SAXAVORD
UK SPACE PORT

SaxaVord Spaceport CAP1616 Stage 2 - DEVELOP & ASSESS Stakeholder Engagement

AVISU

V1.0 dated 31 Aug 22

Contents

This pack-up has been produced to meet the UK CAA's CAP1616 Stage 2 stakeholder engagement requirements and covers the following discussion areas, upon which your response is requested:

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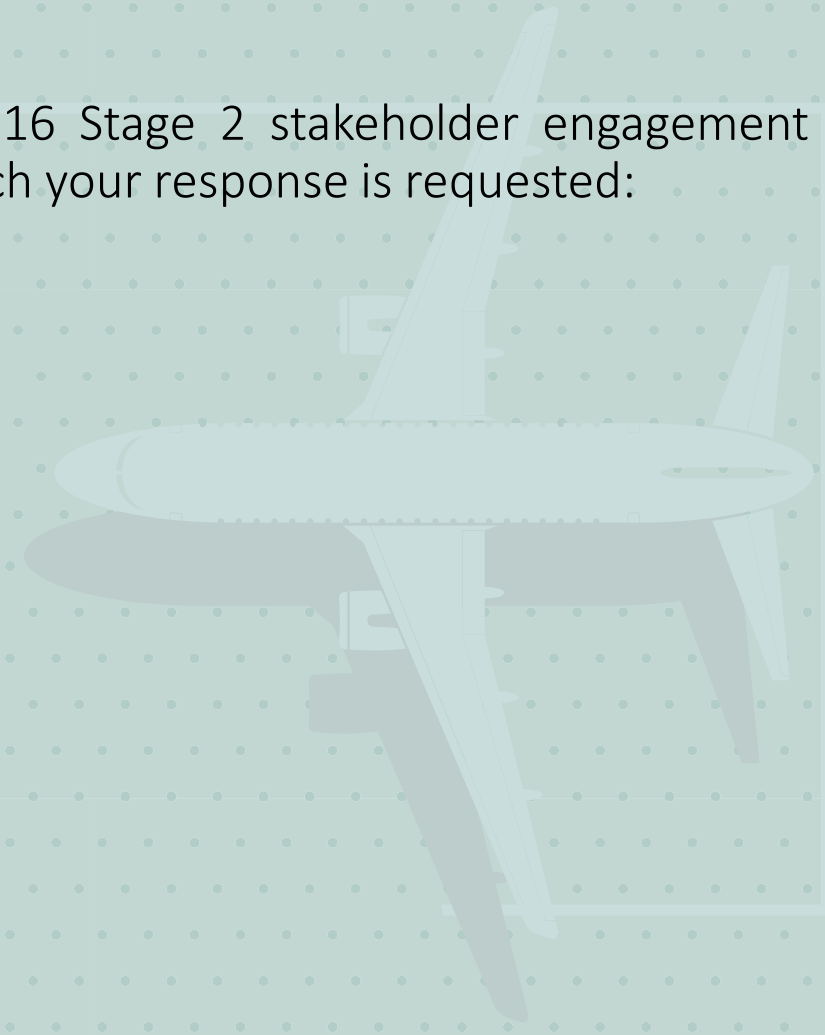
- Stage 2 Engagement - Context & Purpose.
- Initial Airspace Design Options.
- Statement of Need and Design Principles.
- Request for Stakeholder Response.
- Conclusion.



Introduction

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Introduction

- **ACP Sponsor Nomenclature**. The Change Sponsor for this airspace change proposal (ACP) (ACP-2017-79) is Shetland Space Centre Limited, hereinafter referred to as either "SaxaVord Spaceport" and "SaxaVord".
- Initiating its ACP, SaxaVord submitted the following Statement of Need through the Civil Aviation Authority (CAA)'s ACP portal:

  "Shetland Space Centre is looking to protect vertical launches from its spaceport. Protection will be required from surface up to orbit for protection of the rocket trajectory/flight path, prior to and after each launch. A suitable volume of airspace will be needed to ensure the separation of civil flying from launch activity".

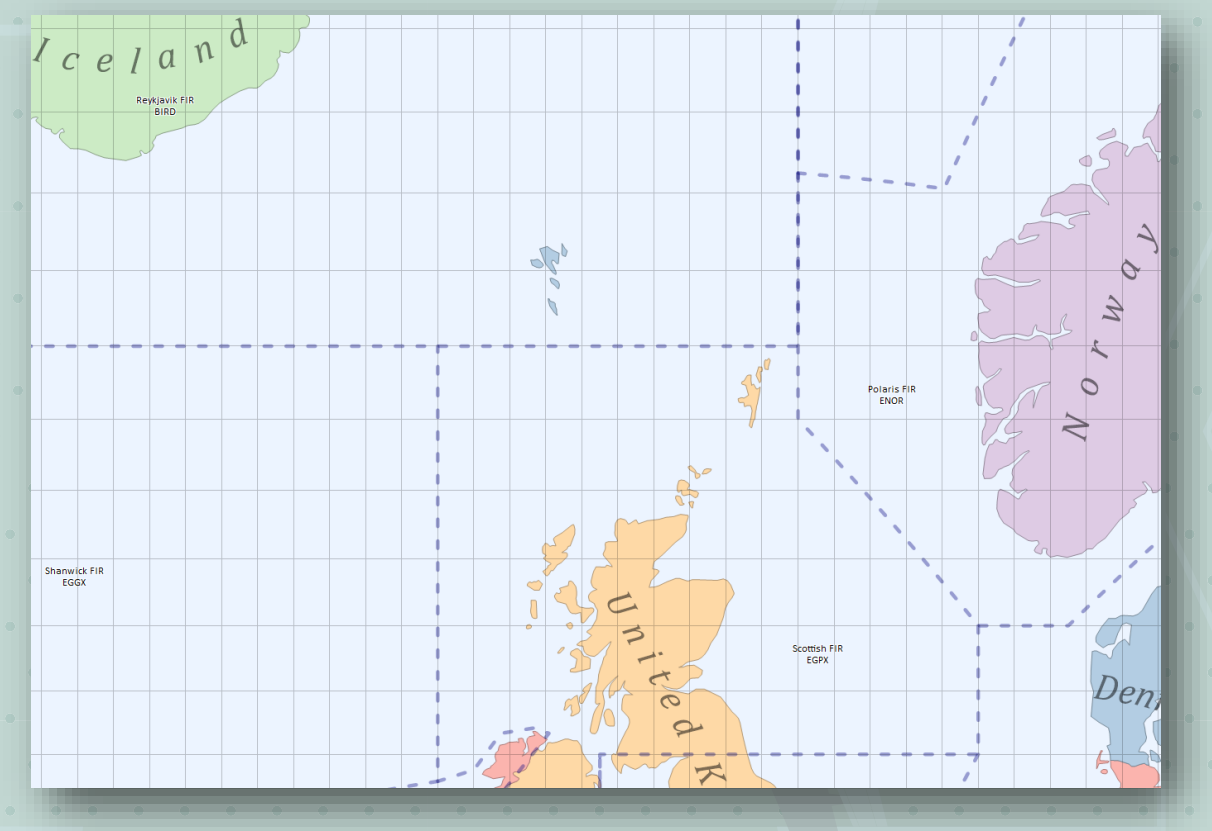
  The airspace reservation would be an airspace reservation extending from surface (SFC) to unlimited (UNLTD) and would be activated by NOTAM for specified and notified launch windows.
- ACP-2017-079 has now progressed to Stage 2 of the UK CAA's CAP1616 process. As part of the Stage 2 process, SaxaVord is engaging stakeholders to validate its proposed airspace design options.

Background and Context

- **Background**. In 2020, as part of Stage 1 of the CAP1616 process, SaxaVord established its proposed airspace change design principles through engagement with identified stakeholders; the CAP1616 Stage 1 'Define' Gateway was passed on 29 May 2020. In Stage 2, SaxaVord develops options for its proposed airspace change, producing a list of options that address the ACP's Statement of Need and align with the Design Principles (DPs).
- SaxaVord engaged aviation stakeholders relating to a temporary airspace change proposal (ACP-2021-90). Engagement related to that application must be treated as a separate activity to stakeholder engagement associated with this application (ACP-2017-079).

Location - Unst, Shetland Islands

- The Shetland Islands is a subarctic archipelago in the Northern Atlantic, between Great Britain, the Faroe Islands and Norway. It is the northernmost part of the United Kingdom.
- SaxaVord Spaceport is located on the Lamba Ness peninsula on Unst, the most northerly of the Shetland Islands.
- The site is within the northern area of the UK's airspace (i.e. the Scottish Flight Information Region (FIR)) approximately 11nm south of the northern boundary and 22nm west of the eastern boundary.



Source: skydemon

Stage 2 Engagement
Context & Purpose

CAP1616 Stakeholder Engagement - Context

- **Stage 1**. In CAP1616 Stage 1, design principles (DPs) for the proposed airspace change are drawn-up through discussion between the change sponsor and affected stakeholders.
  - SaxaVord completed this activity in early 2020.
- **Stage 2**. CAP1616 Stage 2 requires airspace change sponsors to test design options with its stakeholders to ensure that the stakeholders are satisfied that the options address the statement of need, align with the DPs and that the Sponsor has understood stakeholder feedback and observations relevant to the options.
  - SaxaVord is now at Stage 2.
- **Stage 3**. In CAP1616 Stage 3, the change sponsor launches its formal consultation process, during which consultees are given the opportunity to provide relevant and timely feedback to the change sponsor to enable the sponsor to conduct a full options appraisal to satisfy the CAA's requirements.
  - SaxaVord seeks to begin Stage 3 consultation in December 2022.

Purpose of CAP1616 Stage 2 Engagement

- CAP1616 Stage 2 requires airspace change sponsors to test design options with its stakeholders.
- Accordingly, these engagement materials set out SaxaVord's initial airspace design options and seek to confirm that stakeholders are satisfied that the options address the statement of need, align with the agreed DPs and that SaxaVord has understood stakeholder feedback and observations from Stage 1.
- SaxaVord will use stakeholders' Stage 2 responses to inform the subsequent Initial Options Appraisal.

Initial Airspace Design Options

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Initial Airspace Design Options - Overview

- SaxaVord remains cognisant of stakeholder feedback from Stage 1. Since Stage 1, SaxaVord continues to discuss and progress with the relevant national and international organisations:
  - Letters of agreement/memoranda of understanding, including airspace notification and coordination and emergency and airborne security-related short-notice access procedures.
  - Identification of suitable launch windows of the minimum duration required (in the order of a few hours), ensuring that any impact on the wider airspace network is minimised.

  The notification, management and coordination of airspace-related activities will be the subjects of more detailed and considered discussion. These aspects of the design and its proposed operation will underpin Stage 3 stakeholder consultation, scheduled to begin in December 2022.
- SaxaVord's Stage 2 engagement, therefore, requests that stakeholders principally consider the geometric shape of the airspace design options when completing their respective responses, which SaxaVord will use to inform the subsequent Initial Options Appraisal.

Current Airspace Scenario

Situated in the north of the UK's airspace, SaxaVord Spaceport is 11nm south of the northern boundary of the Scottish FIR and 22nm west of the FIR's eastern boundary.

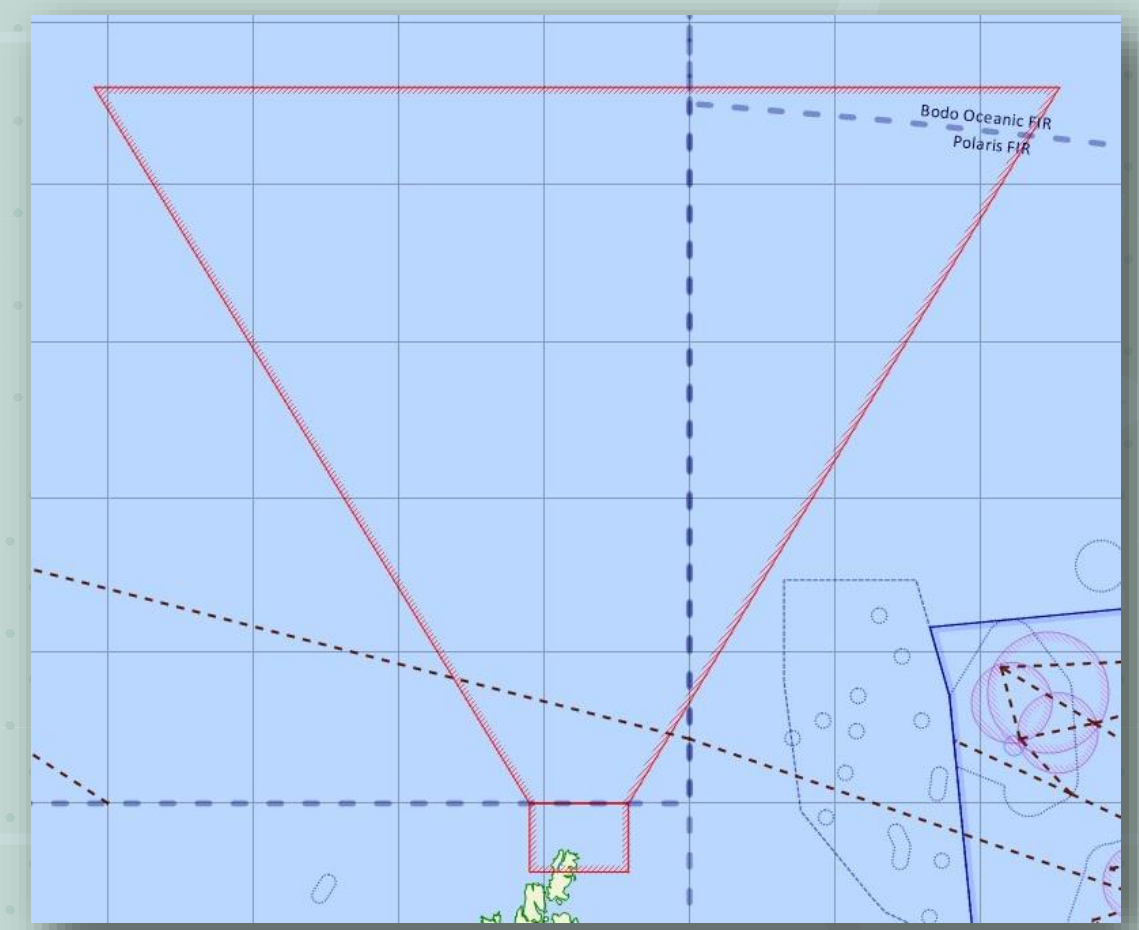
The SaxaVord site (and its immediate surroundings) resides wholly within UK Class G airspace.

The proposed launch activities and airspace design would extend from SFC to UNLTD, through UK airspace Classes G and C, for the notified specified periods and beyond the lateral limits of the UK Flight and Upper Information Regions (FIR and UIR). Above FL195 (i.e. 19,500ft AMSL), commercial air traffic operates under the principle of "Free Route Airspace", which allows flights to route direct, *vice* following prescribed routes along pre-determined navigation points.

SaxaVord recognises that entertaining any airspace design option that does not include a proportionate airspace reservation to protect airspace users from the proposed launch operations at SaxaVord (and *vice versa*) is untenable.

Design Option - 1 “Airspace Reservation (Most Limiting)”

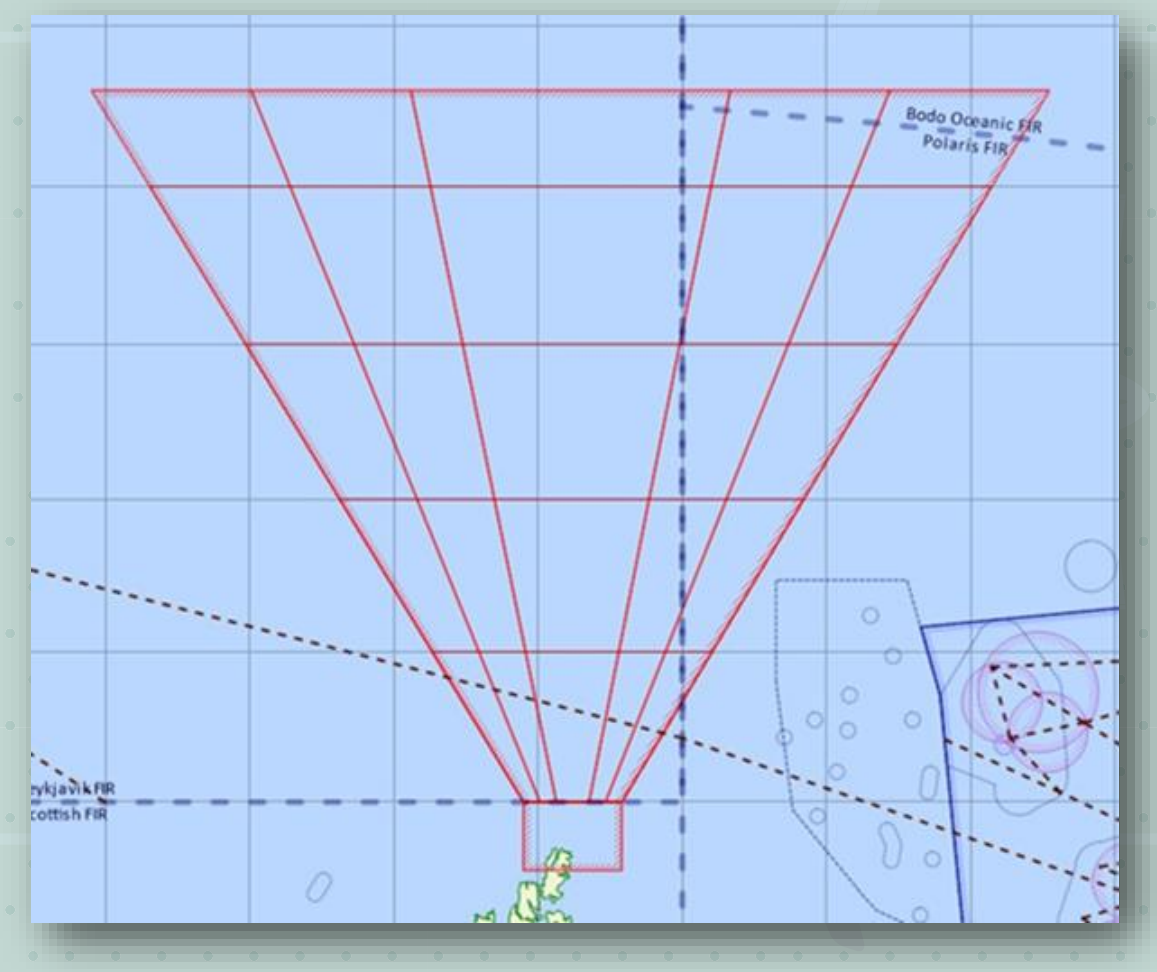
- **Description**. An “Airspace Reservation (Most Limiting)” design option seeks to establish an airspace reservation of defined dimensions to encompass the fullest identified range of orbital and sub-orbital launch operations.
- The whole airspace volume would be activated by NOTAM for the minimum period necessary to facilitate spaceport launch operations.
- Operational management, notification and coordination procedures will be discussed with the relevant parties during Stage 3 and beyond.



Source: skydemon

Design Option - 2 “Airspace Reservation (Segmented)”

- **Description**. An “Airspace Reservation (Segmented)” design option seeks to establish an airspace reservation of defined and proportionate dimensions that could be tailored to the performance characteristics of the specific launch vehicle (LV) seeking to utilise the SaxaVord Spaceport for a specific launch.
- The tailored airspace volume would be activated by NOTAM for the minimum period necessary to facilitate spaceport launch operations.
- Operational management, notification and coordination procedures will be discussed with the relevant parties during Stage 3 and beyond.



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Statement of Need & Design Principles

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ACP-2017-079 Statement of Need

- Stakeholders are requested to consider each proposed design option and offer their respective assessment of each option's alignment to following statement of need, using the response proforma:

  "[SaxaVord] is looking to protect vertical launches from its spaceport. Protection will be required from surface up to orbit for protection of the rocket trajectory/flight path, prior to and after each launch. A suitable volume of airspace will be needed to ensure the separation of civil flying from launch activity"

ACP-2017-079 Design Principles

- The table below contains the DPs agreed following Stage 1 engagement. Stakeholders are requested to consider each proposed design option and offer their respective assessment of each option's alignment to the individual DPs, using the response proforma.

DP	Category	Design Principle	Priority
1	Safety	The safety of other airspace users and the public is the paramount DP to be used in this ACP.	A
2	Environment	The environmental and noise effects of rocket launch should be minimised by the design of the airspace change.	A
3	Airspace Management (ASM)	The airspace volume should be as small as possible to minimise the impact on and ensure the safety of other airspace users.	B
4	ASM	The duration of the airspace activation should be the minimum required to minimise the impact on and ensure the safety of other airspace users. The possible impact of concurrent operations of other airspace should be considered.	B
5	ASM	Airspace notification should be timely and accurate within an established method of rapid notification.	A
6	ASM	A process to allow some special airspace users to enter the airspace safely and halt operations should be established.	A
7	ASM	Other international airspace agencies should be included in the airspace design process.	B
8	Regulation	Airspace design should meet duties and requirements of other public agencies placed upon SSC.	B
9	ASM	Letters of agreement and memoranda of understanding will be developed, if required, between relevant parties.	A
10	ASM	The airspace change will take account of ongoing and continuing airspace management and policies.	B

Request for Stakeholder Response

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Request for Stakeholder Response

- In line with CAP1616's Stage 2 requirements, SaxaVord seeks to engage its stakeholders on the two proposed design options.
- An engagement response proforma for your attention is available on the Shetland Spacecentre/SaxaVord Spaceport ACP portal on the CAA's website at the following link.
- For each of the proposed design options, SaxaVord requests that stakeholders respond to the statements set out in the accompanying response proforma.
- Once completed, your organisation's response proforma should be submitted by email to saxavordpacp@avisu.co.uk. "Nil Return" responses are also requested.
- Stakeholder responses are requested by **1200BST on Friday 23rd September 2022**.
- In the interim, questions related to this stage of the ACP-2017-079 process may also be directed to saxavordpacp@avisu.co.uk.

Conclusion

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Conclusion

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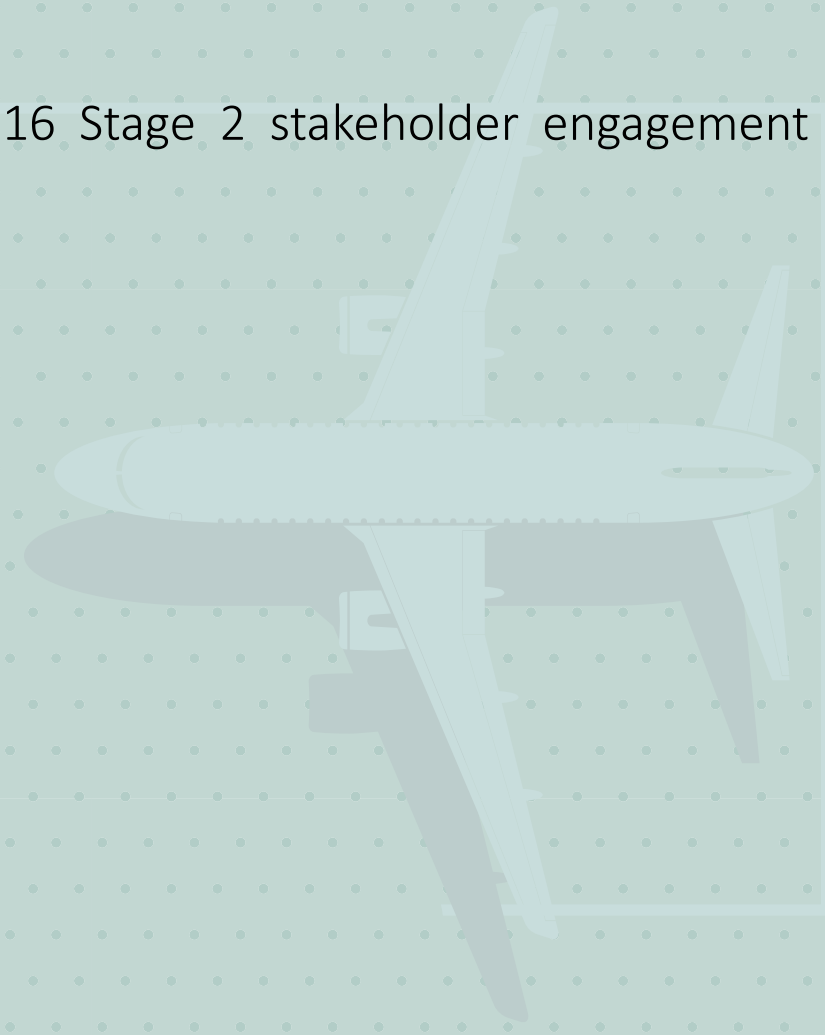

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