

Testimony before the House Committee on Energy & Commerce, Energy Subcommittee

“Legislative Hearing to Strengthen Energy Infrastructure, Efficiency, and Financing.”

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Good morning and thank you for the opportunity to discuss an important topic to our environment and economy.

My name is Dustin Mulvaney. I am a Professor of Environmental Studies at San José State University, and a Fellow at the Payne Institute for Public Policy at the Colorado School of Mines.

My area of expertise is on the life cycle and environmental justice impacts of clean and renewable energy technologies and infrastructures—with particular emphasis on solar photovoltaics and lithium-ion batteries. I hold a PhD in Environmental Studies, a masters degree in Environmental Policy, and bachelors degree in Chemical Engineering, and have professional experience in chemical manufacturing having once worked for a fortune 500 company in the chemical industry. I have been an expert witness at the California Public Utilities Commission for over a decade. I also currently serve on the technical committee for an ultra-low carbon standard for photovoltaics under development by the Green Electronics Council.

We are in the midst of a low carbon energy transition—one that is outpacing even the expectations of professional analysts. Growth in photovoltaics, wind turbines, lithium ion batteries, electrolyzers for hydrogen, heat pumps, and fuel cells are all poised for dramatic growth in the coming decades.

However, these same technologies that support rapid decarbonization depend on metals, minerals, and materials that are fraught with supply chain issues—from accusations of forced labor and child labor, geographic concentration, disruptions with logistics, environmental impacts from mining and feedstock processing, and material bottlenecks. Demand for some of these materials often outstrips supply leading to price increases and volatility for key inputs such as lithium, nickel, cobalt, polysilicon and many others—making the case that the United States would benefit from growing domestic manufacturing and supply chains, and lessen dependence on imports.

There is tremendous opportunity to grow domestic industries and reshore supply chains. The United States used to be a major processor of polysilicon - the key ingredient in solar panels, the sole provider of rare earth elements - needed for advanced magnets for motors in electric vehicles and wind turbines.

However, while it's critical to develop domestic resources for clean and renewable energy devices and infrastructures through responsible mining - the only way to do that is by first updating our 150-year-old mining law that has allowed a toxic legacy on public lands to continue to this day.

We also need to ensure that we are utilizing waste streams and considering alternative materials. These could be strategic opportunities to mitigate the impacts of mining through improved collection and recycling of equipment and devices that contain and could augment supplies of these critical metal, minerals, and materials.

So it is notable to see language in the bill that emphasizes "improving technology that reuses and recycles" to recapture end-of-life waste flows that would otherwise be landfilled or disposed of as hazardous waste. There is much room for improvement in recycling and recovery rates for lithium ion batteries, which is not just for our electric grid and vehicles, but also widespread in consumer electronics, mobile phones, computers, and power tools. For example, there are significant carbon emissions benefits from recovering materials like lithium for example from waste streams as opposed to hardrock mining and brine extraction. Yet, most of lithium ion batteries go uncollected; in fact unsorted lithium ion batteries are a leading cause of fires at material recovery facilities which are up 30% nationwide in recent years, sometimes costing local governments millions of dollars in damages.

It is also fundamentally important to emphasize incentives and policy that "develops substitutes and alternatives to" critical minerals as sustainable ways to secure domestic supplies. This would help mitigate extensive impacts from extractive industries, which can be thinly regulated and environmentally-damaging. We are already seeing companies move away from cobalt, nickel, and manganese in next generation lithium ion batteries; and someday we might see batteries that altogether avoid graphite and lithium.

There are a few specific items in H.R. 1599 as written that raise concern in my read.

First, Section 3 says the Department of Energy (DOE) will need to "increase domestic production, separation, and processing". This is concerning because it suggests DOE would be in charge of mining permitting and oversight, activities which should continue be in the domains of the Department of the Interior and Environmental Protection Agency; these latter two federal agencies have the expertise and mandate to minimize impacts to lands, waters, and communities. The DOE for example has no experience with government-to-government Tribal consultation processes with Indigenous communities, and it's hard to imagine DOE developing the policies and in-house expertise to do this work.

Second, the language of the bill is very vague with very general references to energy and energy systems throughout. The text is not exclusive to "critical minerals" and makes no mention of "low carbon" energy or "decarbonization" as a goal and could be applied to development any mineral resources including natural gas, petroleum, and coal. Failure to be specific here would be sending mixed messages to the market and undermine efforts to grow domestic low carbon manufacturing and supply chains.

Third, I hope that public policies to encourage domestic industries can avoid undermining Tribal consultation, cultural resource review, and bedrock environmental laws that have benefited all Americans, simply to expedite mining permitting. There is much public attention to reviews done under the auspices of the National Environmental Policy Act, particularly around permitting of mining. Lessons from the American Recovery and Reinvestment Act (ARRA) show that permitting can be done on time and without litigation through cooperation between local communities, environmental groups, and federal, state, and local agencies and decision-makers. The average time to complete an Environmental Impact Statement and Record of Decision for utility scale solar projects built with ARRA support, was 18 months and importantly without litigation. Solar projects today get permits even more expeditiously. A recent project I read about in California - covering many square miles of public lands - was permitted in less 9 months. Manufacturing facilities are built with a simple environmental assessment. Increasing domestic supply chains and manufacturing can be done without undermining key laws and regulations that benefit communities and the environment such as the Clean Water Act, Endangered Species Act, and National Historic Preservation Act.

Finally, and importantly, it is key to realize that without ensuring the entire supply chain is domestic, supply chains can still be vulnerable to disruption. Domestic mining that requires overseas smelting or chemical processing before returning to domestic manufacturing is still a supply chain vulnerable to disruption and geopolitical tensions. Increased mining alone will not solve this.

I also want to briefly offer a comment in support of H.R. 8053, which could allow the federal government to make investments in local electricity infrastructures that are key to national defense. As someone familiar with rate cases in California and also Utah, I am sensitive to the cost burdens on ratepayers from expensive infrastructure upgrades. These are high cost-burdens often to rural ratepayers, and aiding these improvements will enhance national security without adding to the rising costs of electricity to ratepayers.

In summary, we need to be strategic and thoughtful about how to grow domestic industries and build a low carbon economy. Failure to do so will undermine the benefits that the energy transition will bring and risk leaving vulnerable and historically marginalized communities behind.

Thank you again to this committee for hosting this discussion and I look forward to any questions from the committee.