FLYLOGIX

Assessment meeting

ACP-2022-43, 44, 45, 46 and 47

Agenda

Introduction to Flylogix and methane measurements

TDAs and roadmap to integration

Flexible Danger Area

Temporary Restricted Area

Transforming remote operations

We use centrally controlled unmanned aircraft to reduce the cost, risk and environmental impact of delivering specific aviation services

Offshore methane measurement challenge

- Measuring methane is a priority
- Quantifying methane offshore is difficult
- No obvious complete solution

Development journey

Proof of concept trials with bp to Clair, West of Shetland demonstrate the combination of a miniturised sensor and a long-range drone can gather data

A group of operators help set the **detection target** and, with support from NZTC, development work is completed to improve performance. Additional development work on the aircraft, comms and power systems enables deployment to any UKCS asset.

Flylogix working directly with operators to conduct continuous measurements **throughout the UKCS** which will help operators understand their baseline.

Routine measurement of assets supports industry **best-practice** and **regulatory reporting**. Data helps validate **emission reduction** work and progress towards net zero targets.

2017 2018 2019 2020 2021 2022 2023

Proof of concept trials with Centrica conducts IR gas measurement of DP3 facility in Morecambe Bay

Flylogix complete measurement flights of all bp's **assets West of Shetland** and demonstrate accurate **detection**

The updated sensor is **deployed in the field** for trails in the northern and central north sea which demonstrate **detection threshold**.

Further flights in the southern and central north sea and West of Shetland.

#ALWAYS GOING FURTHER

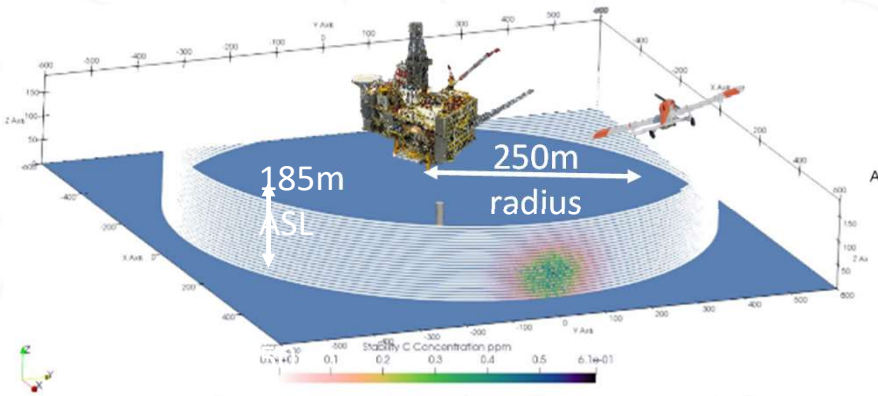
Real methane emission monitoring

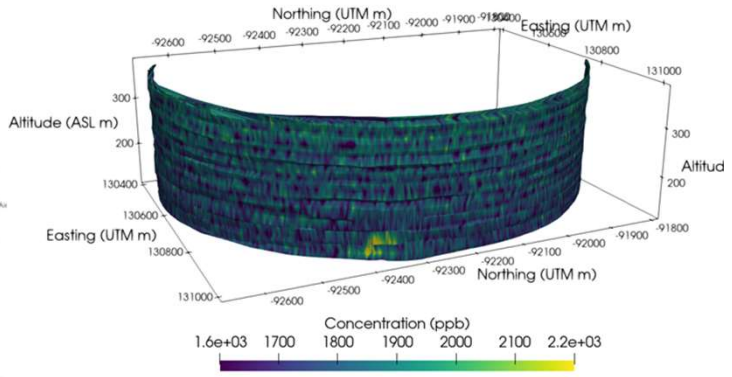
REPSOL SINOPEC Resources UK · bp · equinor · Harbour Energy · NEPTUNE ENERGY · TotalEnergies · TAQA · SERICAENERGY

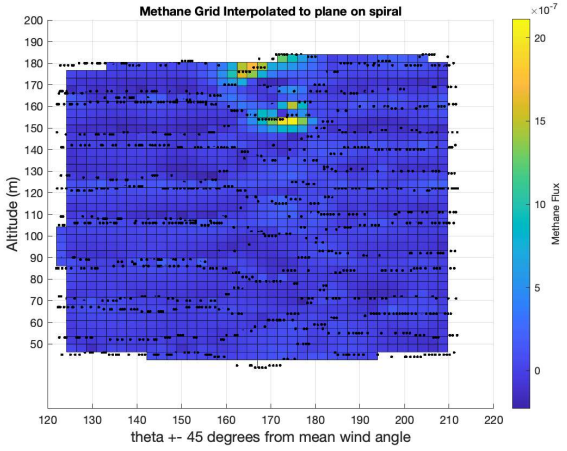
The result

Methane concentration data is transformed through a proprietary process to determine a total emission rate in kg/hr.

- Proven lower **detection threshold** below regulatory limit
- Average total **data points collected: >90,000**
- Average data collection **time on asset: 40 minutes**







The Flylogix system

Fixed wing RPAS

- 64kg
- 171cc SEP
- 4.1m wingspan
- Onboard Certified Avionics:
  - Mode-S transponder
  - ADS-B in and out
- C2 link over Satcom and 4G
- RPAS Flight Station – SkySpace©

In test

- VHF radio
- Strobe and Nav lights

Agenda

Introduction to Flylogix and methane measurements

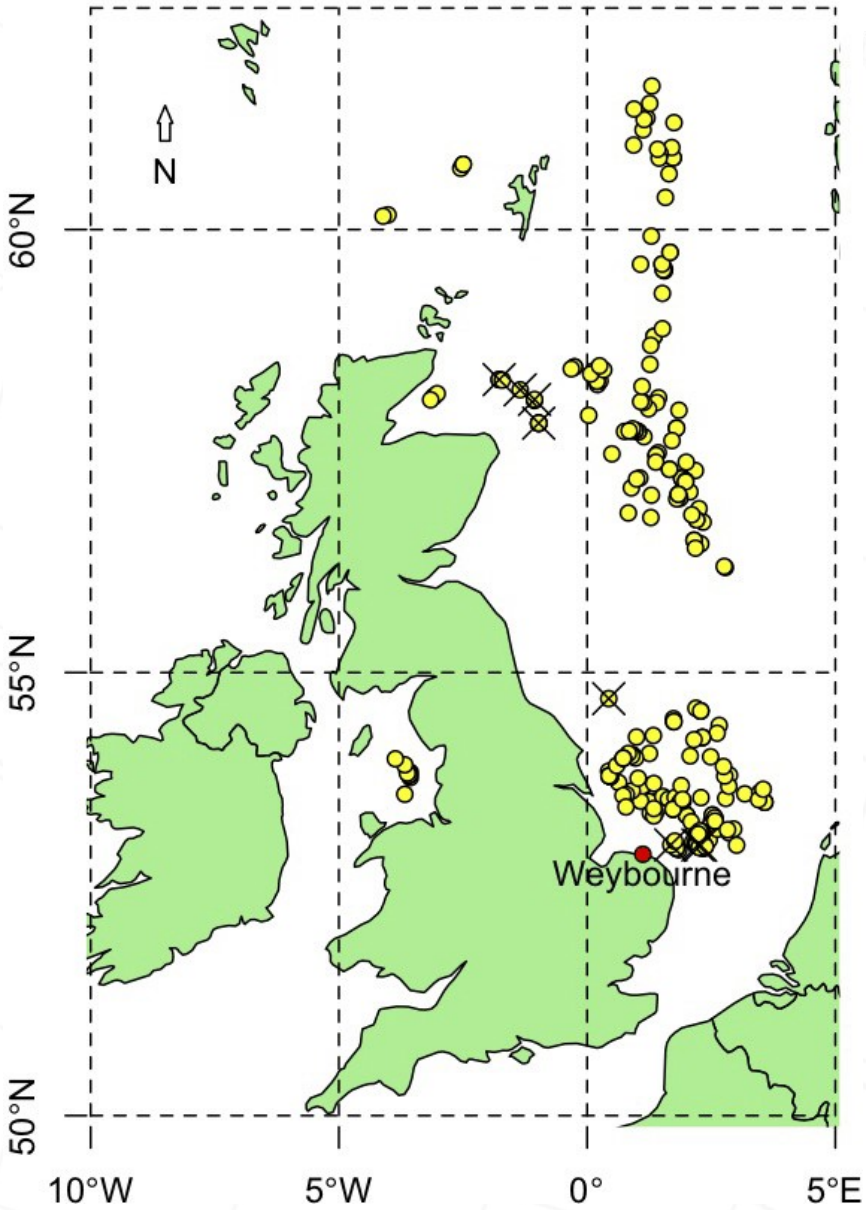
TDAs and roadmap to integration

Flexible Danger Area

Temporary Restricted Area

Customer demand

- 134 offshore facilities on the UKCS
- Three main areas
  - Central North Sea
  - Southern North Sea
  - Northern NS and West of Shetland
- We have a current order book of over 60 measurements for customers
- We are planning 100 flights in 2023



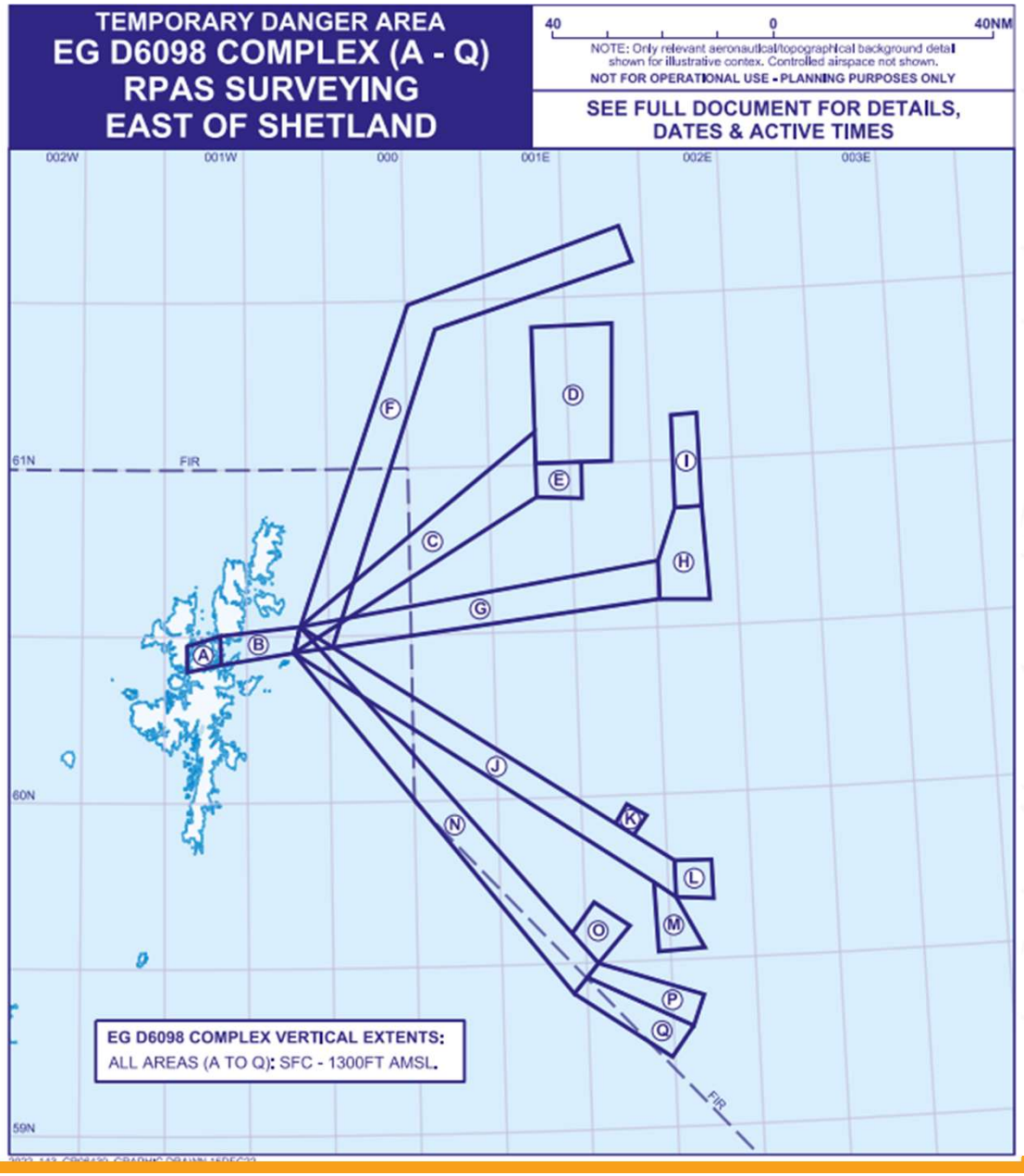
Limitations of TDAs

- There are two main limitations to TDAs

1. The complexity and lack of flexibility required in planning airspace months in advance makes additional work for CAA, Flylogix and other stakeholders

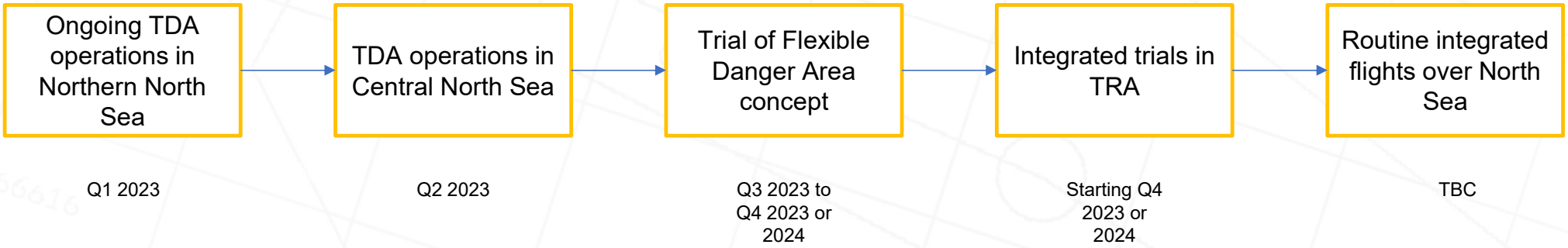
2. By segregating the airspace other air users are restricted

- The AMS recognises this with the move towards more integrated operations (TMZ)



Move towards integration

- Flylogix have a ConOps and Safety Case that has been presented to the CAA on operating within a TMZ over the North Sea but the move towards integration needs to be gradual and evidenced
- Flylogix roadmap to integration is broken into 5 steps



- Data is gathered at each stage that supports the move to the next stage

Our proposal for ACPs

- **ACP-2022-043** Change to trial of Flexible Danger Area over the North Sea
  - Cover three areas in southern, central and northern North Sea

- **ACP- 2022-046** Change to Temporary Restricted Area

Agenda

Introduction to Flylogix and methane measurements

TDAs and roadmap to integration

Flexible Danger Area

Temporary Restricted Area

Reasons for Flexible Danger Area Trial

- Designed to reduce the workload required for a TDA by
  - Covering more than one area
  - Consolidating engagement – reducing the number of times stakeholders are contacted, aiding clarity
  - Consolidating ACP and OA – reducing CAA workload

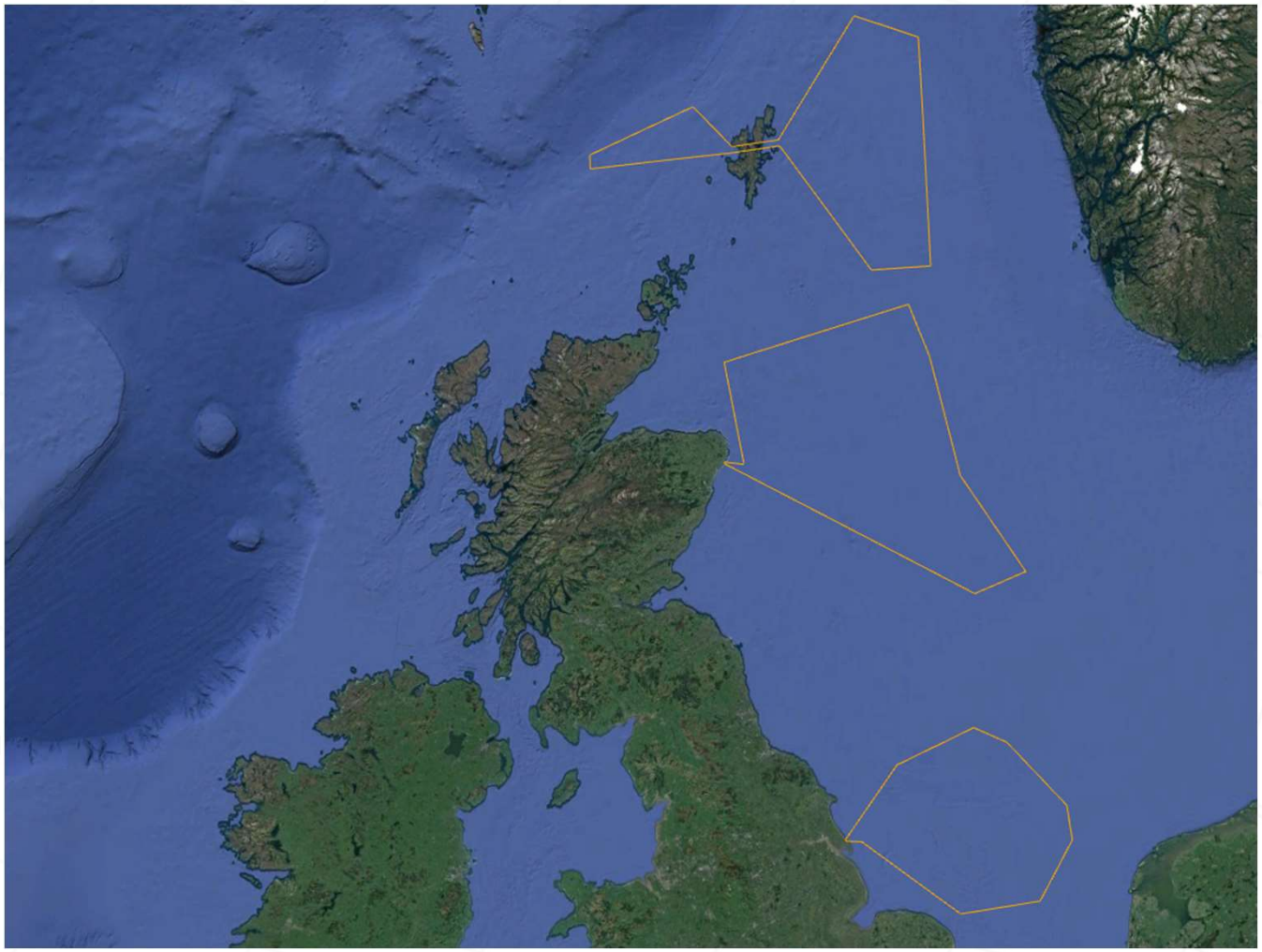
- Improving clarity for other air users and reducing chance of error
  - Simpler structure
  - Less complex danger area geometry

Proposal

- Area of operation published in advance in AIC
  - Surface to 1,100 ft
  - Contact details etc included in AIC as with TDA

- Co-ordinates of each danger area published by NOTAM >40 hours before flight
  - Also sent proactively by email to other air users by email along with chart (format TBC during engagement)

Areas



Other air users and stakeholders

- Relatively remote airspace over the seas and a group that Flylogix have engaged with before
- Engagement list is
  - ANSP is NATS – also Avinor and Iceland as close to their airspace
  - Offshore helicopter operators (Bristow, NHV, CHC, Offshore Heli UK, Viking, PDG)
  - Other commercial offshore (Airtask, 2 Excel, Babcock MC onshore, Gamma aviation)
  - SAR (JRCC, SAR stations, East Anglian Air Ambulance)
  - Military – DAATM
  - Airfields (Tingwall, Sumburgh, Hatton, Longside, Humber, Hollym, Skegness, Cuxwold)
  - NATMAC members
- All stakeholders will be contacted by email with a document outlining the details of the proposal
- Additionally, an online meeting(s) will be scheduled for those who wish to attend

Provisional timetable

- Operations from July 2023
- Planning a nine month trial until April 2024. Will be cancelled if move to TRA occurs sooner

- Engagement starts – 17th February
- Engagement ends – 31st March (6 weeks)
- Submission to CAA by 14th April
- CAA decision by 19th May to meet 29th June AIC

Options

- We are aware the Flexible Danger Area concept is a new one
- Should we engage on another option in parallel?

Agenda

Introduction to Flylogix and methane measurements

TDAs and roadmap to integration

Flexible Danger Area

Temporary Restricted Area

ACP- 2022-046

- Speaking to the Innovation and Airspace team last week it was mentioned that a policy to use TRAs for mor integrated operations is planned, but not yet published

- We would therefore like to change ACP- 2022-046 to a TRA – but keep it on hold for the moment until the policy is confirmed and the timescale is clearer

- If this change works it is proposed that the other ACPS (44, 45 and 47) are withdrawn

FLYLOGIX

ALWAYS GOING FURTHER

Development of TDAs

2019

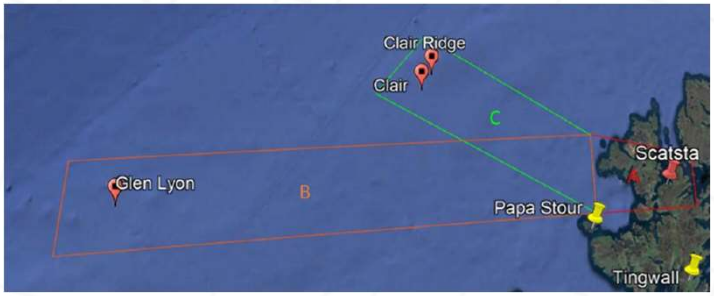
2 flights to one asset West of Shetland

Simple box TDA

2020

Flights to 3 assets

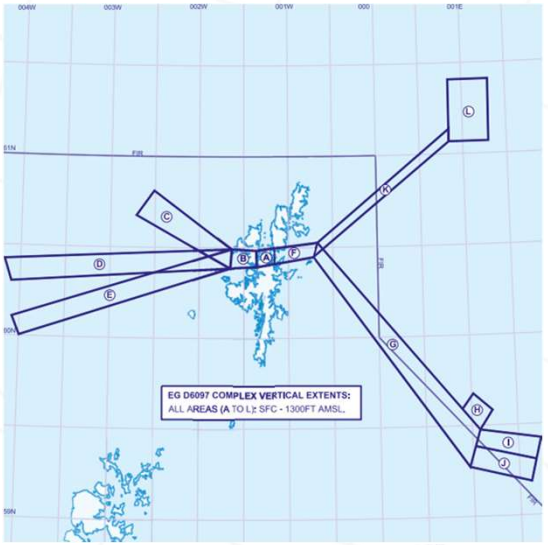
3 segments within the TDA



2022

Flights to 10 assets

Segmented TDA with 12 segments



Proposed TMZ RPAS Operational Requirements

- Retain Strategic Deconfliction (Time/Space/Altitude)
- Detect is Fundamental for SERA Compliance
- Multiple Detect Layers, but ADS-B TMZ in lieu of an EC Mandate
- TMZ Airspace Entry Requirements (SERA.6005c) - ADS-B
- Fly iaw SERA (UK) Regulation 932/2021, BR, IR and ANO - As Manned Aviation
- SERA Parity with Manned Aviation - (Examples):
  - SERA.5001 - Maintain VFR Minima (Visibility and Distance from Cloud)
  - SERA.3201 - Maintain IFR Containment Policy Separation Minima
  - SERA.3210 - Rules of the Air/Right of Way
  - SERA.3215 - Position (Nav) Lights and Strobes
- Suitably Equipped RPAS Aircraft (for IFR)
- Suitably Trained FCL Holding RPAS Flight Crew