2040 zero emissions airport target

Introduction

Thank you for responding to our consultation on the 2040 zero emissions airport target. Closing date is 2 May 2023.

View all the questions

A full copy of the questions is available here.

Confidentiality and data protection

The Department for Transport (DfT) is carrying out this call for evidence to gather further evidence on our approach to meet our ambition of airport operations in England to be zero emissions by 2040. View our DfT online form and survey privacy notice for more information on how your personal data is processed in relation to this survey.

In addition to the information outlined in the privacy notice, in order to ascertain your relationship with the topic we ask from:

- individuals, their association with aviation
- organisations, the type of organisation you are

Personal Details

Your (used for contact purposes only):

name? Ellis Shelton

email? eshelton@logistics.org.uk

Are you responding:

☐ as an individual?

☑ on behalf of an organisation? (Go to 'Organisation details')?

Individual details

3. You:

☐ reside near an airport?

☐ are a member of an aviation trade association?

☐ work in an airport?

☑ are another type of individual?
Represent organisations of the aviation sector

Organisation details

Your organisation name is?

Logistics UK

Your organisation is:

- ☐ an airport?
- ☐ a consultancy?
- ☐ a service provider?
- ☐ a non-government organisation?
- ☐ a manufacturer?
- ☑ another type of organisation?

Trade Association

Consultation

Our ambition is for airport operations in England to be zero emission by 2040. We are gathering information to help design the policy to reach this target.

We are using this call for evidence to gather feedback on the:

- definition of airport operations
- emissions sources that should be included within the target

We want to better understand:

- to which entities the target should apply
- the type and size of airport the target should be applied to
- potential regulatory or voluntary approaches that could be used to implement the target
- how the proposed target could be aligned with current schemes, such as the Airports Council International Airport Carbon Accreditation scheme
- the barriers and opportunities which may exist in implementing the target, including commercial feasibility
- what the appropriate measuring and reporting processes should be

Defining airport operations

For the purposes of this target for zero emission airports by 2040, we believe airport operations to broadly consist of land, buildings, vehicles, facilities, equipment, and other structures used for the:

- landing and taking off of aircraft at the aerodrome, including those used for air traffic services
- manoeuvring, parking, refuelling, or servicing of aircraft between landing and take-off at the airport
- transport and processing of persons, baggage, and cargo between their arrival at the airport and their departure, including the passenger terminal

1. Do you agree or disagree with the proposed definition of airport operations for the target?

☑ Agree

☐ Disagree

☐ Don't know

Explain your response

The proposed definition of airport operations is both comprehensive and inclusive of the key components that contribute to greenhouse gas emissions at airports

2. If you disagree with the proposed definition of airport operations for the target, what do you think, if anything, should be added to the definition?

X

3. If you disagree with the proposed definition of airport operations, what do you think, if anything, should be removed from the definition?

X

4. What, if any, further views do you have on the proposed definition of airport operations for the target?

X

Emissions scopes

We are considering Scope 1, 2 and 3 emissions. Under the Greenhouse Gas (GHG) Protocol these scopes are defined as follows.

Scope 1
Direct Greenhouse Gas (GHG) emissions occurring from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, and vehicles etc.

Scope 2
Electricity indirect GHG emissions result from the generation of purchased electricity consumed by the company and brought into the organisational boundary.

Scope 3
Other indirect GHG emissions, which are generally an optional reporting category for example for an airport operator this includes aircraft movements, and surface access for airport users for example the ways in which passengers and visitors, employees and commercial traffic travel to and from an airport when they are not in an aircraft.

The emissions that are accounted for under the GHG protocol are the 6 Kyoto gases:

- carbon dioxide (CO2)
- methane (CH4)
- nitrous oxide (N2O)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)
- sulphur hexafluoride (SF6)

5. Do you agree or disagree on the target being applied for the Kyoto gases as described in the GHG Protocol?

	Agree	Disagree	Don't know
Carbon dioxide (CO2)	☑	☐	☐
Methane (CH4)	☑	☐	☐
Nitrous oxide (N2O)	☑	☐	☐
Hydrofluorocarbons (HFCs)	☑	☐	☐
Perfluorocarbons (PFCs)	☑	☐	☐
Sulphur hexafluoride (SF6).	☑	☐	☐

Provide further detail if you disagree with the listing.

X

Emission sources in scope of the target

We believe the following list, which we have summarised, of Scope 1 and 2 emissions sources from the Airport Carbon Accreditation Scheme is indicative of those that would fall within the broad definition of airport operations. These are:

- stationary sources of boilers, furnaces, burners, turbines, heaters, incinerators, engines, firefighting exercises, flares, generators and more
- mobile sources of vehicles owned by the airport (airside and landside) - trucks, employee buses, ground power units, construction vehicles and plant and more
- process emissions of onsite waste management, wastewater management
- other emissions of refrigerant losses, de-icing substances, leaks from plant particularly fire suppression CO2, fuel tanks and more
- energy indirect emissions of emissions from purchased electricity, heating, cooling and more

6. Do you agree or disagree with the list of Scope 1 and 2 emissions sources for airport operations?

☑ Agree

☐ Disagree

☐ Don't know

Explain your response

In agreement as there are no 'value chain' emissions included within the, proposed, Scope 1 and 2 emissions listed above

7. If you disagree with the list of Scope 1 and 2 emissions sources for airport operations, what, if anything, should be added to the list?

X

8. If you disagree with the list of Scope 1 and 2 emissions sources for airport operations, what, if anything, should be removed from the list?

X

9. What, if any, further views do you have on the list of Scope 1 and 2 emissions sources for airport operations?

To limit expenses, prevent unforeseen consequences, and counterproductive incentives, the scope must be unambiguous

Our initial view is that emissions from construction of airport buildings should not be included in this target. In addition, we do not consider necessary repairs to buildings, structures, and surfaces to be included within this target.

However, we do consider non-road mobile machinery that is used for construction purposes in relation to any building owned or operated by the airport operator to be within scope. This also excludes any emissions associated with the access of on-road vehicles to the airport site.

10. What are your views on our current approach to:

construction under this target?	In agreement, however, a carbon management plan should be considered, if feasible, by the airport and/or construction company to mitigate and reduce the emissions caused as a result of construction practices taking place

construction vehicles under this target?	Given zero tailpipe emission versions of these construction vehicles are not likely to be immediately available, there should be a focus on low emission/hybrid vehicles, or utilising low carbon fuels

We believe the following list of summarised Scope 3 emissions sources from the Airport Carbon Accreditation Scheme is indicative of the Scope 3 emissions sources that would fall within the broad definition of airport operations. These are:

- aircraft emissions of aircraft ground movements, engine start up to idle (run ups), engine reverse thrust, taxiing, auxiliary power unit (APU), pre-conditioned air systems (PCA), take off, landing, approach, climb, cruise from origin to destination and so on
- stationary sources emissions of third-party boilers, furnaces, burners, turbines, heaters, incinerators, engines and so on
- mobile sources emissions of ground support equipment (GSE) and ground power units operated by third parties, staff travel and commuting, haulage, business travel (third parties), land or maritime surface access (passengers), third party owned vehicles and so on
- process emissions of offsite management and disposal of airport waste, management of waste where disposal arrangements are made by third parties and so on
- infrastructure emission of grid power and fuel consumed by close partners and other third parties and so on
- other area emissions (where they are not solely controlled by the airport operator) including refrigerant losses, de-icing substances, leaks from plant particularly fire suppression CO2, fuel tanks and so on

11. Do you agree or disagree with the list of Scope 3 emissions sources for airport operations (we ask you answer regardless of whether these sources are within scope for the target)?

- ☑ Agree
- ☐ Disagree
- ☐ Don't know

Explain your response

However, emissions from the use of products and services purchased by the airport, such as cleaning and maintenance services could be included

12. If you disagree with the list of Scope e emissions sources for airport operations, what, if anything, should be added to the list?

X

13. If you disagree with the list of Scope 3 emissions sources for airport operations, what, if anything, should be removed from the list?

X

14. What, if any, further views do you have on the list of Scope 3 emissions sources for airport operations?

The scope should not include Scope 3 emissions as this would bring in the aircraft flight operations which should be covered by a different policy area and mechanism

The Airport Carbon Accreditation (ACA) scheme was established by Airports Council International [ACI] in 2009 and is the only institutionally endorsed, global carbon management certification programme for airports. It independently assesses and recognises the efforts of airports to manage and reduce their carbon emissions across 6 levels, with each level representing additional requirements. These are:

- level 1, mapping to determine emissions sources within operational boundaries, calculation of annual emissions, and compilation of carbon footprint report
- level 2, reduction with evidence of effective carbon management procedures and quantified emissions reductions
- level 3, optimisation with a widened scope of carbon footprint to and engagement of third-party emitters
- level 3+, neutrality using offsets for remaining emissions over which the airport has control with high quality carbon offsets
- level 4, transformation to include definition of a long-term carbon management strategy orientated towards absolute emissions reductions, aligned with objectives of the Paris Agreement. Plus, evidence of actively driving third parties towards delivering emissions reductions
- level 4+, transition with offset of residual carbon emissions over which the airport has control, using internationally recognised offsets

As part of the requirement for level 4 and 4+ of the ACI ACA scheme airport operators must report on selected Scope 3 emissions, as well as being encouraged to voluntarily include Scope 3 emissions within their targets. It is stipulated that for the latter this should include either landing and take-off (LTO) aircraft emissions or one or more sources representing more than 10% of total Scope 1,2,3 emissions (excluding LTO and cruise phase emissions) and over which the airport exercises significant influence.

15. Do you agree or disagree, that a requirement should be included as part of the target for airport operators to report their Scope 3 emissions in line with ACI requirements at levels 4 and 4+?

- ☑ Agree
- ☐ Disagree
- ☐ Don't know

Explain your response

Including a requirement for airport operators to report their Scope 3 emissions in line with ACI requirements at level 4 and 4+ is necessary to achieving zero emissions

16. Do you agree or disagree that a requirement should be included as part of our target for airport operators, to ensure those emissions sources, not under operators' direct control, are zero emission by 2040?

- ☐ Agree
- ☐ Disagree
- ☑ Don't know

Explain your response

Whilst addressing emissions sources not under the direct control of airport operators is important, the feasibility and potential impact of including a requirement for zero emissions from these sources in the target for airport operators would need to be carefully assessed before making a decision

Exemptions from the target

In considering what emissions sources are in our scope, we need to consider whether specific emissions sources could be exempt from being covered by the target, for example if they are rarely used, or produce a negligible amount of emissions.

There could be multiple ways to tackle this including:

- establishing a definition of 'regular' airport operations, for example, the day-to-day operations required to ensure the operations of aircraft can take place. Conversely, 'irregular' or 'special' operations would cover more unpredictable events such as severe weather requiring the use of a snow plough or a power outage requiring backup generation, as well as activities required on safety grounds like fire training
- setting a minimum threshold of emissions for inclusion in the target. For example, if an activity accounted for less than 0.5% of total airport operation emissions, it could be excluded
- individual activities that could be listed as exempt based on a case-by-case assessment

17. How should any potential exemptions from the target be dealt with?

☐ Definition based on regular and irregular activities

☑ Minimum threshold on emissions

☐ Individual activity exclusion

☐ Other:

Explain your response.

Carbon Budgets to be completed, assessed and reviewed frequently

Entities subject to the target

For the purposes of this target for zero emission airports by 2040, we believe airport operations to broadly consist of land, buildings, vehicles, facilities, equipment, and other structures used for the:

- landing and taking off of aircraft at the aerodrome, including those used for air traffic services
- manoeuvring, parking, refuelling, or servicing of aircraft between landing and take-off at the airport
- transport and processing of persons, baggage, and cargo between their arrival at the airport and their departure, including the passenger terminal

18. Do you agree or disagree, that the target should be applied to other entities whose Scope 1 and 2 emissions fall under the definition of airport operations?

☐ Agree

☐ Disagree

☑ Don't know

Explain your response.

It is important to consider the specific circumstances of each entity and their relationship to the airport when determining whether their emissions should be included in the airport's emissions target. The goal should be to ensure that the emissions target accurately reflects the emissions from airport operations, without unfairly burdening other entities that are not integral to those operations

In considering which entity is responsible for different emissions sources, it is important that the appropriate method is used. The Greenhouse Gas (GHG) Protocol sets out 2 distinct approaches to measure this.

The first is an 'equity approach', which is where a company accounts for GHG emissions from operations according to its share of equity in the operation (usually the same as the ownership percentage).

The second is the 'control approach' where a company accounts for 100% of the GHG emissions from operations over which it has control and has two further subdivisions of:

- financial control
- operational control

The approach advised to be taken as part of the ACI ACA, and stakeholder feedback is the 'operational control' sub-division method of the 'control approach'. This approach works on the basis that an airport accounts for 100% of emissions from operations where it has the full authority to introduce and implement its operating policies.

19. Do you agree or disagree that the operational control approach should be used to apportion responsibility for airport operation emissions under the target?

☑ Agree

☐ Disagree

☐ Don't know

Explain your response.

However, it may be appropriate to use a combination of approaches, such as the equity and causality approach, to fully capture the different aspects of responsibility for emissions from airport operations

If you disagree, which alternative approach would you prefer?

X

Airports subject to the target

Operations can vary considerably depending on size and type of airport. By size of airport, we refer to the number of passengers per annum (measured in millions of passengers per annum [mppa]). However, there are also other ways to measure the size of an airport, which will also bring into account a wider range of business operations. For example, there are several airports which do not operate a significant number of commercial passenger flights but do operate a significant number of other operations such as freight or business flights, which may be more accurately measured in air traffic movements.

It was found that large airports (above 25mppa) have the greatest feasibility to decarbonise, driven by greater market power. However, medium sized (5 to 15mppa) and small sized (less than 5mppa) airports may benefit from being required to transition a smaller number of assets. There are also variations between the regulatory regimes of these airports.

20. Do you agree or disagree that there should be a minimum threshold based on the size of the airport, below which the target does not apply?

- ☐ Agree
- ☑ Disagree
- ☐ Don't know

Explain your response.

The implementation of zero-emissions airport operations should be evaluated on a case-by-case basis, taking into consideration the specific characteristics and needs of each airport. This could involve considering factors such as the airport's location, available resources, and the feasibility of transitioning to low-emissions technology

21. Which metric should be used to determine an airport's size?

- ☑ Passenger numbers
- ☐ Air traffic movements
- ☐ Another metric:

Explain your response.

Passengers are a strong indicator of the amount of air traffic and economic activity associated with the airport

22. Which types of airport business operations should the target apply to?

- ☐ Commercial passenger
- ☐ Freight
- ☐ Private
- ☑ Other:
  The three options copied in above plus: ground transportation, energy consumption, aircraft operations, infrastructure and construction

Explain your response.

The target should apply to all business operations that contribute to greenhouse gas emissions

How to ensure the target is implemented

23. What policy option do you think is most appropriate for the implementation of the target?

- ☐ Legislative requirement
- ☐ Voluntary agreement
- ☐ Commitment by each airport to produce a roadmap
- ☑ Other:

Instead of an individual roadmap for one airport, airports to produce a roadmap that represents multiple organisation's decarbonisation plans

Explain your response.

To promote cohesion and transparency within the sector

24. What are your views on a voluntary approach to implement the target?

This approach should involve setting voluntary targets, sharing best practices and encouraging innovation to reduce emissions

25. If there is a voluntary approach for this target, what should it look like, and how should it ensure the target remains robust and is delivered?

Flexibility to accommodate for different circumstances and needs of individual airports and airlines. It may need to be complemented by mandatory regulations and incentives to ensure the necessary reductions in emissions are achieved

26. Do you agree, or disagree, that there should be a penalty for non-compliance with the target?

- ☐ Agree
- ☑ Disagree
- ☐ Don't know

Explain your response.

Implementing penalties could place a significant financial burden on airports that are unable to meet the zero-emissions target. It may also be challenging for some airports to achieve the target due to factors such as their location or infrastructure. As well, it may be more effective to incentivise airports to adopt friendly practices rather than penalising for non-compliance

27. If there is a penalty for non-compliance, what should this look like?

X

28. What, if any, specific issues do you anticipate with the target only being applied to airports in England if similar targets are not applied by devolved administrations?

1). Competitive disadvantage – Airlines and passengers may choose to use airports in other countries where emissions targets are less strict, potentially leading to reduced traffic and revenue for English airports
2). Carbon leakage – Emissions are simply shifted from one location to another rather than overall
3). Lack of coordination – It may be more effective to have a coordinated approach across the whole of the UK

Barriers to implementation

Whatever policy approach is taken to implement our target, there are several barriers to be considered. One of the key barriers cited in the Jet Zero consultation responses was the commercial feasibility of the target and the need for sufficient financing. While the Mott MacDonald feasibility study concluded that commercial feasibility for decarbonisation is viable for the majority of airports, it recognised that there will be a variety of commercial and financial challenges in this transition, which will likely include the:

- affordability of decarbonisation measures and the potential need to adapt or replace technologies or infrastructure before the completion of their whole lifecycle
- availability of finance, especially post COVID-19 where revenues may not be available to cover changes needed
- impact of regulatory or passenger charges models for airports and the capacity in these systems to allow for change management

29. What do you think are the main barriers in implementing the target?

- ☐ Other regulations
- ☐ Safety issues
- ☐ Operational issues
- ☐ Commercial viability
- ☐ Skills/capability gaps
- ☐ Investment in technological developments.
- ☑ Other: Investment in technological and infrastructure developments

Explain your response.

Airports require significant infrastructure changes to support a zero-emissions aviation industry, including the development of charging or refuelling stations for electric and hydrogen-powered aircraft and the retrofitting of ground handling equipment to run on cleaner fuels or electricity

30. Do you have an approximation of the scale of investment required to achieve this target?

- ☐ Yes
- ☑ No
- ☐ Don't Know

If so, provide any details you have including references to data sources.

X

31. What financial government initiatives would help to achieve this target?

1). Incentives for renewable energy
2). Carbon pricing – implementing a carbon tax or cap-and-trade scheme
3). Research and development funding
4). Green bonds – provide a new source of financing
5). Support for sustainable transportation

32. What non-financial government initiatives would help to achieve this target?

1). Public transport – Government could improve public transport infrastructure and encourage the use of public transport to reduce the number of cars on the road heading to and from airports 2). Energy efficiency – Government to invest in renewable energy sources on site to support airport's transition to green and renewable energy. As well, airport should be considered as part of a strategic national logistics network 3). Policies and regulations – encourage airlines to use cleaner fuels

Opportunities for implementation

Implementation of this target could provide co-benefits in facilitating the transition to hydrogen aircraft fuelling by generating demand and developing hydrogen handling, storage, and transportation technologies in the airport ahead of the aircraft technology for this fuel being readily available.

There may also be benefits for the airports and supply chain companies taking a leading global role in developing zero emissions airport technologies. This may increase growth and export potential and provide market opportunities globally for UK expertise in decarbonising airports, which could help incentivise further development of our supply chain to provide necessary goods and services for zero-emission airports.

33. What, if any, opportunities do you think exist that could be exploited in the implementation of the target?

1). Sustainable transportation – Encouraging passengers and employees to use sustainable modes of travel to and from the airport, with the help of better transport infrastructure being put in place
2). Sustainable Aviation Fuels – Investment to secure its availability and affordability
3). Carbon offsets – Carbon capture and storage
4). Green infrastructure – Green roofs, rain gardens and permeable pavement to reduce rainwater runoff and improve air quality. This could also provide additional benefits such as reducing urban heat island effects

34. What technologies are important to achieve this target?

1). Electric ground support equipment – Such as baggage carts, tugs and other vehicles to be electrified, reducing emissions from combustion engines
2). Energy-efficient buildings – Airport buildings to be designed and constructed with energy-efficient features and efficient HVAC systems

35. Are current government policies sufficient to encourage transition to these technologies?

- [x] Yes
- [ ] No
- [ ] Don't know

Explain your response.

The technology is in place and available, however, funding for airports to make the transition is not

36. How could the implementation of this target help to support the future shift of airports to integrate hydrogen?

1). The promotion of Hydrogen as a viable alternative
2). Encouraging investment in Hydrogen infrastructure – Refuelling stations and storage facilities

37. How, in your view, should airports look to develop export potential in regard to their transition to zero emission operations?

- ☐ Via supply chain capability
- ☐ Via research and knowledge capability
- ☑ Via new technologies
- ☐ Via other ways:

Explain your response.

Airports should specialise in zero-emission technologies, helping to commercialise new clean technologies

Measuring and reporting of emissions

38. What ideas, if any, do you have for how a progress reporting requirement could operate?

X

39. How frequently should progress towards the target be reported?

X

40. What are the metrics that you think progress should be measured against?

X

41. Do you agree or disagree, that there should be a defined standard that should be followed by the entities covered by the target to allow for effective monitoring of progress towards the target?

- ☑ Agree
- ☐ Disagree
- ☐ Don't know

Explain your response.

Having a defined standard is important to enable effective monitoring of progress towards the zero emissions goal. A well-defined standard would provide clear guidelines and expectations for what is required to achieve the target, making it easier to measure progress and hold entities accountable for their emissions reduction efforts.

The standard could include specific emissions reduction targets for different types of airport activities, such as ground transportation, energy use in airport buildings and aircraft operations. It could also establish requirements for reporting and verification of emissions data to ensure transparency and accuracy in tracking progress.

In addition to the standard, it may be helpful to establish an independent monitoring and verification process to ensure that entities are meeting the emissions reduction targets and adhering to the standard. This could involve regular audits or inspections of airport operations to verify emissions data and ensure that mitigation measures are being implemented effectively.

42. What are, if any, the specific issues you anticipate with regards to increased emissions reporting?

1). Accuracy and reliability – airports may have to invest in advanced measurement and monitoring systems to collect accurate data
2). Complexity – airports will have to track emissions from a variety of sources
3). Data management
4). Costs – there may be costs associated with training employees in emissions reporting and compliance

5). Regulatory compliance – airports must stay up-to-date on regulatory changes and ensure that their reporting processes are compliant with the latest requirements

Further comments

43. Is there anything else we have not considered that is relevant to this target?

The challenge of this being a 'zero emission' target rather than a 'net zero' target must be addressed. A zero emission target would mean airport's will not be able to carbon offset their excess emissions, meaning the technology that will enable airports to make this transition would need to be readily available. Making this a net zero target would enable greater flexibility to decarbonise operations that would need to be exempted from this call for evidence and where there might be an alternative fuel that would significantly reduce carbon emissions, such as the use of a lower carbon liquid fuel like SAF and HVO. Most global commitments given within the sector are also net zero emissions.

44. Any other comments?

The airport scope should be constrained to its essential functions, and should consider exempting (as with hotels):

- Aircraft maintenance operations
- Aircraft training operations for pilot and crew

Within this scope, logistics warehousing and processing which maybe on the site, but not core to the airport operations, is up for contention. Depending on whether they are in the secure zone or not, some members believe they should be included, while others believe they should be excluded.

As well, airport energy needs to considered as part of a strategic national logistics network. There are several reasons for this:

- Energy costs can significantly impact the economic viability of an airport, which in turn affects the wider logistics network. By considering energy usage as part of a strategic plan, airport managers can make informed decisions about energy efficiency and renewable energy options that can help reduce costs and increase the airport's sustainability
- The reliability of energy supply is critical for airport operations and disruptions to energy supply can have significant impacts on airport operations and the wider logistics network. Incorporating energy supply considerations into a strategic logistics plan can help ensure that airports have access to reliable and affordable energy supplies

We are aware that solar interferes with air traffic control radars, therefore it may be worthwhile to think about what mitigations are feasible to guide business decisions about whether and where to use this technology.