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Subcommittee on Highways and Transit
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Thank you, Chairman Petri, Ranking Member Norton, and members of the committee. I am the Senior Manager for Technology Planning at Nissan's Technical Center located in Farmington Hills, Michigan. Nissan has established ambitious goals for the development of autonomous vehicles, so I am particularly honored to testify about how autonomous vehicles will shape the future of transportation.

Carlos Ghosn, the CEO of the Renault-Nissan Alliance, recently announced a goal for Nissan to have an affordable autonomous drive vehicle ready by 2020. This time frame is challenging, but we believe achievable.

Autonomous driving technologies can be classified by the level of automation, ranging from emerging active safety technologies such as Forward Emergency Braking, to more autonomous vehicles, and ultimately driverless cars. While many advantages are often cited for each level of autonomous technology, the most important reason to pursue its development is the potential to achieve safety benefits. It is estimated that over 90% of the more than 6 million accidents occurring annually in the United States involve human error, and the typical crash involves some level of driver inattention. We believe that autonomous driving technology has the potential to successfully address the types of situations resulting in these accidents.

Nissan's work on autonomous drive is a continuation of over 10 years of crash avoidance technology development, inspired by our Safety Shield Concept. This proactive development philosophy has enabled Nissan to

introduce technologies designed to help drivers avoid a variety of risks from the front, side and rear of the vehicle, including the world's first Backup Collision Intervention and Predictive Forward Collision Warning systems. It is these active safety systems that will form the foundation of our autonomous drive technologies.

Nissan's efforts are focused on preparing technology that operates within the available roadway infrastructure. In the future, additional benefits could be achieved if autonomous technology is fully integrated with the transportation infrastructure, including traffic control and road systems.

While some of the technologies that will act as the foundation for autonomous driving are already being introduced, and we believe in their potential, the development of autonomous technology remains a challenging task which will require careful planning and resource allocation.

From an engineering standpoint, Nissan is already investing in the future of autonomous driving. In the United States, Nissan has teams working at our technical center in Michigan and we've also opened a research facility in Silicon Valley to integrate the rich IT knowledge available there. We are also creating a dedicated autonomous vehicle proving ground in Japan. Although Nissan is developing most of this technology in-house, we will also partner with others as needed; for example, we will collaborate with top level universities such as Oxford, Stanford, MIT and CMU.

However, a successful introduction of autonomous driving will require more than careful engineering development. Autonomous driving may significantly alter the way society views driving, so social acceptability will be an important component and should be carefully managed in parallel with the technical development. An ongoing and open dialogue among stakeholders is critical to help address the social framework needed to support autonomous technology deployment.

The necessary technical achievements and the maturing of social acceptance will be fostered gradually, step by step. Nissan conducted an

autonomous driving demonstration at an event in California this summer, and we are ready to conduct field operation tests in the United States and other countries. Nissan also received the first official license plate for an autonomous vehicle in Japan, authorizing us to operate test vehicles on public roads. We have already begun conducting testing on roads in Japan, including a recent drive with Prime Minister Shinzo Abe. These demonstration events and field tests are important not only from a technology development perspective, but also to educate the public and to help us understand social opinion.

With the potential societal benefit that can come with autonomous driving, Nissan believes that the United States can take a leading role to help promote safe and dynamic development of the technology. Such leadership may include the consideration of appropriate legislative action, funding for research and development, and studying the need for investment in wireless communication infrastructure to support future advancements.

We hope that road traffic safety in the United States will be dramatically improved with the advent of autonomous driving, and we believe Nissan's commitment will contribute significantly to this progress. We look forward to working with members of Congress as we move toward this challenging goal. Mr. Chairman and the committee, I thank you for your time and your interest in this important issue.