U.S. Senator Maria Cantwell

Senate Committee on Commerce, Science, and Transportation
Subcommittee on Space and Science

Promoting Safety, Innovation, and Competitiveness in U.S. Commercial Human Space Activities
Witnesses:
Caryn Schenewerk, President, CS Consulting
Wayne Monteith, President and General Manager, National Aerospace Solutions
Sirisha Bandla, Vice President of Government Affairs and Research, Virgin Galactic
William Gerstenmaier, Vice President of Build and Flight Reliability, SpaceX
Phil Joyce, Senior Vice President of the New Shepard Business Unit, Blue Origin

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Question Segment
VIDEO

Senator Cantwell: We have reached new heights, including the striking images of new galaxies from the James Webb Telescope. The U.S. Space Program continues to evolve and forge ahead with partnerships between the public and the private sector. SpaceX Falcon 9 was the first to take NASA astronauts to the International Space Station. And now civilians are riding on the edge of space in commercial aircraft.

We're very excited about all of this in the State of Washington, we like to say that Seattle is the "Silicon Valley of Space" – that is the intersection of software, and hardware, and probably Boeing engines, and other things all coming together. I think we have something like $4.6 billion in economic activity and 13,000 jobs.

We had the NASA Administrator out this past summer to talk about some of that innovation and [bring] a little sharper focus on workforce issues -- I'm very concerned about workforce needs at FAA, at NASA, in the space sector in general, and what we need to do to further incent or encourage young people… particularly women, to go into that field. And certainly [we] wanted to continue the R&D innovation and collaboration [discussion] but really start thinking about what one might consider high-rate piece part manufacturing, juxtaposed to where we've been thus far. How do you speed up the next

level of aviation aerospace construction? And what do we need to do to be really good at that? Those were some of the conversations we had in Seattle with the Administrator and a great group of participants from a variety of segments.

And I wanted to follow up today first with that question about STEM and workforce. I'm very excited that NASA continues to play a very big role for the FAA. And we're really, with the FAA safety bill that we passed a couple years ago, trying to increase the technical expertise at the FAA in next generation technology issues.

What do we need to do to get this right at NASA and in the private sector in encouraging a very, very robust space workforce? Just go right down the panel.

Caryn Schenewerk: I think you're right to focus that there is a need within the FAA to make sure that we're able to attract and retain excellent talent there. So some ideas have been put forward about the idea of expediting hiring opportunities.

I also think collaboration between industry and government with regard to employees. So we have employees that go from one agency to another agency. But in some instances, there are opportunities. For example, with the former Air Force and Space Force, there were embeds from government with industry. And that really does foster a technical interchange and an understanding. And that also can help understand that the opportunities that are in government, to stay in government. So you know, for example, I'll commend my colleagues here, Mr. Monteith, who left the Air Force and then went into government service again to work with the space industry at the at AST. And those kinds of exchange of information, even from government agency to government agency, but particularly where we can foster from industry movement and exchange there.

Senator Cantwell: Okay.
Wayne Monteith: Thank you, Chair Cantwell. I would simply put it in two buckets. Number one, I think we need to have a much more robust intern program to get the college grads or future college grads interested early into government service and those technical fields. And number two, tagging on Schenewerk's comments, when I was in FAA, we had started looking at how do we move back and forth, not from government agency to government agency, but from government agency to industry *and back*. Because I think the entire system would be better served from having more technically knowledgeable and advanced employees on both sides. Thank you.

Senator Cantwell: Okay.

Sirisha Bandla: I completely agree with both my colleagues. I'll just talk about the underrepresented group. Look at programs that invest in demographics that you don't typically see in industry. Women, people of color, they don't have the same opportunities as others. So programs that do reach that group.

And it's interesting because I am a woman, person of color. I joined this industry and believed I could succeed in this industry because I met people from this industry doing

incredible things. And that made it real and made it a possibility. So let's look at programs that reach out to those communities that don't have those opportunities.

William Gerstenmaier: You know, I would add that if there's an exciting mission that people can get really excited about, and they can see a sense of the future that's brighter, and a chance to really open the horizon…Space gives you that opportunity to think about a better future. And I think we can entice the young people to get excited about that.

And then if we can also be open to new technology. If we can take what they've learned in gaming, and what they've learned in computer worlds and bring that into our world, we can expedite manufacturing.

And I think we also need to be extremely open into diverse areas. We need to be open to all ideas, and not assume that anyone doesn't have an idea that has value and cannot be used. We need to be open to every idea, look for innovation.

And the same thing, even with a regulatory environment, we can no longer continue the same process. We need to look for ways to be innovative and creative and open the AI aperture so we can accept diverse opinions and different ways of doing business. We keep doing things the same way, we won't get the results we want. But I think that excites the young generation.

Senator Cantwell: Thank you. Mr. Joyce?

Phil Joyce: Yeah, I think the only thing I'd add and my colleagues have made some of these points, is play the long game. Expand the workforce, right? How do you do that? You get more women, more people of color engaged. And you start that at an incredibly early age to make it more attractive, more appealing to those groups to join the type of workforce that we need in this industry, and the FAA needs to regulate. Make the pool bigger, start early. Blue [Origin] is sponsoring a "club for the future" which is a STEM program that starts in preschool, starts in elementary school. I think we need more of that.

Senator Cantwell: Starts in preschool?

Phil Joyce: It starts in kindergarten actually. Close enough. But yeah, why not, right? It's one of those things where you want that culture. You want these people to grow with that opportunity, to see people, like my colleague Ms. Bandla here, doing what she's doing and be able to do that themselves. So I think that's how we do it.

Senator Cantwell: Well, definitely as an application of a STEM occupation, I don't think you can get something more exciting or more interesting. So we would hope.

…[A]as I've traveled to various facilities around the country, it's clear to me that there are a lot of technical people at our space facilities that don't have four-year degrees.

And we need to send out a big loud message everywhere that these are technical jobs that are well-paying jobs. …[I] I don't know if we're missing a space at community college where we're saying "this is your space technician program" or something like that. But I feel like we should be doing more in this particular area. As I said, my region is very interested in this as we transfer to more rapid-pace manufacturing and production.

I just want to make one more point about this. I literally believe that we have to start thinking about CTOs. And maybe even CTOs by sector. By that, I mean, if you think about it, within the FAA there may be a CTO specific to certification and there may be a CTO specific to commercial space. I just think the changes in technology are so rapid that you need somebody who is the overall guidance, when it comes to the types of innovations we're seeing. How else do we keep a whole workforce at the FAA up to speed on that?

I ran into a gentleman in my community, Edmonds, Washington, but that's where you will run into a lot of Boeing engineers just walking around on a Saturday afternoon. But he said, you know, we used to have chief engineers. He said there was never a way to fool the chief engineer. You always were afraid to go in front of them because you knew you're never going to fool them. The point is that now we have all this technological change and it's so big, and as the FAA grapples with still certifying commercial airplanes, but then trying to figure out how to certify space travel, how are we going to do that without some key technology leaders at key posts within the FAA?

Okay, so I'll submit some questions for the record on that. But I thank the witnesses for this hearing and appreciate the input, particularly on the safety side, but also on how we come back to this issue of the learning period that's expiring and what we need to do for the future. Thank you.