

**U.S. Senator Maria Cantwell**

**Q&A with Witnesses at U.S. Senate Committee on Commerce, Science, and Transportation  
Nomination Hearing**

**Witnesses: Hon. Jennifer L. Homendy, of Virginia, to be Chair of the National Transportation Safety  
Board**

**Ms. Karen J. Hedlund, of Colorado, to be a Member of the Surface Transportation Board  
Dr. Robert C. Hampshire, of Michigan, to be Assistant Secretary for Research and Technology,  
Department of Transportation**

**Ms. Carol A. Petsonk, of the District of Columbia, to be Assistant Secretary for Aviation and  
International Affairs, Department of Transportation**

**June 24, 2021**

Cantwell: But let me first start, I have many questions for all of you, so I won't get through those, but I do have a question that literally I think applies to all of you across the transportation sector. I agree, Ms. Petsonk, about safety--it is the most important aspect of, I believe, where we are today. I think we have a variety of trends facing us, we have obviously automation in our transportation sector that is across the board of all the interests represented at the table here and the diversity of our transportation system. And we have the human factor interface of automation and transportation, so as automation increases, so do the risks with human factors. Nothing says that more than the incidents of the 737 Max and what happened. And we have another trend, Ms. Petsonk, that you represent most which is globalization and what is the rest of the world doing on that. So we, as someone said, if you want to be the leaders in aviation, you need to be the leaders in aviation safety. So we want these standards to be met around the globe. And we want to be the leaders in this, including having the right workforce. So I would like to ask each of you, what are the one or two changes that you think we need to make to assure that we are giving the due diligence to this issue of automation safety and workforce as it relates to making the United States the leaders here and not laggards, and certainly not adhering to a lower standard on the international front? We want to have the best standard on the international front and lead the way on that discussion. So if we could just--one or two things that you think we need to do to help with that.

**The Hon. Jennifer Homendy:** I think we need to design our systems in a way that prevents human error and takes into account human performance, but then I also think that we need a strong safety foundation. We need safety standards, safety measures, that are in place, whether it's on our roads, whether it's automated vehicles, whether it's in aviation, you have to have that framework in place, as technology is implemented.

**Cantwell:** So standards, and the first thing you said was—

**Homendy:** Standards, especially in road safety, we have to design our system in a way that creates a system to prevent a driver from making an error in the first place. So much focus has been on driver behavior and how to change driver behavior, and I'm referring just to road safety here, but we have to create a system that prevents that in the first place. That's something that aviation industry has championed in, their human factors experts have found and advocate for, and try to create systems that are designed around preventing human error.

**Cantwell:** Thank you. Ms. Hedlund, we have to go a little faster here sorry.

**Ms. Karen Hedlund:** Alright thank you. When I was at FRA, certainly safety was is absolutely number one concern and we would begin weekly staff meetings unfortunately sometimes with the recitation of workers might have died the week before. But let me speak to a development in the freight world, we have the best freight system in the world, and as a result of technology, the freight lines have gone to something called precision scheduled railroading. It's a model adopted by virtually all the Class One's but the shippers have found it disruptive--and the communities, one aspect of this is running long trains, we now have sometimes trains for three miles long and we don't have sidings that are three miles long. So as a board member, I'm going to commit to assure that there's appropriate remedial action taken whenever it's warranted.

**Cantwell:** Thank you, Dr. Hampshire?

**Dr. Robert Hampshire:** Chair, thank you for the question. I was actually a faculty member in the human factors group around transportation and automation, so this hits home for me. Within the Office of Research and Technology is the Volpe center which does--we do research on, we have a big human factors group. And so there began continued research about behaviors, human interaction with automation, I think there's more to be done both at the human factors level, and also in Office of Research and Technology is the highly automated Safety System Center of Excellence, which Congress created--authorized to help us create a workforce and capacity building within the Department of Transportation that's cross modal. So the bottom line is cross modal learning from, you know, the transportation system has a lot of expertise across from aviation to rail, and we can learn from that.

**Cantwell:** Thank you, Ms. Petsonk?

**Ms. Carol Petsonk:** Thank you, Chair Cantwell, for the question. And you're focused also on the international aspect and for that, the Office of Aviation and International Affairs works with our partners in the department, including the FAA, which has the lead for aviation safety, and with our colleagues in the Office of Research, to bring the research and results into the standardization bodies like the International Civil Aviation Organization and the World Forum for harmonization of vehicle regulations

so that we can work with our partners around the world to ensure that not only are there high levels of standards, globally, but that there is an opportunity for American technologies and American innovations to compete under those standards.

**Cantwell:** Thank you. I would like a little more refinement on that but since I've got to go to my colleagues--so think about what one or two changes you think we need to implement now to gain that, because we're not going to tolerate a race to the bottom for ICAO. We're not going to go to the international community and agree that since somebody can do way more automation in planes because they think that that requires less pilot training, we want to go to ICAO with the system that has redundancy.

## **Q&A Round 2**

**Cantwell:** I'm going to ask a last question back to you, Ms. Petsonk, about the things we need to do internationally on aviation. As I mentioned in our questioning before, what do we need to do to keep this standard internationally, one of the things that we're worried about is as the rest of the world continues to innovate, to look at aviation, to get in the aviation business, let's just say it's one thing that a lot of developing countries look for, let's get an airline, let's get in the airline business. And obviously we need standards as the rest of the world continues to move more towards aviation infrastructure. So one of the concepts is that we should make planes easier to operate because, obviously, automation can give you some safety standards, but some people look at it as a way to avoid pilot training. And I think we in the United States have come to the conclusion that you need both--that you need automation, and you need human factors to understand that automation, but you also need redundancy, that if you turn off the technology, people know how to fly the plane. So, where do you think we need to be on this as it relates to ICAO and what we'd be advocating for internationally?

**Petsonk:** Thank you Senator and we share your concern for safety. A Secretary Buttegieg says, safety is our North Star. My office, the office of Aviation and International Affairs, works closely with the Federal Aviation Administration, FAA, which has lead on safety across our department. And we are also in touch with our team at ICAO, I speak with them on a daily basis until we understand the importance of working at ICAO and the challenges there in terms of working there on the standards. And I pledge to you that I will work closely with FAA, and with our team at ICAO on this going forward.

**Cantwell:** Ms. Homendy, do you have a comment here? Could you help out Ms. Petsonk on this? I think we're trying to get more of a commitment from the administration that we're going to--I'm not sure where everybody in the administration is, but certainly the Transportation Secretary should make a commitment that the United States is going to advocate for pilot redundancy, and that's what we should be articulating at an international level. I get your background might be more on the environmental side but this is going to be a critical, critical issue. We're going to have a lot of nations and a lot of growth in

aviation, and we can't have this international discussion be, let's, you know, make a race to the bottom. We need to be a race to the top and I think that what we've seen in the United States is that that level of redundancy with the pilots and with automation is the best bet. And I think that would put us in the best stead moving forward. Ms. Homendy, from your venue of many years here, what have you seen on this point?

**Homendy:** The U.S. absolutely has to be a leader here and on the international front on safety. Safety has to be the priority and we have to lead on it. And in this area, I mean, I think, you know, pilots still have to be pilots. They have to be trained to adequately do their jobs, and then when they're not, when an error occurs, there has to be safety redundancy as you stated. But then, there has to be a strong safety culture by the organizations involved as well, whether that's FAA, whether that's ICAO, or whether it's any of the actual companies that are involved with making these decisions. I mean, there, there are a lot of decisions that are made that directly impact pilot safety and safety has to be first and foremost, the priority over innovation. Innovation is critically important, but if you don't have safety standards or safety measures or the safety of workers like pilots first and foremost, then we aren't the leaders.

**Cantwell:** How many NTSB accidents have you been involved in on an international basis where the company or the organization didn't adequately train pilots?

**Homendy:** Me personally?

**Cantwell:** The agency.

**Homendy:** Numerous.

**Cantwell:** So it's a common factor that we're already seeing?

**Homendy:** Internationally and domestically.

**Cantwell:** So we, this is, you know, of utmost importance. Again, we want to have this level of redundancy to the system. It's not that we don't believe that automation can help us, and certainly as Dr. Hampshire will have to continue in his work to do is to articulate where those lines are that we have to, I'm trying to think of your words that you used, Dr. Hampshire, but mediate, I think was the word that you used on the training system. Cross mediation learning? What was the term you used?

**Dr. Hampshire:** I said cross modal learning, so learn from different modes of transportation about automation and redundancy and resilience.

**Cantwell:** So again, what's going to happen is, on the international basis, people are going to advocate that, "use automation, it'll drive down the cost, and thereby we don't have to do as much training." And this is just the opposite, I believe, of where we need to go. And so, Ms. Homendy, again, I think the NTSB has a lot of previous cases where this is exactly the level of lack of training that's not being done on an international basis now, and then the consequence is that it affects, you know, the entire system. And so what we want to be articulating to ICAO is that we have to meet this standard. We should be arguing for a higher standard that currently is being met. Now does that mean that countries and new entities who want to go into the airline business have to meet that standard? Yes, yes, that's what it means. But you can't let somebody in the world market try to undersell us on the notion of, "we can just go with automation." We just cannot let that happen. We won't be meeting the safety standards that we need to meet today. So unless we have another colleague joining us, I know we've got a busy schedule here and ran into votes but before I close the hearing, we have to ask all the nominees, will you pledge to work collaboratively with the committee, provide thorough and timely response to our request for information, as we put together and address important policy issues and appear before the committee when requested?

**All:** Yes.

**Cantwell:** Great, thank you.