

Submitted Testimony

Dr. Çetin Meriçli

CEO, Locomation

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“Reforms and Investments to Advance Transportation Innovations in Pennsylvania”

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Chairman Langerholc and distinguished members of the committee, thank you for the opportunity to participate in today’s hearing on transportation innovation in Pennsylvania. My name is Dr. Çetin Meriçli and I’m a co-founder and the CEO of Locomation.

Company & Technology Overview

Locomation is a Pittsburgh-based autonomous trucking technology company founded in 2018 by alumni from Carnegie Mellon’s National Robotics Engineering Center. Our company is developing what we term Human-Guided AutonomySM systems for truck conveying that are being tested right here in Pennsylvania. Locomation is taking this ‘Human-Guided Autonomy’ approach to deploying fully autonomous trucks because it’s safer and more economically beneficial at this stage. Our strategy is to deliver full autonomy in evolutionary stages, starting with an initial conveying solution that enables us to get on the road at the earliest possible stage with safety as a cornerstone. This makes it possible for us to continually improve our autonomy system from day one based on real-world safety and performance data.

Not only does our approach harness the capabilities and strengths of today’s professional truck drivers, it is also preparing them for the future of trucking in an increasingly autonomous world. Locomation is the only autonomous truck technology company that is establishing a role for truck drivers in the autonomous truck equation. Locomation’s Autonomous Relay Convoy technology, or ARC, allows a truck driver to deliver twice as much cargo, twice as far, more safely. Our system works by operating two-truck convoys with two drivers. Both trucks are equipped with our autonomy system. One driver operates the lead truck and a second driver rests off the clock in the follower truck. Periodically, the lead truck swaps with the follower truck to allow the driver of the lead truck to clock out and rest. Our model will allow two-truck convoys equipped with our technology to operate 20-22 hours a day under existing hour of service (HOS) regulations. This will increase profitability for our customers, help alleviate driver shortages, increase driver pay, and improve the quality of life for truck drivers by increasing at-home time. Our technology will also help the environment by reducing fuel consumption by 8% annually, resulting in the elimination of 42 metric tons of CO2 emissions per convoy.

Our autonomous relay convoy system will be available commercially as an aftermarket retrofit with sensors (such as cameras, light detection, and ranging radars), vehicle interface, and compute power with steering and braking systems optimized for autonomy. This will allow our customers to deploy and scale up safely and efficiently. In 2020, Locomotion received the world's first commercial autonomous truck purchase order for 1,120 trucks from Wilson Logistics.

Act 117

In 2018, the Commonwealth of Pennsylvania adopted Act 117, which allowed for platoons to operate on public highways in the state. This initial step was paramount to ensuring Locomotion was able to test on public roads in Pennsylvania and continues to be a critical element that will help us perfect our technology. I'd like to take this opportunity to thank the Pennsylvania General Assembly and the Pennsylvania Department of Transportation for their continued leadership and commitment to working with companies like Locomotion to unlock the benefits of autonomous vehicle technology. Locomotion is fortunate that the Commonwealth of Pennsylvania remains committed to promoting innovative transportation technology that will improve safety and enhance transportation for all road users.

Testing

Locomotion began testing our technology on a private track in 2019. In early 2020, Locomotion received approval from the Acting Secretary of Transportation to begin testing on public roads in Pennsylvania. And in March of 2021, Locomotion received approval to continue testing our technology on roads in Pennsylvania through 2022. In addition to Pennsylvania, Locomotion has conducted testing in: Ohio, Michigan, Texas, Louisiana, Oregon, and Idaho. Locomotion has been able to conduct multi-state tests by participating in the tri-state Smart Belt Coalition (SBC) between Pennsylvania, Ohio, and Michigan. The ability to safely test on public roads is paramount to ensuring companies like Locomotion are able to gather the kind of real-world data necessary to perfect the technology. As the technology improves and companies like Locomotion move closer to fully autonomous truck deployments, legislation and policies must keep pace with the technology to ensure Pennsylvania continues to be ahead of the curve by supporting and leveraging the benefits of AV technology.

We encourage the Commonwealth of Pennsylvania to continue to pursue legislation and policies that promote autonomous vehicle testing and deployment.

Follow Too Closely

Follow Too Closely (FTC) laws are designed for safe following distance between vehicles, to allow a human driver sufficient time to react to the actions of vehicles in front of them. For instance, if a driver is following a vehicle that makes a sudden stop for a hazard in the road, a safe following distance will allow for sufficient time for the following vehicle to react and avoid causing an accident. But as technology becomes more capable and is able to react more quickly than a human, FTC laws can actually create barriers to unlocking the full potential of autonomous vehicle technology, specifically platooning technology.

One of the benefits of truck platooning is the reduction of fuel consumption and CO2 emissions. However, this can only be achieved if the follower truck in a two-truck convoy is able to follow closely enough to the lead truck to benefit from the improved aerodynamics and reduced wind resistance. This is safely possible because the operation of the follower truck leverages the capabilities of autonomous vehicle technology to greatly reduce reaction time compared to that of a human. In fact, a follower truck using our system to respond to the commands of the lead truck can react much quicker than a human driver. This allows for closer following, which also deters other road users from cutting between the two convoying trucks, avoiding potentially dangerous situations.

Locomotion encourages the General Assembly and the Pennsylvania Department of Transportation to continue to support Follow Too Closely laws that recognize the capabilities of truck platooning technology.

Competitiveness

The United States continues to lead the way in technology innovation, but also runs the risk of losing its competitive edge to nefarious state actors. It is no surprise that the People's Republic of China (PRC) has demonstrated a strong commitment to gaining an edge over the United States in autonomous vehicle technology. And given that autonomous vehicle technology is considered a dual-use technology, meaning it has both civilian and military applications, it is imperative that the United States not lose its leadership position in autonomous vehicles to China.

This is largely an issue that needs to be addressed by the federal government, but we encourage the Pennsylvania General Assembly to remain vigilant in ensuring bad actors aren't able to exploit technology innovation that are developed in the United States for their own unscrupulous agendas around the world and here in our homeland.

Conclusion

Autonomous vehicle technology has the power to change the world by increasing safety and enhancing the efficient movement of goods and people. However, laws and policies must keep pace with the technology to ensure our society is able to leverage the full benefits that AVs can provide. Pennsylvania has done a commendable job at keeping pace with advancements in AVs and we thank you for your leadership. But as AV capabilities continue to advance and the issues become increasingly complex, we encourage you to continue to move swiftly into the future and lead the way for Pennsylvanians and companies that are proud to call this state home.

Again, thank you for the opportunity to provide testimony today. I look forward to answering any questions you may have.