United States House of Representatives
Select Committee on the Climate Crisis

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"Solving the Climate Crisis:
Manufacturing Jobs for America's Workers"

Questions for the Record

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The Honorable Kathy Castor

1. **Do you support the United States rejoining the Paris climate agreement? If yes, why?**

Yes, we strongly support rejoining the Paris climate agreement. It is painfully clear to our members that the climate crisis is real, and its scope is global. International cooperation and commitment to action, like the Paris Climate Agreement, are a must for addressing the crisis. Failing to take concrete steps to address climate change at the global level puts us on an unsustainable course. Ignoring climate change only creates risks for our national security and our planet, but it is also a direct threat to our jobs, and an even bigger threat to the jobs and quality of life enjoyed by future generations. This is why the UAW supports a broad policy agenda to address climate change, including emissions regulations, investment in sustainable infrastructure and the green economy, and international cooperation.

The UAW, based on experience, rejects the idea that fuel efficiency and environmental regulations lead to closed plants and lost jobs. Protecting the environment is not inherently bad for the economy and solutions exist all around us. Fuel-efficient vehicles, clean energy, clean manufacturing, renewable energy and other advanced technologies are an opportunity to create new middle-class jobs with good pay, good benefits and economic security. Our economy is changing in real time and UAW members already design and build advanced cars and trucks, advanced engines and transmissions, lighter materials and other advanced green products.

Consumers and governments worldwide expect greener products. Europe and China are developing advanced green technologies at a brisk pace. Products for a green economy should be made here but we fear they will not be if we remain on the current course in Washington, D.C. The United States must be a producer and exporter of advanced technology products, not jobs. We have an obligation to safeguard the future of our jobs, families, communities and our planet.

2. **Please discuss technologies and components that are being manufactured in the United States today by UAW members to reduce emissions and improve efficiency.**

The UAW represents 225,000 workers in auto vehicle and auto parts manufacturing, many of whom are working to produce vehicles and components with improved efficiency and reduced emissions. Whether it is electric vehicles (EVs), autonomous vehicles (AVs), plug-in hybrids (PHEVs), more efficient internal combustion vehicles, or other key vehicles components optimized for efficiency, UAW members are already building the vehicles of the future. To ensure that the UAW members build the next generation of advanced technology vehicles, we need policies that promote investment in domestic production of the latest technologies.

Electric Vehicles & Plug-In Hybrids: UAW members are playing a role in the development of PHEVs, EVs, and AVs. Currently, the UAW represents around 1,600 workers at General Motors' Orion, MI assembly plant where the Chevrolet Bolt electric vehicle and Cruise autonomous test vehicle are produced. Automakers have announced future investments that will bring additional EVs and PHEVs to UAW-represented assembly plants. These include:

- GM plans to build a second EV at its plant in Orion MI.[1]
- Ford will build the 2020 Ford Escape PHEV in Louisville, KY,[2] is upgrading its Chicago, IL assembly plant to make the hybrid Ford Explorer and PHEV Lincoln Aviator,[3] and plans to build a new EV in Flat Rock, MI.[4]
- Fiat Chrysler plans to build a Jeep Wrangler PHEV in Toledo, OH[5] and is preparing three assembly plants in Michigan for future plug-in hybrid production of Jeep vehicles.[6]

The UAW advocates for automaker investment in the domestic production of advanced technology vehicles in order to create quality jobs. But other decisions by automakers raise concerns about their commitment to US production of advanced technology vehicles.

- GM ended production of the Chevrolet Volt plug-in hybrid in February 2019. The Chevrolet Volt was made at GM's Detroit-Hamtramck plant, which GM has declared "unallocated" for future products.[7]
- Ford ended production in Wayne, MI of the C-Max Energi plug-in hybrid and the Ford Focus Electric EV in 2018.[8]
- Ford is beginning production of its first EV SUV in Cuautitlan, Mexico starting in 2020.[9]

More Efficient Traditional Vehicles: Electric vehicles and plug-in hybrids are just one part of a broader trend of improved fuel economy and reduced emissions in the auto industry. In the past decade, real world fuel economy has improved across all vehicle segments, from sedans to pickups.[10] UAW members not only assemble many of those vehicles, they also produce key components that improve vehicle efficiency.

For example, the UAW represents roughly 25,000 workers in automotive engine and transmission assembly in Indiana, Michigan, New York, Ohio, and Tennessee. Many of these workers are producing the latest technologies in internal combustion engines that are driving incremental improvements in fuel economy and emissions reduction fleetwide, such as engines with turbocharging, direct fuel injection, and cylinder de-activation or transmissions with 9 or 10

speeds. UAW members build cutting edge technologies in the heavy duty as well light duty motor vehicle sector.

Continued investment in US manufacturing to producer cleaner, more efficient products show that future technology trends in the auto industry can be a win-win for workers and the environment. This win-win is only possible if manufacturers commit to investing in production in the U.S., government trade and industrial policies promotes U.S. production of advanced technology, and workers have a voice in the workplace to ensure the resulting jobs provide quality pay, benefits, and safety. Congress needs to make sure our laws provide sufficient incentives for domestic investments and remove perverse incentives that favor foreign investments over domestic.

3. **What are other countries doing to secure their piece of the market in the global clean vehicle economy? What can we learn from them?**

The auto industry is facing a new shift in technology with the proliferation of electric vehicles (EVs). This shift is an opportunity to re-invest in U.S. manufacturing. But this opportunity will be lost if EVs or their components are imported or made by low-road suppliers who underpay workers. In order to preserve American jobs and work standards, what is needed is a proactive industrial policy that creates high-quality manufacturing jobs making EVs and their components.

Other countries are ahead of the US on creating an EV supply chain by proactively promoting domestic production. China is promoting domestic production of EVs and EV components by favoring domestic firms and subsidizing its domestic EV market. Because of these policies, automakers are orienting their EV strategies toward China. And European countries have recognized that EVs could lead to key vehicle components being imported and are taking actions to promote a domestic supply chain.

Will the U.S. Lose Out on the EV Supply Chain?
No one knows for sure. Unfortunately, this is a distinct possibility. Automakers, governments, and other key stakeholders have shown a commitment to develop and produce EVs. Where those vehicles and components will be made remains an open question.

A January 2019 *Reuters* analysis of automaker investment announcements found over $300 billion in pledged investment for vehicle electrification, with $39 billion announced by U.S.-based automakers, $139.5 billion from Germany-based automakers and $57 billion from China-based automakers. However, the report also found a large portion of those investments from U.S. and German automakers are destined for China to address the country's tightening EV regulations.[11]

Besides competition over where EVs will be assembled, there is a global competition for control of the new EV value-chain. The prime example of this race is lithium-ion batteries. Lithium-ion batteries are the most valuable component in EVs. This has sparked a race to develop the production capacity to meet growing battery demand and it is this race that will determine the geography of much of the EV value chain.

Based on developments so far, the U.S. is falling behind Asian and European countries in lithium-ion battery capacity. It is projected that by 2023, 62% of battery manufacturing capacity will be in China and another 14% will be in Europe. North America will only have 12% of global battery production capacity.[12]

China & Europe Are Taking Action: How are other countries getting ahead on electric vehicle technology? It is through industrial policy that uses targeted, proactive policies to increase demand for EVs and promotes domestic production of vehicles and components.

For example, China has set ambitious targets for the new energy auto industry. This includes a sales target of 1 million EVs and plug-in hybrids in 2020 and 3 million in 2025. It calls for 80% global market share in EV batteries and electric motors by 2020, and to have two Chinese OEMs enter the global top 10 in sales by 2025.[13]

China has increased demand from consumers by offering a variety of purchase subsidies, tax breaks, and in-kind benefits to EV buyers. China has also stimulated demand through government procurement policies that mandate a portion of vehicle purchases are EVs or hybrids. As a result, China is leveraging its position as the world's largest automotive market and leading the world's largest automakers to orient their EV strategies toward China.

China has structured these incentives to support domestic production. For example, consumer subsidies are only applied to cars with government-approved batteries that favor Chinese-made batteries and government procurement is directed toward domestically produced vehicles.[14]

It is not just China that sees the importance of the new EV value chain. The European Union and its members countries have recognized that the lack of a domestic battery manufacturing base will undermine the region's competitiveness,[15] especially if the growth of EVs leads to key vehicle components being imported from elsewhere.

In a speech to the EU Members of Parliament, Vice President of the European Commission Maroš Šefčovič put the issue in stark terms. "*The European battery market is expected to create four to five million new jobs. These can be jobs here in Europe or somewhere else*".[16]

To address these concerns, steps are being taken by European governments to develop a European-based EV supply chain. For example:

- In October 2017, the European Commission announced the creation of the European Battery Alliance. The goal of the alliance is to develop a "complete value-chain" for manufacturing batteries in Europe[17] by coordinating with governments and stakeholders throughout the battery supply chain, including major European companies in the chemical, automotive, and engineering sectors.[18]
- In April 2019, the French and German governments announced plans for a state-subsidized battery cell consortium between automaker PSA, its German subsidiary Opel, and French battery maker Saft that will result in large battery factories in each country.[19]

Policy Lessons to Lead on EVs: What is needed is a proactive industrial policy that promotes the production of EVs and their components in the U.S. under higher road conditions that benefit American workers and the communities that rely on manufacturing jobs.

- **Infrastructure**: Vehicle electrification requires building a charging infrastructure for drivers and upgrading our energy infrastructure to meet electricity demand while ensuring electricity production is as green as the EVs themselves. This is an opportunity to create quality jobs to build, install, and maintain EV infrastructure.
- **Training**: Workers will need new skills and displaced workers will need re-training programs. Strong industrial policy should include every effort to re-train and place workers in quality jobs, provide strong economic support for workers during transition periods, and create robust government jobs programs to guarantee quality jobs for all those seeking work. We must expand training and apprenticeship programs that anticipate the types of future skills needed to produce, install, operate, and service products and equipment that utilize the new technologies which will be transforming our workplaces.
- **Trade and Tax Policy**: The economic potential of EVs will be lost if their components are imported. Advanced vehicle technology should be treated as a strategic sector to be protected and built in the U.S. Trade and tax policies should be aimed at ensuring EVs are manufactured in the U.S.
- **Tax policy should incentive domestic manufacturing**. Sadly, the opposite is often true today. Tax policies must hold companies accountable for eliminating jobs domestically by moving their operations offshore.
- **Environmental Policy**: Strong environmental standards can be structured as a win-win for the environment, workers, and the economy. Environmental policy should be used to address climate change while also promoting investment in future technologies that create quality jobs in the process.
- **Manufacturing Incentives:** Government incentives can promote production of EVs and EV components in the U.S. Such incentives should be used in a targeted way to promote a domestic EV supply chain and enforce high-road manufacturing practices.
- **Government Procurement**: Government EV fleet purchases, from cars to public transportation, can be a tool to spur demand and create cleaner transportation. Such purchases should be used to promote high-road jobs by considering where vehicles are assembled, their level of domestic content, and the labor conditions under which they were produced.
- **Consumer Incentives**: Consumer incentives are a tool to create a robust domestic EV market. This will encourage companies to orient their EV strategies toward the U.S. market. Consumer incentives should also be used to promote high-road domestic EV production. Incentives should be based on where the vehicle and its contents were produced and under what labor conditions.

4. **In your testimony, you referenced new technologies such as autonomous vehicles. What policies should Congress adopt to ensure that new technology trends in the transportation sector are good for the environment and for workers?**

While autonomous vehicles are in the early stages of development and years away from widespread deployment, it is important to establish standards today that ensure AV producers and operators are accountable to key stakeholders tomorrow. Advocates for AVs point to many potential benefits in safety, sustainability, and mobility, but those goals will only be fully reached if we have policies that take into account the impact AVs will have on jobs, communities, and the environment.

There is little dispute AVs will be disruptive. One study predicts that autonomous passenger vehicles and heavy-duty trucks could combine to eliminate 1.3 to 2.3 million workers' jobs by 2050, with most job losses occurring in the latter years. [20] Many more jobs will be radically changed. Congress should promulgate regulation and policies that provide a comprehensive plan for addressing job displacement for workers in the transportation sectors. Unlike inadequate retraining programs meant to address job losses due to unfair trade policies, workers and communities should be held harmless from rapid technological change. AV regulations should ensure that the pace of AV deployment is driven by safety, security, sustainability, and efficacy and not used as a strategy to cut costs and destroy quality jobs. It is incumbent on Congress to ensure this transition is just. The UAW believes Congress should enact legislation that not only ensures American firms are global leaders in advanced transportation technology, but that affords American workers a just transition.

Developing Domestic Supply Chains**:** The mass production of AVs will create a valuable and strategic new supply chain in AV-specific components related to electronics and electrical architecture, semiconductors, graphic processing units, computer processing units, lidar, radar, cameras, and other sensors. As with EV-specific components, these AV-specific components represent an economic opportunity to reinvest in US manufacturing to produce the most advanced vehicle technology.

This opportunity will be lost if these key AV components are simply imported. Too often, corporations develop new products in the U.S., but outsource manufacturing to low-cost countries with weak labor and environmental regulations – limiting the environmental benefits of electric-autonomous vehicles. Based on historical experience, once these supply chains are established outside of the U.S., they will be difficult to re-shore. Federal policy must strongly incentivize investment in and production of advanced technology components and vehicles in the U.S. The UAW recommends:

- Research and Development Grants Tied to U.S. Production: Federal support for AV research and development should include incentives or mandates that commercialized production is done in the U.S.
- Federal Subsidies for Manufacturing of Cutting-Edge Products: Federal subsidies for manufacturing of AVs and AV components can be an important tool to incentive domestic production and should be targeted in a way that develop a full supply chain of domestically produced AV-specific components.

- Support Trade Policy That Protects Strategic Cutting-Edge Components: Trade policy should include safeguards for domestic production of strategic parts to ensure workers benefit from the new technology and the technology is made with the highest levels of safety and security.

Developing an Infrastructure for the 21st Century: New infrastructure will be required to regulate how AVs interact with their surroundings, including re-investment in traditional infrastructure and the development of new 'smart' infrastructure. Building new infrastructure is an opportunity to create quality jobs by mandating high-road labor standards and incentivizing the use of domestically manufactured equipment. The design of AV infrastructure must fairly address the concerns of key stakeholders and prioritize safety, quality job creation, environmental sustainability, and the well-being of local communities where the vehicles are being deployed.

A recent study found that on-demand transportation, which in the future may include autonomous vehicles, has significantly increased vehicle congestion.[21] Increased congestion could offset some of the freedom of movement and reduced environmental impact that electric AVs promise. A well-designed public transit system could counteract these inherent problems. Going forward, public transit should be the anchor that allows for proper and limited use of AVs. Requiring integration with a metro areas mass transit system would allow for public input on a system's priorities, its environmental impact, and job quality.

Developing a Just Transition for Workers: Federal AV regulations or policies must include a comprehensive plan for addressing job displacement for workers in the transportation sectors, including negotiating job protections and retraining programs with labor organizations and funding a robust safety net to support displaced workers and provide them with new jobs. The burden of technological change should not be carried by working people.

The government should intervene to help identify, and train workers for, the high value-added jobs associated with autonomous vehicles. AVs will also create new types of transportation jobs. AV testing and fleet operation will require safety drivers, software operators, remote drivers, dispatchers, mechanics, cleaners, call center operators or customer service workers. Any AV operator that receives public support or permission to use public infrastructure should have to meet job quality standards. It is vital that the AV industry is not modelled on the "gig-economy", with low-wages, contract labor, lack of benefits, and job insecurity. If these jobs are going to offset some of the job displacement of AVs, they must be good paying jobs that come with benefits, safety, and a voice in the workplace.

5. **Congress has provided incentives for consumers to expedite deployment of electric vehicles. When crafting these incentives, how can Congress ensure workers benefit from this expanding sector?**

Incentive programs to promote EV adoption must strongly encourage domestic production and high-quality jobs for workers to stabilize the middle class. Programs must be designed to promote manufacturing motor vehicles, batteries and components on U.S. soil and to hold manufacturers accountable for working conditions. For far too long, companies have received extensive support from taxpayers only to turn around and shirk their responsibilities to U.S. workers and our economy.

Publicly funded incentives are an essential component to stimulating a robust EV market. There continue to be barriers to widespread adoption of EVs. One major reason is higher vehicle prices, driven by the high cost of EV batteries. Although analysts project that electric vehicles will likely become price competitive with traditional vehicles in about a decade,[22] EV sales would need to accelerate on a shorter timeline in order to reduce emissions and combat the climate crisis.

Incentives with labor standards should be required for all EV consumer incentives programs, government procurement policies, and manufacturing subsidies.

Consumer incentives for vehicle purchases or residential charging installations are a policy tool that can increase the adoption of cleaner vehicles and nurture this new market. Consumer incentives should also be used to promote quality domestic jobs manufacturing EVs by considering where the vehicle was assembled, the level of the vehicle's domestic content, and the conditions under which the vehicle and components were produced, including wages, benefits, health and safety, and freedom of association.

In addition to labor standards, it is critical that EV incentives are offered across all types of passenger vehicles. Nearly all EVs and PHEVs available for sale in the last few years have been sedans, with few options for larger vehicles. Yet, consumers have moved away from sedans in favor of crossovers, SUVs, and pickups. Nationwide, car sales declined by 30% between 2013 and 2018, while all other segments grew.[23]

Reaching mass-adoption of EVs and PHEVs will require electrifying larger vehicle segments. Manufacturers are expanding beyond EV sedans and are starting to offer models that will include pickups, crossovers and SUVs. Consumer incentives for PHEVs and EVs should be structured to encourage automakers to offer electrified options in all segments.

For electrification to reach the broadest swath of consumers and vehicle segments, incentives should always include PHEVs. PHEVs are an important option for consumers who live in regions with limited charging infrastructure because they can combine gas and electric mileage for longer range. PHEV are often a more affordable option as well. The 2018 sales weighted average MSRP for PHEVs was more than $10,000 cheaper than for EVs.[24] It is also likely that the first electrified versions of many larger vehicles will be PHEVs, with full EVs coming to market later.

Procurement Policy: Government EV fleet purchases, whether it is cars or public transportation, can be a tool for spurring demand and creating cleaner transportation. And EVs are well-suited for fleet purchases due to their operating cost advantages.[25]

These purchases can also be a tool to push EV production toward a high-road path, by conditioning such purchases upon standards of social responsibility. Such purchase policies would incentivize manufacturers to establish a production footprint in the U.S. and ensure that production has the positive economic impacts that come with quality manufacturing jobs.

Manufacturing Incentives: The electrification of the auto industry is still in its early stages and auto manufacturers are responding to a combination of regulatory requirements and consumer demand. The next few years will see the introduction of many new EV models, with nearly all major automakers setting ambitious goals for EVs and plans to spend over $300 billion globally to transition to electric vehicles.[26]

While some manufacturers have made plans to invest in domestic EV production, without additional policy guidance and market growth, much of the industry could move overseas, compromising the quality of jobs and vehicles.

Policymakers should consider programs to stimulate investment in domestic EV assembly, including retooling existing plants, building new plants for EV assembly, as well as building batteries or other components. Such programs should ensure high quality jobs, and opportunities for workers to transition from building conventional combustion engines or parts to electric vehicles without loss of wages and benefits.

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