

# Our areas of work



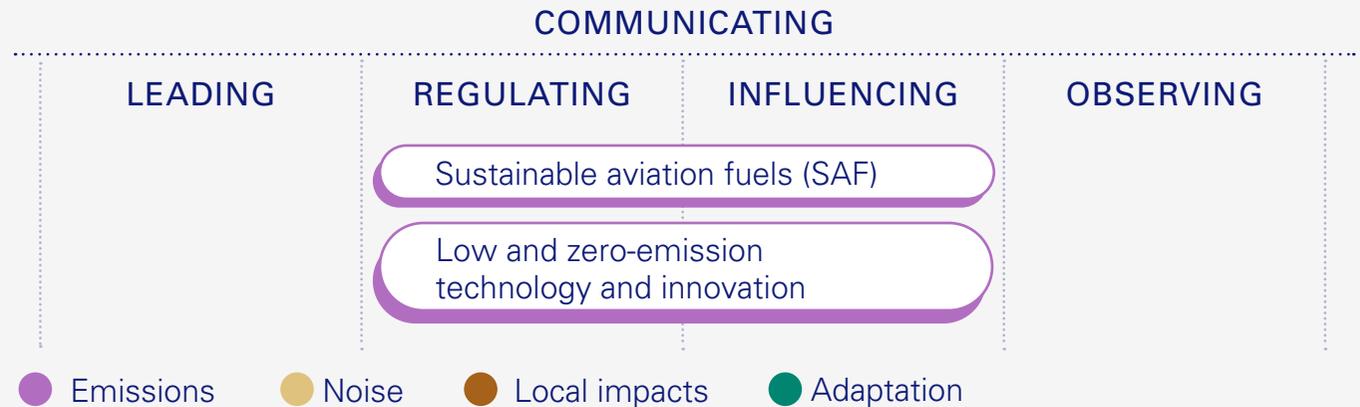
Read the context and approach  
to the strategy [here](#)



# 1 Enabling the development of low and zero-carbon technology and innovation, including sustainable aviation fuels.

## KEY MESSAGES

1. The benefit of new technology won't be felt in the short term. Our work creates a platform for carbon reduction in aviation but also across other sectors.
2. We expect our role to change from enabling and facilitating now to certifying in the near future.
3. We need to practice anticipatory regulation and horizon scanning to capture future ambition and disruptors.
4. We need to be tapped in with government, industry and the Jet Zero Council advising on regulation and certification and to ensure regulation is proportionate and standards are maintained.
5. The environmental factors of Remotely Piloted Aircraft System(s) need to be part of the plan.



Short-term Deliverables	
<b>We will contribute to SAF policy and industry development</b> including by setting out the steps towards reaching 100% SAF certification using the Jet Zero Council's Regulations Subgroup to inform this work	Autumn 2022
<b>We will undertake a review of regulatory challenges to delivering net zero flight</b> and set out relevant technology demonstrator sandboxes with industry to enable resolution	Spring 2023
<b>We will continue to explore how we can formalise environmental factors into the RPAS open category</b> for new types of airspace users and whether we are best placed to assume the role of Market Surveillance Authority	During 2022

# 1 Enabling the development of low and zero-carbon technology and innovation, including sustainable aviation fuels.

Innovative technologies will continue to develop and expand in the next five to ten years, as organisations seek to improve their carbon footprint, save costs and capitalise on opportunities. Government, through the Jet Zero Council, will have an important role in encouraging and incentivising investments in new technology and fuels to guide and support the market in driving for these solutions. But we also have a key role to play to ensure that innovation can be safely, securely and sustainably introduced.

At the moment, this means using our regulatory advisory expertise to create the conditions required for innovation to be brought to market, a role that is more akin to facilitating participation rather than leading industry. And we support the government's early focus on domestic aviation as a stepping-stone to decarbonising the rest of the sector, as short-haul flights bring less complex technological challenges in this space and more flexibility in their

implementation, at the UK's discretion. Beginning to develop and plan today for measures which may require introduction in five or ten years' time to achieve our targets will help to futureproof the strategy, given the considerable uncertainty.

The impact of new technologies and innovation on decarbonisation is currently quite small, as these activities are at an early stage of development. However, our work in this space has the potential to create a catalyst for carbon reduction in other areas of transport, for example with emerging technology aircraft, which are likely to grow significantly over the incoming decade. And we expect our role to change, in response to those developments, from advising on and facilitating activities to certifying those solutions for commercial operation.

We will play our role in driving progress towards the regulation of safe net-zero emission flight through enabling innovators

to develop sustainable aviation fuels and aircraft, and the aerospace industry to safely bring new technology to market.

We will work with Government and the sector on green recovery ambitions, including making the UK a leading country for low carbon aviation innovation and manufacturing. This includes supporting the Jet Zero Council through advising on regulation and aircraft certification for new types of aircraft required to deliver net-zero aviation by 2050, and designing regulatory frameworks for the safe introduction of new technologies and fuels.

We will work with industry in the coming years to understand and anticipate ambitions and horizon planning for decarbonisation and implications for legacy hydrocarbon aviation systems as we transition to zero-emission technology, ensuring regulation remains proportionate and standards are maintained or improved.

# 1 Enabling the development of low and zero-carbon technology and innovation, including sustainable aviation fuels.

## **Sustainable Aviation Fuels (SAF) Roadmap**

In the short-to-medium term, sustainable aviation fuels offer the best prospects for mitigating the carbon impact of the sector, and that is why the current focus is on scaling production. The Jet Zero Council aims to support the development and commercialisation of the UK SAF sector.

We will contribute expertise to accelerate the delivery of specific SAF policy and industry outcomes, working with international partners who have some responsibility for licencing of those products. We will also support government's upcoming SAF mandate and wider policy that will create the roadmap to the production and commercialisation of sustainable aviation fuels.

We will explore an ecosystem view based on key stakeholders for introducing up to 100% blends and widespread use of SAFs in the UK aviation sector (based on Government mandates and industry developments).

We will agree the role of the CAA in enabling the above and managing safety risks – including identifying timelines and resource requirements for cross-CAA decision making.

## **Review of Net Zero Regulatory Challenges**

We will build on the Signals and Trends market intelligence report and initial Net Zero projects to identify regulatory challenges including format and structure for presenting challenges, likely ICAO Forum 2023. We will agree the role and actions for CAA to address regulatory challenge and timeline required against industry developments and/or applicable government mandates.

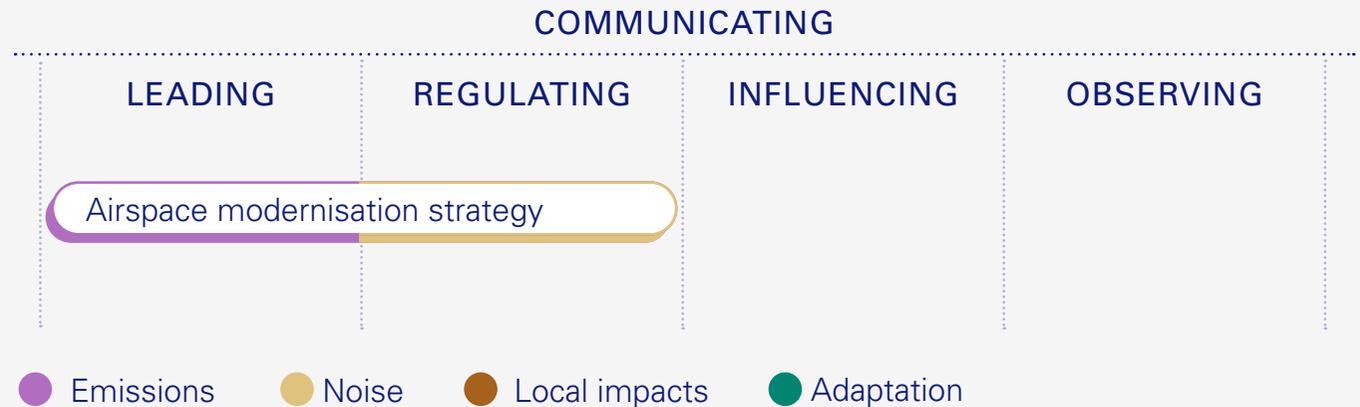
## **Remotely Piloted Aircraft Systems (RPAS) open category Market Surveillance Authority (MSA)**

We are exploring internally whether we are best placed to assume the role of MSA. If the outcome is positive, as part of our future role of MSA, we could include scope to oversee how parts from Remotely Piloted Aircraft System(s) can be re-used and recycled, including battery recycling. We would also actively suggest this if another agency takes on the role.

# 2 Co-leading the modernisation of the airspace

## KEY MESSAGES

1. The benefit of more efficient and direct routes to carbon reduction (and noise) is only small – 5% estimate.
2. But it is important as it can be realised without new technologies or SAF.
3. There are trade-offs, such as more efficiency = more capacity = more carbon.



Short-term Deliverables	
<p><b>Through engagement with all of the AMS stakeholders, we will (look to) make sustainability an overarching principle</b> to be applied through all modernisation activities in the strategy, taking account of the latest government policy and guidance on environmental objectives (noise, greenhouse gases and air quality)</p>	<p>Response to consultation in Autumn 2022</p>

# 2 Co-leading the modernisation of the airspace

The Airspace Modernisation Strategy (AMS) is aimed at delivering cleaner, quicker and quieter journeys and more capacity for the benefit of those who use and are affected by UK airspace. Airspace modernisation has an expected delivery timescale of 2040 and is co-sponsored by the CAA and the Department for Transport.

The government believes that airspace modernisation will form a significant part of its Jet Zero Strategy for short- to medium-term measures, allowing aviation to meet increasing demand in a sustainable way, including helping the UK meet its climate change obligations.

There are several environmental improvements that airspace modernisation will bring, such as reduced fuel burn and emissions per flight through more efficient flightpaths and more frequent continuous ascent and descent, as well as less need for holding due to better management

of arrival times through optimised routes and speeds. Modernisation could also enable aircraft to climb more quickly, descend more quietly, and to navigate more accurately around population centres or other noise-sensitive areas.

Airspace and Air Traffic Control procedure modernisation has the potential to reduce airspace related fuel burn/CO<sub>2</sub> emissions by around 20%, which represents around 4-5% of the UK's total aviation related CO<sub>2</sub> emissions. Whilst a relatively modest impact on overall aviation related carbon emissions, the AMS is important as it can be realised with current aircraft, without using sustainable aviation fuels or technologies that are not yet in widescale commercial use (although both would obviously maximise impact).

On the other hand, we recognise that a more efficient use of airspace will generate additional capacity, in turn potentially leading to more flights and increased emissions. We recognise we will have to consider these different factors in our work.

We will continue to keep the context for the AMS under review and update it where necessary, particularly as technological innovations are forthcoming or become ubiquitous, gaps in the policy or regulatory framework emerge that are affecting delivery, or where the Government has signalled upcoming of widescale policy developments such as net zero.

# 2 Co-leading the modernisation of the airspace

We are bound by government policy when assessing proposed changes to the airspace design. We are required to take into account the Department for Transport's Air Navigation Guidance to the CAA on its environmental objectives when carrying out its air navigation functions.

In our consultation on the refresh of the Airspace Modernisation Strategy, we have proposed a revision to the way we articulate our strategic objectives for airspace modernisation in respect of sustainability.

The revision proposes we introduce sustainability as an overarching principle to be applied through all modernisation activities, taking account of the latest government policy and environmental guidance, which may change over time. Our commitment to this strategic objective and to relevant law and policy is thus much more visible.

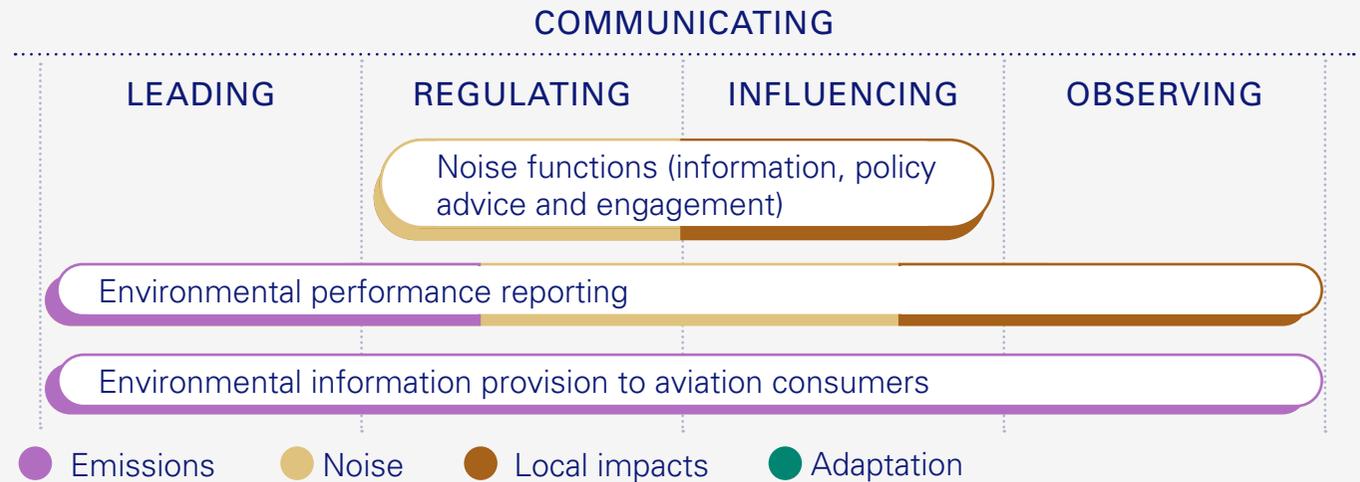
The aim of this approach is to achieve better management of noise and help meet government commitments to net zero emissions, and our focus will be meeting the challenge of enabling delivery of the strategy.

The CAA and Department for Transport cannot deliver these alone: airspace modernisation will need to be delivered collaboratively by a range of aviation organisations, such as air navigation service providers, airports, airlines, manufacturers, representative organisations and, where appropriate, bespoke delivery bodies. A wider range of other stakeholders will need to be engaged throughout this transition.

# 3 Reporting on the environmental performance of industry, including noise, and providing information to consumers on the environmental impact of aviation

## KEY MESSAGES

1. This is an area where we have statute, expertise and existing processes and where we can exercise leadership.
2. This is an opportunity to encourage best practice from industry, provide more certainty and stability for investors and better information for consumers.
3. We are strengthening our capability with a new Environmental Sustainability Panel.



Short-term Deliverables	
<b>We will start reporting on the environmental performance of the UK aviation's sector as a whole, against government targets</b>	By the end of 2022
<b>We will consult on the proposal for policy design and implementation for sharing environmental information with consumers</b>	By the end of 2022
<b>We will propose a set of options to government on how we can prioritise trade-offs more clearly</b>	By the end of 2022

# 3 Reporting on the environmental performance of industry, including noise, and providing information to consumers on the environmental impact of aviation

We will take a leading role, as the industry regulator, in enabling the delivery of decarbonisation and overseeing performance. We will work with government on a methodology to assess progress, building on our already established processes for collecting information from airports and airlines and using our recently acquired environmental reporting duty from exiting the EU.

Robust, trusted and comparable measurement and reporting of greenhouse gas emissions will have a vital role in building and maintaining trust in the efforts and choices which will need to be made across all stakeholder groups.

We will use this opportunity to make recommendations where delivery does not meet the set expectations, for example ensuring that the measures are appropriately funded by the relevant parties, thus encouraging better practice against the government's strategy across the whole sector.

We will ensure our reporting provides certainty and stability for the investor market.

As well as information on emission reduction strategies and measures, the report will also focus on noise, in line with the new functions given to us by the Secretary of State following the closure of the Independent Commission on Civil Aviation Noise (ICCAN).

These functions ask that we provide independent advice to government on civil aviation noise issues and are an addition to the technical advice the Department for Transport commissions from CAA on a number of noise analysis issues, and separate from the regulatory function to decide whether or not the design of airspace can be changed.

We will use the additional advisory functions to give government more information on which to make policy decisions, enable and encourage noise information to continue to be communicated accurately, appropriately and meaningfully and best practice on noise management to continue to be available and disseminated.

We will strengthen our capability by setting up an Environmental Sustainability Panel to provide expert technical advice, support and challenge to our activities in the space of sustainability.

# 3 Reporting on the environmental performance of industry, including noise, and providing information to consumers on the environmental impact of aviation

## Environmental performance reporting

Earlier last year, we inherited a duty from leaving the EU that used to sit with EASA (EU Reg 2018/1139, article 87). This gives us a triennial environmental reporting requirement, giving an objective account of the state of environmental protection relating to civil aviation in the UK. The report will use publicly available data, for example held by the CAA, and be published for consultation with government and other stakeholders. It will also need to contain recommendations aimed at improving the level of environmental protection in UK civil aviation.

We will link this new duty with the wider role we have to report on the progress of the sector in meeting the government's net zero ambition. We will consider whether and how we can take into account Scope 3 emissions.

## Environmental information provision

We think consumers that have access to accurate, reliable, comparable and vetted information on the CO<sub>2</sub> emissions of their flight that contribute to impact on the environment are a step closer to making more informed and more positive travel decisions. Our deliberative research has provided the evidence base to demonstrate the need for environmental information to be part of the range of factors consumers consider when booking a flight, together with the primary drivers of decision-making, cost and convenience.

We will turn theory into practice in the policy development phase of this work. There is an opportunity for the UK to exercise leadership in this space, domestically in the first instance, with a view to gain accord internationally on a standardised metric.

## Options on trade-offs

We will propose a set of options to government on how we can prioritise trade-offs between different policy interests more clearly. These may include: short term vs long term health of the sector, environmental performance vs levels of competition and access to aviation services, carbon vs noise vs capacity performance of airspace.

# 4 Advising and supporting the UK government on domestic and international policy

## KEY MESSAGES

1. Our role is to engage and influence in support of the UK government, whose role it is to lead UK's representation on international agreements.
2. We want to expand our engagement circle beyond the usual stakeholders.
3. We want clarity on where we sit as it is a crowded space and we want to be receptive to external developments.
4. We want to share data and information with others where applicable, but also import knowledge.
5. We will support government at the ICAO Assembly.



Short-term Deliverables	
<b>We will work with Department for Transport to design a CORSIA capacity building programme</b> to help other NAAs' develop knowledge for implementation, with a pilot programme ready for deployment from 1 April 2022	Ongoing
<b>We will work with Department for Transport to support government's input on sustainability</b> at the ICAO Assembly in Autumn	During 2022
<b>We will continue to collaborate with CAA Singapore</b> on matters of recovery from the Covid 19 pandemic and sustainability of the aviation sector (specifically on SAF, hydrogen technology and consumer information) and with NAA network on matters of common interest for future collaboration	During 2022

# 4 Advising and supporting the UK government on domestic and international policy

The environmental performance of domestic and international aviation and aerospace is fundamental to the longer-term health and viability of the sector. In line with our International Strategy, our aim is to develop relationships to support ongoing global improvement in aviation and aerospace, including on matters of sustainability.

While we are currently still in the early stages of evolving how the international strategy can support our sustainability work, we will focus on promoting the UK's work in this area, sharing information, and importing knowledge and learning from other regulators and organisations back into the CAA, encouraging innovative thinking and coordinated engagement.

We recognise that the environment is a crowded space, with many actors. Currently, we already contribute to the national and international (such as in ECAC and ICAO) debate on environmental policy where we have some distinctive value, and we advise government and the wider community.

We will continue to input into ECAC work and ICAO's Committee on Aviation Environmental Protection (CAEP) on matters related to more stringent environmental standards for new aeroplane types, long-term environmental trends assessments, development of noise standards for Emerging Technology Aircraft, and best practice airport noise modelling.

We will also support the Department for Transport on matters of domestic and international noise policy through our Environmental Research and Consultancy Department (ERCD), with analysis and technical support for noise, carbon and air quality.

We recognise that government policy and the Department for Transport's international strategy will continue to have an impact on our work to drive global efforts to reduce the environmental impacts of international aviation, but also in relation to promoting innovation.



# 4 Advising and supporting the UK government on domestic and international policy

We plan to grow and establish relationships and new regulatory networks beyond our 'usual' circle of stakeholders to collaborate with others, in order to maximise the impact of our activities.

We will be open to ideas and dialogue with others and to external developments to share information and data where relevant to strengthen connections and emphasise the quality and standards of the UK's approach to regulation.

## **Capacity building**

The focus of the programme is to transfer knowledge and to coach the individual ICAO Member States' staff, assisting them to develop the necessary competencies that would enable them to implement ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) (rather than deliver on behalf of the beneficiary State).

## **ICAO's Assembly**

The ICAO 41st Assembly will take place in the Autumn 2022 and will be the first big international event we have attended since the UK left the EU. The Department for Transport is majoring on the Assembly, and we will advise and support the government's objectives, including on the environment.

Aviation is the first sector to have a global market-based measure – ICAO's CORSIA mechanism. One of the sector's ambitions is to secure some strengthening to that mechanism and to increase its scope to include countries such as Brazil, China and Russia. This is in addition to securing the agreement of an ambitious, net-zero 2050, Long-Term Aspirational Goal (LTAG) for international aviation CO<sub>2</sub> emissions.

## **NAA network**

The network provides an opportunity for cohesive and coordinated engagement. Initial conversations have highlighted sustainable fuels as a potential area where collaboration is beneficial, but we will continue to engage with the network further thinking, as the external context evolves.

# 5 Reducing the impact of our corporate activities and operations

## APPROACH

1. Reduce use: implement a communication campaign and provide training to empower colleagues to reduce the organisation's environmental footprint.
2. Be more efficient: procure products and services that are energy and waste-efficient, and optimise efficiency of waste management processes.
3. Switch to sustainable resources: use renewable energy instead of energy from fossil fuels, and use reusable rather than disposable materials.



Short-term Deliverables	
<b>We will approve the targets for the CAA's operations to be net zero by 2035</b>	Approved in April 2022
<b>We will develop a communication programme and environmental training</b>	To deliver by April 2023
<b>We will replace the chiller and the BMS and evaluate solar photovoltaics (PV) at Aviation House</b>	To deliver by April 2023
<b>We will formalise the ISO14001 methodology for the CAA's operations</b>	To deliver by April 2023

# 5 Reducing the impact of our corporate activities and operations

CAA's corporate environmental sustainability strategy is aimed at reducing the environmental impacts from our operations, to promote transparency to a wide range of stakeholders, provide mid-term cost savings and attract talent.

We are planning to link it to the broader environmental impacts that occur both upstream and downstream in our value chain, to cover our wider procurement activities and services.

## Target

As part of the above, and to align CAA's exposure to climate-related risks with a 2°C temperature rise scenario, we have set the following targets:

1. We will have an entire electric car fleet by 2030;
2. We will achieve net zero greenhouse gases (GHG) emissions by 2035.

## Ambition

We aspire to make our corporate activities sustainable and we are committed to improving the environmental performance of our operations.

We will comply with environmental legislation, regulation and other requirements as a minimum.

We will implement an environmental management system.

We will measure and report our performance against internationally recognised environmental management systems.

We aim to manage and reduce greenhouse gases from our operations. It is our long-term target that our operations are net zero carbon.

We have the ambition to send zero waste to landfill from our operations and to eliminate all avoidable plastic waste.

We will continue to manage and reduce water consumption in our operations.

# 5 Reducing the impact of our corporate activities and operations

## Main elements

To deliver this strategy we need to embed environmental management into the business, make our car fleet electric and undertake a major retrofit of our offices.

## Our Impact

In FY21/22 our total net greenhouse gases (GHG) emissions were 1,239.6 tonnes carbon dioxide equivalent (tCO<sub>2</sub>e). This represents a decrease of 32% compared with 1,824.1 tCO<sub>2</sub>e in FY19/20 due to energy efficiency improvements, the impact of the Covid 19 pandemic and changes to hybrid working. The principal measures undertaken to improve energy efficiency included new ways of working and retrofitting LED lights at Aviation House.

## Progress

Some of the initiatives undertaken during FY21/22 to reduce our environmental impact included adopting new ways of working, installation of additional electric charging points and LED lighting at Aviation House, and agreement to sub-leasing some of the office space at our Westferry offices.

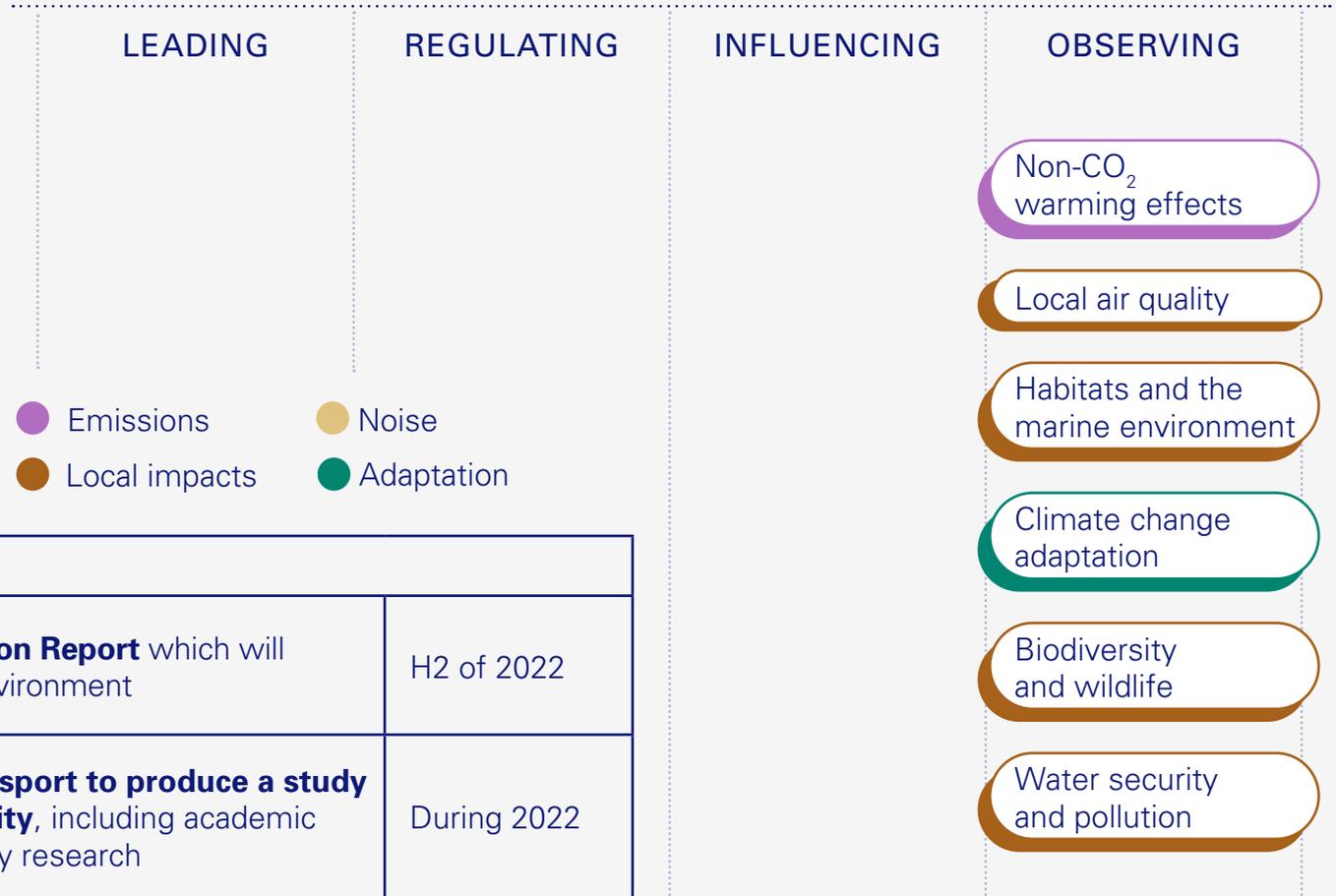
	<b>FY 21/22</b>	<b>FY 20/21</b>	<b>FY 19/20 (baseline)</b>	<b>% change</b>
<b>GHG Emissions (tCO<sub>2</sub>e)</b>	1,239.6	968.2	1,824.0	-32%

# 6 Assessing local environmental impacts in relevant regulatory activity

## KEY MESSAGES

1. This is an area where we monitor / observe as less statute and expertise (e.g. we advise the EA on aviation matters for ETS).
2. We will continue to exercise our duty where there is a requirement, e.g. biodiversity.
3. We will strive to do more with the CC adaptation report.

## COMMUNICATING



Short-term Deliverables	
<b>We will produce a Climate Change Adaptation Report</b> which will include a review of our strategic risks to the environment	H2 of 2022
<b>We will work with the Department for Transport to produce a study on the effects of aircraft noise on biodiversity</b> , including academic papers, conference proceedings and third-party research	During 2022

# 6 Assessing local environmental impacts in relevant regulatory activity

These are the areas that are at the periphery of our remit, but that we think are important to take into account, to meet our ambition in considering environmental sustainability more holistically, as part of the aviation and aerospace systems.

We recognise there are entities better placed, in both statute and expertise, to actively support these environmental areas, however we will act where we can provide value, by collaborating with others, and we will keep a watching brief where we are not best placed to act.

We will continue to consider the impact of airspace changes to local air quality, biodiversity and tranquillity as part of our regulatory role in this space. The UK Airspace Change Masterplan is required to undergo an environmental screening exercise for impacts on protected habitats and species.

We will consider non-CO<sub>2</sub> warming effects as part of our work in other areas, such as in relation to sustainable aviation fuels and novel technologies, for example taking into account the latest scientific research on this topic.

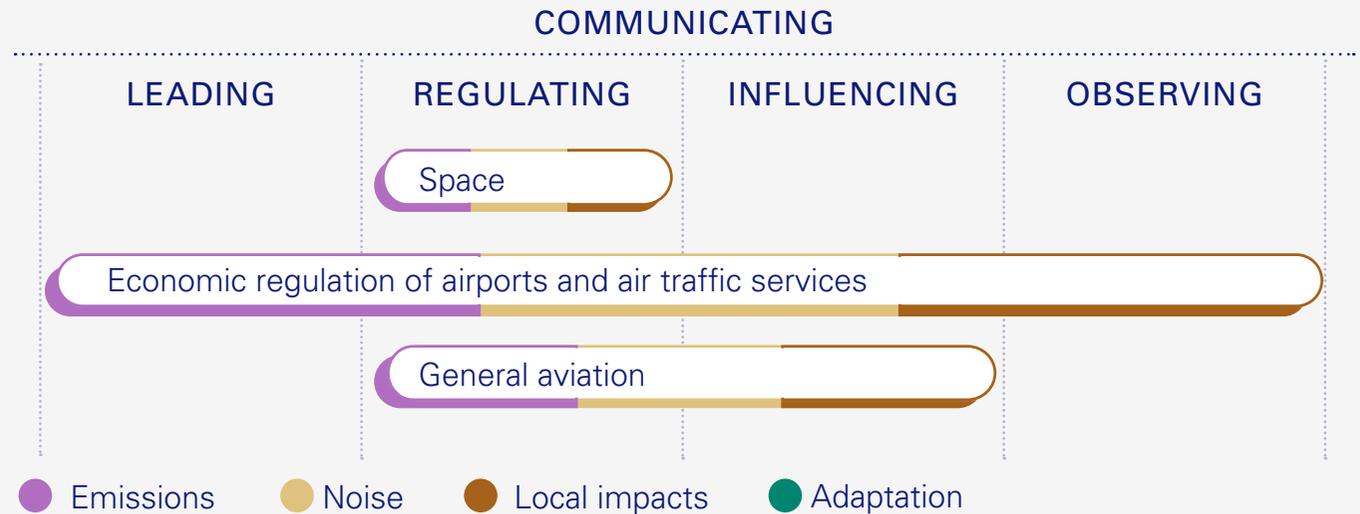
We will continue to comply with our cross-cutting duties on habitats and biodiversity and have regard to the statutory purpose of National Parks and AONBs. We will review the environmental metrics and assessment requirements for individual airspace changes, including how they take account of biodiversity and wildlife and we will continue to monitor developments in this area.

We will review our climate change adaptation plans and produce a report, as part of our reporting function and our internal environmental strategy.

# 7 Taking into account the environment in regulation and oversight

## KEY MESSAGES

1. This is an area where we regulate but the environment is a secondary duty and weakly used.
2. The environment has started to appear more prominently and we are working on a legislative gap analysis to better understand our future approach.



Short-term Deliverables	
<b>We will continue to work with the Department for Transport on the data analysis phase of a project to set out the transition to unleaded fuel for the GA community to inform future action</b>	During 2022
<b>We will conduct a legislative gap analysis</b> to highlight areas, such as these, to understand whether we can deliver our sustainability ambition within the current regulatory framework or if changes as needed	Q1 2022

# 7 Taking into account the environment in regulation and oversight

**The regulatory areas on this page are examples of a few domains where there may be opportunities to deliver the sustainability ambition.**

## **Economic regulation of airports and air traffic services**

Sustainability is rising on the agenda of government, industry and the public. Similarly, it is now taking a more prominent role in our regulatory activities.

In the economic regulation of airports, we have a primary duty to further the interests of consumers and a secondary duty to, among other things, have regard to the need to secure that airport operators are able to take reasonable measures to manage environmental impacts.

While we recognise the strategic importance of the aviation sector addressing net zero, we will encourage regulated entities to demonstrate that it will deliver emissions reductions in a cost effective way, and with appropriate assurance that it represents reasonable value and will deliver.

In the economic regulation of air traffic services, we have a primary duty to maintain a high standard of safety and a secondary duty to take account of guidance on environmental objectives given to us by the Secretary of State, although no such guidelines currently exist.

We currently establish and incentivise flight efficiency metrics, such as the NERL 3Di, however there are avenues to explore to improve efficiency, albeit by a small amount.

For example, could look at differential charging – i.e. cheaper ANS charges for more efficient /environmentally friendly aircraft, which has been already discussed on a European basis but not gained traction yet. It would require EUROCONTROL buy-in/support and we would need to be mindful not only of the proportionality/ effort costs, vs realised benefits, but also consistency with ICAO requirements on charging.

We will conduct a legislative gap analysis to highlight areas, such as these, to understand whether we can deliver our sustainability ambition within the regulatory frameworks we already have.

# 7 Taking into account the environment in regulation and oversight

## Space

We will continue to assess applications, including the assessment of environmental effects when issuing licences and attaching conditions, but we recognise the degree of challenge which can exist when regulatory decisions are made on the necessary trade-offs between differing airspace objectives, including environmental improvement.

## General Aviation

Our activity in this area is tied to government policy and ambition, in relation to the greening of the General Aviation.

We will continue to engage with government to support activity in their GA Roadmap that prioritises sustainability.

Department for Transport have commissioned Frazer-Nash to conduct a research project into the carbon impact of the GA sector, including opportunities for improvements and case studies. This work will be complete in summer 2022 and at this point we will select a number of the case studies and commission a piece of work to understand the feasibility and policy implementation options for the CAA.

Department for Transport continues to explore options to support the sector implement new, greener technologies to support the Government's wider Net Zero ambitions.

We will continue our work to support the on-going Project TEL to understand the benefits of unleaded fuels.