**STATEMENT**

**OF THE**

**ALLIANCE FOR AUTOMOTIVE INNOVATION**

**BEFORE THE:**

**SUBCOMMITTEE ON SURFACE TRANSPORTATION, MARTIME, FREIGHT, AND PORTS**

**COMMITTEE ON COMMERCE, SCIENCE, and TRANSPORTATION**

**U.S. SENATE**

**HEARING TITLE:**

**"Driving Innovation: the Future of Automotive Mobility, Safety, and Technology"**

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**PRESENTED BY:**

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President and CEO

ALLIANCE FOR AUTOMOTIVE INNOVATION

Chairman Peters, Ranking Member Fischer and distinguished members of the Committee: on behalf of the Alliance for Automotive Innovation (Auto Innovators) and our members, I thank you for the opportunity to appear today to share my perspective on how the auto industry in the U.S. is driving innovation toward a cleaner, safer, and smarter future for personal mobility.

The Alliance for Automotive Innovation was formed last year to serve as the singular, authoritative, and respected voice of the automotive industry in the United States. Our 17 manufacturer members produce nearly 99 percent of the cars and light trucks sold in the U.S., and our 21 supplier and value chain members are responsible for integral parts and technologies in these vehicles. In total, our industry employs roughly 10 million Americans, in addition to those who are employed in the technology and mobility sectors directly.[1] We account for nearly six percent of our country's gross domestic product and represent our country's largest manufacturing sector.[2]

Today, we stand on the cusp of a transformative moment for the automotive industry in the United States. Through substantial, long-term investments in electrification,[3] as well as advanced safety technologies, including automation, the industry is poised to redefine motor vehicle transportation for decades. Likewise, government policies, investments and programs must be modernized and transformed to reflect changes in the global marketplace.

The industry's commitment to leadership comes at a unique and challenging time as the auto industry – and the nation – navigates near- and long-term uncertainty due to the ongoing COVID-19 public health emergency. This time last year, for the first time since World War II, all motor vehicle manufacturing in North America ground to a halt for eight weeks and vehicle sales plummeted over 50 percent. Amid the turmoil, Auto Innovators' members continued innovating, putting decades of experience in precision manufacturing, supply networks, logistics, and purchasing to work in helping combat the public health emergency. As vehicle production resumed, that same innovative spirit helped the industry mitigate the combined hit to production and the workforce and rebound far more quickly than many predicted, with overall sales 15 percent lower than in 2019.

Despite the industry's resiliency over the past year, there is no question that lingering uncertainties associated with the ongoing public health emergency, including supply chain stresses and consumer trends, will strain the capital resources necessary to invest in future

[1] Auto Alliance multi-industry contribution analysis: the economic impact of automotive manufacturing, selling, repairing, renting, and additional maintenance modeled using IMPLAN economic analysis data software, 2017 data year.
[2] *Id*; Bureau of Economic Analysis, Gross Output by Industry, https://apps.bea.gov/iTable/iTable.cfm?ReqID=51&step=1, Last accessed June 1, 2020; Bureau of Labor Statistics, Employment and Output by Industry, https://www.bls.gov/emp/tables/industry-employment-and-output.htm, Accessed June 1, 2020
[3] For the purposes of this document, the term electrification includes all zero emission or electric vehicles ("ZEVs" or "EVs"), including plug-in and plug-in hybrid EVs as well as fuel cell technologies.

technology development. While our commitment to a cleaner, safer, smarter future is unwavering, the pathway to realizing that vision will be far more challenging.

Maintaining and enhancing U.S. leadership in innovation, however, is not just about the future of the auto industry – it is about the nation's global competitiveness and economic security. The nations that lead the development and adoption of innovative technologies, such as electrification, connectivity, and automation, will also shape supply chains, define global standards and, potentially, reshape the international marketplace.

I believe that Senators in both parties understand this reality. Expanding and securing existing supply chains, while developing new ones, is a key factor in whether the U.S. will remain a leader in innovation. Our industry is currently facing a semiconductor shortage that has forced several automakers to halt production and cancel shifts in the U.S., with serious consequences for their workers and the communities in which they operate. In fact, this semiconductor shortage could result in the lost production of as many as 1.3 million vehicles in the U.S. this year alone. The current supply chain crisis has exposed overall capacity limits in the development and manufacturing of these chips and has also revealed significant risks in the current automotive semiconductor supply chain. There is an undeniable need to expand semiconductor capacity in the U.S. to meet the growing demand within the auto industry, as well as other sectors across the economy. This Committee and the Administration have shown tremendous leadership in addressing the semiconductor shortage, but Congress can also take action on policies that would incentivize this additional capacity in the U.S. Auto Innovators recently sent a letter to congressional leaders supporting full funding for programs based on the bipartisan CHIPS for America Act authorized in the FY 2021 National Defense Authorization Act which would increase the resiliency of automotive supply chains through the construction of new facilities that produce, or have the ability to produce, automotive grade chips.

New foundries, however, take years to build, and Congress can also support policies that facilitate increased chip capacity in the mid-term. In that same letter, we also called for the enactment of a semiconductor manufacturing investment tax incentive. Such an incentive can help companies offset the cost of creating new lines within existing facilities or reallocating current production to meet evolving needs.

Semiconductors, of course, are just one example of the type of investments needed to support U.S. leadership and job growth. But the challenges and opportunities before us are bigger than any one component part, policy, branch or level of government, or industry sector. For the U.S. to remain a leader in the development and adoption of transformational technologies, we need a comprehensive national vision and strategy rooted in economic, social, environmental, and cultural realities. That comprehensive strategy must address several pertinent and pressing questions:

- What supply chains are available, and will they need to change? What are the challenges to developing the U.S. supply base for specific new technologies?

- How are we preparing or repositioning the U.S. workforce, including auto workers, suppliers and related workers for these new technologies?

- What are the impediments to consumer adoption and affordability of advanced vehicle technologies, including electrification and automation?

- How do we address the challenges and barriers unique to certain communities, such as rural and disadvantaged, and ensure advanced vehicle technologies are accessible and beneficial to all Americans?

- What other industries, sectors or stakeholders will be necessary to realize the potential of these important transformations?

These are but a few of the challenging questions at the core of maintaining U.S. competitiveness and enhancing U.S leadership in automotive innovation. Strategies must account for these realities, otherwise they could, inadvertently, harm the nation's workforce, limit consumer options, and jeopardize our nation's economic future and global competitiveness. Our goal is to avoid such outcomes by continuing to work collaboratively with policymakers and other stakeholders to maintain the U.S.'s global leadership in automotive innovation.

Auto Innovators believes that realizing this future requires a sustained holistic approach with a broad range of complementary supply- and demand-side legislative and regulatory policies. To that end, we have developed a series of proposals that match dynamic public policy with significant private investment and engagement. The foundational piece to all of these proposals is our Auto Innovation Agenda which recognizes the key realities and factors necessary for the U.S. to remain the leader in automotive innovation. We have subsequently released more specific policy recommendations, which are outlined below, to highlight critical technologies and the importance of a predictable policy environment to preserve and enhance U.S. leadership.

**The AV Policy Roadmap:**

Automated Vehicles (AVs) have the potential to increase the safety of our nation's roadways by decreasing the number of motor vehicle crashes due to human error. They also hold promise to provide numerous social and economic benefits, including increased mobility for older adults and people with disabilities, reducing traffic congestion, reducing emissions, and fostering investment and economic growth.

The U.S. has an opportunity to advance global leadership in developing these revolutionary technologies and new mobility business models through a national approach that reduces uncertainty and paves the way to long-term success. That is why last year we released the *Policy Roadmap to Advance Automated Vehicle Innovation*.

The Roadmap outlines the auto industry's AV policy priorities and includes fourteen specific recommendations that can be implemented by federal policymakers over the next four years to facilitate the testing and deployment of AVs at scale. These recommendations are focused on reforming regulations, harmonizing policies, and laying the foundation to achieve longer-term objectives – including expanding the number of exemptions that DOT can provide on a case case-by by-case basis--with safety oversight and full enforcement powers--which can then provide the data necessary to support future Federal Motor Vehicle Safety Standards for AVs.

I agree with what Secretary Buttigieg said during his confirmation hearing before this Committee, "…automated vehicle technology is coming, its advancing very quickly, it is something that holds a potential to be transformative and I think in many ways policy has not kept up." Indeed, it is past time to create a framework for the development and safe deployment of autonomous vehicle technologies that will unlock their tremendous potential in the U.S. It is our hope that this AV roadmap will help guide and prioritize policy development over the next few years to drive further safety innovation in this space and transform personal mobility.

**Innovating for a Safer Future:**

Uncertainty with respect to safety priorities from both a regulatory and consumer education perspective can be an impediment to investment in advanced safety technologies. The New Car Assessment Program (NCAP) is an important tool used by NHTSA to educate consumers on vehicle safety through easily understood ratings. Unfortunately, the program has not been updated since 2011 and has failed to keep pace with innovations in crash avoidance technologies.

NCAP modernization is long overdue. If the U.S. is to remain a global leader in automotive safety innovation, our policies and programs must keep pace. An effective and consistently maintained NHTSA NCAP, guided by mid- and long-term roadmaps, will leverage market forces to accelerate the development and deployment of advanced safety technologies.

That is why, last week, Auto Innovators released the *Plan to Advance Safety at the Speed of Innovation*. This document outlines our vision for a 21st Century NCAP, including five recommendations to ensure that NCAP achieves its main objectives of providing meaningful information for consumers, accelerating the deployment of safety technologies, and supporting future regulatory activity.

In addition to longer-term recommendations, our plan also encourages an immediate "Kick Start" that would incorporate five crash avoidance technologies into the NCAP program. These include:

- Forward Collision Warning/Automatic Emergency Braking (FCW/AEB)
- Pedestrian Automatic Emergency Braking (PAEB)
- Lane Departure Warning (LDW)
- Lane Departure Warning with intervention/Lane Keep Assist (LDW/LKA)
- Automatic High Beam Headlamps/High Beam Assist

These are all proven safety technologies that are already helping to avoid costly crashes, while saving lives, on our nation's roadways today. The key to building greater consumer acceptance and adoption of these foundational advanced driver assistance systems (ADAS), and future safety technologies such as AVs, is consumer education that creates awareness about the life-saving potential of these innovations.

The value of an NCAP that has developed a process for continuously evaluating emerging safety technologies and folding them into a Long-Range Roadmap for vehicle manufacturers cannot be overstated. It permits automakers to develop long-term safety strategies that are aligned with the identified NCAP safety priorities and expected updates. As a result, when updated ratings are implemented, manufacturers have had enough time to have products in place that provide the enhanced safety performance. This is a "win-win-win" scenario for government, vehicle manufacturers, and especially consumers.

**The Safety Spectrum:**

While there are many opportunities for the U.S. to enhance its leadership in automotive safety, the world is not waiting for the U.S. to lead the way on automotive safety. In fact, in some areas, the U.S. is taking a step back while our global competitors are moving forward with purpose. This is no more evident than in our approach to vehicle connectivity and communication. Around the world, nations are working aggressively to expand testing, development, and deployment of vehicle-to-vehicle and vehicle-to-infrastructure communications (collectively, V2X) technologies. Last year, however, the Federal Communications Commission (FCC) voted to reallocate 45 MHz of the 5.9 GHz spectrum band for use by unlicensed devices. This decision reduced – by more than 50% - the spectrum available for V2X technologies. This reduction in spectrum means that critical life-saving applications, including some that would support automated vehicles, are no longer possible in the U.S. Further, the FCC's order has failed to adequately address harmful interference to safety applications in the remaining 30 MHz created by the use of unlicensed devices in the lower 45 MHz This is a serious concern to Auto Innovators, State DOTs, and road users across the country.

**Accelerating Acceptance of Electric Vehicles:**

Electric vehicles are one of the best examples of why a comprehensive vision and strategy is crucial to building successful markets for the next generation of vehicle technologies. Automakers will invest $250 billion globally in vehicle electrification by 2023, and IHS Markit predicts there will be 130 EV models available in the U.S. by 2026. However, even with the collective efforts of the public and private sectors, of the 278 million light-duty vehicles currently registered in the U.S., only a fraction – approximately 1.7 million – are EVs, which include plug-in hybrid, battery, and fuel cell electric vehicles. And despite growing consumer interest and more than 50 EV models available today, EVs only made up about two percent, or roughly 300,000, of the 14.5 million new vehicle sales last year. A comprehensive approach is needed to incentivize wider-scale EV adoption through three key areas: Consumer affordability

and awareness; Infrastructure build out; and Innovation, Manufacturing and Supply Chain development.

Ensuring greater consumer acceptance of EVs means addressing three key barriers to adoption in "cost parity," "convenience parity," and consumer awareness. While the auto sector has made significant progress driving down battery and fuel cell costs, further research and development investments, along with consumer incentives, will be crucial in bringing greater price parity between EVs and their internal combustion counterparts. We can address "convenience parity" by ensuring access to abundant electric charging and hydrogen fueling infrastructure. Both public and private stakeholders must work together on public policy efforts, such as federal tax incentives, grants, rebates, and other mechanisms to spur significant charging infrastructure development in three key areas: homes (both single-family and multi-unit dwellings), workplaces, and highways and other public locations. Similar federal investments and incentives should also be made available to rapidly build out hydrogen refueling infrastructure in the U.S. While these are just a few examples, additional demand-side policies, like building codes, public and private fleet purchase requirements, and a clean fuels policy that reduces carbon emissions while providing resources for charging and hydrogen refueling infrastructure are also critical to supporting additional growth of the EV market in the U.S.

While demand-side solutions aimed at addressing consumer and infrastructure barriers can help address near-term challenges, they will contribute to sustained U.S. leadership in automotive innovation only if they are aligned with supply-side realities. In fact, the supply side represents one of the best opportunities to develop long-term and sustainable U.S. leadership through manufacturing investments. Vital aspects of the EV supply chain require the manufacturing of batteries and battery components (critical minerals extraction, processing, battery cell production, end of life recycling) and fuel cell stacks. In 2019, Chinese chemical companies accounted for roughly 80 percent of the world's total output of advanced battery raw materials. Investments in tax incentives for both R&D and manufacturing, expanding programs such as the Advanced Technology Vehicles Manufacturing (ATVM) loan program to further encourage domestic manufacturing of EVs, and critical components like batteries and semiconductors, will be key factors that drive automotive innovation in the United States for generations to come.

## **Conclusion:**

Globally, the automotive industry annually invests more than $125 billion in R&D, $20 billion more than the software and internet technology industry.[4] Roughly $26 billion of this annual investment occurs in the U.S., which supports 110,000 jobs and harnesses the innovation and ingenuity of major automakers and their workforce.[5]

[4] Strategy&, "The Global Innovation 1000 Study," Data Download 11/2/2020 https://www.strategyand.pwc.com/gx/en/insights/innovation1000.html?utm_campaign=sbpwc&utm_medium=site&utm_source=articletext

[5] National Science Foundation, Info Brief, "U.S. Businesses Reported $441 Billion For R&D Performance In The United States During 2018, A 10.2% Increase From 2017," Accessed 11/2/2020

While the U.S. is well positioned to continue its long-standing leadership in automotive innovation, we cannot be complacent. Across the globe, nations are backing bold commitments with government investments and supporting policies. China has already established EV battery supply chain and manufacturing dominance. Likewise, Europe is responding by developing its own supply chains. Japan has made a bold commitment to support fuel cell technology advancements.

China is moving aggressively to lead in safety technology advancements – including AVs. As evidenced by experience in other sectors – such as information and communications technologies – as well as the current EV battery supply chain, falling behind global competitors presents long-term risks to U.S. competitiveness and economic security.

For the millions of workers depending on the auto industry for their livelihoods, we must seize this window of opportunity. Working collaboratively to develop a coherent, national approach to automotive innovation opens the door to endless possibilities and avoids the unintended consequences of focusing on narrow policy objectives. For example, technology mandates without complementary supply side investments risk eroding the U.S. manufacturing base for innovative technologies. Likewise, a failure to embrace and encourage adoption of advanced vehicle technologies in the U.S. risks ceding technology leadership and supply chain dominance to global competitors. Fortunately, we have an opportunity to avoid those outcomes and recently we sent a letter to the Administration and Congress to outline such a comprehensive policy[6].

The auto industry has long been an economic engine for the nation, and it is poised to remain the bedrock of U.S. innovation and manufacturing for decades to come. Realizing this potential, however, requires collaboration, cooperation, and creativity among all stakeholders. This is an opportunity to open our minds to new possibilities and work together to take a fresh, comprehensive look at what it will take to realize a shared vision of a cleaner, safer, smarter future.

On behalf of Auto Innovators and our member companies, I look forward to working with both Congress and the Administration to effectuate policies such as those discussed to realize the promise of cleaner, safer smarter transportation future while ensuring the U.S. leads automotive innovation for generations to come.

[6] "Auto Industry EV Policy Letter to President Biden", https://www.autosinnovate.org/posts/communications/Auto%20Industry%20EV%20Policy%20Letter%20to%20President%20Biden%20March%2029%202021.pdf