



INTERNATIONAL UNION, UNITED AUTOMOBILE, AEROSPACE & AGRICULTURAL IMPLEMENT WORKERS OF AMERICA – UAW

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**Building a Workforce to Navigate the Electric Vehicle Future for House Research and Technology
Subcommittee Submitted by Josh Nassar
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Chairwoman Stevens, Ranking Member Feenstra, and members of the Subcommittee, on behalf of the over one million active and retired members of the International Union, United Automobile, Aerospace, and Agricultural Implement Workers of America (UAW), UAW President Ray Curry, and the UAW International Executive Board (IEB), I want to thank you for the opportunity to share our perspective on workforce issues pertaining to electric vehicle manufacturing. It is my honor to appear before you today.

Importance of the U.S. Motor Vehicle Industry

The United States' motor vehicle industry is advanced, competitive, and the cornerstone of American manufacturing. The domestic vehicle assembly and parts industries are vital to our manufacturing base, and it is imperative that we stay strong and competitive now and into the future.

The majority of our members and retirees work in or have retired from the auto industry. They are directly impacted by decisions made in Washington, D.C., and corporate boardrooms. Investments in motor vehicle manufacturing jobs impact workers, their families, and communities. Over 900,000 people work in the auto and auto parts manufacturing sectors.¹ The economic impact of the auto industry reaches far beyond workers employed at the plants and their families. According to the Center for Automotive Research, the auto industry is responsible for over 7.25 million jobs nationwide when jobs from other linked industries are considered.² The long-term health of the industry is critically important to both workers and the economy at large.

Auto manufacturing is not regional and extends well beyond the upper Midwest. For example, in the past year, significant investments in motor vehicle and battery manufacturing have been announced in Tennessee, Georgia, Michigan, North Carolina, and Kentucky. The auto industry's supply chain extends far and wide throughout the country.

¹ Bureau of Labor Statistics, "Automotive Industry: Employment, Earnings, and Hours", <https://www.bls.gov/iag/tgs/iagauto.htm>

² Hill, Kim, Deb Menk, Joshua Cregger, and Michael Schultz. "Contribution of the Automotive Industry to the Economies of All Fifty States and the United States." Center for Automotive Research. January 2015.

Headwinds Facing Workers and Auto Sector

U.S. auto workers face serious headwinds stemming from many quarters, including weak labor laws that fail to protect workers' rights to join a union, bad trade deals that put the interests of investors before workers, and misguided tax incentives that permit corporations to pay fewer U.S. taxes on profits earned overseas than those earned within our borders and allow some corporations to pay no corporate taxes at all. Over the past several years, U.S. automotive production workers' wages have fallen significantly. When adjusting for inflation between January 2006 and January 2021, average hourly earnings for production workers in auto assembly declined by 21% while wages in the auto parts sector have decreased by 19%.³

Decades of trade and tax policies have put the interests of corporations and Wall Street executives before workers, adding to the impediments workers face. Corporate-driven trade agreements that pit workers against one another have also played a significant role in eroding wages and working conditions. For decades, workers often face both direct and implied threats if they attempt to form a union. On countless occasions, employers have threatened to close their plant and move to Mexico when workers fight for job security, better wages, health and safety improvements, and retirement security. Veiled threats hurt workers at the bargaining table as companies often coerce workers into accepting lower wages for fear that the company will ship their jobs abroad.

These challenges need to be addressed, especially during this time of change as the motor vehicle industry transitions from fossil fuel to electricity. For this transition to benefit auto workers, the entire supply chain, from the gathering of minerals needed to power batteries to the manufacturing of the battery and other parts to final assembly, must support the creation and preservation of good union jobs. Of course, it is far from certain that growth in EV sales will lead to more good union jobs.

We are witnessing production launches by several start-ups with many more to come. If new entrants are hostile to unions and provide subpar wages and benefits, it will further erode job quality in the industry. This is not a theoretical concern as foreign-based automakers typically resist efforts to unionize in the United States. This strong opposition exists even though every foreign-based light duty Original Equipment Manufacturer (OEM) is unionized in its own country. A report by Professor Gordon Lafer details the array of tactics foreign-based automakers have utilized to prevent unionization.⁴ Professor Lafer's research serves as a strong reminder as to why we need labor law reform as Congress has not strengthened our nation's labor laws in over 85 years.

In the auto industry, Toyota, Nissan, Hyundai, Mercedes-Benz, BMW, Volkswagen, and Honda have all hired "union avoidance" specialists to guide their anti-union campaigns in the United States. Nissan's anti-union campaign led the National Labor Relations Board (NLRB) to issue a formal complaint charging the company with twenty-four counts of lawbreaking. The fact Nissan engaged in such tactics so soon after having been forced to post public notices vowing to respect the law is a testament to the near total

³ Bureau of Labor Statistics. "Average hourly earnings of production and supervisory employees." Series CEU3133610008 & CEU3133630008, Data from January 2006-January 2021. Adjusted using BLS CPI Inflation Calculator.

⁴ Lafer, Gordon. Labor Education and Research Center. "Building Back Better or building back worse?" Online at BuildingBackReport.pdf (cpb-us-e1.wpmucdn.com).

absence of meaningful penalties under current law. All of Nissan's plants in other countries are unionized.⁵ The experience of autoworkers seeking to have a voice on the job highlights the need to strengthen and modernize our anemic labor laws. In fact, Congress has not strengthened the National Labor Relations Act (NLRA) since its passage in 1935. Fortunately, the House took a key step last year by passing the Protect the Right to Organize (PRO) Act. The PRO Act strengthens penalties against employers that violate workers' rights, prohibits captive audience meetings, provides for mediation on first contracts, supports a worker's right to strike for basic workplace improvements, and repeals so-called "right-to-work" laws. The passage of the PRO Act would go a long way in ensuring that our existing workforce is protected by strong labor laws which allow them to bargain for fair wages, access to health care, health and safety protections in the workplace, and dignified retirement. The PRO Act is also beneficial for workers seeking to organize a union, affording them critical protections and benefits they deserve as we make this EV transition. It is unclear at this moment in time if these workers will rightfully join the ranks of our existing members or if they will have to fight for a union. We know all too well the intense anti-union antics that workers face when they try to form a union. The recent Amazon and Starbucks campaigns are a good case in point. Corporations like Amazon spends millions of dollars to hire anti-union consultants to interrogate and intimidate workers when they seek union representation.⁶ It has become all too common for employers to threaten relocation or shutting down operations if workers seek to form a union. We urge the Senate to follow the House's lead by passing the PRO Act so it can be signed into law by President Biden.

It is also reasonable to tie strong labor standards to EV tax credits to incentivize consumers to purchase union-made, American-made electric vehicles as exemplified by the Kildee-Stabenow EV tax credit in the House-passed Build Back Better Act.

Misguided tax laws also present a formidable challenge to workers. For example, a company with \$100 million worth of tangible offshore assets pays no U.S. taxes on the first \$10 million of foreign profits they report. A lengthy list of companies end up paying no U.S. taxes on foreign earned profits. Provisions in our tax laws create perverse incentives for U.S. corporations to move real investments offshore, along with the manufacturing jobs that go with them. These incentives will become greater over time if they remain in place.

Procurement decisions that ignore the impact on workers is another problem that we cannot afford to ignore. Case in point, in February 2022, Oshkosh Defense was awarded a contract to design and build the next-generation vehicles for the United States Postal Service (USPS). Oshkosh Defense is a defense contractor that manufactures products for the U.S. military in its unionized plants in Oshkosh, Wisconsin. Oshkosh workers have been UAW members since 1938. Despite these facts, Oshkosh, upon winning the contract, announced they are planning to take the \$6 billion contract to a new, non-union plant in South Carolina instead of having UAW members in Wisconsin carry out this lucrative contract by building the next-generation vehicles in Wisconsin. It is far from clear that USPS gave any meaningful consideration

⁵ Lafer, Gordon. Labor Education and Research Center. "Building Back Better or building back worse?" Online at [BuildingBackReport.pdf \(cpb-us-e1.wpmucdn.com\)](#).

to the impact on workers and communities when awarding this significant contract. Our procurement policies need to hold employers accountable and support working families.

Supply Chain Resiliency

Lack of supply chain resiliency is yet another headwind facing autoworkers, their families, and the communities they live and work in. The ongoing pandemic continues to negatively impact the motor vehicle industry regarding both production and demand as there are still over 95,000 cases per day. As we are all painfully aware, the global coronavirus pandemic is by no means over and will take years until we fully appreciate the profound impact it has had on our country and the world.

When it comes to the motor vehicle sector, the lack of resiliency in our global supply chains has demonstrated that the slightest disruption can have significant impacts on working people and the economy. Our members have been severely impacted by the pandemic-driven shortage of automotive-grade semiconductors. Production at numerous U.S. plants has been idled and tens of thousands of workers have been laid off, with ripple effects across the automotive value chain.

The current shortage is relevant to this hearing. EVs and AVs are heavily reliant on semiconductors. An EV autonomous vehicle will have over a thousand dollars' worth of semiconductors. The average EV has double the number of chips of an ICE powered vehicle.⁷ This increase in semiconductor usage comes at a time when U.S. semiconductor manufacturing has been in decline. The total number of U.S. fabrication plants has decreased from 123 in 2007 to 95,⁸ while the industry employs 100,000 fewer production workers than it did at the turn of the century.⁹ Currently, U.S. manufacturers account for only 13% of the global semiconductor supply. This is because the U.S. is no longer attracting new fabs. In 2011, of the twenty-seven high-volume fabs built worldwide, only one was in the U.S. while eighteen were in China and four in Taiwan. In 2018, 20 new fab projects were announced in China, with total investments exceeding \$10 billion.¹⁰

We commend the House for passing the America Creating Opportunities, Pre-Eminence in Technology, and Economic Strength Act (COMPETES). Both the COMPETES Act and Senate-passed U.S. Innovation and Competition Act (USICA) would provide more than \$52 billion to address the semiconductor shortage that is crucial for auto manufacturing and a host of other sectors. Secure access to domestically produced semiconductors is particularly critical for advanced technology vehicles that require even more semiconductors than traditional vehicles. We encourage conferees to ensure that the funding level is not reduced and that auto jobs building cleaner vehicles must pay family and community-sustaining wages as well as provide benefits that workers can count on to care for themselves and their loved ones.

⁷ Scientific American. November 30, 2021. "Chip Shortage Threatens Biden's Electric Vehicle Plans, Commerce Secretary Says": <https://www.scientificamerican.com/article/chip-shortage-threatens-bidens-electric-vehicle-plans-commerce-secretary-says/>; IDTechEx, September 23, 2021. "EV Power Electronics: Driving Semiconductor Demand in a Chip Shortage": <https://www.idtechex.com/en/research-article/ev-power-electronics-driving-semiconductor-demand-in-a-chip-shortage/24820>

⁸ MForesight, "Manufacturing Prosperity: A Bold Strategy for National Wealth and Security", June 2018: <http://mforesight.org/download/7817/>

⁹ BLS, Quarterly Census of Employment and Wages (QCEW) for NAICS 334413, <http://www.bls.gov/cew/>.

¹⁰ MForesight, "Manufacturing Prosperity: A Bold Strategy for National Wealth and Security", June 2018: <http://mforesight.org/download/7817/>

Need to Create and Maintain Good Jobs

To meet the ambitious EV targets put forward by major automakers and elected officials, we will need to invest in workforce capabilities. Luckily, the U.S. economy is not starting from nothing thanks to the large pool of American workers who not only assemble vehicles but build a wide range of materials and components for those vehicles. The UAW has around 200,000 members in auto-related manufacturing throughout the country from Michigan to Texas. These workers have a high baseline knowledge of manufacturing and a familiarity with manufacturing training programs. As we see a growth in battery pack, cell, and component manufacturing, material processing, or recycling, UAW workers are well positioned to transition into these new types of manufacturing. With investment in key EV & battery-specific training programs for the current workforce, these workers can hit the ground running, building the vehicles of the future, and require less investment than starting with a whole new workforce.

The UAW has a long history of supporting investments to train American manufacturing workers with labor input. For example, the UAW has a Skilled Trades Department with a long and successful history of building a strong pipeline of skilled workers critical for auto companies to grow their business and compete in a global economy. And through collective bargaining, the UAW has pushed the industry to continually invest in skilled trades and production workers, whether through work-based training, apprenticeships, or tuition assistance for skill development. With new vehicle and manufacturing technologies, the union is exploring all avenues for productive partnerships with employers, government, and educational institutions to promote upskilling and reskilling related to batteries, motors, material processing, recycling, fuel cell technology, and electric vehicle assembly.

If there is one thing that is a “constant” in the auto industry, it is that it is constantly evolving and changing. Jobs that were once done by hand are now done by robots and machines. UAW joint training programs work hand in hand with local training coordinators to determine what additional education and training is needed for journeymen and apprentices when innovative technologies emerge, such as EVs. Training programs also need to coordinate with local community colleges to modify curriculum and classes to prepare the workforce for such changes.

As changes occur, we also need to simultaneously provide comprehensive re-training programs to prepare displaced workers for this shift to new technologies. Federal and state governments must invest in improving and expanding vocational training and apprenticeship programs, with an active role for unions to ensure quality training and high road working conditions. These programs must provide workers not only with the skills to make EV vehicles and components, but also prepare them for the changing nature of manufacturing work as automation and other new technologies change the production process. Congress should also incentivize the development of joint training and apprenticeship programs between employers and unions and push employers to commit to retraining workers displaced by new technology.

In addition to investing in American autoworkers, we must ensure that the investments to build vehicles and components are made in the communities where autoworkers are currently building traditional gas-powered vehicles and powertrains. We cannot wait for ICE jobs to be lost as we need to target new

investments for auto manufacturing communities now. Auto manufacturing is central to the economy of many communities, creating community-sustaining manufacturing jobs and stimulating economic activity in other sectors. Government support for EV investments should prioritize investments that create jobs in communities currently producing ICE vehicles and powertrains, hire incumbent autoworkers, and provide wages and benefits on par with unionized auto industry standards.

Union workers must lead this transition. In fact, UAW members are currently building the vehicles of the future. Our members currently make advanced technology vehicles that include battery electric (Chevy Bolt, GMC Hummer, Ford F-150 Lightning, Ford E-Transit), plug-in hybrids (Jeep Wrangler PHEV, Jeep Grand Cherokee PHEV, Ford Escape PHEV, Lincoln Corsair PHEV), and autonomous vehicles (GM's Cruise Autonomous Vehicle). UAW employers have announced plans to make EVs and PHEVs at UAW plants in a range of segments, including CUVs, SUVs, pickups, and delivery vans.

EV Sales and Investments

EV sales have grown steadily over the past decade, but they still represent a fairly small percentage of vehicle sales. EVs and PHEVs (Plug-in Hybrids) combined to represent 4% of U.S. auto sales in 2021¹¹ and EVs face several hurdles to mass-adoption. EVs are more expensive to produce, making them less profitable and dependent on consumer incentives. In most parts of the country, EV charging infrastructure is woefully inadequate, and the electrical grid is unprepared. Consumers shopping for an EV have been known to have concerns about battery range and charging speed as they have a limited selection of models and segments.

To be clear, this transition will take time and will occur at different rates throughout our country and world. However, there is little doubt that the transition will happen. The Administration's goal is to have at least 50% of new vehicles be EVs or PHEVs by 2030. They announced nearly \$5 billion will be made available to build out an electric vehicle charging network over the next 5 years and \$3 billion to advance the domestic EV industry in communities that have historically been part of the auto industry.

The global market is moving towards even more efficient vehicles, including hybrid and electric vehicles. Global electric car registrations increased by 41% in 2020, despite the pandemic-related worldwide downturn in car sales, in which global car sales dropped 6%.¹² It has been projected that by 2040, over 50% of new car sales globally will be electric.¹³ The industry is preparing for EVs to be a much larger part of the market going forward, both in the U.S. and abroad. Major automakers around the world have announced billion-dollar EV investments and ambitious new product plans and target dates.

As automakers improve technology, decrease battery costs, and produce at scale, EVs will become increasingly more competitive with ICEs (Internal Combustion Engine). And in the coming years, automakers plan to launch EVs in the segments that are most popular with American consumers: CUVs, SUVs, and pickups. Electrification is not limited to the light-duty auto industry. Companies that produce

¹¹ Wards Intelligence. Jan 2022. "U.S. Light Vehicle Sales, December 2021": <https://wardsintelligence.informa.com/WI966151/US-Light-Vehicle-Sales-December-2021>

¹² International Energy Agency, "Global EV Outlook 2021." <https://www.iea.org/reports/global-ev-outlook-2021>

¹³ BloombergNEF, "Electric Vehicle Outlook 2020." <https://about.bnef.com/electric-vehicle-outlook/>

heavy-duty trucks and off-highway vehicles are also investing in future technology for electrification and autonomy.

The U.S. is far behind other nations in public and private investments needed to make the U.S. a competitive player in vehicle electrification. China has invested more than \$60 billion to support EV manufacturing. Chinese firms, either owned or supported by the Chinese government, currently produce 60% of passenger EVs sold around the globe and produce almost 70% of battery cells.¹⁴ China also controls some 80% of the supply of rare earth minerals, which are essential for aerospace, defense, and EV production, and may impose export controls on these vital materials.¹⁵ The European Union (EU) has established the European Battery Alliance to promote production of batteries and key components within the EU.¹⁶ South Korea is home to LG Chem, the world's largest producer of lithium-ion batteries for electric vehicles, with a 24.6% market share. The company has plans to triple its battery production.¹⁷

If the U.S. fails to make public investments and adopt smart public policies to encourage and attract investment in the growing electric vehicle market, companies will relocate production and supply facilities in countries that are making these investments. The greener vehicles of the future are going to be built somewhere and other countries are preparing for these innovative technologies. We could see the U.S. auto industry fall behind on advanced technology, hurting the American economy and American workers. Ignoring these realities is not an option because it cedes the future to other nations that have a significant auto manufacturing footprint.

Investing in American Autoworkers

We are at a pivotal juncture as automakers are transitioning many of their fleets from gas and diesel-powered vehicles to electric ones. The shift to EVs cannot come at the expense of good wages and benefits and it is critical that we do not leave workers behind as the industry transitions to electrification.

The EV transition reinforces the continued importance of putting in place policies that facilitate vehicle and parts production in the United States and ease impediments to workers at non-union automakers to organize. As the nation invests in a transition to innovative technology, we must seize upon these opportunities to preserve and increase quality jobs. We have an opportunity, right now, to ensure that future EV investments incentivize production of EVs in the United States, made by union workers. Unionized workers earn on average 10.2% more than their non-union counterparts.¹⁸ Union workers are more likely to have paid sick days and health insurance compared to non-union workers. Ninety-four percent of union workers participate in a retirement plan compared with 67% of non-union

¹⁴ The New York Times, "The U.S. Auto Industry Bets Its Future on Batteries," February 16, 2021. [The Auto Industry Bets Its Future on Batteries - The New York Times \(nytimes.com\)](https://www.nytimes.com/2021/02/16/business/autos-industry-bets-future-on-batteries.html)

¹⁵ Financial Times, China targets rare earth export curbs to hobble U.S. defence industry, February 16, 2021. Available Online: [China targets rare earth export curbs to hobble US defence industry | Financial Times \(ft.com\)](https://www.ft.com/content/2021/02/16/china-targets-rare-earth-export-curbs-to-hobble-us-defence-industry)

¹⁶ European Battery Alliance, "EBA 250," accessed Jan. 15, 2020. Available online: www.eba250.com/about-EBA250?/cn-reloaded=1

¹⁷ Reuters, "LG Chem to Triple its EV Battery Production Capacity," October 21, 2020. Available online: [LG Chem to triple its EV battery production capacity \(autoblog.com\)](https://www.autoblog.com/news/2020/10/21/lg-chem-to-triple-its-ev-battery-production-capacity/)

¹⁸ Economic Policy Institute. Unions Help Reduce Disparities and Strengthen Our Democracy, April 2021.

workers. Policies that strengthen labor standards and support workers' right to collectively bargain are foundational to building a strong middle class.

Our country needs a coordinated industrial policy centered on maintaining and growing high-quality jobs in U.S. manufacturing while combating climate change and advancing equity. As we work toward the future of clean transportation, it will be critical to ensure this transition benefits American workers in both the short and long term and enhances U.S. competitiveness and economic security. Unless comprehensive policies are passed into law by Congress that focus on raising standards for U.S. workers and boosting domestic manufacturing, we will continue to fall behind in production of EVs and union jobs in auto sector will be eroded.

A three-pronged approach is required to achieve these goals including robust investments in EV infrastructure such as charging stations, supporting tax subsidies to incentivize consumers to purchase EV's, and targeting investments towards retooling facilities. We commend Congress and the Biden Administration for passing the bi-partisan Infrastructure Investment and Jobs Act (IIJA) which contains historic investments in EV infrastructure including \$7.5 billion for EV charger infrastructure, \$5 billion for EV school buses, and \$6 billion over five years for battery manufacturing, material processing, and recycling. Furthermore, we commend the House of Representatives for approving the Build Back Better Act (BBBA). The BBBA includes the Kildee-Stabenow EV consumer tax credit which makes historic investments in domestic electric vehicle production that are good for the environment, our economy, and working families. IIJA and BBBA, together, make significant strides in addressing all three prongs that are needed for a successful transition. The UAW believes that government subsidies and tax breaks must be paired with a commitment to locate these jobs in the U.S. at comparable wages and benefits to the jobs they replace. Fortunately, the Kildee-Stabenow amendment in the BBBA continues a \$7,500 consumer credit for EVs and adds a \$4,500 bonus for autos assembled in the U.S. by unionized workers as well as a \$500 domestic battery bonus. It is our hope that the Senate passes BBBA and maintains this provision to reward good jobs.

Conclusion

As this committee is extremely aware, climate change presents significant challenges for current and future generations. A large body of scientific research predicted for decades that climate change would increase the number and strength of extreme weather and climate events such as heat waves and droughts. Unfortunately, these predictions have already been proven right by mother nature, and we all have a responsibility to take action to mitigate its impact.

To lead the future, electric vehicles and other green technologies must be harnessed to create good U.S. union jobs where workers have a voice on the job. It is important to ensure all manufacturing workers can join a union free from intimidation by employers seeking to maintain the status quo. Jobs building cleaner vehicles must pay family and community-sustaining wages and provide benefits that workers can count on to care for themselves and their loved ones.

The transition from traditional gas-powered engines will require smart planning and public resources. Even with billions in planned investments, auto companies are relying on public subsidies and other policies to promote sales, transform production capacity, and speed up profitability for EVs. Strategic government support is a crucial tool for strengthening American innovation and manufacturing capacity. As previously noted, massive public investments have been in auto producing nations around the globe. There is a vital role for public policy as we cannot rely on the private sector to make all the necessary investments. Therefore, we support public investments in U.S. manufacturing. But if the public is going to foot the bill, the public must get economic benefits in return in the form of domestic investments and quality union jobs. To make EVs work for American workers, we need policies that promote domestic manufacturing and quality union jobs.

We stand ready to work with this subcommittee and all other stakeholders to ensure the transition is good for working people, the U.S. economy, and our planet. Thank you for considering the views of autoworkers. I look forward to answering your questions.

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