds of environmental effects are relevant to an agency's NEPA analysis. This effort should take its lead from the Supreme Court, which held in *Department of Transportation v. Public Citizen* (2004) that NEPA requires an agency to assess only those environmental impacts with a "reasonably close causal relationship" to the agency's actions. Restoring this standard would put an end to the current system imposed by regulation that also requires agencies to take into account "cumulative effects" of all similar actions, including speculation about independent actions by third parties entirely beyond the control of the permittee.

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[43] *See e.g.*, Forest Service regulations 36 C.F.R. §§ 214.4 (Decisions that are appealable), 214.5 (Decisions that are not appealable), 214.14(c) (denying extension of time for filing appeals), 214.20 (Exhaustion of administrative remedies), 218.4 (Proposed projects and activities not subject to objection), and 218.5 (Who may file an objection).
[44] https://www.wsj.com/articles/its-not-too-late-for-permitting-reform-yet-nepa-environment-energy-activist-permitting-climate-11659906591.

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Congress has determined that the current permitting process is a problem and has established a framework for permitting process streamlining to fix the problem. The "Federal permitting process has been identified as an impediment to mineral production and the mineral security of the United States."[45] In Section 40206 of the IIJA, Congress ***directs*** the Secretaries of the Interior and Agriculture "to improve the quality and timeliness of Federal permitting and review processes" and "to the maximum extent practicable, [to] complete the Federal permitting and review processes with maximum efficiency and effectiveness" by taking a number of listed actions.[46] Congress' detailed list includes "establishing and adhering to timelines and schedules for the consideration of, and final decisions regarding, applications, operating plans . . . [and] permits," "establishing clear, quantifiable, and temporal permitting performance goals and tracking progress against those goals," and "engaging in early collaboration" and "active consultation."[47] These **are requirements -- they are not suggestions.** They are now the law and DOI and USDA must comply with Section 40206.

As Congress recognized in Section 40206(b)(2), many critical minerals are only economic to produce when combined with production of their host minerals (e.g., aluminum, titanium, iron, nickel, copper, zinc, lead, tin, platinum, and gold).

Applying Congress's Section 40206 permit streamlining directives to NEPA would also significantly improve the overall permitting process and timeliness. Establishing and adhering to timelines and schedules, as directed by Section 40206(c)(1), is equally as important in the NEPA process as in the permitting process. Similarly, "engaging in early collaboration among agencies, project sponsors, and affected stakeholders" could resolve which agency should lead the NEPA evaluation, promote agency cooperation to achieve one unified federal decision, and enable sincerely interested stakeholders to have early input to shape the project. Likewise, "engaging in early and active consultation with State, local, and Tribal governments to avoid conflicts or duplication of effort . . ." as directed by Section 40206(c)(5) would not only make the NEPA process more efficient, but it would also promote opportunities for public input earlier in the project approval process.

IIJA Section 40206 permit streamlining should be combined with FAST-41 application to federal mine permitting. FAST-41 provides for procedural reforms and better coordination among agencies while Section 40206 requires BLM and the Forest Service to establish concrete guidelines and goals for critical minerals permitting. Separately, Section 40206 and FAST-41 are incomplete in that Section 40206 applies to just two agencies (BLM and the Forest Service) and FAST-41 is procedural and applies to numerous federal agencies. Together, they are complementary and would be more likely to accomplish Congress's Section 40206 goals by application of the FAST-41 framework and the structural support from the Council.

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[45] IIJA, Public Law 117-58, Section 40206(b)(4).
[46] IIJA, Public Law 117-58, Section 40206(c).
[47] *Id.*

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It is fundamental to the work of the federal agencies that they have adequate personnel that are properly trained. AEMA would support increased funding and other reasonable measures to meet those objectives, including the authorization in Section 40206(d)(2) for DOI/BLM and USDA/Forest Service to accept cost recovery payments from permit applicants to pay for federal agency staffing, if the project proponent chooses to hire a third-party contractor or reimburse the agency for additional staffing, and training to facilitate agency reviews of permit applications. Uniform implementation of this strategy will start building the agency work force back up, provide on-the-job training, cut the permit backlog and/or review and processing times, and improve the federal permitting process.

Agency staffing shortages are a frequent source of delay in the permitting process. In cases where a specialist is asked to go on detail to another office or assume a different role, the federal agency should notify the affected project proponents in advance and ensure that qualified staff are available to replace the detailed specialist to avoid project delays. Alternatively, if agency personnel are not available, the project proponent should be offered the opportunity to identify and pay for third-party experts to fill the staffing gap.

The performance metric established in Section 40206(e) and the annual reports in Section 40206(f) are important tools for monitoring and disclosing the agencies' permitting timelines and track records. Without this data, neither Congress nor the agencies have a clear understanding of where problems are occurring most frequently and where resources are needed to alleviate understaffing. Performance monitoring can also function as a continuous improvement mechanism to determine if certain steps in the permitting process are contributing to unnecessary delays. Together, these provisions should lead to further permitting process refinements and time-saving procedures. AEMA supports their application to NEPA review and all mineral permitting, not just critical minerals permitting.

Land Access Policies

The statutory and regulatory environment in the United States sends strong and continual signals that mining is not welcome here. These factors, paired with relentless litigation, chill investment in U.S. mineral exploration and development that adversely affects critical minerals projects. The specter of unfavorable legislative proposals also raises uncertainty about U.S. mining policies. This overall picture of perceived instability and unpredictability makes companies reluctant to invest the hundreds of millions (and sometimes billions) of dollars necessary to explore for minerals and develop mines.

The importance of keeping public lands open to mining by maintaining the current mining claim system and reducing uncertainties cannot be overstated. Section 22 of the Mining Law permits access to lands that are "open to exploration." Such lands are only available in 19 of the 50 states: Alaska, Arizona, Arkansas, California, Colorado, Florida, Idaho, Louisiana, Mississippi, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. The president, Congress, and federal land management agencies

already have the legal authority—that they exercise regularly—to withdraw federal public land for other purposes and preclude mining.[48] These existing laws and regulations provide ample direction and authority for Congress and the Executive branch to identify and withdraw areas from mining; no additional laws or regulations are needed.

According to the GAO, the federal government manages about 650 million acres, or 29 percent, of the 2.27 billion acres of land in the United States.[49] Former Department of Interior Solicitor, John Leshy (now a professor at the University of California Hastings College of Law), estimated in 2021 that of the approximate 650 million acres of public lands, roughly 400 million acres are set aside for conservation and preservation purposes and are functionally off-limits to mining.[50] He also calculated that during the period from 1980 to 2020, the acres of conservation and preservation lands grew from 250 million acres to 400 million acres.[51] Federal lands have been withdrawn from mineral entry to protect a variety of "special places," from national monuments and wilderness areas to military bases. For example, the national conservation lands system already includes 35 million acres of pristine, culturally diverse and scientifically important sites that have been withdrawn from mineral entry, including: 122 national monuments, 28 of which are managed by BLM; 23 national conservation areas; 30 National Scenic and Historic Trails; 200 designated Wild and Scenic Rivers; 260 congressionally designated wilderness areas; and 491 wilderness study areas.[52] Congress has closed or withdrawn areas to mineral exploration in favor of other uses, including for the following:

- National Parks;
- National Monuments;
- Indian reservations;
- Various types of Bureau of Reclamation projects;
- Military reservations;
- Scientific testing areas;
- Wildlife protection areas;
- National Wilderness Preservation System and Wilderness study lands; and
- Wild and Scenic River designated and study areas.[53]

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[48] *See e.g.*, the Antiquities Act, 54 U.S.C. § 320301 (authorizes the president to create national monuments); FLPMA, 43 U.S.C. § 1714 (establishes the process for land withdrawals by BLM); the Wilderness Act of 1964, 16 U.S.C. §§ 1131–1136 (establishing wilderness and wilderness study areas and requiring BLM and the Forest Service to identify qualifying federal public lands within their respective management).

[49] GAO Letter report to Senator Tom Udall entitled "*Hardrock Mining: Availability of Selected Data Related to Mining on Federal Lands*," May 16, 2019, available at: https://www.gao.gov/assets/gao-19-435r.pdf.

[50] John D. Leshy, *America's Public Lands – A Look Back and Ahead*, 67th Annual Rocky Mountain Mineral Law Institute, July 19, 2021.

[51] *Id.*

[52] BLM website: https://www.blm.gov/programs/national-conservation-lands.

[53] *See* BLM website: *https://www.blm.gov/programs/energy-and-minerals/mining-and-minerals/locatable-minerals/mining-claims/locating-a-claim*; *see also* Attachment **5**, "List of Select Federal Laws Amending or Affecting the Mining Law of 1872," identifying principal laws under which federal lands have been withdrawn from mineral entry.

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Questions for the Record Submitted to Mr. Mark Compton

More withdrawals seem likely under Executive Order 14008 in which President Biden set a goal of preserving and restoring 30 percent of U.S. lands and waters by 2030.[54]

These land withdrawals from mineral entry have significantly constrained U.S. mineral development. For example, in Nevada—the state with the most mining activity in the continental U.S.—the Nevada Division of Minerals reports that as of May 2018, 15,642,646 acres of Nevada's 70,264,230 acres (over 22 percent of the state) have been withdrawn from mineral entry at a pace of approximately 177,000 acres per year since 1930.[55]

Shrinking the available land base where mineral exploration and mining are allowed would reduce the number of future mineral discoveries that can become mines. This would ultimately increase the Nation's reliance on foreign minerals and thwart the country's goals to increase domestic production and become more mineral independent. The 1980 House Subcommittee report discussed in Section VIII recognized that removing lands from operation of the Mining Law was a serious threat to mineral security:

> The most precious asset and the most fundamental requirement, access to land – primarily the mineral-rich public land – in which to search for minerals could well become the scarcest component in America's mineral supply future.[56]

Rather than asking whether additional lands need to be withdrawn, it would be more appropriate to ask whether some previously withdrawn lands with high mineral potential should become available for mineral exploration and development to address current minerals availability challenges.

The existing statutory and administrative tools for withdrawing lands are clearly effective. When evaluated objectively, mining has a tiny footprint on the lands that are open to mineral entry, contrary to the perception some groups may push of the pervasive presence of mining companies on public lands. Moreover, the Biden administration should not make any decisions that withdraw, or severely limit mining on, more lands without a full understanding of the mineral resources they may contain and how such actions could affect the Nation's ability to achieve its mineral goals. Given these facts, it makes little sense, and is not in the nation's economic or security interests to consider further closures or withdrawals of federal lands.

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[54] *See* Executive Order 14008 "Tackling the Climate Crisis at Home and Abroad" (January 27, 2021) and the "America the Beautiful Initiative."
[55] https://data-ndom.opendata.arcgis.com/pages/land-withdrawals; *see also Norton v. S. Utah Wilderness All.*, 542 U.S. 55, 124 S. Ct. 2373 (2004) (approximately 2 million acres (10 percent) of BLM managed lands in Utah were withdrawn from mineral entry as wilderness or wilderness study areas).
[56] 1980 Subcommittee Report, *op cit.* page xv.

Sourcemap

September 28, 2023

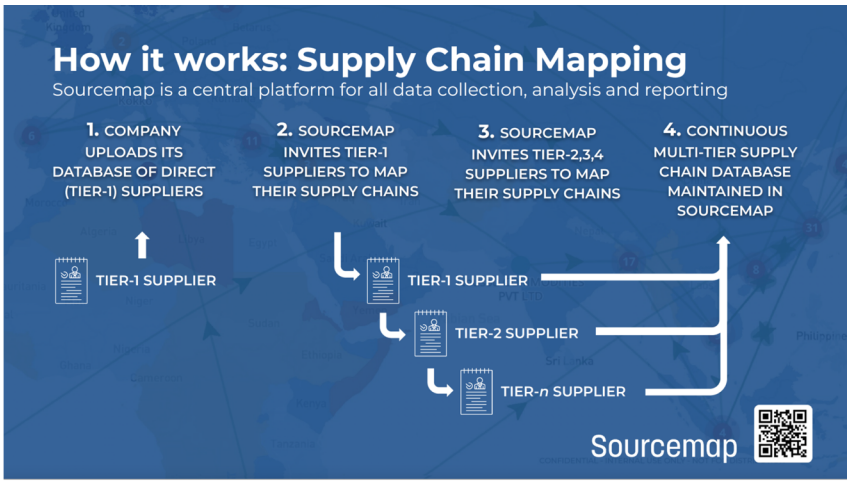
The Honorable Joe Manchin
Chairman, Senate Committee on Energy and Natural Resources
306 Hart Senate Office Building,
Washington, DC 20515

The Honorable John Barrasso
Ranking Member, Senate Committee on Energy and Natural Resources
307 Dirksen Senate Office Building,
Washington, DC 20515

Dear Chairman Manchin and Ranking Member Barrasso:

I applaud the Committee for actively addressing our nation's supply chain security issues. I founded Sourcemap to bring technology to bear in addressing the exact problems highlighted by your hearing. Specifically, Sourcemap was conceived at MIT to enhance global supply chain transparency by establishing an intricate information network that enables companies to pinpoint every entity in their supply chain — from mines to farms, factories, and warehouses. Sourcemap has a long history of tracing critical minerals and conflict minerals, including working with one of the world's top watch brands to ensure that its gold was responsibly sourced.

We use the network architecture we've created to help companies gather data from every stakeholder in their supply chain. We collect information using an intuitive waterfall approach where a new client will request supply chain data from each of its tier-one suppliers. Sourcemap will then help that tier-one supplier make a similar request to all of its suppliers—our client's tier-two suppliers. Then, we will do the same with all the tier-two suppliers and their suppliers—our client's tier-three suppliers. We continue that process until we reach the raw materials. Companies that begin mapping their supply chains often discover between *10,000 and 100,000* new suppliers they didn't know they had. The diagram below helps further illustrate this process.



Our platform then scrutinizes this information, identifying patterns that indicate risk, whether forced labor, participation in the supply chain by an untrusted company or a country on the entity list. Our system further exposes bottlenecks that would otherwise go unnoticed. We often work with clients who think their supply chain is quite diverse as they have multiple tier-one suppliers. However, they realize after mapping their supply chain that all their tier-three suppliers, just as an example, are sourcing from one company, meaning that breakdown at the tier-four level would shutter operations entirely.

Beyond that, we never accept the supplied information unquestioningly. We conduct continuous analysis with checks for discrepancies, potential fraud, waste, and exploitation, using state-of-the-art methods like satellite imagery, mobile tracking, machine learning, and AI.

We see the push for supply chain transparency escalating. Major U.S. corporations, overseeing large swaths of the U.S. Economy, rely on Sourcemap to better understand their supply chains. Suppliers from around the world log into Sourcemap to provide comprehensive supply chain details because they know participation in the platform to provide supply chain clarity is a minor cost for entry into the U.S. market.

While not a complete solution for hardening our supply chains, transparency is a monumental stride towards enhanced supply chain resiliency. There is, however, one challenge, that I would like to bring to the Committee's attention: companies often lack consistency in data collection. We've initiated collaboration with industry partners, championing the formulation of voluntary best practices that we believe Congress should support and promote. These practices will harmonize and clarify how firms amass their supply chain data, providing a clearer national perspective.

Thank you for dedicating your attention to this critical matter. I'm happy to aid the Committee in any way further. Should you have further questions regarding this letter, please contact Marissa Brock, Director of Policy, Sourcemap, at marissa@sourcemap.com.

Sincerely,

Leonardo Bonanni,
CEO and Founder
Sourcemap

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