Item: **17**

Report to Partnership Meeting 15 September 2023

Research and Strategy Delivery

SATE PROJECT UPDATE

PURPOSE OF REPORT

To update Members on HITRANS involvement in the Innovate UK Sustainable Aviation Test Environment (SATE) Project.

PROJECT OVERVIEW

Part-funded by UK Research and Innovation (UKRI) through the Industrial Strategy Challenge Fund, the SATE project created the UK's first operationally based, low-carbon aviation test centre at HIAL's Kirkwall Airport in the Orkney Islands. Launched as part of UKRI's Future Flight Challenge, which supports the development of greener ways to fly, the first phase of the project started in November 2020 and ended in July 2022.

Funding worth £8.9 million has now been obtained through UKRI Future Flight Challenge for SATE to continue for a further 24 months. The funding will allow the SATE project to build on the success of Phase 1, which saw some pioneering sustainable aviation technology demonstration flights delivered, including: a successful collaboration between drone specialist technology firm Windracers with Royal Mail on autonomous flights; and the first hybrid electric flights for Scotland pioneered by Ampaire. This activity showcased the project on a global stage. Dedicated hangar facilities and office space have also been created at Kirkwall Airport and surrounding HIAL aerodromes will be utilised as required to support operations.

While Phase 1 established the test centre, Phase 2 aims to allow SATE to expand on the success that has already been delivered and further develop a UK Centre of Excellence for Sustainable Regional Aviation. The project will allow technology partners to test in a real-world environment, taking them closer towards being able to offer sustainable innovation options for commercial use.

The project matches the new technology with practical use cases in the Highlands and Islands as part of Phase 2. These will include:

- Scheduled airline routes
- Offshore energy services
- National Health Service activities
- Island / remote region deliveries
- Environmental survey and inspection

Project highlights will include the establishment of a UAV hub-and-spoke delivery network, a first hydrogen-propelled regional-aircraft flight and a drone demonstration flight from Scotland to Norway.

As an exemplar early-adopter of other low-carbon technologies, Orkney is seen as an ideal 'living laboratory' for testing aviation and aerospace technology. Kirkwall Airport is well suited as a test environment location due to the variety of short routes it offers acting as a hub connecting Orkney's Island communities through its inter-island flight service. While the SATE facilities are based at Kirkwall Airport, Phase 2 involves plans to work with other Highlands and Islands communities

SATE brings together an international consortium of 12 partners, from industry, public sector, and academia. The partners are: HIAL, Arcadis Consulting Limited, Connect Places Catapult, The European Marine Energy Centre (EMEC), Flare Bright Ltd, The Highlands and Islands Transport Partnership, Loganair Limited, University of Highlands and Islands (UHI), Windracers Limited. Zeroavia Limited; Highlands & Islands Enterprise (HIE); and Orkney Islands Council. The project is also working closely with other local authority agencies.

HITRANS ROLE

HITRANS are leading on use case development via the SATE Project officer who was recruited in October 2022. This involves identifying both commercial and socio-economic opportunities in the region to be solved using the developing technology platforms. Using data, information, and insights to build a needs assessment, understanding and ability to highlight real-world issues resulting from the unique operational challenges for the region's communities and businesses.

By understanding both 'why' and 'how' people would use air services developed from SATE, we can determine the goal from which use cases can emerge and then develop further in detail. These use cases will allow the matching and demonstration of appropriate technology platforms where evaluation will allow comparison of the theoretical/predicted, and real-world benefit and value brought to the community.

Use cases are being formed on the following deliverables:

- Autonomous delivery
  Movement of goods required for everyday life.
- Rapid air transfer
  Delivery of goods/people on short notice in a timely manner, usually for emergency operations.
- Rural transit
  Movement of people or goods from remote location to remote locations.
- Maintenance and inspection
  Deliver people/goods to inaccessible infrastructure in need of attention/operation.
- Intra-city in rural situations
  Movement of people or goods between densely populated areas to more remote locations.

Progress has been made on the following deliverables:

Rural transit
An opportunity has been identified to provide air services to reduce the impact, support the demand and enhance the experiences of tourism in peak season/areas in the Highlands and Islands.

- Specific use cases are being developed around the NC500. Mini case-studies for each location.

Air services to deliver materials, tools and equipment whilst reducing carbon footprint, cost and increasing safety.

- Construction industry to deliver heavy materials for building sites/projects in remote areas such as Spaceports.

Air services to provide reliable, as required service to and from the islands/remote areas. Increase quality of life and connectivity.

Intra-City

Demand for services to decrease journey times and cost, helping to boost economy in remote areas and increase quality of life.

- Use case developing routes between GLA,EDI and INV with expansion from INV to surrounding areas, such as Wick.

Autonomous Delivery of Goods

Reducing delivery times, risk and carbon footprint by using air services to deliver groceries to households/individuals; increasing quality of life in remote / rural areas and supporting small business.

Reducing delivery times, risk of loss and carbon footprint by using air services to deliver shellfish to London/other; increasing value of product and certainty of delivery to support business.

Rapid Air Transfer

Opportunity to assist with life-saving operations where resources are limited, expensive or large distance away. Smaller craft can offer flexibility, speed and at a lower cost.

- Use case to deliver life-saving equipment faster to a person/location, such as defibilator, life raft/jacket or EipPen.
- Use case to deliver goods/equipment to help preserve life to delay urgency, reducing strain or expenditure on life-saving resources whilst offering support.

Additional activities HITRANS will undertake as part of the project is the installation of a charge point at Kirkwall Airport, and electric car club vehicles – both recommendations identified in the Low Carbon Surface Access Report completed as part of SATE phase 1.

HITRANS budget is £181,528 and is 100% funded.

RISK REGISTER

<u>RTS Delivery</u>

Impact – Positive

Comment – The SATE project supports several RTS objectives, particularly in the field of low carbon transport.

<u>Policy</u>

Impact – Positive

Comment – The SATE project contributes to policy development by helping to meet the Government target of the Highlands & Islands becoming the world's first net zero aviation region.

<u>Financial</u>

Impact – Positive

Budget line and value – The SATE project attracts high intervention rates, with SATE phase 1 funded at 70% and SATE phase 2 at 100%.

Equality
Impact – Positive
Comment – The SATE project delivers environmentally sustainable aviation and therefore helps to ensure lifeline transport options are sustainable in the long-term.

RECOMMENDATION

Members are asked to:-

1. Note the report.

Report by: Rebecca Wallace
Designation: SATE Project Officer
Date: 16 August 2023