



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

Discussion document

**To inform the development of
an Aviation Strategy**

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Ministerial Foreword



Scotland is an open, welcoming and well-connected country.

Our international, national and regional air connections have allowed us to flourish economically and culturally. Visitors to Scotland enjoy our world-class tourist attractions; our businesses seize new opportunities from international trade; and our higher education sector welcomes new learners from across the globe. And for many of our most remote communities, the local air service is a vital lifeline, allowing travel to and

from the mainland for business, tourism, leisure, and to receive NHS services. The aviation sector is a substantial employer, delivering many highly skilled jobs, apprenticeships and career opportunities.

We know, however, that the industry faces two enormous challenges over the short and long term. Airports and airlines have been particularly badly hit by Covid, while our net-zero commitments mean that business as usual is not an option. The Scottish Government has set world-leading climate change targets and we are committed to achieving net-zero greenhouse gas emissions by 2045. This will include Scotland's emissions from aviation.

We are in no doubt that these are difficult times and we are under no illusion about the enormity of the challenge. But the Scottish Government is determined to work with the sector to ensure that we emerge stronger, well placed to challenge our international competitors and to deliver vital environmental improvements.

For the first time, the Scottish Government intends to produce an aviation strategy which will consider how we can continue to enjoy the economic and social benefits of air travel while meeting our net-zero targets. This discussion document invites your views on how we can achieve these goals, helping us to devise our strategy.

It's a difficult but exciting journey where the potential rewards for Scotland, our businesses and our communities are enormous, even life-changing. We look forward to your contribution.

GRAEME DEY MSP

Minister for Transport

Responding to the consultation

We are inviting responses to the online public consultation to inform the development of an aviation strategy by **21 January 2022**.

Please respond to this consultation using the Scottish Government's consultation hub, [Citizen Space](#).

[Access and respond to this consultation online](#)

You can save and return to your responses while the consultation is still open. Please ensure that consultation responses are submitted before the closing date of 21 January 2022.

If you are unable to respond using our consultation hub, please complete the Respondent Information Form to:

Aviation Team

Scottish Government

Buchanan House

58 Port Dundas Road,

Glasgow, G4 0HF

Handling your response

If you respond using the consultation hub, you will be directed to the About You page before submitting your response. Please indicate how you wish your response to be handled and, in particular, whether you are content for your response to be published. If you ask for your response not to be published, we will regard it as confidential, and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

If you are unable to respond via Citizen Space, please complete and return the Respondent Information Form included in this document.

To find out how we handle your personal data, please see our [privacy policy](#).

Next steps in the process

Where respondents have given permission for their response to be made public, and after we have checked that they contain no potentially defamatory material, [responses will be made available to the public](#). If you use the consultation hub to respond, you will receive a copy of your response via email.

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us. Responses will be published where we have been given permission to do so. An analysis report will also be made available.

Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please send them to the contact address above or at aviation.strategy.consultation@transport.gov.scot

Scottish Government consultation process

Consultation is an essential part of the policymaking process. It gives us the opportunity to consider your opinion and expertise on a proposed area of work.

You can [find all our consultations online](#). Each consultation details the issues under consideration, as well as a way for you to give us your views, either online, by email or by post.

Responses will be analysed and used as part of the decision making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise the responses received may:

- indicate the need for policy development or review
- inform the development of a particular policy
- help decisions to be made between alternative policy proposals
- be used to finalise legislation before it is implemented.

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

Purpose and vision

This discussion document will help the Scottish Government to develop an Aviation Strategy that realises our vision for aviation:

For Scotland to have national and international connectivity that allows us to enjoy all the economic and social benefits of air travel while reducing our environmental impact.

The discussion document will be used as the basis for consultation with the aviation sector, business, tourism, local communities and others on how we can achieve our vision. These discussions, alongside the responses to the online public consultation, will inform the future development of our Aviation Strategy.

The Aviation Strategy will then form the basis of the work that the Scottish Government and partner agencies undertake with the aviation sector and other relevant organisations to achieve our vision. As the Aviation Strategy will consider both short and long term goals, we will continue to adapt it in response to emerging trends and technological developments.

The Aviation Strategy will not consider the transport infrastructure needed to travel to and from the main Scottish airports as this is being covered in [Transport Scotland's Strategic Projects Review 2](#).

Structure

The discussion document sets out the questions we would like you to answer to help us develop the Aviation Strategy. It provides information, including in the [Context](#) section below, to help you answer the questions.

The subsequent sections ask for your views on how we can achieve our vision, focusing on the following key themes: aviation's transition to net-zero, Scotland's international connectivity, Scotland's domestic connectivity and air freight.

Each of these sections is structured as follows: introduction, aim, how to achieve this aim, and the questions to answer. The 'aim' sets out what the Scottish Government wants to achieve in each key theme based on existing strategies and commitments. However, we are also open to other ideas and in the section "[Other Aims?](#)" we ask what else you think the Aviation Strategy should try to achieve.

Context

This section provides an overview of the importance of good international and domestic connectivity, and the environmental impact of aviation. It considers longer term trends as well as the short and medium term impacts of COVID-19. It sets out who has responsibility for different aspects of aviation policy, and how aviation can contribute to achieving the aims of other Scottish Government strategies.

Importance of good international and domestic connectivity

Scotland's location means that air services are essential for good international connectivity. Air services also play an important role in domestic connectivity, including to island communities.

Economic and social importance

Good international connectivity is key to achieving sustainable economic growth in Scotland. It enables flows of trade, investment, labour, knowledge and visitors, which benefit all sectors of the economy. It is difficult to put a precise figure on the economic impact of aviation as it is significantly wider than the direct impacts that can easily be measured.

[The Scottish Input-Output tables](#) provide a snapshot of the direct impact of aviation on the Scottish economy. Air Transport is responsible for 0.3% of Scottish gross value added (£400m) but has an output of £2.5b or 0.6% of total output (as about half is used as an input to other sectors).

The Scottish Government's national export growth plan – [A Trading Nation](#) – recognises the vital importance of a strong international air route network connecting Scottish businesses to their customers. Research by Frontier Economics has indicated that UK businesses trade 20 times as much with emerging market countries that have a direct daily flight to the UK, as they do with those countries that do not.¹ Research conducted by Edinburgh Napier University identified air links as the most influential transport factor in the location decisions of most overseas-based businesses investing in the UK. [6,438 jobs](#) in Scotland were announced by foreign direct investment projects during 2019 and Scotland's international exports (excluding oil and gas) were worth [£33.8 billion in 2018](#).

¹ Frontier Economics, Connecting for Growth, September 2011

In 2019 freight carried by air in Scotland totalled [58,914 tonnes](#). Air freight makes up a small share of total freight (202m tonnes) lifted in Scotland, however, goods being transported by air tend to be of a higher value, less bulky and more time sensitive than those transported by sea.

Good air connectivity is also a factor in why people choose to make Scotland their home. [Evidence suggests that migration boosts long term GDP per capita](#), through increased diversity of skills and through higher innovation activity. In-migration is found to have both direct effects on company productivity as well as indirect impacts by raising the productivity of resident human capital through knowledge transfer. The key impact of aviation on inward migration is subtle but is around the ability of those who are moving to Scotland to maintain easy links with existing networks in their home countries and, crucially, the perception of the ease with which these links, especially with family, can be maintained.

Aviation is also an important facilitator of international travel and tourism. Pre-pandemic, inbound international travel and tourism to Scotland were significant. In 2019 there were almost [3.5 million international inbound visits to Scotland and total visitor spending was around £2.5 billion](#). Of the 3.5 million inbound visits, 1.9 million used Scottish airports. International aviation also facilitates broader business travel. In 2019 371,000 international inbound visits were for business purposes, while [423,000 international outbound trips](#) were undertaken by Scotland residents for the same purpose.

International aviation allows people living in Scotland to partake in activities that contribute to wellbeing, including holidays and visiting friends and family. [In 2019](#) there were around 894,000 international visitors to Scotland whose purpose for travel was to visit friends and relations, while there were around 1.19 million international outbound trips from Scotland for the same purpose. There were also over 4 million overseas visits by Scottish residents for holiday purposes.

International inbound travel forms a substantial part of the business for Scotland's hotels: in 2020 there were estimated to be around [2,390 hotel premises](#) in Scotland and [1,690 hotel businesses](#), employing an estimated [62,000 people](#) in 2019. Outbound travel will be partly serviced through Scottish airports and through Scottish firms. These include travel agents: in March 2020 there were [285 registered enterprises](#) in the travel agencies activities sector in Scotland, employing [4,500 people](#) in 2019.

The Scottish Government's [National Islands Plan](#) highlights the importance of connectivity to island communities' sustainable economic growth. This includes being able to travel to and from Scotland's cities on the same day for work. The same holds true for other parts of Scotland where, for many routes, plane is currently the only mode of transport that allows people to do a day return.

As well as the wider economic benefits, the Scottish aviation sector employs a large number of people through operations in and around airports. Pre-Covid 19 Scotland's three busiest airports² directly employed 1,600 people, and around 14,500 people worked on their airport campuses (airlines, retail, food, etc.).

Scotland's connectivity pre-COVID-19

Scotland's international connectivity improved from 2008 with strong growth from 2014 through to 2019. Before COVID-19 this trend looked set to continue. The international short haul network grew with unique destinations³ increasing from 57 in summer 2008 to 79 in summer 2019. Long haul unique destinations also grew, from 6 to 10, with important markets such as Washington D.C. and Boston added. Inbound visitor numbers also continued to grow with the USA, Germany and France having the largest share of inbound visitors in 2018. The map below shows the airports with direct connections to and from Scotland in 2019 (for more information see [our interactive map](#)):

Figure 1: Airports with direct connections to and from Scotland in 2019



Compared to peer regions⁴ Scotland had the highest percentage increase in the number of unique destinations between 2008 and 2019, moving from having one of

² Edinburgh, Glasgow and Aberdeen.

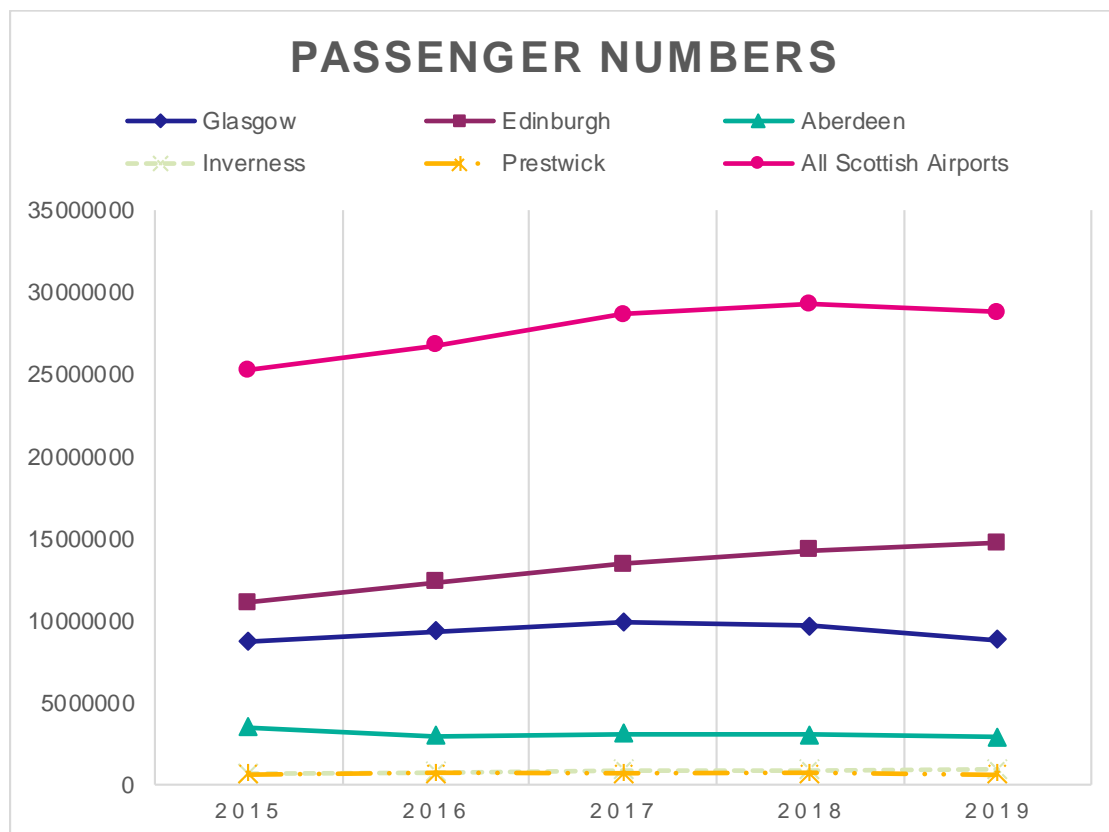
³ If there is already a route from Scotland to that destination, then the new route does not count towards the unique destination total.

⁴ Regions and countries that share similar characteristics in terms of economy, population, geographic position, size and level of air services to Scotland. Examples are provided in Annex A.

the lowest number in 2008 to just below average in 2019. However, air freight (cargo and mail) volumes remained about the same.⁵ For more information see [Annex A](#).

Total passenger numbers also increased and in 2019 just under 29 million people travelled to/from Scottish airports, as shown in the figure below:

Figure 2: Passenger number at Scottish airports from 2015 to 2019



COVID-19

COVID-19 has resulted in a collapse in demand for travel globally, leading to significant downsizing by airlines, both fleet size and jobs. This has filtered through to airports, handling companies, airport retail, fuel suppliers, car rental, airline food suppliers and many other associated businesses. Compared to 2019, passenger numbers at Scottish airports were down by over 75% in 2020, with only a few international flights still operating to maintain essential connectivity through global hubs like Amsterdam and Doha.

As a result, there are additional challenges which will need to be considered when deciding how to achieve the aims of the Aviation Strategy. These include increased

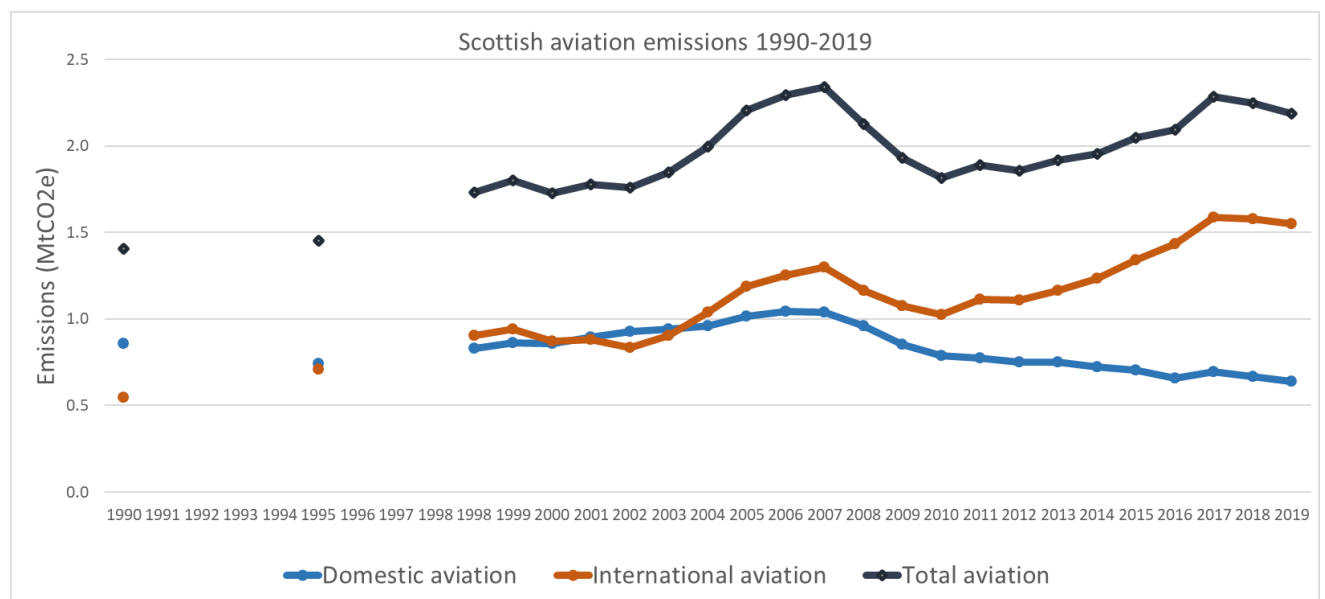
⁵ Scottish Aviation Framework March 2020, Altitude Aviation Advisory.

global competition for routes due to downsizing of fleets, less money available in the private and public sector and, potentially, ongoing restrictions on international travel to/from some countries.

Environmental Impact

In the [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Act 2019](#), Scotland committed to achieving net-zero greenhouse gas emissions by 2045. This target includes emissions attributable to Scotland from domestic and international aviation. The emissions attributable to Scotland are the take-off and landing emissions and the inflight emissions from departing flights. Inflight emissions from arriving flights are attributable to the country from which the flight departed.

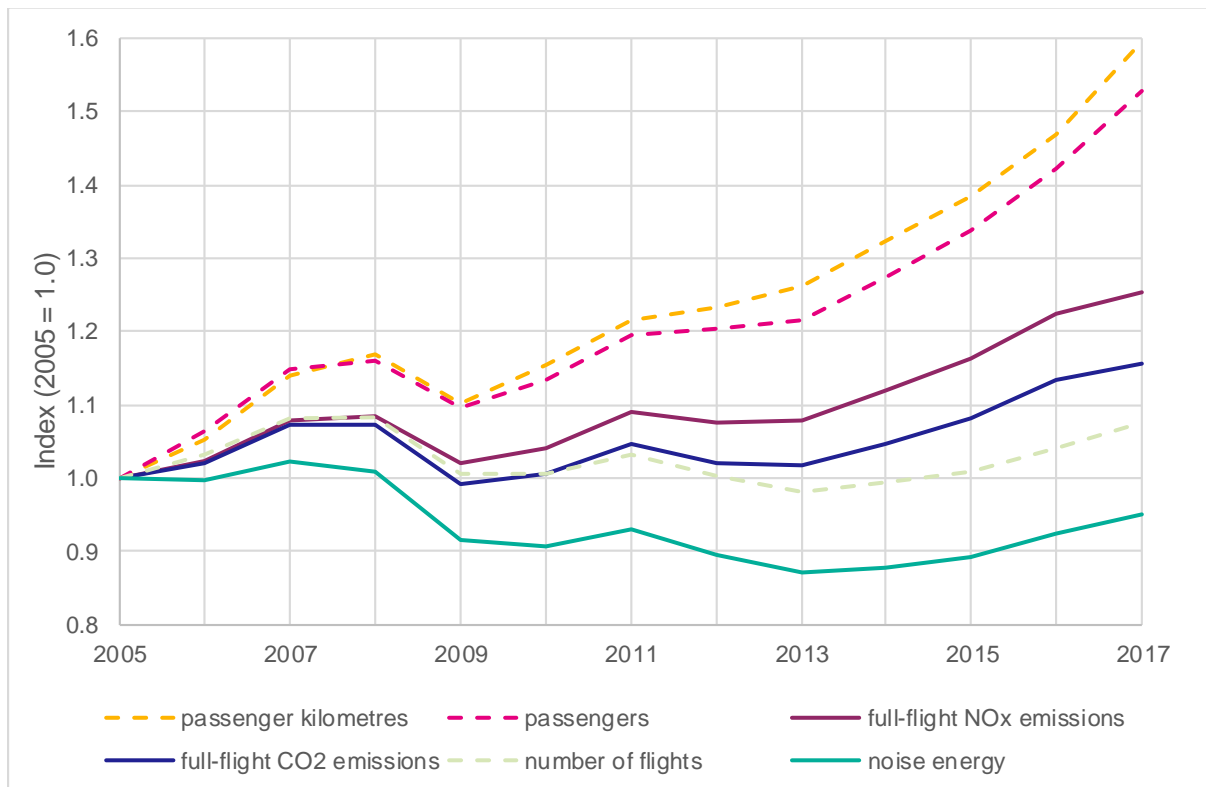
Figure 3: Time series of Scotland’s aviation emissions, 1990-2019 (Source: NAEI).



Aviation accounted for 4.5% of Scotland’s total emissions and 16% of Scotland’s transport emissions in 2019. Aviation also has an impact on the climate through the release of nitrogen oxides, water vapour, and sulphate and soot particles at high altitudes.

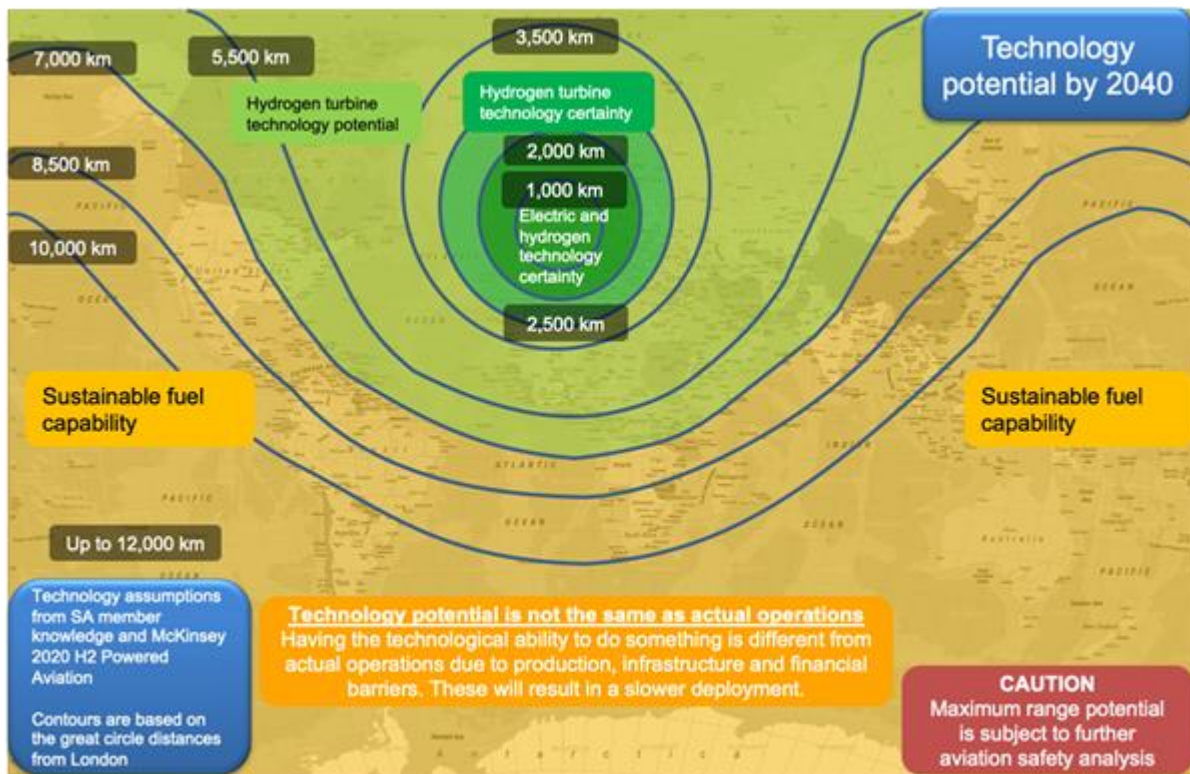
Advances in engine and airframe technology have reduced per passenger emissions. The figure below from the [European Aviation Environment Report 2019](#) shows that while emissions from aviation in Europe have risen from 2005 to 2017, the increase is far less than the increase in passenger kilometres. This trend is expected to continue.

Figure 4: Emissions from aviation in Europe from 2005 to 2017



The Scottish Government has committed to work to decarbonise scheduled passenger flights within Scotland by 2040, including though supporting the trialling and introduction of low and zero emission aircraft. These new types of aircraft have the potential to significantly reduce the environmental impact of short haul aviation, as the figure below produced by Sustainable Aviation illustrates. This figure shows that electric and hydrogen powered aircraft could be used on routes of around 2,500 km in 2040 and there is the potential for hydrogen turbine technology to give a range of around 5,500 km.

Figure 5: Potential of low and zero emission aircraft to reduce the environmental impact of short haul aviation



[The UK aviation industry has committed to achieving net-zero emissions by 2050](#), and Sustainable Aviation UK has published a roadmap setting out how it considers the aviation industry could achieve that goal. This commitment goes further than the [two global aviation environmental goals](#) agreed by the International Civil Aviation Organisation (ICAO), which are a 2% annual fuel efficiency improvement through 2050 and carbon neutral growth from 2020 onwards.

Scottish airports have published sustainable aviation strategies setting out how they are planning to reduce their carbon footprint.

- [Sustainability | Aberdeen Airport](#)
- [Sustainability | Edinburgh Airport](#)
- [HIAL Strategy and Covid-19 Recovery Plan 2021-26](#)

Case studies

AGS, which owns Glasgow and Aberdeen Airport, has reduced its direct carbon emissions by 52% since 2018 and has committed to achieving net-zero carbon for its direct emissions by the mid-2030s.

Edinburgh Airport has announced plans to build a solar farm at its airport which will supply around a quarter of its electricity needs.

Highlands and Islands Airports Ltd is supporting the development of low and zero-emission aircraft by creating a sustainable aviation test environment on Orkney.

Future Trends

Before COVID-19 it was expected that the demand for air travel would continue to increase. There is now greater uncertainty about what future passenger numbers might be, especially for business travellers. [59% of the businesses surveyed](#) after the first lock-down said they would be less or much less likely to use air travel in the future. However, the [International Air Transport Association's April 2021](#) survey of airlines' chief finance officers and heads of cargo indicated that the industry was confident that passenger volumes would increase quickly as restrictions were lifted around the world. That said, 67% of them thought that it would take longer than 2 years to return to 2019 levels, with Europe being the last region to do so.

The UK's withdrawal from the EU might also result in changes in travel patterns and overall demand for flights between Scotland and the EU. Due to COVID-19, it is currently not possible to give any indication of whether the new rules about work, travel and length of stay have resulted in changes to travel patterns and demand.

Similarly, how quickly the wider economy recovers in Scotland and around the world will also affect the number of people flying. The 2008 financial crisis led to a decrease in global passenger numbers and it is expected that a similar impact will be seen if there is a slow economic recovery from COVID-19. On the other hand strong economic recovery could result in increased passenger demand.

In the longer term the use of new types of aircrafts such as hydrogen, fully-electric and hybrid, could lead to lower operating costs and lower fares, while the use of air taxis and drones could open up new markets for air travel and freight.

Adapting our approach to best respond to these new challenges and opportunities, will be key to achieving our vision for aviation.

National Transport Strategy

The Aviation Strategy will build on the [National Transport Strategy](#) by setting out how the Scottish Government will work with the aviation sector to allow us to enjoy all the economic and social benefits of air travel while reducing our environmental impact.

The National Transport Strategy sets out the vision for Scotland's transport system for the next 20 years: "We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors." There are four priorities which support that vision:

- reduces inequalities,
- takes climate action,
- helps deliver inclusive economic growth,
- improves health and well-being.

Other Scottish Government and Partners' Strategies

There are various Scottish Government and other strategies that will be important to consider when developing the Aviation Strategy. These include:

- [Scotland: A Trading Nation](#)
- [Scotland Outlook 2030- Responsible tourism for a sustainable future](#)
- [National Islands Plan](#)
- [Climate Change Plan](#)
- [Strategic Transport Projects Review 2](#)
- [A Manufacturing Future for Scotland](#)
- [Migration: helping Scotland prosper](#)
- Agencies' strategies ([Scottish Enterprise](#), [Highlands and Islands Enterprise](#), [Aerospace Technology Institute](#)).
- [Hydrogen Policy Statement](#).

Responsibilities

The Aviation Strategy will focus on the areas where the Scottish Government can take action or work in partnership with others to influence outcomes. This section provides information on who is responsible for aviation at a local, national and international level.

Scottish Government

The Scottish Ministers are the sole shareholders of Highlands and Islands Airports Limited (HIAL) and provide funding to support the operations of the airports operated by HIAL.

Glasgow Prestwick Airport is owned by the Scottish Ministers. It is operated on a commercial basis and at arm's length from the Scottish Government.

The Scottish Government supports air routes from Glasgow to Barra, Tiree and Campbeltown. While the number of people using these routes is not enough to make them commercially viable for airlines, they nevertheless provide important connectivity to local communities. This is done by use Public Service Obligations (PSOs), which impose obligations to ensure the minimum provision of service on a route in terms of continuity, regularity, pricing or minimum capacity. The Scottish Government also part funds a PSO route from London to Dundee Airport, and has committed to part-fund PSOs from Wick.

The Scottish Government funds the [Air Discount Scheme](#), which makes air services more affordable for remote communities in the Highlands and Islands by providing residents with a discount of 50% on the core air fare on eligible routes.

In partnership with Scottish Development International, VisitScotland and Highlands and Islands Enterprise, the Scottish Government provides support to airlines for route recovery and development, with a particular focus on routes important for business connectivity including exports and inbound tourism.

The Scottish Government also provides funding and other support to sectors that are important to the transition to low and zero emission aviation. For example, the Scottish Government is investing £100 million to help deliver the Hydrogen Action Plan, which could help support the development of hydrogen powered aircraft.

Private Sector

Most air services within and to/ from Scotland are delivered by the private sector. Scotland's busiest airports, Edinburgh, Glasgow and Aberdeen, are privately owned.

International agreements and schemes

The Convention on International Civil Aviation (otherwise known as the 'Chicago Convention') sets out the global rules of airspace, aircraft registration and safety, security, taxation of aviation fuel and sustainability. The Convention established the

[International Civil Aviation Organisation](#) (ICAO), a specialised agency of the United Nations charged with co-ordinating international air travel.

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) is a global, market-based measure developed by ICAO. It is one of ICAO's "basket of measures" to achieve carbon neutral growth from 2020. (The others being incentivising innovative aircraft technologies, implementing more efficient operations and facilitating the use of sustainable alternative fuels). CORSA is designed to achieve carbon neutral growth in aviation from a 2019 baseline, through the use of offsets. Offsets involve organisations paying for things that will reduce carbon dioxide in order to reduce the damage caused by the carbon dioxide that they produce.

UK Government

The UK Government is responsible for:

- aircraft and airport safety, and the regulation of general aviation (private flights, hot air balloons, etc.).
- the Airspace Change Modernisation Programme, which the Civil Aviation Authority is working with airports around the UK to deliver.
- Air Passenger Duty, with the introduction of Air Departure Tax (ADT) in Scotland deferred to allow an issue in relation to the Highlands and Islands exemption to be clarified.
- implementing CORSA, engaging with ICAO and entering into Air Service Agreements with other countries (Air Service Agreements provide the legal basis for flights between two countries).
- the Renewable Transport Fuel Obligation, which includes a development fuel target that aims to incentivise the production of certain fuel, including sustainable aviation fuel.

Civil Aviation Authority

The [Civil Aviation Authority](#) is the UK's airport and aircraft safety regulator. It is also responsible for enforcing Civil Aviation (Access to Air Travel for Disabled Persons and Persons with Reduced Mobility) Regulations, and each year it publishes a report on airports' performance on accessible travel.

Joint Scottish Government and UK Government

The Scottish Government has jointly implemented a UK Emissions Trading Scheme ([UK ETS](#)) with the UK Government and the other devolved administrations. The UK ETS rules currently mirror the EU Emission Trading Scheme, which it replaces. The UK ETS creates a carbon price for aircraft operators, who must acquire and surrender a number of allowances equivalent to the carbon dioxide emissions of their flights covered by the scheme.⁶

The four governments responsible for the UK ETS are currently in the process of reviewing the UK ETS for consistency with the climate change targets set in legislation across the UK, including with achieving Scotland's net-zero target. This will include reviewing certain aspects of UK ETS aviation policy to enhance its effectiveness. A joint four-government consultation, for public response, will be published in due course.

Local Authorities

Inter-island air services in Scotland are the responsibility of the relevant [local authorities](#). Local authorities are also responsible for some airports and airfields such as Oban and Lerwick.

⁶ The aviation routes covered by the UK ETS are UK domestic flights, flights between the UK and Gibraltar, flights departing the UK to European Economic Area (EEA) states, and flights to offshore installations. Flights from EEA airports to the UK are covered by the EU ETS. The UK ETS applies to all aircraft operators, regardless of their nationality. The UK ETS does not apply to international flights to airports outside the EEA, on the basis that ICAO is developing the CORSIA scheme to provide a carbon market and carbon price to cover these emissions.

Transition to low and zero emission aviation

Introduction

Scotland's location means air travel is essential to providing the connectivity that is needed to support sustainable economic growth. The transition to low and zero emission aviation will allow Scotland to enjoy the economic and social benefits of aviation while reducing its environmental impact.

This section seeks your views on how the Scottish Government can work with others to reduce the environmental impact of aviation, helping to deliver the "takes climate action" priority of the National Transport Strategy and the net-zero by 2045 target set out in the [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Act 2019](#). This target includes emissions from both domestic and international aviation.

For more details about what has been achieved to date and what the aviation sector has already committed to doing, see [Context](#).

Aim

To reduce the environmental impact of aviation, in line with the Scottish Government's commitment to be a net-zero nation by 2045.

For Scotland to benefit economically from the transition to low and zero emission aviation.

How to achieve this aim

UK Emissions Trading Scheme (ETS) and CORSIA

The Scottish Government will continue to work with our UK ETS Authority partners (the UK Government and the other devolved administrations) to ensure that the scheme provides an effective incentive for decarbonisation, is consistent with our climate change legislation, and appropriately mitigates against carbon leakage.

The Scottish Government strongly supports the formal linking of the UK ETS with the EU ETS, in order that companies participating in the two schemes face equivalent carbon pricing regimes. As a reserved matter, we are pressing the UK Government to immediately commence and rapidly progress linking negotiations with the EU.

We will continue to work with the UK Government to ensure there is an ambitious approach to international aviation emissions through the UK's participation in the

CORSIA scheme, and by ensuring that there is an effective interaction between the UK ETS and CORSIA schemes.

Optimising aircraft ground operations

Airlines have already made progress in this area through procedures such as single engine taxiing and the roll out of fixed electrical ground power. In the future, more efficient aircraft scheduling and electric taxiing could further reduce emissions.

Optimising aircraft flight operations

The European Union's [Single European Sky](#) aims to reform air traffic management in Europe to reduce the environmental impact of aviation as well as to reduce costs. The UK Government and the Civil Aviation Authority are working together on the modernisation of the UK's airspace. One of the aims is to reduce aviation emissions through shorter flight paths and reduced holding times (e.g. the time a plane spends circling the airport or deviating from a direct routing before it can land).

Travel to and from the airport

Some progress has been made in reducing the emissions from people travelling to and from Scottish airports. [In 2018 40% of passengers at Edinburgh airport used public transport to travel to/from the airport, while at Inverness airport 14% of people did.](#) The transport infrastructure needed to travel to and from the main Scottish airports is being covered in [Transport Scotland's Strategic Transport Projects Review 2](#).

Support for the development and trialling of low and zero emission aircraft

Low and zero emission aircraft have the potential to significantly reduce the emissions from aviation on short haul routes. While the development of these aircraft has been progressing quickly in recent years, they are not yet at the stage whereby airlines can use them to fly people around the UK or to European countries.

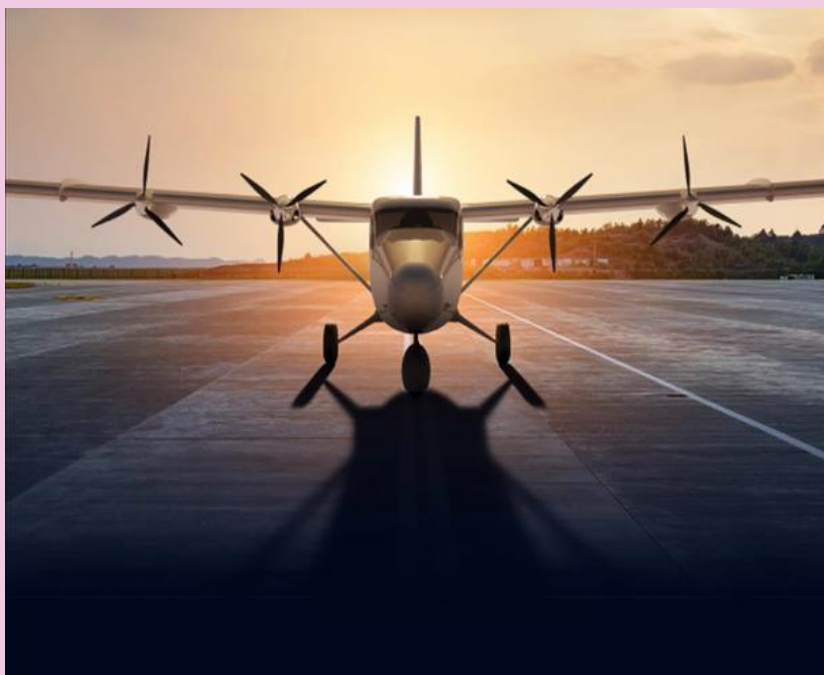
The Scottish Government has therefore committed to supporting the trialling and introduction of low or zero emission aircraft, and the information below gives an overview of some of the support that is currently on offer to meet this goal:

- The [Aerospace Technology Institute](#) offers funding to projects that align with the UK Aerospace Technology Strategy, which includes setting an ambitious

sustainability agenda. Our enterprise agencies work with businesses in Scotland to support them in their bids for funding.

- As part of the work of the Scottish Government-led Aerospace Response Group, a Sustainable Aviation Champion was appointed to identify and coordinate activity across Scotland as well as promote the capability within the Scottish supply chain nationally and internationally. Following that group's transition to an industry-led body, this work is now being done by the Aerospace and Defence Industry Group.
- Through the [National Training Transition Fund](#), the Scottish Government has sought to commence the workforce transition through introductory courses in electrification, hydrogen, digital manufacturing and aircraft decommissioning, run in partnership through industry, academia and the [National Manufacturing Institute Scotland](#) (NMIS).
- Infrastructure will similarly form a key part of supporting the transition to net-zero and our significant investments in NMIS (which consists of the Advanced Forming Research Centre, Lightweight Manufacturing Centre, Skills Academy and Digital Factory) in addition to our outstanding academic and research institutions, provide a significant set of world class infrastructure.

Case Study- Ampaire



Ampaire is developing, and flying, hybrid-electric aircraft today that it hopes will lead the industry to an all-electric future.

In August 2021 it successfully demonstrated its hybrid-electric aircraft at the Sustainable Aviation Test Environment at Kirkwall airport.

According to Ampaire, its technology can lower fuel by 90%, maintenance by 50%, and noise by 60%.

I. What more, if anything, should the Scottish Government and industry do to accelerate the transition to low/ zero emission aviation?

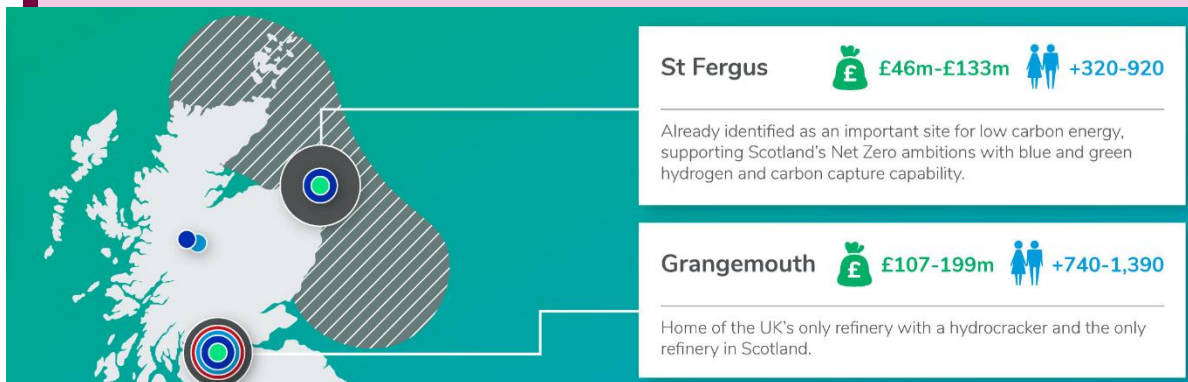
Sustainable Aviation Fuel

While there is potential for zero and low emission aircraft to be used on short haul routes (e.g. within Scotland, to the rest of the UK or to the EU) within the next 20 years, technological challenges mean that it will take longer before zero emission aircraft can be used on a commercial basis on long haul routes. Incremental improvements to existing aircraft propulsion systems and aircraft design will continue to deliver efficiency improvements, however, it is through the use of sustainable aviation fuels that the biggest reductions in life cycle emissions are expected to be achieved in the medium term. The level of emissions reduction that can be achieved

will depend on the type of sustainable aviation fuel used. Currently, cost is believed to be the main reason why only a very small percentage of flights globally use sustainable aviation fuel.

[Research commissioned by Sustainable Aviation UK](#) claims that sustainable aviation fuel production could create between 1,060 and 2,310 jobs in Scotland and generate between £153 and £332 million Gross Value Added per year.

Case Study- Economic Opportunities for Scotland from Sustainable Aviation Fuel



The UK Government is considering introducing a sustainable aviation fuel mandate. Its current proposal is to create a greenhouse gas emissions scheme. Under such a scheme, sustainable aviation fuel with a carbon intensity below the carbon intensity target generates credits, while jet fuel, which has a carbon intensity above the target, will incur an obligation. At the end of the obligation period, credits can be sold or bought to meet the obligation.

The UK Government has also announced a number of measures aimed at encouraging the production of sustainable aviation fuels in the UK, and planning permission has been granted for the UK's first waste to jet fuel plant.

2. What can the Scottish Government do to help increase the use of sustainable aviation fuels?

Just Transition

The Scottish Government has committed to meeting the net-zero by 2045 target through a just transition. The [Just Transition Commission](#) identified four components to achieving this:

- pursue an orderly and managed transition which creates benefits and opportunities for people across Scotland.
- equip people with the skills and education they need to benefit from this transition.
- empower and invigorate our communities and strengthen local economies.
- share benefits widely and ensure burdens are distributed on the basis of ability to pay.

3. What do you think the Scottish Government can do to help ensure a just transition to net-zero for the Scottish aviation sector?

Scotland's international connectivity

Introduction

This section of the discussion document seeks your views on the international connectivity that will be needed to support sustainable, inclusive economic growth in Scotland (one of the four priorities in the National Transport Strategy) and how we can work with others to achieve this. This includes how aviation can contribute to achieving our vision to be the world leader in 21st century tourism and help to deliver our plan for growing Scotland's exports. It is an opportunity to put forward your ideas for how we can do things differently, considering the [future challenges and opportunities](#).

This section also covers how we can help rebuild Scotland's connectivity whilst reducing the environmental impacts of aviation, contributing to the "takes climate action" priority of the National Transport Strategy and achieving the target of net-zero emissions by 2045 set out in the [Climate Change Act](#). This target includes emissions from both domestic and international aviation. For more information about Scotland's connectivity pre-COVID and the economic, social and environmental impact of aviation see [Context](#).

Aim

To help airports and airlines rebuild and grow Scotland's international air connectivity following COVID-19 to support inbound tourism and sustainable economic growth, whilst reducing the environmental impact of aviation in line with the Scottish Government's commitment to be a net-zero nation by 2045.

This includes achieving similar levels of global connectivity as leading peer nations and regions (e.g. Ireland and Catalonia) with the ultimate aim of being able to travel between Scotland and any major city in the world either directly or with, at most, only one stop. Such improvements in international connectivity support Scottish business and stimulate new markets for inbound tourism.

How to achieve this aim

Partnership Approach

Transport Scotland, Scottish Development International, Highlands and Islands Enterprise and VisitScotland work in close partnership to provide support to airlines, which can be instrumental to an airline deciding to start a new route. This approach benefits from working closely with Scotland's airports.

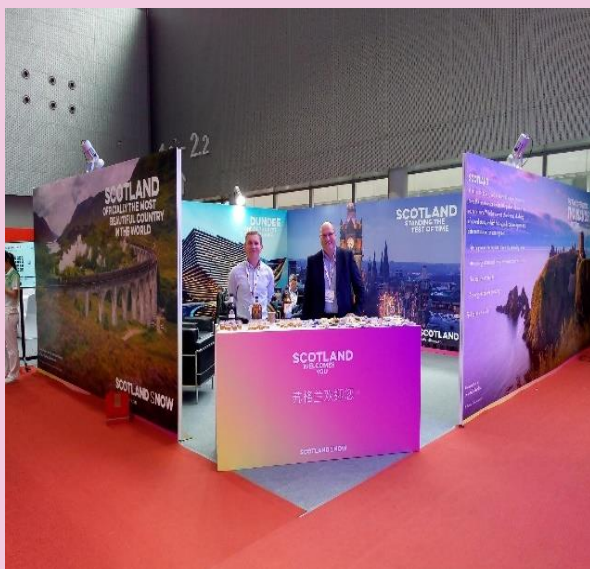
We take a 'national perspective' on all air route development propositions. We work in equal partnership with airports, in a confidential manner, to share intelligence on route priorities; and enter long-term relationship engagement/development with airlines to promote Scotland. The support we offer to airlines is tailored to the route(s) in question and can take the form of attractive cooperative marketing packages and/or market intelligence and data to airlines on the potential of the Scottish market. Additional support can be offered for airlines that are considering the establishment of base operations in Scotland, in view of the direct economic benefits, including job creation, that come with such a development.

We have had a successful partnership with Scotland's airports in recent years helping secure many new routes and demonstrating that our support is having a positive impact. For example, Munich to Edinburgh (Eurowings), New York JFK to Glasgow (Delta) and Amsterdam to Inverness (KLM) are all routes that 'Team Scotland' has helped to support. These three routes alone generate a net economic impact of £13.4 million a year⁷ and support 215 full time equivalent (FTE) jobs. This work has helped Scotland to achieve similar levels of connectivity as peer regions, although Scotland still has fewer unique destinations than leading peer regions.⁸

⁷ Calculated as follows: inbound non-Scottish residents x average spend per head (inbound dependent on duration, frequency, capacity & load factors), taking account of leakage (outbound Scottish residents spend), displacement, deadweight and multiplier effects.

⁸ For more information about how Scotland compares to peer regions see Annex A.

Case Study – World Routes



World Routes is a key aviation event that Transport Scotland, Scottish Development International and VisitScotland attend to support the efforts of Scotland’s airports in developing Scotland’s connectivity.

This event brings together all the key players, allowing us to effectively promote the potential of the Scottish market and meet with different airlines to discuss both new and existing routes to Scotland that are important for inbound tourism and business.

- 4. Considering future challenges and opportunities, what changes, if any, should we make to our approach to help achieve our aim for international connectivity?**

Priority countries

So that our work is as effective as possible at helping to rebuild Scotland’s air connectivity to support business and tourism, we have drawn up an initial list of priority countries. This list (see the table below) is based on the priority countries identified in *Scotland: A Trading Nation*, as well as data and projections on international visitors to Scotland, foreign direct investments, international students and research collaborations. For more details see [Annex B](#). We would like your views on this list to make sure these are the right countries to target.

Trying to secure good connectivity to the priority countries will be the focus of our future work, but this is not an exhaustive list. We will also consider support for other

routes provided they fit with our aim of supporting business and tourism in Scotland. A key aspect of our route development work is forward planning, but retaining flexibility to allow us to exploit new opportunity that arise.

Table 1: Priority Countries for Short and Long Haul Air Travel

Priority	Short haul	Long haul
1	Germany	USA
2	France	China
3	Netherlands	Canada
4	Italy	Australia
5	Norway	Japan
6	Spain	
7	Switzerland	
8	Belgium	
9	Sweden	
10	Ireland	

5. Do you agree with the priority countries for short haul and long haul set out in the table above?

- a. Yes
- b. No
- c. Don't know

6. Which other countries should we focus on in the:

- a. Short term (next 2 years)
- b. Medium term (2-5 years)
- c. Long term? (5 years plus)

Hub connectivity and point to point

Connectivity to the priority countries can be achieved through hub connectivity or directly ('point to point'). Good connectivity between Scotland and global hub airports enables onward connectivity to a large number of destinations where a direct route may not be viable.

Direct flights are quicker than connecting through a hub airport and in most cases reduce the total emissions from the journey, in particular for those between Scotland and North America where travelling back in the direction you came is avoided by taking a direct flight. Importantly, direct routes stimulate new demand by opening up new markets for inbound tourism and business connectivity.

Therefore, we will continue to work with the aviation sector to try to provide more point to point connectivity where a direct route is viable. We are clear that Scotland's economy benefits from a strong mix of direct routes and good connectivity to global hub airports.

Reducing the environmental impact of restoring international connectivity

The [Transition to Low and Zero Emission Aviation](#) section covers reducing the environmental impact of aviation as a whole. In this section we would welcome your views on how we can use the Team Scotland approach to help reduce the environmental impact of air travel to/from other countries.

7. How do we incentivise the use of more efficient aircraft, whilst still ensuring that we secure the routes Scotland needs?

Scotland's domestic connectivity

Introduction

Scotland's location and geography mean that air travel plays an important role in providing connectivity within Scotland, and between Scotland and other parts of the UK. This includes onward connectivity to the rest of the world through Heathrow, one of the global hub airports.

According to the [2019 Scottish Household survey](#), most people who chose flying within the UK over other forms of transport did so because it was quicker, while just over a third did so because it was cheaper. Inverness to London city centre, for example, takes just under four hours⁹ using a plane as the main mode of transport, compared to eight and a half hours by train and almost 16 hours by coach. On some of the longer routes the [per passenger emissions from flying](#) are higher than other modes of transport. However, on other routes, such as Glasgow to Belfast, the per passenger emissions from flying are lower than most of the alternatives.

Currently, public subsidy is required in order to have air services in the Highlands and Islands, as the airports and some routes cannot be operated on a commercial basis. Please see [Context](#) and [Annex C](#) for more information.

This section seeks your views on how we can achieve our domestic connectivity aim, including how we can achieve the Scottish Government's commitment to work to decarbonise scheduled passenger flights within Scotland by 2040, and whether the Scottish Government should encourage airlines to offer plane plus train tickets.

This will help deliver three of the priorities of the National Transport Strategy (reduces inequalities, takes climate action, helps deliver inclusive economic growth).

The [Transition to Low and Zero Emission Aviation](#) section covers reducing the environmental impact of aviation as a whole.

Aim

Between Scotland and other parts of the UK, and within Scotland, to have low/zero emission air services that meet the needs of communities and help deliver sustainable economic growth.

⁹ Including travel time to and from the airport and average waiting time.

This includes decarbonising scheduled passenger flights within Scotland by 2040 and having air services in the Highlands and Islands which provide good value for passengers and the tax payer.

How to achieve this aim

Decarbonising scheduled flights within Scotland

The short distances and low passenger volumes on many of the scheduled flights within Scotland mean they are ideally suited to early adoption of zero and low emission aircraft. However, as most scheduled passenger flights in Scotland are operated on a commercial basis, the airlines rather than the Scottish Government decide what aircraft they will use on their routes.

One option to help ensure the early use of zero and low emission aircraft on routes in the Highland and Islands, is for the Scottish Government to purchase new zero emission aircraft as they become available on the market, then lease them to the airline(s) operating the routes. This means that the airline(s) does not need to make the initial capital expenditure, but can still benefit from the lower operating costs of using these kinds of aircraft. It also means that, through the leasing costs, the Scottish Government will be able to recoup the costs of the initial investment, whilst accelerating the transition to low and zero emission aircraft. Lower operating costs compared to conventional aircraft may also lead to a reduction in airfares. This is similar to the current arrangement where HIAL owns two Twin Otter aircraft and leases them to Loganair to operate the three Transport Scotland PSO routes.

Case Study – Norway



Norway is aiming for the first regular domestic scheduled flights to be operated with electrified aircraft by 2030.

Avinor (which is responsible for Norway's 44 state owned airports) and the Norwegian Civil Aviation Authority have developed a program for the introduction of electrified aircraft. It has also recently purchased a new electric aircraft that can be used for things like pilot training.

8. What do you think about the idea of the Scottish Government purchasing new zero emission aircraft and leasing them to any airline operating routes in the Highlands and Islands?

9. What else can the Scottish Government do to achieve its aim of decarbonising scheduled flights within Scotland by 2040?

Future needs of communities in the Highlands and Islands

It is extremely difficult to predict accurately the future air transport needs of communities in the Highlands and Islands. To help consider this question we have drawn up three possible scenarios. While we are not certain which, if any, of these scenarios will actually come to pass, thinking about what air connectivity we might need in these different scenarios should help plan for the future.

These are hypothetical scenarios to generate a discussion. They are not outcomes that the Scottish Government is working towards.

Less Demand for air services	Same level of demand for air services	More demand for air services
<ul style="list-style-type: none"> • Greater use of video-conferencing and other technology • Telemedicine • Focus on higher spending tourists rather than volume • Improved facilities on islands • High speed rail • Medical supplies and post delivered by drone • Improvement in ferry provision and/or fixed links 	<ul style="list-style-type: none"> • Around the same number of people living and working in the Highland and Islands • No changes to current travel patterns • No changes to how goods are transported 	<ul style="list-style-type: none"> • More people living and working in the Highlands and Islands (e.g. because of growth of the energy sector, more home and remote working, more small business start-ups etc.) • More tourists • Lower costs as a result of using electric/hydrogen aircraft • Modal shift from ferry to plane • More goods transported in belly hold/ dedicated air freight

- 10. What air services do you think are needed to meet the needs of people living in and visiting the Highland and Islands in the scenarios set out above:**
- a. less demand for air services**
 - b. same level of demand for air services**
 - c. more demand for air services?**

Air services and fares in the Highlands and Islands

Air services in the Highlands and Islands generally operate on a commercial basis with some intervention from the public sector. Over time there has been a consolidation in the market so that the majority of commercial services are now flown by a single airline.

- 11. Most air services in the Highlands and Islands are delivered on a commercial basis. How can the Scottish Government best work with the private sector to deliver the air services you think are needed?**

The cost of flying was one of the issues raised by a number of island communities in the consultation on the Scottish Government's National Islands Plan. Air services have high fixed costs but whether this results in high airfares depends on the number of passengers on the aircraft. With more passengers each person pays less as the costs are split between them. However, with fewer passengers the cost per person is higher. In the Highlands and Islands even the busier routes have relatively low passenger numbers over which to spread costs. This leads to fares that are higher than what passengers would likely pay on longer, busier routes.

The Scottish Government has sought to address the cost of flying in the region through the subsidy of HIAL and through the operation of the [Air Discount Scheme](#). The scheme gives certain Highlands and Islands residents a discount on eligible routes. In addition, flights departing from airports in the Highlands and Islands are exempt from the UK's Air Passenger Duty.

- 12. How effective do you think the Air Discount Scheme has been at addressing high airfares?**

13. How can the Scottish Government improve the Air Discount Scheme?

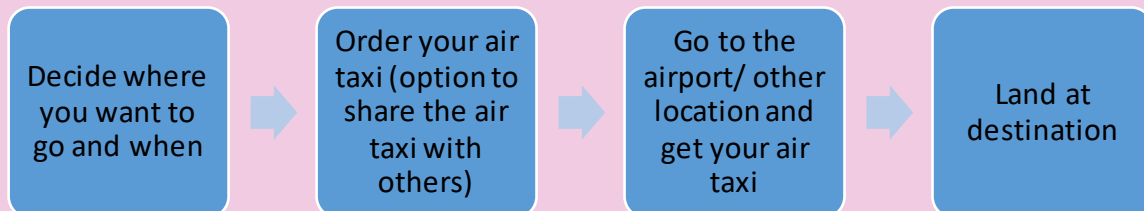
Complementing scheduled passenger service in the Highlands and Islands with different operating models for air services could also help reduce costs and/or improve frequency and choice of destination. Currently, most people use scheduled passenger services, where the airline operates a fixed schedule of when and where they fly, and people book onto the flight they want. However, there are other, complementary, ways to deliver air services, including:

- Air taxi – these would be services that are more demand responsive ('on demand') and likely with smaller aircraft. They would not be expected to operate to a set timetable. While there are currently no air taxi services operating in the UK, there are plans to operate air taxis in other countries within the next couple of years.
- Open charter services – this would see organisations with larger travel requirements (e.g. the NHS or the oil & gas industry) providing a base level of demand for a service which operates with timings optimal to that organisation. Rather than being a closed charter, though, the service would be open to members of the public to book as well.

How an on demand service might work

Companies are expected to run on demand air services, like air taxis, in different ways. Air taxis will be very small aircraft that are likely to be fully-electric or hydrogen powered.

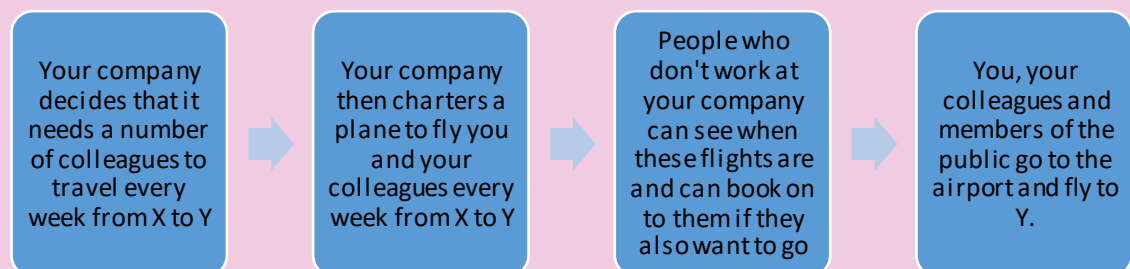
Below is an example of what this might look like from the point of view of a passenger, to help answer question 14 below:



How an open charter service might work

There are a lot of options for how an open charter might work. It is expected that an open charter aircraft will be bigger than an air taxi, but this will depend on what the company commissioning the open charter chooses.

To help answer question 15, here is an example of what this might look like from the point of view of a passenger:



14. What do you think about complementing the current operating model with an on demand service, such as air taxi?

15. What do you think about an open charter service?

16. Apart from on demand and open charter services are there any operational models you think could be used? If so, what?

Highlands and Islands Airports

Airport services for scheduled passenger air services in the Highlands and Islands are currently provided by HIAL, Shetland Islands Council, Orkney Islands Council and Argyll & Bute Council. The table below sets out which airports each manages.

None of the airports operated by these bodies can currently run on a commercial basis and all require subsidy to maintain operations. The current model provides each body with direct control over the facilities they manage, however, having four different airport operators in the region means that it is more difficult to achieve economies of scale, for example, through bulk buying of equipment.

Table 2: Airport management in the Highlands and Islands

Operator	HIAL	Shetland Islands Council	Orkney Islands Council	Argyll & Bute Council
Airports	Barra	Fair Isle	Eday	Coll
	Benbecula	Foula	North Ronaldsay	Colonsay
	Campbeltown	Out Skerries	Papa Westray	Oban
	Dundee	Papa Stour	Sanday	
	Inverness	Tingwall	Stronsay	
	Islay	Whalsay	Westray	
	Kirkwall			
	Stornoway			
	Sumburgh			
	Tiree			
	Wick John O' Groats			

17. What are the strengths and weaknesses of the operational model set out in the table above?

18. What changes, if any, do you think should be made to these governance arrangements to improve services?

19. What changes, if any, do you think should be made to these governance arrangements to reduce running costs?

Plane plus train tickets

In the EU, some airlines sell plane-train tickets where people travel by train for one part of their journey and fly for the other. The aim of these tickets is to make it easier for people to combine different modes of transport in order to reduce the total emissions from the journey.

These types of tickets could be used in Scotland for travel to and from the airport as well as at a later date. The same ticket could encourage visitors to go to other parts of Scotland, for example, fly to central Scotland, spend a few days there, and then travel to Aviemore by train.

The Scottish Government could encourage airlines to offer plane plus train tickets, however, it would ultimately be a decision for the airlines whether to do so (see section on [responsibilities](#) for more detail).

20. Do you think the Scottish Government should encourage airlines to offer plane plus train tickets?

a) Yes

b) No

c) Don't know

21. If yes, how do you think the Scottish Government could best do this?

Freight

Introduction

The National Transport Strategy sets out the importance of effective movement of goods for trade and sustainable economic growth. Air is one of the ways by which freight is transported in Scotland but it currently makes up only a small percentage of total freight ([less than 1%](#)). Air freight is normally only used for high value or time sensitive goods.

However, as a result of changes brought about by the UK leaving the EU, as well as the development of drones, there might be a greater role for airfreight in future. The increase in online shopping has also led to a greater demand for airfreight to Scottish islands.

Aim

To help achieve the commitment in the National Transport Strategy to promote efficient and sustainable freight transport.

How to achieve this aim

Links to route recovery and development

As well as being transported on freight planes, goods are transported in passenger aircraft. The importance of scheduled passenger services to airfreight was demonstrated during COVID-19 where the reduction in global passenger services greatly increased the demand for dedicated airfreight.

As part of the Team Scotland approach to route development and recovery, we will consider the opportunities to promote efficient and sustainable freight transport (see the [International Connectivity](#) section for more details).

Green ports

The Scottish Government is developing plans to establish [green ports](#), where green port operators and business can benefit from a package of tax and customs incentives. Green ports could be located at a number of different places, including at Scottish airports. To benefit, businesses will need to be located in the green port zone and be fully committed to achieving net-zero emissions and to adopting Fair Work First criteria, including ensuring that employees are paid fairly.

New delivery models

[The Future Flight Challenge](#) has funded a number of projects that are exploring how drones might be used in future to meet the needs of people living in remote and island communities. These include the delivery of medical supplies, post and spare parts.

22. What more, if anything, do you think the Scottish Government can do to help promote efficient and sustainable airfreight transport?

Other aims?

In this discussion document, the Scottish Government has set out its aspiration for Scotland to have national and international connectivity that allow us to enjoy all the economic and social benefits of air travel while reducing our environmental impact.

We are, however, open to other ideas and would welcome your views on what else the aviation strategy should try to achieve. When answering please consider the Scottish Government's overall vision and the split of [responsibilities](#) between the Scottish Government and other organisations.

23. What else do you think the Aviation Strategy should try to achieve?

Next Steps

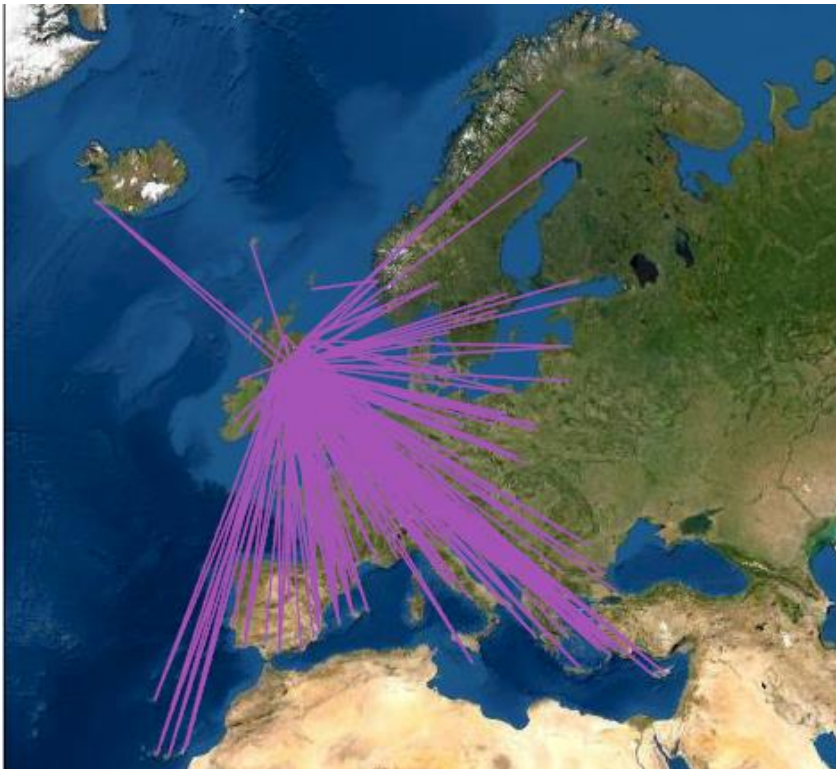
We will use your responses to this discussion document to help draft the Aviation Strategy and to inform the Scottish Government's decisions on the actions we will take to deliver the strategy.

Annex A

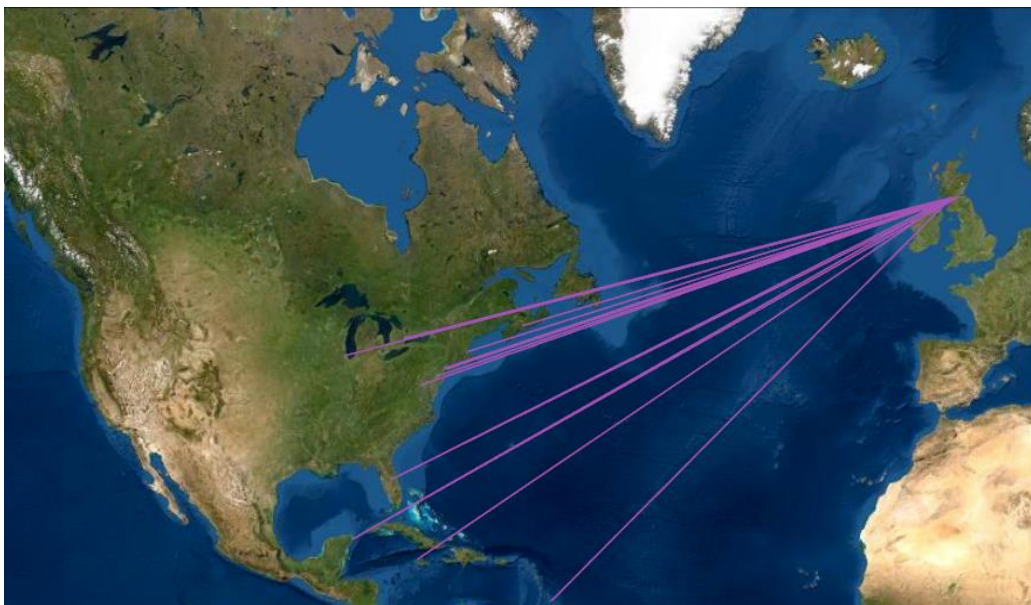
Scotland's connectivity Pre-COVID

We have produced an [interactive map on Scotland's air connectivity pre-COVID](#). This allows you to filter per airport and region.

Europe



North and Central America



Rest of the World



UK



Scotland compared to peer regions

Scotland's air network has been benchmarked against UK and European peer regions and countries that share similar characteristics in terms of the economy, population, geographic position, size and level of air services.¹⁰

¹⁰ Attitude Analysis, OAG, GAWC.

In 2008 Scotland was ranked 10th out of the 12 peer regions for short haul destinations and joint 6th for long haul. In 2019 Scotland was ranked 8th out of the 12 peer regions for short haul, with the largest percentage increase overall. However, the number of unique long haul destinations from Scotland did not increase as much as for peers such as Catalonia, as shown in the table below:

Table 3: Scotland's short and long haul destinations compared with peers

	Unique Cities (short haul S08)	Unique Cities (short haul S19)	Unique Cities (long haul S08)	Unique Cities (long haul S19)	% change in number of cities	Additional Cities (Long Haul)	Additional Cities (Short Haul)	Additional Cities (World Cities)	Additional Cities (World Cities Long Haul)	Additional Cities (World Cities Short Haul)
Austria	106	110	21	22	+3.9%	1	4	7	3	4
Berlin/ Brandenburg (DE)	71	103	3	7	+48.6%	4	32	10	4	6
Cataluna (ES)	101	100	4	27	+21.0%	23	(1)	21	21	-
Denmark	84	94	10	20	+21.3%	10	10	13	10	3
Finland	46	62	12	21	+43.1%	9	16	11	8	3
Ireland	103	108	11	22	+14.0%	11	5	12	8	4
Midlands (UK)	66	77	6	4	+12.5%	(2)	11	-	-	-
North West (UK)	88	111	15	22	+29.1%	7	23	6	4	2
Norway	65	72	1	5	+16.7%	4	7	3	4	(1)
PACA (FR)	61	73	3	6	+23.4%	3	12	7	3	4
Scotland	51	79	6	10	+56.1%	4	28	13	3	10
Veneto (IT)	45	66	4	10	+55.1%	6	21	17	6	11

- Unique international destination cities
- Summer 2019 vs Summer 2008
- Excludes cities with fewer than 80 departures per season

Peer Regions Summary (source: Altitude Analysis, OAG, GaWC)

Annex B

How we came up with the list of priority countries

Our aim is to provide the international connectivity needed to support sustainable economic growth and help Scotland become a leader in 21st century tourism. Therefore, in coming up with the list of priority countries, we considered the current data and projections on international visitors to Scotland, exports, foreign direct investments, international students and research collaborations.

International visitors

Scotland Outlook 2030: Responsible tourism for a sustainable future, identifies connectivity as one of the six conditions for success.

[In 2019 the USA, Germany and France were the top three countries in terms of international visitor numbers, with China third in terms of visitor spend.](#) Longer term, people from China and India are expected to make up a greater share of the international visitors to Scotland.

Table 4

Scotland's Top 10 Markets for International Inbound Tourism: Trips, Nights and Spend – Value and Share of Total 2019

Country	Visits		Spend		Nights	
	000s	%	£m	%	000s	%
USA	636	18%	717	28%	4,246	16%
Germany	322	9%	196	8%	2,228	8%
France	222	6%	135	5%	1,723	6%
Netherlands	182	5%	95	4%	1,210	4%
China*	172	5%	142	6%	2,047	7%
Australia	148	4%	146	6%	1,706	6%
Ireland	146	4%	60	2%	475	2%
Spain*	128	4%	51	2%	915	3%
Canada	125	4%	92	4%	1,023	4%
Italy*	122	4%	86	3%	1,072	4%
Rest of world	1,257	36%	818	32%	10,741	39%
Total	3,460	100%	2,538	100%	27,385	100%

Source: IPS, 2019. Figures may not sum up due to rounding. *Figures based on lower sample sizes.

Exports

Scotland: A Trading Nation identified a priority list of countries where we expect the bulk of future growth in exports to come from. Despite the economic impact of COVID-19, we believe that this priority ranking remains valid. Although goods are mainly transported by sea, services exports often rely on people being able to travel quickly and easily to other countries. Good air connectivity to the target export market also makes it easy to build up the contacts and local knowledge that businesses need to export successfully. Passenger flights are also used to transport higher value/perishable goods, in addition to dedicated air freight services.

Table 5: Countries by export priority rank

Export Priority Rank	Country	Share of Current Exports	Share of export value gap
1	USA	17.1%	10.7%
2	Germany	7.2%	13.7%
3	France	7.5%	6.5%
4	Netherlands	7.6%	7.8%
5	Switzerland	2.3%	3.1%
6	Norway	3.1%	3.4%
7	Poland	1.2%	3.8%
8	Belgium	3.1%	3.2%
9	China	1.9%	2.7%
10	Ireland	4.5%	1.9%
11	Denmark	2.7%	1.9%
12	Sweden	1.8%	3.0%
13	Italy	2.3%	3.5%
14	Canada	1.8%	1.2%
15	Spain	2.6%	2.2%

Foreign Direct investments

In 2019 the top countries for foreign direct investment in Scotland were the United States (35%) and France (9%), followed by Germany, Japan and Norway in equal third place.

Higher education and research

Being able to travel to Scotland easily from overseas is important for Scotland’s higher education sector and facilitates international research collaboration. Before the UK left the EU, Germany, Italy and Ireland accounted for the highest number of international students studying in Scotland. Europe was also the most important continent for research collaboration. Looking to the future, Scottish universities are looking to attract more students from the USA and China.

Table 6

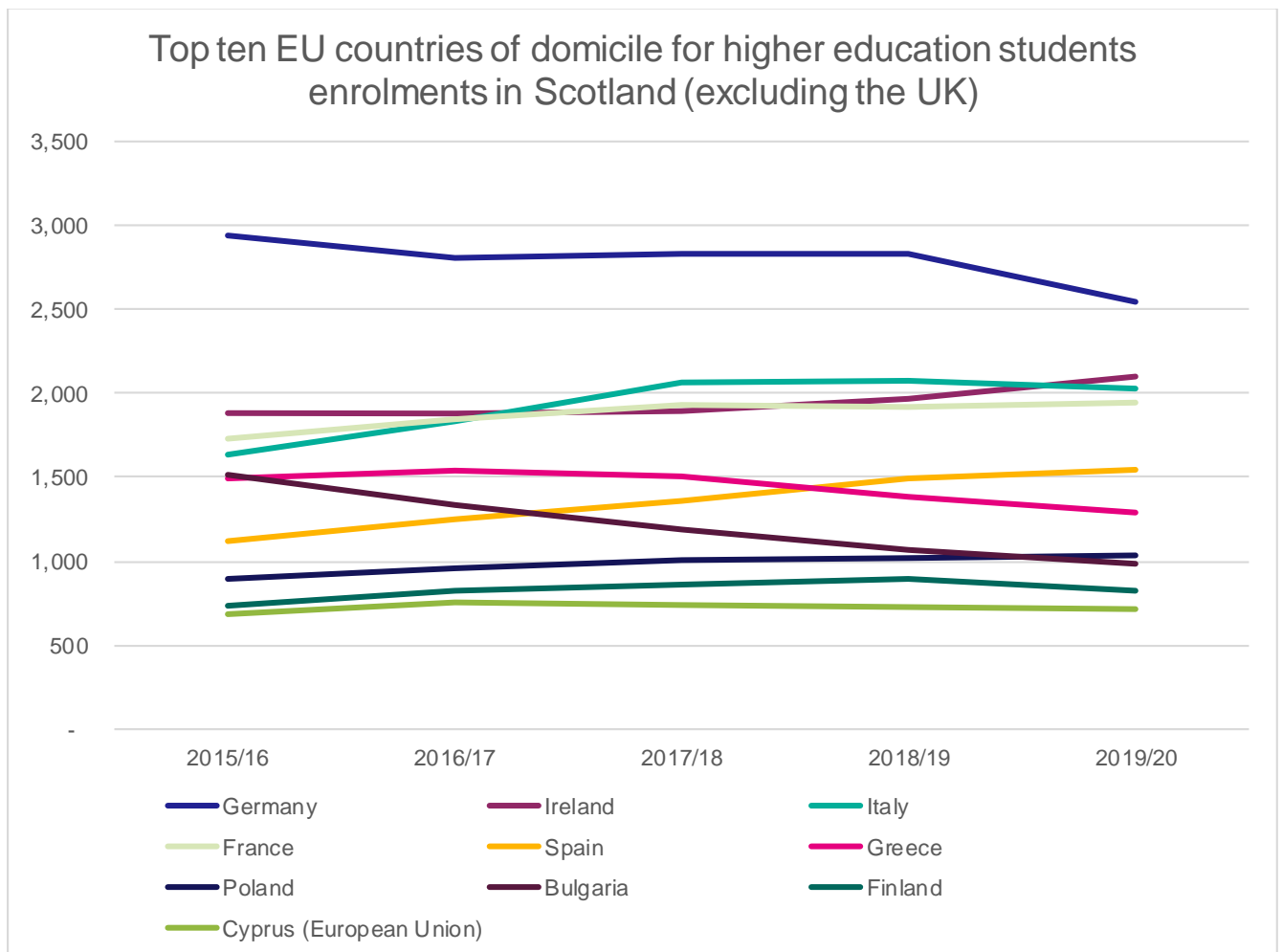
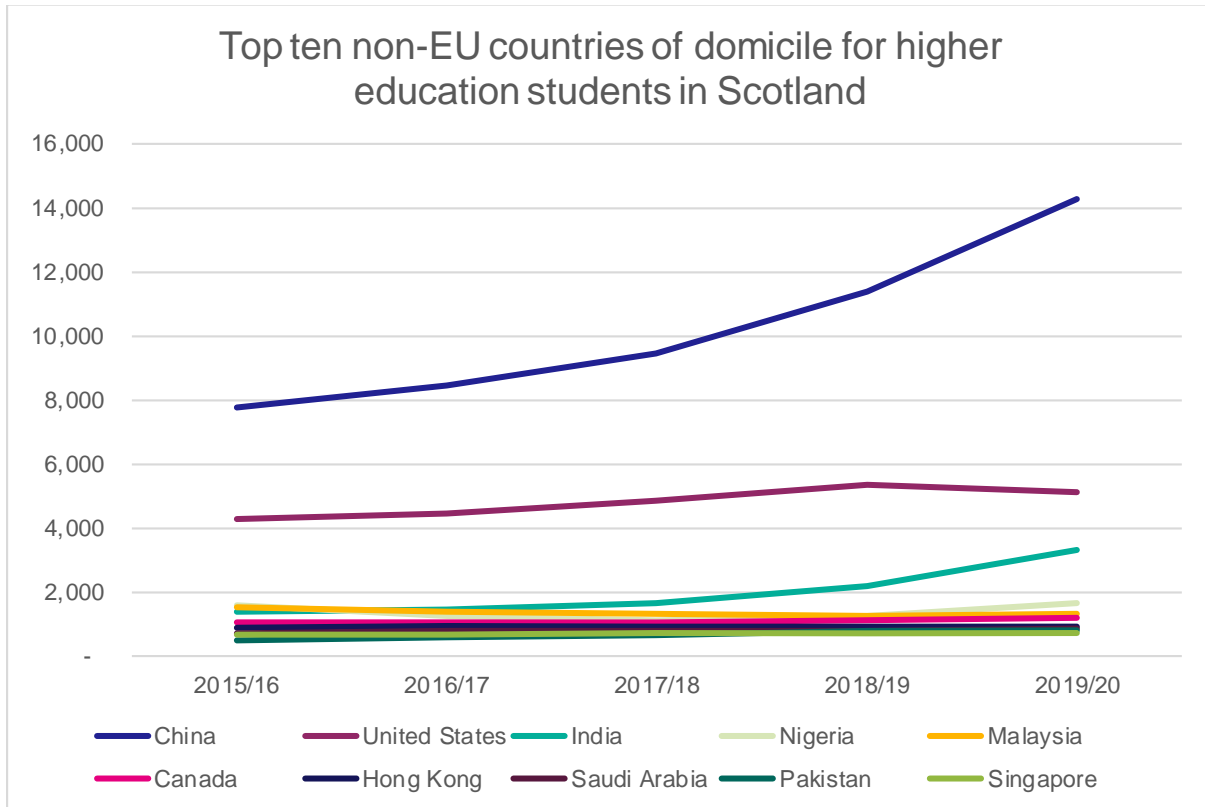


Table 7



Conclusion

The countries identified as being important for export growth, foreign direct investment, inbound tourism, higher education and research are broadly similar. For example, the USA has the highest export priority ranking, is the top country for foreign direct investment, and accounts for 20% of the international visitor spend pre-COVID-19 and the second highest number of international students. It is on this basis that we drew up our draft list of priority countries.

Annex C

Scottish Government aviation expenditure

Table 8: Air Discount Scheme Costs

Year	Costs ¹ (£ million)	Passengers (million)	Cost per passenger
2006-07 ³	3.9	0.119	£33
2007-08	5.6	0.171	£33
2008-09	6	0.164	£37
2009-10	6.3	0.175	£36
2010-11	6	0.17	£35
2011-12	4.9	0.141	£35
2012-13	5.1	0.141	£36
2013-14	5.6	0.15	£37
2014-15	6	0.156	£38
2015-16	6.7	0.159	£42
2016-17	8.5	0.171	£50
2017-18	8.6	0.188	£46
2018-19	10.1	0.203	£50
2019-20	11.6	0.198	£59

1. Figures include reimbursing members' discounts to airlines and the cost of administering the scheme and are rounded to the nearest 100 thousand.
2. Figures include flights where reimbursement was subsequently requested from passenger due to misuse and are rounded to the nearest thousand.
3. ADS Scheme launched in May 2006.

Table 9: Scottish Government Revenue and Capital Subsidy to HIAL

Year	Revenue (£ million)	Capital (£ million) ²
2006-07	13.3	6.2
2007-08	20.3	8.1
2008-09	21.1	5
2009-10	20.2	6
2010-11	18.1	7
2011-12	17.9	8.7
2012-13	17.9	4.1
2013-14	14.71 ³	7
2014-15	20.1	14
2015-16	20.3	18.1
2016-17	15.2 ⁴	11
2017-18	20.4	10.1
2018-19	21.7	8.3
2019-20	24.3	14.1

1. Figures relate to core revenue and capital subsidy provided by Transport Scotland and its predecessors. Figures do not include subsidy from other Scottish Government departments or agencies. They are rounded to the nearest 100 thousand.
2. Figures include grant and loan funding.
3. In 2013-14 HIAL's revenue subsidy was lower than trend as a proportion of the operating cost deficit was met from the use of cash reserves that HIAL had built up over a number of years.
4. Figure includes £5.6 million receipt in relation to settlement of a court case between HIAL and Shetland Islands Council.

Table 10: Support for Air Services

Year	Costs (£ million)
2006-07	1.5
2007-08	1.6
2008-09	1.6
2009-10	2
2010-11	1.8
2011-12	2
2012-13	2.2
2013-14	2.3
2014-15	2.5
2015-16	3.2
2016-17	4.3
2017-18	5.0
2018-19	5.0
2019-20	5.7

1. Figures include services from Glasgow to Campbeltown, Tiree and Barra and Dundee to London.

Annex D

List of questions

1. What more, if anything, should the Scottish Government and industry do to accelerate the transition to low/zero emission aviation?
2. What can the Scottish Government do to help increase the use of sustainable aviation fuels?
3. What do you think the Scottish Government can do to help ensure a just transition to net-zero for the Scottish aviation sector?
4. Considering the future challenges and opportunities, what changes, if any, should we make to our approach to help achieve our aim for international connectivity?

Priority	Short haul	Long haul
1	Germany	USA
2	France	China
3	Netherlands	Canada
4	Italy	Australia
5	Norway	Japan
6	Spain	
7	Switzerland	
8	Belgium	
9	Sweden	
10	Ireland	

5. Do you agree with the priority countries for short haul and long haul set out in the table above?
 - a. Yes
 - b. No
 - c. Don't know
6. Which other countries should we focus on in the:
 - a. Short term (next 2 years)
 - b. Medium term (2-5 years)
 - c. Long term (5 years plus)
7. How do we incentivise the use of more efficient aircraft, whilst still ensuring that we secure the routes Scotland needs?
8. What do you think about the idea of the Scottish Government purchasing new zero emission aircraft to lease to any airline operating routes in the Highlands and Islands?

9. What else can the Scottish Government do to achieve its aim of decarbonising scheduled flights within Scotland by 2040?

Less Demand for air services	Same level of demand for air services	More demand for air services
<ul style="list-style-type: none"> • Greater use of video-conferencing and other technology • Telemedicine • Focus on higher spending tourists rather than volume • Improved facilities on islands • High speed rail • Medical supplies and post delivered by drone • Improvement in ferry provision and/or fixed links 	<ul style="list-style-type: none"> • Around the same number of people living and working in the Highland and Islands • No changes to current travel patterns • No changes to how goods are transported 	<ul style="list-style-type: none"> • More people living and working in the Highlands and Islands (e.g. because of growth of the energy sector, more home and remote working, more small business start-ups etc.) • More tourists • Lower costs as a result of using electric/hydrogen aircraft • Modal shift from ferry to plane • More goods transported in belly hold/ dedicated air freight

10. What air services do you think are needed to meet the needs of people living in and visiting the Highland and Islands in the scenarios set out above:
- a. less demand for air services
 - b. same level of demand for air services
 - c. more demand for air services?
11. Most air services in the Highlands and Islands are delivered on a commercial basis. How can the Scottish Government best work with the private sector to deliver the air services you think are needed?
12. How effective do you think the Air Discount Scheme has been at addressing high airfares?
13. How can the Scottish Government improve the Air Discount Scheme?
14. What do you think about complementing the current operating model with an on demand service, such as air taxi?
15. What do you think about an open charter service?
16. In addition to on demand and open charter services are there any operational models you think could be used? If so, what?

Operator	HIAL	Shetland Islands Council	Orkney Islands Council	Argyll & Bute Council
Airports	Barra	Fair Isle	Eday	Coll
	Benbecula	Foula	North Ronaldsay	Colonsay
	Campbeltown	Out Skerries	Papa Westray	Oban
	Dundee	Papa Stour	Sanday	
	Inverness	Tingwall	Stronsay	
	Islay	Whalsay	Westray	
	Kirkwall			
	Stornoway			
	Sumburgh			
	Tiree			
	Wick John O' Groats			

17. What are the strengths and weaknesses of the operational model set out in the table above?
18. What changes, if any, do you think should be made to these governance arrangements to improve services?
19. What changes, if any, do you think should be made to these governance arrangements to reduce running costs?
20. Do you think the Scottish Government should encourage airlines to offer plane-plus train tickets?
 - Yes
 - No
 - Don't know
21. If yes, how do you think the Scottish Government could best do this?
22. What more, if anything, do you think the Scottish Government can do to help promote efficient and sustainable airfreight transport?
23. What else do you think the Aviation Strategy should try to achieve?

RESPONDENT INFORMATION FORM

Public consultation to inform the development of an Aviation Strategy

Please Note this form **must** be completed and returned with your response.

To find out how we handle your personal data, please see our privacy policy:

<https://www.gov.scot/privacy/>

Are you responding as an individual or an organisation?

Individual

Organisation

Full name or organisation's name

Phone number

Address

Postcode

Email

The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

Publish with name

- Publish response only (without name)
- Do not publish response

Information for organisations:

The option 'Publish response only (without name)' is available for individual respondents only. If this option is selected, the organisation name will still be published.

If you choose the option 'Do not publish response', your organisation name may still be listed as having responded to the consultation in, for example, the analysis report.

We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

- Yes
- No



**TRANSPORT
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Published by Transport Scotland, October 2021

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