

April 1, 2021

Dr. Steve Cliff
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue S.E., West Building
Washington D.C. 20590-0001

Subject: **NHTSA Advance Notice of Proposed Rulemaking: Framework for Automated Driving Systems, NHTSA Docket No. 2020-0106**

Dear Acting Administrator Cliff:

Argo AI (Argo) welcomes this opportunity to provide input to the National Highway Traffic Safety Administration's (NHTSA) Advanced Notice of Proposed Rulemaking (ANPRM) addressing a *Framework for Automated Driving Systems (ADS) Safety*, Docket number *NHTSA-2020-0106*.¹

Background

Argo was founded to develop self-driving technology that will make getting around cities safe, easy, and enjoyable for all. We design and develop the software, hardware, maps, and cloud-support infrastructure that power self-driving vehicles. To achieve these goals, we partner with the world's leading automakers to build self-driving vehicles for deployment in ride-hailing and goods-delivery services. Argo's headquarters are located in Pittsburgh, Pennsylvania, and we have additional engineering and development centers in Dearborn, Michigan; Palo Alto, California; Cranbury, New Jersey; and Munich, Germany.

At Argo, safety is our foundational value and underlies everything we do. Safety drives our approach to engineering, development, and testing. It guides our technical progress and underpins our roadmap to the commercial launch of self-driving vehicles. The potential

¹ U.S. Department of Transportation, National Highway Traffic Safety Administration, "Framework for Automated Driving System Safety", Advance Notice of Proposed Rulemaking, Docket No. NHTSA-2020-0106, 85 Federal Register 78058, December 3, 2020.

benefits of self-driving vehicles are substantial, including saving lives and increasing accessibility and mobility.

Comments

On December 3, 2020, the National Highway Traffic Safety Administration (NHTSA) released an Advanced Notice of Proposed Rulemaking (ANPRM) entitled “Framework for Automated Driving System Safety.” Argo supports NHTSA’s efforts to develop a framework for automated driving systems and self-driving vehicles. NHTSA has taken a proactive approach to support the development of this promising technology through constructive autonomous vehicle (AV) guidance, promoting innovation, remaining technology-neutral, encouraging transparent reporting, providing public education and outreach, and working with state and local government stakeholders and first responders. Building on these foundational efforts, Argo believes that the Agency’s timing to begin developing an ADS framework is appropriate, and Argo supports NHTSA’s decision to move forward with this ANPRM to ensure ADS safety in anticipation of commercial deployments of self-driving vehicles.

Argo is a member of the Alliance for Automotive Innovation and the Self-Driving Coalition for Safer Streets. Argo supports the comments both organizations prepared in response to this ANPRM. A summary of select comments are listed below:

- Based on the current state of development, it is too soon to make any decisions about the extent to which all-new Federal Motor Vehicle Safety Standards (FMVSS) might be needed to address particular performance aspects in vehicles equipped with automated driving systems
- Addressing existing FMVSS compliance barriers and clarifying the exemption process through guidance will help to allow the deployment of this promising technology, thereby helping to generate real-world data that could be used to assist NHTSA research efforts
- The Agency is playing an important role by providing AV guidance and encouraging transparency through voluntary reporting, and this mechanism has proven to be highly effective
- Supporting initiatives, such as Vehicle Safety Self-Assessments (VSSA), public education and outreach, and NHTSA’s Automated Vehicle Transparency and Engagement for Safe Testing Initiative (AV TEST) can help bolster the development of the ADS framework

In addition to the comments referenced above, Argo takes this opportunity to provide additional feedback in this response.

Administrative Mechanisms

The ANPRM poses questions regarding different methods and mechanisms to help administer a framework and ensure ADS safety. Argo believes that autonomous vehicles hold the promise of improving mobility and safety. Given the current state of AV deployments, we agree with NHTSA's assertion in the ANPRM that it is likely premature to establish ADS performance standards for self-driving vehicle technology at this time.² We believe the Agency's approach to providing detailed guidance for automated driving systems is and should continue to be a key element of the ADS framework.³ In principle, providing guidance allows NHTSA to define safety needs for automated vehicles, and by issuing guidance, NHTSA provides clarity and perspective, and helps ensure that developers are attentive to these specific areas of safety. Guidance also helps standards-setting organizations focus their attention when developing best practices and industry standards. Furthermore, guidance can be developed more quickly than regulatory approaches, and this mechanism allows NHTSA to proactively establish safety expectations and modify them, as necessary, to respond to rapidly changing ADS vehicle developments. Finally, guidance can also establish best practices which in turn can inform future regulatory efforts.

Another key element of the ADS framework should include efforts to increase public awareness and education, and Argo commends NHTSA for providing the industry with Voluntary Safety Self-Assessment (VSSA) guidelines and the recommended safety reporting elements.⁴ Engaging stakeholders and the public is key to gaining their acceptance of advanced ADS technology. In general, VSSAs provide NHTSA and others with an important feedback mechanism through which they can assess the industry, relative to the safety needs addressed via guidance.

Argo's VSSA will share information detailing how our self-driving technology works, how we approach safety, how we use a systems engineering approach to engineer safety into our self-driving system, how risks are identified and managed throughout the development process, and how we test on public roads. Additionally, Argo will provide unique insights into

² Per NHTSA ANPRM, "As described above, issuing performance standards for ADS competency has been and remains premature because of the lack of technological maturity and the development work necessary to support developing performance standards. Since widespread deployment of ADS vehicles appears to be years away, NHTSA has the opportunity to decide carefully and strategically which aspects of ADS safety performance may require the most attention.", National Highway Traffic Safety Administration, "Framework for Automated Driving System Safety", Advance Notice of Proposed Rulemaking, Docket No. NHTSA-2020-0106, 85 FR 78058, December 3, 2020.

³ NHTSA Automated Driving Systems, <https://www.nhtsa.gov/vehicle-manufacturers/automated-driving-systems>

⁴ NHTSA Voluntary Safety Self-Assessments, <https://www.nhtsa.gov/automated-driving-systems/voluntary-safety-self-assessment>

our safety culture and the steps, including our Safety Management System, that we have implemented to ensure safety.

Argo believes that reporting will also be an important part of the ADS framework, providing the Agency with critical feedback and safety data. Ongoing voluntary reporting allows the industry to keep NHTSA, state and municipal officials, and the public aware of ADS efforts and developments. Voluntary reporting will also be a key mechanism to help the Agency gauge the effectiveness of AV safety guidance, as well as future research or regulatory needs.

Accordingly, Argo is an active participant in NHTSA's Automated Vehicle Transparency and Engagement for Safe Testing Initiative (AV TEST).⁵ AV TEST is a voluntary reporting mechanism designed to provide the public with state requirements and AV testing information. Through this online tracking tool, we provide vehicle details, test locations, and information regarding our AV testing operations. Argo currently provides information specific to our public road testing in Pittsburgh, Pennsylvania; Detroit, Michigan; Miami, Florida; Palo Alto, California; Washington D.C.; and Austin, Texas. Additionally, several states and municipalities provide AV testing and permitting information, making it an effective and collaborative government and industry effort.

Engineering and Process Measures

As NHTSA highlighted in the subject ANPRM, there are many existing industry engineering and process standards in use, as well as others under development, that provide useful insights into engineering, developing, and ensuring safe ADS designs. Argo has built our internal systems engineering, SOTIF, and functional safety processes after assessing a number of these and other industry standards. We monitor these standards for updates, as well as assess newly introduced standards for elements that might be relevant.

Though not explicitly included in the ANPRM, Argo also supports our automotive manufacturing partners' involvement in the Automated Vehicle Safety Consortium (AVSC) for the development of AV-specific industry best practices.⁶ The AVSC leverages lessons learned to create AV guidelines, including test driver selection and training, describing an operational design domain, data collection, first responder interactions, passenger initiated emergency trip interruptions, and metrics and methods for safety assurance.

Summary

Argo's foundation is a culture of safety that permeates our development, testing, and, ultimately, deployment of self-driving technology. This ANPRM is an important step in

⁵ NHTSA AV TEST, <https://www.nhtsa.gov/automated-vehicles-safety/av-test-initiative-tracking-tool>

⁶ Automated Vehicle Safety Consortium, <https://avsc.sae-itc.org/>

developing near- and long-term approaches to ensure the safe and efficient development and deployment of ADS-equipped vehicles. Thank you for the opportunity to provide input. We look forward to working with NHTSA and other stakeholders to further develop an ADS framework that supports innovation, provides industry with clarity, and helps realize the mobility and safety potential of self-driving vehicles.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. M. Fronckowiak'.

T. M. Fronckowiak, Director
Safety Policy and Assurance