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EXPOSING THE ENVIRONMENTAL, HUMAN RIGHTS, AND NATIONAL SECURITY RISKS OF THE BIDEN ADMINISTRATION'S RUSH TO GREEN POLICIES

WEDNESDAY, APRIL 26, 2023

House of Representatives,

Subcommittee on Environment, Manufacturing, and Critical Minerals,

Committee on Energy and Commerce,

Washington, D.C.

The subcommittee met, pursuant to call, at 10:30 a.m., in Room 2322, Rayburn House Office Building, Hon. Bill Johnson [chairman of the subcommittee] presiding.

Present: Representatives Johnson, Joyce, Carter, Palmer, Crenshaw, Weber, Allen, Balderson, Fulcher, Pfluger, Miller-Meeks, Obernolte, Rodgers (ex officio), Tonko, DeGette, Schakowsky, Sarbanes, Ruiz, Barragan, and Pallone (ex officio).

Also Present: Representatives Walberg, Pence, Castor, and Dingell.

Staff Present: Sarah Alexander, Professional Staff Member, Energy and Environment; Kate Arey, Content Manager and Digital Assistant; Jerry Couri, Deputy Chief Counsel for Environment; Sydney Greene, Director of Operations; Sean Kelly, Press Secretary; Peter Kielty, General Counsel; Emily King, Member Services Director; Elise

Krekorian, Professional Staff Member, Energy; Mary Martin, Chief Counsel, Energy and Environment; Jacob McCurdy, Professional Staff Member, Energy; Brandon Mooney, Deputy Chief Counsel for Energy; Kaitlyn Peterson, Clerk, Energy and Environment; Carla Rafael, Staff Assistant; Brannon Rains, Professional Staff Member, CPAC; Emma Schultheis, Staff Assistant; Olivia Shields, Communications Director; Peter Spencer, Senior Professional Staff Member, Energy; Dray Thorne, Director of Information Technology; Timia Crisp, Minority Professional Staff Member; Member; Waverly Gordon, Minority Deputy Staff Director and General Counsel; Tiffany Guarascio, Minority Staff Director; Caitlin Haberman, Minority Staff Director, Environment, Manufacturing, and Critical Minerals; Kylea Rogers, Minority Policy Analyst; Medha Surampudy, Minority Professional Staff Member; Rebecca Tomilchik, Minority Junior Professional Staff Member; Tuley Wright, Minority Staff Director, Energy, Climate, and Grid Security; and C.J. Young, Minority Deputy Communications Director.

Mr. Johnson. The subcommittee will now come to order.

The chair will recognize himself for 5 minutes for the purpose of an opening statement. Well, good morning and welcome to today's hearing entitled "Exposing the Environmental, Human Rights, and National Security Risks of the Biden Administration's Rush to Green Policies."

Since day one, President Biden has put Americans at risk by pushing a whole-of-government climate agenda that increases energy costs, undermines consumer choice, and strengthens America's adversaries, especially China and Russia.

This drastic and burdensome policy agenda also appears disconnected from his stated climate goals, in that many of the so-called green energy technologies have significant environmental impacts.

Even worse, this forced march to green is far from over. For instance, I am deeply concerned with the EPA's recent announcement on proposed standards for light- and medium-duty vehicles that would force the electrification of two-thirds of our domestic car market.

Now, I have nothing against electric vehicles. I want to make that clear. But Americans deserve the right and the ability to choose an affordable car that meets their needs rather than being forced to pay more because of a government mandate.

Democrats and the Biden administration don't want to examine the true cost of these policy choices to the environment, human rights, and national security in the United States and around the world.

In any other line of work, the failure to discuss risks honestly and transparently would be malpractice. We should not be reckless with America's energy future, and

today's hearing presents an opportunity to take a more holistic, transparent approach.

So if we want to look at risks to the environment, we need to look at the deployment of renewable energy technologies that require clearing a significant amount of land. The National Renewable Energy Laboratory estimates that solar panels need five acres of land to generate one megawatt of energy and wind turbines need 35 acres. To put that in context, you need 30 times the amount of land covered in solar panels to equal the capacity of one natural gas-fired power plant.

Rural communities across the country are voicing concerns with solar and wind operations popping up near their neighborhoods. In Ohio alone, more than ten counties banned utility-scale solar and wind energy facilities last year.

Achieving President Biden's renewable energy goals would ignore the concerns posed by many of my constituents and others across the country, but that is not all. These same renewable energy technologies pose risks to Americans at the end-of-life stage. The International Renewable Energy Agency projects that global solar panel waste could reach 78 million tons by 2050, with anywhere from 7.5 million and 10 million tons of waste in need of disposal just in the United States. The sheer amount of waste, some of which the EPA considers to be hazardous, is deeply troubling and begs the question of whether existing landfill capacity will be overwhelmed.

And let's consider human rights. The supply chain of critical materials essential for solar wind and EV batteries is tainted with forced labor, slavery, and child abuses. All you got to do is look at this poster, these posters behind me. It gives you a perspective of what is going on in the Congo.

Both the State Department and the Department of Labor have acknowledged violations with more than 40,000 children engaging in artisanal and small-scale mining,

digging for cobalt with their bare hands in the Congo, as well as thousands of members of the Uyghur Muslim community forced into labor in China.

We cannot be morally selective. It is our duty to ensure that American energy supply chains do not rely on slavery or child labor. We should also prioritize American national security rather than handing Federal subsidies and American taxpayer dollars to Chinese companies. China controls 50 to 70 percent of lithium and cobalt refining, key inputs for EV batteries as well as 90 percent of global refining capacity for rare earth elements.

Until we increase U.S. capacity for critical mineral extraction and refining, increasing our reliance on renewable energy and EVs will only benefit China, a country openly seeking to destabilization.

So let me clear. Our goal today is to better understand the serious challenges presented by various energy technologies and their real-life impacts on American consumers. This conversation is especially needed given the speed with which this administration is insisting, with calls for 100 percent EVs and 100 percent wind and solar.

Solar and wind energy and other renewable sources can and should be a part of our energy mix, but not the only part. Energy security and reliability derive from a diverse energy mix. We should not force a rapid transition to entirely intermittent, nondispatchable, unreliable sources of energy.

So I urge proponents of this agenda to ask themselves why are we doing this? Will the American people suffer under inflation, pay less or more for their necessities and transportation? Will their standard of living improve or decline? What will their lives look like when this so-called transition is complete? It is time that we prioritize them, the people, when we measure success with America's energy and environmental policy.

With that, I recognize the ranking member for his 5 minutes opening comments.

[The prepared statement of Mr. Johnson follows:]

******** COMMITTEE INSERT ********

Mr. Tonko. Thank you, Mr. Chair.

I am always grateful whenever this subcommittee can convene. However, I find the approach from my Republican colleagues this morning regrettable. First and foremost, this hearing's premise completely fails to recognize the underlying reason why the United States and, frankly, the world is pursuing a clean energy transition.

The combustion of fossil fuels is the overwhelming driver of greenhouse gas emissions, which are responsible for climate change. We know the consequences of unmitigated climate change will be significant. It will harm our environment, public health, our economy and national security.

Just yesterday, EPA released a new report which found that climate change is expected to increase incidences of asthma, of Lyme disease and emergency room visits for our American children.

This is merely the latest data point in a large body of scientific literature that is clear. If we do not respond to climate change effectively, we will be a poorer, sicker, and less competitive Nation.

And while my Republican colleagues are suggesting we are rushing toward a clean energy transition, I question whether they support the transition at all on any timeline. It does not sound like they do.

So if people take issue with my support for urgency in transforming our economy to one with less pollution, this urgency is because the scientific community is telling us that we must rapidly and drastically reduce greenhouse gas emissions.

But I am not naive. I appreciate that doing anything on the scale on which science tells us is necessary will have, indeed, challenges, and I am not afraid to have

honest discussions about what those challenges are and how we can, in fact, overcome them.

We need clean energy infrastructure to be able to be built faster. We need to take a long-term view of our critical mineral needs and find ways to meet those needs ethically and sustainably.

I would love the opportunity to work across the aisle to solve these challenges and enable the United States to experience the economic boom that will come from dominating global clean energy industries. Unfortunately, today we are going to hear a lot of complaints about clean energy technologies and very few solutions. It honestly does not sound like Republicans even want to do anything about China's lead in these critical industries.

House Democrats, on the other hand, are supporting policies that will enable the American business community to make the United States the global leader. Many of these efforts were enacted last Congress in the Infrastructure Investment and Jobs Act and the Inflation Reduction Act.

And thanks to those incentives included in those given bits of legislation, the private sector is already responding. There have been announcements for hundreds of billions of dollars to build manufacturing facilities, to develop domestic supply chains for solar, for wind, for EVs, semiconductors and batteries, including the production, processing, and recycling of critical minerals. In addition to responding to the real and urgent threat of climate change, these investments will result in millions of new well-paying American jobs.

So we have two options: We can keep complaining, pretending or hoping the energy transition is not going to be necessary or happen and believing that, to the extent

it is, it will exclusively benefit China, or we can do something about it. We can support American businesses that want to build the clean energy economy here in the United States and export those American-made technologies all over the world.

I think the choice is clear. Evidently, our colleagues in the majority do not. This week, they will vote to repeal key provisions from the IRA, including incentives that are widely supported by the private sector. I believe in American ingenuity. We have the best researchers, entrepreneurs, and skilled workforce in the world.

And certainly, within our DNA is that pioneer spirit. I am confident we can out-compete China and every other country to be the world leader in the clean energy industries that will not only be part of addressing climate change but will also dominate the global economy in the decades to come. I do wish my Republican colleagues shared my confidence in American businesses' and workers' ability to compete. And while Republicans are seemingly content to cede control of these critical industries to China without a fight, Democrats will continue to support the development of domestic supply chains and empower American companies to innovate solutions.

As we move forward, I hope we will have an opportunity to move past the criticisms of clean energy and work together on actual policy solutions that will help us overcome the challenges of transforming our economy and accelerating the clean energy transition. The health, the economy, the national security of future generations depends on us getting this right.

With that, I thank you, Mr. Chair, and yield back.

[The prepared statement of Mr. Tonko follows:]

******** COMMITTEE INSERT ********

Mr. Johnson. The gentleman yields back.

And I now recognize the chair of the full committee, Chair Rogers for 5 minutes for an opening statement.

The Chair. Thank you, Mr. Johnson, for holding this important hearing to expose the risk of the Biden administration's rush to green agenda.

And I want to just start where the ranking member stopped. We must get this right. And I want to emphasize America has led the world in reducing carbon emissions with clean, reliable, affordable energy, while having the highest environmental and labor standards in the world, and that is the record we want to build upon.

This hearing is about having an honest conversation on how the rushed agenda of the Biden administration poses serious environmental risk, because it empowers the world's dirtiest polluter, China. It makes America dependent on supply chains that use slave and child labor. It increases poverty, and it threatens our national security.

Since day one in office, President Biden has waged a war on affordability and availability of American manufacturing and energy. It began with the cancellation of the Keystone XL Pipeline, the green-lighting of the Nord Stream 2 Pipeline, and the moratorium on energy production on Federal lands. Those early decisions strengthened OPEC, including Russia, undermining American energy security as Russia attacked Ukraine. And it also increased our reliance on our adversaries, like China. The President has ordered agencies to slow walk permits to modernize natural gas infrastructure, which would expand U.S. LNG exports, despite record high energy prices for Americans and dangerous supply shortages in Europe.

Today, fingerprints of this rush to green agenda can be found on virtually every

energy and environmental policy and initiative launched by the administration. This administration's goal is 100 percent wind and solar and 100 percent EVs. This is a radical and an aggressive agenda that rewards environmental special interests at the expense of reliable, affordable, and clean energy for the American people. Look no further than the California example. Just 1 week after announcing his plans to ban gas cars and force people to buy EVs, Governor Newsom pleaded with people not to charge their cars to prevent energy blackouts.

The Biden administration is attempting to force an unrealistic expensive transition on the American people, from the cars that we drive to the stoves we use to feed our families. This administration is divorced from reality for what it means for America's future. They are downplaying important questions about the environmental, human rights, and national security risk behind rushing to deploy massive amounts of wind, solar, and battery energy.

I am also concerned that many of these decisions are empowering Beijing and the Chinese Communist Party's anti-America campaign. China controls more than 90 percent of the critical minerals that are used to make wind turbines, solar panels, and batteries for electric vehicles and grid storage. China pollutes more than any other major Nation, and it has one of the worst environmental and human rights records, which permeates throughout its supply chains. China is committing genocide and forcing millions of ethnic minority Muslims into slave labor. China controls mineral mines in countries like the Congo, where children are forced to work in inhumane conditions. And, of course, China is one of our greatest geopolitical adversaries.

President Biden has opened the door to allow China to undermine our energy security. Throwing hundreds of billions of dollars in subsidies and tax credits at

renewable technologies and EVs is not going to change this reality and it will only further empower China. This must be reversed, and that is why the Republicans plan to keep building off of our work on H.R. 1, the Lower Energy Costs Act.

Americans, we are at a crossroads. We can choose a path of economic growth, human rights, prosperity, energy security and embrace American energy dominance and innovation to reduce emissions, or we can continue down a path of more reliance on China, less energy affordability and reliability. This later path won't reduce emissions and it sacrifices American values to achieve a political goal. It will result in overreliance upon wind, solar, and batteries that will increase pollution and require more land for energy production, increase our dependence on critical minerals from nations with much weaker environmental and human rights standards, and it will strengthen China while compromising our energy security and independence.

The choices that we make don't just affect this generation. They are about building a stronger future for our children and our grandchildren for decades to come.

And I would like to thank our witnesses for being here today, appearing before us, and I look forward to your testimony.

Thank you. I yield back.

[The prepared statement of The Chair follows:]

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Mr. Johnson. The gentlelady yields back.

I now recognize the gentleman from New Jersey, Mr. Pallone, for 5 minutes for an opening statement.

Mr. Pallone. Thank you, Mr. Chairman.

This week, we are seeing just how far House Republicans will go to put the interests of polluters over the American people. Republicans are manufacturing a debt crisis to justify the need for their irresponsible and extreme Default on America Act.

Speaker McCarthy's bill will raise costs for American families, kick millions of people off their health insurance, reverse the progress we have made to combat the worsening climate crisis and undermine our efforts to lead the world in a transition to a clean energy economy, all so Republicans can provide huge giveaways to billionaires and big corporations.

House Republicans are holding the American economy hostage so they can do the bidding of big oil and gas, increase energy costs for working families and set American workers up to be left behind as they abandon our home-grown clean energy economy.

A key part of the Republican Default on America Act is H.R. 1, which repeals large portions of the historic climate provisions Democrats delivered with the Inflation Reduction Act last year. The Republican bill would repeal the Greenhouse Gas Reduction Fund, which is deploying clean energy projects all across the country.

It would repeal the Methane Emissions Reduction Program, which curbs methane leaks from the oil and gas industry, protecting people's health and ensuring polluters, not taxpayers pay for their wasted methane.

It repeals the $4.5 billion Home Electrification Rebate Program designed to lower

families' energy bills, and it repeals tax credits for electric vehicles, critical minerals for batteries, domestic battery manufacturing and solar and wind production.

Republicans want to repeal all these provisions even though the Inflation Reduction Act is already making a big difference. Since its passage, about $28 billion in new domestic manufacturing investments focused on EVs, batteries, and solar have been announced. Companies have announced $242 billion in new clean power capital investments.

And many of the States leading the Nation in these investments are States that committee Republicans represent. Georgia tops the list at $15 billion, followed by Tennessee at $10.9 billion, Michigan at $7.2 billion, South Carolina at 6.2, Texas at $5.1 billion and Ohio at $4.8 billion.

The investments from the Inflation Reduction Act have led to more than 142,000 clean energy jobs being created across the Nation. And those are impressive results, considering the Inflation Reduction Act has not even been law for a year. And yet, House Republicans now want to reverse this program so they can continue to put polluters over people.

It is clear Republicans don't have any real interest in diversifying our energy resources. Last week, at a bipartisan nuclear energy hearing, every witness supported the nuclear tax credit, praising it as a way to support our diversified energy mix. But that very same tax credit is now on the chopping block in the Republicans' Default on America Act.

This hearing also makes it clear that Republicans are not interested in being productive and offering real solutions that help us meet our climate goals and ensure that we out-compete the rest of the world in the clean energy transition. After all, the world

is transitioning and we must continue on the path, and Democrats have set us on this path.

There are certainly challenges that we must continue to address in this transition, but that is exactly what we have done. The Bipartisan Infrastructure Law directed the Environmental Protection Agency to develop best practices for battery recycling and voluntary battery labeling guidelines. These are two critical components of strengthening our critical mineral supply chains for clean energy development.

The law also allocated $6 billion for battery processing, manufacturing, and recycling. It also expanded the Department of Energy's Loan Guarantee Program to include projects that increase supply of domestically produced critical minerals. And these are important investments that help us meet our climate goals while also supporting the onshoring of crucial clean energy supplies.

Democrats delivered real solutions, and not one Republican on this committee voted for either the Inflation Reduction Act or the bipartisan infrastructure bill.

So I welcome a productive conversation about strengthening our national security and lowering energy costs by diversifying our energy mix. In my view, these are bipartisan issues that we can work on together. But that is extremely difficult to do so when Republicans continue pushing their polluters over people agenda. We simply cannot go back.

And, with that, Mr. Chairman, I yield back the remainder of my time.

[The prepared statement of Mr. Pallone follows:]

******** COMMITTEE INSERT ********

Mr. Johnson. The gentleman yields back.

And I too want to thank our panelists for being with us today. Thank you all for coming out.

Our first witness today is Mr. Mark Mills, a Senior Fellow with the Manhattan Institute.

Sir, you are recognized for your 5-inute statement

STATEMENTS OF MARK MILLS, SENIOR FELLOW, MANHATTAN INSTITUTE; ASHLEY NUNES, DIRECTOR OF FEDERAL POLICY, CLIMATE, AND ENERGY, BREAKTHROUGH INSTITUTE; DANIEL SIMMONS, PRINCIPAL, SIMMONS ENERGY AND ENVIRONMENTAL STRATEGIES; AND TREVOR HIGGINS, SENIOR VICE PRESIDENT, ENERGY AND ENVIRONMENT, CENTER FOR AMERICAN PROGRESS

STATEMENT OF MARK MILLS

Mr. Mills. Good morning. Thank you to the committee and the members for the opportunity to testify.

It is clear from opening remarks that we are, indeed, dealing with some high-stakes issues. So permit me to begin by observing two facts that we do know about the future that are indisputable.

First, that economic growth is the fundamental driver of energy demand broadly; and second, that while periods of slow growth and recessions are regrettably inevitable in all societies, those periods always end, but any subsequent growth can be stifled if energy supplies are inadequate or too expensive or unreliable.

An energy supply itself is not as much about finding resources as it is about building machines regardless of the natural resources that are used, whether it is sun or wind or water, oil, gas, oil, coal, uranium.

Those realities around machine building are what determines costs and all the associated environmental, social, and geopolitical impacts. And we know a lot about those impacts, both the good and the bad, of course, associated with energy machines

that use hydrocarbons, because we have been using those technologies at scale for a very long time and because that is how roughly 85 percent of America's and the world's energy is supplied.

We have learned a lot less about the impacts from wind, solar and battery technologies, because they are relatively new, frankly, and so far supply only a few percentage points of overall energy for either America or the world.

The administration has a stated policy goal, as we all know, to see America powered increasingly, eventually entirely by renewable energy. Look, I should stipulate that the future will doubtless see far greater use of wind and solar and electric cars if for no other reason than the sheer scale of future energy demands and because developed countries like ours are wealthy enough to pay higher costs.

However, there are a lot of misconceptions about the realities of renewable energy at scale, especially if the goal is to replace rather than supplement hydrocarbons. It begins with a core reality that renewables aren't green. In fact, nor are renewable technologies inherently cheaper nor geopolitically more secure.

Renewable energy isn't green as a consequence of an unavoidable feature of wind and solar resources. They have very low energy density. That means, compared to using hydrocarbons, one must build machinery that occupies roughly ten times more of the earth's surface to deliver the same amount of energy to society.

And since all life occupies the thin surface interface of our planet, whether it is the land or the water, one of humanity's greatest achievements has been the radical reduction in the amount of that interface that we use to deliver increasing quantities of food and fuel.

The inherent low energy density of renewables, which is locked into the physics of

those sources and machines, also means that far more machinery must be fabricated to deliver the same energy as is now supplied by hydrocarbon machines. That, in turn, translates into a radical increase in global mining and minerals processing to supply all the critical materials needed to build renewable machinery.

So renewable plans proposed or underway will require, according to the IEA, and others from a 400-percent to an 8,000-percent increase in mining of dozens of minerals, from copper and nickel to aluminum, graphite, lithium. The IEA says the world will need hundreds of new mines and very soon, immediately. Given regulatory realities, we know those mines won't be here. Almost none of the processing plants will be here. Instead, most will be in emerging economies, and most will be on or near the lands of indigenous people in areas that are culturally and ecologically valuable and fragile.

And given machine realities, the engineering and physics of machines, the huge jump in mining required will increase energy use in that sector, thus offsetting a lot and, in fact, in some cases all of the CO2 emissions that are saved by later replacing hydrocarbons and power plants and cars.

Global mining today already accounts for about 40 percent of worldwide industrial energy use. This is before the increase in mining needed to build renewable machines. And it is an energy system that is dominated by hydrocarbons and will be for decades.

And it bears noting that renewable energy machines are like all machines. They wear out. That means, of course, in the future we will see megatons of worn-out hardware -- trash -- much of it at unprecedented scale, because of the unprecedented quantities of energy machinery needed. Some of it can't actually be recycled, some not easily, much of it very expensively.

And the huge land footprint and materials requirements of renewable machinery,

it shows up in the economics too. I know there are claims of cost parity, but the fact is in every State and every Nation where there is a rising share of wind and solar on grids, electricity costs have risen, not shrunk. EVs, for similar reasons, are locked into inherently higher prices, because of greater use of underlying resources. Finally, the claim that renewables are geopolitically superior is exposed by the now well-known fact that China has a 40 to 80 percent market share, as high as a 90 percent market share in producing or refining the energy materials that are needed to build renewable machinery. That is a strategic dominance, I should point out, that is over double OPEC's market share in global oil production. Building assembly plants in the United States for EVs and solar panels doesn't change that fact.

There is, however, one common claim for renewables that is true. They create more jobs. That emerges directly from the excess land, materials, and machinery needed to deliver the same energy. The problem is that much of that work isn't in America. And to the extent that it can be, any new jobs come at a time, ironically, when our Nation doesn't necessarily need more jobs as much as it needs more people willing and able to fill the jobs we have, especially the skilled trades.

Thank you, Mr. Chair.

[The prepared statement of Mr. Mills follows:]

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Mr. Johnson. Thank you, Mr. Mills.

Our next witness is Mr. Ashley Nunes, director of federal policy, climate, and energy at the Breakthrough Institute.

Sir, you are recognized for 5 minutes.

STATEMENT OF ASHLEY NUNES

Dr. Nunes. Thank you, Mr. Chair.

My name is Ashley Nunes. I am a senior research associate at Harvard Law School and the director for federal policy, climate, and energy at the Breakthrough Institute.

My work focuses on analyzing the cost-effectiveness of emissions reduction efforts in the transportation sector. As this committee is aware, transportation-related emissions have steadily increased since the late 1990s, despite significant government spending on programs that promote emissions reductions. This mismatch between intent and outcome highlights the need for congressional scrutiny.

I will focus my testimony here on electric vehicles and emissions reduction technology that this administration, its predecessors, and Congress have heavily invested in.

I would like to make four key points: First, just because technology like EVs can lower emissions doesn't mean that they will. Our analysis shows that without a significant change in existing government subsidy policy, EV adoption may not meaningfully reduce emissions in the transportation sector.

Second, even with subsidies, EV adoption faces significant and challenging cost barriers. EVs today are pricier than gasoline-powered vehicles. And, more importantly, our analysis of the EV market over the past 15 years shows that not only are EV prices rising, but they are outpacing inflation and outpacing price increases for internal combustion engine-powered vehicles. Implicitly mandating EV adoption risks hindering emissions reductions efforts and worsening existing inequities in new vehicle ownership

across America.

Third, the path to clean energy requires minerals from numerous countries. Some of these countries are U.S. partners, others less so. Although the Inflation Reduction Act supports U.S. production and processing capability, IRA's benefits may take years to fully bear fruit. In the meantime, local mineral production limits and limited alternatives in lithium ion battery chemistry suggest that EV costs will remain high for American consumers.

Fourth and finally, there is reason for optimism. Although reducing emissions is challenging, this challenge is not, in Breakthrough's view, insurmountable. America can build better, cleaner, and less mineral-intensive cars that consumers want to buy and are, regardless of socioeconomic status, able to afford. Government has a crucial role to play in supporting this effort and, given the seriousness of climate change, should do so.

Thank you, Mr. Chair.

[The prepared statement of Dr. Nunes follows:]

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Mr. Johnson. The gentleman yields back.

Our next witness is Mr. Daniel Simmons, principal at Simmons Energy -- okay. I am sorry. I skipped Mr. Higgins. I apologize. Here we go.

Our next witness is Mr. Trevor Higgins, senior vice president at the Center for American Progress.

You are recognized for 5 minutes. I had you on the list, I just had the order reversed. I apologize, Mr. Higgins. You are recognized for 5 minutes.

STATEMENT OF TREVOR HIGGINS

Mr. Higgins. Thank you, Chair Johnson, Ranking Member Tonko, members of the subcommittee.

Last session, Congress enacted major components of President Biden's.

Investing in America agenda, including the Infrastructure Investment and Jobs Act, the CHIPS and Science Act, and the Inflation Reduction Act. These pieces of legislation represent the largest investment in climate action in U.S. history, and they really changed the paradigm that we are operating in. The United States now has a fighting chance to cut greenhouse gas emissions to half of peak levels by 2030.

The groundbreaking legislation is already at work today, and it is growing the economy by investing in the middle class. It connects good-paying jobs and apprenticeship programs to clean energy incentives for the first time. It builds supply chains and domestic manufacturing that will equip America to compete in the global energy economy for decades to come. It cleans up air pollution that is concentrated in low-income communities, and it cuts household energy costs in every region of the country.

I will run through each of those four points very briefly. First, jobs. The Inflation Reduction Act investments will create 1.3 million jobs by 2030. Already today, even though we are less than a year in or just about a year in, we have seen 140,000 new clean energy jobs already promised and created.

Importantly, the full value of the revised clean electricity tax credits are only available for project developers who pay prevailing wages and employ people in

apprenticeship programs, ensuring that the clean energy economy will be built with good jobs.

Second, manufacturing, the Investing in America agenda is onshoring manufacturing and building resilient supply chains already. For example, the Inflation Reduction Act's clean electricity incentives depend on increasing proportions of domestic content. There are new programs for manufacturing investments in energy communities, in advanced industrial facilities, automotive retooling and much more.

Advanced manufacturing tax incentives provide a long-term investment signal for critical mineral processing and battery production, and the structure of the tax credits for electric vehicles depend on domestic assembly and domestic batteries.

Mr. Johnson. Mr. Higgins, I apologize for interrupting you. Can I get you to get a little closer to your microphone. I am being told that it is not picking it up on TV.

Mr. Higgins. Thank you. Is this better?

Mr. Johnson. Yes. Thank you.

Mr. Higgins. Thank you.

Since the passage of the Inflation Reduction Act, companies have announced $240 billion in new capital investments for at least 190 new clean energy projects and 41 States, as documented recently by Climate Power. A few examples include Tucson, Arizona, Rochester, New York, and Florence County, South Carolina, which are among those that have plans for 65 new battery manufacturing sites.

Savannah, Georgia, and Montgomery, Alabama, are among the cities with plans for 40 new or expanded EV manufacturing facilities. Pensacola, Florida, Hutchinson, Kansas, and Georgetown, Texas, among others, have plans for 34 expanded wind and solar manufacturing plants.

These investments in U.S. industry will provide decades of job opportunities for communities across the country. Repealing the Inflation Reduction Act would pull the rug out from underneath these investments that are helping the United States to compete with China now.

Third, saving lives. Modeling from energy innovation shows that pollution reductions from the Inflation Reduction Act's clean energy investments would prevent up to 4,500 premature deaths and nearly 120,000 asthma attacks annually by the end of this decade.

Importantly, these pollution-related deaths will decline by an even greater percentage in low-income communities and communities of color, because they are disproportionately burdened by environmental harm and pollutants.

Fourth, repealing the Inflation Reduction Act would raise household energy costs. IRA offers households up to $28,500 in rebates and incentives if they choose to install clean appliances in their homes or buy zero-emission vehicles. For low-income houses, these rebates can cover 100 percent of project costs.

Because running on electricity is generally more affordable and less volatile than fossil fuels, home electrification can save the average household up to $1,800, and switching to an EV can save the average driver up to $2,600 a year. Even families that don't take advantage of these programs will save on their energy bills as the investments in affordable clean energy and reduced fuel demand across the economy will actually lower the price of natural gas. These clean energy investments deliver more and more savings every year, which will be felt in every region of the country, ranging from a 9 percent total energy cost savings in New England to 12 percent in the Midwest and up to 24 percent on the West Coast by the end of this decade.

Lastly, although the Inflation Reduction Act was passed with uniform partisan opposition, it does bring benefits to all Americans. In fact, more than half of the announced projects and jobs created from IRA so far are in congressional districts represented by Republican Members of Congress. Republican-leaning States are estimated to receive an average of $4,200 in IRA investments per capita, compared to $2,400 for Democratic-leaning States. These investments aren't partisan. People in all communities stand to benefit.

The Investing in America agenda is building a clean energy economy that will create good-paying middle-class jobs, make the U.S. competitive in the global economy, cut household energy costs, and save lives.

Thank you very much for the opportunity to be here today, and I look forward to any questions.

[The prepared statement of Mr. Higgins follows:]

******** COMMITTEE INSERT ********

Mr. Johnson. The gentleman yields back, and I thank you.

And now we will now go to our final witness, Mr. Daniel Simmons, principal at Simmons Energy -- is it Simmons or Simons?

Mr. Simmons. Simmons.

Mr. Johnson. Simmons.

Mr. Simmons. Yes.

Mr. Johnson. Simmons Energy and Environmental Strategies. You are recognized, sir, for 5 minutes.

STATEMENT OF DANIEL SIMMONS

Mr. Simmons. Thank you, Chairman Johnson, Ranking Member Tonko, and members of the subcommittee. Thank you for the opportunity to testify today.

And today I wanted to highlight the massive mineral and material requirements of President Biden's energy goals as well as offer a solution. And to that end, my friends at the Institute for Energy Research have released this report this week, the Economic and Strategic Importance of Domestic Mineral Production, that really highlights the mineral requirements as well as some of the challenge that we have in meeting them to meet President Biden's net-zero agenda.

The challenge is that the net-zero energy economy that the Biden administration wants requires massive amounts of minerals and materials, far more than our current energy economy powered mostly by coal, oil, and natural gas. For example, an EV requires six times the mineral input of a conventional vehicle, and an offshore wind facility requires nine times as much material inputs as a natural gas power plant of the same capacity.

The International Energy Agency's Sustainable Development Scenario calls for a 42-fold increase in lithium demand, a 25-fold increase in graphite demand, a 21-fold increase in cobalt demand, a 19-fold increase in nickel demand, and a 7-fold increase in rare earths, all by 2040, a mere 17 years from now.

The problem is that mining and material processing is far more concentrated globally than oil production has been in at least 50 years and probably longer than that. In fact, China is the world's largest processor of copper, nickel, cobalt, lithium and rare

earths, processing between 35 percent and 85 percent of these minerals. By comparison, the 13 members of OPEC together only produce about 40 percent of the world's oil.

Worse, as we have discussed today, China has a terrible human rights track record. The Biden administration and other countries have sanctioned China over China's abuses against the Uyghur people, for example. But these human rights abuses are not just -- we don't just see them in China.

For example, the Democratic Republic of Congo has more cobalt resources than the rest of the world combined. However, there is no clean supply chain of cobalt in the DRC, clean in terms of human rights. Much of the DRC's cobalt is mined from so-called artisanal miners, which include children, and are paid just a few dollars a day for very dangerous work.

The problem with production in China and other places, mineral production that is, is not limited to modern day slavery and human rights abuses, but also environmental degradation. The German publication Deutsch Welle argues that battery production, quote, "causes radioactive earth dumps, poisoned groundwater and Indigenous population displacement," close quotes, in places such as China, the DRC, and Rwanda. But there is a solution, and that is more mineral and material production here in the United States. And to that, we can look to the dramatic increase that we have seen in oil and gas production as a model.

A decade ago, many people, including at the time President Obama, said that more oil and gas drilling was not a strategy to solve our energy challenge. He said it was a bumper sticker. Well, he and the other experts at the time were proved wrong, that it was not only possible, but we actually ended up producing more oil in the last year, in the

last decade than all other countries combined.

In fact, by some measures, globally, the United States has produced about 90 percent of the new oil on the market over the past decade. What that means is greater energy stability and energy security for the United States and the world. Just imagine what would have happened with Russia's oil going more off the market than if the United States hadn't been there to support oil and natural gas supplies globally.

And on top of that, even as we have increased our oil and gas production, air quality has continued to increase in the United States, and that is a fantastic success story. So just as "drill, baby, drill" worked for oil and gas production, "mine, baby, mine" can work for minerals.

But one critical overlooked aspect of the shale revolution is the value of non-Federal lands. The shale revolution really occurred on State and private lands, because that is where people could get access to the resources.

But in the case of mining, the Federal Government plays a key role in permitting all new mines, and the Biden administration has stifled almost all new mining development. To name a few examples, the Biden administration has stymied the development of the Twin Metals and Polymet mines in Minnesota, Resolution and Rosemount mines in Arizona, and Pebble Mine in Alaska. They have reduced access to the Ambler Mining District also in Alaska. The Biden administration has been more disposed towards lithium mines, such as Rhyolite Ridge and Thacker Pass, but actual construction has only begun on Thacker Pass.

If the Biden administration is serious about achieving its net-zero goals, it will require massive amounts of new mineral production. The Biden administration should, therefore, work to dramatically increase domestic mining, because that avoids the human

rights issues abroad along with the poor environmental standards. And when we produce those minerals here, we improve our national security and, honestly, the national security of the world.

Thank you for your opportunity to testify. I would be happy to take any questions.

[The prepared statement of Mr. Simmons follows:]

******** COMMITTEE INSERT ********

Mr. Johnson. Thank you, Mr. Simmons. And I appreciate all the witnesses for your statement. We will now begin questioning, and I recognize myself for 5 minutes.

Mr. Simmons, picking up right where you left off, does the United States currently have the critical mineral extraction and refining capacity to meet the Biden administration's climate goals on the timeline and the scale that is being proposed?

Mr. Simmons. The minerals are in the ground, there is no doubt about that, but there is no way to access them, especially with the Biden administration's policy towards mining.

Mr. Johnson. Okay. So we don't. We do not have the mineral extraction and refining capacity in place right now.

So would it be accurate to say that if we stay on the Biden administration's path, we will increasingly rely on this type of so-called artisanal mining in the Congo?

And I want to refer everyone to these posters again of the children that are forced into labor and the slave labor that is doing this work. Are we increasingly relying on this type of forced labor abuses in China and elsewhere?

Mr. Simmons. Yes, without a doubt.

Mr. Johnson. Okay. Mr. Mills, you mentioned in your testimony that wind and solar have very low energy density and require ten times more space to deliver the same amount of energy to our people as a hydrocarbon facility.

Furthermore, wind and solar are intermittent, nondispatchable energy sources that are unable to provide base load power 24/7, since they actively depend on the wind blowing and the sun shining.

I want to go back and applaud our ranking member for pointing out the literally billions and billions of dollars of investments in these energy forms out of the Inflation Reduction Act. He called them investments. I call them irresponsible spending, because they are neither going to improve reliability and resilience of our energy grid nor are they going to improve the quality of life for the American people.

So, Mr. Mills, what would a drastic expansion of solar and wind projects mean for constituents like mine in the Midwest?

Mr. Mills. Well, Mr. Chairman, we have the data, because a number of States have increased dramatically their use of wind and solar on grids. Germany has, other countries in Europe. And the track record there is unequivocal. The cost of residential electricity goes up and it goes up rather dramatically. It has tripled in Germany, in Denmark and Sweden.

The overall ratio of every unit of increased wind and solar on a grid leads to an overall increase essentially one-to-one in a sort of percentage basis. In the United States in several service territories, we have seen a 300-percent increase in the residential cost of electricity.

Bear in mind this means that the wind and solar machines that are going on the grid are going on at a discount, because the subsidies are being paid by taxpayers elsewhere. And even with that, costs have gone up.

I will just briefly note the reason for that is operational.

Mr. Johnson. Right.

Mr. Mills. When a wind turbine is blowing, the electricity is cheap, but the operational realities mean electricity gets more expensive.

Mr. Johnson. So, given what you just told us, does it make sense to raze millions

of acres of arable farmland and Appalachian forests in favor of solar and wind farms? Would that have an adverse impact on the environment?

Mr. Mills. Well, we used to have a very active environmental movement that was very unhappy about excess land use by civilization. So the question, to not be facetious, answers itself.

Mr. Johnson. Yeah.

Mr. Mills. We don't want to increase land use to deliver the same amount of energy. It is not environmentally sensible or green. We have to use land, but we should be trying to minimize land use.

Mr. Johnson. Okay. Mr. Mills, continuing with you, global solar panel waste is projected to reach 78 million tons by 2050 with between 7.5 and 10 million tons generated in the United States alone.

Now, the last time this committee met, many of you will recall we discussed a number of politicians who vehemently opposed proper permitted disposal of roughly 40,000 tons of hazardous dirt.

I do wonder, if 40,000 tons is unacceptable, will the biggest renewables proponents commit to accept 10 million tons of hazardous broken, retired, solar panels at landfills in their congressional districts?

So it does beg the question, Mr. Mills, does the United States have the existing landfill capacity to properly dispose of these retired solar panels?

Mr. Mills. We have the land. It is a choice to use the land for those purposes. And I think there is a naivete about the quantity of land both for production and disposal.

The typical response, I should note, that is in everybody's head and proposed by the IEA and others is that we will recycle those materials instead of dispose of them.

And it is technically possible to recycle a lot. It is extraordinarily expensive. And none of the models for future costs of wind, solar, and batteries account for real-world costs of recycling if that is mandated, which I suspect is what will happen.

Mr. Johnson. I yield back.

And I now yield to my colleague Mr. Tonko for his 5 minutes.

Mr. Tonko. Thank you, Mr. Chair.

Mr. Higgins, I want to make sure the record is clear about President Biden's policies in mandating a rush to clean energy. Is there a Federal policy that mandates that 100 percent or, for that matter, any percentage of our energy mix comes from wind and solar resources?

Mr. Higgins. No, Mr. Tonko, there is no such mandate.

Mr. Tonko. So am I correct in assuming that the recent increase in renewables has been driven by a mix of State policies, of electricity markets, and voluntary decisions being made by American businesses and consumers?

Mr. Higgins. That is right, including in response to the energy cost changes, that wind and solar can be much cheaper.

Mr. Tonko. And similarly, am I correct in stating that policies that seek to limit pollution from light-duty vehicles are technology-neutral? They are not mandating that 100 percent of future vehicles are electric, are they?

Mr. Higgins. That is correct.

Mr. Tonko. So if this is not mandated, can you explain for this subcommittee why auto makers are investing in facilities to manufacture new EVs and batteries here in the U.S., and are they responding to what they see as market and consumer trends?

Mr. Higgins. Yes, Representative Tonko, I think that is right. Electric vehicles

are popular. Surveys have shown from consumer reports a 350 percent increase in consumer demand for battery electric vehicles in the last 2 years. And 70 percent of adults would consider buying or leasing an EV today, which means that there are now approximately 45 EV-ready buyers for every EV being manufactured.

And this is happening globally. And automakers know that in order to remain competitive in the global economy, they need to make investments now to be ready to contest the investments that China has already been making and that our other allies, including Europe, are also interested in making to advance their electric vehicle industry.

Mr. Tonko. I do hear from constituents that they in many cases be on waiting lists and the like.

So in your testimony, you mentioned policy decisions made in the Inflation Reduction Act are driving workforce development and prevailing wage jobs in clean energy.

Similarly, how are the voluntary incentives for EVs that were included in the Inflation Reduction Act intended to send a market signal to promote the domestic production of the entire EV supply chain?

Mr. Higgins. The investments in the Inflation Reduction Act and the Infrastructure Investment and Jobs Act work to invest across the entire supply chain for electric vehicles and batteries in particular.

Just to mention a few, there are grants, loans, and tax credits for investment in industrial capacity to extract critical minerals, to refine the critical minerals, to build battery cells, to assemble the cells into battery packs, to retool automotive facilities, to build new automotive facilities and to recycle batteries at the end of their life cycle. That is just the capacity.

The Inflation Reduction Act also has investments that support production at every one of those steps. IRA covers 10 percent of the costs of producing or processing critical minerals in the United States. IRA pays $35 per kilowatt hour for every battery cell produced in the United States. It provides $10 per kilowatt for every battery pack assembled in the United States. That alone is more than the difference in price between Chinese and U.S. battery manufacturing, according to Bloomberg New Energy Finance. It is also enough to put EVs and gas cars within price parity in the next 3 years.

On top of that, IRA will pay 30 percent of the costs of grid-scale battery deployment and an additional $3,750 for each EV built predominantly with domestic batteries and critical minerals.

So consumers across the world are interested in EVs and automakers want to build them, and IRA is making sure that at every stage in the supply chain that every stage will have a home here in the United States.

Mr. Tonko. So, to be completely clear, many private businesses then are seeking what their consumers are going to want in the years ahead and are responding by positioning themselves to take full advantage of the available Federal incentives by investing in domestic manufacturing supply chains.

So, Mr. Chair, I appreciate that the clean energy transition will have its challenges. There are already major investments underway to reduce our dependence on volatile fossil fuel markets, lower cost for American consumers, create millions of good-paying jobs and reduce pollution, and those investments are being led by the U.S. private sector.

So I hope we can work together on overcoming clean energy challenges in the name of U.S. global competitiveness rather than repealing incentives that are delivering hundreds of billions of jobs in job-creating investments all across our country.

With that, I thank you and yield back, Mr. Chair.

Mr. Johnson. The gentleman yields back.

The chair now recognizes the chairwoman of the whole committee, Chair Rodgers, for 5 minutes for questions.

The Chair. Thank you, Mr. Chairman.

Mr. Mills, how green are wind, solar, and batteries when compared to traditional energy resources that power America's economy? And does China abide by the same environmental standards that we do?

Mr. Mills. Well, Madam Chairwoman, we know that China does not abide by the same standards. And as we also know, it is relevant for the record the IEA has made a forecast of the CO2 emissions reductions with respect to that one feature of environment that will arise under ideal conditions of fully spending all the IRA money and all the Infrastructure Act money. If all of it is spent as planned and expected, it reduces U.S. CO2 emissions by a gigaton. For the record, China will increase its CO2 emissions by that amount every 2 years for the next decade. So China's expansion in coal wipes out the next 10 years of U.S. CO2 emissions reductions.

The green label, of course, is meant to refer to only carbon dioxide, as we all know. But green used to mean land use, toxic chemicals, air pollution of all kinds and water pollution. In those metrics, there is nothing different about renewable machines, wind, solar and battery, than any other kind of machines except they produce far more negative impacts on the environment, in aggregate, than producing the same amount of energy from hydrocarbon machines.

The Chair. Thank you.

Mr. Simmons, a group of us recently traveled to Europe, and we saw how similar

rush to green policies harmed the security of European countries. Shutting down coal, nuclear, supporting a Nord Stream 2 Pipeline from Russia for their oil and natural gas, and then Russia weaponized that energy against them.

I don't want to see that happen in America, and I am concerned that the current approach by the Biden administration will, in their rush to green, strengthen China and weaken America's energy security.

As the former Assistant Secretary for DOE's Office of Energy Efficiency and Renewable Energy, you have firsthand experience with the deployment of renewables and batteries for electric vehicles and the electric grid.

What are you most concerned about with the Biden administration's timelines and targets to electrify and decarbon the economy? Do you believe that the administration has adequate framework to balance the environmental, human rights, and national security risk of climate-related policies?

Mr. Simmons. I am not aware that they have a framework that balances that. I mean, if you look at the statements from, say, Climate Envoy Kerry, I haven't seen any balancing that the administration has focused on.

To Ranking Member Tonko's point are these mandates, and generally they are not mandates technically, but they are de facto mandates when it comes to mandating massive amounts of EVs, because that is the only way you can meet the -- it is the only way you can meet EPA's upcoming GHG regulations for vehicles.

And the problem is, is that those raw materials are currently dependent on Chinese supply chains, and not just like -- we are not really talking about necessarily battery packs. We are talking about the lithium, the cobalt, the nickel. Everything that goes into the battery packs, those are all dependent on Chinese supply chain, and that

will not change for years, no matter how many dollars are in the IRA. So I have serious concerns, because I don't see a real framework from the administration looking at all these issues.

The Chair. Thank you.

Ms. Nunes, I have heard from some car companies that the amount of raw materials in a large fully electric car battery could be used to produce dozens of hybrid cars. If that is true, wouldn't hybrids reduce the battery supply chain's risk that all electric cars are subject to?

Dr. Nunes. Congresswoman, if you look at the total amount of minerals that are used in an electric vehicle battery pack, they are orders of magnitude above the volume of minerals you would need in a hybrid electric vehicle battery pack.

So the simple answer to your question is yes, you would be able to build out multiple hybrid electric vehicle batteries from a single EV battery.

The Chair. So wouldn't a hybrid vehicle be a better way to save money and reduce overall emissions?

Dr. Nunes. I think if you look at the numbers, a hybrid electric vehicle typically costs about 12 percent more than an internal combustion engine and emits about 25 percent less carbon dioxide. An EV typically costs you between 40 to 50 percent more than an internal combustion engine and is about 40 percent less polluting.

In terms of your dollar value, hybrid electric vehicles offer you the most bang for your buck when it comes to emissions reductions.

The Chair. So why isn't the administration encouraging hybrid?

Dr. Nunes. I am not authorized to speak on behalf of the administration.

The Chair. Okay. I just thought I would ask. Anyone else?

Anyway, I will yield back. Thank you, Mr. Chairman.

Mr. Joyce. [Presiding.] The gentlelady yields back. We now recognize the ranking member of the entire committee, Mr. Pallone from New Jersey.

Mr. Pallone. Thank you, Mr. Chairman.

Later today, the House is expected to vote on the Default on America Act, which repeals a number of significant investments in our domestic clean energy industry enacted by the Inflation Reduction Act.

In the energy and environment space, this bill seeks to repeal programs designed to lower energy costs for American consumers with still tremendous homegrown clean energy job growth and would block critical investments in domestic manufacturing designed to onshore clean energy production. In my opinion, these misguided proposals play right into China's hands.

So, Mr. Higgins, I hope you can help members understand each of these major deficiencies with the Default on America Act. First, would repealing the Inflation Reduction Act programs, like rebates for home efficiency upgrades or incentives for solar, wind or zero-emission transportation technologies, lower energy costs for American families?

Mr. Higgins. No, Mr. Chairman. They would raise energy costs for American families.

Mr. Pallone. Thank you for calling me chairman, but I am the ranking member but, anyway.

That is what I thought you would say. So Republicans are claiming their proposals will reduce energy costs while voting to repeal critical energy cost-saving provisions that are already in law. That doesn't make sense to me.

So, again, Mr. Higgins, can you please speak to how the Inflation Reduction Act will strengthen domestic manufacturing of clean energy technology.

Mr. Higgins. Absolutely. So, as I mentioned in my last answer, there are investments up and down the battery supply chain, but the same is true in other parts of the supply chain for the clean energy economy.

There are incentives and requirements for any company who is taking the clean electricity tax credits to have increasing proportion of domestic content, including their steel, the manufactured components that go into the wind turbines. At the same time as we are creating that pool for new products, IRA is investing in new manufacturing capacity and retooling existing capacity and in specifically targeting investments to energy communities that need the jobs.

Mr. Pallone. I agree that these policies in the Inflation Reduction Act directly lead to incredible benefits on the ground for Americans across the country and, of course, these investments help keep us competitive on the global stage since China and other countries are already building the clean energy future. And, in fact, this was our intent with the bill to try to, you know, make us more competitive with China.

But let me ask you this: Since the Inflation Reduction Act was enacted, there have been historic announcements in the clean energy sector, including more than 142,000 clean energy jobs, and it is projected to create 9 million in total.

And I have a report here by the Climate Power on IRA investments and jobs in districts all over the country, including many Republican districts.

So I would ask the chairman, I would ask unanimous consent to enter this into the record, if I could.

Mr. Joyce. Yes, thank you.

Mr. Pallone. All right. Now, many of the jobs that we have mentioned in the Inflation Reduction Act come from incentives to onshore and reshore domestic manufacturing in the energy space.

So, Mr. Higgins, can you speak to the benefits of onshoring this work and how these benefits will result in more jobs and clean energy access, particularly in energy communities?

Mr. Higgins. One of the interesting features of the tax credits, including in the Inflation Reduction Act, is a 10 percent bonus credit for investments that happen in energy communities. And the definition of that includes anyplace with a brownfield site. It includes coal communities that have high unemployment. It includes any community that has a disproportionate amount of its employment coming from fossil fuels.

And these communities often see ups and downs in their employment, because fossil fuel markets, particularly with the fracking boom, can be volatile or unreliable. And so by targeting investments in new clean energy construction and manufacturing in these parts of the country, we are going to be providing a pathway to a decade-long commitment to these communities' economic success.

And this is creating an opportunity for the United States to compete in the global clean energy economy of the 21st century. China has for decades understood really what we all understood, which is which technologies are going to be important in the clean energy technology. But, unlike us, they started investing in those decades ago. So we are playing catchup now to make sure that we can have the competitive American industry that we need for the next century.

Mr. Pallone. Well, I think you just made the case why we should completely

reject Republicans' rollbacks of the Inflation Reduction Act, but thank you so much.

I yield back, Mr. Chairman.

Mr. Joyce. The gentleman yields.

The gentleman from Alabama, Mr. Palmer, is recognized.

Mr. Palmer. Thank you, Mr. Chairman.

I just want to make a point that apparently my colleagues across the aisle don't get. China's objective is not to save the planet from climate change. China's objective is to rule the planet as the sole superpower. And anyone who does not understand that I think contributes to the national security risk that we are facing with China.

Mr. Mills, is clean energy clean?

Mr. Mills. By the definition of what we used to think broadly in environmental domains, no, the answer is no. It is no cleaner than, at best, any other form of energy.

Mr. Palmer. It potentially would be an environmental disaster, because of the mining requirement, refining requirement, by the way, which we don't do here. We have become 100 percent reliant on China for all of that. There is not a single smelter for rare earth elements in the Western Hemisphere that I know of. I think they are all in China except maybe one.

Mr. Mills. Ninety percent of rare earth refining is in China. If you mine rare earths in America, you send them currently -- and some are mined here -- to China.

You know, it is worth pointing out for the record that the environmental impacts of energy are, of course, universal, right? I mean, we can't avoid that. These are machine issues.

But China has a dominance that was, as we know, planned for two decades publicly, but they don't dominate what the world uses for energy. Back to the 84

percent of all energy is hydrocarbon-based.

And the world spent five to ten trillion dollars in the last two decades avoiding hydrocarbons, and we still only get 3 percent of all of our energy globally from wind and solar.

Mr. Palmer. I want to ask you another quick question, and I am not sure you know the answer to this. But approximately, it takes an enormous amount of cement and steel and plastic to build a wind turbine. It takes an enormous amount to build solar panels.

Are you aware that 50 percent of the world's steel production is from China, over 60 percent of the cement, over 30 percent of the plastics? And we have just been talking about rare earth elements. We are not even talking about the stuff that we don't do here. And you can't produce any of that without natural gas.

Mr. Mills. You would need to use natural gas, coal, and oil to produce all those materials.

Mr. Palmer. So would you agree that this mad dash to eliminate all hydrocarbons, particularly natural gas, first of all, is, from a physics and engineering perspective, impossible but, just from a rational sense, insane?

Mr. Mills. Well, it is actually physically impossible to do it to the scales and timeframes that are being imagined. And we have that from the IEA itself, which is pointing out that there is no path to eliminating use of oil, gas, and coal in minerals production and processing known for decades.

Mr. Palmer. Well, they also point out that, under no scenario, we will be at net zero by 2050.

Mr. Mills. That is correct, sir. And Bill Gates testified in a public speech that

even if we did achieve net zero, it wouldn't change the climate modelling scenarios by a tiny fraction of a percent

Mr. Palmer. Yeah. I want to talk about the other issues with renewables. And I am not against renewables. I just understand that we are not going to have a sustainable economy with the growth that we need for a country and the ability to help other economies, emerging economies grow with 100 percent renewables. It is not possible.

But I also point out that we need to be focused on next-gen nuclear, because we had a very good hearing last week and I think we made some really good points.

But one of the problems with renewables, particularly in this case turbines, is their life cycle is only about 25 years and you can't recycle the blades. And we have got some photos here of landfills in Wyoming and Texas where we are having to bury these things because we can't recycle them.

Would you consider that an environmental problem?

Mr. Mills. I think massive waste production that you can't recycle is, by definition, an environmental problem. In theory, you could eventually recycle them, but that theory is still in the experimental stage. So right now, they are just trash.

Mr. Palmer. And enormously expensive. And we have a debt crisis that is an existential threat to our national security as well as the emergence of China as a superpower.

I also want to address this other issue of pollution over people and just remind my colleagues that my kids and, hopefully, my future grandkids breathe the same air that everybody else does. We drink the same water. We live on the same ground. And it is so disingenuous to use that kind of phraseology to further divide people. And,

hopefully, people have enough common sense to realize that we all live on the same area. We are breathing the same air, drinking the same water.

And this idea that it somehow contributes or causes asthma, I just remind you that even the CDC says we don't know what causes asthma. And there are other things, most likely related to the economic conditions of individuals who are suffering from asthma, particularly kids, because of low household income, poor housing, things like that, that we can solve with a vibrant economy if we can get our debt crisis, our capital crisis that has now been created because of the debt under control.

With that, Mr. Chairman, I yield back.

Mr. Joyce. The gentleman yields.

The chair now recognizes the gentlelady from Colorado, Ms. DeGette.

Ms. DeGette. Thank you so much, Mr. Chairman.

I would respectfully say to my colleague across the aisle, maybe your constituents don't live downwind from a refinery in an economically depressed neighborhood, like my kids do, and have a much higher percentage of asthma.

I would like to ask you some questions, Mr. Higgins, about some of these policies that we are talking about today. Because there seems to be this implication that we are having this coercive rush to green policies, but, in fact, what we are trying to do in the face of the climate crisis is play catchup for decades of inaction, denial, and lack of coordination.

And all of the experts that I have seen say that we have to slash our emissions and transition to clean energy as soon as possible. It is existential.

So what I want to ask you is, if we just drift along and don't do anything, are we going to have a further degradation of our environment?

Mr. Higgins. Yes, Congresswoman. Climate investments from IRA and IIJA are essential for giving us an opportunity to stabilize climate change.

Ms. DeGette. And do you think that -- do the experts that you have reviewed, do they say that if we start to take aggressive steps that we are going to be able to at least begin to bend the curve on these extreme weather events and declined economic productivity that impact health?

Mr. Higgins. Yes, the science is very clear that every increment of emissions reduction is going to reduce the peak warming and the date at which we can achieve stable global temperatures.

Ms. DeGette. And what about the impact on developing countries? If we are able to have a clear progress, are we going to be able to have impact in the developing world?

Mr. Higgins. Yes. The developing world and poor parts of even the developed world are more exposed to the impacts of climate change. And they would be the first to benefit then from emissions reductions technologies that start to slow the pace of climate change and give us more time to adapt.

Ms. DeGette. Do we actually have -- you heard some of your colleagues on the panel say that we can't possibly have any impact by 2050 and so why do it. Do you agree with that?

Mr. Higgins. No, I believe that is a false statement.

Ms. DeGette. Why do you believe that?

Mr. Higgins. Well, the International Panel on Climate Change jut put out their recent Synthesis Report, which builds on decades of science. And they were very clear that this problem of climate change is caused by primarily fossil fuel combustion, and it

can be resolved by human action.

Ms. DeGette. Now, do we have the technology right now to get to zero percent carbon by 2050?

Mr. Higgins. We have the technology right now to substantially cut and to reach net-zero-greenhouse gasses by 2050. And it is important to note that the Inflation Reduction Act investments are not exclusively in any one technology. There are investments in nuclear, biofuels, carbon capture and sequestration in addition to wind and solar.

Ms. DeGette. Right. We are not mandating that we get to zero percent with wind and solar. Is that right?

Mr. Higgins. That is absolutely correct.

Ms. DeGette. It is source-neutral.

Mr. Higgins. That is right.

Ms. DeGette. And that is what we are going to need to do to get to zero percent by 2050.

Mr. Higgins. That is right. In fact, the new tax credits changed the paradigm for the way our fiscal subsidies are produced so that they are not technology specific. By 2025, the Federal Tax Code will reward any technology that can be zero emission.

Ms. DeGette. And again, I want to ask, so if we are able to do that, to get to close to or at zero by 2050, the scientists believe that is actually going to have an impact?

Mr. Higgins. Yes. That would be -- it would put us likely within range to constrain global warming to 1.5 degrees with limited overshoot, which is very important. And if we cannot reach net zero by mid century, it is unlikely that we will be able to contain the pace of climate change this century.

Ms. DeGette. Now, I keep hearing my colleagues on the other side of the aisle talk about critical minerals. Frankly, we are all concerned about the human rights issues. So what do we need to do to try to get independent of some of those, the production in some of those countries?

Mr. Higgins. As many have already testified, China today refines the majority of the critical mineral supply in the world. It is their operations that are the principal driver for critical minerals mines throughout the world, including those with abhorrent labor abuses. And --

Ms. DeGette. So what do we need to do? I have got 10 seconds.

Mr. Higgins. The Inflation Reduction Act invests in creating an American supply chain and processing capacity. And we will be able to better leverage, with our democratic allies, a regime that we can control and enforce better human rights.

Ms. DeGette. Countries like Australia, right?

Mr. Higgins. Correct.

Ms. DeGette. Thank you. I yield back.

Mr. Johnson. [Presiding.] The gentlewoman yields back.

The chair now recognizes Dr. Joyce from Pennsylvania for 5 minutes.

Mr. Joyce. First, I want to thank Chairman Johnson and Ranking Member Tonko for holding today's hearing. Over the past few years we have heard from the Biden administration preaching about the wonders of renewables. But, unfortunately, the rush to adopt green technology from wind and solar to electric vehicles and electric stoves has significant drawbacks for my constituents and hardworking families across the United States.

Our Nation has led the world in emission reduction, not because we have

transitioned our energy generation to wind and solar, but because we created new ways to harness the resources, the resources that are under the feet of my constituents.

Natural gas production from places like Pennsylvania, has reclaimed American energy dominance while cutting our greenhouse emissions by 17 percent from 2005 to 2021, according to the EPA.

We cannot let government policies, written with a misunderstanding of the real world, abandon the hard-earned advantages that our Nation has and directly will harm our constituents.

One example is the Department of Energy's proposed efficiency standards for distribution transformers. Utilities and electric co-ops in my district in Pennsylvania are already experiencing a critical shortage of grid components. To make matters worse, DOE's role would upend a fully domestic supply chain for the main steel component in distribution transformers to achieve an efficiency increase of just 0.29 percent, less than 1 percent. This rule would leave us reliant on foreign imports, create an even more acute supply crisis for critical grid components, and sacrifice family-sustaining jobs in Pennsylvania.

Another example of poorly conceived government policy is the Biden administration's push for electric vehicle adoption. In my district, EVs simply cannot fulfill the needs of my constituents. They can't tow the distances that they are needed to tow. They can't maintain the charge at extreme temperatures or recharge fast enough to keep hardworking Pennsylvanians on the job.

That is why I introduced H.R. 1435, the Preserving Choice in Vehicle Purchases Act, to prevent the EPA Administrator from granting a waiver, allowing California's ban on internal combustion engine sales by 2035. Although starting in California, once

adopted, this regulation will spread across the Nation, disrupting the entire American auto market and ultimately limit what my constituents are able to buy.

President Biden has made it clear that he wants to force Americans to buy electric vehicles. This policy will harm working and middle-class families by making cars more expensive and less capable. Only by taking government's thumb off of the scale and letting the free market decide will Americans get the efficient and affordable transportation that they need and that they want.

My first question is for you, Dr. Nunes: The International Energy Administration projects that EV adoption at 15 percent by 2030, but President Biden is trying to mandate 67 percent adoption by 2032. Is it realistic to expect a 53 percent increase in this rate between 2030 and 2032, just in 2 years?

Dr. Nunes. My sense is that it would be challenging, to say the least. I also think it is important to distinguish between EV sales versus a total number of -- you know, there is a lot of focus on how many EVs we are actually selling versus looking at what the propulsion profile is of the national fleet.

If you look at markets like Norway, which is something we hear quite a lot about, Norway sells a lot of electric cars. At the same time that you see increases in the number of electric cars, you are also seeing an increase in the total number of cars on the road, and that is not a good thing.

What that suggests is that the majority of people are buying electric cars as second or third vehicles. They are not trading in their gasoline-powered vehicles.

Mr. Joyce. But isn't that economically challenging for the middle and the working class Americans to be able to afford a second or third vehicle? Is that even plausible?

Dr. Nunes. Well, I think if you look at the distribution of who actually owns electric cars, they are skewed towards high-income earners.

Mr. Joyce. And that skew is very concerning for someone who represents working-class people throughout Pennsylvania.

Are Americans, particularly families, ready to give up their primary, their workhorse car with an internal combustion engine for an EV? Those who can only afford one EV, one vehicle, are they going to turn that over?

Dr. Nunes. I think that in order for an electric vehicle to become the de facto choice for middle- and low-income Americans, these vehicles would need to boost significantly larger range and interior space requirements.

Mr. Joyce. Which they don't have right now. And in your earlier testimony, you said they cost between 40 and 50 percent more. These aren't costs that my constituents can afford right know.

Dr. Nunes, since 2005, auto sales have fluctuated. Do you feel that the current regulatory environment is going to be able to produce the EVs that are necessary?

Dr. Nunes. I think that while there is, you know, considerable reason for optimism when it comes to producing vehicles, there would be significant challenges associated with meeting the EPA's de facto emission standards.

Mr. Joyce. I think this committee recognizes those challenges. My time has expired. I thank you for the candid conversation.

And, Mr. Chairman, I yield.

Mr. Johnson. The gentleman's time has expired.

The chair now recognizes the gentlewoman Ms. Schakowsky for 5 minutes.

Ms. Schakowsky. Thank you, Mr. Chairman.

So today we are likely to see a vote on what Democrats are calling the Default on America Act, which, among other things, I would say, despite my colleagues' objection to that, that puts politics over people, which has really been the tradition in the United States, that people who breathe air in certain communities are much more likely to get sick, and those more polluting places are often put into low-income communities.

And one of the things that this legislation would do is to eliminate the Inflation Reduction Act, which does actually have in it the High Efficiency Electric Home Rebate Grant Program. And I wanted to talk to you about that, Mr. Higgins.

What would be the consequence then if that program would be eliminated, both to private sector investors and, of course, to everyday consumers who have seen or will see a decrease in their energy costs?

Mr. Higgins. Thank you, Representative. Yes, the Home Electrification Rebates Program is I think going to be an excellent program that offers low-income households up to 100 percent of the costs of replacing their fossil fuel furnace or gas stove, if they choose, with a high-efficiency electric alternative. And that is one of the many ways that we can make sure we are reaching every household.

The bill also includes tax credits for heat pumps for higher income households. It includes training for contractors. It includes manufacturing support for companies to produce the heat pumps. And this way we are approaching the problem of how do you improve indoor air quality and reduce the fossil fuel demand of the housing sector by addressing all of the elements of the supply chain and the consumer experience.

Ms. Schakowsky. Thank you for that. The IRA also includes tax credits to encourage workforce development, apprenticeship programs, and other things to expand the workforce.

I would also note that right now 650,000 unfilled jobs are out there right now. And so what can we do to make sure that we expand the workforce, helping workers and certainly helping us address the climate?

Mr. Higgins. Thank you. Yes, the Inflation Reduction Act is both driving gains in job growth in clean energy industries but also improving job quality by, as you mentioned, tying incentives across eight different tax credits to prevailing wage requirements and apprenticeship requirements. And this will support the quality of the job as well as train the workers that we need.

There is also a new advisory board in the Infrastructure Investment and Jobs Act that is meant to identify places where there are skills gaps. And that could be an area for Congress to focus on over the next decade and making sure that we will have the highly skilled technical labor that we need to build the clean energy economy.

Ms. Schakowsky. Can you talk a little bit more about training programs? We know that there are a lot of people who need to work. There is the need for the workers. What are we going to do to train the workers to be there?

Mr. Higgins. One of the interesting aspects of the Inflation Reduction Act is that it includes funding for disadvantaged communities specifically to make sure that they have training opportunities for taking advantage of the investments that will be happening in their communities.

So through the not equitable Environmental and Climate Justice Block Grants program as well as through Greenhouse Gas Reduction Fund, there can be opportunities to support training directly.

I also think that there's room for more intervention of Congress personally. There were proposals in earlier processes, including the House-passed version of Build

Back Better, that didn't ultimately be enacted. I think these types of investments and other interventions would be a very helpful way to make sure that we are developing the workforce that we need to remain competitive.

Ms. Schakowsky. Thank you so much. I yield back.

Mr. Johnson. The gentlelady yields back.

The chair now recognizes Mr. Allen for 5 minutes.

Mr. Allen. Thank you, Mr. Chairman.

And, you know, I don't know where asthma comes from. I happened to be born with it, so -- but I have dealt with it for a long, long time.

And yeah, this important hearing, you know, the thing that we are not doing is nobody has given me a number of what it is going to cost to meet all these goals. In other words, how much are the American people going to have to sacrifice?

Now, we lead the world in reduction of carbon emissions, there is no question about that, and overwhelmingly lead the world. We have spent a lot of treasure to the extent with $31.5 trillion and growing every second debt in this country.

The markets are very volatile right now, the financial markets, because of this government spending and because of this debt. In fact, you are seeing chairmen of major financial institutions in this country say that if you don't get your fiscal house in order. That is the greatest existential threat to this country, because if we become a Third World country, yeah, we might be clean but, you know, we won't be the country we are. And debt will do that.

You know, the potential threats to our national security we have talked about with these new policies are not fully understood, and I hope that today we can learn more about them.

Right now there is a push towards transitioning our energy to be dependent solely on renewables. And, of course, personally I am from an all-in approach. We need to be energy-dominant again.

The reality is that many of these favored technologies require critical materials that we are relying on from other countries, predominantly China, and others whose mining industries are largely controlled by the CCP. We should not be dependent on our adversaries for these critical materials.

If we are going to dramatically increase deployment of green technologies and electric vehicles, we must look at domestic remedies. I have not heard one remedy here today to do that. Nothing is being done to that. We can't get permits to mine today.

Mr. Mills, you noted that the United States is 100 percent reliant on imports of 17 critical minerals and heavily dependent on other countries for 28 of the 50 critical minerals identified by the United States Geological Survey. China specifically is the top producer for most of those critical materials.

What are the national security risks associated with relying almost entirely on critical mineral inputs from other countries, predominantly China?

RPTR MARTIN

EDTR HUMKE

[12:00 p.m.]

Mr. Mills. Well, Congressman, as you well know, the dependence on other countries for things that are critical is a geopolitical risk by definition. With all due respect to the Congress of the United States, we are now fully 70 years, 70 years into hearings about critical mineral dependencies. It began shortly after World War I, ironically, escalated after World War II, and for the last 20 years or 30 years, in my experience with the Congress, there have been dozens of studies and reports, hearings, legislations dedicated to solving the critical mineral problems.

It is only solved one way. It is environmental regulations have to be modified to encourage mining and refining of minerals. That has never been done yet. We have done the opposite. We have increased our strategic dependencies.

So as you say, sir, we get 100 percent of 17 critical minerals through imports. Another 20 we import about 50 to 80 percent of what our needs are, and we will increase those needs by orders of magnitude with these plans to build assembly plants here, not mines.

Mr. Allen. Right. And, Mr. Simmons, what can we do to ensure that we are not relying on China for critical mineral inputs?

Mr. Simmons. Well, what that means is a massive increase in the amount of mining in the United States. That means that new mines actually get permitted. There is one new mine, to my knowledge, which is Thacker Pass in Nevada that is a lithium mine. The Biden administration deserves credit, let's give them kudos, that that is now moving forward. That is fantastic, but we need much, much more. We need 42

times -- the world needs 42 times as much lithium as we are currently producing today. That is going to come from a lot of different places.

Mr. Allen. And are we getting significant price fluctuations as well as far as trying to move in this direction?

Mr. Simmons. There is -- I mean, we have had all kinds of price fluctuations, but overall we have seen price increases, a lot of energy inflation over the past few years, and that is only going to get worse unless we have more production.

Mr. Allen. Yeah. And, of course, the war on fossil fuel has created tremendous input costs to every business, which is affecting our ability to grow our economy.

Thank you so much.

And I yield back.

Mr. Johnson. The gentleman yields back.

The chair now recognizes my friend and colleague, Mr. Ruiz, for his 5 minutes of questions.

Mr. Ruiz. Thank you.

As I pull up my questions here, I want to give a very special shout-out to constituents, school board members from Imperial Valley in Eastern Riverside County for being here.

Mr. Johnson. Mr. Ruiz, turn your microphone around.

There you go.

Mr. Ruiz. And I want to thank you, Mr. Chairman, for holding this hearing.

My district, California's 25th District, produces the most renewable energy on Federal land in the Nation. And I also must say that climate change is real. Pollution is real. And it affects the underserved, marginalized, underresourced communities more

than it does the others.

And there are challenges to shifting to a clean energy future, but I see them as opportunities, opportunities to expand the positive impacts of clean energy. I see them as opportunities that recent legislation has provided to help us overcome these challenges with solutions.

As it has been mentioned by me in numerous committee hearings, litium batteries are a critical component of electric vehicles. But they are also an obvious solution to securing our clean energy future, while also providing the grid reliability that we need. Unlocking the potential that lithium batteries have to offer in a safe and responsible way will have an enormous impact on our national security, economy, and energy independence.

In my district, the Salton Sea region in the Imperial Valley, we had a massive supply of raw materials that can power our clean energy future. The Salton Sea area has the fifth largest deposit of lithium in the world, and it has the potential to supply the lithium needed not only for electric vehicles but also the batteries that can make our electric grids resilient.

We speak about supply chains. Extracting lithium, producing batteries that benefit the people in the district is a good supply chain. Taking the time to invest in responsible methods of extracting lithium is critical to the well-being of our local communities.

Mr. Higgins, could you speak to why investing in high environmental standards for domestic mining or extraction is necessary to ensure the safety of our communities and how it will strengthen our supply chains in the long term?

Mr. Higgins. Absolutely. Thank you, Representative Ruiz.

The Inflation Reduction Act makes the process of finding mining opportunities that actually win support of local communities easier, in my opinion, by supporting 10 percent of the costs of extracting lithium, by providing a billion dollars for properly staffing the Federal Government to conduct environmental reviews. And the Salton Sea, in particular, is of interest because it potentially provides opportunities to resolve multiple problems at once, including the toxic dust that is coming off of the Salton Sea. And the trick will be, as you have articulated, doing this in a way that actually benefits the communities.

And approaching this in a thoughtful way that wins the support of local communities that considers the water impacts and evaluates all of the issues is really the only path forward to making sure that the critical mineral extraction here in the United States is different from the critical mineral extraction we have heard concerns about across the world.

We are proud of our labor standards. We are proud of our environmental standards. We can address these challenges all at the same time.

Mr. Ruiz. Thank you.

Indeed the Inflation Reduction Act passed into law last year is a critical first step in the shift towards clean energy, and we are already beginning to see those investments produce results in the form of jobs and health benefits. Hundreds of thousands of well-paying, long-term clean energy jobs have already been created.

In my district the Crimson Energy Storage in Blythe is currently the second largest energy storage project in the world, constructed by union labor, including the International Brotherhood of Electrical Workers, IBEW, powering vital medical equipment, electric vehicles, and so much more.

Additionally, studies have shown the Inflation Reduction Act is not only good for our constituents' wallets but also good for their health.

So, Mr. Higgins, can you elaborate on the health benefits specifically for low-income communities and communities of color as a result of the Inflation Reduction Act?

Mr. Higgins. Now, harmful air pollution is disproportionately concentrated in Black and Brown communities. Of the 13 million people of color who live in areas with failing grades for ozone and particulate pollution, over 9 million are Hispanic in this country. There are more than 1.8 million Latinos who live just within a half a mile of high-emitting industrial facilities and oil refineries.

So the burdens of the fossil fuel economy are not evenly distributed across our country.

Mr. Ruiz. It won't. They are not. And, in fact, the medical literature and recent research shows that individuals living near high-polluted or in high-polluted cities and areas live on average 10 years less than if you lived in an area that didn't suffer from high pollution.

And as an emergency physician, I can say there are countries faced with a climate crisis that is affecting the well-being of our constituents, and we must offer solutions, not just continuing to give them the same outdated medicine that is doing more harm than good. We need to put people above politics and take care of people.

Thank you.

Mr. Johnson. The gentleman yields back.

The chair now recognizes the gentleman from Ohio, Mr. Balderson, for 5 minutes.

Mr. Balderson. Thank you, Chairman Johnson. I appreciate your time.

Thank you, panel, for being here today.

Mr. Simmons, in your testimony you emphasize that the sheer size of U.S. oil and natural gas production, combined with its excellent environmental standards, means that U.S. production disproportionately reduces the environmental harms of oil and gas production on a global scale.

The Biden administration has taken multiple actions to curtail oil and gas production in the United States and instead expand renewable energy projects such as solar and wind. If the United States were to transition entirely to renewable energy sources, what would be the impact on global emissions?

Mr. Simmons. I don't think I can do that calculation in my head. That would be -- that would be difficult.

The question is, you know, the United States has a very good environmental track record. We have dramatically increased our oil and gas production and continue to improve the environment, lower overall criteria air pollutants, as well as lower carbon dioxide emissions. We have seen that with higher production.

So when that gets shifted overseas, it means higher emissions overseas of pollution even though there would be less, you know, production of oil and natural gas here in the United States.

Mr. Balderson. Okay. Follow-up for you then. Currently electric vehicles account for just 1 percent of the 250 million vehicles, SUVs, and light-duty trucks on the road in America.

In addition to the major concerns we have outlined with sourcing the critical minerals needed to produce these vehicles, I want to discuss the national security risk associated with the strain that will be placed on the electrical grid.

A recent PGM report found their service area, which includes my district, is facing an increase where the pace of retirement to the closure of generation resources could well outpace the replacement of that generation with new renewable sources. The report notes this could force the PGM region to fall below the level of reserves needed to maintain reliability by 2030.

Do you have concerns with the increased demand on the electrical grid if the EPA's vehicle emission standards proposal which would force electric vehicles to account for 67 percent of new light-duty vehicle sales by 2032 were to go into effect?

Mr. Simmons. Certainly. You know, when I was at the Department of Energy, we had this conversation, and I talked with the staff and asked them, Okay, like with this dramatic increase, with a dramatic increase in EV, what happens to the grid? And the answer was, Well, we have built that much capacity.

We have built that much of the grid before. We can do it again, which is certainly true. But that was certainly true in a regulatory environment of the seventies, of the eighties, not necessarily in today's regulatory environment where the Biden administration just signed off on TransWest Express, a long distance transmission line.

It took 15 years, 15 years to permit that. That is ridiculous by any standard, and it also means that there is just no way that the grid can handle that kind of increase.

Mr. Balderson. Well, you have kind of touched on it a little bit, but the national security risk of losing the greater reliability also?

Mr. Simmons. Oh, certainly, certainly. I mean, any -- one of the reasons that we have strong national security is because we have a strong energy economy. We have incredibly reliable energy here in the United States. When that goes down, that harms the economy, harms the national security.

Mr. Balderson. Amen.

Mr. Chairman, I yield back my remaining time to you.

Mr. Johnson. Will the gentleman yield?

Mr. Balderson. Yes, sir.

Mr. Johnson. I thank the gentleman for yielding.

Mr. Mills, I want to go back to you to wrap up a couple of questions that I didn't get to earlier.

You had mentioned in your testimony when you consider all of the talk of society reusing and recycling. Can you explain how low-energy dense renewables and electrification of the economy could increase the material in landfills?

Mr. Mills. Well, Mr. Chairman, it distills to a simple physics fact. The low density of wind and sun, the amount of energy you get per square mile per machine translates into roughly a tenfold increase in land use but, more critically, a threefold increase in machine use and then roughly a 10- to 50-fold increase in --

Mr. Johnson. So there is a lot of that material?

Mr. Mills. A lot of material. And, eventually, it is recyclable in principle, but as the IEA has pointed out, the build-out phase for the next 20 years of the proposed energy transition will not produce materials available for recycling because they are not worn out yet.

So we are going to have to have a massive expansion in global mining. The mining is not going to happen here. Our standards have driven the mines into Africa, into Asia, into South America.

And I just want to make a point for the record. I too care about the poor neighborhoods. What we are doing is exporting our pollution that we caused by our

mandates in spending to other nations where people are affirmatively poorer and are less able to defend themselves from the predations of the kinds of mining that is done predominantly by Chinese-owned firms.

Mr. Johnson. Got you.

Assuming these levels of increased waste will grow exponentially, do you envision permitting new landfill capacity for this kind of waste to be any easier or quicker?

Mr. Mills. Well, this is another category where we know the question --

Mr. Johnson. Kind of a rhetorical question because that is one we have to answer. Right?

Mr. Mills. Congress and the States. Regulatory reform has not come to general environmental domains, which will dictate both construction mining, manufacturing permitting, refining, and waste disposal.

Mr. Johnson. Got you.

Okay. I yield back to Mr. Balderson, and Balderson yields back.

I now recognize the gentlelady, my colleague, Ms. Barragan from California, for 5 minutes.

I am sorry. Mr. Sarbanes, I did not see you down there. I apologize.

I recognize Mr. Sarbanes for 5 minutes.

Mr. Sarbanes. Thanks very much. Sorry about that.

Mr. Johnson. You were stealthy.

Mr. Sarbanes. I was stealthy.

So I have to say I am a little bewildered by why some of my colleagues are so concerned at the pace at which we are trying to incentivize and adopt these green technologies. I mean, certainly the public appreciates us moving quickly and

deliberately in that direction. The majority of Americans agree that climate change needs to be addressed now, not 10 years from now or 100 years from now, but now.

And Democrats and the Biden administration have worked very hard to respond to that, to the public's desire to expediently address climate change, and that included our passage of the historic Inflation Reduction Act in the last Congress.

The bill, as we have been saying, recognizes that America can be a leader in our global green energy transition, and together with the bipartisan Infrastructure Investment and Jobs Act that we passed and President Biden's nine executive orders on climate and interagency efforts to strengthen energy and environmental regulations, it really sets us up well to meet this moment, I believe.

These are successes that are going to create new jobs. They are going to strengthen our domestic clean energy production. They are going to make meaningful advances in addressing climate change.

So, Mr. Higgins, you have spoken to it already. I would like you to come back and maybe put a punctuation mark, if you could, on what the climate implications are of the clean energy transition that the Democrats and the Biden administration are supporting through actions like investments in the Inflation Reduction Act.

Mr. Higgins. Thank you, Representative Sarbanes.

The climate investments from the Inflation Reduction Act, coupled with the Infrastructure Investment and Jobs Act, are projected by themselves to reduce U.S. greenhouse gas emissions up to 42 percent below 2005 levels by 2030, which is great. It is not quite enough, though, by themselves. What is important is that these investments are also enabling further action. They are changing the economics of clean energy. They are changing their affordability for households. They are supporting

planning by the States. And together with the full suite of Federal executive actions and State actions, they put -- these investments put within reach the 50 percent goal that President Biden has set.

They also changed the economics and the politics of global diplomacy on clean energy, and this makes it possible to push the whole world forward to meet the greenhouse gas emission reductions that we need to have a shot at stabilizing global temperatures at 1.5 degrees Celsius.

Mr. Sarbanes. I appreciate that.

I have to say when we passed that Inflation Reduction Act, it was the first time in a long time that I did not feel powerless pr feel that we were powerless in the face of climate change coming at us. There is a path forward now, and hopefully we will get there in time before this sort of tipping point escapes us for good.

But these are dramatic changes that can bring us to a new place and, I think, have given many people a sense of hope instead of despair in the face of what we are seeing with a warming planet.

So while Democrats and the Biden administration are working to build on the successes of last Congress, doing that very deliberately -- and I commend the administration for those efforts -- some of my colleagues have been suggesting that we slow the progress down, that we revert back to responding not to the public's desires but, unfortunately, to some of the wealthy special interests of the oil and gas lobby, which has just had an incredible impact, chokehold, stranglehold on our policy when it comes to energy for decades and decades in a way that I think really compromised our Nation and its prosperity, frankly.

Mr. Higgins, again, can you explain how our recent actions to quickly, decisively

address the climate crisis can address Americans' pressing environmental and economic concerns and have benefits that simply can't be matched at all by the proposed rollbacks that we saw in the energy bill that the Republicans brought to the floor or even a slower, more piecemeal approach than that?

Mr. Higgins. I think one of the great insights of the investment-led approach here is that climate action is not divorced from people's lived experience, nor is it something that happens just to future generations. And investing to make clean energy more affordable and available brings benefits to people in their everyday lives today, and that means saving 4,500 lives by 2030 from reduced air pollution. It means cutting household energy costs. It means creating already more than 140,000 jobs.

These are benefits that people will understand and experience, and it will -- not only are the benefits worthwhile themselves, it will also build, I think, a better understanding of why addressing climate change is beneficial today and tomorrow.

Mr. Sarbanes. Thanks very much.

I yield back, Mr. Chairman.

Mr. Johnson. The gentleman yields back.

The chair now recognizes the gentlewoman from Iowa, Mariannette Miller-Meeks for 5 minutes.

Mrs. Miller-Meeks. Thank you, Mr. Chair.

And I am going to start out today by actually lauding renewables, but I also want to acknowledge that sometimes we forget, and especially this administration, that renewables are more than just wind and solar.

My friend from the great State of Utah, Mr. Curtis, has some of the most abundant geothermal resources in the world. Like much of the Pacific Northwest,

Chairwoman Rodgers has abundant hydropower in the 5th District of Washington State. And in Iowa, the corn State, which is an energy State, we are proud to have abundant ethanol and biodiesel.

Ethanol's use is widespread. More than 98 percent of gasoline in the U.S. contains some ethanol and is an option for low carbon liquid fuels. In 2022, ethanol supported more than 57,000 jobs across Iowa, generated $3.5 billion of income for Iowans and accounted for nearly $7.2 billion of the State's economy and is, in fact, a renewable energy source. And if we don't grow corn in Iowa or the United States, it will be grown in Brazil or in South America, and they will cut down rain forests in order to plant more corn.

So, Dr. Nunes, like many of my Republican colleagues, I have concerns about the war President Biden has waged on liquid fuels. There are approximately 300 million passenger vehicles in the United States. That does not include logistical transport.

And for a single 100-mile charge for an electric vehicle, that is 30 kilowatt hours. Do the math on how much energy it would take to get a single 100-mile charge and if we could, in fact, do that.

The Biden administration's recent proposals, including its Set proposal, which includes a new and statutorily unauthorized program to incorporate electric vehicles into the renewable fuel standard program, as well as its market commandeering standards for light- and medium-drive vehicles are a deliberate attempt to prop up electric vehicles at the expense of American consumers and Iowa ethanol. And I say this having driven a Honda Civic hybrid for 20 years, two of them.

How will these proposals increase costs for American families?

Dr. Nunes. Thank you for the question, Congresswoman.

I think if you look at the EPA's own numbers regarding the improvements in fuel economy that you would need to achieve to comply with the regulatory standards, we are talking, at least for internal combustion engines, about thousands of dollars. In the absence of selling electric vehicles, the price of conventional vehicles would, at a minimum, go up by about $2,000, at a minimum.

You could presumably sell electric vehicles to comply with the standard. However, here two challenges persist: The economics of building electric cars are challenging, to say the least. And even when you sell cars at $50,000 or $60,000, we have numerous OEMs that don't make profit off those vehicles.

Mrs. Miller-Meeks. And they are powered by what?

Dr. Nunes. Well, of course, it would depend on which State you live in. But, you know, by and large, it depends on the cleanliness of the grid; some coal, some gas, some renewables.

Mrs. Miller-Meeks. So, Mr. Simmons, the International Energy Agency estimated that the demand for lithium will increase by 43 times in the next 20 years, but the United States produces less than 2 percent of the global lithium supply.

And because my time is running out, have all of you heard of Blood Diamonds?

Okay. Well, there is another analogy now, and that is Cobalt Red. And, you know, the climate-friendly -- I beg to differ with one of the witnesses -- of mining for cobalt, mining for rare earth is anything but environmentally friendly and also not labor friendly.

Does the United States have reserves, Mr. Simmons, to meet the expected lithium demand?

Mr. Simmons. We don't necessarily have enough to meet the global demand.

We have a decent amount of reserves in places such as Rhyolite Ridge, Thacker Pass. We have large amounts of lithium reserves. The question is being able to access those reserves and whether the Biden administration will continue to stand in the way.

Mrs. Miller-Meeks. And is solely relying on allies to make up production and refining deficits a sustainable long-term strategy? And is it environmentally and labor friendly?

Mr. Simmons. I mean, when the United States has some of the best environmental and labor standards in the world, anytime we are exporting that, we are exporting lower environmental, lower labor standards.

Mrs. Miller-Meeks. Thank you very much.

Mr. Chair, I yield back my time.

Mr. Johnson. The gentlelady yields back.

The chair now recognizes the gentlewoman from California, Ms. Barragan, for 5 minutes.

Ms. Barragan. Thank you, Mr. Chair. Thank you for having this.

Thank you to our witnesses for being here.

I think, you know, it is -- I don't disagree that there should be a conversation about challenges that we need to face to be able to transition to 100 percent clean energy economy, but I don't think that we should also just say, Well, it is too much of a challenge, so let's just not do anything and let's have no action on climate or environmental justice.

And I think that is why we saw President Biden and Democrats in Congress pass bills like the infrastructure law and the Inflation Reduction Act to bring clean energy manufacturing jobs to America and to invest in things like batteries and recycling.

So I think that there are solutions that we can work on, but just to say, Oh, we are

just not going to do this because it is too hard is not the way to go.

There has been a lot of talk today about national security. I want to remind folks that the U.S. defense and intelligence leaders agree that climate change is a national security risk. It's a threat to the U.S. national security. It is not a future threat.

It is a threat that is happening today. And climate change is affecting global stability, military readiness, creating humanitarian crises, and is increasing the risk of war.

So if we want to talk about national security, we need to talk about it in the greater sense as well that climate change is posing.

Today, as I was preparing for the hearing, I was repeating -- reviewing the Republican memo that claims that clean energy technologies are being forced on Americans. They are being forced on Americans.

What is being forced on Americans in my district and many other districts is things like urban oil drilling, things that have forced my constituents to live next to homes where they have pump jacks, where they are having air pollution, where they are suffering health impacts. And in many parts of our country, fossil fuel extraction and infrastructure continue to pollute low-income communities and communities of color.

Mr. Higgins, is clean energy being forced on environmental communities or are we choosing to install solar panels and transition to zero emissions because its better for our health and our environment?

Mr. Higgins. Thank you, Representative Barragan.

Yes, clean electricity and other points of energy are better for our health and environment, and the investments offered in the Inflation Reduction Act are estimated to save up to 4,500 lives by the end of the decade and avoid nearly 120,000 asthma attacks annually.

This is -- as you noted, these pollution components are not borne equally across the country. They are concentrated in communities of color and low-income communities. And the investments in the Inflation Reduction Act make it possible for those communities to choose a different path. It is not a mandate. Nothing is being forced, but we are seeing how investments can make ever greater opportunities for clean energy available to the United States.

Ms. Barragan. Thank you.

The rights of foreign workers mining critical minerals is a serious issue and one that House Democrats want to address, but my Republican colleagues in this committee were less concerned about worker safety just a month ago when they passed a bill that exempted refineries that used highly toxic hydrofluoric acid from doing a hazard assessment or an assessment of safer technology options.

The United Steelworkers wrote this committee in opposition to this reckless bill, and their concerns were dismissed. While Republicans raise worker safety issues only when it suits their argument, Democrats are leading the way with solutions to create good-paying clean energy jobs that uplift communities.

Mr. Higgins, how does the Inflation Reduction Act move us toward more responsible and sustainable energy jobs and energy supply chains?

Mr. Higgins. I am very excited about the first-time-ever idea in the Inflation Reduction Act, TEI, clean energy incentives, to requirements for apprenticeship programs and prevailing wages. This is going to make sure that the job quality of the clean energy economy is much higher and is going to provide real job communities for whole careers for people.

Ms. Barragan. All right. Thank you.

With that, Mr. Chair, I will yield back.

Mr. Johnson. The gentlelady yields back.

The chair now recognizes the gentleman from Georgia, Mr. Carter, for 5 minutes.

Mr. Carter. Thank you, Mr. Chairman.

And thank all of you for being here. This is an extremely important subject.

You know, I too believe that there is a rush to green. Now, let me preface my remarks by saying that I believe in climate change. I believe it is real. I do believe it is cyclical.

I have taken an active role in this discussion. I have advocated to be on the Select Committee for Climate Change last session. I was on that committee, and I am chair -- or cochair of the Roosevelt Conservation Caucus. I am a member of the Conservative Climate Caucus. I have traveled to Europe with the Conservative Climate Caucus to learn as much as I can about this issue.

But one thing that I get frustrated with is that I don't feel like that we often look at the full cycle, and I always want to make that motion whenever I am describing it because it is a cycle.

And we can take more important parts of that cycle, particularly when it is over with. And what do you do with the lithium ion batteries after it is over with? What do you do with the windmills and the blades after it is over with, and all of this stuff.

And I will be quite honest with you, I have biomass in my -- and I represent south Georgia. I have a lot of timber, a lot of forestry, and biomass is something I am very interested in. I get it. I understand how people would think, Well, you are burning something. How can that be good? But if you look at the full cycle, you will see that our forests serve as carbon sinks.

And it is carbon neutral by the end of the full cycle, and people just -- that is what really frustrates me about this.

In our State of Georgia, we are doing our part. We are in the Top Ten now in solar energy. We have got nuclear reactors that are fixing to come online, the first in over -- in many decades that have come online in this country. And we have got in my district the largest economic development project in the history of our State is being built there by Hyundai, an EV plant, a $5.5 billion investment that is going to create over 8,100 jobs. We are excited about that. We have got a battery plant. SK batteries is coming there at that time.

But, again, I am concerned about the total cycle, the full cycle, because I don't think people look at it, and I get frustrated because, as you all know, China puts out more hydrocarbons than the entire world combined, and they are the worst polluter out there. And, yet, people always want to point towards us. Here in the United States in the last decade we have decreased our carbon emissions more than the next 12 countries combined while still growing our economy. And I do believe in an all-of-the-above type energy strategy. I believe that fossil fuel is a natural gas.

And you all all know this, so I am just talking to myself here because this is a preacher preaching to the choir. I get it.

Mr. Mills, I want to ask you a question. As of today, only 5 percent, 5 percent, of lithium ion batteries for electric vehicles are recycled, compared to 99.3 percent of lead acid batteries for traditional gas-powered vehicles.

Since electric vehicles rely on lithium ion batteries, which are considered hazardous waste, by the way, what is the best way for us to address the end of the life disposal issues with electric vehicles?

Mr. Mills. Well, that is the -- there is no easy answer to that because batteries are mechanically and electrically complex machines. Each one weighs about a thousand pounds, has thousands of components, chemicals, electronic pieces, cooling systems. Though they are typically dismantled by hand, it takes 1 to 2 days for one technician to transmission a single lithium ion battery. It is not just chemically hazardous; it is electrically hazardous.

And then you could technically recycle them in all the studies that have been done to show that you can eventually get there. It would be very expensive. There is no path to cheap recycling of lithium ion batteries. There is technically a path for us to get there, but they won't be available for recycling until cars wear out.

Mr. Carter. What about the blades on windmills?

Mr. Mills. There is no path now. There has been one announcement that recycle resins made for batteries -- for wind turbine blades. For now, they are trash.

Mr. Carter. Okay. You get what I am getting at, though?

Mr. Mills. Yeah.

Mr. Carter. The full cycle, it is just we don't look at that.

I want to shift real quick. Mr. Simmons, you mentioned that one solution to the human rights issues that we know happens, like in Congo where we are getting some of these critical minerals, is to increase critical mineral production and refinery in the United States.

How can such an expansion occur under the Biden administration's current policies?

Mr. Simmons. Under current policies, it can't.

Mr. Carter. Exactly. Again, folks, we have got to look at the total picture here.

We have got to look at the full cycle. I know it doesn't do me any good to keep doing this, but I am just telling you, we are not looking at it from its totality.

Mr. Chairman -- and if you all ever want to see time fly, come here and get 5 minutes, and you will see time fly. Thank you, all.

And I yield back.

Mr. Johnson. I thank the gentleman for yielding back.

The chair now recognizes Mr. Crenshaw for 5 minutes.

Mr. Crenshaw. Thank you, Mr. Chair.

Thank you all for being here.

So the title of this hearing is "Exposing the Environmental, Human Rights, and National Security Risks of the Biden Administration's Rush to Green Policies." It is an important title. I want to unpack that for a second.

Environmental risks, Mr. Mills, you have got some great data in your testimony. You talked about the amount of material excavation needed for the equivalent amount of energy for, quote/unquote, green energy versus your more standard reliable energy sources such as natural gas. It also goes into the amount of land needed, hundreds of time more land space needed for the equivalent amount of energy compared to traditional energy sources that actually turn on when you need them.

So talking about environmental risks, that part of the conversation just gets ignored, which is why I am glad we are doing this hearing to expose that.

Human rights, a basic human right might be to turn the air-conditioning on when it is really hot, to be able to turn the heat on when it is really cold. Energy security should be a basic human right, at least in modern times, a basic human right. It hasn't been for thousands of years.

We finally made it one, and now we want to destroy it all and claim that the energy sources that have given us all of the modern amenities that we have today are to blame for -- and are racist and are hurting people of color and hurting the disenfranchised.

Now, what will hurt the poor, what will hurt people of color, what will hurt the disenfranchised in our country would be energy and security. That will actually hurt them.

And we can see the results. I mean, look at California and its rush to green energy. 70 percent higher costs for their energy than the rest of the country. I wonder how the poor feel about that.

In Germany, in their rush to get rid of their nuclear plants and basically de-industrialize, they have 300 percent higher energy costs. They have had to resort to burning coal and wood, which has far more carbon emissions.

So I will add that to the environmental destruction of rushing to green energy. It actually has the potential, as we see in Germany, of increasing carbon emissions. That is what is actually happening.

And national security risks, well, if you -- if the lights don't turn on, that is, obviously, a national security risk. I don't think I need to flesh that out too much.

Mr. Mills, maybe I will start with some of your really interesting data points that you have in your testimony. I like this one: "Analyses show that manufacturing a single battery, one capable of holding energy that is equivalent to one barrel of oil, entails processes that use the energy equivalent of 100 barrels of oil."

Do you want to comment on that and then some of the other data points that you have as far as materials needed, land space needed, things like this, that show that the

input for these types of power production types are not what people say?

Mr. Mills. Thank you, Congressman.

One of the things that is ignored generally in the debate, but the IEA should be commended for publishing excellent studies on this, as has the World Bank and many other international organizations, the underlying infrastructures required to make the minerals and materials and transport them are all hydrocarbon-based, coal, oil, and gas.

The industries themselves that produce minerals consume 40 percent of all of the world's industrial energy. And there is no path to replace coal, oil, and gas at scale globally in the industrial sector. What that means is when you produce the electric car, you are consuming oil and gas and coal before the car is delivered to your driveway and, therefore, you are causing CO2 emissions. We actually don't have a good number to know exactly how much it is. We know what the range is.

And I will commend Volkswagon and Volvo for publishing studies that illuminate that. And they point out that when you take that into account, you radically reduce the ostensible, you know, dramatic reduction in CO2 emissions. And, in fact, in some cases, as they pointed out, you can wipe out all the CO2 emissions for not burning gasoline.

So when I was in Norway recently, which buys the most electric cars per capita at the moment, they pointed out that everybody bought a Tesla -- a lot of Teslas; they are very popular there, nice car, well made, beautiful engineering -- what you have already done is exported somewhere between 15 to 20 tons of CO2 when you buy that one car. And you do cut CO2 emissions as you drive the vehicle on that hydropower grid. If you drive it on an American grid or a German grid or a British grid, you reduce the CO2 emissions eventually, but only by about 15 to 20 percent.

So it is ignored in the emissions calculations. It is ignored in the geopolitics. It

is also ignored in the cost calculations because the increased cost of hydrocarbons increases the cost of solar panel.

Mr. Crenshaw. And that is what we are talking about.

In my last 10 seconds, I will say, look, everything we are referring to here is a cost-benefit analysis. What is the benefit you are getting for the cost that you are incurring on people who can probably afford to pay it the least?

So that is what this discussion is about. That is why Republicans push for nuclear energy. Right? It is reliable, and it is clean. We push for natural gas exports because it is reliable, it has an actual chance of displacing foreign coal, and an actual chance of reducing carbon emissions globally in a very massive way. And we should be exporting more of it and encouraging more of it, not less of it.

And I yield back. Thank you.

Mr. Johnson. The gentleman yields back.

The chair now recognizes the gentlelady from Michigan, Mrs. Dingell for 5 minutes.

Mrs. Dingell. Thank you, Mr. Chairman.

Here is a reality. The climate crisis is real, and it is going to impact every aspect of our daily lives. The longer we wait to address this threat, the more expensive and complex it is going to become to mitigate it.

So I am listening to all of my colleagues, and when you just talk about -- I am going totally off script here. But when you talk about how much it costs now, but we have got to invest in alternative ways, so it eliminates both the cost and the amount of carbon emissions.

I am a car girl. I care about the auto industry. I am going to talk about the auto

industry today, and I am going to tell you, I am participating in this hearing as a Democrat from Ann Arbor who did not support the Green New Deal because it was important to bring everybody to the table, and I went through sheer unadulterated hell as I worked to bring everybody together. But, as Mr. Higgins knows, I did bring everybody together. And making sure that the auto industry stays competitive and its workforce is protected is an intense priority for me, so that is what I am going to focus on.

But we are already behind other countries, and that is a problem. China is beating us at technology. The last quarter in Europe, the alternative population -- propulsion vehicles beat the sales of internal combustion engines. We are a global -- we are competing in a global marketplace. I want to see American innovation and technology selling in the world and selling here, and that is the reality that we are competing with.

It is an economic security issue, it is an energy security issue, and it is a national security issue. And as I have these discussions, there isn't anybody up here that doesn't know -- somebody said the cheapest car is $70,000. The OEMs, and the other companies are too, are working as he go into mass production to make those vehicles -- when I was with the President at the Detroit Auto Show, Mary Barra, the CEO of GM, showed a vehicle that will be 20-some thousand dollars, which is what the cost of an ice is. The other companies are going to bring those costs down as we go into more production.

But, as we all know, the U.S. transportation sector accounts for roughly 30 percent of our greenhouse gas emissions. If we are to meet our climate goals, we have to rapidly shift to either electric vehicles or another -- I am not against hydrogen or other powered vehicles, and I say that to everybody when we are talking about it.

And as Mr. Higgins knows, we brought -- we didn't include the OEMs. We brought the environmentalists and the labor units together to talk about where we needed to go. People could sense that it was doable and we should target, target, 50 percent sales of vehicles by the year 2030.

If you talk to GM and Ford -- they are very much competing with each other too -- they know that if they are going to compete in an international marketplace, they have to do this because they want to sell their vehicles, not only here, but around the world. And China is beating us.

And I am already out of time.

Mr. Higgins, I want to ask you, if we sit back and do nothing to prepare and support this growing industry, what do we risk? What will our auto industry look like 20 years from now if we don't support the EV industry or transition to other vehicles and support our workers through this critical transition?

Mr. Higgins. Thank you for your leadership on these issues, Representative Dingell. And I think what you were able to contribute to with the Inflation Reduction Act has completely flipped the paradigm for investment in the auto industry.

The United States automakers were behind on EVs. China has invested for decades in consolidating manufacturing capacity for advanced technologies, including the batteries and the cars themselves, and the automakers in the United States were not prepared to compete. But with the investments included in the Inflation Reduction Act, it is now possible to invest in everything, from the critical minerals, to the batteries themselves, to the vehicles and make it so that of the 32 vehicles that are now eligible for the tax credit, the overwhelming majority are produced American brands.

Mr. Johnson. I think the gentlelady yielded back.

The chair now recognizes the gentleman from Idaho, Mr. Fulcher, for 5 minutes.

Mr. Fulcher. Thank you, Mr. Chairman.

And thank you to those of you on the panel for coming and speaking today.

Mr. Chairman, as you know, we have sometimes got dueling committees, but the content of the testimony has been very, very good, and I am very thankful you are willing to do this.

Mr. Simmons, I wanted to just point out a couple of things and then just talk to you for a minute.

Idaho has got the largest deposit of antimony in the world that is not under Chinese control. And, of course, that is used in key defense and clean energy technologies. And right now antimony partially comes from -- as processed in China as well as Russia. And both antimony and cobalt are listed as materials of interest by the Defense Logistics Agency, and DOD has concerns about the stockpile of antimony that is running out in the near future leading to potential ammunition shortages.

I know you have touched on this, but just for the record and for part of this dialogue, Mr. Simmons, could you share what are the national security benefits of buying locally produced critical minerals domestically or in allied countries with reliable partners?

Mr. Simmons. Sure. There are -- with so many of the minerals that have been identified as critical minerals by the USGS, one of the aspects of whether or not those minerals are used for defense purposes, many of them are, and whenever we have -- and it is critically important that we get those from trusted partners. Unfortunately, for many, we don't, which means that if there is conflict that we will be unable to obtain

those resources of the quantities that we need. And, especially, we will not be able to obtain them in any, like, economically significant quantities. You maybe could -- you know, DOD can have stockpiles of certain things for their purposes. But in terms of the economy as a whole, we will not have access to a whole bunch of critical resources.

Mr. Fulcher. Well, we are in a struggle in my State of trying to get access to some of that. The good news is, I guess, we have got it. The bad news is we are fighting ourselves to be able to get responsible access to it.

So thank you for your comments, and we will be potentially accessing your expertise in this battle as we move forward.

I am going to shift to Mr. Mills.

Mr. Mills, I am from the Pacific Northwest. Thank you for your testimony. In our part of the country, we are experiencing a significant amount of growth, and the need for more power is very, very evident. As you pointed out in your testimony, not all power is created the same, if you will. If we are talking solar and wind, it is roughly 3,400 megawatts per year. If it is natural gas, it is only 800 megawatts per year. And that is that density that I think I heard you talk about.

Northwest Power Council said replacing 3,400 average megawatts of existing hydropower and nuclear would require 5,500 megawatts of new wind and solar, as well as 2,000 megawatts of natural gas.

Again, I know you have touched on this, but for the sake of our conversation, why are we doing what we are doing? Why the drive towards this low-density energy sources?

Mr. Mills. Well, that is a political and psychological question, as opposed to an engineering and physics question. But we all know the answer is that the pursuit of

avoiding hydrocarbons, lowering carbon dioxide emissions is what this is all about, but the consequence of that is ignoring the hydrocarbon use and carbon dioxide emissions in the total fuel cycle, also ignoring the scale of infrastructure required, not just land use, but we are on a path to try and replicate Germany.

Germany did not eliminate is original grid. What they did is they doubled the size of the grid over the last 20 years. Even if it was electric, consumption only went up 10 percent. That is, in a nutshell, why they have had very little carbon dioxide emission savings, but have seen their electric costs for consumers triple.

This is the path that we want to emulate, which I think is a bad path. It is not an observation about political objectives. It is an observation about economic consequences.

Mr. Fulcher. That is, unfortunately, the reality. And I thank for your expertise in sharing that.

Just as a matter of record on our side, we have got a wealth of hydro, geothermal, and nuclear available. It is just the question is are we going to common sense utilize that.

So, Mr. Chairman, I yield back.

Mr. Johnson. The gentleman yields back.

And now I would like to take a moment of personal privilege before I go to our next questioner and recognize some high school students from Shadyside, Ohio.

Thank you all for being in our Nation's Capitol today. Thanks for coming down to the hearing.

And with that, the chair now recognizes the gentlelady from Florida, Ms. Castor, for 5 minutes.

Ms. Castor. Well, thank you, Mr. Chairman.

Thank you to our witnesses for being here today.

You know, Washington is a really strange place because on the day that the House will vote on the Republican's Default on America Act, a bill that clearly will increase energy and electric bills for American families and businesses, my Republican colleagues are, once again, boosting corporations that have been responsible for fueling inflation and gouging consumers.

We are not going to allow them to raise costs on Americans families by repealing the Inflation Reduction Act so that fossil fuel companies can continue to pollute and wreak havoc, and I will give you an example.

The Florida Utility Service Commission just last month approved huge price spikes on Floridians. In my neck of the woods, Tampa Electric Company customers can expect their energy bills to increase by about 10 percent starting this month. The average customer's bill will have risen 62 percent from 2019, from $99.53 to $161.13. Duke Energy got a 15 percent increase. FP&L, Florida Power & Light, 10 percent. Ouch.

Why? Because they rely on gas overwhelming. 75 percent of electricity production in the so-called Sunshine State comes from gas.

So the Inflation Reduction Act is really giving us hope right now. We are the Sunshine State, and we should be a leader in lower cost solar power. But the IRA now is just starting to work and lower costs. Clean energy, solar technology, EVs, cars and trucks are creating a lot of made-in-America jobs too.

Mr. Higgins, you highlighted this in your testimony. Since the enactment of the Inflation Reduction Act, we have seen the creation of over 142,000 jobs and over $240 billion in new investment in American communities. And then when we are talking

about China -- a lot of that has been a topic of conversation here today -- it makes no sense for Republicans to roll back critical new policies that help domestically or allied sourced critical minerals for batteries, domestic battery manufacturing, and solar and wind energy production. China still holds most of the world's capacity for litium ion battery sales with nearly 75 percent being manufactured in China.

So the House Republicans rush to reverse these key mechanisms in the Inflation Reduction Act to end reliance on supply chains originating in China. It just doesn't make any sense.

And, Mr. Higgins, you have highlighted all of these private sector investments now. We are just getting started. Talk a little bit about the announced construction of domestic solar manufacturing facilities. I am very interested, coming from the Sunshine State, in domestic manufacturing capacity. What does that mean for us?

Mr. Higgins. Thank you, Representative Castro.

The story of solar manufacturing in the United States is actually an interesting one because this is a technology that really largely originated here, including support from the National Labs, but we lost the manufacturing capacity advantage to China because of their subsidies. But now for the first time, with the Inflation Reduction Act, investments in new manufacturing capacity as well as the incentives for energy deployment to achieve ever higher levels of domestic content are going to change the paradigm. And they are already leading to new manufacturing facilities for wind turbines and for solar panels, as well as for batteries and cars, as you mentioned. And bringing those industries here to the United States allows us better control over the supply chain issues that have been addressed at today's hearing and equips the United States to compete on the global energy economy of the 21st century.

Ms. Castor. So if Republicans are successful in passing their Default on America Act and then they have another attempt at the end of the week to undo the Biden administration's 2-year pause on new solar tariffs, what does that mean for jobs in this sector?

Mr. Higgins. So there will be up to a million jobs created, thanks to the investments in the Inflation Reduction Act, by 2030. But that already has led to over 140,000 jobs already happening just in the last year. And repealing --

Ms. Castor. Well, these companies -- yeah, repealing, what does that -- go ahead.

Mr. Higgins. Right. Repealing the Inflation Reduction Act would not only raise household energy costs and worsen air pollution, it would pull the rug out from underneath these jobs. And it would mean that more than $240 billion in private investment that has already happened making America competitive with China would be lost. It would play right into China's hands. And, in my opinion, it would be a devastating and unacceptable mistake to repeal and revoke these investments in the American economy just as we are getting started.

Ms. Castor. It is downright un-American. I think we need to stick on the patriotic course and keep the Inflation Reduction Act working for American families and businesses.

Thanks so much.

Mr. Johnson. The gentlewoman yields back.

The chair now recognizes the gentleman from Michigan, Mr. Walberg, for 5 minutes.

Mr. Walberg. Thank you, Mr. Chairman. And thanks for allowing me to waive

on today to this hearing.

And thanks to the panel for being here.

I also -- I wish my sister from Michigan were still here. She would be not surprised to hear that I agreed with her on some things and disagreed with her on other things. Coming from the motor -- I still call it the motor capital of the world, Michigan, we are concerned about energy. We are concerned about innovation. We are concerned about jobs.

And let me quickly state anything that has been said about the IRA is all picking out of the air. It hasn't been fully implemented yet, thank God. Maybe we can turn it back and we could go the right direction in the process.

Michigan is made up of autoworkers, automakers, have a great history of innovating to meet consumer demand and market trends, and that includes innovation around electric vehicles. Nobody is against electric vehicles if they work and if the consumer wants them.

But recently there has been a dramatic and forced -- and that is part of the IRA -- shift toward only EVs. And, sadly, some of our American nameplates have hunkered down and said, We don't see any hope. The government is going that way, so we are going to do it whether it makes sense or not. Unions have sold out their members, and we know for a fact that they are going to lose jobs.

Just talking with a dealer on Monday, he told me that, for a fact, the only reason the auto industry or the manufacturers are going forward with their arm behind their back is the fact that it looks like the writing on the wall and they have got to do it, hunker down, unless somebody with some common sense says, Wait a second. Let's let the engineers and let's let the consumers decide what they want and what they need.

We have cleaned up significantly our world. What we do here will just put us behind other polluters that aren't going to clean up their world, like China, and common sense says that is not a good direction.

Consumers aren't asking for it. 6 percent, as of most recent reports, of car sales have been electric, and most of those have been only, as we have talked about today, for second and third cars. They are not for the necessary transportation they have beyond what they are doing day-to-day work. And for the middle income person, that is not their car of choice.

Dr. Nunes, you have said, and all indications suggest, that EVs will need substantially greater range at significantly lower costs before most American consumers will adopt them as their primary vehicle. The most popular sung vehicles in America today are SUVs and trucks. Just come to my district that crosses from Lake Michigan to Lake Erie, and you will see that.

Do the EVs on the market today meet the size and range needs of American consumers?

RPTR BRYANT

EDTR HUMKE

[1:00 p.m.]

Dr. Nunes. They do not, Congressman. We estimate that the price of EVs would need to go down by about 10 to 15 thousand dollars, while at the same time the range would need to go up by approximately 50 percent.

Mr. Walberg. So they are for wealthier buyers at this point in time.

Dr. Nunes. All the current indications suggest that they cater to upper-income Americans.

Mr. Walberg. Will greater production of EVs necessarily lead to lower costs?

Dr. Nunes. Historically, the idea behind increasing production volume has been that if you increase production, prices invariably drop. That is not what we are currently seeing on the market. What we are seeing is an increase in price in inflation-adjusted dollars over time.

Mr. Walberg. Let me ask another set of questions, Dr. Nunes: Just yesterday, GM announced that it would end production of the Chevy Bolt, arguably an electric vehicle considered to be the cheapest EV available in the United States today.

In your testimony, you mention that the number of miles driven with an EV significantly influences any emissions advantage over gas-powered cars. If a wealthy family purchases an EV, it won't be a Bolt now, but an EV as a second or third car, how many miles would it have to be driven to reach parity with an internal combustion engine, in terms of a carbon footprint?

Dr. Nunes. Depending on whether or not the vehicle is purchased as a second car or is used to replace a second car, you may need to hold onto that vehicle for upwards

of 10 years.

Mr. Walberg. And upwards of 10 years, then I would suggest, from what I have heard, that the resale value of that car, specifically in concerns about the battery and the cost of replacing a battery -- and shortly after 10 years, that could be likely -- could that be a significant inhibitor for anyone wanting to purchase an EV and then turning it over to their kids following that?

Dr. Nunes. It very well might. You know, as the Congresswoman mentioned earlier, that, you know, we have cheap cars on the market, cheap EVs on the market. We certainly do.

In 2022, the cheapest EV on the market cost about $27,000. It is important to remember that there were just 12,000 units sold out of over 700,000 EVs.

Mr. Walberg. And the battery replacement -- I guess my time has run out. So, Mr. Chairman, thank you and thank you for the panel.

Mr. Johnson. The gentleman yields back.

The chair now recognizes the gentleman from Texas, Mr. Pfluger, for 5 minutes.

Mr. Pfluger. Thank you, Mr. Chairman. And I appreciate your leadership in this very, very important topic. And thank you all for your time today.

I will get right to it. My concern is that we are throwing away the resources that this country has been so abundantly blessed with, that we are not just enriching the Chinese Communist Party but that we are also adding to the human rights violations in places like the Democratic Republic of the Congo, which I am sure has been discussed already today here.

After reading Cobalt Red, you know, how do we have policies that are ignoring the resources that we have here? In the name of something that should be good, we ignore

doing what we are supposed to be doing here.

So, Mr. Simmons, I will start with you. And just talking about the Institute for Energy Research's newest paper, the Economic and Strategic Importance of Domestic Mineral Production, which I think provides a realistic analysis of the challenge transitioning rapidly toward critical mineral-intensive technologies, and it touches on how the administration is working hard to incentivize or actually force electrification.

Mining companies are not increasing investment levels that would be needed to meet the projected demand, especially here. So what policies, if enacted right now today, would get us to the point where we don't hand the Chinese Communist Party these major wins and we do it here near-shoring for that mining?

Mr. Simmons. We need massive permitting reform. H.R. 1 was a good step in that direction, but we need far more to be able to require that the administration, you know, permits new mines in the United States.

It is incredibly -- like, these are very capital-intensive projects. And the regulatory risk is such that it is like very long timelines. That needs to be shortened if we are going to be producing the minerals that we need here in the United States instead of continuing to import them, especially from places like China.

Mr. Pfluger. I mean, the quantity of critical minerals that is needed in an electric vehicle is massively different than in these devices, than we have seen in tablets.

So, Mr. Mills, Secretary Granholm recently talked about the fact that the U.S. can learn from China and what they are doing when it comes to clean energy technologies, which I was blown away at.

Is China the standard for green energy?

Mr. Mills. We are the standard for building the infrastructure to export the

critical minerals for green energy machines to the rest of the world. They are net importers you know, I am sure, Congressman, of gasoline and oil, which fuel our economy.

It is a hydrocarbon-based economy. And manufacturing, assembling cells, battery cells and battery packs in America, assembling solar panels in America doesn't change the fact that today, for a very long time, probably at least a decade or more, the solar modules themselves are fabricated on coal grids in China, 90 percent of the world's solar modules, because it is a very energy-intensive process to turn sand into silica and from there into a PV cell. The same is true for the chemicals.

So what we are doing is building a dependency in the supply chain on China and not -- despite the incentives in the act, there is zero evidence that it is resulting in a rush to mine not only in America but globally.

The global mining industry's total investments to produce the minerals needed has been declining for years and is still declining and, according to the latest data, will be one-tenth of what is needed to fuel our ambitions over the next decade.

It takes an average of 16 years to open a mine. Sixteen years is easy arithmetic to do from today. And those mines are not being opened en masse. The mining industry is consolidating, not investing in new production. I think they know something would be my guess.

Mr. Pfluger. What I am hearing each of you say is that this rush to electrification not only is unrealistic, but it is also emboldening places like China, where if you really look at the life cycle of emissions of an electric vehicle, they are actually way worse than anything else that we actually have right now.

Mr. Mills. Absolutely correct. It is also emboldening countries like Chile to

announce they want to form nationalized lithium industries and form a lithium cartel in South America, which will have pricing power over lithium greater than OPEC's pricing power on oil.

Mr. Pfluger. What will this dependency do to our national security, any of you?

Mr. Mills. Well, it is not good, let's just say. And it is hard to actually predict the specific, because they are reshuffling our resource dependencies. And most of the resource dependency shuffling is going to nations that are not our friends. Some of it is going to Canada, my homeland. Some of it is going to Australia, which is good and good for them. But most of it is going to unfriendly places.

Mr. Pfluger. Mr. Chairman, once again, thank you for holding this hearing. It is very important that we maintain the resources we have, that we actually look at something that is sustainable, and this is completely unsustainable.

I yield back.

Mr. Johnson. The gentleman yields back.

Seeing that there are no other members to ask questions, I ask unanimous consent to insert in the record the documents included in the staff hearing documents list. Without objection, that will be the order.

And I remind members that they have 10 business days to submit questions for the record, and I ask the witnesses to respond to the questions promptly.

I want to thank our witnesses for being here today. You have all been very informative. Thank you.

Members should submit their questions by the close of business on May 10th.

Without objection, the subcommittee is adjourned.

[Whereupon, at 1:08 p.m., the subcommittee was adjourned.]

This is an unedited transcript. The statements within may be inaccurate, incomplete, or misattributed to the speaker.