

THE UK EXAMPLE: AIR DEFENCE & OFFSHORE WIND; WORKING TOGETHER TOWARDS NET ZERO

Group Captain Nick Robson, Head of DAATM, and
Ian Toothill, Vice-chair of OWIC Aviation Workstream



Radar Interference and Mitigation

A UK MOD and Industry Joint Approach

Group Captain Nick Robson
(Head of Defence Airspace & Air Traffic Management, Royal Air Force)

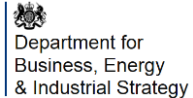
and

Mr Ian Toothill
(SSE Renewables, Vice-Chair OWIC Joint Aviation Task Force)



Air Defence and Offshore Wind Windfarm Mitigation Task Force

Introductions and Context





News Article Nov 21 - RAF scrambles jets to stop Russian bombers flying

- 'Typhoon fighters were scrambled against unidentified aircraft approaching the UK area' as RAF spokesperson said. 'Subsequently, our fighters escorted the Russian aircraft out of the UK's area of interest.'
- 'At no time did the Russian bombers enter UK sovereign airspace.'
- A Russian defence ministry spokesperson admitted the enormous long-range aircraft carried out 15-hour flights off the north coast of Scotland, but were escorted away by the RAF jets.
- They said: 'Two strategic Tu-160 long-range aviation rocket carriers performed a scheduled flight in the air space above the neutral waters of the Barents, Norwegian and North Seas.'

BREAKING RAF Typhoon jets were scrambled to intercept two Russian Tu-160 bombers



Image Credit: www.airlive.net

THE RADAR PERSPECTIVE

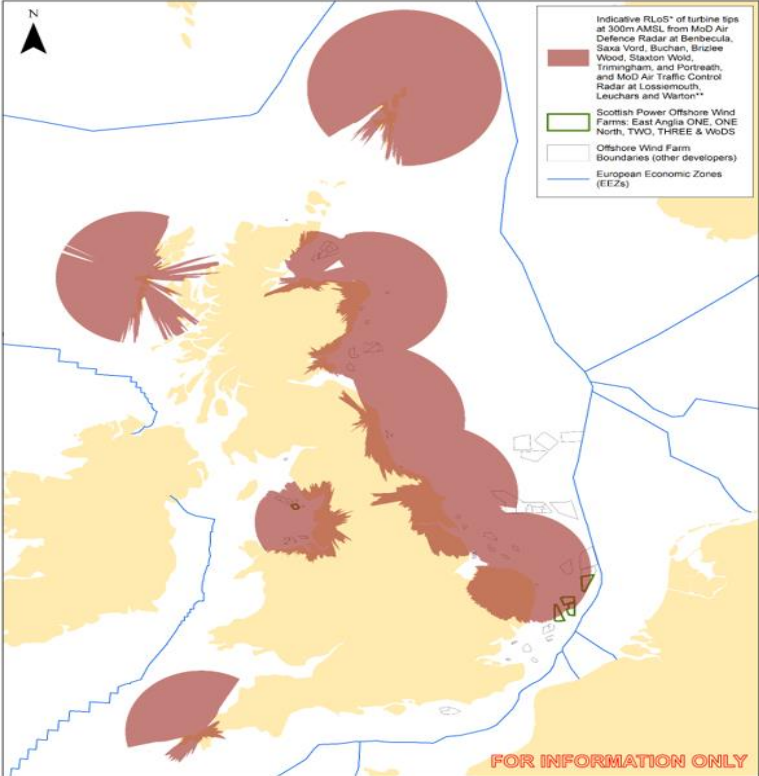


Image credit: SPR & Cyrrus



Image credit: NATS

Ministry of Defence and Offshore Wind Industry Council:

The Aim

To enable the co-existence of air defence and offshore wind supporting government objectives for net zero by identifying technical mitigations and supporting processes to enable windfarm deployments in BEIS CfD AR4 and beyond.



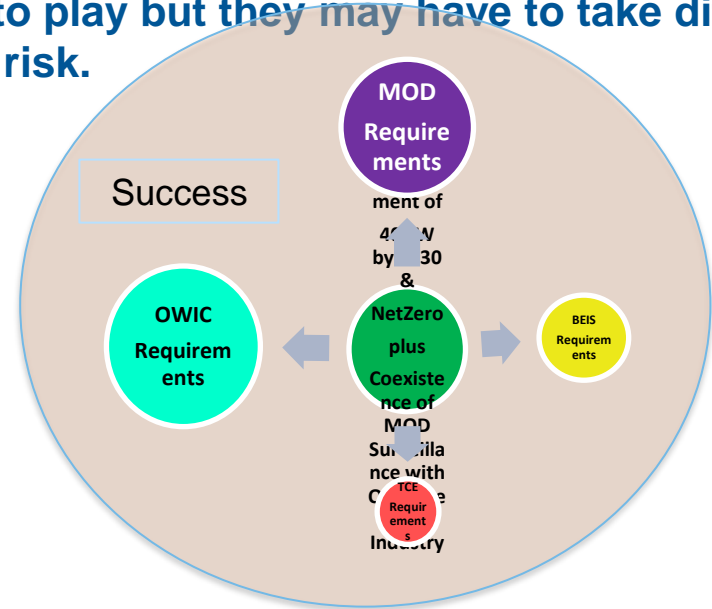
Windfarm Mitigation Task Force

- Aims to identify a body of evidence to inform the **strategy and implementation plan** which will be acceptable to the Wind Industry, BEIS and the MOD.
- Work in collaboration with industry and across government.
- Inaugural MOD / OWIC TF meeting in Aug 19.
- Monthly meetings co-chaired by MOD and OWIC supported by focussed activity across MOD, BEIS and Industry, with The Crown Estate joining the TF in Apr 20.
- Inaugural Air Defence & Offshore Wind Programme Board took place in Jan 20, with Chief of Staff Capability (Air) as Chair.



Question - How can leadership and collaboration help us overcome challenges to co-existence at a national and international level.

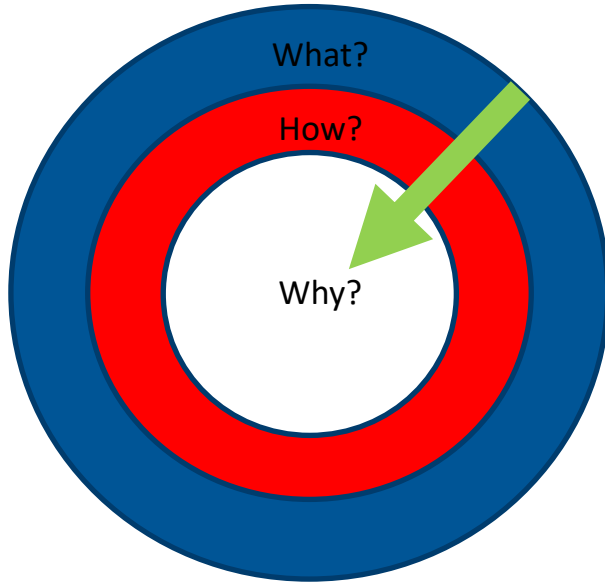
Answer - Each Stakeholder has an equal part to play but they may have to take different levels of risk.



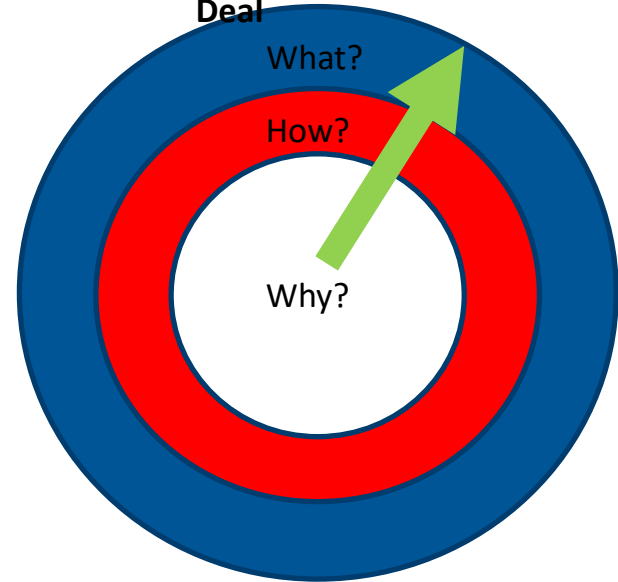
Purely illustrative purposes!

So what's changed?

Pre-Sector Deal



Post-Sector Deal



Air Defence and Offshore Wind Windfarm Mitigation Task Force

**The aim, our path to date and working
together.**



2020 - Four focussed lines of effort

Paper-based studies: to investigate what technical mitigation solutions might exist

- OWIC-contracted Thales report (mitigation concepts)
- DE&S Paper-based Feasibility Study (mature mitigation solutions)
- BAES low-TRL study

Capability demonstration: to indicate technological maturity

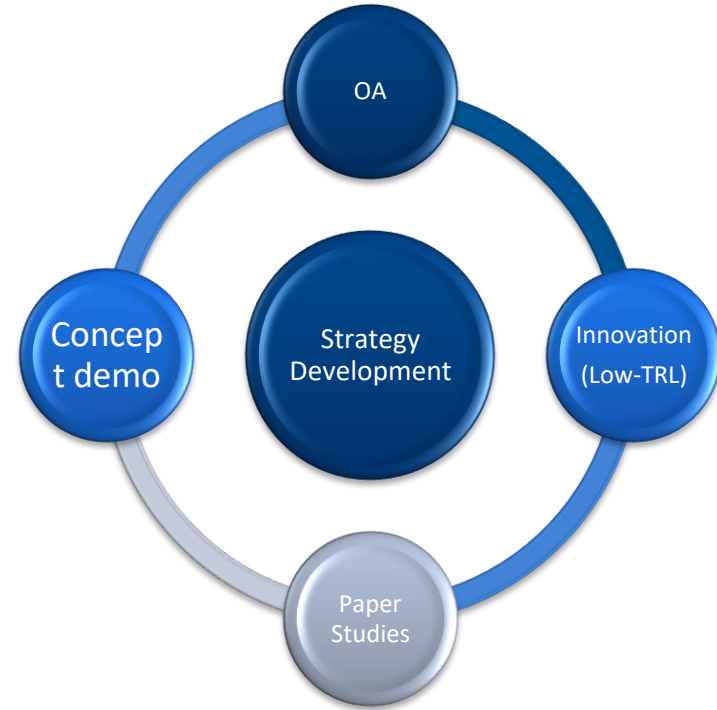
- Provide a first-hand understanding of the practical capabilities which are likely to be available within the most-pressing timeframe (circa 2025).

Innovation: to encourage development of novel solutions for the future

- BEIS / DASA innovation competition

Operational analysis: to refine assessment of risk

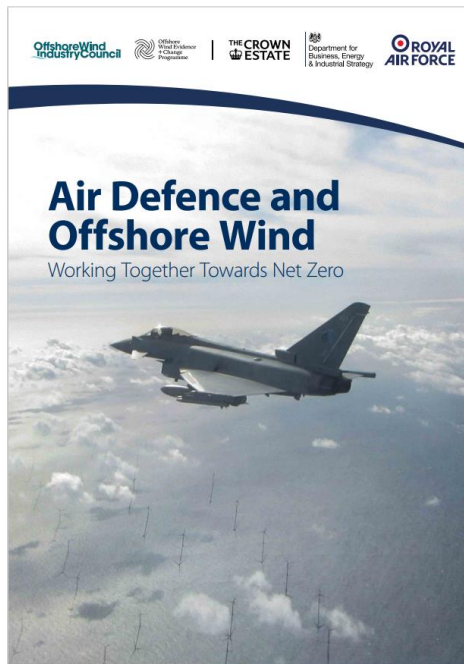
- To situate the challenge
- To test and assess the operational impact of windfarm interference on Air Defence operations
- And inform the user and system requirements



2021 – Focus for Offshore Wind and Air Defence

EVIDENCE

- BEIS/DASA Innovation Challenge
 - Phase 1 ended Mar 21
 - Phase 2 launched Apr 21
- Concept Demonstration
 - Campaign 1 & 2 in parallel
- Operational Analysis
- Requirements
 - System requirements
 - User Requirements
 - System Integration & Cyber



PROCESSES

- Procurement Strategy
 - Procurement Scenarios
 - Commercial Strategy
 - Contracting Mechanisms
 - Draft Commercial agreements
- Planning Process Review
- Offshore deployment
- Cumulative impact

RISK & MITIGATIONS

- BEIS/MOD/TCE/Industry
- 'What if' scenarios and mitigations

Offshore Wind and Air Defence: Successes

- Good working relationships between key stakeholders at all levels.
- BEIS / MOD (DASA) Innovation Challenge:
 - Phase 1 launched Mar 2020: £2.1M for 6 projects to develop new and novel mitigation solutions.
 - Phase 2 launched Apr 21: £3.8M for 7 projects
- Wind Industry and MOD contract for 3-year FTRS post and concept demonstration campaigns
- Defence Pre-Qualification Questionnaire launched, 16 responses from a broad range of manufacturers.
- Data from 3 technology demonstrations Reviewed
- CD Campaign completes in Dec 20 21
- Completion of Dstl OA study

News story

DASA seeks innovative ideas to mitigate radar risk of windfarms

£2-million innovation competition to reduce and remove impact windfarms have on UK's Air Defence systems to boost green energy growth.

Published 5 March 2020

From: [Defence and Security Accelerator](#), [Ministry of Defence](#), [Defence Science and Technology Laboratory](#), [Department for Business, Energy & Industrial Strategy](#), and [Jeremy Quin MP](#)



DASA is looking to mitigate windfarms impact on UK Air Defence. DASA Crown Copyright.

New technology to ensure future windfarms will not affect the UK's Air Defence radar system will be developed as part of a £2-million innovation competition launched today, a move which could pave the way for a significant boost to the UK's renewable energy growth.

reNEWS BIZ OFFSHORE WIND ONSHORE WIND SOLAR WA

MoD and offshore wind unite to mitigate radar impact

First demonstrations of new technologies will occur this year with preliminary results expected in H1 2021

26 November 2020 | Offshore Wind | Image: SSE

RELATED STORIES

UK launches offshore wind environment initiative
7 DECEMBER 2020

The UK offshore wind industry is providing millions of pounds in funding for the Ministry of Defence (MoD) to test technologies that can mitigate impact of projects on air defence radar.

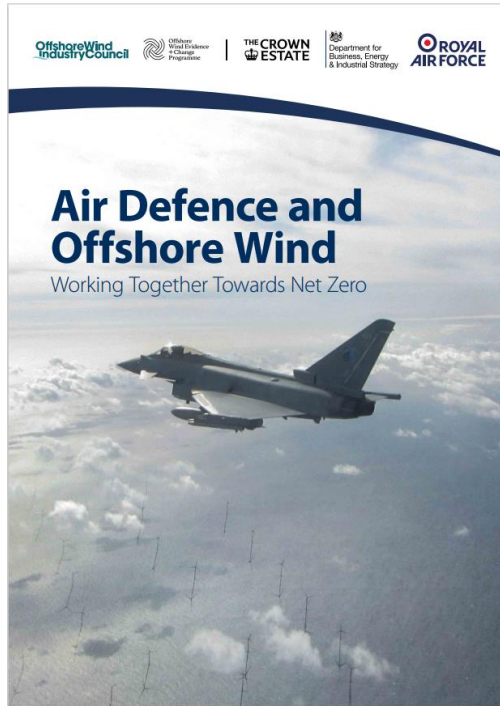
As part of the Offshore Wind Sector Deal, the Offshore Wind Industry Council (OWIC) and the Government are working together to overcome technical challenges faced by offshore wind deployment in the UK.

One of the workstreams is focussing on mitigating the impact of wind farms on air defence radar systems.

The first demonstrations of the new concepts will take place this year, with preliminary results expected to be published in the first half of 2021.

The new agreement secures wind industry funding for the MoD to test a series of mitigation concepts and technologies, including various types of new radars

The Joint Strategy: How have we worked together and progress



X-Govt Ministerial endorsement

- Minister for Defence
- Minister for Business, Environment, Innovation and Science



- Senior Sector Stakeholder endorsement.

- Empowers the Task Force to drive forward.



[Air defence and offshore wind - working together towards Net Zero - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

The Strategy: How have we worked together and progress

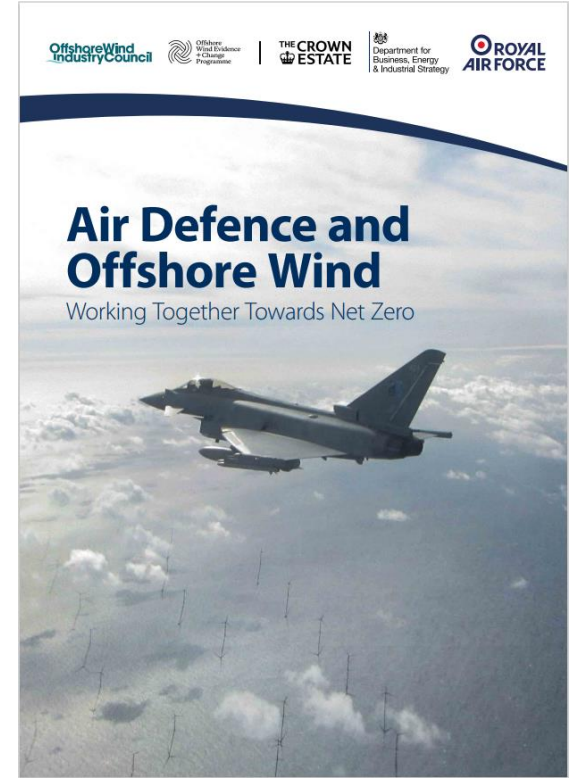
Evidence:

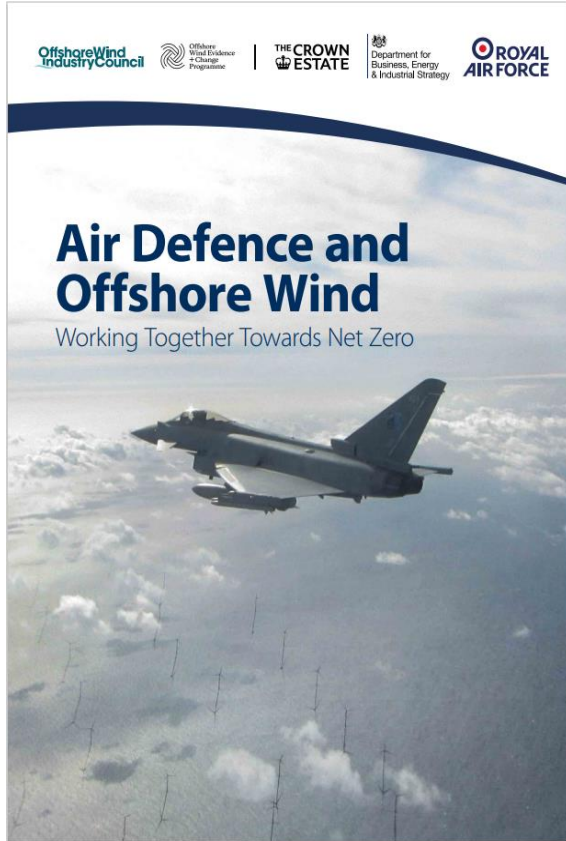
- Breakthrough: One or more technical mitigations that could support Windfarm developments in the medium term
- Operational Analysis and Requirements development

Processes:

- Developing a **joint** procurement strategy and process
- Aim for a procurement process to be launched by DE&S in 2022
- 15 Agreed principles covering:
 - General: certainty of generation and certainty of mitigation
 - Strategic Approach: x4 regional/national? Read across to ATC/onshore?
 - Procurement Strategy: x8 road map, timescales, milestones & interactions, lifespan of mitigation, pathways from tolerable/interim to acceptable/enduring.

Risk: Joint Risk Register / Scenario based approach to top risks





Next Steps

Work focussed towards Issue 2 in 2022

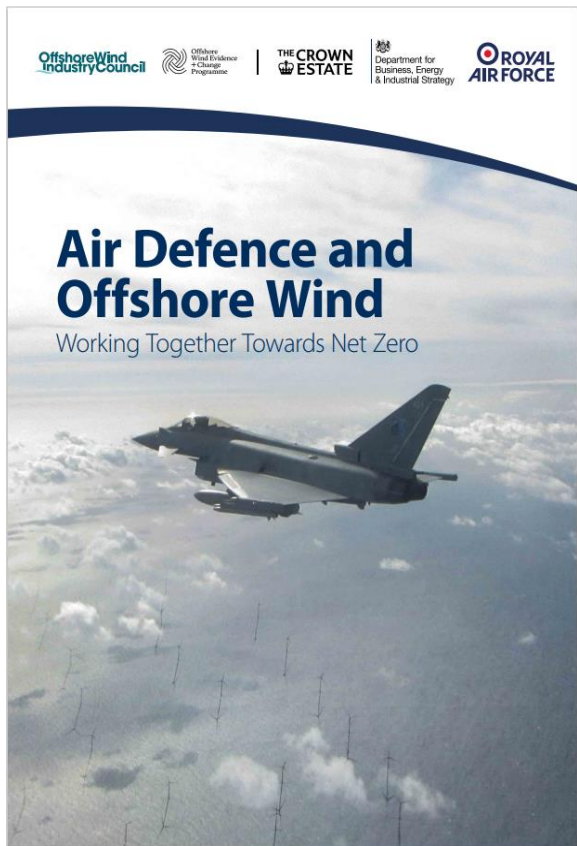
Evidence:

- Complete Concept Demonstrations and analysis
- Complete Operational Analysis and Requirements
- Continue Innovation Challenge

Process:

- Joint procurement strategy,
- Detail procurement process and commercial strategy
- **Launch a competition**
- Consider template agreements

Risk: Continue to review and manage



Next Steps

Issue 1 was a seminal moment demonstrating collaboration and progress

Issue 2 will aim to bring the completed work together into a package that shows the procurement process, roadmap and timescales for delivery and interactions with other processes including CfD and planning consent

Further issues annually as required

Offshore Wind and Air Defence: Takeaways

- **Offshore wind and UK Air Defence will be part of the future operating environment:** Each are essential to UK interests and by working together we will be able to co-exist.
- **We must keep working together to overcome the challenge:** Work is now genuinely collaborative and good progress is being made. Completing the Concept Demonstrations in 2021 is critical to providing the body of evidence needed for industry investment decisions.
- **We need to be ready when the evidence is available:** Work on the supporting processes such as the procurement strategy is ongoing in parallel.
- **We are not alone:** This challenge is not restricted to Air Defence, or the UK; there are opportunities to work internationally to develop understanding, share knowledge and accelerate towards an enduring solution.



[Royal Air Force \(RAF\) LinkedIn: Air Vice Marshall Linc Taylor on Windfarms](#)

Air Defence and Offshore Wind Windfarm Mitigation Task Force

Questions?





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