AmCham EU
SPEAKING FOR AMERICAN BUSINESS IN EUROPE

Our position

Sustainable aviation

AmCham EU speaks for American companies committed to Europe on trade, investment and competitiveness issues. It aims to ensure a growth-orientated business and investment climate in Europe. AmCham EU facilitates the resolution of transatlantic issues that impact business and plays a role in creating better understanding of EU and U.S. positions on business matters. Aggregate US investment in Europe totalled more than €3 trillion in 2019, directly supports more than 4.8 million jobs in Europe, and generates billions of euros annually in income, trade and research and development.

American Chamber of Commerce to the European Union
Speaking for American business in Europe

Avenue des Arts/Kunstlaan 53, 1000 Brussels, Belgium • **T** +32 2 513 68 92
info@amchameu.eu • amchameu.eu • European Transparency Register: 5265780509-97

Introduction

The American Chamber of Commerce to the EU (AmCham EU) supports the EU's increased ambitions in reducing carbon emissions and encouraging a more sustainable European aviation industry. AmCham EU and its members represent the entire aviation value chain, from jet fuel providers and engine manufacturers to airframers and aircraft end-users. In line with the targets agreed in the Paris Climate Agreement, member companies are continuously working towards limiting their environmental footprint and introducing new measures to further reduce carbon emissions. AmCham EU is aware of the future impact of environmental attitudes on the improvement in aircraft performance. Our members in the aviation sector are investing sizable amounts in innovating for environmental improvement, including through the modernisation of aircraft fleets, as well as flight and ground optimisation. It is crucial that policy supports operators in reducing emissions while being reflective of what is possible and existing state-of-the art of research and innovation.

The COVID-19 pandemic has had an unprecedented impact on human life, the global economy and the aviation sector. As Europe looks towards recovery, the AmCham EU (aviation) members remain committed to achieving shared environmental priorities in order to contribute to a sustainable and resilient economy in the EU. We look forward to working closely with the European Commission to ensure the recovery of the sector in line with the EU's climate agenda post COVID-19.

Substantial progress made

Over the last 50 years the aviation sector has made major advances in improving fuel efficiency and making flying more sustainable. Aircraft have become 75% quieter and emissions have been reduced by almost 70% per passenger/km. In fact, a flight taken today will produce around half of the CO2 compared to 1990, thanks to an average fuel efficiency improvement of 2.3% per year made possible by technological advancement and innovative processes.[1] According to the European Aviation Environmental Report 2019[2], the environmental efficiency of aviation continues to improve and, by 2040, further improvements are expected in average fuel burn per passenger kilometre flown (-12%) and noise energy per flight (-24%)

The aviation sector has been and is doing a lot to improve its environmental footprint further. This means that the carbon footprint of the aviation sector will continue to grow despite the above-mentioned continuous fuel efficacy improvements. Therefore, additional and ambitious solutions need to be implemented to contribute effectively to the EU's climate targets.

New technologies

Technological improvements are a key enabler to achieving greater fuel efficiency and decreasing emissions of the sector. However, carbon free solutions will not be available for most aircraft in the foreseeable future. While the industry sees promise in the electrification of smaller aircraft, full electric flight will not be possible for longer journeys (>1000 KM) with today's technologies. In the short and medium term, the aviation sector will therefore need to focus efforts on weight reductions through innovative materials and manufacturing processes, improved engine efficiency and the incorporation of novel technologies. These kinds of improvements have made every new generation of aircraft approximately 20% more efficient than the previous and will continue to demonstrate emission reduction opportunities of similar magnitudes in the future.

Sustainable fuels

[1] https://www.aviationbenefits.org/environmental-efficiency/climate-action/

[2] https://www.easa.europa.eu/eaer/

While aircraft and engine technology innovation are essential, additional measures, such as the creation of a marketplace for sustainable aviation fuels (SAFs), improved air traffic management (ATM) and carbon offsetting schemes, will be needed to achieve common climate objectives.

SAF is the most direct way to make substantial reductions in net carbon emissions for aviation: SAFs, depending on the type and production, can reduce carbon emissions by up to 80%.

Many AmCham EU member companies have been long-standing supporters of SAF, have helped define standards and participated in the review, testing and certification of these fuels. These efforts have led to the successful certification of the seven SAFs approved to date. All engines in commercial operation today can already run on a 50% SAF fuel-blend, and there is a clear path towards the commercialisation of 100% SAF.

The use of these alternative fuels remains however low, due to the cost of raw feedstock, production and low supply. The production cost of SAF is currently at least twice as high as that of conventional jet fuel and higher than that of sustainable alternative fuels used in other transport modes, depending on the pathway. The recent oil market collapse also widened the fuel price differential between SAF and conventional jet fuel.

In this regard, policymakers should consider developing regulatory and financial incentives for the research, development and deployment of SAFs. An incentive-based approach would create stable market demand and therefore stable production as the industry continues to innovate. Furthermore, this can enable end users to make purchase commitments at prices equivalent to conventional fuel. Increasing production and supply capacity as well as lowering the cost of sustainable fuel so it becomes price-competitive with conventional fuel are the key measures that could trigger wider use by airlines. Overcoming these challenges appears fundamental to achieve the EU's goal of climate-neutrality and should stand as a core priority for SAF regulatory frameworks, in particular Refuel EU Aviation and the revision of the Renewable Energy Directive.

It is highly recommended to complement incentive mechanisms with a holistic framework that increases supply growth and stimulates technology development in the entire value chain.

Another solution being proposed is to reduce emissions is using liquid hydrogen (LH2) as a fuel. While LH2 as a replacement aviation fuel would have the potential to substantially reduce carbon emissions, there are still technical and logistical challenges that must be addressed. The viable commercialisation of LH2 will still need significant investments and technology maturation in infrastructure, aircraft and engine technology. LH2 is however a promising potential alternative fuel that can help reduce carbon emissions in the long-term. For the short-to-mid-term, SAF will be vital for bridging this gap and enabling immediate reductions.

The upcoming Multiannual Financial Framework (MFF) and future regulatory reviews should be leveraged towards facilitating the production and uptake of SAF especially in light of post COVID-19 European green recovery objectives. AmCham EU (aviation) members encourage a constructive dialogue with the EU Executive to support aviation progress in the development of environmentally progressive technology in the recovery.

Air Traffic Management (ATM)

Continued growth in air traffic is not only causing airport congestion, which results in more delays for passengers and air freight, but is also posing a significant challenge to improving the sustainability of the aviation sector. Improving the EU's ATM performance is key to optimise flight routes' efficiency, increase airspace capacity, reduce delays, increase safety standards, reduce costs related to service provision and minimise the industry's environmental footprint with less fuel burn and emissions. Effectively implementing the Single European Sky (SES) via a full integration of EU ATM networks is the condition to achieve sustainable air traffic growth and to enable a decrease in the EU aviation industry's carbon emissions by almost 10% (EU Commission).

Offsetting

Market-based measures are essential in covering emissions that cannot be addressed through technological innovation or sustainable fuels. In 2016, the International Civil Aviation Organization (ICAO) reached a landmark agreement with its 193 member states on a global carbon pricing instrument for international aviation (CORSIA). CORSIA will require airlines to compensate any increases in CO2 emissions above a 2020 baseline. This will

ensure carbon free growth from 2020 onwards and mitigate over 2.5 billion tons of CO2 by 2035. AmCham EU stands ready to support ICAO's progress in ensuring CORSIA's environmental integrity and supports the full implementation of CORSIA, as it is the only instrument addressing aviation emissions at a global level. Additional regulation should be viewed with caution, as it could cause regulatory overlap, potential double-reporting of the same emissions and a loss of competitiveness compared to other regions of the world.

Socio-economic benefits of aviation

Discussions on the sustainability of the aviation sector should not be disconnected from the vital socio-economic benefits that it provides. In 2016, the aviation industry supported approximately 65 million direct jobs around the world – including 12.2 million in Europe – and makes up 3.6% of the global gross domestic product (GDP). Beyond its economic value, aviation also provides a bridge between people, communities and cultures and supports global trade. This is an immeasurable contribution towards European and global integration fostering the implementation of the UN Sustainable Development Goals in the region. Only a holistic approach will guarantee greater sustainability without compromising the socio-economic benefits of flying.

During the COVID-19 pandemic crisis, the aviation sector stepped up to the challenge. By transporting essential medical equipment and supplies, transporting medical staff, repatriating travellers and maintaining global supply chains, aviation is bridging the world in a moment of crucial need.[3] The aviation sector has been a major global economic driver and with the right supportive measures, this strategically valuable industry can once again assume its role as enabler of Europe's economic activity during its recovery.

Innovation and collaboration

The aviation sector has made and will continue to make great strides across its entire value chain to contribute to the EU's climate objectives. Using only one tool from the toolkit will however not achieve the necessary carbon emission reductions. Only a multi-faceted approach that includes all stakeholders will allow to effectively leverage all available measures without negatively impacting the socio-economic benefits of the aviation sector.

The EU has been leading inclusive approaches that leverage cross-industry expertise to advance environmental goals. For the aviation sector, the Clean Sky and Single European Sky ATM Research (SESAR) initiatives have been the key frameworks for researching and developing efficient technologies. Contributors commit to achieving the environmental objectives of the programmes and together develop innovative approaches that find application on aircraft or advance the industries understanding of sustainable flight. AmCham EU members, such as GE Aviation, Honeywell and Raytheon Technologies (formerly United Technologies Corporation) have been successful contributors to these initiatives in order to jointly achieve ambitious climate targets. These include innovative projects on hybrid electric propulsion technologies, the introduction of new 3D printed materials and novel open rotor engine architectures.

Boeing's ecoDemonstrator programme

A successful example of such an approach and the impact it can have is showcased by the ecoDemonstrator programme led by Boeing with the participation of many key aviation stakeholders. The ecoDemonstrator is a flying test bed of innovative technologies for aviation. Testing emerging technologies on the ecoDemonstrator accelerates the assessment of improvements that can enhance the safety, operational efficiency and environmental performance of commercial aviation. Over the years, engineers and scientists expanded their scope of research from enhancing operational efficiency to assessing new features and approaches that can improve the entire aviation ecosystem. Projects include technologies that reduce fuel use, emissions and noise, and incorporate more sustainable materials.

Since first taking flight in 2012, the ecoDemonstrator programme has evaluated over 100 technologies. More than one-third of the projects have been classified as ready for implementation. Through collaboration across

[3] https://www.atag.org/our-activities/aviation-helping-to-combat-covid-19.html

countries and the inclusion of industry partners – including airline members of AmCham EU including FedEx Express – across the entire aviation value chain, this project has been able to champion sustainable technologies and processes. Most recently, the ecoDemonstrator programme flew to Europe on sustainable fuels and was on display in Germany in a joint event with Fraport that welcomed key partners on the 2019 programme, include Collins Aerospace, DLR German Aerospace Center, Fraport AG, Honeywell and the Luftfahrt-Bundesamt.

Additional comments

- Surface and road transportation can more readily benefit from electrification and the use of hydrogen than the aviation sector due to considerations of maturity, weight and safety. Conversely, aviation can benefit from alternative and synthetic fuels as drop-in replacements in concert with technology investments. A comprehensive and holistic approach to sustainable mobility will address these accordingly.

- Zero emission UAM is beyond the scope of this position paper. This is a relevant and forward-looking technology being developed by the aerospace industry. UAM vehicles can be considered in the context of urban air mobility, where they offer the ability to decrease urban congestion by leveraging the sky to offer faster and better connectivity. The deployment of this mode of transport will require a new regulatory framework to integrate this new vehicle class in the airspace in which they will operate in a safe and environmentally progressive way.