

House Committee on Energy and Commerce

April 26, 2023, Hearing

“Exposing the Environmental, Human Rights, and National Security Risks of the Biden Administration’s Rush to Green Policies”

Responses to Submitted Questions for the Record

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The Honorable Mariannette Miller-Meeks, M.D.

In Iowa, we also have abundant wind with nearly 60% of our electricity coming from wind power. Wind developers have invested more than \$23 billion in Iowa, and the industry supports nearly 4,000 jobs in the state. As Mr. Mills discusses in his testimony, China has a large market share in producing and refining the critical minerals we need for wind. While this committee needs to do more work to weaken China's grip on critical mineral supply chains, I am glad to have the wind energy industry alongside us working to on-shore its supply chains. Approximately 57% of the content of land-based wind turbines installed in the U.S. are domestically manufactured. Imports of wind equipment by and large come from our allies with only 5% coming from China.

1. Mr. Mills, like you, I am not in favor of a forced expansion of renewable energy nationwide, even if wind development works well for Iowa. Can you speak to some of the areas the wind energy industry needs to improve to drive healthy growth, and ways Congress can provide support?

ANSWER

First, if I may stipulate, wind turbines installed in windy regions, like Iowa, are operationally and economically sensible additions to electricity supply. However, the magnitude of the additions that makes sense for any given region is increasingly distorted by what amounts to a forced expansion of wind installations because of various state mandates requiring utilities to reach specific shares of electricity supply from wind (and solar), and also a *de facto* forcing of wind over other generation choices through state and federal tax incentives favoring wind. These policies lead to distortions in normal utility planning that used to be directed primarily at optimally meeting the twin goals of reliable and low-cost power for citizens. The wind industry, perhaps understandably, has supported or lobbied for such preferences.

Regarding the specific question about things the wind industry could do to help with healthy growth: Apropos the domestic sourcing of 57% of land-based turbines—and setting aside the fact that the Administration's plans and policies are heavily tilted towards off-shore projects which will be dominantly foreign-sourced—even domestic land-based machines are heavily dependent on imports for critical components and essential materials. We note that the DOE report, *Land-Based Wind Market Report: 2021 Edition*, which contains the 57% figure for domestic sourcing, also observes that imports account for 50% - 70% of turbine blades and hubs, 25% - 40% of towers, though only about 15% for the nacelle assembly. But that DOE report also states: "These figures understate the wind industry's reliance on foreign suppliers, because significant wind-related imports occur under trade categories not captured in this figure."

One example of something that's knowable is that nearly all the critical neodymium used in wind turbine electric components is foreign-sourced (see for example DOE 2022 report on "[Rare Earth Permanent Magnets: Supply Chain Deep Dive Assessment](#)"). Because the mineral sourcing issue is the same for the wind industry as it is for numerous other critical "energy minerals" used in solar and battery technologies, business leaders in all these domains could more vigorously

engage the challenges in providing information transparency. Otherwise, policymakers are at a disadvantage in understanding the options for addressing the realities of import dependencies.

The Honorable Russ Fulcher

Power experts in the Northwest have recommended the need for more power generation for the first time in years. If we're talking solar and wind, it is roughly 3,400 Megawatts per year. If it is natural gas, for example, it is only 800 Megawatts per year. In fact, the Northwest Power Council said that replacing 3,400 average Megawatts of existing hydropower or nuclear power generation would require nearly 5,500 average Megawatts of new wind and solar, as well as 2,000 Megawatts of natural gas. And yet, the Department of Energy estimates wind turbine blade waste could amount to 200 K to 370 K tons every year from now to 2050. The International Renewable Energy Agency estimates that global solar panel waste could reach 78 Mi tons by 2050. Does it make any sense to move so aggressively on such unreliable baseload energy sources, while undermining traditional sources that are baseload reliable, given the amount of waste being generated by these renewable sources and without a plan to address such waste? I can point to traditional sources of power in the Northwest - such as hydro, geothermal, and nuclear sources that are renewable, baseload reliable, and where we either don't have waste or have addressed the waste issue.

1. It is my understanding that the EPA considers certain solar panel waste to be hazardous. And yet, the Biden Administration continues to drive forward, not being clear on disposal of such materials. Is CERCLA (the Comprehensive Environmental Response, Compensation, and Liability Act) prepared to address disposal once these energy technologies reach their end-of-life stage?

ANSWER

It doesn't make economic or environmental sense to push, using subsidies and mandates, a greater reliance on wind and solar without a full understanding of the consequences of and solutions for the end-of-life waste for all energy machines, especially the quantities of wind and solar hardware now proposed. There challenges go beyond that fact of solar/wind waste entailing waste with metals toxicity, and the non-recyclability of turbine blades. There is also the fact of an unprecedented 1,000% increase in volume of conventional materials (concrete, steel, plastics, etc.) needed to build wind and solar to deliver the same unit of energy to society compared with conventional energy system. This latter factor means there will be a similar increase in total waste quantities. In addition, recent studies suggest the lifespan of solar and wind hardware is likely to be shorter than assumed in forecasts which will also mean increased volumes of waste appearing sooner than expected. The CERCLA, and other similar efforts, are important for addressing remediation of waste issues *ex post facto*, but what is needed now are actions to deal with the known inevitability of future waste volumes from the coming end-of-life of wind and solar installations, and to bring regulatory parity with conventional energy systems.