

Testimony of Ann Ardizzone
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House Transportation & Infrastructure Committee
Subcommittee on Aviation
“Preparing for Take-Off: Examining Efforts to Address Climate Change at U.S. Airports”
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Chairman Larsen and Ranking Member Graves, and distinguished members of the House Transportation & Infrastructure Subcommittee on Aviation, thank you for the opportunity to appear at today’s hearing. My name is Ann Ardizzone and I am the Vice President of Supply Chain at Alaska Airlines. In this capacity I work across our organization – and with our sister regional carrier Horizon Air – to ensure that our operation, employees and guests have what they need to not only get from place to place, but to experience an airline people love. It also means that my team and I are deeply engaged in helping the company meet its goals for the future and to ensure that we have a strong supply chain to support and drive innovations in aviation.

This year Alaska Airlines is celebrating our 90th anniversary. We have always taken a balanced, long-term approach to running our business, and that’s why we are here today, ready to deliver for the next generation who depend on us. Alaska Airlines is the 5th largest U.S. carrier. We are the only major airline based on the West Coast, with our headquarters in Seattle and additional hubs in Los Angeles, San Francisco, Portland, and Anchorage. With more than 1,000 flights per day across North America – spanning from Hawaii to Washington, D.C. – we operate and employ people in urban centers and rural areas across the U.S., as well as in Canada, Mexico, Belize and Costa Rica. As a member of the **oneworld** alliance, our passengers, whom we call guests, can reach over 900 destinations in more than 170 countries and territories. We are also the only pre-deregulation passenger airline still operating a dedicated freighter fleet in the U.S.

We are committed to safety as our number one value, to exceptional caring service for our guests and communities, and to offering low fares enabled by maintaining low costs and running our business in a fiscally conservative way. We are proud to be one of the few airlines that has never filed for bankruptcy.

We brought those same historical commitments and values to addressing the challenges brought on by the pandemic. The entire aviation industry – labor, airports, airlines and government – collaborated in an unprecedented way to meet this moment.

Throughout the pandemic, Alaska Airlines didn’t lose track of what is important: Leading with our values. As we return to growth, it is an opportunity to rebuild responsibly and embed these values even deeper in our culture and our business.

In April 2021, Alaska Airlines announced our new 2025 sustainability goals across the most important areas of impact for the company, including near-term goals to be the most fuel-efficient U.S. airline by 2025. The company also set an ambitious goal to achieve net zero carbon footprint by 2040. That strategy leverages operational best practices and next-generation disruptive technology to transform and reduce the long-term climate impact of aviation – another area we will continue to need to partner with government on as we modernize in this next age of aviation, and the topic of today’s hearing. To turn our sustainability commitment into real action, we tied company-wide performance-based pay to measurable progress — because that’s what creates deep organizational and cultural change. And we

are proud that the sustainability efforts of our employees have been recognized among the TIME100 Most Influential Companies in 2022 and contributed to Alaska Airlines being named the worldwide 2022 Airline of the Year by Air Transport World.

This isn't easy work - aviation is a difficult sector to decarbonize. We love airplanes and we know that connecting people is critical to businesses and families alike. We also know that we burned 656 million gallons of jet fuel in 2021 to get people and cargo from point A to point B – and we've got to do that more sustainably. Our "flight plan" as we call it includes five parts, each of which have an aspect related to our operations at U.S. airports as well as in our skies. *[See Exhibit 1]*. In 2021, Alaska Air Group also launched and funded Alaska Star Ventures LLC, an investment arm with a primary focus on identifying and supporting companies working on emerging green technologies, because we know that much of the path ahead relies on innovation and expanding access to new options – and that work will take all of us.

Here's our five-part plan – I'll describe what Alaska Airlines is working on with our partners but also the opportunity for government collaboration to advance each part for the industry, airports and communities we serve:

1. Operational efficiency
2. Fleet renewal
3. Sustainable Aviation Fuel
4. New propulsion technology
5. Carbon offsets

1. Operational Efficiency

At Alaska Airlines, we explore every opportunity to reduce fuel burn and emissions within our operation. Alaska Airlines has a long history of prioritizing operational efficiency and continues to stay laser focused on continual improvement in this area. In the air, Alaska Airlines is the first domestic airline to use a new software system that uses artificial intelligence and machine learning to help our dispatchers determine the safest and most efficient flight plans. So far, we've optimized 20,869 flights – about 10% of all flights – with a net savings of 241 pounds of fuel per flight optimized.

We also look to find efficiencies on the ground through company policies like turning off auxiliary engines and plugging in to preconditioned air at the gate, or single engine taxi when possible. Executing an efficient aircraft turn has the potential to save 469 pounds of CO2 from being emitted which is the equivalent of driving a car 535 miles, or driving from Washington, D.C. to Detroit.

Working to address climate change impacts and find efficiencies on the ground requires close partnership with our airports and will require investment from the federal government. These projects are important not only for the broader impact on climate, but for impact to airport communities close to home. These relationships between airlines and airports work best when we have shared goals and commitments on reducing the carbon impact of travel and finding creative solutions together, without resorting to mandates or punitive policies.

There are success stories of airports working with airlines to simultaneously invest and seek funding for electric ground-service equipment (eGSE) and the required electric and charging infrastructure needed to support eGSE. A real challenge is not necessarily the procurement of eGSE equipment itself, it is

insufficient charging stations and limited space for charging eGSEs. I need to know, as VP of Supply Chain, that the equipment is the right investment and will be able to be used.

Today Alaska Airlines' GSE fleet is 34% electric and by 2025 our GSE fleet will be 50% more efficient than it was in 2020. We are working with airports across the country to meet this goal including the Port of Portland (PDX) and Pittsburgh International Airport (PIT) represented here today. We are actively supporting PDX on numerous projects that will result in lower carbon emissions, including gate electrification and ground equipment charging stations, as well as supporting their hydrothermal groundwater heating system. With regard to PIT, Alaska Airlines supported their FAA Voluntary Airport Low Emissions (VALE) grant application to provide electrical upgrades at gates, as well as purchasing preconditioned air for existing jet bridges which will allow Alaska Airlines to discontinue use of auxiliary power units (APUs) while at the gate and reduce fuel burn and emissions.

Ensuring that the electric capabilities at the airport and the infrastructure to the gate all the way to the charging stations are an airport function but can be costly. Many airports in the U.S. are over 50 years old and will require electrical infrastructure upgrades. These projects often are in excess of \$10 million, depending on the airport. When the electrical infrastructure is available, bringing the electricity outside of the terminal to install charging ports can cost between \$65,000 to \$80,000 per gate.

One way that Congress can continue to support the industry-wide adoption of electric ground service equipment is through an expansion of FAA's VALE program to support this critical airport infrastructure. Currently the VALE program allows airports to take proactive steps to improve air quality and reduce emissions in non-attainment (poor air quality) and maintenance areas according to the National Ambient Air Quality Standards (NAAQS). Eligible projects include eGSE like bag tugs and belt loaders, natural gas refueling stations, electric gates and terminals, and electric preconditioned air and ground power converter units. This program should be expanded to allow eligibility at airports not just airports based on limited air quality metrics. There are many airports around the country that would benefit from this expansion and is something Alaska Airlines supports, along with our trade association, Airlines for America (A4A).

2. Fleet Renewal

The second component of our flight plan is fleet renewal to modernize our aircraft and improve efficiency. We currently operate a mainline fleet of 227 aircraft. Last year, we placed a large order with Boeing and have added 21 new 737 MAX to our fleet, with orders and options for 124 more through 2026 as we transition to a single fleet. The new aircraft are more than 20% more fuel efficient on a seat-by-seat basis than the aircraft they are replacing, and we continue to work with Boeing and other manufacturers on ways to improve efficiency over time.

When it comes to working with our manufacturers to improve the efficiency of modern aircraft, we have seen great examples of government funded research turn into development of new designs and we urge continued investments. Back in 2017, Alaska Airlines retrofitted all eligible 737s with split-scimitar winglets (turned up extensions at the tips of the wings). These increased our fuel efficiency by 3% to 5% per aircraft, and winglets are now standard on all new aircraft ordered and delivered.

Continued and enhanced Congressional support for the various research and development programs supporting advancement in aviation are key to continued modernization of aircraft – winglets are just one example. These programs include both the Center of Excellence for Alternative Fuels and

Environment (ASCENT) – which is funded by the Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), the Department of Defense, Transport Canada and the Environmental Protection Agency (EPA) – and the FAA’s Continuous Lower Energy Emissions and Noise (CLEEN) Program, among other programs at FAA, NASA, Department of Energy (DOE), etc.

3. Sustainable Aviation Fuel (SAF)

With aviation’s reliance on liquid fuels continuing for the coming decades, SAF must be the immediate focus for carbon reduction in aviation. It is the critical lever the industry must utilize over the next several decades. SAF is a safe, certified drop-in fuel that meets all jet fuel standards and reduces carbon emissions by as much as 80% on a lifecycle basis. Alaska Airlines has been engaged with SAF development, testing and deployment for over a decade through our partnerships with Gevo (development and test flight), Neste (SFO utilization), Boeing (delivery flights), and Washington State University and the Port of Seattle (feedstock research and delivery). In addition, Alaska Airlines participates in several industry workgroups that help advance the research, development, demonstration, and production of SAF.

In 2021 Alaska Airlines announced a Memorandum of Understanding (MOU) with SkyNRG Americas to collaborate on the advancement of SAF production. Under the MOU, SkyNRG Americas will initially focus on the development of dedicated SAF production facilities to supply Western U.S. airports. This collaboration builds on the industry leading Alaska Airlines-Microsoft partnership announced in October 2020, aiming to use SAF to offset Microsoft employee travel between Seattle and San Francisco, San Jose and Los Angeles.

However, current SAF availability is well below 1% of total fuel demand, and the cost can be two to six times more than the price of conventional jet fuel. Scaling this market requires concurrently addressing price and production in order to enable the commercial viability of SAF. In the attached infographic [*See Exhibit 2*] we identify six key areas that require industry and government involvement and collaboration to ensure a scalable and viable market for SAF to be developed successfully in the near future:

- 1) Commercial-Scale Feedstock Quantities
- 2) Facilities for Production, Refining, Blending
- 3) Transportation & Storage
- 4) Pricing, Purchase & Accounting
- 5) Engine Infrastructure
- 6) Operations & Customer Demand

Alaska Airlines is pleased to see the increased focus on SAF from this Administration and from bipartisan members of Congress to address many of these key areas. Both the Administration’s Aviation Climate Action Plan and the SAF Grand Challenge recognize SAF’s key role in decarbonizing aviation. It will take positive incentive policies and collaboration between government and industry to make these collective goals a reality.

There is a broad coalition of stakeholders that are actively advocating for a SAF blender’s tax credit to be the foundational federal incentive policy to develop the SAF market, something Alaska Airlines strongly supports. I’d like to thank the bipartisan members of this Committee who are championing this effort with the Sustainable Skies Act (H.R. 3440/S. 2263). This is a SAF-specific blender’s tax credit of \$1.50-\$2.00 per gallon and would promote and accelerate investment in the nascent domestic SAF industry. A

robust SAF-specific tax credit is necessary to encourage investment in the sector and eliminate the existing disincentives for SAF production versus other ground-based alternative fuels, especially renewable diesel.

Alaska Airlines also supports the Aviation Emissions Reduction Opportunity (AERO) Act (S. 3125) which mirrors a provision the House has previously supported in past infrastructure bills to create a grant program at DOT that would provide funding to enable SAF producers to construct facilities and establish or scale up operations for production and storage of SAF, as well as support other low-emission aviation technologies.

In addition to these policies, the US government should continue to invest in research and development, as well as approvals and certifications, of new pathways and feedstocks for SAF. We are open to discussing additional policies that will ensure that infrastructure investments are made to support transport of SAF from production and blending facilities to airports, as well as policies that unlock private sector investment in this market.

Equitable access to SAF will be crucial to scaling a stable supply chain we can rely on in the future. We view this as a collective effort not only within the industry but with government. Public policy and positive incentives should support airports across the country, and carriers of all sizes, as well as a diversity of suppliers and producers in order to advance and scale a mature and competitive commercial SAF market. Creating a robust domestic SAF market will benefit our nation's energy independence, create jobs across the country, and ensure that the U.S. remains a global leader in aviation innovation.

I look forward to working with this Committee—and others—to explore additional ways to ensure the policies, capital, and infrastructure investments are in place to meet the challenge.

4. New Propulsion Technology

SAF is the biggest opportunity to decarbonize aviation, particularly medium- and long-haul flying. But there are other propulsion technologies emerging for longer-term impact to aviation, starting with regional.

One example is the potential for electric and hybrid-electric aircraft, including those using hydrogen, to play a role in decarbonizing regional aviation within the next two decades. To help make that a reality, Alaska Airlines announced a collaboration with ZeroAvia to begin development on a hydrogen-electric powertrain engine capable of flying regional aircraft. The partnership will explore deployment of ZeroAvia's hydrogen-electric propulsion technology into a full-size 76 seat De Havilland Q400 aircraft, previously operated by Alaska Air Group subsidiary Horizon Air. To support this initiative, ZeroAvia will join Alaska Airlines in our new hanger at Paine Field Airport in Everett, WA so that our maintenance and engineering teams can support each other. One particularly exciting aspect of this project was the potential to take existing aircraft and adapt to hybrid or zero emissions technology, as we need solutions that can build on existing aircraft fleets and infrastructure and make practical sense for the industry as a whole.

The AERO Act and new research and development investment opportunities and tax credits for electric vehicles will be essential to ensuring continued innovation in this space. When it comes to airports supporting these types of new aircraft in the future, Congress should consider policies that address already constrained airport infrastructure, airspace and capacity as well as the electric and other

infrastructure support that would be needed to support new propulsion technologies and existing operations.

5. Credible Carbon Offsets

Finally, Alaska Airlines believes that carbon offsets should be a last resort effort to reach net zero, but we also know that they will likely be necessary – in volumes that depend upon the pace and scale of progress in the steps above. Knowing that aviation is one of the hardest sectors to decarbonize, we will leverage credible carbon offsets, within parameters we’re developing with scientific advisors, to close any remaining gaps to our targets. . For now, for guests looking to offset their own carbon footprint we have partnered with The Good Traveler, a program founded by the San Diego International Airport and now used by over 20 airports, including Dallas Fort Worth International Airport (DFW).

Conclusion

In conclusion, Alaska Airlines is committed to creating a sustainable future for aviation, working with partners, including airports and government, on all aspects of our five-part path toward net zero by 2040. This is a long-term journey and it will take all of us. This work is exciting and critically important not only to those of us who are working on it, but it matters to our guests and corporate customers, people applying for jobs at our airline, and people who live in the communities we care about. Ultimately if we are going to be responsible to all those stakeholders – as well as our owners and others – we do feel pressure to make sure we are moving in the right direction.

While we no doubt have challenges that we need to work through, I have confidence we are on the right path. Thank you to the Subcommittee on Aviation and the House Transportation & Infrastructure Committee for holding today’s hearing and exploring best practices and policies to meet these challenges in a collaborative effort.

Exhibit 1 – Alaska Airlines Flight Plan to Net Zero by 2040

ALASKA AIRLINES FLIGHT PLAN TO NET ZERO BY 2040

2040



OPERATIONAL EFFICIENCY

We are exploring every opportunity to reduce fuel burn and carbon emissions within our operation, from gate to gate. We have long prioritized operational efficiency for safety, reliability and sustainability, and are laser focused on improvements. On-the-ground opportunities include preconditioned air use and single-engine taxi (where possible). In the air, we're using new technology to improve routes and save fuel.

FLEET RENEWAL

In 2021, Alaska took delivery of 11 Boeing 737-9 Max Aircraft. By 2026 we plan to have up to 145 MAX aircraft in our fleet. The new aircraft are 25% more fuel efficient than the aircraft they replace and we'll continue to work with Boeing on ways to improve efficiency over time.

SUSTAINABLE AVIATION FUEL (SAF)*

SAF is the aviation industry's most significant opportunity to significantly reduce carbon emissions. It is a safe, certified drop-in fuel that meets all jet fuel standards to reduce carbon emissions by as much as 80% on a lifecycle basis. In 2021, Alaska worked with partners like skyNRG to collaborate on future SAF production. We continue to work with corporate partners and government officials to push for ways to scale and mature the market for SAF. Today, there is not enough SAF at a volume and price that supports our operational needs.

**This is the most variable contribution to the pathway. It could contribute more or less carbon emissions reduction, based on how much we can advance the supply and commercial viability of the SAF market in the next 10 to 15 years.*

NEW PROPULSION TECHNOLOGY

Electric and hybrid-electric aircraft, including those using hydrogen, may be available for regional aircraft within the next two decades. In 2021, we launched a partnership with ZeroAvia to support development of hybrid hydrogen-electric powertrain technology for regional aircraft.

CARBON OFFSETS

Carbon offsets should always be the last resort of any effort to get to net zero. Air travel is one of the hardest sectors to decarbonize, and we need to evaluate every option until SAF and new propulsion technologies are viable and available at scale. For any carbon offsets we do use, we will work with third-party experts to source high-quality offsets with net offset value and a preference for carbon-removal and sequestration approaches which are durable, verified in carbon accounting, do no harm and do not displace emissions to another project.



CARBON OFFSETTING TECHNOLOGY



NOVEL PROPULSION



SUSTAINABLE AVIATION FUEL (SAF)*



FLEET RENEWAL



OPERATIONAL EFFICIENCY

Exhibit 2 – SAF – Meeting the Challenge

1. Commercial-Scale Feedstock Quantities

Sustainable and scalable SAF feedstocks can come from many sources including waste streams from landfills, forestry and agricultural residues, and over time from additional sources such as recaptured carbon dioxide. We need to invest in feedstocks, make information available on sources and sustainability of feedstocks, and to share this information publicly, including through public-private partnerships like the Sustainable Aviation Buyers Alliance (SABA). In some cases, permitting changes are needed to make waste sources available to produce SAF. Additionally, as technology develops to enable new sources for SAF, like using electricity to make fuel, we'll need to ensure safety certifications and pathways are approved.



2. Facilities for Production, Refining, Blending

The infrastructure needed to produce SAF includes retrofitting or constructing new facilities close to feedstocks (i.e. municipal dumps) and facilities to blend larger volumes as they come online. This should be done with an eye to geographic equity and price parity, different from the current market for traditional jet fuel. We need durable public policy to provide grants and financing options for SAF facility construction, to encourage private sector investment in SAF, and to streamline permitting of SAF production and transport facilities.



3. Transportation & Storage

SAF is what is known as a "drop-in fuel," meaning it can be incorporated into existing jet fuel transportation and storage, but SAF production facilities need to be efficiently connected to existing infrastructure or new transport and storage capacity needs to be developed. This requires reviewing pipeline policies and capacity to allow for growing SAF volume, and additional government financial and permitting support for transport and storage infrastructure, compatible with SAF production locations and airports.



4. Pricing, Purchase & Accounting

Partners across industries and around the globe are working, with NGO support, to clarify carbon accounting systems and transaction traceability that can encourage shared investment in SAF for concurrent Scope 1 and Scope 3 benefits. This work also enables demand signals, which can in turn de-risk private investment in SAF. Additionally, government tax incentives for SAF (state low carbon fuel standards, federal blenders tax credit) are needed to reduce price and drive economies of scale in the sector.



5. Engine Infrastructure

While safe certification of SAF is clear for available technologies, SAF is currently only allowed to be used for up to 50% of total fuel in an engine. Aircraft and engine manufacturers are updating their technologies and demonstrating the feasibility of SAF blends up to 100%.



6. Operations & Customer Demand

SAF is a proven drop-in technology, with reduced carbon intensity, increased energy density, and local air quality benefits such as reduced fine particulate matter emissions. We have a collective opportunity to ensure travelers are informed about the benefits and safety of SAF, and to engage them in supporting its development and use.

