CLEANER

QUIETER

SMARTER

PROGRESS REPORT 2015-2017

SUSTAINABLE AVIATION
Cleaner. Quieter. Smarter.

www.sustainableaviation.co.uk

EXECUTIVE SUMMARY

In 2005 the UK aviation industry was a world first in coming together to establish Sustainable Aviation (SA), and commit to working towards sustainable growth.

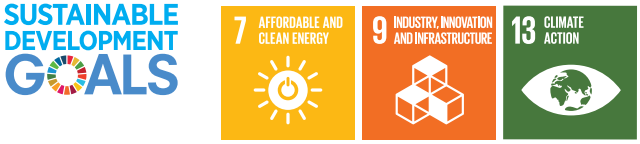
This is SA's sixth Progress Report and highlights achievements by this unique coalition of UK industry, especially in the last few years. Our progress against the seven key goals of the SA strategy is presented in this report with the highlights given below.

GOAL 1 // SOCIAL & ECONOMIC

A competitive aviation industry making a positive contribution to the UK economy and meeting the needs of society for air transport, whilst maintaining constructive relationships with stakeholders.

SA members continue to make a positive contribution to the UK economy, contributing a further £10bn to the economy compared to 2005 and providing a further 2000 highly-skilled jobs since 2014. We have seen strong passenger growth, with 9% more people flown by SA members compared to 2014. Aviation will continue to play a critical role delivering the nation's global connectivity as the UK leaves the European Union.

GOAL 2 // CLIMATE CHANGE



To identify, create and develop opportunities to reduce UK aviation climate change emissions and enable sustainable growth.

We continue to make good progress to reduce UK aviation climate change emissions. We have disconnected the rate of passenger growth from growth in CO_2 emissions. In 2016 we published our updated CO_2 Road-Map which provided further confidence in delivering our 2012 vision of reducing net CO_2 emissions. We also successfully lobbied for the inclusion of aviation in the Renewable Transport Fuel Obligation to support the development of sustainable aviation fuels.

GOAL 3 // NOISE

Limit and, where possible, reduce the impact of aircraft noise.

We have made good progress against our commitments in our 2013 Road-Map, however these improvements have not always been reflected in community perceptions. During 2017, to further understand concerns of communities we commissioned independent research and will publish a discussion paper in 2018 on the findings to identify the most effective solutions to manage the impact of aircraft noise.

GOAL 4 // LOCAL AIR QUALITY

Industry to play its full part in improving air quality around airports.

Air quality is a growing concern for communities and policy makers. In response, SA published a report on UK aviation and air quality. It concluded that aircraft emissions contribute 1% of the UK nitrogen oxide (NO_x) emissions and 0.1% of UK particulate (PM_{10}) emissions with a range of opportunities being explored to reduce this further.

GOAL 5 // SURFACE ACCESS

Industry playing its full part in an efficient, sustainable multi-modal UK transport system.

Passenger use of public transport to access UK airports continues to increase, up 7% in the South East and up 5% in other areas of the UK since 2006. SA members continue to lobby the Government to ensure new road and rail projects connect with UK airports.

GOAL 6 // NATURAL RESOURCES

Environmental footprint of UK aviation's ground-based non-aircraft activities is contained through effective engagement and reduction measures.

Good progress is being made in the recycling of waste across UK airports, through partnerships with airlines, retailers, cleaning companies, ground handling companies and regulators. This includes the recycling of aircraft cabin and airport food waste as well as making use of waste to energy opportunities. SA members are also delivering improvements in the use of scarce resources, water and energy.

GOAL 7 // IMPLEMENTATION

Full industry commitment to sustainable development and communicating fully the role of aviation in society in order to support a better understanding of its contributions.

Over the past two years we have secured greater commitment from the industry to sustainable development, recruiting 10 members and partnering with Innovate UK. We continue to educate policy makers and Parliamentarians on the role of aviation and our work. During 2018 we will focus more on reaching out to a broader audience, including with the general public.

SUSTAINABLE AVIATION

Cleaner. Quieter. Smarter.

90,095
tonnes of CO_2 saved due to more efficient flights in UK airspace since 2014

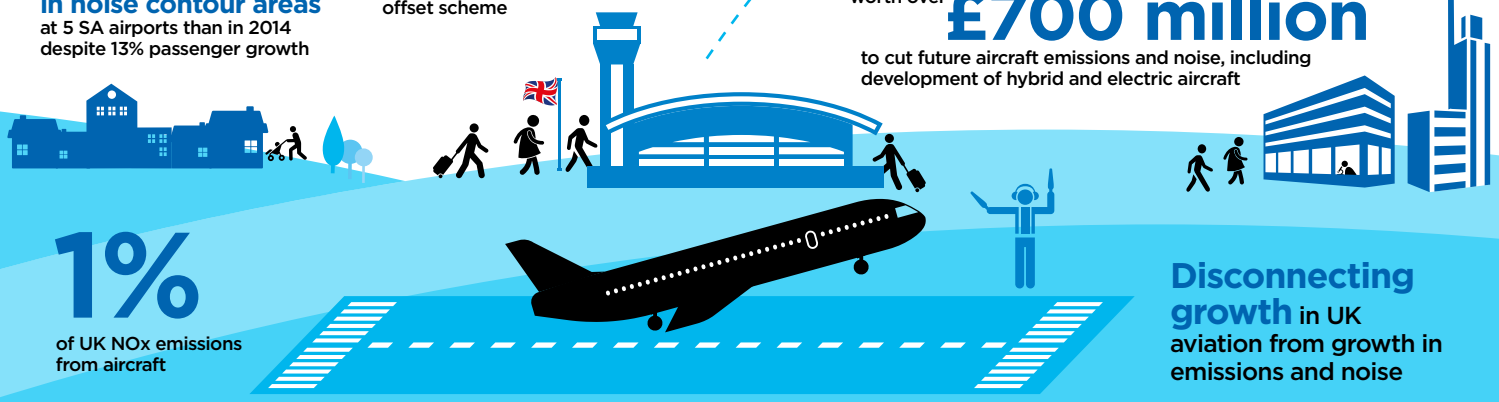
63,267
more continuous descent approaches
in 2015/16 than 2014, reducing noise and CO_2

The **Airbus A350-900** and **Boeing 787-9**
have reduced the area impacted by noise by at least 2.4km² than the aircraft they replace

12,200
fewer people in noise contour areas
at 5 SA airports than in 2014 despite 13% passenger growth

UK industry
has taken a key role in the development of global aviation industry carbon offset scheme

Over 140 innovation and technology projects
are being supported by the UK aerospace industry, worth over **£700 million**
to cut future aircraft emissions and noise, including development of hybrid and electric aircraft



1%
of UK NOx emissions from aircraft

Disconnecting growth in UK aviation from growth in emissions and noise

2.3% increase
in passengers using public transport to access UK airports in 2016 compared to 2014

1/4
of all specialist airport vehicles are zero emission electric vehicles

120,000 people
employed by SA members
2,000 more than in 2014

28.8m more passengers
in 2016 compared to 2014

FUEL

New UK special interest group
to support UK sustainable jet fuels sector

2% increase in aircraft fuel **efficiency** since 2014

SUSTAINABLE DEVELOPMENT GOALS

3 GOOD HEALTH AND WELL-BEING
5 GENDER EQUALITY
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
13 CLIMATE ACTION

CONTENTS

SA CHAIR'S REVIEW

As I reflect on my two year tenure as Chair of Sustainable Aviation, it is clear that our industry continues to play a vital role in our economy and but it is one that is fiercely competitive.

We have seen passenger numbers reach 250m in 2016, an increase of nearly 30m since 2014, with further growth expected. We have disconnected that rate of growth from growth in carbon emissions and noise over the last two years. However, we recognise there is more to do.

Over the past two years Sustainable Aviation members have continued to take a leading role in collaboratively reducing our industry's impact on the global environment and local communities. Our sixth progress report outlines what we have achieved, considers how the Goals we set in 2005 help meet the UN's Sustainable Development Goals. I am delighted by what has been accomplished.

For the first time we evaluated the socio-economic impacts of aviation. In the last two years alone, Sustainable Aviation members have delivered over 2000 new highly-skilled jobs.

Our updated CO_2 Road-Map, published in 2016, provides further confidence in delivering our 2012 vision of reducing net CO_2 emissions, and continues to be a reference document for the industry. UK airlines took a leading role in securing global progress to establish the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), enabling our goal of carbon neutral growth from 2020.

We have made significant progress on creating a successful and vibrant sustainable aviation fuels sector for the UK by securing our inclusion in the Government's Renewable Transport Fuels Obligation, and working with Innovate UK to form a Special Interest Group bringing together interested stakeholders.

Air quality is a growing concern for communities and policy makers. In 2017 we published a report on UK aviation and air quality which shows that aircraft emissions contribute 1% of the UK nitrogen oxide (NO_x) emissions compared to 32% for road transport. However, we are seeking to minimise this further pursuing a range of opportunities set out in that document.

Airspace arrangements have remained largely unchanged since the 1950s. It is not optimised for the industry, the environment or communities; modernising airspace is critical. We are beginning to see progress. Sustainable Aviation has long called for a stable policy and earlier this year, we were pleased when the Government published its revised UK Airspace Policy, providing greater public support and increasing transparency.

Noise has been our priority this year. We have made good progress against our 2013 Road-Map however I think it is fair to say that these benefits have not always been reflected by community perceptions. It is essential that we better understand the concerns of local communities, that is why we commissioned independent research and done further work on the role of technology and operational improvements to manage noise. In 2018 we will publish a paper on the findings and how we will take this work forward.

We have long recognised that we can't secure a sustainable future for aviation alone. We have continued to build our relationships with Government and organisations such as the

Climate Change Committee. We have also been supported by our Advisory Board, I would like to pay particular thanks to Catherine Cameron, the Advisory Board Chair and the board members for the support and advice they have provided.

We are at a critical juncture for aviation. With demand set to continue to increase and efforts to limit global temperature rises to less than 1.5c above pre-industrial levels, consideration of science based targets and ensuring we're tracking against the UN's Sustainable Development Goals is ever more critical. But at the same time, as I leave the chair of the coalition there are exciting developments on the horizon, among them increasing electrification of our industry and further development of sustainable alternative fuels.

I am thankful to the commitment of Sustainable Aviation members during my time as chair, and congratulate them on all they have achieved. I look forward to our continued success. I would also like to recognise the contribution of Monarch Airlines to Sustainable Aviation.

Ian Jopson
Chair 2016-2017
Head of Environment and Community Affairs, NATS

SA INCOMING CHAIR'S INTRODUCTION

I am delighted to be taking over as the Chair of Sustainable Aviation at such an interesting time. As we prepare to enter the CORSIA scheme from 2020; the UK Government develops a new Aviation Strategy, which places safe and sustainable growth at its heart; and we seek to limit global temperature rises to less than 1.5c, it has never been a more important time for Sustainable Aviation and our members.

Over the coming years we will continue to work together to address these challenges. We will further consider how our work can contribute to the achievement of the United Nation's Sustainable Development Goals.

On climate change, we will review and report on the potential of market based measures, undertake further work to unlock the huge potential of sustainable aviation fuels and update our Carbon Road-map in 2019. We will also continue our focus on noise and air quality. We will set out the way new techniques and technologies can reduce the impact of aircraft noise, and work with Government to find innovative ways to introduce low and zero emission vehicles to airports.

In 2018 we will publish our vision for aviation in 2050 which will look at the innovative and emerging technologies on the horizon which have a potentially transformative effect on our industry. We will continue and deepen our dialogue with stakeholders to ensure a positive policy framework for aviation which recognises and supports the world leading efforts being undertaken by the UK's aviation industry to achieve a sustainable future.

Our sixth progress report further demonstrates our commitment. I thank members for their efforts and I look forward to working together over the coming years to achieve our goals.

Neil Robinson
Incoming Chair 2017-2019
Group CSR Director, Manchester Airports Group

ADVISORY BOARD COMMENT

This Progress Report highlights the progress made by Sustainable Aviation over the last two years. It demonstrates the value added by Sustainable Aviation, showing that collectively the UK aviation sector can combine to make progress towards their shared goals to make the sector cleaner, quieter and smarter.

The need for such collaboration is ever more pressing with the overall rise in UK aviation emissions, both in absolute terms since 1990, and as a percentage of UK carbon emissions as other sectors decarbonise. The SA Advisory Board welcomes the separation achieved between the rate of growth in the sector from growth in carbon emissions and noise over the last two years. We acknowledge the effort made by the industry to decarbonise, both immediately and going forward via the Carbon Road-map. We are pleased that Sustainable Aviation recognises the need to commit to science based targets in order to limit temperature increases to less than 2 degrees (and as close as possible to 1.5 degrees) C above pre industrial levels and will accordingly revisit its Carbon Road-map. We are delighted that this year SA mapped the work that they do to the Sustainable Development Goals (SDGs) and that in this Progress Report, for the first time, the link between the goals of SA and the SDGs has been explicitly made.

Going forward we would encourage SA to build on the progress of the last 12 years and to raise both its ambition and its speed in meeting the goals it has set. With the new Clean Growth Strategy and Industrial Strategy, and a new Aviation Strategy in view, SA should build on its strong leadership position, championing the need for a sector fit for the future. It needs to continue to identify the key practical interventions and solutions that can support the UK aviation industry both to implement this level of ambition and to grow the level of ambition across the industry. E.g. by seizing on the opportunities that new technologies offer in further development of alternative fuels and hybrid and electric aircraft, along with pushing for strong environmental objectives in line with the science, and building on the work done on air quality and on noise. We look forward to a continued close working relationship with this important UK industry.

Catherine Cameron
Chair SA Advisory Board

THE SA ADVISORY BOARD

The SA Advisory Board works with SA to provide independent advice and feedback. It provides rigorous challenge in order to enable it to reach its cleaner, quieter, smarter goals effectively and efficiently.

Catherine Cameron, Chair SA Advisory Board, Agulhas Applied Knowledge

Thomas Barlow, Confederation of British Industry

Owen Bellamy, Committee on Climate Change

Michael Coe, Department for Transport

Stephen Farrant, Business in the Community

Professor Piers Forster, University of Leeds

Roger Gardner, University of Southampton

Tim Johnson, Aviation Environment Federation

Colin Potter, UNITE

Rebecca Roberts-Hughes, Civil Aviation Authority

Martin Schofield, Aerospace Technology Institute

Performance against SA Goals

GOAL 1
SOCIAL & ECONOMIC

A competitive aviation industry making a positive contribution to the UK economy and meeting the needs of society for air transport, whilst maintaining constructive relationships with stakeholders.

SUSTAINABLE DEVELOPMENT GOALS

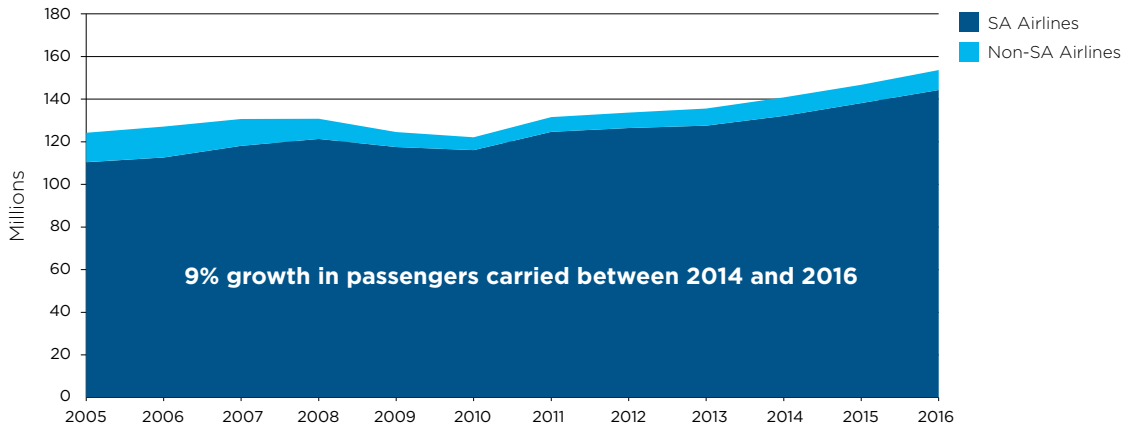
TARGET FOR 2015-17

- **Continue to provide consolidated UK industry socio-economic performance information.**

PERFORMANCE 2015-17

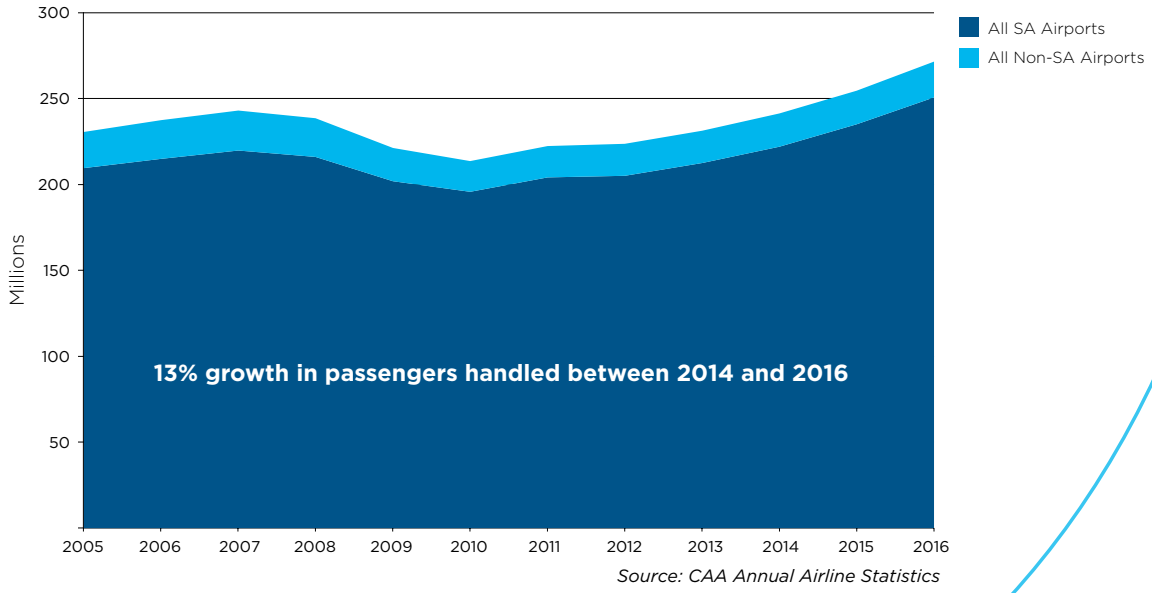
- Published SA Socio-Economic paper in January 2016[1].
- Air transport and aerospace contribution to the UK economy was at least £22 billion in 2015 – around £10 billion more than in 2005[2].
- Disconnected rate of growth in UK aviation from growth in carbon emissions and noise in the last two years[3].
  - Terminal Passengers handled by SA airports – 250.8 million in 2016, up by 28.8 million since 2014[4].
  - Passengers flown by SA airlines – Up 12.1 million since 2014 (9% growth)
  - Freight/Cargo carried by SA airlines – 849,200 tonnes in 2016, down 4% vs 2014[5].
  - In 2016 NATS handled 2.45 million flights, a 5.4% increase compared to 2015[6].
- Employees in UK aviation
  - Over 2,000 new jobs were created by SA members in 2016 vs 2014. Members now directly employ over 120,000 people[7].
  - Encouraging more women into the aviation industry has been a key focus for SA members in the last few years. See SA members for more information.
  - An average of 3,500 Apprenticeships in UK aviation[8].
- 36 of the latest-technology aircraft (identified as imminent aircraft in SA CO_2 Road-map) have entered service with SA airlines since 2014[9].

Passengers carried by UK Airlines per year (2005-2016)

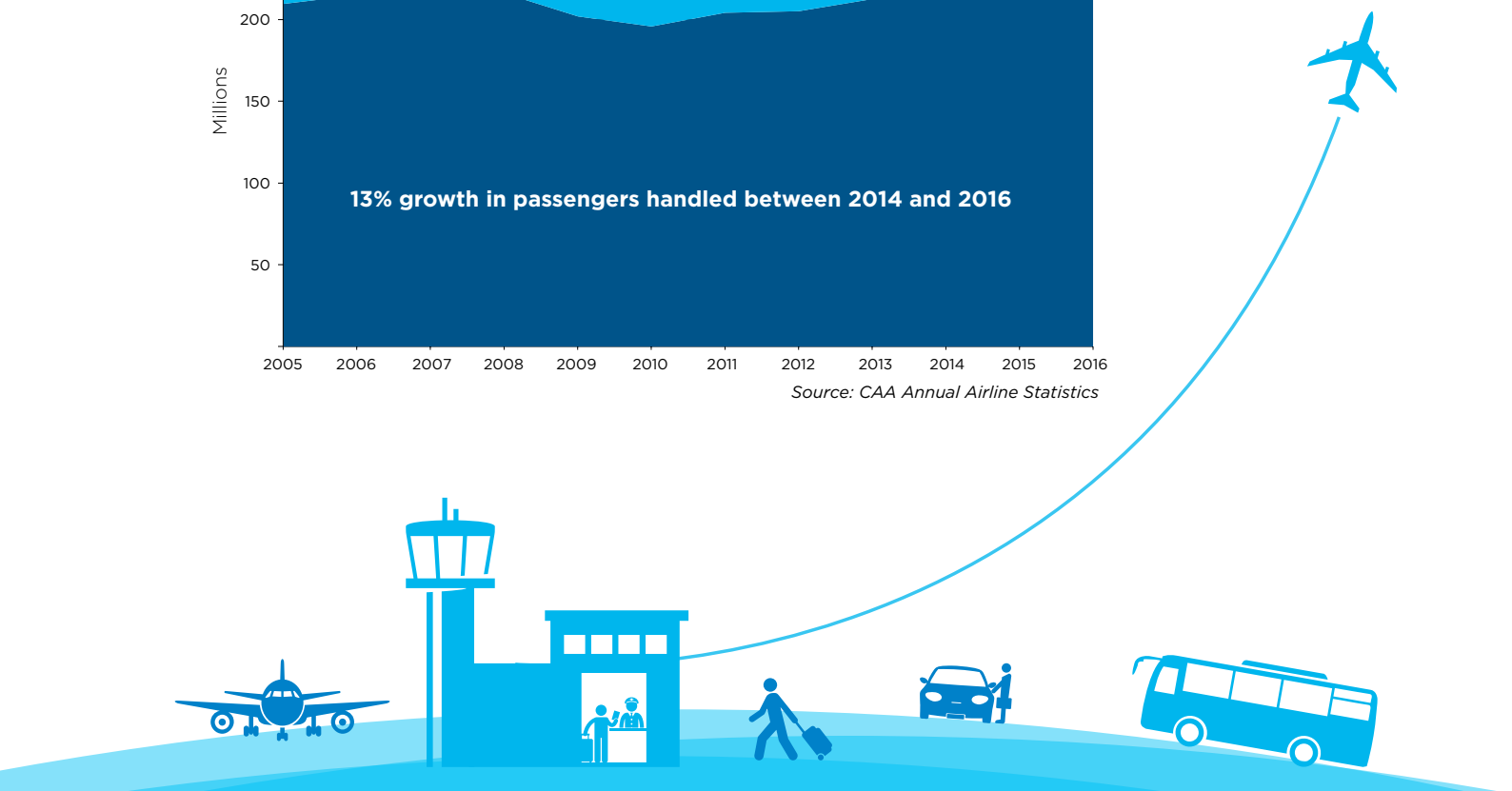


Source: CAA Annual Airline Statistics

UK Airport Terminal Passengers (2005-2016)



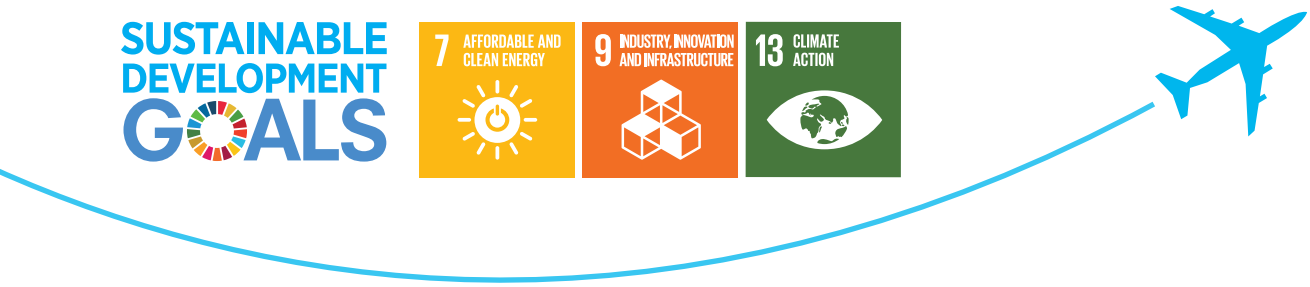
Source: CAA Annual Airline Statistics



GOAL 2
CLIMATE CHANGE

To identify, create and develop opportunities to reduce UK aviation climate change emissions and enable sustainable growth.

SUSTAINABLE DEVELOPMENT GOALS



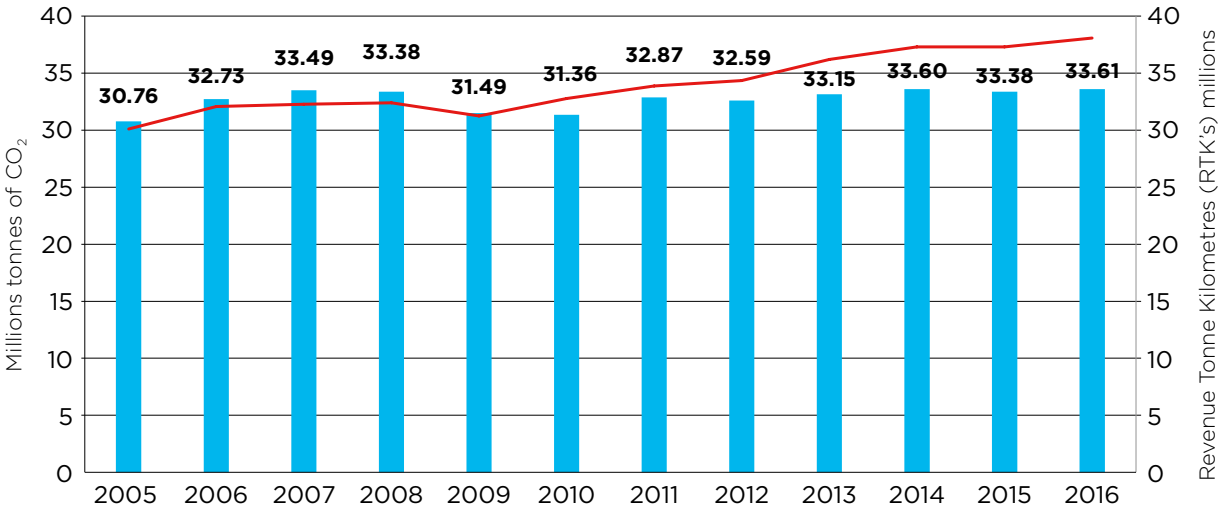
TARGET FOR 2015-17

- **SA will regularly report on our progress.**
- **SA will continue to monitor developments in the scientific understanding of aviation's climate-change impact**
- **SA's manufacturing members will continue to invest in research and development to enable future aircraft to be even more fuel efficient**
- **Continue to support the ATAG industry goals and support the global industry framework approach to address climate change regulations through ICAO**
- **SA will continue to work with the UK Government to:**
  - **Secure investment in UK aerospace technology research**
  - **Enable airspace and operational improvements to be implemented**
  - **Develop sustainable aviation fuels**

PERFORMANCE 2015-17

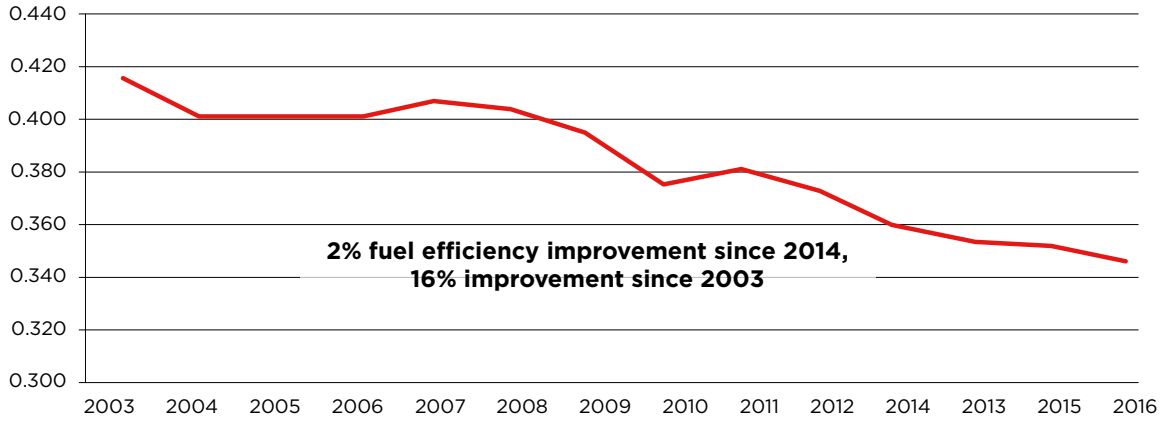
- Published updated SA CO_2 Road-Map in December 2016 supporting vision set out in 2012[10].
- CO_2 emissions by SA airlines[11].
  - Total emissions = 33.6 million tonnes CO_2 in 2016. This is a 0.2% increase since 2014 despite a 2% growth in airline output[12].
  - Fuel efficiency (litres/RTK) = 0.347 in 2016, 2% better than 2014, 13% better than 2005.
  - 90,095 tonnes of CO_2 saved due to more efficient flights in UK airspace since 2014[13].
  - Increasingly disconnecting growth in CO_2 emissions from growth in airline output since 2012.
- Continuous descent arrivals at UK airports increased by 63,267 in 2015 and 2016. Data for 2017 so far show over 77% of arrivals to UK airports carry out a continuous descent approach[14].
- Seven SA airports are signed up to the Airport Carbon Accreditation scheme with three achieving carbon neutral status and three achieving optimisation status[15].
- Secured inclusion of sustainable aviation fuels in the Renewable Transport Fuel Obligation[16].
- Sustainable Aviation Fuels Special Interest Group established by UK Government and SA to nurture innovation and production of sustainable aviation fuels in the UK[17].
- UK airlines took a leading role in securing global progress to establish the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). To enable aviation to meet its climate change goals of carbon neutral growth from 2020 and net reduction of 50% CO_2 by 2050 against 2005. As of end of August 2017, 72 States representing 87.7% of international aviation activity intend to participate in the first voluntary phase of the scheme from 2020[18].
- The UK Aerospace Technology Institute[19] (ATI) has funded 103 projects with a grant value of £506 million on CO_2 and fuel burn related research to the end of 2016. This includes new engine cycles, aerodynamic refinements of wings, nacelles & propellers, wind tunnel infrastructure, weight reductions and enablement of more electric aircraft systems.
- Research progress in development of hybrid-electric and electric aircraft[20].

SA Airline CO_2 emissions compared to passengers and freight flown



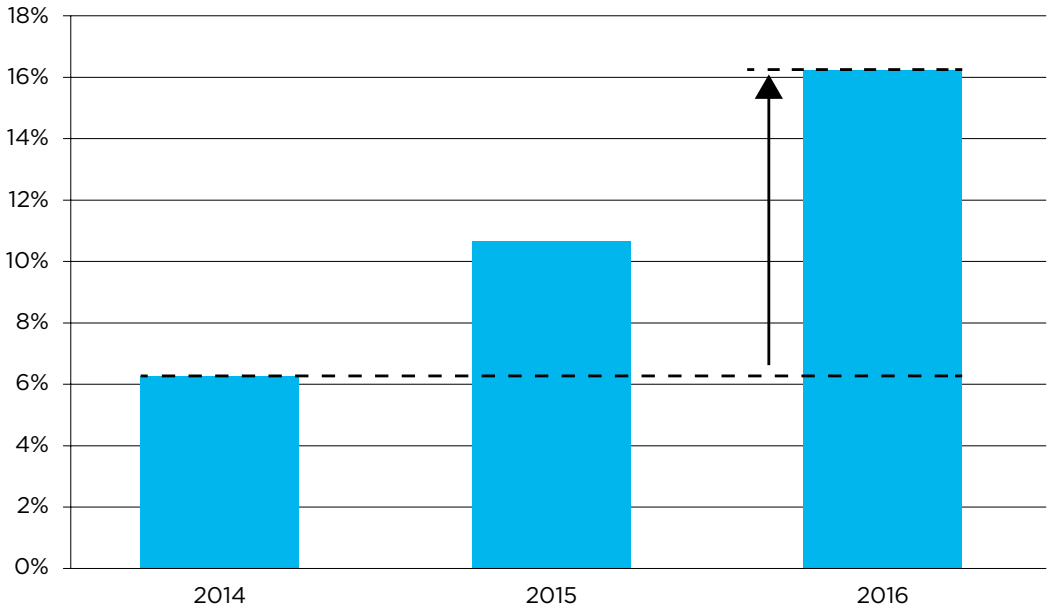
SA Airlines included are:
British Airways (incl historic BMI data), easyJet, Monarch, Thomas Cook, Thomson Airways, Virgin Atlantic

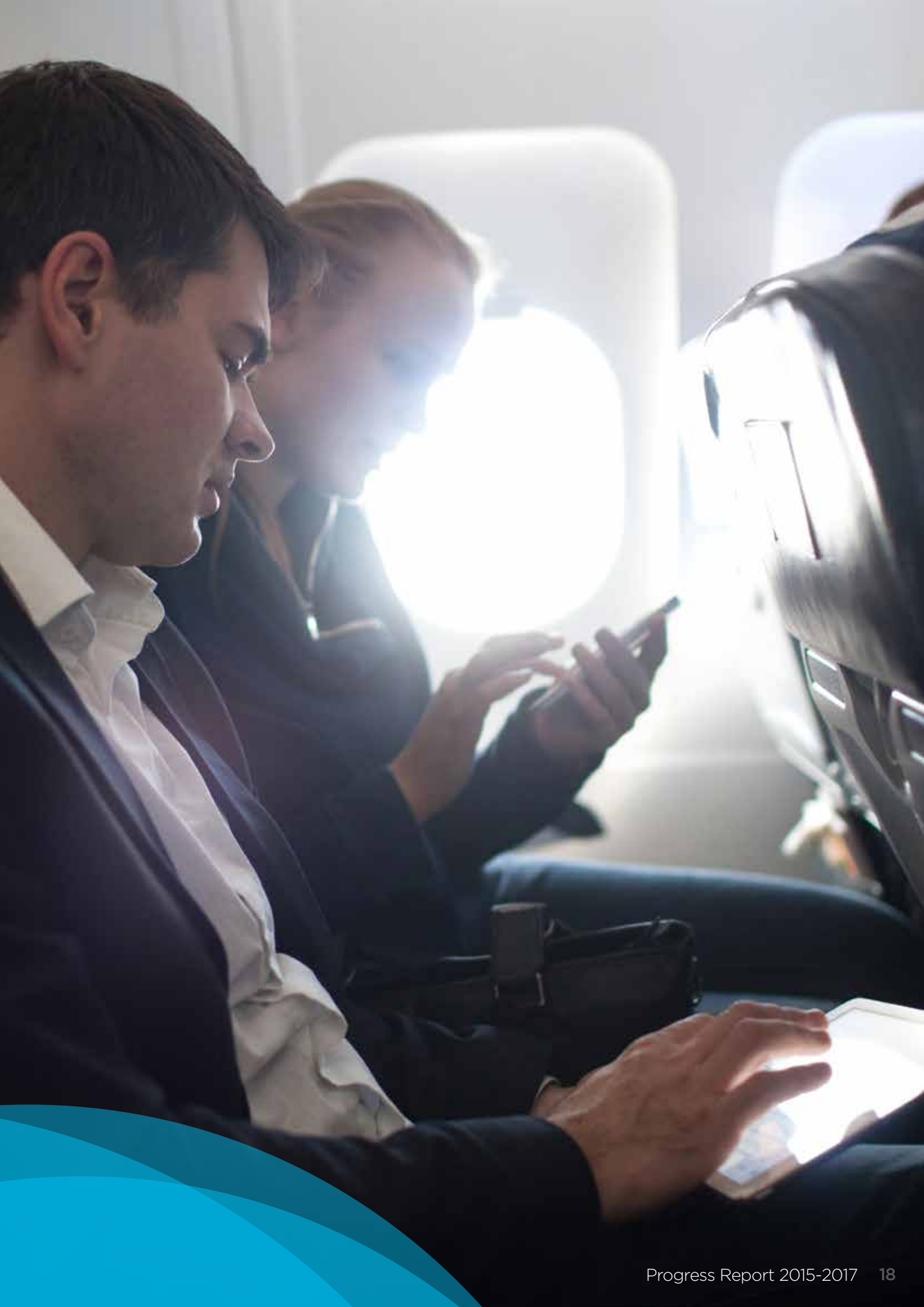
SA Airline Fuel Consumption
(Litres of fuel burnt per Revenue Tonne Kilometre flown)



SA Airlines included are:
British Airways (incl historic BMI data), easyJet, Monarch, Thomas Cook, Thomson Airways, Virgin Atlantic

Proportion of SA member-airline Available Seat Kilometres (ASKs) delivered using latest generation aircraft (SA analysis of data from OAG)





GOAL 3

NOISE

Limit and, where possible, reduce the impact of aircraft noise.

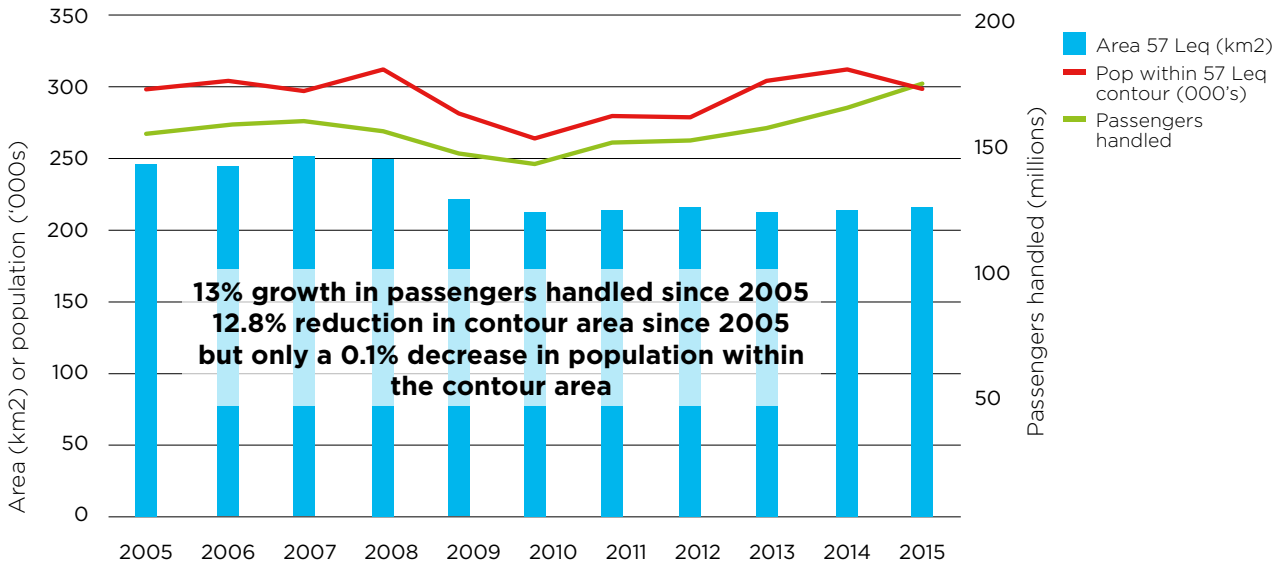
TARGET FOR 2015-17

- **Report on progress against our 2013 Noise Road-Map commitments**
- **Support future aerospace technology noise reduction targets**
- **Support further implementation of operational techniques.**
- **Continue to focus on improving how the industry works with local communities affected by noise**
- **Continue to support local authorities to provide additional housing, schools, hospitals and other noise sensitive buildings close to airports in a way that minimises increases in significant annoyance.**
- **Work with regulators to advance policies to improve aircraft noise management.**

PERFORMANCE 2015-17

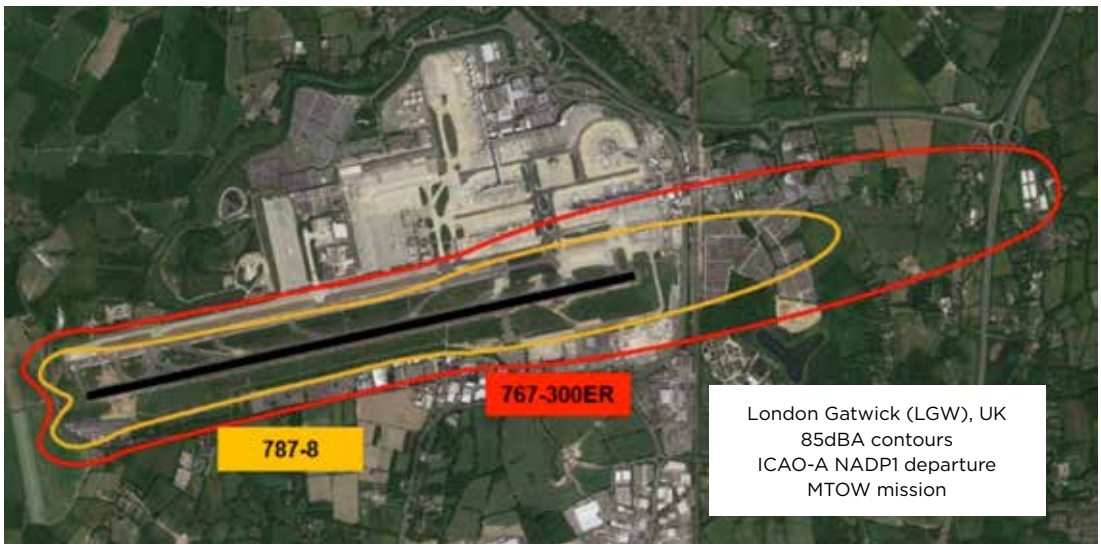
- Since 2014 the 57Leq noise contour areas at five SA airports have grown by 0.7 square kilometres but the people within the contour area has reduced by 12,200[21].
- Increase of 63,267 quieter, continuous descent arrivals at UK airports[22].
- SA carried out community focus group surveys at UK airport locations in summer 2017 with follow up work planned for 2018-19.
- SA-led industry workshops held on smarter operating techniques and technology innovation.
- A number of operational trials have been carried out to reduce noise:
  - Slightly steeper approach trials (3.2°) at Heathrow Airport
  - Commenced study into Heathrow Airport 09R DET climb gradient[23].
  - Birmingham Airport carried out a trial in 2016 to raise the ceilings of noise preferential routes to reduce the overflight of communities- this was successful on one route and was raised to 4,000ft[24].
  - Through the recommendations of its Noise Management Board, Gatwick Airport has achieved over 90% conformance with Continuous Descent Operations
- Noise characteristics of new aircraft:
  - The design noise footprint of the A320neo is nearly a square kilometre smaller than older A320 aircraft[25].
  - The Boeing 737 MAX noise footprint is more than 1.7 square kilometres smaller than the 737 NextGen[26].
  - The A350-900 noise footprint is to be over 2.5 square kilometres smaller than the A340-300[27].
  - The Boeing 787-8 noise footprint is more than 2.4 square kilometres smaller than the aircraft it replaces[28].
- ATI has funded 44 projects with a grant value of £237 million for research in these areas to the end of 2016. This includes investigations of new engine cycles and key components, noise generation of propellers and undercarriages[29].

Noise Contour Area vs Population for SA Airports (LGW, LHR, LTN, MAN, STN)



New aircraft with smaller design noise footprints

Copyright © Airbus 2017



Copyright © Boeing 2017

GOAL 4
LOCAL AIR QUALITY

Industry to play its full part in improving air quality around airports.

TARGET FOR 2015-17

- **Seek to inform the debate by publishing a detailed paper on UK aviation and air quality**
- **Participate in relevant national debates on air quality**
- **Continue to explore opportunities to reduce emissions and make best use of new technology and innovations**

PERFORMANCE 2015-17

- Published our UK Aviation and air quality report in January 2017[30], showing that:
  - Only one airport in the top 10 was inside an Air Quality Management Area[31].
  - Aircraft emissions contribute: 1% of UK NO_x emissions, compared to 32% from road transport[32].
  - The UK aviation industry has already delivered a wide range of emission reduction initiatives, including changes to the way we operate, which can often deliver consequential benefits in other areas such as noise reduction or carbon savings.
  - Numerous initiatives to cut emissions from introducing electric ground service equipment at airports, clean vehicle partnerships and driver efficiency courses
- Progress against commitments in SA AQ paper:
  - An initial study on Reduced Engine Taxi (RET) has shown that noticeable savings in fuel and corresponding lower CO_2 emissions and those affecting air quality are being achieved across SA airlines fleets when utilising RET[33].
  - We have undertaken an initial review of specialist airport fleets and believe around 25% of these vehicles are zero emission electric vehicles. The majority of these electric vehicles are used to move baggage and cargo.
  - Remote-controlled, electric push-back tugs are now being introduced by British Airways, reducing ground-handling emissions at Heathrow Airport[34].
  - Rolls-Royce is entering year 3 of a 5-year CLEEN II program with FAA to demonstrate 65% NO_x emission reduction to ICAO CAEP/8 Requirements. The two program areas being worked under this contract are:
    - Low NO_x Combustor
    - Alternative Jet Fuel Test and Evaluation
- SA has participated in DEFRA / Innovate UK air quality innovation opportunity workshops.
- Globally, the ICAO CAEP/10 meeting agreed to the first non-volatile particulate matter (nvPM) mass standard for aircraft engines in February 2016 and are now working on further improved nvPM mass standards as well as the first non-volatile particulate matter number standard that will be delivered in 2019.


Not near to an air quality management area
Within 1 kilometre of an air quality management area
Within an air quality management area
Air Quality Management Area
Edinburgh Airport
Glasgow Airport
Newcastle International Airport
Manchester Airport
Birmingham Airport
London Luton Airport
Stansted Airport
Heathrow Airport
Gatwick Airport
Bristol Airport

GOAL 5
SURFACE ACCESS

Industry playing its full part in an efficient, sustainable multi-modal UK transport system.

SUSTAINABLE DEVELOPMENT GOALS

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

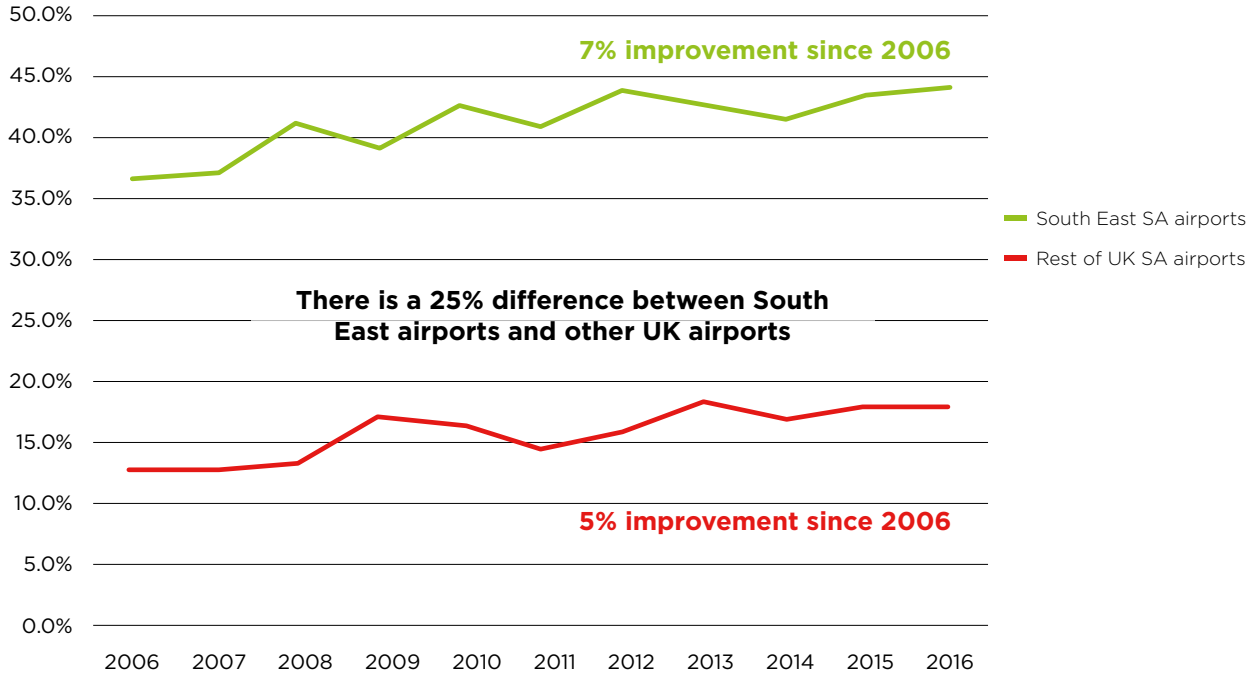
TARGET FOR 2015-17

- **Work with Government, to ensure that future investments in new transport infrastructure realise the opportunities to integrate airports into the UK's ground transport infrastructure.**

PERFORMANCE 2015-17

- Ongoing progress through airport surface access strategies and joint projects with bus, coach and rail operators.
  - 2.3% increase in the percentage of passengers using public transport to access UK airports in 2016 compared to 2014[35].
- Significant opportunities remain to improve road and rail connections to airports outside of the South East
- Specific examples of UK Government progress which SA members have been involved with are:
  - High Speed Rail 2 links to Birmingham and Manchester airports
  - Crossrail links to Heathrow Airport
- Further opportunities exist for many other airports including:
  - Brighton Mainline upgrade programme benefits for Gatwick Airport
  - Western Rail access to Heathrow Airport
- SA is working with Innovate UK and the KTN in surface access workshops to set out further opportunities to reduce emissions

Passengers using public transport to access UK airports



GOAL 6
NATURAL RESOURCES

Environmental footprint of UK aviation's ground-based non-aircraft activities is contained through effective engagement and reduction measures.

SUSTAINABLE DEVELOPMENT GOALS

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

TARGET FOR 2015-17

- **Play our part in supporting the responsible use of natural resources and prioritise minimising their use where possible.**

PERFORMANCE 2015-17

- Whilst not a priority area for SA in 2015-17, members continue to focus on a broad range of activities including:
  - Reducing energy use across their ground facilities
  - Reusing or reducing waste produced and sent to landfill by:
    - Working with Animal & Plant Health Agency and policy makers to ensure a consistent approach to the tightly regulated Category 1 and Category 3 Food Waste by all parties.
    - Working collaboratively to influence destination airports to introduce recycling schemes.
    - Working collaboratively between UK airports to share and exchange best practice.
  - Reducing water use and volumes of contaminated water requiring treatment.
  - Minimising the use of hazardous chemicals or scarce natural materials in aircraft and engine manufacture.

GOAL 7
IMPLEMENTATION

Full industry commitment to sustainable development and communicating fully the role of aviation in society in order to support a better understanding of its contributions.

SUSTAINABLE DEVELOPMENT GOALS

17 PARTNERSHIPS FOR THE GOALS

TARGET FOR 2015-17

- **Review our work programmes and resourcing, based on external developments and feedback from all our stakeholders to ensure our work remains relevant and supports sustainable growth.**

PERFORMANCE 2015-17

- Published papers on:
  - UK aviation socio-economic
  - CO_2 Road-Map and Inter-dependencies paper
  - Air Quality and Aviation Report
- Mapped the UN Sustainable Development Goals into our work programme – Goals 3,7,9 and 13 set as primary goals supplemented by Goals 5,8,12 and 17
- Expanded our membership with nine, new full members
- Partnered with Innovate UK
  - Establishment of a joint Government, Industry and Research Community special interest group for sustainable aviation fuels
  - Engaged in air quality and surface access workshops
- Re-accredited in 2016 and 2017 by Business in the Community for Engaging Customers on Sustainability award for CDO Campaign
- Met with 52 Parliamentarians and Ministers to help raise awareness of our work and performance across the UK

NEW SA FULL MEMBERS 2015-17

Birmingham Airport
Bristol Airport – Amazing journeys start here
dnata
Edinburgh Airport – Where Scotland meets the world
Glasgow Airport – Proud to serve Scotland
London City Airport – Get closer.
London Luton Airport
LiverpoolJohn Lennon Airport – above us only sky
United Technologies

FUTURE WORK PROGRAMME AND NEXT STEPS

GOAL 1 // SOCIAL & ECONOMIC

A competitive aviation industry making a positive contribution to the UK economy and meeting the needs of society for air transport, whilst maintaining constructive relationships with stakeholders.

PRIORITIES FOR 2018 AND 2019

Working with industry partners in the UK and Europe we will summarise the social and economic impacts of aviation and work with policy makers to agree how the aviation industry can best play its part to contribute to the achievement of the United Nation's Sustainable Development Goals.

GOAL 2 // CLIMATE CHANGE

To identify, create and develop opportunities to reduce UK aviation climate change emissions and enable sustainable growth.

PRIORITIES FOR 2018 AND 2019

Following the CORSIA agreement, we will review and report on the potential of market based measures, ahead of a full review and update of our CO_2 Road-Map in 2019.

We will work with key partners, including the Knowledge Transfer Network and DfT, to successfully introduce the Sustainable Aviation Fuels Special Interest Group, to unlock key technologies.

GOAL 3 // NOISE

Limit and, where possible, reduce the impact of aircraft noise.

PRIORITIES FOR 2018 AND 2019

Using the feedback we received from our 2017 community focus group and with further stakeholder engagement, we will bring forward a report that sets out the way that new techniques and technologies can best be deployed to reduce the impact of aircraft noise.

GOAL 4 // LOCAL AIR QUALITY

Industry to play its full part in improving air quality around airports.

PRIORITIES FOR 2018 AND 2019

We will work with the Government to find innovative ways to introduce low and zero emission vehicles to airports.

GOAL 5 // SURFACE ACCESS

Industry playing its full part in an efficient, sustainable multi-modal UK transport system.

PRIORITIES FOR 2018 AND 2019

We will monitor and report on the industry-wide initiatives to achieve more sustainable access to airports.

GOAL 6 // NATURAL RESOURCES

Environmental footprint of UK aviation's ground-based non-aircraft activities is contained through effective engagement and reduction measures.

PRIORITIES FOR 2018 AND 2019

We will establish a code of practice for the industry that sets out how emissions from ground operations can be best reduced.

GOAL 7 // IMPLEMENTATION

Full industry commitment to sustainable development and communicating fully the role of aviation in society in order to support a better understanding of its contributions.

PRIORITIES FOR 2018 AND 2019

We will actively participate in the Government's process to define a new Aviation Strategy. We will bring forward a report that sets out our vision for UK aviation.

ABOUT SUSTAINABLE AVIATION

What is our vision of a sustainable aviation industry?

Our vision is for the UK aviation industry to develop sustainably: maximising the economic and social benefits of air transport, while removing or minimising any negative impacts on the local and global environment.

What is SA's role in delivering this vision?

SA is a not for profit coalition which develops practical and policy solutions for cleaner, quieter and smarter flying, in order to enable the sustainable development of air transport in the UK.

SA is the first initiative in the world to bring the whole industry – airlines, aircraft and engine manufacturers, airports and air traffic managers -together as part of a formal strategy. The biggest challenges that we face will only be solved by the different parts of the aviation industry working together to improve performance. We focus our efforts on issues that rely on collaboration for success. We set long-term goals and agree priority areas of work to deliver these, reporting on progress every two years.

SA engages regularly with policy-makers and opinion formers to communicate its work and to understand their priorities. We aim to be a trusted and credible source of information on sustainability issues. Sustainable Aviation focuses on the UK, however its work takes place in a global context. UK aviation has a global reach and our aspiration is that Sustainable Aviation plays a leading role globally in efforts to tackle the industry's environmental impacts.

SA's strategy and work programme are overseen by its governing Council, made up of senior representatives of the member organisations. SA's terms of reference are to concentrate on issues that are most effectively addressed through cross-sector co-operation with most projects delivered by teams comprising airlines, airports, manufacturers and NATS. Additional information on signatories' own individual sustainability programmes is available from their websites.

SA Goals

SA's work programme is developed around seven strategic goals which have been set out in the earlier sections of this report. During 2017 these we linked with relevant UN Sustainable Development Goals. Our goals will be continually reviewed going forwards to ensure our work continues to remains relevant to our stakeholder interests and concerns.

SA MEMBERS AND SIGNATORIES

A list of individual members and signatories of SA can be found here: http://www.sustainableaviation.co.uk/members-signatories.

From 2015 SA has chosen to differentiate between those organisations directly funding the work of SA, referred to as 'Members' and those that support SA in other ways, referred to as 'Signatories'. The current status of this (at end November 2017) is shown below.

MEMBERS

ADS
AIRBUS
AIRLINES UK
THE ASSOCIATION OF UK AIRLINES
AOA
THE VOICE OF UK AIRPORTS
Birmingham Airport
BOEING
Bristol Airport
Amazing journeys start here
BRITISH AIRWAYS
dnata
Edinburgh Airport
YOUR LONDON AIRPORT Gatwick
GLASGOW AIRPORT
PROUD TO SERVE SCOTLAND
Heathrow
Making every journey better
LiverpoolJohn LennonAirport
above us only sky
London City Airport
Get closer.
London Luton Airport
MAG
NATS
Rolls-Royce
TUI GROUP
United Technologies
virgin atlantic

SIGNATORIES

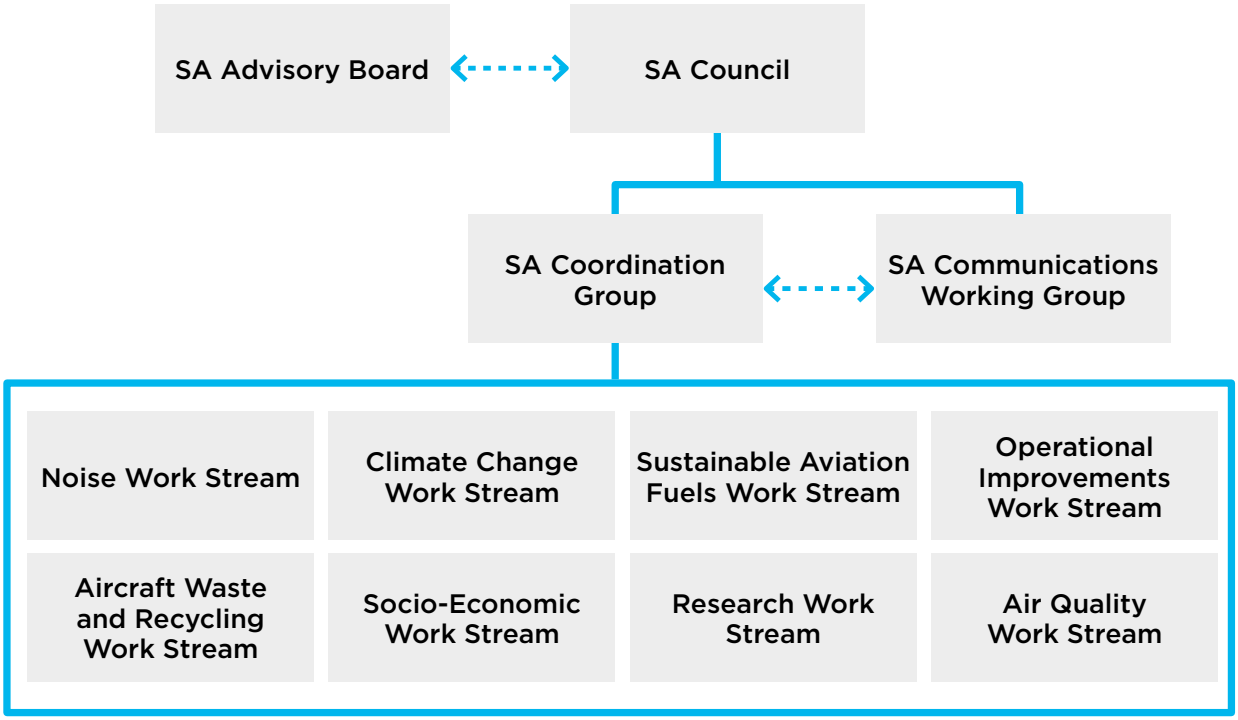
BAE SYSTEMS
BARUK
George Best BELFAST CITY AIRPORT
BOMBARDIER
the evolution of mobility
COBHAM
DONCASTERS
easyJet
fac
flybe.
GE Aviation
GKN
LEEDS BRADFORD INTERNATIONAL AIRPORT
MARSHALL AEROSPACE
MEGGITT
Newcastle International
Your Airport
Glasgow Prestwick Airport
QinetiQ
SAFRAN
Messier-Dowty
Thomas Cook Airlines
WEAF

SA ORGANISATIONAL STRUCTURE

Reporting to the governing SA Council are a range of technical and communication groups. These groups are tasked with delivering the SA work programme as set by the Council. A co-ordination group acts as a central facilitating group for the technical groups to ensure best practice is shared across the different groups and that timely progress is made in meeting the Council's work plan.

In addition, an Advisory Board (previously called the Stakeholder Panel) of recognised external sustainability experts provides rigorous challenge to the Council and to the work programme. The Advisory Board meets both independently and on a regular basis with the Council in order to track progress against the goals. Please see their comment at the beginning of this report.

Our current organisation structure is:



GLOSSARY

Absolute CO_2 Emissions Actual CO_2 emissions produced
ACARE Advisory Council for Aviation Research and Innovation in Europe
A-CDM Airport Collaborative Decision Making
AQMA Air quality management area
APU Aircraft Auxiliary Power Unit
ATC Air Traffic Control
ATM Air Traffic Management
CAA UK's Civil Aviation Authority
CCC UK's Committee on Climate Change
CCO Continuous Climb Operation
CDA Continuous Descent Approach
CO_2 Carbon Dioxide
EU ETS European Union Emissions Trading System
FEGP Fixed Electrical Ground Power
IATA International Air Transport Association
ICAO International Civil Aviation Organisation
Net CO_2 Emissions CO_2 emissions remaining once carbon trading has been accounted for
NO_2 Nitrogen Dioxide
NO_x Oxides of Nitrogen
nvPM Non-volatile particulate matter
PCA Pre-conditioned air
RNAV Area Navigation
RNP Required Navigation Performance
SA Sustainable Aviation

REFERENCES AND NOTES

1. See http://www.sustainableaviation.co.uk/reports/
2. Taken from UK Government 'Beyond the horizon – The future of UK aviation. A call for evidence on a new strategy (July 2017) https://www.gov.uk/government/consultations/a-new-aviation-strategy-for-the-uk-call-for-evidence
3. See performance in Climate and Noise Goals in rest of the Progress Report
4. Derived from CAA annual airport statistics – https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-airport-data/
5. Derived from CAA annual airline statistics – https://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airlines/
6. Data provided by NATS
7. Data derived from SA member annual sustainability and financial reports
8. See http://www.sustainableaviation.co.uk/reports/
9. Data provided by ADS, the UK Aerospace Sector trade association
10. See http://www.sustainableaviation.co.uk/road-maps/
11. These are calculated by adding fuel burn data provided by SA airlines together and multiplying the total fuel in tonnes by the DEFRA 2017 Greenhouse Gas conversion factor for Aviation Turbine Fuel of 3.18 to provide equivalent CO_2 emissions in tonnes.
12. Sustainable Aviation measures airline output in Revenue Tonne Kilometres (RTK's). This measures the weight carried (passengers and cargo) multiplied by the distance flown in kilometres.
13. CO_2 savings from airspace improvements have been gathered from NATS annual financial and CSR reports. https://www.nats.aero/environment/
14. Continuous descent arrival data provided by NATS for 2015 and 2016
15. Data provided by ACI Europe. For more information about the Airport Carbon Accreditation Scheme see – http://www.airportcarbonaccreditation.org/
16. See https://www.gov.uk/government/consultations/renewable-transport-fuel-obligation-proposed-changes-for-2017 for more information.
17. See https://ktn-uk.co.uk/interests/sustainable-aviation-fuel for more information.
18. This work is being delivered by the International Civil Aviation Organisation. See https://www.icao.int/environmental-protection/Pages/market-based-measures.aspx for more information
19. The Aerospace Technology Institute (ATI) was established as a collaboration between Government and industry; to create the UK's aerospace technology strategy, advising and challenging the sector through £3.9 billion of secured R&T investment, to ensure the UK retains its global competitive position. The Institute's mission is to help the UK realise the opportunity available of capturing a valuable share of the growing global civil aviation market. See http://www.ati.org.uk/
20. The symposium was convened to disseminate findings from 4 scoping studies that had been funded by EPSRC to understand some of the research challenges involved in future hybrid-electric or full electric aircraft. http://www.atslab.org/wp-content/uploads/2017/09/EPSRC_Electric_Aircraft_dissemination_event_report_FINAL.pdf
21. Derived from noise contour information provided by Gatwick, Heathrow, Luton, Manchester and Stansted airports. Heathrow, Gatwick and Stansted data is provided by the UK Government – https://www.gov.uk/government/publications/noise-exposure-contours-around-london-airports
22. Continuous descent arrival data provided by NATS
23. See http://www.heathrow.com/file_source/HeathrowNoise/Static/HCNF_WG2_Heathrow_DET_09R_Steeper_Departure_Trial_Feb_2017.pdf for more information
24. Information provided by Birmingham Airport
25. Data provided by Airbus and based on the following criteria: A320neo (68.3t) versus A320-214 (68t), Heathrow runway 27R, ICAO NADP1 Departure, 85dBA contour, 1000 NM mission, ISA, no wind, sea level
26. Data provided by Boeing and based on the following criteria: 737 MAX 8 with LEAP-1B compared to 737-800 with CFM56-7B, London Gatwick (LGW), UK 85dBA contours ICAO-A NADP1 departure MTOW mission
27. Data provided by Airbus and based on the following criteria: A350-900 (252t) versus A340-313 (258t), Heathrow runway 27R, ICAO NADP1 Departure, 85dBA contour, 6000 NM mission, ISA, no wind, sea level
28. Data provided by Boeing and based on the following criteria: 787-8 with Trent1000 compared to 767-300ER with CF6-80C2, London Gatwick (LGW), UK 85dBA contours ICAO-A NADP1 departure MTOW mission
29. See http://www.ati.org.uk/ for more information
30. See http://www.sustainableaviation.co.uk/uk-aviation-and-air-quality
31. For more information about UK Air Quality Management Areas see https://uk-air.defra.gov.uk/aqma/
32. Derived from National Atmospheric Emissions Inventory, 2014
33. Further work on Reduced Engine Taxi is planned in 2018-19 with results being incorporated into an update to the existing Industry Code of Practice. A case study with further information on the work to date will be available on the SA website.
34. See http://mediacentre.britishairways.com/pressrelease/details/86/2017-228/8826
35. Data taken from Table 6 of CAA published Airport Passenger Surveys – http://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Consumer-research/Departing-passenger-survey/Survey-reports/

CLEANER

QUIETER

SMARTER

Design: www.geniumcreative.com

PROGRESS REPORT 2015-2017

www.sustainableaviation.co.uk
020 7799 3171
info@sustainableaviation.co.uk
@Sustaviation

SUSTAINABLE AVIATION
Cleaner. Quieter. Smarter.