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THE CLEAN FUTURE ACT:

DECARBONIZATION OF THE TRANSPORTATION SECTOR

WEDNESDAY, MAY 5, 2021

House of Representatives,

Subcommittee on Energy,

Committee on Energy and Commerce,

Washington, D.C.

The subcommittee met, pursuant to call, at 11:31 a.m. via Webex, Hon. Bobby Rush [chairman of the subcommittee], presiding.

Present: Representatives Rush, Peters, Doyle, McNerney, Tonko, Schrier, Butterfield, Matsui, Welch, Schrader, Kuster, Barragan, Blunt Rochester, O'Halleran, Pallone (ex officio); Upton, Burgess, Latta, McKinley, Griffith, Walberg, Duncan, Palmer, Lesko, Pence, Armstrong, and Rodgers (ex officio).

Also present: Representatives Clarke and Dingell.

Staff Present: Jeff Carroll, Staff Director; Waverly

Gordon, General Counsel; Tiffany Guarascio, Deputy Staff Director; Perry Hamilton, Deputy Chief Clerk; Mackenzie Kuhl, Press Assistant; Kaitlyn Peel, Digital Director; Tim Robinson, Chief Counsel; Chloe Rodriguez, Deputy Chief Clerk; Kylea Rogers, Staff Assistant; Sarah Burke, Minority Deputy Staff Director; Nate Hodson, Minority Staff Director; Peter Kielty, Minority General Counsel; Mary Martin, Minority Chief Counsel, Energy & Environment; and Michael Taggart, Minority Policy Director.

*Mr. McNerney. [Presiding.] [In progress] -- panelists, and I want to welcome all the members of the committee.

I am in my district office, so it is a little bit of a challenge, technically, because I haven't done this before. So bear with me if I cause any delays.

This morning's hearing is on the CLEAN Future Act: Driving Decarbonization of the Transportation Sector. So this is a very important issue that we all care about, and I want to go ahead and recognize myself for an opening statement.

The Subcommittee on Energy will now come to order.

Today the subcommittee is holding a hearing entitled, "The CLEAN Future Act: Driving Decarbonization of the Transportation Sector.'' Due to the COVID-19 public health emergency, today's hearing is being held remotely. All members and witnesses will be participating via video conferencing.

As a part of our hearing, microphones will be set on mute for the purposes of eliminating inadvertent background noise. Members and witnesses, you will need to unmute your microphone each time you wish to speak.

Documents for the record can be sent to Lino Pena-Martinez at the email provided to staff. All documents will be entered into the record at the conclusion of the hearing.

Again, I now recognize myself for five minutes for an opening statement. If you will, give me a minute to pull up the opening statement.

You know what? It is going to take me a minute to find that, so I am going to yield to the ranking member five minutes for an opening statement, and then I will follow up with my opening statement.

*Mr. Upton. Well, thanks. Thanks, my friend, and I look forward -- I understand Bobby is going to be a little bit late, but good to see you. And thanks to our witnesses, as well, for appearing before us virtually to discuss the role of EVs, electric vehicles.

You know, the CLEAN Future Act contains billions in subsidies and mandates in an attempt to push EVs on the American public, whether they are ready for them or not.

Now, I would note that I have always supported reasonable fuel efficiency standards, and I am excited about the prospect of EVs, that is for sure. And I know that our great domestic automakers in Michigan are hard at work to make cars that consumers are going to want to buy.

With that, I confess that I have concerns that the CLEAN Future Act puts the cart before the horse by mandating electric vehicles, because there is no consideration for American workers, or car buyers, our growing reliance on China for critical materials and minerals to make those

batteries, and certainly, the strain that EVs will place on our grid. As members of this committee already know, every summer California -- your state -- faces rolling blackouts. And of course, this last winter, in March, Texas, Oklahoma, and Louisiana suffered prolonged power outages.

Today EVs account for less than two percent of the cars on the road. And we are simply not ready to charge EVs at scale, or potentially during emergencies. Instead, we need to let the market and consumer choice drive the adoption of EVs.

While this hearing is focused on EVs, we have got to realize that the CLEAN Future Act has sweeping impact across -- 1,000 pages. That is going to result in de facto bans in hydraulic fracturing, plastics manufacturing, and new pipelines. And as a result, the CLEAN Future Act is going to increase the cost of energy, and make it practically impossible to build new industrial facilities.

The question is, how are we going to build these EVs here at home?

How are you going to replace all the plastic and hydrocarbon-based materials contained in these vehicles?

How are we going to import all the critical minerals from China, with their weak environmental and labor standards?

We simply can't have it both ways. House Republicans,

we have introduced a number of bills as part of our Securing a Cleaner American Energy Agenda to protect American jobs, the environment.

We need first to look at regulatory reform to mine and process critical minerals at home, so that we can secure that supply chain and reduce our reliance on China.

I would also note that I introduced H.R. 1599, Securing America's Critical Minerals Supply Act. It is an important step in that direction. We need to modernize the electric grid so that it can handle the charging, even in extreme weather conditions.

We have also got to make sure that we protect American jobs, consumer choice. The last thing we want to do is take away people's mobility and livelihoods by limiting the options of affordable and reliable vehicles.

We all know that the U.S. has become the world's leading producer of oil and gas. Thanks to free markets -- sorry, that is my phone in the background -- thanks to free markets, competition, and the American spirit of innovation. And thanks to more efficient engines, advancing materials in plastics, less carbon-intensive fuels, we are going to be making great strides to decarbonize our transportation sector and maintain that energy security.

The COVID pandemic has exposed many weaknesses in our supply chain for pharmaceuticals, medical supplies, and even

food. I am afraid that the CLEAN Future Act is going to trade away the progress that we have made to become almost energy independent by increasing our reliance on China, which controls 80 to 90 percent of the critical minerals that go into the EV business.

I am also concerned that the real impact on American jobs and the needs of car buyers perhaps are being overlooked. I am pleased that two of our witnesses today, Drs. Foss and Siccardi, will help us explore those challenges. Rather than rushing new mandates with taxpayer subsidies, we need to take the time and do the work to enact durable bipartisan policies.

I look forward to the testimony, and continuing the discussion, and I yield back.

[The prepared statement of Mr. Upton follows:]

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

*Mr. McNerney. I thank the ranking member for yielding back, and I see that the chairman has arrived. If he is ready, I will yield to him.

Mr. Rush, are you ready?

*Mr. Rush. I am. I thank my vice chairman and thank each and -- all the members. We had a very serious accident on my way in this morning, and traffic was at a -- standing still for a long time.

The impacts of the auto industry on this Nation and the entire globe are sweeping. Since the late 1800s, the auto industry has become a major, worldwide industrial and economic force. In the U.S. alone, innovation within this industry revolutionized travel, improved transportation infrastructure, and radically changed both rural and urban landscapes across the Nation and, indeed, across the world.

A recent report from the University of California at Berkeley suggests that auto innovation in the U.S. is once again on the brink of a -- that will unleash equally revolutionary outcome, if you could imagine that. According to the 2035 Report 2.0, with the right series of policies, it is, and I quote, "technically and economically feasible for all new car and truck sales to be electric by 2035.''

The rapid electrification of light, medium, and heavy-duty vehicles to this degree would drive down consumer costs, create jobs, and save lives. More specifically, the

electrification of all new trucks and cars by 2035, paired with a clean electric grid, would prevent 150,000 deaths. If that is not convincing enough, the study also showed that broad vehicle electrification will save U.S. consumers $2.7 trillion by 2050, and create over 2 million jobs by 2035.

The report also indicates that electric vehicles will be cheaper than gasoline-powered vehicles within the next five years. To achieve this reality, the current U.S. transportation sector, much like the other sectors of the U.S. economy, is in need of deep decarbonization. Absent any action, greenhouse gas pollution will result in harsh consequences for our communities, especially the most vulnerable among us.

For these reasons, Chairmen Pallone and I and Chairman Tonko, along with many of our Democratic Committee colleagues, set forth the CLEAN Future Act to put the Nation on a path toward achieving net-zero greenhouse gas pollution no later than 2050.

I have also introduced the NO EXHAUST Act, which promotes the electrification of the transportation sector to improve air quality and electric vehicle infrastructure access, especially in rural, urban, low-income, and minority communities.

Sadly to say, our friends across the aisle have often expressed concern for how other industrialized nations are

charging ahead in energy-related markets. They have also expressed concern for how domestic manufacturing has diminished, rural communities have been left out, and labor has been left out. These are indeed bipartisan issues. We are all concerned about these issues. Let me say emphatically we are all concerned, and share concern in terms of these issues.

A productive discussion of all of today's bills presents an opportunity to fine-tune legislative solutions that are geared towards tackling these challenges and the climate crisis head-on.

I want to thank all of the witnesses for your participating in today's hearing.

[The prepared statement of Mr. Rush follows:]

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

*Mr. Rush. And, with that, I yield right now to the chairman of the full committee, Chairman Pallone, for five minutes for the purposes of an opening statement.

*The Chairman. Thank you, Chairman Rush.

One of this committee's top priorities is taking action to address the climate crisis. In the last several months we have held numerous legislative hearings on the CLEAN Future Act, our comprehensive and ambitious legislation to combat the climate crisis and to achieve 100 percent clean economy no later than 2050.

And today the Energy Subcommittee is focusing on decarbonizing the transportation sector through investments in electric vehicles and EV infrastructure. We will be discussing a suite of provisions in the CLEAN Future Act that support electric vehicle infrastructure and domestic manufacturing of EV-related technology, and the subcommittee will also review legislation from Chairman Rush, Representative Clarke, and Representative Dingell that are also included in the CLEAN Future Act, and I thank them for their leadership.

Electrifying the transportation sector is critical to meeting our climate goals. This is particularly important, since we will be simultaneously working to decarbonize the power sector, which will result in EVs becoming even cleaner in the future. And it is expected that nearly 7 million

electric vehicles will be sold per year by 2025.

To ensure we are ready for this growing demand, we must invest in the necessary charging and manufacturing infrastructure, so that consumers are able to reliably power their cars. Now, President Biden's American Jobs Plan invests heavily in EVs and infrastructure, with a goal to build a network of 500,000 EV chargers by 2030. And the President's plan recognizes the important role of EVs in our economic recovery and growth, and in our fight against climate change. The legislation we are discussing today is part of this larger effort with the President.

At the same time, we must also guarantee that benefits of electric vehicles are available and accessible to all communities. Minority communities often have the most exposure to polluted air from gasoline and diesel-powered vehicles. Electric vehicle access could help provide cleaner transportation options in these environmental justice communities.

Rural and underserved communities also stand to benefit from EV infrastructure deployment, as EV-charging infrastructure can help support local economies. And I am particularly excited to hear from Francis Energy today about its rollout of a statewide EV infrastructure network in Oklahoma.

Perhaps more -- most importantly, as we see growing EV

adoption in this country, we must make sure our transition prioritizes American workers. China and other countries are rapidly growing their EV markets and, therefore, we must invest aggressively to ensure we don't lose the EV market to China.

It is imperative this investment occur here to grow an American EV manufacturing base that employs union workers at good wages with real benefits, and that is why the CLEAN Future Act provides funding for domestic manufacturing conversion grants to help create and expand domestic manufacturing of advanced vehicles and advanced vehicle components. It also modernizes and expands the Department of Energy's Advanced Technology Vehicles Manufacturing Program, or ATVM.

Now, I know that -- I know Mr. Upton -- I was listening to what he said, and he is right when he talks about foreign supply chains. He, you know, points out the role of critical minerals, and the fact that many of these are produced now or mined in China and other countries. And so, as Democrats, Fred, I do want to say we believe we have to work together to find new, reliable, and responsible sources for these materials. And the CLEAN Future Act includes provisions that begin to address the extraction and processing and reuse of critical minerals. We can't be relying on China and our -- and other, you know, enemies for these materials.

But I do want to say this. Look, I don't think -- everyone has to understand that electric vehicles are the future. That is coming from the auto industry itself. And therefore, we need to do everything we can to ensure America needs that future by making the necessary investments now.

And again, I am not trying to pick on you, Fred, but I know, Fred, you know, you talk about how, you know, we are spending money and, you know, government dollars to help this investment. But I just don't think it is possible to do if we just rely totally on the private sector, and don't make those investments to spur this industry in order to compete with China and other countries that are making those investments.

And therefore, we need to, you know -- with these bills we are investing in innovation, and helping give consumers the ability to choose between more than just gasoline or diesel. We have to ensure that our roads, our grid, and our workers are prepared for this important transition. When charging stations are as ubiquitous as gas stations, then consumers will have a choice, and we truly will be in a position to win the future, which is what we are trying to accomplish.

So thank you again, Mr. Chairman. It is an important hearing. And I yield back.

[The prepared statement of The Chairman follows:]

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

*Mr. Rush. The chair yields back. Now the chair now recognizes the ranking member of the full committee, Mrs. Cathy McMorris Rodgers, for five minutes.

*Mrs. Rodgers. Thank you, Mr. Chairman. Great to see everybody.

Yes, it is about winning the future. I would suggest it is EVs and AVs, right, electric vehicles and autonomous vehicles. That is our future. I know today we are focused on EVs, you know, but there is many exciting technologies under development that will help drive cleaner energy systems, protect our environment, expand economic opportunity, and benefit families and workers. That is the wonder and promise of the American free enterprise system, and our culture of innovation, which is driven by consumer demand, not a government Socialist agenda.

The fruits of free enterprise innovation can be seen in all the amazing advances over the decades in our transportation systems, like the cars and trucks that we drive. This includes constantly improving performance, efficiency, and safety. It also includes improving mobility, convenience, and comfort, all the benefits that people want and look for.

Think about the benefits of autonomous vehicle systems, which we have examined in this committee. AVs will mean more safety and more mobility, especially as these advances become

more affordable to everyone, including seniors and people with disabilities.

Think about new power trains, including EV power trains, and the fuels which are building upon our existing energy infrastructure and providing more efficient, cleaner, high-performing vehicles.

Unfortunately, this free market innovation and its benefits are being jeopardized by the mandatory rush to green. This approach includes regulatory mandates to drive reduction of greenhouse gas emissions from our transportation systems by restricting people's options, regardless of technological capability or cost. The leading edge of this approach is happening at the state level, led by California, with its aggressive renewable electric mandates and vehicle standards.

Despite rapidly rising electric rates seven times the national average, and a struggling, unreliable electric grid, people having to buy generators just to keep the lights on, California's governor was unconvinced the state policies were enough to meet climate goals. So last year he issued an order to restrict oil and gas production, and to ban sales of gas-powered cars and light trucks by 2035. Add the Biden Administration's plans to drive electrification on aggressive timelines nationwide, and cost on families and workers will increase. We have detailed this in recent hearings.

Today's hearing concerns legislation to expand electric vehicle infrastructure as part of the majority's climate agenda and its CLEAN Future Act. Taken together with the energy restrictions in the broader bill, the policies today should be scrutinized to understand, unfortunately, how it will hurt security, innovation, affordability, and reliability. All of these consequences will hurt especially the low and middle-income families.

In hearings earlier this year we discussed risk from replacing existing energy infrastructure with systems reliant mostly on wind and solar, batteries, and completely electric transportation.

All of us should be asking what are the security impacts of the United States trading its strategic advantage in fossil energy for more reliance on supply chains from China?

What will weather-dependent electricity systems mean for reliability and rates people pay, like the working families of eastern Washington?

What are the costly impacts on people who rely on gas-powered vehicles well into the future? What will happen to their cost?

Although the radical left doesn't like to recognize it, America has led with a sophisticated and competitive fuel system developed over nearly a century to serve our needs. What are the benefits of working to foster continued

innovations in the system and building on its attributes, even as autonomous and electric vehicle innovations are deployed and developed?

As I have said before, we should build upon our energy systems, not dismantle them. We should stop attacking the source of American innovation, and stop trying to pick winners and losers. We should recognize the essential role technological innovation and American free enterprise serves to address climate risk. Let's win the future. Let's do it the American way.

And with that, I yield back the balance of my time.

[The prepared statement of Mrs. Rodgers follows:]

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

*Mr. Rush. I want to thank the ranking member. The ranking member yields back.

The chair would like to remind members that, pursuant to committee rules, all members' written opening statement shall be made part of the record.

And now that concludes our opening testimony. I would like to, at this time, welcome our witnesses who are this morning's hearing.

First of all, Mr. Amol Phadke, staff scientist and deputy department head for international energy analysis department in the Lawrence Berkeley National Lab.

Next, Mr. Joe Britton, executive director of the Zero Emissions Transportation Association.

Following Mr. Britton will be Mr. Josh Nassar, the legislative director of the International Union, United Automobile, Aerospace, and Agricultural Implement Workers of America, the UAW.

Next will be Mr. David Jankowsky, founder and president of Francis Energy.

Next, following Mr. Jankowsky, will be Dr. Michelle Michot -- Michot, rather -- Foss, who is a Ph.D., a fellow in energy and minerals, Baker Institute for Public Policy at the Center for Energy Studies at Rice University.

And lastly, Mr. AJ Siccardi, president of the Metropolis (sic) of Energy, Incorporated, on behalf of the National

Association of Convenience Stores, NACS; the National Association of Truck Stop Operators, NATSO; and the Society of Independent Gasoline Manufacturers of America, SIGMA.

I want to thank each and every one of the witnesses for joining us today, and we look forward to your testimony.

Dr. Phadke, you are now recognized for five minutes for the purposes of an opening statement.

STATEMENT OF AMOL PHADKE, STAFF SCIENTIST AND DEPUTY DEPARTMENT HEAD, INTERNATIONAL ENERGY ANALYSIS DEPARTMENT, LAWRENCE BERKELEY NATIONAL LABORATORY; JOE BRITTON, EXECUTIVE DIRECTOR, ZERO EMISSIONS TRANSPORTATION ASSOCIATION; JOSH NASSAR, LEGISLATIVE DIRECTOR, INTERNATIONAL UNION, UNITED AUTOMOBILE, AEROSPACE, AND AGRICULTURAL IMPLEMENT WORKERS OF AMERICA (UAW); DAVID JANKOWSKY, FOUNDER AND PRESIDENT, FRANCIS ENERGY; MICHELLE MICHOT FOSS, FELLOW IN ENERGY & MINERALS, BAKER INSTITUTE FOR PUBLIC POLICY, CENTER FOR ENERGY STUDIES, RICE UNIVERSITY; AND AJ SICCARDI, PRESIDENT, METROPLEX ENERGY INCORPORATED

STATEMENT OF AMOL PHADKE

*Dr. Phadke. All right. Thank you. I am just going to pull up my desk for a second.

All right, good morning, everybody. Chairman Pallone, Ranking Member McMorris Rodgers, Chairman Rush, Ranking Member Upton, and distinguished members of the committee, thank you for holding this important hearing, and for inviting me to testify.

I am Dr. Amol Phadke, I am a staff scientist and deputy department head of the International Energy Analysis Department, Lawrence Berkeley National Lab. I am also affiliate and senior scientist at the Goldman School of

Public Policy, University of California, Berkeley, and the lead author of the 2035 Power Report, which looks at the technical economic feasibility of reaching 90 percent clean power by 2035, where we find that such a grid is technically feasible, and dependable and, in fact, the lower wholesale consumer cost. I am also the joint lead author with Dr. Nikit Abhyankar of the recently-released 2035 Transport Report, which assessed rapid decarbonization of the U.S. transport sector via electrification.

What is really exciting is that my own research, and the research of several other scientists, show that limiting battery cost breakthroughs in battery technology have created new opportunities for accelerated decarbonization of the transport sector via electrification. Significant barriers remain, but the total consumer cost savings and societal benefits of accelerated vehicle electrification are just staggering.

In our report we analyze the economic, human health, environmental, and electric grid impacts of a future scenario in which all new sales of light-duty and heavy-duty vehicles are electric by 2030 and 2025, respectively. This timeline is consistent with what we need to do to avoid climate change, and also in line with the recent private-sector and government targets.

Our key findings are, one, such a scenario is

technically feasible. EVs can deliver the required performance, given recent dramatic improvements in battery technology.

Two, which is very important, it leads to massive savings to consumers, due to much lower running cost of EVs. The consumer saves $2.7 trillion in vehicle spending by 2050. This translates to approximately $1,000 in average household savings each year over the next 30 years.

Three, it avoids one hundred and fifty premature deaths due to dramatic decline in air pollution from transport. This one is particularly important for environmental justice.

Four, over two million new jobs are supported by 2035, because of significant increases in construction and manufacturing jobs to build the grid and charging infrastructure required to support this transformation. And more importantly -- jobs, because the $1,000 that consumers save to spend on other things, which drives investments.

Five, investments in charging infrastructure are critical, but the investments are modest compared to the rapid benefits of electrification. However, several hurdles, including high upfront vehicle costs and inadequate charging infrastructure, remain.

A robust policy ecosystem is required to address these barriers, which potentially include five elements.

First, strong standards that require all new auto sales

to be zero-emission, a technology neutral standard.

Second, targeted financial incentives that ramp down over time.

Third, equity-focused programs.

Fourth, and most importantly, investments in a ubiquitous charging network and a modern grid.

Five, the strong, made-in-America policies.

You know, Europe and China are implementing several of these policies already. And in 2020, EV sales and public charge points in Europe and in China will more than double that of the U.S. So we have some catch-up to do, but it is eminently possible.

Last, but not the least, enhanced investment in R&D to establish U.S. leadership in clean technology and rapid decarbonization of the transport sector. Examples include extreme fast-changing, cobalt-free batteries, solid-state advanced manufacturing.

In short, recent dramatic technology improvements have created a massive opportunity for consumers, climate, economy, and jobs. And I think it is wise to take it.

I yield back, or I am done.

[The prepared statement of Dr. Phadke follows:]

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

*Mr. Rush. I want to thank Dr. Phadke.

The chair now recognizes Mr. Britton for five minutes for the purposes of an opening statement.

STATEMENT OF JOE BRITTON

*Mr. Britton. Thank you. Subcommittee Chairman Rush, Vice Chair McNerney, Ranking Member Upton, full Committee Chairman Pallone, and Ranking Member McMorris Rodgers, and other members of the committee, thank you for the opportunity to speak about zero-emission transportation and the CLEAN Future Act today.

My name is Joe Britton. I am the executive director of the Zero Emission Transportation Association, a public-interest nonprofit representing 55 company interests who are all advocating for a 100 percent EV sales by 2030. Our membership spans the entire EV supply chain, and includes critical materials, charging companies, utilities, vehicle manufacturers, and battery producers, and recyclers.

At the start of this year, ZETA launched a comprehensive federal roadmap to achieve 100 percent EV sales by 2030. This EV agenda offers federal policymakers a blueprint to create hundreds of thousands of domestic manufacturing jobs, protect public health, and secure American leadership in the automotive space. We are pleased to see key provisions of ZETA's platform captured in the CLEAN Future Act and the additional legislation included in today's hearing. My testimony will provide context on ZETA's recommendations, and on how we can best invest to create an unbeatable U.S.

automotive sector for decades to come.

We know the world is moving forward with transportation electrification, with or without us. So the United States has a choice and an opportunity to revive its industrial and automotive superiority.

Hundreds of thousands of Americans, many in rural communities, depend on the automotive industry for their livelihood. Electric vehicles present a critical pathway and opportunity for American leadership in manufacturing at a time when economic advancement in these areas is sorely needed. EVs will define the new automotive economy. That is because they create enormous value, without asking the consumer to sacrifice.

In fact, EVs are superior products that deliver a better driving experience, have zero tailpipe emissions, cost significantly less in terms of fuel, maintenance, and service costs.

The choices we face are stark. We can either cultivate an advanced vehicle sector, or cede this economic opportunity to others. It is true that China holds a disproportionate share of the EV supply chain, particularly when it comes to battery processing, materials, and recycling. But this didn't happen accidentally. They have delivered support and funding for research and development that has allowed their economy to capture the market.

But that doesn't need to be the end of the story. We can drive American innovation through programs like the Advanced Technology Vehicle Manufacturing Program, and seek to reshore the production of components, parts, and vehicles. Investing in the U.S. domestic supply chain will protect us from over-reliance on foreign competitors, and ensure that disruptions like those brought on by the coronavirus are not repeated.

In short, the United States cannot be on the sidelines while our foreign competitors to continue to solidify their control over the manufacturing, processing, and commodities critical to our economic future.

The current policy landscape presents an opportunity to retake a leading position in the EV space. Congress can help by passing strong consumer incentives, investing in charging infrastructure, and instituting rigorous fuel economy standards, all while ensuring this transition is achieved in an equitable manner.

ZETA specifically recommends removing the 2,000-unit-per-manufacturer cap, as part of the 30D tax credit, and making those EV incentives point-of-sale refundable.

We must also provide rebates to the used car market to ensure electrification is not only -- out of reach, but is available for those 70 percent of Americans that are not in the market for a brand new car.

And we have urged the federal government set strong fuel economy standards. This will send a market signal that we are going to make this transition to EVs in the next 10 or 15 years, and not the next 40 or 50.

We have also called for a $30 billion investment to build out accessible charging infrastructure. Reliable charging that meets every community's needs is critical. We are pleased to see charging infrastructure prioritized in the American Jobs Plan.

Finally, each of ZETA's policy objectives are grounded in a recognition that historic infrastructure efforts have not made a pointed attempt to engage frontline communities and communities of color. With this in mind, we fully support Representative Clarke's Electric Vehicles for Underserved Communities Act, which directs DoE to support the deployment of EV charging in disadvantaged or underserved communities.

In tandem with the investments in the American Jobs Plan, these proposals present a critical opportunity for full transportation electrification.

ZETA's membership has come together, as a business group and a business voice, to ensure that the United States can lead the global EV market, while creating good-paying domestic jobs and cutting our emissions to improve public health and reduce our carbon footprint.

We can make this an American success story, and out-compete anyone, but we have to do it now. Together, we can establish the best products, careers, and public health outcomes possible.

ZETA encourages the committee to adopt these policies, and I look forward to taking your questions and contributing to the discussion about how best to invest in a strong economic future. Thank you.

[The prepared statement of Mr. Britton follows:]

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

*Mr. Rush. The chair now recognizes Mr. Josh Nassar for five minutes for the purposes of an opening statement.

STATEMENT OF JOSH NASSAR

*Mr. Nassar. Thank you, Chairman Rush and members of the committee. I really appreciate the opportunity to testify here today on behalf of the million members and retirees of the United Auto Workers, our president, Rory L. Gamble, and the executive board.

I want to start off by just saying that there is no organization that the fate -- our fate, our members' and retirees' fate, is directly tied to the success of the motor vehicle automobile industry in the United States. So this is an issue that we are deeply engaged in.

I think, first of all, you know, from our standpoint, often it is set up as a choice between either we can have strong environmental standards or we can have, you know, good jobs. We think both are absolutely necessary here. And when talking about what I mean by good jobs, we think that, absolutely, we support the idea of there being massive federal investments to create the infrastructure for EV manufacturing and deployment, but there has to be conditions. Employers have to be held accountable for how they treat their workers, and it has to be part of the equation.

The other thing is that we believe strongly that taxpayer money should be used to support U.S. jobs and U.S. manufacturing. We don't think it should be for imported

vehicles. It should be for domestically-built vehicles.

We also strongly believe that, you know, we have to beef up our supply chains. The current shortage of auto-grade wafers for semiconductors is having a devastating impact on our members and on parts of the economy throughout the country. And it really shows kind of the fallacy of overly relying on foreign supply chains. So this is an opportunity to bring those supply chains here, start them here in the first place. We are at kind of a key moment.

The other thing is we just need to make sure that, you know, those new jobs that are created are good jobs. And right now, I can't say with any assurance that they will be. We have seen, you know, joint ventures and other arrangements from some of the start-ups and stuff, and where, just with an unproven record of working conditions and wages. So we are really at a kind of a -- at the cusp here.

If Congress does not get involved, if Congress does not make big investments here, we are afraid we are just going to fall further and further behind China and Europe and other places with a strong auto presence. So we do think those investments are necessary public investments. But again, we think there needs to be conditions attached to those investments.

The other thing is that if we don't make those investments, we are really worried that investments made by

the companies will not be successful. So we need that infrastructure, and we need to boost EV sales in order to support the EV manufacturing.

But to be clear, EVs aren't, you know, a silver bullet here. When we are talking about reducing emissions, which we believe, you know, we all have a role to do, we also need to focus on what could be done to make existing ICE-powered vehicles more efficient, as well. So I am pleased to see that there are provisions in the CLEAN Future Act that do just that.

Also, when talking about, you know, workers, and having, you know, wages increase, we really need workers to have a voice on the job, and commend the House for passing the PRO Act. And now it is really important, we think, for the Senate to follow suit, because if workers have a voice on the job, then we are going to see higher wages and better working conditions.

So we are looking at all this in a holistic way. And, you know, from our point of view, the future is really on the line here. But we need to be smart in how we proceed here. We need to do it based on, you know, where -- partly where consumers are at, partly where we could incentivize. So if we do this in kind of a deliberate and careful way with strategic supply chains in mind, we could very well be in a much better position than we are right now when it comes to

EV production and sales.

As has been noted, less than two percent of the vehicles on the roads right now are electric vehicles.

So I just want to conclude by saying that we don't really see this as a choice between creating good jobs or protecting the environment. We must do both. And in fact, we won't succeed in either endeavor if we don't do both, which I am happy to get into later in questions and answers.

So really, I just appreciate the opportunity to testify here today, and I really look forward to answering the questions and further engagement here, as we continue down this very important effort. Thanks so much.

[The prepared statement of Mr. Nassar follows:]

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

*Mr. Rush. Well, I thank the witness.

The chair now recognizes Mr. David Jankowsky for five minutes for the purposes of an opening statement.

STATEMENT OF DAVID JANKOWSKY

*Mr. Jankowsky. Well, thank you so much, Chairman Pallone, Ranking Member McMorris Rodgers, Subcommittee Chairman Rush, Subcommittee Ranking Member Upton, and other members on the committee today. My name is David Jankowsky. I am the founder and president of Francis Energy, and I am just so grateful to be in front of you and testifying here today.

Francis Energy is an Oklahoma-based owner and operator of direct current fast chargers. In very simple terms, these are simply chargers that can power cars very rapidly. In fact, some of these chargers can power cars in 7 to 12 minutes. Francis Energy and other companies built the first comprehensive fast-charging network in the country, with over 350 direct-current fast chargers spread across 110 sites, strategically placed every 50 miles across the State of Oklahoma. And this was accomplished through a public-private partnership with the State.

The CLEAN Future Act is exactly the kind of public-private partnership, in the form of rebates and grants, that will enable the private sector to build out modern infrastructure that is both comprehensive and equitable across all communities urban, rural, underserved, disadvantaged, tribal, and all other communities across

America. This bill helps make that possible.

In fact, roughly 75 percent of Francis Energy's charging stations in Oklahoma are in such communities. We built these stations because we know your constituents will be purchasing electric vehicles in the very near future. We say that with confidence because of the massive investment auto manufacturers and other stakeholders have committed to the electrification of transportation, as Mr. Britton so eloquently described in his opening statement.

In the short term, because of this investment, electric vehicles will be at price parity with combustion engine vehicles and, importantly, with comparable range in the very near term. At that point, we see the acceleration of EV adoption in every community across America.

The Oklahoma example proves that modern infrastructure does not have to be a partisan issue. In fact, lawmakers and other stakeholders in Oklahoma understood that placing fast chargers in these communities would have massive, massive economic development impact. We support the CLEAN Future Act and the rebate and grant provisions because it is this robust legislation that will enable private companies like ourselves and other charge point operators and other stakeholders -- it will take a village to create this network across America.

But we know that this legislation will enable the private sector to place charges every 50 miles across the

U.S., leaving no community behind. Francis Energy is committed to that mission.

I am just very grateful, again, to be in front of you today, and very much look forward to the question-and-answer session.

[The prepared statement of Mr. Jankowsky follows:]

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

*Mr. Rush. Well, I thank the witness.

The chair now recognizes Mr. -- Dr. Michelle Michot Foss for five minutes for the purposes of an opening statement.

STATEMENT OF MICHELLE MICHOT FOSS

*Dr. Foss. Thank you, Chairman. And I would like to thank all of the members of the committee for asking me to join the hearing today, and I would like to commend all of the members of the committee for demonstrating a really good handle on all of the risks and challenges that are embedded in the subject that we are discussing today: how to how to change transportation, how to introduce new technologies, and other things. I feel like you all have a very good handle on all of the enormous aspects that have to be dealt with on this.

When it comes to electric vehicles, the main part of the vehicle, of course, is the battery. This is what everybody is focused on. And battery costs, risks associated with those costs, and affordability are contingent on regional differences in manufacturing, huge regional differences in manufacturing. I can't emphasize that enough. And that includes both supply chains and labor. And I think everybody understands that the cheaper EVs are made in the locations where both of those things are way less expensive than they are in our country or in Europe.

Enormous cones of uncertainty exist. In part, what policy can do is help to narrow those cones. But it has to be sensible, and it has to be targeted the right way.

Batteries and battery electric vehicles are materials-intense. I don't need to restate everything that is coming into the public domain on that front. It is well known now. The thing that I find ironic is that so many people who want to promote electric vehicles in their states are also opposed to mining and minerals processing in their states, and that raises a distinct question: If you are concerned about sustainability of what we are trying to do because of mining and minerals processing abroad, then you -- and you are also concerned about it in your own state, those two things don't equate. So I think the committee has to kind of deal with some of the contradictions and intentions, and some of the things that I think that people are focused on.

Commodity prices are already rising sharply. We are full of news about that right now. It is something that I have been concerned about for some time. Rapidly rising commodities prices, because of a mix of factors including policy mandates and other things, will contribute to inflation and higher interest rates. And that will undermine everything that you are trying to accomplish, in terms of positive goods.

Electricity is a distinctly difficult commodity. I am all for fast recharging, there are very exciting developments on that front. But we have a lot of work to do on electric power systems. And I think that people have an understanding

of that. Who should pay for recharging? How much should re-charging cost? Those are things that are enormous puzzles with no real solutions to.

Half of a vehicle comes from other materials, hydrocarbons-based plastics. That is how we have made combustion engine vehicles more efficient already. That is how battery efficient -- battery electric vehicles are going to remain -- are going to move -- become higher performing, going forward. Anything and everything that affects the ability to extract oil and gas, extract hydrocarbons, provide the materials from those that are needed, are going to affect the affordability and availability of battery electric vehicles. I can't say that strongly enough.

Finally, on China, we have already had a lot on the table about China. So much of what people think they understand about battery cost structures, battery electric vehicle cost structures, is distorted by the Chinese role in all of this. With more than 80 percent, or roughly 80 percent of control -- of battery-making capacity, and a dominant position in electric vehicle manufacturing platforms, we simply cannot look at those cost structures and assume that we can do the same thing. We have got a lot of a learning curve that we have to absorb in our market.

It is certainly true that the automakers are focused on this, and trying to find the best ways of escalating. But to

reach the level of sales growth that people would like to achieve is a pretty massive effort. And I am not sure that going toe to toe with China, frankly, on all of this really makes sense. I have plenty of content in my formal testimony related to Chinese dominance of supply chains, Chinese dominance of trade flows.

I want to go back to what Mrs. McMorris pointed out about free markets. It is not hard to operate in a free -- or it is not easy, I should say, always to operate in a free market. But Communism is much worse. And I think that, when we look at China, we have to be skeptical about a lot of the confidence around what they are doing, given what we know about Communist regimes.

Thank you very much for the time, and I wish the committee best of luck.

[The prepared statement of Dr. Foss follows:]

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

*Mr. Rush. I want to thank Ms. Foss for your testimony.

The chair now recognizes Mr. Siccardi for five minutes for the purpose of an opening statement.

STATEMENT OF AJ SICCARDI

*Mr. Siccardi. Chairman Rush, Ranking Member Upton, and members of the subcommittee, thank you for the opportunity to testify today. My name is AJ Siccardi, and I am the president of Metroplex Energy, based in Atlanta, Georgia.

Metroplex is a subsidiary of RaceTrac, one of the largest independent convenience chains in the United States. I am testifying today on behalf of NACS, NATSO, and SIGMA, which represent more than 90 percent of retail motor fuels in the U.S.

The retail liquid fuels industry is indispensable to decarbonizing the transportation sector, both through the sale of cleaner liquid fuels, as well as through EV chargers. We want to partner with Congress to help achieve environmental goals in a market-oriented and affordable manner.

Fuel retailers represent the consumer. We don't care what types of fuel our customers choose to buy from us. We simply identify the most reliable, lowest-cost fuels that people want to buy, and deliver those fuels throughout the country. We compete with one another on price, speed, quality of our facilities, and service. This is a good dynamic for consumers. If you want there to be more publicly-available charging stations, you should make

investing in charging stations more attractive for private companies.

Today it is not an attractive option. There is range anxiety because existing charging infrastructure is not convenient to consumers. More EV charging stations at existing retail fuel locations is the most effective way to eliminate range anxiety.

Our stores are already convenient locations. We offer the services and amenities that drivers want, such as food, beverages, restroom, and security. There is no range anxiety for liquid fuels today. That is not because of government incentives. It is because businesses like mine had a clear, unambiguous profit incentive to sell fuel to consumers.

The profit incentive does not exist today with regard to EV chargers. There are several impediments standing in the way. Most of these impediments involve an electricity market that was not designed for and is not compatible with the retail fuel market. For example, some states prohibit fuel retailers from selling electricity to EV users. We appreciate the legislation seeks to address this. A lot more must be done.

It remains a threat that regulated utilities will use their status as monopolies to gain a competitive edge over private, unregulated businesses.

Additionally, many states allow utilities to charge all

of their customers higher electric bills to underwrite the utilities' investments in charging stations. Private companies like RaceTrac cannot access a pool of risk-free capital. Allowing utilities to do so only makes sense if the money will go towards enhancing regeneration and capacity. Our concern only arises when utilities are also able to use ratepayer funds to own and operate the charging stations themselves.

It is unnecessarily regressive to force the lowest-income Americans to pay higher electricity bills to subsidize EV driving fuel and costs. It is also counter-productive, because it will take away fuel retailers' desire to invest, because we can't compete with businesses that are guaranteed a return. This will result in fewer public charging stations available for consumers.

On top of all this, regulated utilities under current rules can force EV charging station owners to pay for electricity more than it costs the utility to power their own chargers. The large demand charges authorized under outdated regulations make it impossible for private fuel retailers to compete on price.

When our competition at retail is the same company that sells us power, that is not an attractive investment opportunity. In fact, no successful business buys goods and service at retail prices and sells at retail prices.

Successful business models provide a spread between wholesale and retail. Otherwise, consumer prices will have to rise to create a margin for retail. Or retailers simply won't enter the market, because there is no viable business model. No amount of grant money or tax incentives will change that fundamental economic reality.

To be clear, that is why there is range anxiety today. The EV charging proposals the committee is considering, unfortunately, would not fix these problems. This makes rebate opportunities unattractive for private companies. It would be far more attractive if the legislation stipulated that businesses putting capital at risk to own and operate EV charging stations are prioritized over applicants seeking to double dip. By "double dip'' I mean access both federal rebates and funds to own and operate EV charging stations.

Fuel retailers are the representative for the consumer. When you make the EV charging investment more attractive for us, you will make the transition more comfortable and attractive to the public.

Thank you for the opportunity to testify today. I am happy to answer any questions you might have.

[The prepared statement of Mr. Siccardi follows:]

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

*Mr. Rush. The chair wants to thank all the witnesses for their opening statements. And indeed, we have concluded all the opening statements. We will now move to member questions.

Each member will have five minutes to ask questions of our witnesses. I will start by recognizing myself for five minutes.

Mr. Jankowsky, in your testimony you describe the work of your company, which I find fascinating. Francis Energy created a comprehensive electric vehicle charging network through the largely rural state of Oklahoma, and also within urban, low-income, tribal, and other underserved communities. My bill, the NO EXHAUST Act, has provisions aimed at enhancing the federal government's role to address exactly this type -- why is it that -- why is investment important to the deployment of electric vehicles, and how will it specifically impact underserved and disadvantaged communities?

*Mr. Jankowsky. Well, thank you so much, Chairman Rush, for the question. So why is federal investment important into the EV infrastructure space?

And really, we feel it is important because of the chicken or the egg problem. Right? Economists call it a market coordination problem. Simply, without infrastructure, no one is going to buy cars. And if cars are available, and

the market is demanding it, but that infrastructure is not there, then, quite simply, no one is going to buy EVs.

It is going to take a whole host of public funding. The federal government has a significant role to play in that public-private partnership. And really, that is the only way this network across the U.S. will get created. It is a function of private capital, federal investment, and also, importantly, state investment. Those three kind of, you know, prongs to the -- to that stool, they are all critical. They are all critical.

Now, how do -- how does EV infrastructure get into underserved and disadvantaged communities? The upfront capital cost to build these stations, particularly when we talk about 7 to 12-minute charging systems, they can cost upwards of $400,000 for the first dispenser. The way that the EV market is going simply to be developed, in terms of what charge point operators would charge electric vehicle consumers, the absolute baseline is that EV consumers will be paying much, much less in fuel costs to power that car, and also avoided maintenance. In order for, you know, these communities to be able to access, you need to solve this market coordination failure, and that is exactly what the CLEAN Future Act does.

*Mr. Rush. Thank you so much.

Mr. Nassar, the NO EXHAUST Act and the CLEAN Future Act

both include strong labor standards that are attached to several grant programs. These programs invest in electric vehicle legislation and infrastructure in the U.S., and requires that grant recipients pay workers not less than the prevailing wage.

Can you describe why provisions to -- labor standards are essential to federal infrastructure deployment efforts, especially as we work to decarbonize our economy?

*Mr. Nassar. Sure. Thank you for the question. Basically, if we don't have kind of employer responsibility standards and kind of, you know -- keeping track not just of the wages and working conditions, but also, you know, are they offering full-time jobs, are there -- are a lot of the workers, you know, temporary workers, for example, keeping track and kind of an accountability on all that, is a key way to ensure that the jobs that are being created are, in fact, good jobs.

And I want to point out that, while we support Davis-Bacon provisions, they don't apply for the manufacturing of the vehicles themselves. So we think that these labor provisions are important, and would support those provisions for sure. Thanks.

*Mr. Rush. Well, that concludes my time for questioning. Now the chair now recognizes my friend from Michigan, the ranking member, Mr. Upton, for five minutes.

*Mr. Upton. Thank you, Mr. Chairman. It is a pleasure to see you, and know that you are just across the lake here, as I am in Michigan and you are in Illinois.

Mr. Siccardi, let's talk a little bit about the business case to support EVs and the charging stations. Can we actually do this? Is it possible to do without a heavy taxpayer subsidy?

*Mr. Siccardi. Thank you for the opportunity, Representative Upton.

That is probably the biggest thing that our members are struggling with today, is finding a business case for EV chargers, or our fast-speed chargers. Our goal would be to make EV fast chargers as ubiquitous as the 150,000 fueling locations that we have across the country today for liquid fuels. But in order to do so, we need a business model that actually makes sense.

Unfortunately, there is a number of things that create challenges to that business model. The first and foremost is utilities rate-basing. So being able to charge all ratepayers the cost of installing a charging station, that might seem like a great short-term idea, in that it gets chargers out there quickly. But unfortunately, it takes away the profit incentive for retailers to choose to deploy private capital to do the same thing.

As important is most states have very expensive charges

for demand charges. Demand charges make the cost to power -- for a retailer to provide the load required for a high-speed charge cost-prohibitive, really, for us to have much of a margin. So it becomes very, very difficult for a retailer to not only deploy the capital required to get a return, but then, on an ongoing basis, be able to generate any margin on the transaction.

So what we would encourage the committee to do is focus on making the business model make sense, remove the impediments, give us the opportunity to compete. We will compete with all manner of businesses, whether it is other fuel retailers, or chargers, or whatever happens to come to the marketplace. But we need a profit incentive to do so. That profit incentive can be done with relatively well-intentioned and smart legislation to allow the utilities to focus on the areas that they should be focused on, which is providing power and grid resiliency, and allowing retailers of all stripes to compete on price, and to offer the consumer the amenities they need.

*Mr. Upton. Thank you. I would note that there is -- I was in a conference call, a Zoom call earlier today with some folks in Michigan, and they talked about an energy storage incentive that --

[Audio malfunction.]

*Mr. Upton. -- suspect that that would be a good thing,

as it would be able to store that battery energy, or that energy stored, and then be able to release it in off-peak times. That may be something that actually has pretty strong bipartisan support that might move forward.

Mr. Jankowsky, I was pretty -- obviously, with what you are doing -- and I sense that Mr. Mullin, Markwayne Mullin, will be asking you some questions. But how much does it cost to actually build -- you talk about a facility every 50 miles. Well, I look at my district, six counties, it is -- there is no gerrymandering here, it is a cube. Every 50 miles would be about maybe 4, 3 or 4 charging stations in my district, serving 750,000 people. That would be some pretty long lines there, longer than what we had in the energy crisis in the 1970s, when you wanted to fill up your car on an even or odd day.

But what is the cost per station that you have invested in Oklahoma?

*Mr. Jankowsky. So, Congressman Upton, thank you so much for the question. So Oklahoma -- and these are just hard numbers -- Oklahoma, with 355 superchargers, cost all-in -- and we are talking all-in project costs, so, as defined in the legislation, "eligible costs'' -- about 30 to $40 million.

Now, it is a difficult question to answer, simply because the charging stations themselves have very different

power outputs for different applications and, therefore, cost very differently and widely across those direct current, fast chargers.

*Mr. Upton. But you are going to want that. So, again, I didn't see your testimony until, literally, this morning, but you are going to want -- I mean, someone driving an EV car, driving, I don't know, here or someplace else, Mackinac Island or Debbie's district on the other side of the state, you don't want to stop, and you are not going to want to take more than 7 or 10 minutes to charge it, unless you have a spare battery in the trunk.

So, I mean, it is remarkable technology that you are ready to go, but what -- you are going to want that type of thing, and so you -- what you are saying is that -- I know my time -- 40 million, to -- 30 to $40 million --

*Mr. Rush. The ranking member, your time has expired.

*Mr. Jankowsky. So --

*Mr. Rush. The witness will be allowed to answer your question.

*Mr. Jankowsky. You know, Congressman Upton, you know, I am very happy to meet with you and your staff after this. But our infrastructure in Oklahoma, effectively, 50 percent of them are in rural communities that are more slower, fast-charging systems. So these are systems that can charge in 60 to 90 minutes. And we put those in rural communities, in

underserved communities, because they serve as a beacon. So drivers on the highways will have to come into town and be captive. And there are some environmental -- or, sorry, some economic development impacts for having a single charger in a rural or underserved community.

But equally important, what one charger does is it now gives permission to your constituents to buy electric vehicles when they become available in your communities. And it is really a function of investment going into light-duty trucks, which, in our part of the world, is a car that a lot of people like, SUVs. And simply, the cost of batteries have come down so much that we are certain that your constituents and constituents in rural and underserved and disadvantaged communities will be able to afford these cars. But you need that public infrastructure to give them permission to buy them. Thank you.

*Mr. Rush. The chair now recognizes the chairman of the full committee, Mr. Pallone, for five minutes for the purposes of questioning the witnesses.

*The Chairman. Thank you, Chairman Rush. I wanted to start with Mr. Nassar.

Can you discuss some of the policies we should pursue in order to make sure that U.S. workers benefit from this growing domestic industry, and ensure we don't lose out to other countries, if you would, Mr. Nassar?

*Mr. Nassar. Sure. Thank you for the question, Mr. Chairman.

I think -- well, for starters, we should make sure that federal money used is used to support vehicles that are built in the United States. I think that is going to be important. We have to anchor the jobs here, and by anchoring the jobs here, it is not just going to be the final assembly, it is going to be throughout the supply chain. We could have more of those jobs being good, U.S. jobs.

We also, you know, as I said, I mean, other changes in law are needed, such as strengthening the National Labor Relations Act by passing the PRO Act.

But as far as conditions within, you know, the money that is given, first of all, we think it should be looked at broadly. So we shouldn't just look at tax credits. We should look at grant, loan programs, too. And what it should be is that, as part of, you know, being able to access those funds, an employer should be held accountable for what -- you know, what kind of wages, what kind of retirement, you know, benefits do they have. Are the workers full-time, or are they permatemps?

What we see in a lot of manufacturing is the companies that will have the same person come back day after day, year after year, and technically they are called a temp, because their paycheck is from a third party, but they are not a temp

worker, whatsoever. So we -- you know, there really has to be way more accountability and transparency for the companies receiving the aid. I think that is a really key part of it.

*The Chairman. Thank you. And let me go to Mr. Phadke.

Your testimony includes some of the grid considerations related to EV infrastructure. And last week FERC held a conference on electrification of the U.S. economy, including vehicles. Can you talk about the grid planning and upgrades that are necessary to support increased EV demand, if you will?

*Dr. Phadke. Thanks for the question. And I would say that there are three aspects of grid planning that need to accommodate EV demand.

First is generation. Essentially, you will need -- U.S. will need additional generation to support the additional electricity demand generated by the EVs. And we find that, in order to electrify -- all sales to be electric, the additional supply that the U.S. power system needs to support is about two to three percent per year. And this kind of supply growth has already been achieved in the past. And why this number is relatively modest, the answer is EVs are three to five times more efficient than combustion engine cars. So when you move all that demand from oil to electricity, yes, there is demand growth, but the demand growth is modest. But it needs to be taken into account, because what -- the last

thing we want is an unreliable grid. That is first.

Second, similar investments in transmission and distribution infrastructure are required to kind of anticipate what electricity demand will occur, and do those investments proactively.

That is why it is so important -- perspective to do two things.

First, we have to have some kind of indication of goals of what is the kind of transformation we are looking at in the transportation sector. So, for example, by what date we should be expecting oil sales to be zero emission/electric. That will give the utilities the certainty to make some investments in transmission generation and distribution infrastructure.

And secondly, there are opportunities for research and development and smart policies on the grid which actually use the existing grid more efficiently to support EVs. That links to the issue of kind of off-peak rates and being smart about the -- so you are incentivizing EVs to charge when the power system is not constrained and loaded.

What it will, in fact, do is that, if EVs are charging during, say, nighttime or off-peak time, you are using the existing infrastructure to send more electrons. That will, in fact, lower rates for all consumers, if such smart grid policies are implemented.

*The Chairman. All right, thanks so much.

Thank you, Mr. Chairman.

*Mr. Rush. That concludes the Chairman's questioning. He yields back the balance of his time.

Now Mrs. McMorris Rodgers is not present with us right now, so the chair recognizes Dr. Burgess for five minutes for the questioning of the witnesses.

*Mr. Burgess. Well, thank you, Chairman Rush, and I certainly hope people are watching this hearing. I think it is perhaps one of the most critical hearings that people might have on their radar screens right now, because it is certainly indicative of what the narrow House Democratic majority is trying to do with that narrow majority and, of course, the Senate being divided even Steven, and things going through on reconciliation.

So these policies that we are talking about today are all at risk of becoming law. And I say that with all due respect and affection for my friends on the other side of the dais. But clearly, what we are talking about is taking the country in the wrong direction.

Look, this committee has a rich history of making decisions for the benefit of the country, decisions that, in fact, benefit other jurisdictions, other committees' jurisdictions. Think of what we did on allowing -- or lifting the ban on the sale of exports of crude oil in

December of 2015, and how much more flexibility we gave to the Department of State and the Department of Defense by providing the pathway for America to become energy independent.

And today, as quickly as we can, the Democrats are trying to undo that energy independence, and literally give it away. And I hope people are paying attention, and understand what is at stake here, and what is being given away.

And the sad thing is bipartisan policies do exist. You know, in the last Congress I introduced the EV MAP Act with Mr. O'Halleran. We strove to provide better information to the developers of electric vehicle charging infrastructure to help people make more educated investments. But the bills we are considering today waste taxpayer money, they reduce competition, they harm consumers, and they harm our country.

So Dr. Foss, let me ask you -- and of course -- it is always great to have someone from Rice University come and testify to one of our subcommittees, because it raises the overall educational stature of our exercise, from merely partisan to truly informed. But can I just ask you, where do the electric vehicle batteries come from?

*Dr. Foss. I am sorry. Can you restate the question, please? I couldn't hear it.

*Mr. Burgess. Where do our batteries for these electric

vehicles -- where do they come from?

*Dr. Foss. Well, they all come from outside of the United States, for the most part, right now, and they will --

*Mr. Burgess. So let me stop you there for a second. So if my premise is energy independence was good for America, we are basically dialing that back. Is that not correct? We would not be energy independent if we are dependent upon other countries for the source of this battery technology.

*Dr. Foss. You are correct, if what we also do is ban the fuels that have made us independent, which we also need for materials. And that is the conundrum.

*Mr. Burgess. Yes, and thank you for pointing that out. Since my time is limited, I do have some additional questions for you, Dr. Foss; I am going to be submitting those for the record. But I do need to ask Mr. Siccardi, because I am a frequent visitor of RaceTrac.

You all provide a significant service for constituents of the -- in the North Texas area. But you have kind of said it already, but is this CLEAN Future Act -- is it a level playing field for the competitors in the fuel market?

*Mr. Siccardi. Yes, we believe that good policy should focus on outcomes, and drive the outcomes that we are trying to achieve here. And fundamentally, as I mentioned earlier, there is not a business case today for retailers, given the constraints and the cost of capital, to install charging

stations across the country and replicate the existing infrastructure that we have for liquid fuels.

That is not to say that there isn't things we can do. We can. We can work collectively to continue to lower the carbon intensity of existing fuels, as well as continue to expand the EV charging stations. And our hope --

*Mr. Burgess. Which you have done. And I certainly appreciate the efforts that you have put forward on that.

But look, one of the things you brought out in your testimony, if this becomes law, we are going to have a very regressive system, where people at the lower end of the income scale are paying for the charging stations for people at the upper end of the income scale, who are able to afford these fancy, electric vehicles. Is that not correct?

*Mr. Siccardi. Our focus would be to allow private capital to come into the market so that private capital can make the investments necessary to build out the infrastructure necessary. Private capital will do that, just as we have done with liquid fuels, as long as there is a business case that is viable.

Rate-basing, as I mentioned, while it might seem attractive because it is an opportunity to build out chargers quickly, it creates very perverse incentives, because it not only leads to additional charges for those that don't have EVs, but, on top of that, it crowds out private capital.

Because who wants to compete with a guaranteed rate of return?

*Mr. Burgess. Well, thank you. Thank you both for your important contribution today, and I will have additional questions for all of the witnesses for the record.

I thank you, Mr. Chairman, I will yield back.

*Mr. Rush. The gentleman yields back. The chair now recognizes Mr. Peters for five minutes.

[Pause.]

*Mr. Rush. Mr. Peters?

[No response.]

*Mr. Rush. The chair now recognizes Mr. Doyle for five minutes.

Mr. Doyle, you are now recognized.

*Mr. Doyle. Mr. Chairman, thank you very much, and thanks to the witnesses for being here today.

The switch to zero-emission vehicles is coming. Our own car makers have announced as much. And China and Europe are making investments in the supply chains and manufacturing capability already. So we need to invest in the whole supply chain, and in ensuring that the future of EVs are made in America, where we can create thousands of good-paying jobs, and ensure that our companies are the world's leaders in clean car technology.

Let me ask Dr. Phadke.

You know, my colleagues on the other side of the aisle love to talk about how all green technology is made abroad. So, instead of ceding the future of battery manufacturing to China and Europe, shouldn't we be the ones investing now to lead the way?

Can you speak to the jobs, environmental and national security impacts of investing in on-shoring our battery and EV supply chain?

*Dr. Phadke. Thanks for the question. I would say I would agree that -- because of the massive benefits that EVs offer to consumers, this transition is going to happen. Now the question is whether we take advantage of it or not.

So what is interesting about batteries, batteries are quite heavy, and more difficult to transport. So suppliers tend to locate manufacturing close to where the demand is. So if there are specific policies, from financial incentives or requirements for EVs, suppliers will have an incentive to locate manufacturing in the U.S., especially when combined with incentives of strong make-in-America policies.

The second most important thing I would say is that the battery costs are also driven by the cost of manufacturing, and U.S., at times, has a significant advancement, because of advanced manufacturing capabilities in the U.S. So continued investments in R&D and advanced manufacturing and U.S. advanced manufacturing capabilities can be used as an

advantage to really locate the supply chain close to where the demand is.

And lastly, I would just give an example of Europe. Europe also has high labor costs. It is not like China. And they are able to successfully locate significant battery manufacturing in Europe, with a concerted effort on supply-and-demand push-and-pull policies.

*Mr. Doyle. Thank you. Let me ask you another question. I appreciate that answer.

There is another zero-emission transportation option, and that is hydrogen-powered fuel cell vehicles. I am just curious. What is your thoughts on the future of hydrogen transportation?

*Dr. Phadke. I would quickly say that, essentially, the policy has to be technology neutral. Technology has always surprised us. So currently it appears that battery technology has moved much quicker, and it provides a competitive or highly-cost-saving option to -- with continued investment in hydrogen, especially for heavy-duty vehicles or ships, aviation, trains, it could become a very competitive option. So one has to keep all options open, and keep technology policy neutral and investment R&D.

*Mr. Doyle. Thank you.

Mr. Britton, would a large government investment through grants or loans in the upstream and midstream sectors,

battery materials processing, and battery materials manufacturing incentivize private investment in further upstream or downstream processes?

What would be the overall impact of that kind of government investment?

*Mr. Britton. Well, it would be huge. And Congressman Burgess asked where do these batteries come from, so I wanted to take a moment to, in some ways, correct the record.

We have mega-factories either in operation or in development in Nevada, Texas, Michigan, Ohio, Tennessee, Georgia, New York. So this is totally possible. We have the opportunity here to drive domestic manufacturing, create hundreds of thousands of jobs.

And if you think about every state, they have got an economic development office who is trying to provide incentives to locate that manufacturing in their state. We have the opportunity to do that, as a country. If we send the right signal that we are open for business, that we are willing to innovate, it will accrue dividends across the entire supply chain, from upstream to components, to parts, to batteries.

*Mr. Doyle. Thank you.

Mr. Chairman, I see my time is expiring, and I yield back.

*Mr. Rush. The gentleman yields back. The chair now

recognizes Mr. Latta for five minutes.

*Mr. Latta. Well, thanks, Mr. Chairman, for today's hearing, and thanks to our witnesses for appearing before us. I really appreciate your testimony.

Dr. Foss, I believe you and I would agree that, in order that the electric grid could be able to provide enough electric power to charge the tens of millions of additional electric vehicles that would be on the road, as envisioned by the legislation before us, continued access to reliable sources of energy will be essential.

Isn't it true that we will still need natural gas, oil, clean coal, and nuclear power to generate the amount of electricity needed to charge this new EV fleet?

*Dr. Foss. Yes, I think you are correct.

First of all, I disagree. I think that the demand on electricity, with the kinds of scenarios people talk about for scaling up electric vehicles, it is bigger than what people are estimating or forecasting. And the reason is an electric vehicle is both a consumer of huge amounts of data, and also a producer of huge amounts of data.

Along with the idea of electrification, actually, for all transport, what we are trying to do is use data from mobility to accomplish a host of other things, to be able to anticipate road maintenance, to be able to look at traffic patterns, whatever it is. And data is energy intensive.

That is all there is to it.

And so one of the things that we have to think about is, as we move in these directions, what is the overall demand for energy, the overall demand for electricity? And I think we are going to need all of our generation sources.

I also want to point out and add to the record that a lot of the large-scale battery manufacturing that is being located in various places, including in Europe, are in places that have robust nuclear energy competence. And that is a very attractive energy source for the high-energy intensity of battery manufacturing.

*Mr. Latta. You know, as you talk about battery manufacturing, let me just follow up on some of your testimony. And maybe you would like to just go into it some more.

According to the IEA's 2020 Global BEV outlook material, the demand for batteries and BEVs starting in 2019 was estimated at 19 kilotons for cobalt, 17 kt for lithium, 22 kt for manganese, and 65 kt for nickel. But then you go into your projection scenario. For when it increases you are going from 170 gigawatt hours today to 1.5 kilowatt hours by 2030. Demand for cobalt would expand about 180 kt per year in 2030, lithium to about 185 kt, manganese 177 kt, class-one nickel to 925 kt a year. Where is that going to come from?

*Dr. Foss. Most of it will come from abroad, from the

countries that are resource rich, many of them that are traditional suppliers already. Some of it will have to come from new projects that we can't imagine yet, including marine minerals, other locations.

There are a great number of ideas out there. The question is how well the public will tolerate that kind of activity.

*Mr. Latta. Well, and again, do you think the -- in the climate that we are in today, that we will be able to mine for that in the United States for all these different minerals?

*Dr. Foss. Well, I want to go back to a comment that was made by either one of the members or one of the other panelists. One of the things that I have advocated for in previous testimonies and in other places is that we need to revisit our commitment to mining and minerals processing in the United States, regulatory reform, streamlining.

It is hard to look at the timelines that people are interested in, also knowing the timelines that it takes for projects. Fifteen, sixteen years to be able to begin to even start to realize production from a facility, a new facility? That is just not going to work in the discussions that we are having.

*Mr. Latta. Thank you.

Mr. Siccardi, I come from a very large area

manufacturing district here, in Ohio. Would you say that moving away from renewable fuels toward an EV-only future would hurt these producers on the -- and the agricultural community?

*Mr. Siccardi. Yes, we would encourage smart policy to be focused, as Dr. Phadke said, on technology-neutral solutions. Technology solutions should be focused on outcomes, and doing so should preserve a way for fuels to compete, whether they are renewables, or hydrocarbons, or EVs.

*Mr. Latta. Well, thank you very much, Mr. Chairman. My time has expired, and I yield back.

*Mr. Rush. The gentleman yields back. The chair now recognizes the fine gentleman from the state of SF, California, Mr. McNerney, for five minutes.

Thank you again, Mr. McNerney, for your assistance this morning. You are recognized for five minutes.

*Mr. McNerney. Well, I thank the chairman, and I thank the witnesses. I think your testimony is all very, very informative and useful.

Dr. Phadke, what opportunities exist to pair EV charging infrastructure with distributed resources, including energy storage, but with times of high renewable generation?

*Dr. Phadke. I think there are -- thanks for the question. I think there are incredible opportunities to bear

this, especially because, essentially, demand charges are levied by utilities when they are really constrained in meeting the supply. So if you have storage located on site, then, even if consumers are coming and charging during the peak hours for convenience, the stores, or whoever has the distributed storage, can potentially mitigate and avoid those demand charges. So it is an incredible opportunity.

Also it improves grid resilience, overall, because you have that kind of on-site storage, which can improve grid resilience.

*Mr. McNerney. Thank you. Well, in your testimony you note that, although new investments in the distribution systems are necessary to support increased loads from EVs, the costs were modest. Could you please elaborate on this, and what it means for consumers?

*Dr. Phadke. So essentially, distribution investments required to -- for upgrades are about -- nationwide, in our scenario -- are about 8 to $10 billion a year. Distribution utilities, on average, invest $30 billion a year already, per year.

And why I am saying that the -- why we find that the consumer costs will not go up? Essentially, if you are able to sell more electrons, then those investment dollars are distributed over many electrons. And that is the reason why they would be able to keep the rates at the same level or

lower, because, essentially, you are selling -- you are investing, but you are also selling more power.

*Mr. McNerney. Thank you.

Mr. Britton, can you please expand on your -- on the consumer interest in EVs?

What are some of the trends you are seeing in EV adoption?

*Mr. Britton. Well, I think the thing that is important to think about is the savings for fuel, and service, and maintenance. So, on average, most consumers save around $1,100 a year. That is a real driver.

The other thing that we are seeing in this space is dramatic increases in range. Many of the new vehicles -- and there is going to be dozens coming on the market in the years ahead -- are going to have 300 or 400 miles of range, which will be a huge breakthrough.

But also, if you think about the battery pack, most folks think that $100 per kilowatt is the price parity with the internal combustion engine vehicle. We expect in the next couple of years to get down to $60 per kilowatt for that battery pack. So that will provide not only savings on the fuel and maintenance, but eventually price reduction and competitiveness on the upfront cost that will be able to drive adoption, and show that they are not only cheaper for fuel and maintenance, but even the upfront costs. You are

going to be getting a superior product and a better driving experience for the same amount of money, with savings on the fuel and maintenance side.

*Mr. McNerney. That sounds great. Mr. Britton, my congressional district includes parts of the San Joaquin Valley, where air pollution has been a significant problem, having some of the poorest air quality in the country. What would the potential impact of EVs and EV charging stations do to areas like San Joaquin -- the San Joaquin Valley?

*Mr. Britton. Well, I think that is, in some ways, the missing part of this equation when we talk about the public interest. You know, we talk about consumer choice, but once those emissions leave the tailpipe, the public doesn't have a choice. The impacts on public health are dramatic.

If you look at the medium and heavy-duty vehicles, they represent about 7 percent of vehicles on the road, but they represent over 30 percent of the carbon emissions, and well over 50 percent of the toxic pollution that has dramatic public health impacts. And so, if we are able to reduce those emissions from -- on the light-duty side, it is estimated that that is $8,600 in saved public health costs per light-duty vehicle that is on the road -- we are going to be delivering not only consumer benefits on fuel and maintenance and service, but dramatic public health benefits.

And again, we can do this in a way where we are

addressing climate change, and creating huge economic development opportunities, and re-shoring domestic manufacturing in the country.

*Mr. McNerney. Well, do you think we can catch up and surpass China in the supply chain? And if so, what would it take to do that?

*Mr. Britton. Well, I think, you know, some of the things that are being talked about are investment tax credits for the full lifecycle of the battery. So that is upstream. It is manufacturing, but it is also the recycling. That is absolutely key.

But if you think about what we really need to accomplish in this space, it is leaning in. You know, America doesn't shy away from the competition. And we can out-compete China in absolute terms. We actually have greater lithium deposits than China does. It is a matter of really investing wisely to drive that domestic production in a responsible way.

*Mr. McNerney. Well, thank you.

Mr. Chairman, I yield back.

*Mr. Rush. The gentleman yields back. The chair now recognizes the member extraordinary from the great state of West Virginia, my friend, Mr. David McKinley.

*Mr. McKinley. You are always too kind.

Let me begin by saying, look, I support EVs and renewable energy, but not on this particular timeline that we

are talking about, politically-driven timeline. But I would rather on a free-market approach. And certainly not until researchers have developed an alternative mineral composition for our batteries.

Now, look, no one on this panel can tell us the impact on the global temperature changes that a 100 percent renewable grid in America and a 100 percent EV mandate is going to have. But what we do know that -- are the devastating environmental and human rights consequences by pursuing this objective in this time frame.

Look, in recent years my Democrat colleagues have called Republicans "climate change deniers.'' But I could tell you, Mr. Chairman, maybe it is time they look in the mirror and ask themselves why are they denying these devastating environmental and human right abuses in order to obtain the critical minerals needed for batteries?

Is it because they don't want it to occur in their backyard?

Look, this road to get 100 percent EVs and renewables is littered with environmental damage and human rights abuses. For example, just -- the UN just came out with a report last year that talked -- that warned us about these. They talked about the critical minerals being mined in the cobalt by an estimated 40,000 children. And I have shown these pictures before. But here are some of the pictures of some of these

children that are impacted with it. Here is another with the children being impacted.

And lithium. To produce just one ton of lithium, you need to use 500,000 gallons of water, which consumes more than 65 percent of all the water available in Chile. And this will only make 20 batteries out of a ton. So -- and there are similar problems in harvesting graphite and manganese, and the like.

So -- and excavating. According to Mark Mills at the Manhattan Institute, to make one battery you have to excavate 250 tons of dirt, just to get the minerals necessary to make just one battery. Now, do the math, Mr. Chairman.

As we transition to only 20 million vehicles by, let's say, 2050, that will require 5 billion tons of dirt that will have to be excavated. That is an amount that will fill the vast Chesapeake Bay, just in one year. And we are talking about years going on in the future. So isn't it time to be honest with the American people about the raw materials needed to make these batteries, where they come from, and the consequences of extracting these raw materials?

This is nothing more -- just exporting American guilt, and turning a blind eye to the devastating impact we are doing to these emerging -- the environment of these emerging nations.

So, Dr. Foss, can you just tell me a little -- am I

wrong in assessing these consequences with this government?

Should we be considering alternatives, like we have mentioned before about hydrogen fuel cells and carbon capture, that we can continue to use fossil fuels into the future as part of our mix?

Where am I wrong on that?

*Dr. Foss. First of all, to be fair, anything that we do requires minerals and materials. We need platinum group metals, or noble metals of other sorts for hydrogen-based fuel cells. We need metals for our legacy energy businesses, our carbon-based businesses, oil, gas, coal, whatever.

The problem is the metals intensity and the vehicle designs. And I think you can go to just about any other source. You could look at something simple like copper, and you can see the amount of metals intensity in the electric vehicle designs versus the traditional combustion engine designs. So I think we have to be honest about all of that.

When it comes to all of the excellent points that you are making about responsibility, accountability, governments, I think that people are aware of all of these issues. But this is one of the things that will take so much time. It is very, very difficult to get countries on the same page with regard to best practices in extractive industries, things that make sense with regard to responsible operation.

I think the mining industry, overall, is actually a very

responsible industry, has good practices, but the rules and the government oversight, the protections for labor and environment in other countries are not the same. And the issue is the cost structure of minerals that are available and the timelines that everyone is talking about versus where they are located, and the governance structures in those countries. And I think that is what you are trying to get to here.

*Mr. McKinley. Thank you. And I just want to reinforce for everyone, you ought to read this United Nations report, because it really does document very clearly some of the problems that we are foisting on other nations, instead of doing it ourselves.

So, Mr. Chairman, I thank you, and I yield back.

*Mr. Rush. The gentleman yields back. The chair now recognizes the brilliant chair of the environmental subcommittee, the gentleman from New York, Mr. Tonko, for five minutes.

*Mr. Tonko. Thank you, Mr. Chair. Thank you to our witnesses.

My hometown is a relatively small, working-class city. But just last month they cut the ribbon on 25 new, publicly-accessible charging stations located in our city parks. We don't have many EV drivers there yet, but this is an investment with an eye toward adoption trends, and it will

help people develop a comfort level with future EV ownership.

So I want to thank Mr. Jankowsky, because it takes vision to build out this infrastructure in remote and rural communities. And I think it is clear we are going to need public charging in every community across the country, and sooner than people think.

So, Mr. Britton, you make an important point that, today, 80 percent of charging occurs at homes. How might that number change, as more people adopt EVs, some of whom won't have a garage or a dedicated off-street parking space?

*Mr. Britton. Well, we anticipate that 70 or 80 percent of charging will occur at home, as we move towards 100 percent EV sales. But the important point is how do you close that gap?

And really, what that looks like is municipal parking, on-street parking, multi-unit, and then retail and workplace settings. And that will provide, I think, the comfort and the ecosystem where people can plan for their charging needs, whether it is something that they are going to, you know, be doing at home, in supplement of work, whether that is going to the grocery store, or other settings that, you know, really reflect, I think, a more convenient charging and re-fueling approach, where they will go about their daily lives, and they will have a full charge. Most Americans will wake up with a full charge, but closing that gap is really

important.

And I think, you know, your local community leaders are trying to think through that. They are trying to make capital decisions for the next 25 or 50 years, and electrification is going to be part of that picture. And I think that is why your leadership on these issues to deploy the rebates, certainly for those sub-national governments, is key.

*Mr. Tonko. Do you believe charging at workplaces and multifamily homes can fill some of this gap, and provide charging access for people that may not have a dedicated parking spot?

*Mr. Britton. Absolutely, and I think that is why -- you know, and Mr. Siccardi has noted with the current gas station model -- there is a 30C tax credit that is available for folks to, you know, receive a 30 percent investment tax credit for deploying charging. I think your rebates that are available to those that may not have a tax liability are especially important to close that gap.

But absolutely, when you think about it, it is going to be on-street parking, it will be municipal, it will be workplace, it will be retail. That is the way we are going to close that gap. Again, 70 or 80 percent will be at home. But getting to where you are meeting every community's needs is closing that gap with those other use cases.

*Mr. Tonko. And do you believe level-two chargers, which may take a few hours to complete a charge, rather than a few minutes, would be sufficient at most homes and workplaces?

*Mr. Britton. So most homes will likely be level one, which is your current, you know, 110-volt service, or level two, which is the same service that your dryer operates on. That will be the vast majority of your at-home.

When you think about the other settings, 90 percent -- our estimation is that 90 percent of the public charging will be level two. So it will be a -- you know, you will get 25, 30 miles of range while you are at the grocery store, while you are at church, while you are at work; 10 percent of that public charging will likely need to be direct current fast-charging along transportation corridors, where there is a need to -- you know, to refuel in, you know, 10 to 30 minutes. But level two is a really important part of this puzzle, and, you know, it will be the vast majority of what public charging looks like and will require.

*Mr. Tonko. All right, thank you.

I absolutely support building out charging corridors to address people's concerns with long distance and interstate travel. But is it fair to say that most people will continue to do most of their driving similarly to how it is done today? That would be, like, commuting to work, taking their

children to school, running their errands.

*Mr. Britton. Yes, most of the -- most range that you would think for a normal consumer is -- the average is about 30 miles a day. So most consumers will have 10 times as much range in a given day than they would otherwise use.

And again, that is why you supplement it for those instances where they are traveling across country, they are traveling to see family. But again, that is likely to be about 10 percent of the use cases, and where we should deploy resources to meet those needs.

*Mr. Tonko. And how might investments that build out infrastructure to support this around-town driving at people's workplaces and grocery stores complement investments along our highways and travel corridors?

*Mr. Britton. Well, again, that is why I think, you know, the combination of the 30C tax credit, which is that 30 percent ITC, along with the rebates you have proposed, is a perfect mix to have a flexible deployment to meet each of those use cases in need.

So if it is a city that is the site host, and they don't necessarily have a tax liability, you know, and may not be eligible for 30C, your rebate that they can go and access is a key part of deploying the charging to meet their community's needs.

*Mr. Tonko. Thank you very much.

Mr. Chair, I yield back.

*Mr. Rush. The gentleman yields back. The chair now recognizes the gentleman from Virginia, Mr. Griffith, for five minutes.

*Mr. Griffith. Thank you very much, Mr. Chairman.

Mr. Siccardi, according to the independent U.S. Energy Administration (sic), EIA, miles driven in electric vehicles pale in comparison of those covered in internal combustion engines, meaning folks don't drive EVs as much.

We also know the majority of consumers who currently own electronic vehicles make over $100,000 a year, and own multiple vehicles.

In a list from Car and Driver Magazine, with every new EV model for sale in 2021, the prices of certain vehicles might not seem so bad to some, but once you look at the range available per charge, that value diminishes. The average annual income in my district in 2018 was $41,250. Spending $41,190 on a 2021 model from this list would get you a range of 250 miles.

Now, we just heard from the previous witness that most people are just going to be driving to and from work about 30 miles a day. But that is not true in rural districts like mine. People are driving sometimes, you know, 50, 60 miles just to go to their regular workplace.

Having states -- and I would say, along with that,

having states consider basing cost of electric vehicles on the ratepayers across the board, whether you have an EV or not, is burdensome to my constituents.

Do you agree with the numbers that I have gone over, Mr. Siccardi?

*Mr. Siccardi. I would agree that rate-basing or charging stations across the market is regressive to consumers that don't have the EV charging stations.

And we also don't believe it is the right policy. The right policy is to put incentives in place to allow private capital to come into the marketplace.

We also do respectfully disagree with others that view that consumers are going to want to change their refueling experience that they have done over the last 60 years, and go to places that, in some cases, are desolate, don't have security, and certainly don't offer the amenities that are offered at the stores that our retailers offer.

Our new stores, typically, are 5,000 to 6,000 square feet, have lots of amenities, including great lighting, fresh food, seating, free Wi-Fi. It is tailored for someone who wants to stay with us, to shop with us, as well as fuel. To do that in a parking lot is a very, very different experience. And to me, I just think it will be very difficult to get consumer adoption, and to address the range anxiety you shared, if people don't have a similar fueling

experience that is ubiquitous to what they do today.

Yes, I think it is a real problem for rural America, because there likely won't be options.

*Mr. Griffith. Yes, and the problem is that we have -- and I am going to go back to the electricity, but I am going to come back to your point just now -- I mean, we just had in the Roanoke Times, which is probably the largest newspaper in my district, we had an article last week indicating that there might be as much as a $22 per month rate increase. And, you know, and all of a sudden Twitter blows up and says, just what we needed, you know, more expenses. And if we start adding the electric vehicle cost on top of that, particularly for areas that may not be served, I think we are going to be in real trouble.

I will tell you that there is a lot of areas that won't be served. And I have heard them, you know, talk about Oklahoma and 50 -- you know, one every 50 miles. I wonder if that is as the crow flies. Because in my district -- which is mountainous, it is not Oklahoma -- you would have a hard time placing the stations where they were actually convenient to folks to do the electricity. And it is rural. It is sparsely populated. You know, I am hearing about we are going to do it in multi-family homes, and we are going to be doing it, you know, in all these different places. Well, if you are driving that distance, you are not going to have that

opportunity.

And let me say this, and I know that maybe my world is a little bit different, but my district is roughly the size of the State of New Jersey, maybe a little bit bigger. And so last week I drove from my home town of Salem to an event in Pennington Gap, 198 miles. My wife was out of town. I had to get home. I didn't have time to wait 40 minutes, as the new technology says they can do, or the 60 to 90 minutes somebody on -- one of the other witnesses on the panel said. I had to get home to make sure that my kids -- they are now teenagers, so they weren't in desperate need, but they needed to have somebody in the house with them that night. I didn't have time to sit on the side of the road 40 minutes, 60 minutes, 90 minutes, refueling. That is why there is this hesitancy on ranges.

And look, my district is still waiting for the promise of broadband that was given to them by the federal government 20 years ago. We haven't gotten that everywhere yet. We are hopeful that it will be in the next two or three years. And now you are coming along with a new promise? We hear about these promises all the time, and they rarely develop the way the federal government says they are going to. And the last place you get them is someplace like my great city of -- or town of Pennington Gap, very rural, very out there, and the last to receive what the federal government promises it is

going to give to all citizens.

Do you hear those complaints in your -- for RaceTrac?

*Mr. Siccardi. We serve rural, urban, and suburban communities. We have stores all throughout all communities, as do our retailers. In fact --

*Mr. Griffith. Do you recognize this is going to be a problem? Yes or no, because my time is up.

*Mr. Rush. The gentleman's time has expired.

*Mr. Griffith. I yield back, Mr. Chairman.

*Mr. Rush. The chair now recognizes Dr. Schrier for five minutes.

Dr. Schrier?

*Ms. Schrier. Thank you, Mr. Chairman, and thank you all for being here today for this very spirited discussion about these important issues.

Now, as we continue to expand electric vehicle infrastructure, it is also important that we support demand for the EV charging with vehicle exchange programs for older, more polluting vehicles, and provide secondary market credits to make electric vehicles more accessible for everyone.

We have to remember that two-thirds of Americans are not in the market for a new car, and we have to help drive down emissions everywhere, especially in areas of disproportionate impact and public health concerns. So when we are talking about cars, this bill incentivizes the purchase of new EVs.

For those in the market for a used car, there is also incentives to make it a used EV. And for some, it is just moving from an older, very polluting vehicle to a newer, more efficient, used gas vehicle, because every one of those helps reduce overall greenhouse gas emissions.

So I want to focus on disadvantaged communities just for a moment, because electrification for some areas may really refer more to transit, or school buses, or, especially, medium and heavy-duty vehicles. So Mr. Britton, you stated that medium and heavy-duty vehicles play an outsized role in negative environmental implications for emissions. Although they represent 7 percent of the vehicles on the road, they are responsible for 25 percent of the greenhouse gas emissions, 50 percent of the nitrous oxide emissions, and 67 percent of particulate matter emissions, which has a profound impact on health, particularly for these communities who are most exposed to trucks and pollution and ports.

So I was wondering, Mr. Britton, can you talk about incentivizing the transition to electric vehicle medium and heavy vehicles, and the impact for these disadvantaged communities, as compared to simply replacing passenger vehicles?

*Mr. Britton. Well, yes. The medium and heavy-duty space is a huge opportunity, and it is one where many of these vehicles are really hard-wired for the use cases that

you might want, given charging and battery and range.

So if you think about, for example, the Postal Service, the average route for the Postal Service is 20 miles, and they sit, and they idle while they deliver mail for a majority of that route. And so you can provide a zero-emission transportation option, and not be emitting those pollutants in every community in the country. So there is huge decarbonization, but also pollution reduction opportunities there.

The other thing that I think is worth remarking on is that it may not feel like an emergency for your community, but it certainly is an emergency for some communities. And if you look at the mid-Atlantic region, where there was a recent study, Black and Brown communities breathe in 66 percent more transportation-based emissions.

And so we can think about these things as consumer choice, and I happen to believe that, on the light-duty side in particular, the products need to sell themselves. But there is also the public health element, where people don't have a choice. And so how we contribute to that and how we address it is really, really important, from an equity standpoint.

*Ms. Schrier. I agree, and we are already seeing this with FedEx. We have got investments in this bill for the Postal Service and for buses, because nobody likes to get

stuck behind them. And there is more of these vehicles in those communities.

I want to pivot a little bit, Mr. Jankowsky, to talk about rural America. I appreciate range anxiety. We are a family that took a 1,000-mile road trip, including the Sierra Nevada Mountains, in an electric vehicle. And so I have felt that anxiety.

*Mr. Jankowsky. Wow.

*Ms. Schrier. I know that those 50-mile-separated chargers, just in answer to some of the other comments I have heard, they are probably not for people who are living in rural America; they are charging at home. They are for people who are traveling rural America. So I just wanted to clarify that.

Can you talk about your vision for electric vehicles in rural America, and even maybe, you know, some thoughts about, not just personal vehicles, but trucks or farm equipment?

*Mr. Jankowsky. Excellent. So thank you so much for the question.

So in rural communities you need charging stations, simply because people travel away from their homes. Sure, in the typical day, maybe they are only traveling 30 miles. But I can certainly tell you, in the mid-continent of the U.S., people travel a lot further, and they leave home, and they go further distances. So you have to have this charging

infrastructure in those rural communities.

But the other thing I would like to point out is those fast chargers, those 7 to 12-minute chargers in rural areas, are not just for cross-commuting traffic. There are for the local community. And if you consider, you know, that a home charging station -- so a level two home charging station that could take about six to eight hours to charge, I think today, where we stand, could cost between 1,500 to $2,000, and it is not like there is a lot of R&D going into that hardware, where those costs are going to come down so significantly that everyone can afford them. That is why we think it is not only for cross-commuter traffic, it is also for the community.

*Ms. Schrier. That is a great point. Thank you for those comments, and I yield back none of my time. Thanks.

*Mr. Rush. The gentlelady yields back. The chair now recognizes the gentleman from South Carolina, Mr. Duncan.

*Mr. Duncan. Thank you, Mr. Chairman. I want to thank everyone for being here.

As discussed today, the CLEAN Future Act aims to massively build out electricity transmission to transform the economy towards complete electrification. I am not anti-EV, but I am opposed to federal mandates requiring electric vehicles. I also have concerns about the rush to green in the U.S. transportation sector, and the implications that

this will have for the grid, energy rates, and reliability. I also believe there is a huge disconnect between those who live in metropolitan areas and those areas in rural America. I was interested to hear a brief glimpse of these issues from Congresswoman Schrier just now.

I will point out that I have been told each charging station has a cost of around $70,000. That is not counting the build-out infrastructure needed to get electricity to many of those areas. From an environmental justice perspective, I do find it ironic that the reality of the Democrats' EV plan may result in the cost of charging stations being passed along to utility customers, many of those in low-income communities. Any tax credits are regressive, and burden working-class Americans and many who don't own nor have intention to purchase electric vehicles. According to the Congressional Research Service, about 78 percent of the credits claimed are by filers with an adjusted gross income of more than $100,000.

Putting aside the climate motives behind the electric vehicle push, the policy, on its face, is a transfer of wealth scheme, harming folks like my constituents. If you live in rural South Carolina, and you do not own an EV, you are de facto subsidizing some wealthy person's purchase of one.

Furthermore, most of my constituents don't want EVs.

According to the Auto Alliance, almost 50 percent of my constituents that own a vehicle drive either SUVs, pickup trucks, or minivans. Many of the jobs and lifestyles my constituents have require them to drive pickup trucks and bigger vehicles. I know auto companies are investing in larger electric vehicles, but the reality is the technology is just not there.

So, Mr. Siccardi, it is clear the bureaucrats here in Washington and the Biden Administration are pushing a one-size-fits-all approach to EV policy. They want an irreversible path to EVs, and do not care about a lack of consumer demand. Do you think policies like the CLEAN Future Act totally ignore market realities and consumer demand?

What is the right approach, Mr. Siccardi?

*Mr. Siccardi. We believe the right approach is focusing on outcomes. In this case, if the outcome desired is to reduce carbon intensity and reduce emissions, there are ways to do that in a way that is market neutral, and technology neutral, that will bring fuels to market, that will continue to reduce the carbon intensity of fuels.

As I mentioned earlier, we believe that this can happen and has happened. It has happened in the liquid fuel space. With the renewable fuel standard that was passed by this Congress almost a decade ago, we have brought down the carbon intensity of liquid fuels. There are still more -- a lot

more -- work to be done there, and I think these are absolutely a part of the future.

But I think the key is we have the opportunity to allow technology to compete because, ultimately, it has to be consumer-focused. The consumer wins when all technologies are competing, and they have many options for the lowest possible price. And that is what we think is important, is focusing on outcomes, and allow the consumer to have a choice, allow the consumer to have a lot of competition at the lowest possible prices.

*Mr. Duncan. And, you know, look, I talk to a lot of my petroleum marketing companies, and many of them do agree with you, that EVs are a part of the future. In fact, they would like to have charging stations because, as that consumer is sitting there for 15, 20, 30 minutes charging an EV, they are probably going in the convenience store and purchasing a lot of the items in that store, where the margin is much higher than the gasoline sold by those petroleum workers at the pump.

I want to shift gears. Dr. Foss, you state in your testimony data is in a fragile state. Could you walk through some of the data and intellectual property concerns related to EVs that you have identified?

*Dr. Foss. Sure. Just quickly, in a nutshell, it is everything from the design of batteries, the chemistries,

powertrains, manufacturing processes, the design and intellectual property associated with a lot of the electric power system equipment, design and intellectual property associated with advanced mineral processing. It is a pretty big list. Would you like me to continue? I think I have given you enough of a flavor.

*Mr. Duncan. You have done great, and I appreciate that.

I am about out of time, so, Mr. Chairman, I yield back the eight seconds I have got. Thanks.

*Mr. Rush. The chair thanks the gentleman. The chair now recognizes the gentleman from the other Carolina, Mr. Butterfield of North Carolina, for five minutes.

*Mr. Butterfield. Thank you very much, Mr. Chairman, and good afternoon to you, and good morning to those of you who might be on the West Coast.

Yes, I want to make sure that you keep Mr. Duncan and I separated. He is certainly South Carolina, Greenville County, and I am upstate in North Carolina, what we call Wilson County.

But thank you for this very important hearing today. We are talking about the future. That is exactly what we are talking about. And thank you to our witnesses for your testimony. Your testimonies have been very, very helpful. Let me go back to Mr. Britton.

And you have been on the hot seat today, Mr. Britton, and let me just continue with you. I listened very carefully a few moments ago to your testimony. And I appreciate you talking about equity. Equity must be part of our approach to electric vehicles. And Dr. Schrier and Jeff Duncan have both touched on some of my concerns about rural America.

Rural America is absolutely important. I am rural America. Jeff is rural America. Dr. Schrier is rural America. We all represent rural America. I am concerned that, when it comes to electric vehicle charging, rural communities may again be left behind. What do you see as the barriers that need to be overcome right now?

And do you see utilities, particularly rural electric co-ops, playing a significant role?

*Mr. Britton. Yes, I do. I think we have got so much build-out to be done that we need everybody to be playing a role. So that is your site hosts, your municipalities, your third-party charging companies, and your utilities.

And one of the things that has been noted, I think, is -- important to remark on -- is we have heard folks suggest that this is going to be a huge runaway and, from an equity standpoint, may hurt people because of the increased cost. In your state of North Carolina, Duke put forward a $76 million charging infrastructure build-out plan for the regulators. That would have extrapolated to ratepayers --

been a $.15-per-month addition to their bill. What was approved was a $26 million charging plan, so about a $.06 per month per customer. So the dividends here are enormous. The costs are very small.

And one of the things that has also been found in -- on the other coast, with PG&E, is that, by shaving the peaks and the valleys and using those fixed costs for generation, you can actually have downward pressure on rates. And so PG&E has found that there is a $350 million dividend by better managing their grid through vehicles that has accrued to their customers.

And so, when you think about the utilities, they have a service, obligation, and responsibility that I think will be of particular use and value to rural Americans, as they seek to, you know, meet the use cases that those customers require.

*Mr. Butterfield. Thank you --

*Mr. Siccardi. Congressman Butterfield, if I may, I have --

*Mr. Butterfield. Yes.

*Mr. Siccardi. -- something I would like to add.

*Mr. Butterfield. You certainly can, yes.

*Mr. Siccardi. Thank you. What I would add is I think it misses the point, just looking at the cost. The cost ranges state by state, depending on the size of investment

utilities are trying to make.

More important, or as important, is the fact that it creates barriers to entry for private capital. Who wants to invest with someone who has a guaranteed return on their investment? That model made sense for building out electricity infrastructure across the U.S. It doesn't make sense for charging when you have retailers today ready and willing to invest and add capabilities, just like we have done at 150,000 locations across the United States.

*Mr. Butterfield. Thank you. I have got a minute-and-a-half left. Let me jump over to Mr. Jankowsky. Thank you so very much, sir, for your testimony.

You highlight your experience in managing over 350 rapid-charging stations for EVs across 119 distinct locations. As North Carolina, my state, continues to add fast-charging electric vehicle stations throughout our state, with one added to the City of Halifax in my district three weeks ago, I think our state can benefit from the lessons you have learned in deploying electric vehicle chargers to rural and underserved communities. Could you elaborate, please, in the minute that we have left, on specific grid upgrades and considerations that should be considered?

*Mr. Jankowsky. So thank you so much, Representative Butterfield. So in rural areas, I think we all agree, as EV adoption rates increase in those areas, the grid is also

going to have to be increased, because it is an ecosystem.

Now, in the meantime, while that grid is getting built out to meet EV adoption demand, we think batteries have a very important role to play in grid stabilization. The ability to be able to feed back power during peak power times, which is particularly hurtful for rural electric cooperatives and municipality utilities, this is going to help stabilize the grid while that investment is being made into that infrastructure.

*Mr. Butterfield. Thank you.

Thank you, Mr. Chairman. I yield back.

*Mr. Rush. The gentleman yields back. The chair now recognizes the ranking member, who returned.

Mrs. McMorris Rodgers, you are recognized for five minutes.

*Mrs. Rodgers. Thank you, Mr. Chairman. And thank you to all the witnesses for joining us today. I think it is really important that we are looking at what is the real-person impact on some of these policies that we seem to be rushing through this committee and through the House right now, the real-person impact of -- on electricity generation in America, and what it is going to cost ratepayers with these type of mandates that are coming down and, really, the impact that it is going to have on reliability, keeping our lights on, on affordability. It seems like there is a rush

for action right now that is -- that includes a stifling of our current energy and all of its economic, technological benefits, in exchange for this idea that is being promoted.

So -- and it is also jeopardizing American energy independence at the very time that we are celebrating America being energy independent. The first time in decades that this has been achieved, and it has been a long-time goal.

When Dr. Michot testified last fall, we discussed how the drive for more wind and solar, and the impact that it would have on supply chains, and what it means for the environmental impacts, both here and abroad. And I don't think anybody really questions that we are playing into China's strategic interest with these policies, even to the point of ignoring human rights abuses.

Dr. Michelle Foss, you talk in your written testimony about a worldwide rush to materials for alternative energy that will threaten economic and national security. Would you just explain a little bit more what you mean by this, including what actions you see other nations taking in response to that -- to this demand?

*Dr. Foss. So the first part of the question is the reality, in terms of the distribution of current supply. The bulk of it is not in our country, or even in China. In fact, China is, as was pointed out earlier, not necessarily rich in lithium, but they control lithium deposits and lithium

supplies and processing at other places. So that is the first issue.

I will add that China's participation in all of this has helped to expand the global supply picture, which is one good thing.

Because all of our requirements are outside of our respective countries, that puts us in the position, as I said earlier, of trying to encourage everyone else to do a good job with their minerals sectors, with their extractive and processing businesses. And it is a work in progress is the best that I can say. Resource-dependent countries that are heavily dependent on commodities for their treasuries, for revenue, are always subject to cycles and commodity prices that also include inflation and inflationary pressures.

And we have gone through this so many times. We have seen countries in Latin America and Africa and other parts of the world continuously try to get ahead in economic development, and then get set back as they have to deal with various commodity cycles.

There is a lot of concern right now that we are moving in a direction of a supercycle. I don't know how to think about that yet, but I think some of the concerns have credence. And I think the consequences of that would be damaging, not only for the commodity-based economies, but also for the receiving countries, like ours. So it is a very

complex problem that requires a lot of thought.

This is not to say that people are not doing the thinking. Everyone is trying to think about how to improve conditions, operating and otherwise, in all of the countries that we depend on for sourcing. But it is a very complex endeavor. It takes a long time. Not everybody is in agreement how to do it.

*Mrs. Rodgers. Would you just speak to what you believe the impact will be, the real-life impact on higher costs, whether it is for electric vehicles or other products?

*Dr. Foss. There is no way that we would not get higher costs across the board for all consumer products, including what we are talking about today, vehicles and everything related to vehicles. They are materials price sensitive.

And we have been through a period of time in which materials costs have been lower. So it is very comforting or easy to think that somehow that will remain that way. But, as I said in the beginning, and in my remarks, we already are seeing pressure on commodity prices. Those get transferred very, very quickly into goods. We have already seen effects from higher copper prices and consumer products. We have seen effects from our freeze in Texas, which caused plastics prices to skyrocket, and that is getting transferred across everything that we need and use, including larger appliances, like vehicles.

*Mrs. Rodgers. Yes, well, thanks again. Thank you, everyone.

Bottom line, we need to make sure that we are keeping affordability and reliability at the forefront, as we continue to explore this clean energy future.

And with that, I yield back. Thank you, Mr. Chairman.

[Pause.]

*Mr. Rush. The chair now recognizes the gentlelady from California, Ms. Matsui, for five minutes.

Ms. Matsui, you are recognized.

*Ms. Matsui. Thank you very much, Mr. Chairman, and thank you very much for having this really very important hearing. And I want to thank the witnesses for being here today.

I want to talk a little bit about tailpipe emissions standards, because, if we look at the future of our country, we need to realize that we need to transform, in essence, to really look to the future, and transition to EVs with dramatically-reduced transportation emissions that are harmful to communities nationwide, exacerbate the devastating effects of the climate crisis.

So to lower transportation emissions, I fought to codify Obama-era tailpipe emission and fuel economy standards through my --

*Mr. Rush. Will the gentlelady yield? Will --

*Ms. Matsui. Yes.

*Mr. Rush. We can't hear you that well, Doris. Can you move closer?

*Ms. Matsui. Okay.

*Mr. Rush. Yes, that is better.

*Ms. Matsui. Okay, great, good. So I recently led a letter, with 70 of my colleagues, asking the Biden Administration to, at minimum, reinstate these important measures.

Mr. Britton, does your organization support the strong implementation of the Obama-era standards for the light-duty sector that are necessary to reduce emissions and expedite EV adoption?

*Mr. Britton. Yes, we do, and we thank you for leading the letter.

We have called for strong fuel economy standards for a couple of reasons. One is consumers are not demanding less-efficient vehicles. Every year consumers are rewarding the manufacturers that are providing more fuel-efficient vehicles. And so it helps us keep pace. And we don't have to look far back to know what happens when we get caught from behind. So if we look back to 2007, more fuel-efficient foreign imports ate our lunch, and it led to a $34 billion auto bailout.

And so other countries are racing ahead, and that is the

right market signal to send to suggest to both manufacturers, but also our foreign competitors that we are taking this seriously, and we are going to make this transition in the next 10 or 15 years, and not the next 40 or 50.

*Ms. Matsui. Okay, thank you very much.

Clean transportation is crucial, as we know, to reduce harmful emissions, which disproportionately affect communities of color and low-wealth populations. And that is why I have long been a leader of initiatives such as the Diesel Emissions Reductions Act, as we call DERA, to retrofit legacy diesel engines. And I led a letter to the Appropriations Committee to increase this funding.

Mr. Britton and Dr. Phadke, in both your testimonies you highlighted the negative impacts of medium and heavy-duty vehicle emissions. Can you expand on how increased funding for DERA and other provisions in the CLEAN Future Act can help electrify medium and heavy-duty vehicles, and ensure the transportation transition is equitable?

Mr. Britton?

*Mr. Britton. Thank you. Well, I think it is also important for California how the stakes are -- the transportation sector emits more carbon emissions than any other sector in our economy. Right now, country-wide, that is about 28 percent. In California, I believe it is well over 40 percent. So the Diesel Emissions Reduction Act, in

concert with the congestion mitigation and air quality programs, all drive really important emissions reductions in those frontline communities, and have a huge impact on public health.

And again, I think it is important to note where, if you don't feel like it is an emergency for your community, that doesn't mean that it is not an emergency for other communities. And the public health impacts are dramatic.

*Ms. Matsui. Okay. Dr. Phadke, do you have any comments on that?

*Dr. Phadke. Yes, I would say that it is a very important issue. And what is actually exciting is that battery technology has moved fast enough so that even medium and heavy-duty trucks can be electrified cost-effectively, meaning that our recent work shows that electrifying a long-haul truck will save the long-haul truck operator $200,000 over its lifetime.

And I want to explain why really quickly. Long-haul trucks drive five times as cars. They are driving 100,000 miles a year. So if your savings are based on mile, because they are much lower to operate, then your savings are higher. So I would say that, from equity, and from an environmental perspective, but from economic perspective, this is just massive. So anything that pushes that forward is of great value.

And our assessments have -- last three years.

*Ms. Matsui. Okay, thank you. The Biden Administration's plan includes $15 billion to help build and support a national charging network of half-a-million stations by 2030. Accessibility for communities of color, as well as rural and underserved populations are a top priority as we expand EV charging.

Mr. Jankowsky, what additional efforts should Congress prioritize to ensure that underserved communities can become a part of the transition to EVs?

*Mr. Jankowsky. So thank you, Congresswoman Matsui. I see that I am already out of time, but I will --

*Ms. Matsui. I am sorry, yes.

*Mr. Jankowsky. No, no, no, I will give a brief answer. So what the federal government can do for these communities?

You know, private companies like ourselves are naturally doing this because we see the utility. However, there could be, as an example, some sort of set-aside for these types of communities, just as an example, to encourage other companies like ourselves to actually leverage those funds, and place them in communities where, currently, utilization is very low.

So private enterprise is certainly not going to go into those communities and tell those communities, "Start buying EVs'' in a massive way. We think that is a coordination

problem, and that is why we are there today.

*Ms. Matsui. Sure. Well, thank you very much.

And thank you very much, Mr. Chairman, for your patience.

*Mr. Rush. The gentlelady yields back. The chair now recognizes the gentlelady from Arizona, Mrs. Lesko, for five minutes.

*Mrs. Lesko. Well, thank you, Mr. Chairman, and thank you to all of the people that are our witnesses today, I appreciate the time. My first question is for Mr. Jankowsky with Francis Energy.

I believe you said that you built 355 electric vehicle charging stations in Oklahoma, and that the rural charging stations take 50 to 70 minutes to charge the vehicles. Is that accurate?

*Mr. Jankowsky. So, Congresswoman Lesko, thank you for the opportunity to kind of clarify.

So there is basically 3 gradations of superchargers. There is the 60 to 90-minute charger, and those have applications that we discussed.

There is also the 20 to 40-minute charger. And that, to us, is kind of the bread and butter for retail settings, because it typically matches kind of the behavioral patterns of people going into grocery stores, or going to shop, or eating in cafes.

And then you have the 7 to 12-minute chargers. So in the State of Oklahoma, we have four of these systems that are currently at convenience facilities, convenience stores, on highways through Oklahoma. Those are all in rural areas. So the build-out in the rural communities is going to be a mix of those grades of chargers, just depending on the application, and depending on the site.

*Mrs. Lesko. And thank you, Mr. Jankowsky. So, just to confirm, you -- right now you have -- 4 of the 355 charging stations are the fast ones, 7 to 9 minutes. And how many are these 20 to 40-minute ones?

*Mr. Jankowsky. So, of our portfolio, I would say, you know, 49 percent are the 50 kWs. So those are the slower charging systems, the 60 to 90 minutes that have great applications in certain settings, of course.

The -- another 49 percent is the 20 to 40-minute charger. Those, to us, are kind of the bread and butter for public usage, not for cross-country commuting traffic, but for local communities, a 20 to 40-minute charge.

And then, of course, 2 percent, roughly, are those superchargers, the 400 kW chargers. And the reason for that is they are very expensive, and a consumer on the highway at a Francis Energy station getting a 7 to 12 or 9-minute charge is going to pay anywhere between $18 to $22 for the full range, 300-plus-mile range, to fill up their battery.

That is kind of the market in our part of the world. Obviously, it is going to be very different, because it is very dependent on electricity rates, which is very local.

*Mrs. Lesko. And how much would a full charge that costs 18 to $22 to fill up, how far would that car go?

*Mr. Jankowsky. So, Congresswoman, that is very much dependent, not on the charging stations, which can deliver all the power that any car is going to need in America, it is dependent on the battery in the car, and the onboard software that controls it.

So as an example, you know, a Nissan Leaf today is going to take longer to charge, simply because of the battery chemistry. There is a smaller battery in that Nissan Leaf. Whereas, a larger vehicle with a larger battery will be able to take that charge in 7 to 9 minutes --

*Mrs. Lesko. So --

*Mr. Jankowsky. -- and go 300-plus-mile ranges.

*Mrs. Lesko. Okay, thank you. And I am going to go to Dr. Foss.

Dr. Foss, do you think it makes sense for us to shift so fast to electrification of the transportation sector and the goal of reducing emissions, when existing electric vehicle battery production in China is powered significantly by coal-fired electric power generation?

*Dr. Foss. Congresswoman Lesko, I think that, for many,

many years, the bulk of battery-making in many places is going to be powered by coal use. That is the structure in most of the countries outside of ours. Even in ours, in some places where battery manufacturing is either located now or contemplating it being located, it will use whatever is available on the grid. And good baseload power -- I mentioned nuclear earlier, coal, other sources, natural gas -- will be what feeds battery manufacturing.

What we are doing is shifting emissions around. I appreciate fully the desire to do things that reduce pollution in urban airsheds and other places. I think what you have to do is weigh that against all of the consequences that are being created elsewhere in the supply chain and value chains.

*Mrs. Lesko. Thank you.

And Mr. Chair, I yield back.

*Mr. Rush. The gentlelady yields back. The chair now recognizes Mr. Welch for five minutes.

*Mr. Welch. Thank you very much, Mr. Chairman. This has been a very good hearing, including many of the concerns that have been raised by --

*Mr. Rush. Could you --

*Mr. Welch. I am from rural Vermont.

*Mr. Rush. Would the gentleman suspend?

Peter, will you move closer to your mike?

We lost you now.

[Pause.]

*Mr. Welch. Thank you.

*Mr. Rush. All right.

*Mr. Welch. I was saying that I wanted to thank my Republican colleagues and also Mr. Butterfield for bringing up concerns that rural America has. These are significant in Vermont, as well.

But raising the concerns doesn't -- it doesn't answer the challenge that we have, and also the market reality. I mean, concerns about the range anxiety, concerns about access to critical minerals, concerns about folks who are driving SUVs and pickup trucks -- and there is an awful lot of those in Vermont, we love them -- it does not answer the reality that the market is moving. VW is doing electric, GM is going all electric, and Ford is going all electric. And we are in a competition with China to see who is going to be on top in the electric market, and also create a new future.

So raising those concerns is not a reason to stop or pause, it is a reason to answer. So I will start by asking, Mr. Britton, would you agree that it is important for the U.S. to significantly improve its collection, recycling, and reuse of critical minerals?

*Mr. Britton. Absolutely, and I think most people would be shocked at how much of these minerals we can actually

acquire from a battery.

So we have got members like LifeCycle, Redwood Materials, an American battery technology company, and they are able to get, on average, about 95 percent of the critical materials out of a battery. In some ways, their biggest challenge is there is not many EVs coming out of their lifecycle. A lot of EVs go into a second use, where the battery is used for stationary, utility-scale storage. And so they are left with --

*Mr. Welch. Well, that is great. You have made my point, so I want to come back to a few other questions.

The -- I am introducing legislation that would incentivize public, on-street, publicly-available EC (sic) charging. Mr. Siccardi, could you -- I know you want to have some help with the private infrastructure, but do you have any problems with access so the customers you have can get it at home in their apartments, apartments that would be built with building codes so that the charging will be available?

*Mr. Siccardi. No, we --

*Mr. Welch. So that is okay, but what you want to do is get some help so that you can provide this option for your customers, the fuel choice that they prefer, correct?

*Mr. Siccardi. What I would say is we want consumers to have a choice to shop wherever they want to shop, or power wherever they want to power.

*Mr. Welch. We get that, and we have got these local stores all over Vermont, and people love them. And it is a place where they get fuel and -- I hate to say it -- pick up a doughnut or two.

The question that I have for -- here -- what is the best method by which the public, who -- the driving public, can get access to the EV charging station, doesn't it absolutely require, Mr. Britton, that there would be some public investment in this?

*Mr. Britton. Absolutely. And I think that is -- you know, David has mentioned this already. There are some areas where there is a really strong commercial case now. But the importance is the sequence. So you want to out-sequence the vehicle to address range anxiety, but you don't want idle capital. So the sequencing is important, and getting into those areas that are underserved, whether that is rural or other low-income areas, are critical.

*Mr. Welch. So how do we get into those underserved areas and have a policy where, from the very beginning, that is what we are doing?

*Mr. Britton. Well, the two main levers are the 30C tax credit, which provides an incentive. The other is the rebates. And I think you and Congressman Tonko have put forward ideas on how to do that, and I think they are complementary policies that will allow for flexibility to

meet each community's needs.

*Mr. Welch. And Mr. Nassar, do you have any views on this, with respect to how this is going to affect job access and wages for the people you represent?

*Mr. Nassar. I am sorry, are you talking about the charging stations and how they are set up? Is that what you are talking about?

*Mr. Welch. And also, you know, comment on the -- the problems that folks have raised are problems.

*Mr. Nassar. Sure.

*Mr. Welch. But it is not as though raising the problem is we don't try to solve the things, we do solve them. So maybe you could comment on that.

*Mr. Nassar. Sure. I mean, I think, first of all, you know, as has been stated many times, you know, it is a global market. EVs are an increasing share. The real question is the speed in which it happens, and where those jobs are going to be.

And I would just say that, you know, one way to ease working people's minds is to have, you know, not only just policy here, but also a tax policy, others that hold companies accountable. We are seeing companies, you know, make -- you know, get taxpayer assistance, and then turning around and making big investments overseas in electric vehicles.

So one of these things is we really need that production here. We need to become good jobs. That is the way that you reduce anxiety with our members. They need to see good jobs --

*Mr. Welch. Thank you, Mr. Nassar, thank you. My time is up, so I want to yield back and not overstay my welcome.

*Mr. Rush. The gentleman yields back. The chair now recognizes the gentleman from Indiana, Mr. Pence, for five minutes.

*Mr. Pence. Thank you, Chairman Rush and Ranking Member Upton, for holding this hearing today, and all the witnesses for your participation.

Representing the crossroads of America, I support innovation in the transportation industry. At home companies throughout Indiana's 6th district are leading the way in developing low-emission engines, EV batteries, and alternative fuels like hydrogen. But the future of our transportation industry should not be a one-size-fits-all decision made by Washington.

We should seek a diverse slate of technologies and delivery options competing with one another to reduce the financial pressures on our consumers. Lightweight fuels like hydrogen can generate enough power to haul heavier loads, and should be a major part of the conversation. Renewable diesel that lowers agricultural emissions is fully compatible with

existing diesel assets, and have a place at the table, too.

Electric vehicles make sense for cities and densely populated areas, where commutes are predictable and charging stations may be more economical. However, instead of bolstering innovation in transportation fuels, this bill imposes unrealistic deadlines to establish electric vehicle as an only solution. The provisions of the CLEAN Future Act are moving ahead of our ability to get the products to consumers, as my peers have mentioned repeatedly.

I will take more -- it will take more than a decade to construct the high-voltage transmission lines needed to meet transportation demand peaks. Coal is achieving this in my district right now.

On the generation side, the out-of-touch clean electricity standards timeline set in this bill will only drive up costs for consumers. In Indiana, efforts to implement wind and solar have already started to increase electricity prices for ratepayers. In a mere two-and-a-half years from today, the retail power sector will need to start overhauling assets to meet compliance. Meanwhile, it can take up to five years to fully implement carbon capture equipment that is still not ready for commercialization.

I agree with my colleagues that EVs will play a critical role in our future transportation sector, and there are appropriate opportunities to incentivize manufacturing here

in the U.S., which could bring back jobs lost to China and other countries. But the CLEAN Future Act severely limits hydrocarbons and plastic production necessary for car manufacturers without a realistic alternative by harming the very petroleum industry that has millions of jobs.

This bill makes no meaningful regulatory reforms to protect the supply and economic case for mining minerals and rare earths here in the U.S. All the while, provisions of this bill will put all ratepayers, not just EV owners, on the hook to foot the bill for charging infrastructure unfairly costing my rural areas early in the process.

Mr. Siccardi, you mentioned in your testimony that there is a missed opportunity for the committee to create incentives for private investment. Particularly, you mentioned the fairness in electrical pricing. I, too, am concerned that this Act may put your industry at a competitive disadvantage. As you know, I spent many years in your industry. You and I remember when retailers were protected against predatory pricing by retail refiners.

My question: How would you propose fairness in wholesale electric pricing to private retailers be managed to prevent the destruction of your constituents, and all of the convenience of your industry?

*Mr. Siccardi. Thank you for the opportunity to speak on that. We think this is really an opportunity for the

committee to consider.

The power markets were structured almost 100 years ago. And as the world is changing, and new technologies are coming about, we have to look at new regulations. The current regulations put very large demand charges on when you pull a large amount of grid -- load from the grid. And those demand charges make the business case for EVs untenable for high-speed charging applications.

That is why we would hope that the committee would seek to figure out a way to address that, to offer a wholesale pricing for people that are offering EV charging services, or to ensure that utilities charge no worse than their transfer price, or their avoided costs. There is a number of ways to solve this.

And I want to be clear here. This isn't at the expense of utilities. There is a role for utilities here. All of us have to participate in trying to move this technology forward. The role for utilities is adding redundancy and resiliency to the grid, adding the load necessary to be able to support the high-speed chargers. It is the role for retailers, whether it is retailers that are fueling locations or other retailers, to offer the services to consumers in the places where they want to go.

*Mr. Pence. Thank you, Mr. Chair.

*Mr. Rush. The gentleman yields back. The chair now

recognizes Mr. Schrader of Oregon for five minutes.

*Mr. Schrader. Thank you very much, Mr. Chairman, I appreciate the opportunity to participate in this hearing. It is very interesting. It is going to be very critical for the future of our country. I guess my first question is for Mr. Nassar.

You know, everyone talks about -- well, a lot of people talk about all the new jobs that are going to be created by the green revolution, and the opportunity for electric vehicles, and what have you. And I think that is true. I am looking forward to that. But I am concerned about the current jobs, make sure those folks that -- in this great country that work in the oil, gas, and coal parts of our geography have opportunity, too, and even more particularly for UAW workers.

I mean, I guess my question is what -- are the skills transferable between what your men and women do on combustion engines to the electrical vehicle sector?

Are there provisions in place to make sure there is an opportunity for those folks to get trained to transition over to working on electric vehicles?

*Mr. Nassar. I could speak most to the -- well, thank you for your question, first of all, to the -- to our -- you know, to where we have a union workforce collectively bargained, because there are, you know, apprenticeship and

training programs which enable people to have that transfer of skill. The problem isn't lack of workers who can do the job when it comes to EVs and such.

But I want to talk to your point about, yes, we got to make sure these jobs are good jobs. And right now what we are seeing is we are seeing a lot of folks, frankly, in the industry, new OEMs, who are resisting giving workers a voice, even though often they have it in their home country.

So real wages in auto have dropped 20 percent over the past 15 years. If we don't start creating good jobs in auto through this transition, I think there is going to be actually a backlash on this, which would actually reduce the ability to achieve the environmental goals, too. So, yes, we better get this right. I hope that helps answer the question.

*Mr. Schrader. No, that is great. Yes, we need to have some labor standards in here to make sure we are not downwardly mobilizing American families. So thank you.

Mr. Siccardi, I think your line of concern is very legitimate. I guess the question would be why are we even subsidizing public stations?

Why not just -- we have got gas stations, truck stops all over the country. Why are we not targeting them with whatever public assistance we get to set up these EV charging stations?

*Mr. Siccardi. I think the best way to do that would be to provide the profit incentives for retailers to make that investment. We are prepared. We have made that investment over the course of the last 60 years. We can continue to make those investments. We have the right real estate, the amenities, the things consumers want.

The problem is we have some true problems with the business cases. Representative Pence just mentioned the fact that we buy power from a utility at a retail price, and then try and turn around and sell a retail price to consumers. It doesn't work. The structure of the electricity market, as it was structured 100 years ago, doesn't work with demand charges. The nature of power for charging is you have to have a lot of load to put in a battery in a short period of time.

As we do more --

[Audio malfunction.]

*Mr. Siccardi. -- and it makes it impossible to recover that from the consumer.

*Mr. Schrader. So some sort of incentive or direction to our utilities to, you know, to help incentivize that opportunity for EV stations so that they could -- I would assume some sort of discounted rate so that you can mark it up at least a little bit and make it worth your while.

*Mr. Siccardi. There is lots of ways to do it, but

bottom line is a mechanism for us to be able to have a wholesale rate for power, so that we can offer consumers a retail price and be able to still offer low prices to consumers, but have some ability to compete. If we can do that and address some of the other obstacles we mentioned, like making sure we don't do rate-basing and provide a competitive market, then I feel confident capital will come into the marketplace and will provide the charging stations necessary.

We believe it is important to have the level three fast-chargers. It -- we don't believe the market is going to work with just level one and level twos. We do believe people will charge at home. But for people to have ultimate comfort in driving across the country, or wherever they want to, they have got to know that they can stop at a place that they can charge quickly, and that it has the amenities that they need.

*Mr. Schrader. Well, and Mr. Jankowsky, real quick, I am mostly concerned about rural America. I mean, I think there is a -- can be a business case to be made that these stations could go easily in urban areas. But, you know, for the long haul, an urban guy -- or rural guys, you know, the farmers and ranchers, how are they going to be able to access EV stations where they live?

*Mr. Jankowsky. Well, we are going to have to put charging stations into farming and rural communities. And

the reason why the incentives are so important is because private capital simply is not going to put in charging stations in those rural communities, at least in the first couple of years, because there is simply no one charging on those systems.

I mean, our system in Oklahoma today achieves maybe one percent utilization, just a very fancy name for how often it is being used. Our forecast is 5 to 10 percent in 5 years. So there are companies like ours that are prognosticating that cars will be in these communities. But that is not where chargers are going in today. And that is why, quite frankly, the CLEAN Future Act provides that incentive for us and other charge point operators to go into those communities.

*Mr. Schrader. Very good, and I apologize for going over my time, Mr. Chairman.

Thank you all very, very much.

*Mr. Rush. The gentleman yields back. The chair now recognizes the gentleman from North Dakota, Mr. Armstrong, for five minutes.

*Mr. Armstrong. Thank you, Mr. Chairman. And thank you, Congressman Schrader, for raising some of those issues, as well. You know, we heard earlier sequencing is important, and I agree with that. And listening to Mr. Siccardi's testimony about this, I think, is also important.

But I have also heard some of my colleagues talk about rural areas getting left out. I will be here right now and I will just say I am comfortable with North Dakota getting left out of the first portion of this, because I do think sequencing is important, and we are rushing towards these things, and we keep acknowledging what the challenges are, but we just gloss over what it is going to take to solve those challenges.

And I think a perfect example is exactly what we are talking about, is who is going to play in this space. We are investing billions and billions of infrastructure, but we are spending very little time about -- talking about who is going to play in the space, whether it is a utility, a municipality, private equity, gas stations, all of this. These are -- there are structural ways in which electricity is delivered to communities that has to be addressed before we move into this portion of that.

And I mean, that is before we get into heavy trucks, a Volvo. A Volvo truck for a medium-weight load is about 800 -- 8,000 pounds more than a diesel truck. That means you have two options. It either carries one-seventh less weight, which means more deliveries, higher prices, or you have to raise road rates, and in places like mine, which means more roads are going to get beat up, they are going to be dealt with -- dealing with that.

How about 90 minutes to charge a truck? Does that -- I mean, what does that do to hours of service? What does that do to cost of delivery? These are all real things that exist, and we have to talk about them. Because I agree, to some degree or another, electric vehicles are coming.

And that is before we talk about, if we are going to expand the grid on resiliency and reliability, which we have had numerous other hearings on, how do you deal with people plugging in their car at night when the sun isn't shining and the wind isn't blowing? These are real, consequential things.

And I appreciate what my friend, Congressman McKinley, talks about, outsourcing our guilt, and where we currently get our rare earth metals. Because one of the things -- we do have them here, we have lithium deposits here.

And we talk about the streamlining permitting and development like we are just going to snap our fingers and do that. But that is ignoring 50 years of permitting history, whether it is at the federal, local, state level, and the regulatory fights. That is before you get into sue-and-settle litigation with activists that will file a lawsuit if you are potentially going to harm an earthworm.

So, I mean, we have to -- this -- as we move forward -- and listen, these things are going to move forward. We have to be better at addressing some of these.

So, Dr. Michot Foss, your testimony, you discuss recommendations for overall economic growth and performance, including statutory and regulatory changes. Are there opportunities to pursue these changes while utilizing existing energy infrastructure?

*Dr. Foss. Absolutely. If you have a more reasonable view of the world, and you think about how long it will take to deal with -- to actually construct solutions for a lot of the things that we have been pointing to today, I think that you could rely on investment coming from existing legacy energy businesses as they move forward with all of the strategies that they have got to continue to ensure that traditional fuels are clean, and widely available, and affordable.

I mean, a more reasonable approach would allow all of those things to take place. Sound tax policy, making sure that, you know, you, our representatives on the Hill, are not moving us in directions that -- in which the federal government is becoming too intrusive, especially on state and local initiatives. I mean, those are all things that, taken together, I think, could improve on the picture hugely.

*Mr. Armstrong. You also discussed workforce training and development, something even Energy Secretary Granholm touched on in March, when she stated having coal workers employed in the mining of critical materials is a natural

shift. Wouldn't easing permitting and existing mine transition also support your recommendation of workforce education and retraining?

*Dr. Foss. So I think if you are -- you were breaking up a little bit. So what you are raising a question about is how to streamline permitting and certification of new facilities, which, by the way, includes recycling.

One of the things that gets taken very lightly is the certification process that you have to go through to participate in recycling, because you are dealing with hazardous materials, all -- under all of our existing laws. So you need the appropriate education and skills competency. You need people who understand how mining and minerals processing work. We have done a good job of kind of depleting that part of our labor force.

I made a comment to one of Mr. McKinley's staff yesterday that, when I look at this -- I am a Colorado School of Mines alumni. When I look at the state of mining, engineering, metallurgy, other essential disciplines today, the coal industry, historically, has done a huge amount to contribute to that, because it is a big part of the extractives businesses. We have done a good job of actually impacting all of the programs that now we need, by actually putting the coal industry under pressure. Those are just realities that we have to deal with.

*Mr. Armstrong. I appreciate that, and our coal guys are pretty good at making a money -- or making a living digging stuff --

*Mr. Rush. The gentleman's time has --

*Mr. Armstrong. I yield back.

*Mr. Rush. The gentleman yields back. The chair now recognizes the gentlelady from New Hampshire, Ms. Kuster, for five minutes.

*Ms. Kuster. Thank you very much, Chairman Rush, for organizing this important hearing, and for your commitment to ensuring that all Americans, regardless of their zip code, have access to electric vehicles.

The transportation sector is the number-one source of carbon pollution in the United States. And as we decarbonize our electric grid, transitioning to electric vehicles will help our country reduce carbon pollution. In order to support electric vehicles, we need to build out a robust network of charging stations around the country. But these charging stations can't be isolated to urban areas or along major highways. We need to ensure that electric vehicles chargers are built in rural communities, too.

Sadly, two rural counties in my district, Coos and Cheshire, don't have a single fast-charging station. Rural communities need robust charging infrastructure that -- so that people who live there can experience the benefits of

electric vehicles, like lower maintenance and fuel costs, and so that visitors, including our guests from Canada, can feel confident traveling to and spending their money in rural communities.

The CLEAN Future Act and the bills before the committee today are a historic step. They will help address some of the financial barriers to expanding electric vehicle charging infrastructure in rural communities, and I commend my colleagues for their important work.

One of the major barriers to deploying electric vehicle infrastructure in rural communities are fees called demand charges electric companies place on businesses with electric vehicle fast-charging stations. In New Hampshire this means that small businesses or towns can't afford to operate these fast-charging stations. These fees are particularly burdensome in rural communities. One charging station in Derry, New Hampshire, was forced to close because demand charges made it simply unaffordable to operate.

Mr. Jankowsky, in your view, are these fees known as demand charges a barrier to deploying fast-charging stations, especially in rural communities?

*Mr. Jankowsky. Thank you so much, Congresswoman, for the question. I think you have just identified probably the number-two major barrier to EV infrastructure deployment. The first is, obviously, the upfront capital costs. You are

talking now about the ongoing operating costs of these chargers. And, yes, high-demand chargers, particularly in rural areas, where many of our chargers are, is a major impediment to EV adoption.

Now, how do we handle it? So in the rural communities, with the rural electric co-ops and municipalities that are providing electricity, we are building relationships with all of these utilities in rural communities, and most of these rural electric co-ops are not subject to state utility commissions, necessarily, at least not extensively. So we are able to go to the co-ops, on a one-on-one basis, and say, "We want to bring significant infrastructure to your service territory, but your demand charges are going to impede that.'' So it almost becomes a bilateral discussion simply to say, "If you, Mr. or Mrs. Rural Electric Co-op, can reduce your demand charges, or give us a significant holiday, right, for the first five years, that would be extraordinarily helpful to us.''

Now, in return, we could certainly absorb higher kilowatt hour rates for EV charging stations, and that is simply because of the dynamics of electricity going through, and the price of that electricity. You can -- a charging station operator that is operating direct current fast chargers can absorb that. What you cannot absorb are the exorbitant demand charges because, in the rural areas,

consider there is only one or two people with charging stations today. The second they plug in, you get hit with what could be, in some of our areas, $2,000 per month that is basically set on a rolling average for 12 months. There is no --

*Ms. Kuster. I am sorry to interrupt you --

*Mr. Jankowsky. -- way anybody can make money --

*Ms. Kuster. I want to make sure we get to all our witnesses.

Mr. Siccardi, in your view, are these fees known as demand charges a barrier to deploying fast-charging stations in rural communities?

*Mr. Siccardi. Absolutely. And I would expand to say it is not just in rural communities, it is across the country. It is urban, suburban, rural. It is a part of the utility pricing model. And it has to be addressed to create the profit incentive for any retailer to want to invest in high-speed charging stations.

It is good that we are able to do one-off things with co-ops from time to time, but that is not a scalable model. If we want to see charging stations --

*Ms. Kuster. Thank you, I apologize. My time is up.

But I do want to yield back by saying that, Mr. Chairman, the majority and minority witnesses are in agreement here. And if you will indulge me, I seek unanimous

consent to enter a white paper by the Great Plains Institute, and another article by Dr. Ponkey. And I will make sure that those get to the committee.

And with that, I yield back. I apologize for cutting you off.

*Mr. Rush. The gentlelady yields back. The chair now recognizes the gentleman from Alabama, Mr. Palmer, for five minutes.

*Mr. Palmer. Mr. Chairman --

[Audio malfunction.]

*Mr. Rush. Mr. Palmer, can you come closer to your mike, or -- it is hard to hear you.

*Mr. Palmer. Okay. I said can you allow the next Democrat member to ask their questions? I am having some connection problems. Can you hear me?

*Mr. Rush. Yes, okay, all right. Well, we will come back to you.

Mr. Walberg of Michigan, you are recognized for five minutes.

[No response.]

*Mr. Rush. All right. Mr. Bucshon of Indiana, you are recognized for five minutes.

[No response.]

*Mr. Rush. All right. We will go back to Mr. Palmer.

Are you prepared, Mr. Palmer, now?

*Mr. Palmer. No, sir, I am not. Let me -- I am trying to get --

*Mr. Rush. Okay, we will go back to the Democrat side. Ms. Barragan, you are recognized for five minutes.

*Ms. Barragan. Well, thank you, Chair Rush, for holding this important hearing on how we reduce and eventually eliminate emissions from the transportation sector. This is critical for our climate, and for bringing cleaner air to my district. The transportation sector is the largest source of greenhouse gas emissions, and a major source of ozone emissions and particulate matter.

My district in Los Angeles County is not in compliance with the EPA air quality standards for ozone emissions and particulate matter, which leads to higher rates of cancer and respiratory illnesses. This also made us more vulnerable to COVID-19 and COVID-19 deaths. A priority of our electric vehicle policies has to be expanding access to communities of color and low-income residents who are most impacted by air pollution.

Mr. Britton, we need to think creatively on how electric vehicles access can work for people who often struggle to afford a car. One example in my district is at Rancho San Pedro, a 478-unit public housing complex that has recently launched a community car-share program named Rancho San Pedro Electric Car Share. This project brings the benefits of

electric vehicle access and mobility to residents who previously had neither. Should our policies for encouraging electric vehicle adoption be thinking outside the box about how to be inclusive, and whether that always involves ownership of a car?

*Mr. Britton. Absolutely, and I want to thank you for providing leadership in the space, especially on port electrification. I think that is another area where there is a lot of dividends, certainly for areas with disproportionate public health impacts from emissions. But certainly, we should be thinking about flexible ways to deploy electrification, whether that is on the light-duty side or on the medium and heavy-duty and, you know, potentially, forklifts and drayage trucks, the things that are, you know, an everyday part of life in the port landscape, as well. So I think we absolutely need to be flexible. It needs to be leasing. It needs to be used cars. It needs to be ride-share.

We can actually achieve the emissions reductions necessary if we are smart, and we think about all the various use cases that provide an opportunity for us to deliver a better experience to drivers and address the public health impacts that we know in your district are particularly acute.

*Ms. Barragan. Thank you for that.

Dr. Phadke, it would be helpful to get a sense of scale

for how big our investment plans need to go to eliminate emissions from the transportation sector. The American Jobs Plan includes $15 billion for a national charging network, and a total of 174 billion over 8 years, when you include electric vehicle incentives and grants. Is this enough public investment to decarbonize our transportation sector, or should we go bigger?

*Dr. Phadke. I would suggest that that is about the scale that appears to be reasonable. Just in comparison, the annual utility-sector revenues are about $400 billion. And if you look at auto-sector revenues, they are about $800 billion. So, yes, these numbers look large, but in comparison of the saving estimates that we have, they are pretty modest.

I would say that these incentives need to be matched by clear goals of electrification on zero-emission vehicles. That, in fact, in addition, could go a long way in terms of providing the investment certainty to auto makers and utilities to make those investments. So establishing a clear goal of when we should be reaching all vehicle sales to be zero emission, a technology-neutral goal, will also be critical and complementary to these investments. And that is the way to go bigger, I think.

*Ms. Barragan. Well, thank you. I just want to highlight a piece of legislation called the THRIVE Act, which

I am co-leading with my colleagues, Representatives Dingell and Clarke, which would be a good investment and a large investment in electric vehicle and charging over the next 10 years.

Mr. Britton, electric truck adoption in the goods movement system is an important part of reducing emissions in the transportation sector. Many trucks bringing cargo from ports are bringing the cargo to rail yards or warehouses well within the range of battery. Do you agree that investing in purchasing electric drayage trucks at ports could help to accelerate the adoption of heavy-duty electric trucks?

*Mr. Britton. Yes, and there is two important points here. One is that we have really sophisticated buyers in the medium and heavy-duty space, so they can, you know, see through and have a line of sight on the net present value savings that are to be accrued. The other thing that I think is really exciting about that use case is you think about induction charging, the kind of charging that, while in operation and use, can also be charging the vehicle to have continuous and unlimited charge for those use cases. So there is a lot of innovation to be had in that space.

*Ms. Barragan. Well, thank you for that. And my bill, the Climate Smart Ports Act, which is a clean -- in the CLEAN Future Act, includes grant funding for replacing diesel drayage trucks with zero-emissions vehicles. It is as much a

transportation bill as it is a ports bill.

And with that, Mr. Chairman, I yield back.

*Mr. Rush. The gentlelady yields back.

Mr. Palmer, are you prepared to question the witnesses?

*Mr. Palmer. Can you hear me now, Mr. Chairman?

*Mr. Rush. You want to try --

*Mr. Palmer. Can you hear me?

*Mr. Rush. Yes.

*Mr. Palmer. Mr. Chair, you can hear me now? Thank you. Yes, sir, I will be happy to --

*Mr. Rush. You are breaking up --

*Mr. Palmer. Thank you for your indulgence.

Okay, Mr. Siccardi, we have heard a lot about justice and environmental justice in this committee. Section 435 of the CLEAN Future Act would require --

[Audio malfunction.]

*Mr. Palmer. -- consider allowing utility companies to recover from ratepayers any type of operating expenditure or other costs with the electric utility relating to operating expenditure -- programs or investments associated with integration of electric vehicles -- the grid. In layman's terms, the electric companies can build whatever they want related to electric vehicles, and everyone with electricity service has to pay for that.

Would you consider that --

*Mr. Rush. Mr. Palmer, you seem to be -- we can't hear you well. You try to correct your technical difficulty, and we will -- I promise you, we will get back to you. But please try to -- we can't hear you at all.

All right, the chair now recognizes Mr. O'Halleran for five minutes.

*Mr. O'Halleran. Thank you, Mr. Chairman, I appreciate the time -- and ranking member.

I want to start off with a little bit of discussion about -- earlier on it was mentioned, "the American way.'' And my definition is -- that relates to this issue -- is we need to be innovative, protect our market share, to be able to be competitive in the entire environment that is out there, not go and say somebody else can take care of it and we will follow. We don't follow. We are America.

We have to identify that we need to plan for the future. This is what this is doing. And the competition side of it is -- that is what we are made of, as a country. We grew up being competitive, and not taking second place.

Research, we are doing the research now. We are moving forward with it. It would be terrible if we even thought of not addressing this in a meaningful, strategic way.

And then, obviously, recognize our competition, and stay ahead of them all the time. So thank you for that right now.

I am pleased to -- that this committee is working on

legislation to expand the use of electric vehicles across the country. I hope this is an area where we can have some bipartisan agreement on both sides of the aisle.

*Mr. Rush. Can you please --

*Mr. O'Halleran. Arizona is ready to be a leading player in this industry, with local manufacturing plants ready to roll out parts for EVs. We have two EV factories, manufacturers in the state already, with a third on its way in Arizona. The industry is opening up new, good-paying jobs for Arizonans, and will across America.

However, we must ensure that changes to the transportation sector do not leave our rural areas out. I am proud that the CLEAN Future Act includes a provision I have championed to provide grants to determine where charging stations will need to be. We want to see these charging stations built, but we need to know where to put them first. These grants would be available to communities and private entities. The data collected from this program will be available to the public. As we encourage the build-out of electric vehicles, charging stations, we need to be careful in setting up the right incentives for market competition.

We also need to make sure our electric grid can handle the increased demand that comes from more EVs, and have it much more reliable than it is today.

Mr. Jankowsky, can you tell us what successes you have

seen in getting private capital to build chargers in rural communities?

*Mr. Jankowsky. Thank you so much, Congressman, for the question. So, you know, Oklahoma and the network in Oklahoma, was built, really, through a public-private partnership with the State of Oklahoma, and it was through various funding mechanisms. One was a state tax credit. Also, Volkswagen funds that were available for DCFC in our communities.

The success, though, is not necessarily here yet, because there are not many EVs in our rural communities. However, we do have a number of success stories, and just one very quickly.

In a community called Okmulgee in Oklahoma, we put in several fast-chargers. And we started noticing utilization on those chargers going up rapidly. In fact, it was probably our best charger in our entire network. And the reason for that is some very enterprising entrepreneur decided to create a ride-share program using electric vehicles, and he uses our charging stations for his business. As a result, his operating cost to run his business have come down so significantly, because fuel is a major component of these ride-share costs. With electricity, the cost of that business has gone down so significantly that he has added more cars and more employees.

We think that is going to happen everywhere, not just ride-share, but we are going to see economies of scale and new businesses across the entire value chain created because you have that public infrastructure now, and you have now given permission to people in those communities to buy cars.

*Mr. O'Halleran. Thank you very much.

And Mr. Chairman, I have a couple of other questions, but I will yield with this final statement. We owe it to the American people to make sure we do not fall behind in manufacturing of this product, in development of these products. And we also need to understand completely that we have lost the solar market and the wind generation market. We cannot lose this market. And I yield.

*Mr. Rush. The gentleman yields back.

Mr. Palmer, I am going to ask you once again, are you ready for questioning the witnesses?

*Mr. Palmer. I am going to try one more time, Mr. Chairman.

*Mr. Rush. All right.

*Mr. Palmer. Can you hear me?

*Mr. Rush. We hear you now.

*Mr. Palmer. Can you hear me?

*Mr. Rush. Yes, quite well.

*Mr. Palmer. Okay. First of all, I want to thank you. It is ridiculous that we continue to have these virtual

hearings when most of us, if not all of us, have been vaccinated. With that said, I will go back to my questions.

Mr. Siccardi, what I was trying to ask earlier was we heard a lot about justice and environmental justice and climate justice. Section 435 of the CLEAN Future Act would require the states to consider allowing utility companies to recover from ratepayers any capital operating expenditure or other costs of the electric utility relating to load management programs or investments associated with the integration of electric vehicle supply equipment into the grid.

In layman's terms, the electric companies can build whatever cost they want to into the -- related to the electric vehicles, and everyone in the electricity service has to pay the bill. Is that just? Would it be just to the single mom that only takes a public bus has to pay for electric vehicle charging stations if she has electricity in her home? Would that be just?

*Mr. Siccardi. We think it is a problem. We don't think utilities should be able to rate-base for charging equipment. As I said a few times, it will not only pass the cost onto consumers that don't have EVs, but, on top of that, it will crowd out private capital.

*Mr. Palmer. Well, it is also interesting to note that the AARP agrees with you on that. Some minority groups agree

with that. You know, I keep trying to bring up the fact that they keep talking about climate justice and environmental justice, but there is also a problem with energy poverty, energy justice, economic justice. And they don't seem to be concerned about that, that energy cost is the most inflationary component of our economy. And it is going to have an enormous negative impact on low-income families, their ability to heat and cool their homes.

I raised the example of Pembroke Township in Illinois, town of 2,100 people, 80 percent of them are African-American. They don't have natural gas. Yet my Democratic colleagues all are opposed to natural gas. They don't want it. Yet the Reverend Jesse Jackson is working to get a natural gas pipeline in the Pembroke Township, so that those people can stop having to heat their homes with propane or, in a lot of cases, with wood-burning stoves.

Would you agree that the Reverend Jackson is doing the right thing to try to address energy injustice and economic injustice by getting a natural gas pipeline into that community?

*Mr. Siccardi. Well, I would say one of the things our industry is focused on for -- since its inception was trying to get the lowest-cost energy to consumers. And I think consumers deserve that. It helps our economy. That is our focus. The last three years have been the lowest inflation-

adjusted gasoline prices in our history. So I think consumers should have options for all sorts of fuel types to get them the lowest cost of energy.

*Mr. Palmer. So what -- if I understand what you are saying, it is you don't want a low-income family to pull up to your gas pump and have to make a decision on how much gas they can put in their tank because they are deciding between being able to get to and from whatever job they have, and putting food on their table, or helping pay for their kid's school. Is it -- you want to keep these prices low, because you understand how it impacts individuals up and down the income scale, is that right?

*Mr. Siccardi. America wins when we have low energy prices for all consumers. And yes, that is our --

*Mr. Palmer. Yes, I am not against electric vehicles. I want my colleagues on the committee to understand that.

But this bill, like many of the other green initiatives, they take choice away from Americans, and they pick winners and losers. And we have seen it with the Keystone XL pipeline. We have seen what has happened to union pipe workers versus the green activists. And I just don't think we need to have politics involved in the decision-making, and we certainly shouldn't be subsidizing millionaires' ability to buy Teslas at the expense of lower-income people who are driving used vehicles and not being able to pay their own

household bills, living in homes that are colder than they need to be, especially people who are susceptible to respiratory diseases and cardiovascular.

I just think that we are, once again, going down the wrong track with this. And again, I am not against electric vehicles. I just -- I am for fairness, I am for justice, particularly for people who are often overlooked when it comes to justice.

And I yield back.

*Ms. Blunt Rochester. Mr. Chairman?

Mr. Chairman, you are on mute.

*Mr. Palmer. Mr. Chairman, I yield back.

You are still on mute, Mr. Chairman.

*Mr. Rush. I am unmuted now, and I guess these technical difficulties are contagious.

I just wanted to just remind the gentleman that we have had hearings on energy justice, and also just to remind the member I am very familiar with Pembroke, Illinois, and I don't think that your viewpoints of Pembroke are consistent with what is really happening in Pembroke, Illinois.

With that said, I -- now the chair recognizes the gentlelady from the great state of Delaware.

Ms. Blunt Rochester, you are recognized for five minutes.

*Ms. Blunt Rochester. Thank you so much, Mr. Chairman,

and thank you for calling this important hearing, and to all of the witnesses for your testimonies today.

In Delaware we see the impacts of climate change every day. As the state with the lowest mean elevation in the country, and as the state that is urban, suburban, and rural, and coastal, we see the impacts through saltwater intrusion in our farmlands and wells, to the flooding in our neighborhood, such as Southbridge, Wilmington, and on our beautiful beaches. We can overcome these impacts and tackle the climate crisis, but we need to act now, and the transportation sector can play a key role.

The transportation sector accounts for almost a third of greenhouse gas emissions. And by reducing transportation emissions, and shifting to zero and low-carbon fuels, we can take an important step in our fight against climate change, and we can do it in ways that create good-paying union jobs, and protect our environmental justice communities.

And at this point I just want to also clarify something that has been said a few times during the hearing from some of my colleagues across the aisle, just to clarify that we are not insisting that we mandate that new car sales in the U.S. are EVs. The CLEAN Future Act does not include a mandate for EVs. We do include programs and policies that provide grants and support to build out the infrastructure needed for EVs. Additionally, we include policies that

support domestic manufacturing of EVs. We see growing interest in these cars, and we are -- and vehicles, and we are trying to ensure that drivers have reliable charging options.

So my first question is for Mr. Britton. Countries across the globe are taking steps to modernize and electrify their transportation sector. And in many of those countries, their governments are working closely with the private sector to build infrastructure to support new technologies. Earlier this year I reintroduced the Open Back Better Act, which leverages public funding to draw a private investment for energy efficiency and resiliency -- retrofits in public facilities.

How can we take a similar approach in the EV space and use public-private partnerships to build out EV charging stations and support infrastructure -- and the supporting infrastructure?

*Mr. Britton. Well, thank you for the question. I think it is important to note that other economies are racing ahead. And one of the things that we really risk is, not only falling behind, but getting caught from behind. And it is something that we have experienced in the automotive sector before.

So the opportunities here are multi-faceted. We can do something that is great for the consumer. We can do

something that addresses climate change. We can invest in domestic manufacturing. We can reduce emissions that harm public health. This is, literally, a win for everybody across the spectrum. We can also do more for rural communities that want economic development with critical materials. So everybody should be invested in getting ahead of this.

And I think that is where the public-private partnerships really exist. We have folks in what we represent as 55 separate companies, they are eager to invest. They are eager to work with local communities, with site hosts, with economic development offices across the country to get this right, and make it a win for everybody.

*Ms. Blunt Rochester. Excellent. And just to follow up on that, how can these public-private partnerships support good-paying union jobs for all Americans?

*Mr. Britton. Well, I think that is one of the exciting parts about this, is these are -- this is a stark contrast. We either invest here, and we create these jobs here in America, or we are ceding that economic opportunity elsewhere.

And when you think about the entire supply chain, certainly in the upper Midwest we have a long history of providing the parts, components, and critical materials that go into, not only your traditional vehicles, but even now

those advanced batteries. And so these are all jobs that we can be securing for our economy, or ones that we will be ceding forever. And I think Congressman O'Halleran mentioned it with some other sectors. This is a once-in-a-lifetime chance, and we either do it or we are turning our back on this opportunity forever.

*Ms. Blunt Rochester. And just to help us in Congress understand the prioritization for EV infrastructure funding, can you talk about what existing programs within the Department of Transportation or the Department of Energy we should prioritize?

*Mr. Britton. So some of the -- I think, certainly for the public-private partnerships, the loan program office at the Department of Energy is key. You think about the Vehicles Technology Office, the Advanced Technology Vehicle Manufacturing Program. You have got the Congestion Mitigation and Air Quality Program, along with the Diesel Emissions Reduction Act. These are all opportunities for us to identify either gaps or problems in our economy, and to drive resources and drive investment in R&D to solve them.

*Ms. Blunt Rochester. And my time is running out, so I will ask for a follow-up for the record, but transit agencies with bus fleets are at various stages of transitioning to zero-emission vehicles. What can Congress do to further enable those agencies, as they modernize their facilities and

fleets? If we could do that for the record, I would appreciate it.

And, Mr. Chairman, I know I am out of town, so I -- out of time, so I yield back. Thank you so much.

*Mr. Rush. Thank you very much. The gentlelady yields back. The chair now recognizes Ms. Castor of Florida.

*Voice. She isn't here yet.

*Mr. Rush. Oh, she -- no? Ms. Castor, is she -- I don't see her on the screen.

All right, now we have two -- I only see one of them on the screen right now, and it is the gentlelady from the great state of Michigan, someone who has really embedded herself in this particular issue, very knowledgeable about this issue, none other than the gentlelady, Ms. Debbie Dingell from Michigan.

You are recognized as a waive-on. We want to thank you for your -- and you are now recognized for five minutes.

*Mrs. Dingell. Thank you, Chairman Rush, for holding today's hearing, because it is so important to talk about decarbonizing the transportation sector. The CLEAN Future Act will help us accomplish this goal to meet the climate crisis head-on and, at the same time, support American jobs.

The world is going electric, and the United States has had the opportunity to lead the way. As the automotive industry makes this shift, there are going to be risks and

there are going to be opportunities. So we have got to make sure we get the policies right to not only compete, and remain the global leader for the next era, which I am very dedicated to, but to also ensure that we don't leave the finest workforce in the world behind: the American worker.

I am pleased that the CLEAN Future Act includes two bills I have authored: the USA Electrify Forward Act, and the ATVM Future Act. Together, these bills will expand the ATVM program to include medium and heavy-duty vehicles, and modernize the ATVM to help develop supply chain manufacturing in the United States with American workers. And the legislation will update domestic manufacturing conversion grant programs to include plug-in electric vehicles and components.

I would like to first start with the UAW. Mr. Nassar, I would like to focus on EV production, the current state of EV production in the United States, in our workforce. From your testimony, you make the case that the United States is falling behind in the production of electric vehicles. First, can you please elaborate more on the specific impediments auto workers are facing referenced in your written testimony?

*Mr. Nassar. Sure, and thank you for the question. You know, I would, first of all, just want to point out that we do have members that are making, you know, battery electric

vehicles, plug-ins, and this sort, and we need to just make sure that we are creating a whole lot more of those good jobs. But I just want to say that, just because it is a new job, and a battery job, or from a startup, we cannot say with confidence that those are good jobs. We -- that is yet to be seen.

When you are talking about what our membership and manufacturing workers are dealing with -- and we are still in the middle of this pandemic, first of all, you know, blue-collar folks have had to take it really hard in there, they don't have the luxury of working at home like we do.

Then you look at the situation where, you know, we have this massive, you know, supply chain problem with semiconductors, which just points to the fact that we really have neglected our supply chains for a long time, not to mention we have tax policies that are, you know, costing us jobs and are perverse.

We have a lot that needs to be done. We also need to train more folks --

*Mrs. Dingell. Now --

*Mr. Nassar. -- to come into manufacturing.

So I would just say this. At the end of the day, what we need to do is we have to make sure that we are attaching government funding to labor standards, and making sure the work is in the U.S. If we do not, the trends are going to

continue in the wrong direction, and there is no assurance that the auto jobs of the future are going to be the good jobs that we are accustomed to. There is no assurance of that, whatsoever. So I hope that helps with the question.

*Mrs. Dingell. So what happens if Congress doesn't invest in the EV infrastructure?

*Mr. Nassar. Quite simply, what is going to happen is, first of all, you are going to have an EV market that is continually dominated by the very wealthy. You are not going to have cars becoming cheaper and more affordable, and you are not going to have the adoption rates, and then you are going to have less manufacturing of it here. Most vehicles made, you know -- or sold, rather, close to where they are made. We are going to lose supply chains. A lot of bad trends are just going to continue and become, actually, much, much worse, especially over time, as more of the fleet becomes EVs, and fewer percentage becomes the traditional engine.

So this is the chance to act. If we don't act, we are going to -- I am convinced that we will be regretting it for many, many, many decades.

*Mrs. Dingell. I have got one minute left, and I was going to ask both you and Mr. Britton, so I will ask Mr. Britton this, but I am going to do more questions for the record.

Mr. Britton, could you speak to the importance for your members of expanding programs and modernizing the ATVM to enable component manufacturers to participate in the program?

*Mr. Britton. Yes, ATVM has been part of the progenitor story for many companies in the advanced vehicle space, and it is very important. Certainly your upgrades to the program to expand it to medium and heavy-duty, where there is more innovation to be had, and companies like Proterra, that I think are very interested in the program, so I think it is really, really important.

The one thing I would also add is, if there is any doubt about the economic potential here, I think folks need to go back and look to two weeks ago, where the GM LG Chem advanced battery plant was announced in Tennessee. The Republican Tennessee governor called it the single greatest investment in economic development in the state's history. So I think there is a consensus here that we have to take this seriously, but the rewards are not elusive. We can see the material progress on economic development, and job creation, and something that we can really achieve, and I think your leadership is driving that through programs like ATVM.

*Mrs. Dingell. So I have more questions that I would like to submit for the record, Mr. Chairman.

I would also like to request unanimous consent to submit two documents into the record. The first is a recent

background report by the Blue-Green Alliance, United Steelworkers, UAW, and the AFL-CIO that reviews factors likely to drive U.S. job gains and job losses related to the electrification of the U.S. and global vehicle fleet, and the second is a recent joint letter by the Alliance for Automotive Innovation, MEMA, and UAW to President Biden that highlights the need for a comprehensive national vision and strategy for electrification, and the policies that will help us get there.

[Pause.]

*Mrs. Dingell. Mr. Chairman?

*Mr. Rush. The chair will entertain your UC request at the conclusion of the members questioning.

And the chair now recognizes the other waive-on to the subcommittee, Ms. Clarke of New York, for five minutes.

*Ms. Clarke. Thank you, Mr. Chairman, Chairman Rush, and Ranking Member Upton, for convening this important hearing on the future of our transportation sector. And let me also thank our witnesses for your testimony today.

I am very optimistic about the opportunities we have before us to fully electrify our nation's transportation sector. Our colleague, Mr. Butterfield, remarked earlier during his statement and line of questioning that this is about our future. I would like to add that our future is now.

Right now, transportation is not only our nation's largest contributor to the climate crisis in communities like mine in the district in Brooklyn; it is also a major source of air pollution that contributes to the disproportionate health outcomes we see around asthma, heart disease, and even premature death, which the COVID-19 pandemic has now exacerbated.

*Voice. No --

*Ms. Clarke. The transition -- okay, let's mute, everyone.

The transition to electric vehicles presents us with the opportunity to tackle these disparities head on, by decreasing air pollution in the communities that have been suffering for decades, and most profoundly.

But while I am optimistic, I am also cautious. History has shown us very clearly that, unless we act with intentional -- intentionality and purpose, the communities who have most to gain from a clean transportation sector will also be the last to receive the least amount of benefit. And that is exactly why I have introduced H.R. 1221, the Electric Vehicles for Underserved Communities Act, which I am happy to see under consideration in this legislative hearing.

On day one, my legislation would direct the Department of Energy to commence a nationwide assessment of the EV charging infrastructure in underserved communities in both

urban and rural areas. This assessment would specifically gather data about the quantity and location of publicly-accessible level two charging stations and DC fast-charging stations. So for light-duty and medium-duty electric vehicles.

It would also identify current barriers and opportunities to greater and more equitably put out charging deployment.

Mr. Britton, how would this major study help companies and communities target their charging build-out and clean transportation services towards the areas that need it the most?

*Mr. Britton. Thank you, Congresswoman Clarke, and we are proud endorsers of the legislation, and thank you for your leadership on it.

One of the important things about sequencing charging infrastructure build-out is that it paves the way for adoption of the vehicles. And obviously, adoption of the vehicles leads to emissions reductions and public health gains.

And so the most important thing I think we can do -- it is kind of a twofold step -- one is that your bill is shining a light on not only the need, but also the impediments, and how we can knock down those barriers; but two are the incentives, whether those be tax credits or rebates, in order

for us to actually deploy the infrastructure and make this a reality.

*Ms. Clarke. Mr. Jankowsky, the same question to you. What do you see as the benefits to underserved communities of this nationwide assessment?

*Mr. Jankowsky. Oh, Congresswoman Clarke, thank you again. We are very much with Mr. Britton, and support 1221. We think a competitive grant process is going to entice private capital to come into underserved communities, whether it is rural or urban communities, and build out this infrastructure.

*Ms. Clarke. Thank you very much, and so my legislation would also establish an EV charging equity program at the Department of Energy to invest $960 million in federal grants over the next 10 years to help deploy over 200,000 EV stations.

So, Mr. Britton, how would this federal support expand investment and deployment of not only EV charging infrastructure, but also the services many ride-share and last-mile transportation companies are striving to provide?

*Mr. Britton. Well, I think what your leadership has, I think, shown is that it is important to engage the community. So we can't tell a community what the best way for them to electrify their transportation sector is. Every community is different. And I think what you noted is important, is that

for some folks it might be a light-duty vehicle. For others, it might be transit, and school buses, and those last-mile medium and heavy-duty delivery trucks. And so, providing the infrastructure paves the way to make emissions reduction, and the public health gains, and our ability to address climate change possible.

And so, without those sort of markers and market signals to the private sector to go in and to leverage those resources, I agree that we will be missing an opportunity to drive benefits in every community.

*Ms. Clarke. Very well. Mr. Chairman, thank you for allowing me to waive on, and I yield back.

Don't forget to unmute, Mr. Chairman.

*Mrs. Dingell. Mr. Chairman, you need to unmute.

*Ms. Clarke. We hear you now.

*Mr. Rush. All right. That concludes the witness questions.

*Mrs. Dingell. Mr. Chairman?

*Mr. Rush. And I especially want to thank all the members, and all -- particularly, all the witnesses for their participation in today's hearing. This has been a very, very informative, worthwhile hearing, and we thank you for your patience and for your contribution to this hearing.

I must remind members that, pursuant to committee rules, they have 10 business days to submit additional questions for

the record to be answered by the witnesses who have appeared with us today. And I ask each of our illustrious witnesses to respond promptly to any such questions that you may receive.

Before we adjourn, though, I request unanimous consent for entering the following documents, testimony, or other information into the record. And I am trying -- I am going to ask the ranking member -- I think who is driving an EV right now on the committee hearing.

Mr. Ranking Member, is there any objection on the Republican side to inserting these into the record en bloc?

*Mr. Upton. No, Mr. Chairman, I have got no reservations. I would note I am not driving an EV, I am driving a Jeep, getting 30 miles to the gallon, so I am doing pretty well.

But thank you for the hearing, and I appreciate the witnesses' attention, too.

And it is a six-speed stick.

*Mr. Rush. Okay, so the question is, is there any objection to entering -- we have 22 documents. Can we enter these into the record, without objection?

*Mr. Upton. No objection.

*Mr. Rush. Thank you. Now, before we adjourn, I think Mrs. Dingell had an additional remark.

*Mrs. Dingell. I am just making sure what I had wanted

to introduce into the record before could be introduced, Mr. Chairman.

*Mr. Rush. Right. All right. Well, now 22 documents, including the documents of Mrs. Dingell -- documents today. And without any objection, these are entered into the record, and they are a part of the record.

Now, at this time, the subcommittee stands adjourned, and the subcommittee is adjourned.

[Whereupon, at 3:11 p.m., the subcommittee was adjourned.]