Regulation & Legislation Workstream Plenary Event #5

James Watt Building, University of Glasgow

Glasgow| 13th August 2019

Welcome and introductions

Nicola Higgins | UK Space Agency

About today

Aim: To continue our series of regular engagement events

- We will update you on the progress made on legislation and regulation since the last plenary
- We will provide an overview of environmental assessment and range work
- We are happy to take Q and A throughout the day

The small print: No part of the discussions held (unless otherwise noted) should be taken as a reflection of developing or future government policy or legislation, and any decisions taken by any individual or organisation on the basis of any information they hear or see at these meetings are taken at their own risk

Agenda

12:45 – 13:00	Arrival and Registration
13:00 – 13:15	Welcome and introductions Nicola Higgins | UK Space Agency
13:15 – 14:30	Environmental assessment Joe Pratt I UK Space Agency
14:30 – 15:15	Networking break and visit of the Space Technology Lab
15:15 – 16:30	Range and Airspace Simon Quinn| UK Space Agency
16:30 - 16:40	Update on the Regulator Tobias Lin and Rosie Whitbread| UK Space Agency
16:40– 16:45	Summary and closing remarks Nicola Higgins | UK Space Agency

Opportunities to engage with us

September
- LaunchUK Industry Group, London – 5 Sep
- Plenary session, London – 19 Sep, topics covered – spaceports

October
- Plenary Session, Bristol – 17 Oct (final topics tbc)

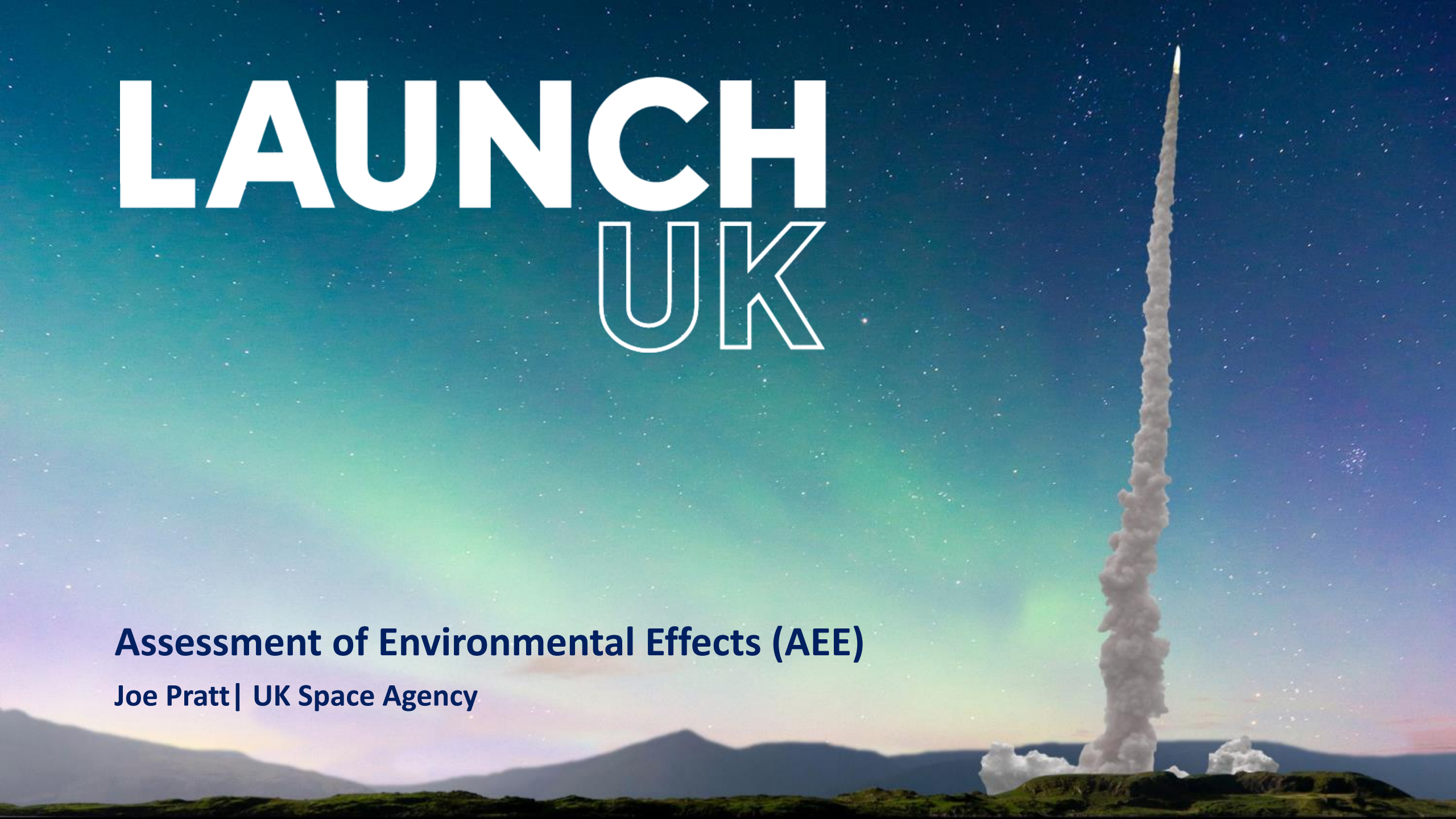
November
- Plenary Session, London – 11 Nov (final topics tbc)

December
- Plenary Session (final details tbc)

1-2-1 engagements

Regulator's marketplace

Consultation early 2020



Assessment of Environmental Effects (AEE)

Joe Pratt| UK Space Agency

Section 11, Space Industry Act

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Applies to—

- spaceport licence;
- an operator licence authorising launches of spacecraft or carrier aircraft "a launch vehicle operator licence"

The regulator may not grant an application for a licence to which this section applies unless the applicant has submitted an assessment of environmental effects (AEE).

The purpose of the AEE is to enable the regulator to make to make an assessment as to whether a licence can be granted to the applicant and, if so, what licence conditions are appropriate to use.

Section 11 (4)

If or to the extent that the regulator directs, the requirement to submit an AEE may be met by submitting—

- (a)an equivalent assessment prepared previously in compliance with a requirement imposed by or under another enactment, or
- (b)an assessment of environmental effects prepared in connection with a previous application.
- The regulator may make a direction under this subsection only if satisfied that there has been no material change of circumstances since the previous assessment was prepared.

Section 11 (4)

- s.11(4) is an important power under SIA
- The purpose of s.11(4) is to avoid duplication of assessments in the SIA and across the existing environmental and planning framework.
- An AEE is independent of other environmental and planning assessments
- However, environmental assessments conducted in support of applications for these consents can also be used for the AEE.
- The AEE has been purposely designed to accommodate these assessments insofar as possible

AEE Guidance

- We are now developing the policy behind section 11 to create a guidance document explaining the AEE process.
- In developing this policy we have been engaging extensively with other Government Departments and Environmental Regulators UK wide and will continue to do so.
- Our aim is to align the AEE policy with existing environmental policy to create both a robust and proportionate assessment.
- We are planning to hold a regulatory marketplace which will give you the opportunity to speak with some of these environmental regulators.
- The AEE will be published as part of the public consultation in Early 2020.

The following slides, process map and comments are provided on an indicative basis only. They do not constitute settled, final Government policy. All aspects are under review and subject to further consideration and decisions remain to be taken.

The AEE – general points

Spaceports – both vertical and horizontal

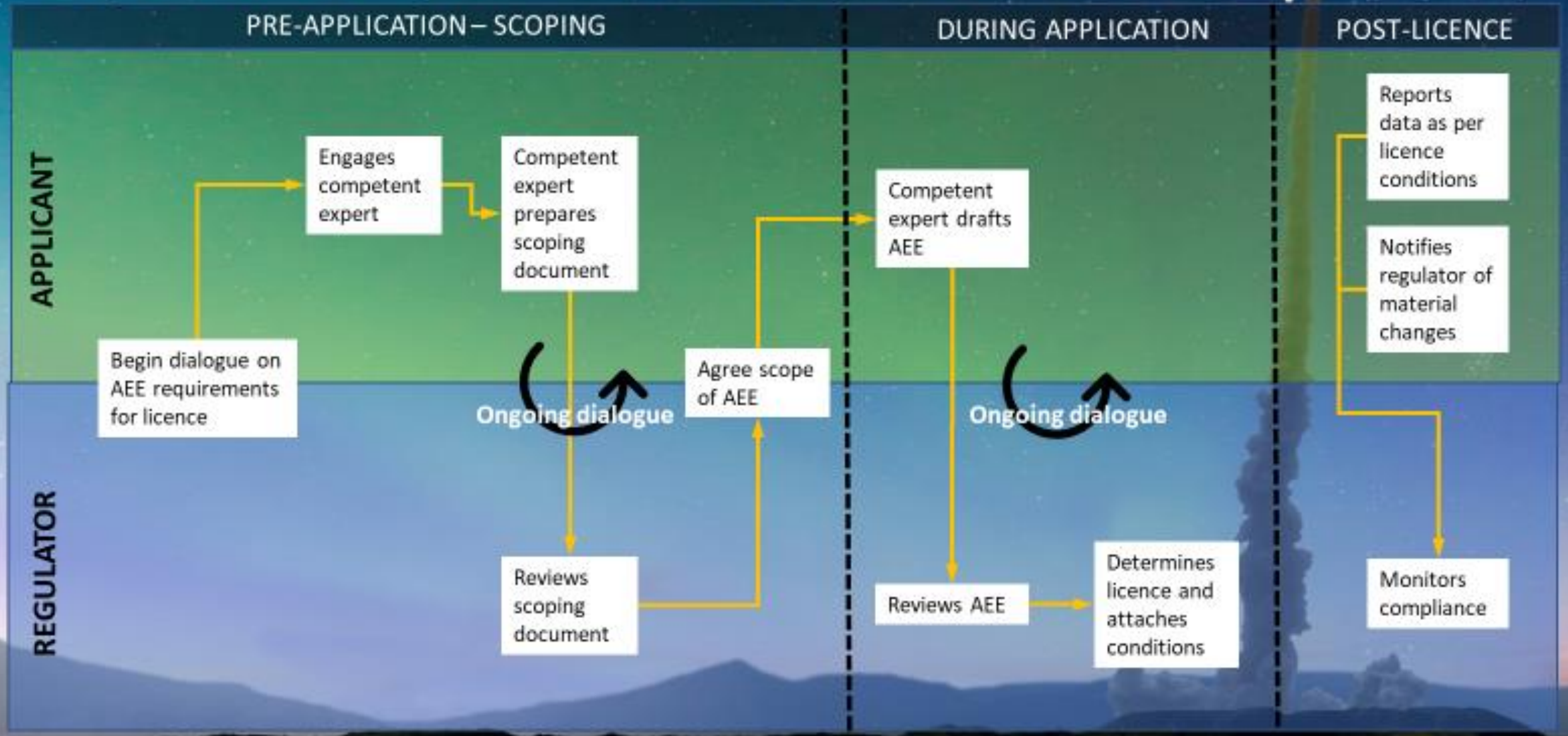
- For horizontal spaceports we intend to align the AEE insofar as possible with existing aerodrome assessments / planning permission – thus streamlining the AEE process using the s.11(4) power.
- Similarly, for vertical spaceports, we intend to make the AEE compatible with the planning permission process

Launch vehicle operator - AEE will be required for the following activities:

- Vertical launch
- Mid air launch
- Sub orbital launch
- Balloon launch

Construction activities are not within the scope of the AEE.

The AEE – Indicative Process Map



The AEE – Scoping

- The purpose of this exercise is to set the environmental baseline by which the AEE is to be conducted.
- The final guidance document will explain the scoping requirements in detail.
- Though the process will be the same for spaceport and operator AEEs, the contents of the scoping document will differ slightly (see next slide).
- Scoping will enable the applicant to focus on what is important, ensuring the AEE is proportionate and not needlessly lengthy.

The AEE – Scoping, Step 1

Step 1 - Applicant submits AEE scoping document to the regulator suggesting the following:

Spaceport AEE

- Environmental topics in scope
- Overall spaceport allowance and expected launch frequency
- The vicinity around the spaceport in which effects will be assessed.
- Detailing the activities to be considered in the AEE
- Mitigation measures (if known)
- Cumulative effects

Operator AEE

- Environmental topics in scope
- A maximum launch frequency (monthly & yearly)
- The areas in which effects will be assessed.
- Detailing the activities to be considered in the AEE
- Mitigation measures (if known)
- Cumulative effects

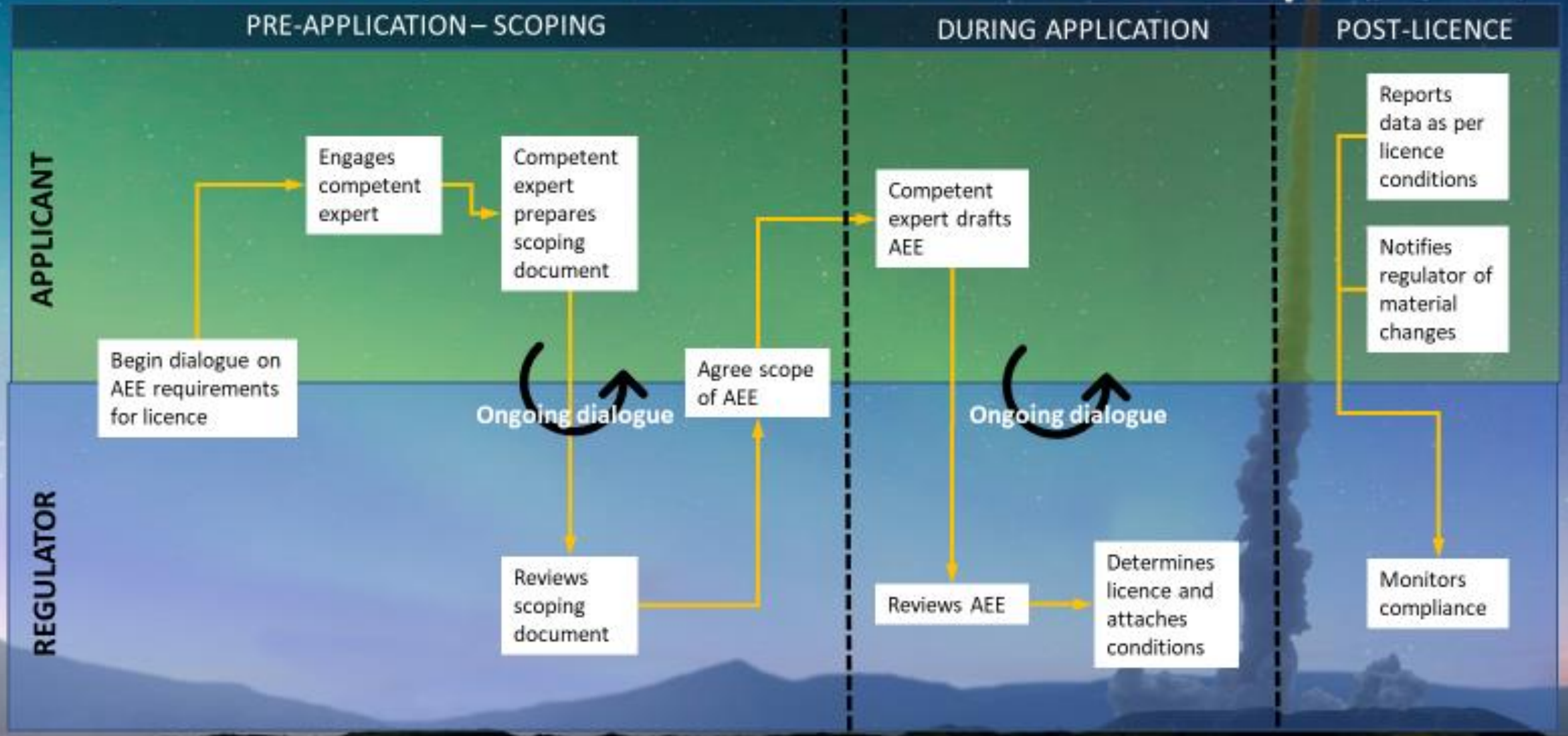
The AEE – Scoping, Step 2

Step 2 - The regulator takes into account the scoping document submitted

- Discussions will be held between the applicant and the regulator to understand the assumptions in the scoping document. Amendments may be required.
- The regulator may seek external expertise in assessing the scoping document received.
- Regulator reaches agreement with applicant on scoping document.

SCOPING DOCUMENT AGREED – SCOPING COMPLETE.

The AEE – Indicative Process Map



Conducting the AEE

The following assessments, (a) to (d), should be completed against the agreed environmental baseline in the scoping document.

These assessments should be completed by a competent expert, acting for the applicant and detailed within the AEE.

a) Assess the significance of the activities' environmental impacts against the environmental topics agreed (without mitigation); &

b) Assess the significance of the activities' environmental impacts against the environmental topics agreed (with mitigation i.e. what is the mitigation expected to do)

c) Assess the cumulative environmental impact of the operations and reach a conclusion on significance.

d) List mitigation proposals

Regulator Reviews AEE

Once submitted the regulator will then review the AEE submitted. The purpose of this review is for the regulator to determine:

- Whether the significance findings in the AEE (for each environmental topic, environmental topics with mitigation and the overall cumulative effects) are accurate.
- Whether the proposed mitigation is accurate and determine whether further mitigation should be required in the form of licence conditions.
- Whether licence conditions with regards the monitoring of environmental effects are necessary.

The regulator may seek external expertise in assessing the AEE.

Regulator Reviews AEE

The regulator will consult with the public on the AEE received.

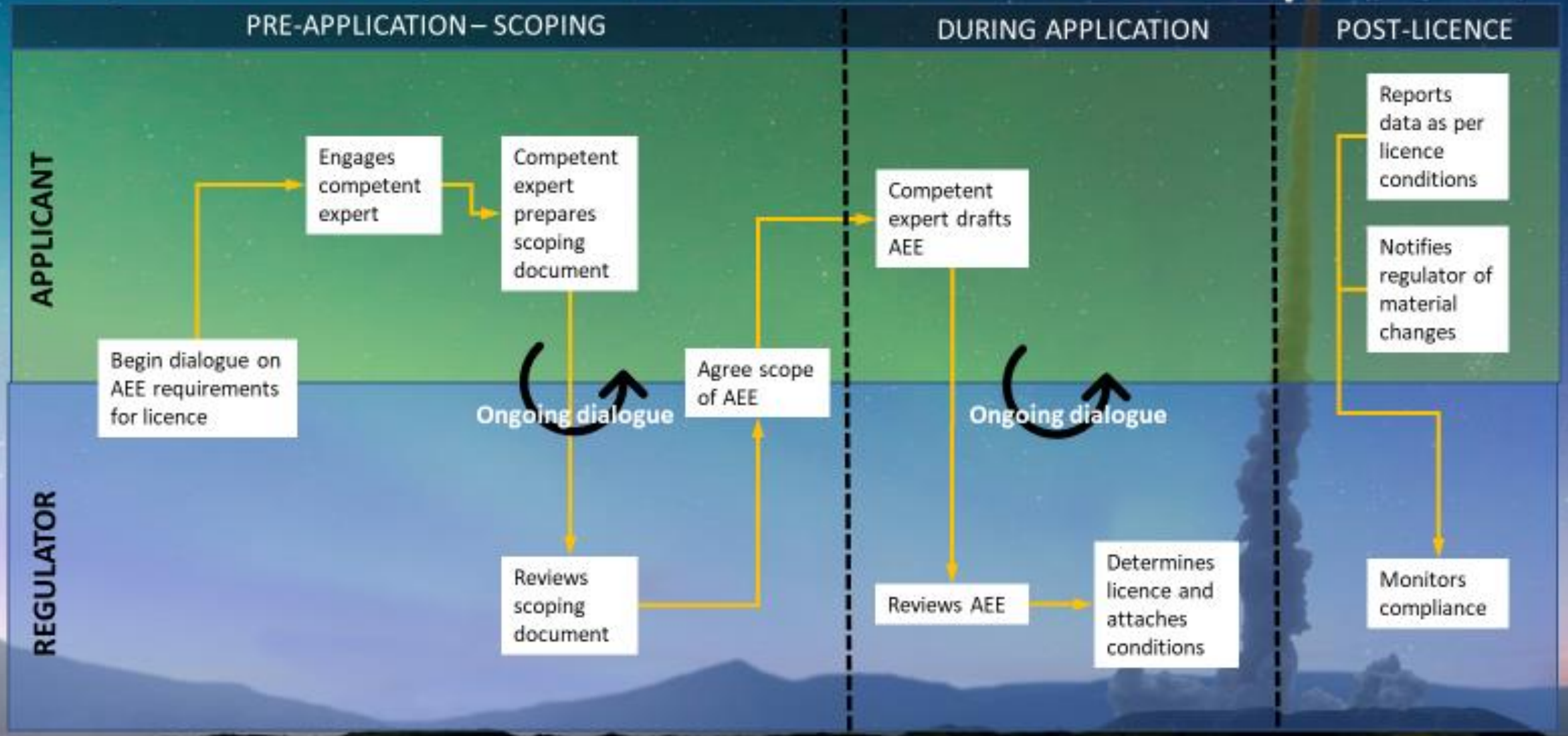
- This is to comply with existing international and national law.

Once the regulator has taken into account the views of the public and assessed the submitted AEE it will determine the licence application and attach relevant licence conditions to the licence.

The AEE is just one of a number of factors the regulator will take into account when determining either a spaceport or launch vehicle operator licence application.

LICENCE DETERMINED BY REGULATOR ALONG WITH RELEVANT LICENCE CONDITIONS.

The AEE – Indicative Process Map



Post AEE Requirements

Environmental protection will be ensured via licence conditions.

Environmental effects will be considered continually whilst projects are ongoing – environmental protection doesn't stop at the grant of a licence.

Both spaceport and launch vehicle operator licences will likely have licence conditions attached requiring monitoring and the reporting of data to the regulator – what data needs to be reported will be driven by the environmental topics identified as sensitive during the AEE process.

Ultimately, the amount and types of licence conditions around environmental monitoring / protection will depend upon the submitted AEE.

Our proposal is that a spaceport would be responsible for monitoring effects in the vicinity of the spaceport and an operator would be responsible for monitoring effects along the trajectory and at drop zones.

Post AEE Requirements – Material Change

If monitoring shows environmental effects that are more significant than originally predicted, then the AEE may need to be updated.

We intend to regulate this by attaching a material change licence condition to both spaceport and launch vehicle operator licences.

The effect of this condition is that where there has been a material change to the original environmental baseline by which the AEE has been assessed a revised AEE must be submitted.

Conversely, should environmental effects be better than predicted, a justifiable case could be brought to increase the spaceport cap or launch frequency limit.

Questions?

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Networking break and visit to the Space Technology Lab

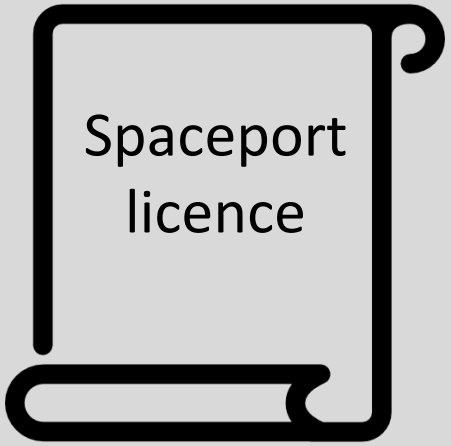
Range and Airspace

Simon Quinn| UK Space Agency

Adrian Stead| Civil Aviation Authority

OVERVIEW

covers launch and satellite operations



Today we'll cover:

- Definitions – range in the Space Industry Act
- Principles of regulation
- Range functions
- Licensing process
- Requirements of regulations and guidance
- Airspace
- Breakout for group discussion

RANGE IN THE ACT

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5 Range

(1) In this Act "range" means a zone which (or two or more zones each of which) is subject to restrictions, exclusions or warnings for keeping it clear, at the relevant times, of—

(a) persons or things that might pose a hazard to spaceflight activities, and

(b) persons or things to which spaceflight activities might pose a hazard.

"Zone" here means a volume of airspace or an area of land or sea.

'RANGE' vs 'RANGE CONTROL SERVICES

Section 6 of the Act defines which activities are considered to be range control services, including:

- Identifying the appropriate range for spaceflight activities
- Co-ordinating the activating and operating of a range
- Ensuring notifications are issued
- Monitoring the range and the craft (tracking and surveillance)
- Communicating any breach of range, to allow action to be taken

PRINCIPLES

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- Outcome based
- Need to licence ‘in isolation’
- Integration with launch and spaceport operations
- Types of range operation
- Holding more than one licence
- Consortium approach

FUNCTIONS

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Tracking & surveillance

Co-ordination & planning

Notifications

Flight safety analysis

Boundary control

Flight termination

PROCESS

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Eligibility criteria

Minimum and maximum dimensions of vehicle supported

Configurations of vehicles supported

Types of vehicle supported

Prescribed roles

Personnel

Size of hazard areas

Types of information that will be collected during each phase of flight

Assets to be used

Flight safety analysis input

Geographical limits of range area

Demonstrate capability to manage land boundaries

Demonstrate capability to issue notifications

Develop and maintain SMS

Demonstrate agreements with air traffic, maritime

Demonstrate that tracking & surveillance functions to required standard

Demonstrate that comms work to acceptable standard

Demonstrate that utilities work to acceptable standard

Demonstrate necessary permissions (e.g. OFCOM)

PROCESS

Stage 1 assessment

sets the 'envelope' of services

- Eligibility criteria
- Minimum and maximum dimensions of vehicle supported
- Configurations of vehicles supported
- Types of vehicle supported
- Flight safety analysis input
- Prescribed roles
- Personnel
- Size of hazard areas
- Types of information that will be collected during each phase of flight
- Assets to be used

Stage 2 assessment

ensures that proposed operation works from site

- Geographical limits of range area
- Demonstrate capability to manage land boundaries
- Demonstrate capability to issue notifications
- Develop and maintain SMS
- Demonstrate that tracking & surveillance functions to required standard
- Demonstrate that comms work to acceptable standard
- Demonstrate that utilities work to acceptable standard
- Demonstrate agreements with air traffic, maritime
- Demonstrate necessary permissions (e.g. OFCOM)

Launch licensing assessment

- Flight safety analysis input
- Integration of operations

REGULATION vs GUIDANCE

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Regulations will set out high level requirements

Guidance will set out detail of how a licensee can meet those requirements

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Airspace Change Process
CAP 1616

Topics

- CAP1616: Airspace Design
- Levels of Airspace Change
- The Seven Stage Process
- Applicability to Launches
- Airspace Change Portal

CAP 1616: Airspace Design

Guidance on the Regulatory Process for Changing Airspace Design

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- CAA's reformed airspace change process
  - meets modern standards for regulatory decision-making
  - is fair, transparent, consistent and proportionate
  - delivers an impartial and evidence-based process
  - takes account of the needs and interests of all affected stakeholders

Levels of Airspace Change

- Level 0 - change limited to nomenclature or qualifying remarks
- Level 1 - potential to affect traffic patterns below 7000ft over inhabited area (in line with ANO 2017)
- Level 2 - does not have potential to affect traffic patterns below 7000ft over an inhabited area
  - Sub-divided depending on whether over the sea or above 20,000ft
- Level M1 or M2 - change to airspace design sponsored by MOD

The Seven Stage Process

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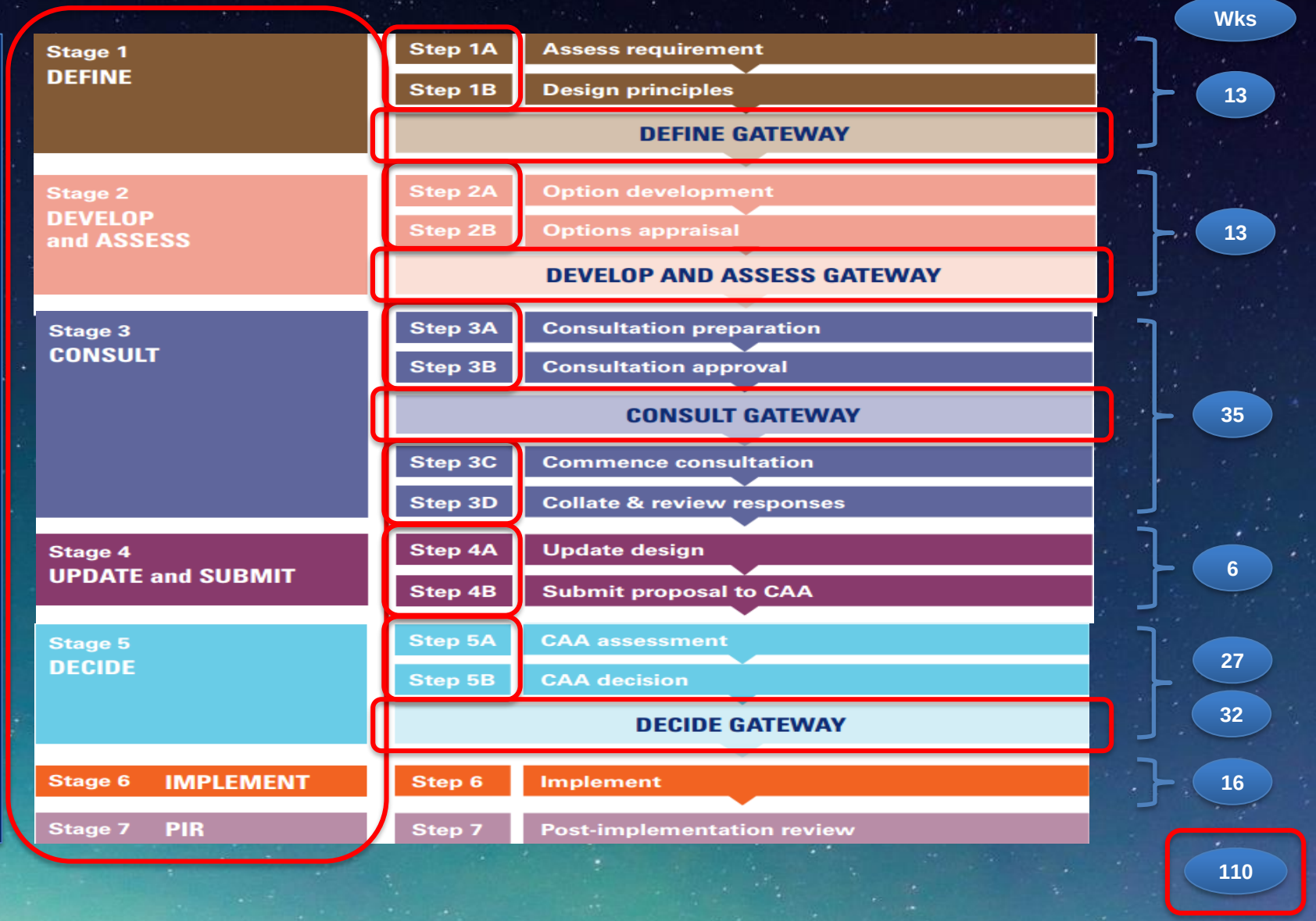
7 STAGE PROCESS



Applicability to Launches

One off launch from a site

- Airspace Utilisation Team
  - Establishment of a Temporary Danger Area (TDA)
  - Minimum 90 days for the most simple events
  - Large Rocket Permissions WG

Establishment of permanent site

- CAP 1616 Airspace Change process initiated
  - Hd AR: allow launches under TDA during CAP 1616 process
    - Use of TDAs *DOES NOT* infer or predetermine success of ACP

ACP Portal - https://airspacechange.caa.co.uk

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Civil Aviation Authority

- A ‘one-stop shop’ access point
  - Access to every ACP, past & present
- Document repository for each ACP throughout the seven stages of the process
- Access for consultees to respond to consultations
  - Responses published while consultation is still underway
- Registered users notified when new material or responses become available
- Notify opportunities for public engagement and book slots at public meetings
- The means by which the DfT can action “Call-In” requests

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Any Questions?

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BREAK OUT

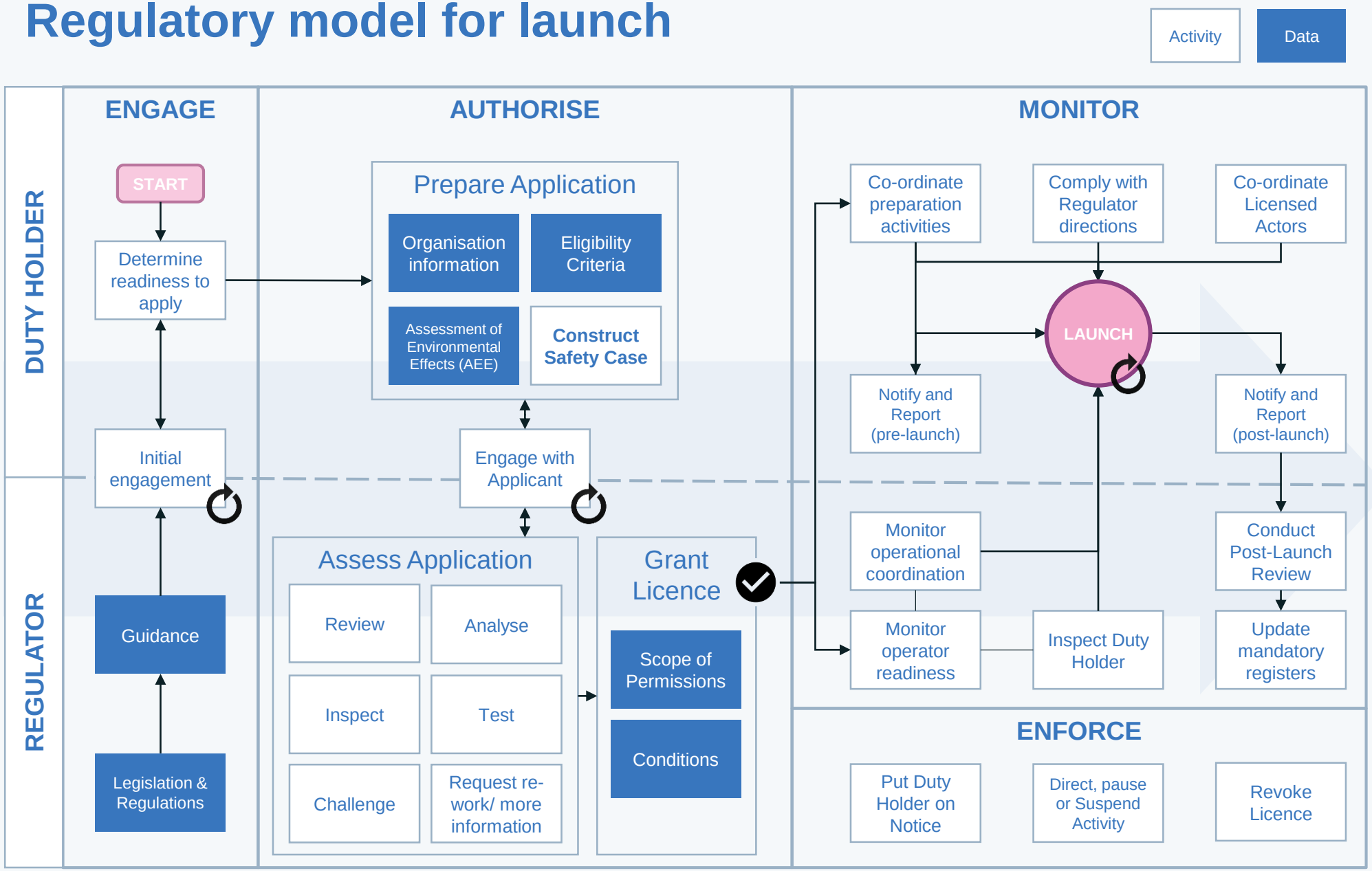
- General views
- Two stage model
- Flight termination

Spaceflight regulation update: Licensing

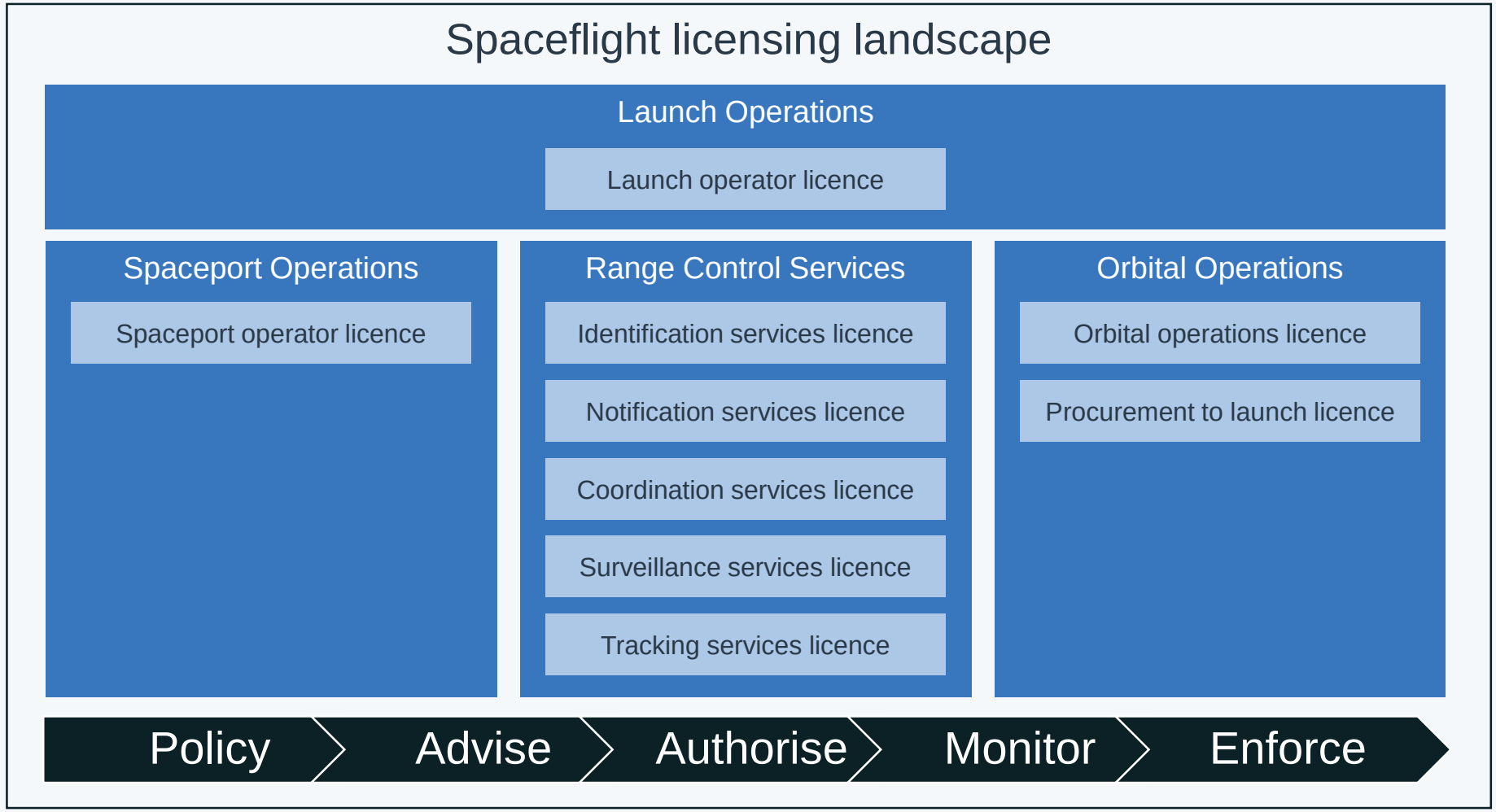
Tobias Lin| UK Space Agency

Rosie Whitbread| Health and Safety Executive

Regulatory model for launch



Regulatory Model - Spaceflight Licensing Landscape



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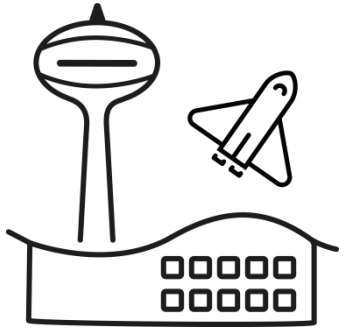

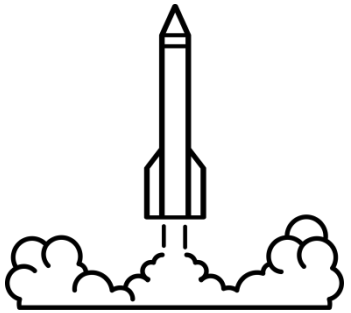

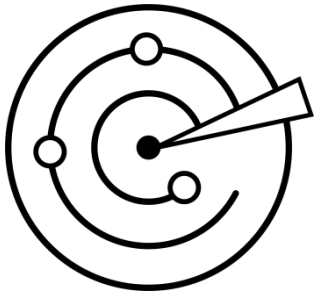

Closing remarks

Nicola Higgins| UK Space Agency

Thank You

https://www.gov.uk/guidance/how-we-are-promoting-and-regulating-spaceflight-from-the-uk