

Attachment—Additional Questions for the Record

**Subcommittee on Environment and Climate Change
Hearing on
“Back in Action: Restoring Federal Climate Leadership”
February 9, 2021**

Mr. Mark P. Mills, Senior Fellow, The Manhattan Institute

The Honorable Cathy McMorris Rodgers (R-WA)

1. Your testimony raises important questions about the workability of massively mandating the replacement of existing energy infrastructure to systems reliant mostly on wind and solar, battery storage, and completely electric transportation. Even if we were able to drive part of such a transformation, you indicate the U.S. would trade its strategic advantage in fossil energy for more reliance on supply chains from China and other countries.
 - a. How might China use its strategic advantage in minerals and supply chains to take advantage of the United States?

RESPONSE:

We’ve already seen evidence of China’s intent in news stories in recent years about the use that country’s dominance in strategic minerals in both “soft power” terms in negotiations and discussions, and in terms of “hard power” with threats of supply restrictions.

- b. Should U.S. policymakers adopt similar economic and national security considerations when pursuing climate change policies?

RESPONSE:

I think it’s impossible to ignore the economic and national security consequences of shifting America from where we are now, with nearly complete self-sufficiency in energy at low costs, to a radical increase in import dependencies and at high costs. Today, the U.S., overall, produces about 90% of the energy the economy needs, even counting the fact that the U.S. is still a (relatively small) net oil importer. Accelerating the green path will radically increase dependencies because the U.S. already imports 90% of the solar panels used, and 80% of key parts for wind turbines, and has

similar dependencies for all the critical energy minerals for fabricating batteries, electric motors, and other ‘green’ energy components.

2. I mentioned in my opening comments the exciting work in Washington State on new nuclear technologies, which offer tremendous climate and security benefits. Washington has benefited from development and construction of other world changing technologies: For example, Boeing’s model 737 transformed the ability to travel affordably for people all over the world, with more than 10,000 aircraft deliveries.

What would it take for American nuclear technologies to become just as transformative for the U.S. and rest of the world?

RESPONSE:

Because the U.S. regulatory process, when at its best, is the gold standard, improving that process so that it can more rapidly lead to certification of next-generation designs would go a long way to igniting more rapid commercialization of next-generation reactors both here and around the world.

3. You note in your testimony, the domestic energy transmission proposed for the next 14 years would require **“a *continuous construction program at least 600% bigger than any single peak year for utility construction that has occurred in the U.S., China or Germany over the past half-century.*”** That’s a lot of building. In a hearing last fall, we received testimony of growing opposition to transmission lines and wind and solar projects across the nation. One witness, Robert Bryce, responded that since 2015, more than 280 groups from Maine to California have moved to restrict or reject wind projects.
 - a. What does local opposition like that say about the prospects of such build out in renewables?

RESPONSE:

I think there is a kind of natural resistance to massive, disruptive construction projects, and the scale of building that green plans imply would be truly massive. I believe we should expect, based on the evidence of community resistance so far, that there would be even more opposition to unprecedented scale of ‘green’ construction contemplated.

- b. You say a program of this scope—if it were possible-- will create a lot of jobs but no real change in the product, and so it will undermine wealth creation. Can you explain why this is so and why this may harm people in the long run?

RESPONSE:

It is a basic axiom of economics, and of economic growth, that society's progress comes from increasing productivity – which is defined as getting the same (or greater) output by using fewer inputs of labor and materials. Producing the same amount of electricity by using machines that require more materials to build (all green machines, on average, increase materials required by about 10-fold per unit of output) and by using more labor, is a movement in the opposite direction. Doing so at scale would mean, on average, society will become poorer, which invariable harms the least economically well-off more than the wealthy.

4. You suggest one way to avoid transferring our energy and supply chain to China is to mine and build more here in the United States.

This requires bringing mineral extraction and expanding manufacturing in the United States. Do you think the United States can do a better job on environmental protection than China?

RESPONSE:

Yes. I think the evidence is clear that the U.S. does a better job in environmental protection than China.

5. Onshoring and building more in America will involve accepting more emissions and pollution at home, but the upside will be more energy security, more economic development, and a cleaner environment, would that be the way to think about it?

RESPONSE:

In a way, yes. Though I would stipulate that the “more emissions and pollution” is a feature of all activities in any society. The key issue is whether the emissions increases are harmful or not. If the emissions we are referring to are CO₂, than whatever harm that may cause is unrelated to whether the production causing the emissions is onshore or offshore.

The Honorable Richard Hudson (R-NC)

1. Around eight weeks ago, Republicans and Democrats worked together on these realities to enact legislation taking substantive steps to ensure U.S. leadership in emerging energy technologies that will define our future, our economy, our energy and national security. We worked to ensure access to affordable and reliable energy as well as ensuring innovation drives environmental protection and leads to growth.

As the world looks for solutions to address climate change, it's important to point out that technological innovation has driven enormous progress in America's energy system. Not only is America the largest energy producer in the world, but we also lead the world in reducing energy-related carbon dioxide emissions. The U.S. also has some of the most affordable energy in the world, with electricity prices three times lower than many European countries. In America, we have shown through innovation over regulation that we don't have to choose between protecting the environment and growing the economy -- we can do both.

- a. In what ways is America's energy story a model for the world?

RESPONSE:

The data shows that U.S. has remarkably clean air, water and environment in general; not perfect, but at or near the top of the record for any nation. And that's happened contemporaneously with America becoming the world's top energy producer, and the world's biggest economy. That is, by definition, a good model for the world I would think.

- b. How can the U.S. continue to demonstrate global leadership on energy and climate issues?

RESPONSE:

I believe by doing more of what has happened over the past several decades, which has been a very modest, but useful increase in the share of energy from wind/solar, while at the same time enjoying a far greater increase in the production of natural gas and oil.

2. Support for renewables should also include support for all clean energy technologies. That's why I am particularly interested in new generation technologies that will help the economy achieve a net-zero carbon future, and that includes advanced nuclear technologies and its quick deployment once viable.

Broadly, how does nuclear stack up with renewables in terms of energy supply and environmental impacts?

RESPONSE:

There is no single form of energy that offers as much long-term promise as does nuclear energy. Renewable energy technologies take the world backwards, into using more land and materials to produce the same amount of energy, a reversal of historical progress. Nuclear energy moves the world further along the sustainable path started by hydrocarbons, by replacing the enormous amounts of land and materials used by renewables, again, for equal amounts of energy.

3. Currently, all advanced nuclear reactor demonstration projects have one thing in common, they are all located at two sites with approved Early Site Permits (ESPs) from the Nuclear Regulatory Commission. Potentially increasing the number of ESPs across the nation could increase support and advocacy for advanced nuclear projects and reduce the timeline for deployment of future projects.

What do you see as the impact for our energy security, environment, and economy if the United States was able to permit civilian nuclear reactors more rapidly?

RESPONSE:

Since energy issues entail long-term planning, and since nuclear energy offers the only significant long-term transformation in energy supply, it would benefit both the U.S. and the world to accelerate civilian reactor deployment.

The Honorable Gary Palmer (R-AL)

1. In late 2019 the International Energy Agency (IEA) “released its latest in-depth review of US energy policies, welcoming US leadership on innovation and highlighting the far-reaching impact of the country’s shale revolution.” In that same release the IEA recommended “the lifting of the US ban on crude oil exports as well as efforts to streamline regulatory approvals for LNG exports, which have helped bolster global energy security by diversifying supply options for importers.”
 - a. If President Biden and the Democrats are successful at their continued attacks on U.S. fossil fuels, where will nations in Eastern Europe be forced to source their energy from?

RESPONSE:

Because it’s not feasible to rapidly replace hydrocarbons, a significant reduction in U.S. production will increase the share of world supply met mainly by producers in Russia and the Middle East.

- b. Would you consider forcing our allies into the arms of Russia for their energy needs “Restoring U.S. Leadership”? Especially when we consider that Russian natural gas has over 40% more emissions than U.S. natural gas?

RESPONSE:

I think it’s an obviously problematic strategy, at best, to increase European dependence on Russian energy, not least for geopolitical reasons as well as economic and environmental ones.

- c. Do you think reducing our oil and LNG exports would positively or negatively impact the “global energy security” as noted in the IEA report?

RESPONSE:

The IEA, and other organizations, have long acknowledged the global benefits of geopolitical stability (not to mention economic) from U.S. LNG and oil exports.

2. My colleagues across the aisle have made it clear they want to ban the internal combustion engine for “green” alternatives. Do the materials needed for EV’s grow on trees?

RESPONSE:

On average, an EV requires about 10-fold more materials to be extracted from the earth, than the quantity of materials (including the oil, etc., of course) for a conventional car. The majority of those materials are mined and processed of course, and done so mostly elsewhere, not in the U.S.

- a. Where do the materials for EV’s come from? Can you comment on the human rights and environmental records of some of the countries that dominate the EV supply chain?

RESPONSE:

Many of the critical energy minerals to produce EVs are produced in problematic countries (although some are mined processed by our friends in Canada and Australia) where environmental and human rights standards are, by U.S. standards, unacceptable.

3. President Biden and the Democrats clearly want to ban the U.S. from developing our natural resources that are in the ground. Can you explain how EV’s are made?

RESPONSE:

Making an EV is, in effect, a swap in the location of complexity in the vehicle, and a swap in the kinds of energy materials needed to operate it. A complex internal

combustion engine with its simple gasoline tank, is swapped out for a simple electric motor with its complex battery system. EV batteries contain thousands of components, welds, electronic and cooling systems and of course, myriad chemicals.

- a. How much material must be extracted from the Earth in a country like China or Africa for a single EV battery?

RESPONSE:

The key fact is that the single EV battery weighs about 1,000 pounds and to produce it requires digging up about 500,000 pounds of materials (for that single battery) that contain the variety of minerals needed, from nickel and copper, to cobalt and lithium.

- b. And since this is a hearing related to leadership, what country would be poised to gain the most global influence and power if there is suddenly a huge spike in demand for the rare earth minerals needed for EV's? How might they exert this influence nefariously?

RESPONSE:

The single biggest beneficiary of greater use of EVs will be China, as the biggest source of many critical minerals and related materials and components.