

## U.S. Senator Maria Cantwell

### U.S. Senate Commerce Subcommittee on Aviation Safety, Operations, and Innovation Hearing on FAA Reauthorization: Integrating New Entrants into the National Airspace System

**Witnesses: Lisa Ellman, Executive Director (Commercial Drone Alliance); Gregory Davis, President and Chief Executive Office (Eviation); Colonel (Ret.) Stephen P. “Lux” Luxion, Executive Director (FAA Center of Excellence for Unmanned Aircraft Systems (ASSURE)); Stephane Fymat, Vice President and General Manager (Urban Air Mobility and Unmanned Aerial Systems, Honeywell Aerospace); Edward M. Bloen, President and Chief Executive Officer (National Business Aviation Association)**

September 28<sup>th</sup>, 2022

[\[VIDEO\]](#) [\[AUDIO\]](#)

**CANTWELL:** Thanks Chair Sinema. Thanks for chairing this important hearing along with your colleague Ranking Member Cruz and the important witnesses that we’re having today.

I also want to thank you, you mentioned the CHIPS and Science Act and want to thank you for your help in leadership in the final days of our negotiations in getting that done.

Today, we're here to hear from a set of witnesses to talk about the current issues of aviation, and the fact that an FAA bill is due for reauthorization next year. This is an opportunity to talk about the prospects of that and what needs to be addressed.

Today’s hearing will specifically examine how Congress can help advance aerospace safety and innovation and what we need to do for the future, whether that is drones to new air mobility concepts.

So I look forward to hearing from all of the witnesses.

I'm especially happy to hear from Gregory Davis, President and CEO of Eviation. I want to congratulate Eviation on yesterday's “first flight” of Alice, the first time and all-electric [commuter] aircraft, built from the ground up, took flight. I wish we had time to show the video from it because you can hear a lot of cheers that Moses Lake from everybody there for this historic occasion. This groundbreaking aircraft took flight from a 13,000 foot runway at Moses Lake Flight Test Center in the heart of Washington. Along with local partner companies like magniX and AeroTEC, I can see why this project has been so successful.

Electric aircraft like Alice, built using 95% composite materials represent an inspiring promise of American-built innovation and an exciting future of sustainable aviation.

Locations like Moses Lake show how a combination of public infrastructure and private sector ingenuity create a hotbed for developing next generation aerospace technology.

Eviation and Advanced Air Mobility concepts provide an opportunity to expand connectivity to regionally and underserved communities and airports.

We know that half of all flights in the U.S. are less than 500 miles in range. So, yesterday's successful integration test flights prove the concept that we have sustainable aviation technology and that it can transport people to these short and middle mile regional routes.

This significantly can reduce the aviation's industry environmental impacts in terms of carbon emission and noise pollutions.

And achieving the technical milestones enables companies like Eviation to focus on commercialization of aircraft like Alice in line with the evolution of battery technology, something that was a very key part of the CHIPS and Science Act. And the FAA certification process will also have to be there to move forward on the all-electric flight if it is to become an industry standard.

But for me, I think the CEO has said it best that these new opportunities for places like Seattle to Walla Walla, or maybe Spokane to Missoula, or Moses Lake to parts of Oregon or California, are now the kinds of things that would be more economical with these kinds of flights.

Electric planes can connect regional communities in ways previously not possible. There are more than 2000 underutilized airports in the United States and noise restrictions that cover more than 200 airports in the United States alone.

So Congress has made significant progress to empower this kind of innovation and dynamics and we need to continue to work to help those opportunities move forward. The 2022 Inflation Reduction Act provided a grant program to develop sustainable aviation fuel and also to incent other types of manufacturing like electric.

Because of our success in passing the CHIPS and Science Act, \$280 billion is authorized to bolster innovation, create new regional tech hubs, and make historic investments in basic research and "translational science." So we know that investing in innovation will help us for tomorrow.

Another innovation are the new entrants in aviation. For example, drones, one of the fastest growing segments of aviation in the United States. Over 860,000 drones have been registered with the FAA, and as of January, over 260,000 remote pilots have been certified. The FAA expects this number of registered drones to grow as high as 2.31 million by 2024.

The use-case for drones continues to grow well-beyond the package delivery to include surveying, infrastructure inspection, precision agriculture, weather monitoring, and even disaster response.

The Association for Uncrewed Vehicle Systems International forecast that between 2015 and 2025, civilian drones will add \$82.1 billion to the U.S. economy, along with 103,000 new, high-paying jobs that do require a technical degree.

So additionally, U.S.-based manufacturers are busy designing and building electric vehicle aircraft with vertical takeoff and landing capability. These operations can take off like a helicopter, my colleagues before me have mentioned this, and then fly to a fixed-wing airplane.

According to Deloitte, the AAM market in the United States is estimated to reach \$115 billion [annually] by 2035 – 0.5% of the country's current GDP -- and create more than 280,000 high-paying jobs by 2035.

Importantly, AAM and alternative propulsion technologies are environmentally friendly and a must have for the industry's future. Aviation contributes 12% of U.S. transportation emissions and accounts for 3% of the nation's total greenhouse gas production. So dealing with these issues is going to be vitally important for the future.

So I look forward to hearing from my colleagues and thinking about the future of aviation. But as my colleagues have pointed out, it does require strong leadership from the FAA. The bill that Senator Wicker and I passed that we expect and will continue to have oversight over the FAA to get the right policies in place, get the right people in place, and continue to focus on security, as well as competitiveness. Security will help us be the leaders in aviation, and I hope that we can talk about how to continue to maintain that as we move forward with the reauthorization.

### Q&A Portion

[\[VIDEO\]](#) [\[AUDIO\]](#)

**CANTWELL:** Thank you. Mr. Davis, I want to congratulate you again on yesterday and the flight of Alice, very exciting news in the aviation world as you made comment to earlier. This was no small achievement and I know that the work has been ongoing by you and many others. So again, congratulations on your efforts to decarbonize aviation and have electric planes.

I wanted to follow up on your comments and maybe tie in Mr. Bolen as well. When we look at Essential Air Service and we look at some of our challenges in transportation, I understand your current plans or the idea was originally for a 2027 date. And that is, you already have commitments from Cape Air, a regional carrier, and DHL for cargo. What steps does Congress need to take to continue to look at this issue you brought up of coordination between the FAA and DOE on battery standardization?

**DAVIS:** Thank you very much Chair Cantwell and again, thank you for the kind welcome. It was a very exciting day. I'm actually here at our flight test facility, the Aerotek flight test facility in Moses Lake right now, not very far from where we flew.

There are many aspects to what we're doing here with the electric aircraft that play into the broader discussion as well as the specific infrastructure requirements. We talked about the walk, fall, crawl, run methodology that we've generally accepted in aviation. It certainly doesn't

feel like a crawl or a walk with what we're doing right now. But what we are we are doing is an important stepping stone to actually bringing electrified aviation to the marketplace.

We are choosing the path of taking an electric conventional takeoff and landing airplane and developing that for electric propulsion and battery power. What that allows us to do is to leverage the existing airspace requirements. So we take off from an airport we fly in airspace and we land at an airport. It allows us to focus on the technology development.

The FAA discussion we had before about aiding in the certification of batteries, making sure that we're using advanced technology as quickly and as safely as possible to enable the mission profiles that we're looking for. Right now Essential Air Service routes that are typically less than 250 nautical miles or less than 300 statute miles. And then also adopting the advanced operating technology for the aircraft to allow for single pilot operations, which is again, upon the pathway to full autonomous operation for cargo and eventually passenger operation.

With respect to the DOE, and potentially DOT, and FAA, what we need to do is to look at the establishment of the charging infrastructure. The good news compared to say the broader automotive charging infrastructure is whether it's the 2,000 airports that have had some service, or are very near large urban centers, or the broader 5,000 airports.

In aviation, unlike in car, you want to be able to go wherever you want to go when you want to go there. In aviation, we tend to want to take off exactly when we meant to, go exactly where we wanted to, and land exactly where we wanted to, all on schedule. So it becomes much easier, especially in the Essential Air Service map to develop that infrastructure.

What we're looking at doing with those customers that you've identified, in particular with Cape Air, is building out a proof network showing that we can actually operate in a subset and then scaling it from there. And that's where it's certainly interaction between the FAA on the airport side and on the aircraft charging interface, and the DOE in terms of overall battery technology will benefit the industry.

**CANTWELL:** And what about DHL though, when you're talking about cargo? Because obviously, you're talking about a marketplace of whatever nine passengers or something like that. When you're talking about cargo, what is the profile there?

**DAVIS:** So thank you for that. The cargo missions are going to be very similar. So again, they're that last 100 miles of delivery. It's taking two or three hours of delivery time for the packages that we want to see arriving. Again it's going to be point to point. For the initial deployment of the aircraft we will know where the aircraft are intended to go. I mean we as an industry will know specifically which airports we'll be operating from and so we need to start there and help build up the infrastructure.

**CANTWELL:** Well, this to me seems like a game changer when I think about some of our problems, particularly with the airlines and even with the expansion of Payne Field. And people

are happy to have flights to Palm Springs, and Hawaii, and various places, a lot of people wanted flights to Spokane. So the notion that Walla Walla that's constantly short changed, you know very big and growing wine region of our country, but one flight a day or two flights a day, you can change that.

And you could have people going five or six flights a day. Now, it's all economical. So you're changing the dynamics of a rural economy and that could be a very interesting solution for driving efficiencies into the marketplace.

**DAVIS:** Yeah, thank you for that. So certainly, with the aircraft that we're developing, and this being the first entrance into the sector, you will immediately be able to actually produce less emissions on that same duration of trip than you would in a car. There's literally no tailpipe on the aircraft. So the emissions that we produce are during the production of the aircraft, and from the power that's derived from the energy grid wherever you're operating the aircraft. There's plenty of opportunity to make that better.

One of the- and I thank you very much for your words about changing the industry, changing the world. That's exactly how we see it.

It's a very easy game to play to think where are you right now? And could you find nine people or eight other people who wanted to go 200 or 300 miles away right now? And for Moses Lake to Walla Walla, or to Payne Field as you've just said, those are routes that we will be able to do as the aircraft enters into service.

So certainly, the applications and the capability of the technology that goes into the aircraft will allow those routes to expand and only further improve our capability to transform regional air travel.

**CANTWELL:** And I see my time has expired, Madam Chair, but one - your testimony references, the fastest growing emission increases, is that because of the global demand in aviation, is that where you're getting that.

**DAVIS:** Yes, thank you for that. So absolutely, it's very important for us to recognize aviation in particular is a global business. It's well said that airplanes tend to get around. So again, this actually does present the commercial opportunity that we have to take the leadership role again in driving standardization and certification requirements.

Right now, again speaking for Eviation, we truly feel that we are in a leadership position that we are ahead of certifying and bringing an aircraft to market that can fulfill these mission roles.

And so this is a global problem. Those emissions are our global emissions and projections. No one country can do this on its own, it needs to be done by everybody. And so by working together and establishing common standards it will remove barriers to bringing product to market, which will further our ability to impact positive change sooner.

**CANTWELL:** Thank you. Thank you, Madam Chair.