

Guidance for the Space Industry Act 2018 on the Civil Aviation Authority's environmental review principles

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Introduction

The [Space Industry Act 2018](#) (SIA) regulates all spaceflight activities carried out in the United Kingdom, and associated activities.

The SIA requires any person or organisation wishing to obtain a spaceport or launch operator licence to submit an assessment of environmental effects (AEE) as part of their licence application.

Under the SIA, the regulator must:

- take into account the AEE submitted by a spaceport or launch operator licence applicant when deciding whether or not to grant a licence and what, if any, conditions should be attached to such a licence ([section 11\(5\)](#)); and
- exercise its regulatory functions relating to spaceflight activity with a view to securing public safety and then in the way that the regulator thinks best calculated to take into account, among other things, any environmental objectives set by the Secretary of State ([section 2\(2\)\(e\)](#) ('the environmental objectives').

The Civil Aviation Authority (CAA) performs the functions of the regulator under the SIA.

We refer to the process of reviewing the applicant's AEE and considering whether the environmental objectives have been met as the CAA's 'environmental review'.

When licensing spaceflight activities, we have other duties such as those relating to the health and safety of individuals and property, national security, international obligations and national interest. Our approach to carrying out those duties is not covered in this guidance.

What is the purpose of this document?

This guidance sets out our policy approach to taking into account the AEE and the environmental objectives.

To "take into account" the AEE and the environmental objectives means that the AEE (including the manner in which it is carried out and the findings reached) and the environmental objectives are considered in the decision-making process of the related licence application:

- to reach a reasoned conclusion on the environmental effects of the proposed activities in deciding whether to grant a licence and what, if any conditions should be attached to such a licence; and
- in carrying out that function, to reach a reasoned conclusion on whether the environmental objectives have been met.

We will undertake our work in this area in accordance with the principles outlined in this guidance. This will ensure consistency and transparency is applied across applications. However, in some cases it may be necessary to apply a different approach. Any significant modifications to our approach outlined in this guidance will be communicated to the applicant during the application process.

Who is this guidance for?

This guidance is primarily intended for environmental specialists (and their advisors) within the CAA who review AEEs and consider whether the environmental objectives have been met. However, it may also be useful for applicants for spaceport or launch operator licences and the public in understanding how we carry out our environmental review and apply our duties.

Purpose of the AEE

Spaceport and launch operator licence applicants are required to conduct and submit an AEE. The purpose of the AEE is to ensure that:

- (a) applicants have considered and understood the potential effects of their intended activities on the environment; and
- (b) if necessary, applicants have taken proportionate steps to avoid, mitigate and offset the potential effects of their proposals. This should be in line with the environmental objectives.

The AEE provides the CAA with the information to allow informed decision-making on the environmental consequences of the proposed activities. It also provides the information to enable public consultation, whereby the public can view and comment on the AEE and its findings.

[Guidance for the assessment of environmental effects](#) (the 'AEE guidance') has been published to help applicants understand what they need to do to complete an AEE. It explains what an AEE is and what the AEE is expected to include.

How the environmental objectives relate to the AEE

Environmental objectives have been set by the Secretary of State to facilitate the Government's wider environmental policies and address both the local and global impacts of spaceflight. The overarching objective is to avoid or minimise the environmental effects of spaceflight activities within the context of supporting a strong and sustainable UK space sector.

The environmental objectives that we must take account of when exercising our spaceflight functions are:

- a) minimise emissions contributing to climate change resulting from spaceflight activities;
- b) protect human health and the environment from the impacts of emissions on local air quality arising from spaceflight activities¹;
- c) protect people and wildlife² from the impacts of noise from spaceflight activities; and
- d) protect the marine environment from the impacts of spaceflight activities.

These objectives and how they should be interpreted, are set out in the '[Guidance to the regulator on environmental objectives relating to the exercise of its functions under the Space Industry Act 2018](#)' (the 'environmental objectives guidance').

The environmental topics covered by the environmental objectives are also topics to be addressed in the AEE.

We will review the AEE to consider whether it addresses the environmental objectives specified above and the other matters as set out in the environmental objectives guidance. Where the applicant has scoped out any of the environmental topics relating to the environmental objectives, adequate justification must be provided in the AEE. Where applicants have not included or followed the environmental objectives, they must update the AEE to include the necessary information, or provide justification as to its exclusion or the suitability of any different approach taken.

Key principles of taking into account

The CAA will take a consistent approach when reviewing AEEs. When "taking into account" the AEE submitted by an applicant, we have set a series of key principles we will follow. These are:

1. The CAA will take a proportionate approach to the AEE and its review

- The AEE should be proportionate to the potential environmental effects of the proposed activities. The level of detail and complexity of the AEE should be commensurate with the significance of the potential effects on the environment. For example, we will expect to see detailed assessment for any significant³ environmental effects, whereas effects which have little or no

¹ The UK's contribution to global emissions through spaceflight activities and considering emissions from the full journey (even once it has left UK airspace/boundaries).

² The impacts on domesticated animals and livestock should be considered alongside wildlife.

³ See Section 5 of the AEE guidance for detail on assessing significance.

significance will only require brief analysis to demonstrate that they have been considered.

- We will take a proportionate approach when reviewing the AEE. We will ensure the depth of the review is proportionate to the significance of the effects to the environment. We may also focus our review on information which has not been previously looked at by another competent authority or areas where there is uncertainty in the assessment(s). However:
 - where effects are not discussed or are missing, we will ask applicants to update the AEE to set out those effects, including justification where the effects are deemed to be not significant; and
 - where effects have the potential to be significant, but this is not made clear within the AEE or the assessment of significance is otherwise lacking, in the absence of the applicant providing sufficient clarity we will take a precautionary approach and consider those effects to be significant.
- We will not require a new or revised AEE to be carried out for changes or modifications to the proposed activities which are not material (we set out what is considered a material change in [Annex A](#))

2. The CAA will accept work carried out and conclusions reached by the applicant's competent experts when reviewing an AEE, unless there is clear evidence of inaccuracies, inconsistencies or omissions

- To ensure the completeness and quality of an AEE, applicants are required to have competent experts prepare the assessment on their behalf. The experts must provide a statement, in the AEE, outlining their relevant expertise and qualifications, and demonstrating the competency of each author of the AEE for each section they authored. We will consider this statement when determining whether the experts are competent to conduct the AEE. Based on this evaluation, we will accept the work carried out and conclusions reached by the competent experts⁴ unless there is clear evidence of inaccuracies, inconsistencies, or omissions.
- In addition, for us to accept the conclusions reached by competent experts, the conclusions must be supported by clear evidence and logical justification.

⁴ When considering whether experts are competent to conduct the AEE, we will consider a variety of factors including: membership of relevant professional body and level of membership; directly relevant qualifications in specialism or equivalent professional experience; good understanding and preferably practitioner experience across range of topics and specialisms; experience of UK regulatory environment; experience in space sector environmental assessments and experience supplemented by continuing professional development.

For example, providing statements as to why environmental topics or activities have been scoped out without further explanation is not likely to be sufficient.

- We will typically accept the methodologies used and the conclusions reached on the basis of the professional judgement of the competent expert, unless it is clear that the judgement is not supported by a reasonable level of evidence and enquiry or is not in line with best practice.
- Where we identify that key issues are not fully addressed, or addressed at all, we will question their exclusion and, if required, request additional information. We would expect any requested information to be provided (and the AEE updated accordingly) within the timescales agreed with the case manager, providing the appropriate level of detail for us to carry out our environmental review.

3. The CAA will accept the conclusions reached by another competent authority or on a previous CAA licence application, unless there is clear evidence of inaccuracies, inconsistencies or omissions

- Where we direct, the requirement to provide an AEE may be met, or met in part, by an equivalent assessment. This can include information previously prepared in compliance with another statutory requirement or one prepared in respect of an earlier spaceport or launch operator licence application, where there has been no material change⁵. This approach is designed to remove or reduce regulatory duplication whilst ensuring CAA accessibility to the information which is relied upon in the AEE. For example:
 - For non-CAA licensed applications, this could include un-edited documents as appendices in the AEE that were used to support a planning application and its environmental impact assessment.
 - Outline documents or final documents to satisfy planning conditions which may have not been signed off by the competent authority yet.
 - For CAA licence applications, cross-references to other AEE documents are acceptable.
- A statement should be provided in the AEE demonstrating the equivalent assessment(s) is valid and there have been no material changes. If there have been material changes since the equivalent assessment(s) was

⁵ For example, that no additional information has emerged, such as new environmental evidence or changes or developments to the proposals that would mean the reasoning and conclusions of the equivalent assessments being adopted have become out of date. See Annex A 'Annex A: Material change' of this guidance.

produced, supplementary and/or replacement assessments may be required to fill any gaps.

- If there have been no material changes since the equivalent assessment(s) was produced, we will carry out a lighter-touch review. This is to ensure that the equivalent assessment(s) meets the requirements of an AEE and aligns to the AEE's proposed activities and spatial parameters, and where there are gaps, that supplementary information and analysis have been provided.
- The applicant should clearly identify within the AEE which components comprise the equivalent assessment(s) and from what regulatory regime each document originates. For example, whether there are certain appendices in the AEE which were previously prepared to support a planning application and its environmental impact assessment. Providing the outcome of any non-CAA regulatory regime decision making within the AEE is also recommended, e.g. inclusion of the planning decision notice with any conditions.
- Where environmental issues have already been considered by another competent authority through another licensing regime for the same activities, we will usually accept that competent authority's findings. This is unless there is clear evidence of inaccuracies, inconsistencies or omissions. For example, the applicant should demonstrate how environmental issues such as significant effects have been addressed through mitigation which is secured by specific planning and/or other licensing conditions.
- Where environmental issues are, or will be, under consideration by another competent authority through another licensing regime, we may defer to that competent authority if they are best placed as the subject matter experts to carry out that evaluation.

4. The CAA will be transparent in its review and consideration of the AEE

- We will consult on the AEE and make it available for the public to see and comment on. We will consider any relevant comments made within the review of the AEE and licence determination. Our [Guidance for the public consultation approach for the assessment of environmental effects](#) sets out the approach we will adopt in consulting the public on AEEs.
- We will record a summary of the key themes raised as part of the public consultation and how they have been taken account of. This record, including any updated AEE, will be published on Citizen Space once we have decided whether to grant the licence.

5. The CAA will take a consistent approach when undertaking its environmental review

- We will use internal reviewers with the assistance of external competent experts where required, to carry out the review and to form a view on whether we agree with the conclusions of significance. Where deemed necessary, we may consult externally to seek advice on specific issues.
- We will adopt a standardised approach to our review and record our findings in a consistent way. We will undertake an initial screen of all AEEs to ensure they meet the minimum information requirements before we start our detailed review and commence the public consultation process.
- We will review the AEE to ensure it meets the minimum requirements as set out in the AEE guidance and addresses the environmental objectives guidance. We will ensure the completeness and quality of AEEs and identify any deficiencies or gaps that need to be addressed. We may request additional information where we consider that information is missing or key issues have not been addressed.
- We will review the potential environmental effects of the proposed activities based on the information provided in the AEE and any additional information gathered during the review process, for example, responses to requests for information and comments received during public consultation. We will consider the identification of potential effects, the magnitude and significance of those effects and any potential cumulative effects.
- Where significant adverse effects are identified, we will review the effectiveness of any proposed mitigation measures. This includes whether the mitigation measures proposed are sufficient in reducing the potential significant effects and whether there are any residual effects. Where there are residual effects, this also includes what the significance of those effects are.
- Based on the AEE, and any other information gathered during our review, we will make a decision as to whether the licence can be granted and if so, on what conditions. In carrying out that task, we will consider whether the environmental objectives have been met.

6. The CAA will consider how to address gaps in information as part of our environmental review

- Where the gaps in information will have a bearing on the AEE and review outcome, risk to the environment or the success of public consultation on the AEE, we will request additional information from the applicant before a licence decision is made.
- Where the gaps in information cannot be filled due to uncertainties, we will consider whether the information can be provided by the applicant post-

licence through licence conditions, reporting or monitoring. Any information gathered will inform the CAA's regulation and oversight of the licensed activities.

- Where relevant we will consider whether any gaps in information are best addressed through another licence type. For example, for a spaceport AEE, more detailed information may be required in launch operator AEEs for the same spaceport on the proposed location of dropped stages in relation to transboundary effects, timings and frequency of launches, launch failure and probability.
- We will be mindful of other approved consents/licences when reviewing AEEs. Particular attention will be paid to launch operator AEEs, where there are proposals from multiple launch operators. This is to understand how they align with the assessment undertaken for the spaceport AEE (including cumulative effects) and/or the spaceport's licence conditions.

7. The CAA will consider whether licence conditions to implement any avoidance or mitigation measures are required to enable the ongoing protection of the environment

- We will identify where specific environmental protection measures have been proposed to avoid or mitigate adverse effects and establish if these should be secured as a licence condition.
- Where applicants demonstrate that avoidance or mitigation measures are secured via licence conditions imposed by another competent authority and their licensing regime, we will take this into account when setting our licence conditions with a view to avoiding regulatory duplication.
- We will consider whether monitoring and/or reporting is required to review the effectiveness of any avoidance or mitigation measures or to understand whether any additional measures may be required, where this is not being undertaken in compliance with another licensing regime
- We will ensure any conditions and/or reporting requirements we place on a licence are clear and have a specific purpose.

8. The CAA will give due consideration to international principles of environmental protection

- The AEE may contain uncertainties such as gaps in knowledge, gaps in available data or limits in scientific understanding. We recognise that uncertainties are inevitably part of any assessment of environmental effects and will not hold an AEE to an unrealistic standard of certainty.

- Where there are uncertainties in the AEE, we may impose licence conditions to manage these uncertainties or request further information to be provided. We would also expect the applicant to adopt a precautionary approach where there are uncertainties in the development of their AEE.
- In undertaking our environmental review, we will apply international principles of environmental protection. These principles are recognised as successful benchmarks for environmental protection and enhancement. We consider that these principles are enshrined in the underlying purpose of the environmental objectives guidance which we are required to take account of. These principles include:
 - **The Integration Principle:** environmental protection should be fully integrated into the making of decisions and policies.
 - **The Prevention Principle:** preventive measures should be taken to anticipate and avoid environmental damage before it happens.
 - **The Rectification at Source Principle:** environmental damage should, as a priority, be addressed at its origin to avoid the need to remedy its effects later.
 - **The Polluter Pays Principle:** where possible, the costs of pollution should be borne by those causing it, rather than the person who suffers the effects of the resulting environmental damage, or the wider community.
 - **The Precautionary Principle:** if there is a risk of serious or irreversible harm to a receptor considered under any of the environmental topics covered in the AEE, the absence of full scientific certainty should not be used as a reason for postponing or avoiding measures to prevent or minimise the impact of the risk.

Annex A: Material change

We consider a material change to be a change or alteration to the proposed activities or environmental baseline that could potentially have a significant effect or create a new significant effect on the environment.

These changes could mean that the AEE, or equivalent assessment(s), is no longer deemed to represent the activities proposed or state of the environment affected. We will look at the specific circumstances and consider whether the change is material in light of the effects on the environment.

For example, if the assessment is conducted for a certain launch vehicle, number of launches and trajectories and the applicant decides to increase the launch vehicle size, launches and/or change trajectories, this would likely be considered a material change, unless the applicant can demonstrate otherwise.

This is because these changes could result in additional significant environmental effects or alter the effectiveness of avoidance or mitigation measures that were originally proposed.

Material changes could also include changes to the original environmental baseline by which the AEE has been assessed and/or where the potential for cumulative effects has changed. Considerations could include where a launch operator has applied for a licence and other launch operator licences have been granted for the same spaceport since the information provided was prepared.

A material change could trigger the need for further assessment and/or an amendment to the AEE. This is to ensure we have the most up to date information on the potential environment effects of the proposed activities in order to inform our regulation and monitoring of those activities.