# Norfolk Vanguard & Norfolk Boreas Wind Farm Developments

## Stage 1 Assessment Meeting

4th October 2018

# Agenda

- Statement of need
- Introduction & Background
- Current Situation
- Issues and benefits arising from proposed change
- Provisional indication of the appropriate scaling level and notes re Process Requirements
- Draft Timescales and first three planned Gateway Assessments
- Engagement & Identified Stakeholders
- Next steps

# Original Statement of Need

**5. Statement of Need**

Please provide a brief 'Statement of Need' expressing explicitly what airspace issue or opportunity you are seeking to address. Your Statement of Need should clearly articulate the current situation, the issue (and the cause of it) to be resolved or the opportunity to be addressed along with any other factors or requirements. *

The current/existing situation:
Vattenfall is proposing substantial wind farm developments in an eastern portion of the UK FIR off of the coast of East Anglia and partly in UK airspace delegated to the Dutch ANSP, LVNL. At lower levels Helicopters operate in the area of the proposed windfarms under the control of Anglian Radar (Aberdeen airport, NATS) and LVNL, whilst at higher levels, multiple airways cross the airspace concerned.

The issue:
As part of the planning process Vattenfall has engaged with stakeholders to assess the likely impacts of these developments. One such stakeholder is NATS who have highlighted the potential effects of Wind Turbine Generators (WTGs) on their ability to provide Air Traffic Services . As such NATS has lodged an objection to the planned windfarm development until such time as a suitable mitigation is established.

Action:
Vattenfall has employed NATS Services Ltd (NSL) to investigate potential impacts of the WTGs on NATS and other stakeholder operations. Preliminary investigation by NSL suggests that the Airspace Change Process (CAP1616) should be initiated in order to manage the development of airspace based mitigation options.

This project is classed as critical National infrastructure by the Department for Energy and Climate Change. As such, Vattenfall believes that the airspace change process should be initiated now so that the mitigation requirements and options can be investigated and understood prior to the project funding decision gate of Q2 2019.

Please specify the altitudes (where applicable) affected by your Statement of Need:

- [x] Surface to below 4,000 feet
- [x] 4,000 feet to below 7,000 feet
- [x] 7,000 feet to below 20,000 feet
- [x] 20,000 feet and above

# Introduction

The purpose of this briefing is to inform the CAA regarding two Vattenfall wind farm developments off of the coast of East Anglia, in accordance with the CAA Airspace Change Proposal process as specified in CAP1616.

Vattenfall has conducted initial engagement with stakeholders as part of the DCO process and has received an objection from NATS on the grounds of potential interference of NATS radars from the WTGs and the subsequent impact on NATS ability to provide Air Traffic Services.

Vattenfall has engaged NATS Services Ltd to investigate the potential impact of the proposed wind farms on appropriate stakeholders (including NATS Enroute Ltd) and to provide advice for possible solutions and mitigations.

These developments are considered as Critical National Infrastructure by the Department for Energy and Climate Change, are extremely expensive to develop and necessitate a long lead time from proposal to implementation.  As such Vattenfall, advised by both NATS and Osprey consider that the airspace change process as laid out in CAP1616 is the appropriate vehicle to investigate the airspace related issues surrounding these wind farm developments.

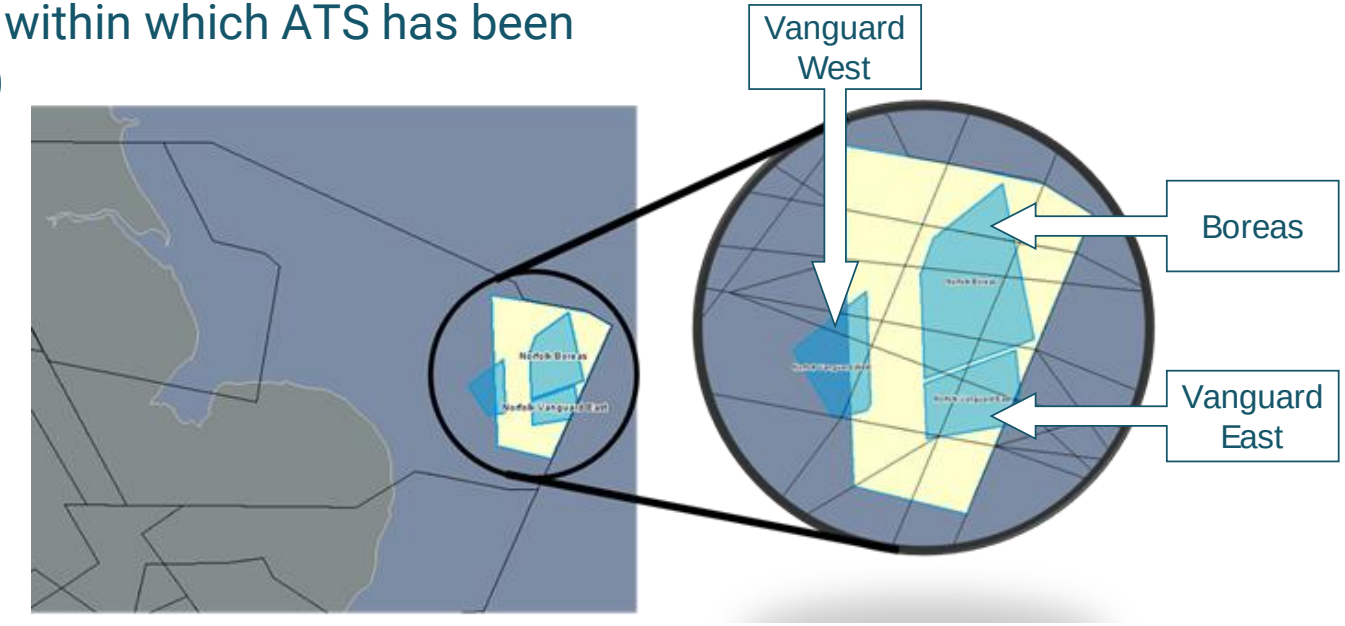
In line with CAP1616 Vattenfall has submitted a Statement of Need (see slide 3) to initiate the Airspace Change Process.

# Background

NATS has been asked to assess the operational impact of Vattenfall's project to build 3 new wind farms in the North Sea (blue portions in illustration).

- Norfolk Boreas
- Norfolk Vanguard
  - East &
  - West

Portions of these wind farms sit within UK airspace within which ATS has been delegated to the Dutch ANSP, LVNL (yellow portion)



# Background

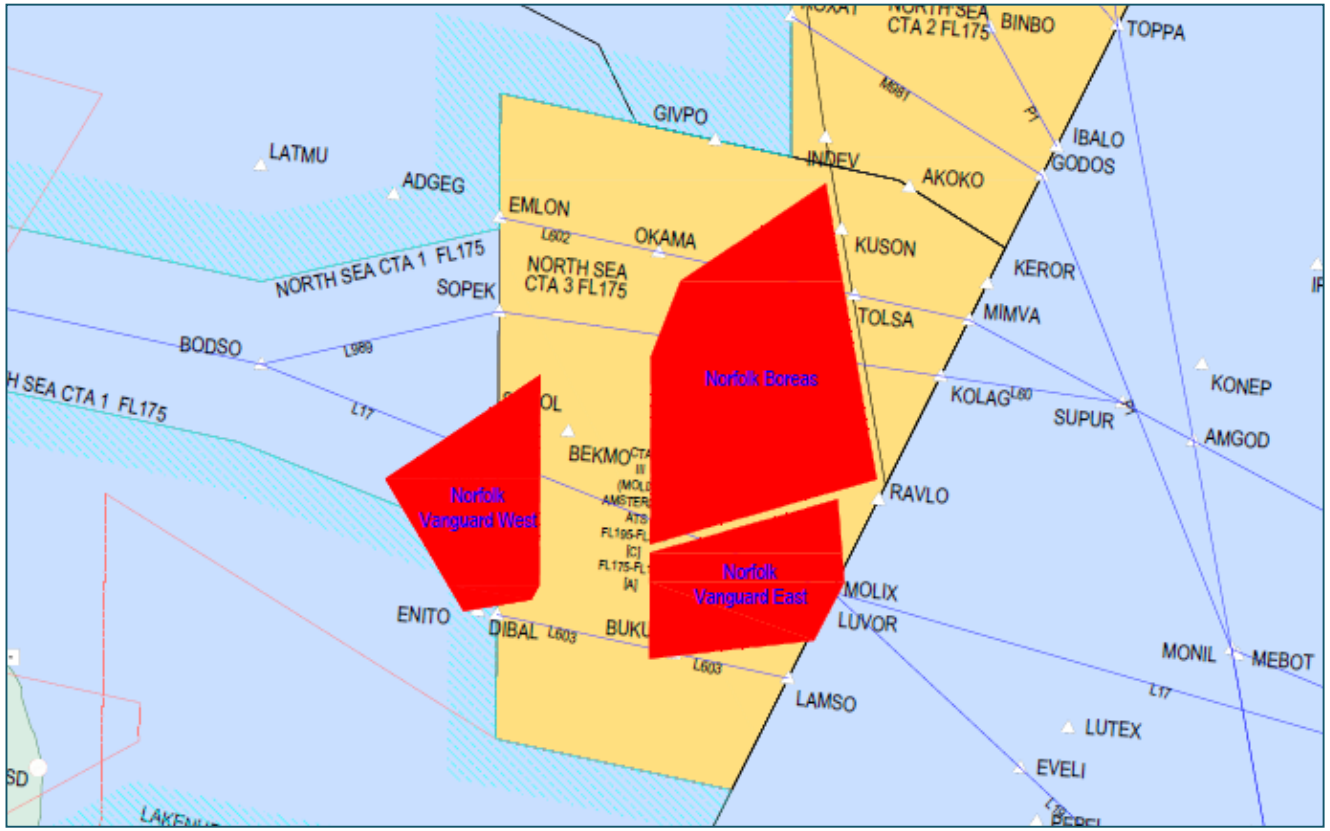
The turbine tip height is to potentially range from 192m to 350m.

- Impacts are assessed on a 350m tip height

Construction is expected to begin in 2024/2025 with commissioning soon after.

- Norfolk Boreas is being developed after Norfolk Vanguard

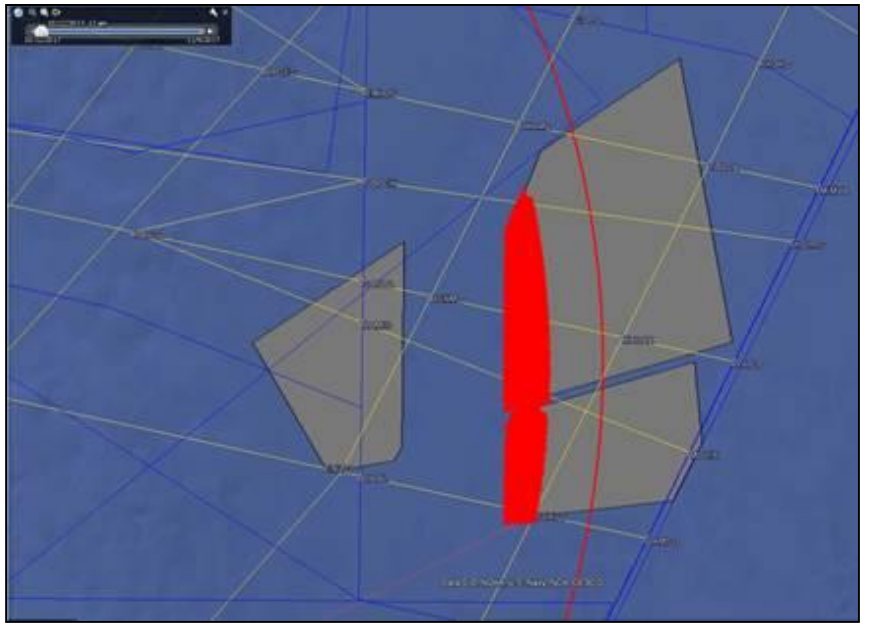
This project is considered a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008



# Baseline (do nothing):

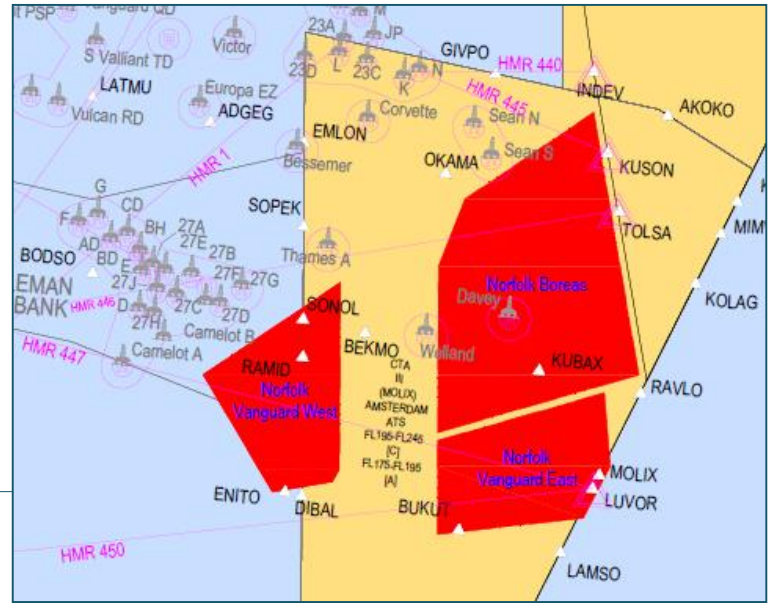
The introduction of the wind farms has the potential to create clutter on radar screens, among other issues, likely to interfere with the provision of Air Traffic Services (ATS). CAA document CAP764 considers these issues in greater detail. Click link HERE.

Conservative indications are that Cromer radar would detect a 350m turbine tip out to approximately 57nm. This is illustrated by the red curved line in the image. The proposed wind farms are illustrated as grey blocks.



NATS Anglia Radar provide a radar derived service, predominantly to helicopters servicing the oil and gas platforms, from SFC to FL65 in the vicinity of the wind farms

- Helicopters operate at low level (typically below 3000ft). The Helicopter Main Routes (HMRs) are illustrated as pink lines in the lower image (however helicopters do not adhere solely to these) with the proposed wind farms illustrated as red blocks
- Analysis of non-transponding (non-helicopter) traffic indicates c3 per day in the region of the wind farms below FL100

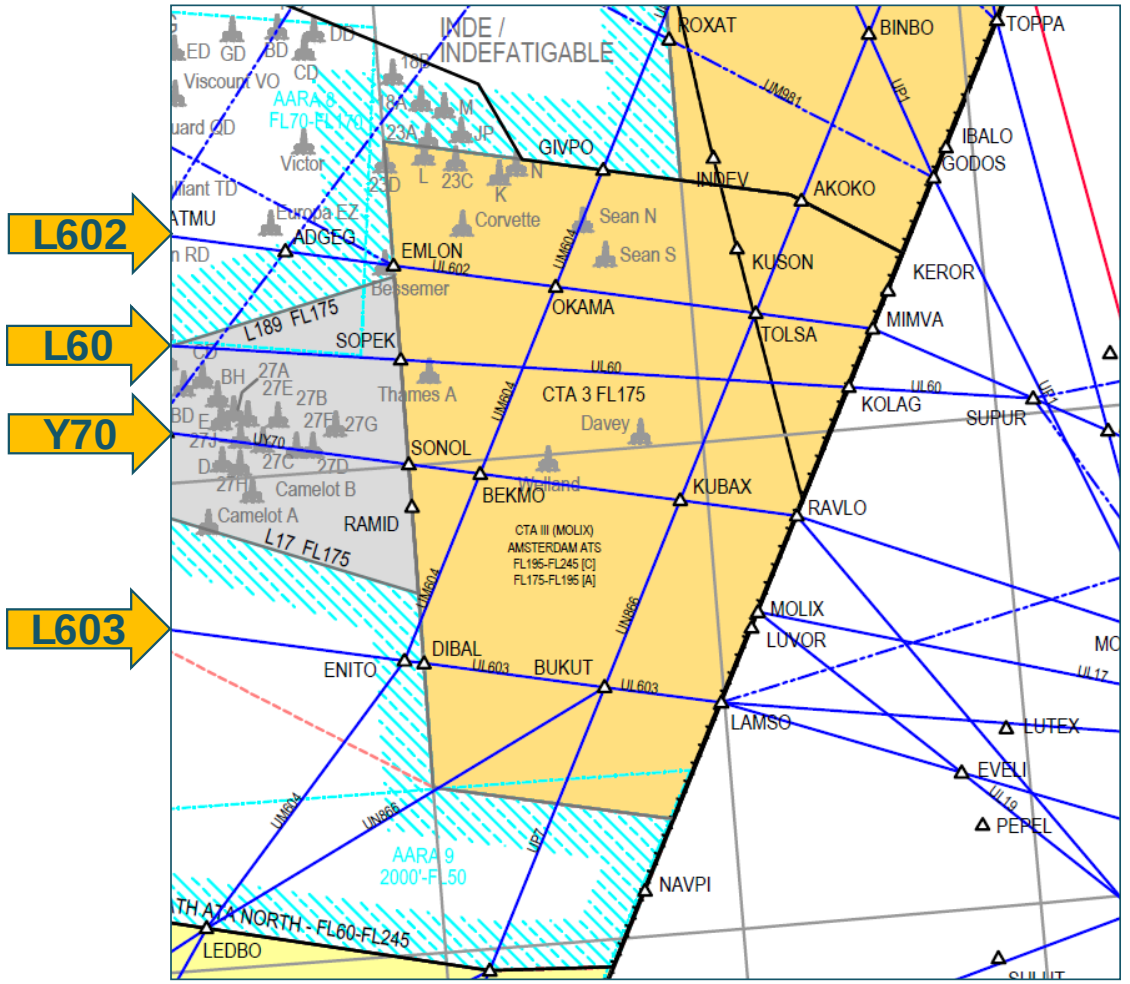


# Baseline (do nothing):

Swanwick Enroute provide a service in the airways which transit the airspace

- L602, L60, Y70 & L603
- Hundreds of flights per year per airway

Swanwick Military Provide a service within their radio and radar coverage



# Reasons for Mitigation:

## Issues

- Likely primary radar clutter
  - consequent safety reduction
  - or consequent reduced provision of ATS
- Potential ‘shadowing’ of radar return area
- Physical obstruction
- Reduced performance of CNS equipment

## Benefits

- Removal of likely primary radar clutter
  - consequent safety improvement from ‘do nothing’ scenario
  - and/or safety remains ‘at least as safe’ as today
  - and/or consequent increase in ATS provision
- Reduce impact of radar shadowing

# Provisional Scaling and Process Discussion

- Expectation of Level 1 ACP
  - Implications of low level radar coverage mean Vattenfall wish to ensure all stakeholders are aware of the change and have the opportunity to comment on the proposal

- The project has a long lead time to implementation but near term funding decisions therefore an agreed solution is required several years prior to its implementation

# Draft Gateway Timescale

| Stage | Date | Deliverable |
|---|---|---|
| Assessment meeting | 4th Oct 2018 | n/a |
| Stage 1 – Define Gateway | 22nd Feb 2019 | 8th Feb 2019 |
| Stage 2 – Develop Gateway | 26th April 2019 | 12th April 2019 |
| Stage 3 – Consult | 28th June 2019 | 14th June 2019 |
| Stage 4 – Update and Submit | n/a | 1st Nov 2019 |
| Stage 5 – Decide | 24th April 2020 | n/a |

# Engagement, and Next Steps

Some engagement has taken place as part of the DCO process however further engagement will concern specific aviation aspects of this proposal and the Design Principles:

- NATS Enroute to be engaged regarding specific impacts
- Airports to be engaged regarding specific impacts
- LVNL & Maastricht have asserted through pre-engagement that there is no impact from the change
  - Further engagement on Design Principles likely
- Helicopter operators and rig operators to be engaged on the Design Principles and the airspace change specifically (they have previously been contacted during the DCO process)
- MoD to be engaged but likely to advance their own solution if required. This solution could be formed in cooperation with a civil airspace solution. The MoD have been engaged as part of the DCO process.

# Stakeholders for Consultation

**LVNL**
An area of Norfolk Vanguard East lies across the FIR boundary in LVNL airspace

Much of the wind farm lies in UK airspace with ATS delegated to LVNL

LVNL receive a radar feed from the Cromer PSR

**Recipients of the Cromer Radar**
- Maastricht UAC
- Norwich airport
- Humberside airport
- Aberdeen airport

**Helicopter Operators**
- Babcock (formerly Bond)
- Bristows
- British International helicopters
- CHC Scotia
- Heli Holland
- NHV
- Shell helicopters
- Unifly

**Offshore Oil & Gas Rig Operators**
- Thames A
- Thames AR
- Corvette
- Sean PD
- Sean PP
- Sean RD
- Davy A

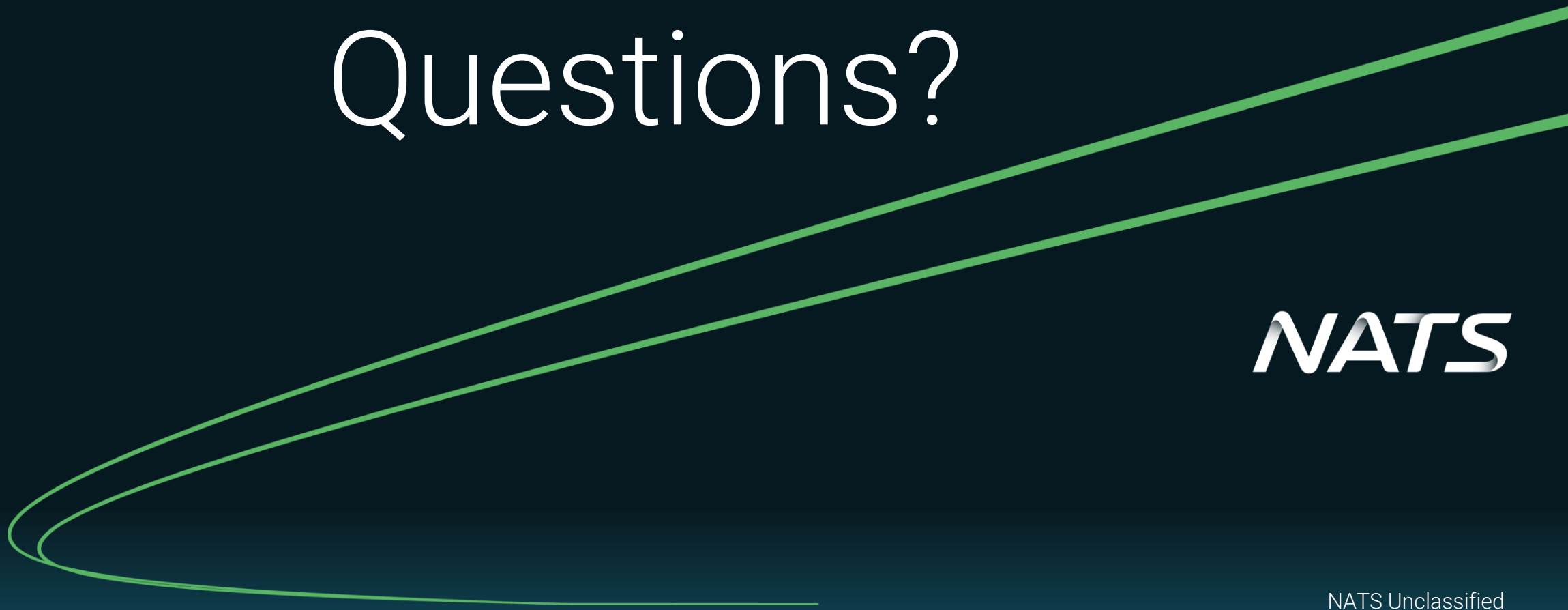
**Ministry of Defence**
Provision of low level radar service and threat detection

**NATS**
Wind farms in UK airspace within which TAS is provided by NATS

**NATMAC**
Members of NATMAC

**Others**
Any other person or organisation deemed appropriate as the CAP1616 process is progressed

# Questions?



NATS