Item:
**14**

**Report to Partnership Meeting 20 September 2024**

**Research and Strategy Delivery**

# SATE PROJECT

## PURPOSE OF REPORT

To update Members on developments in the Sustainable Aviation Test Environment (SATE) Programme.

## BACKGROUND

Part-funded by UK Research and Innovation (UKRI) through the Industrial Strategy Challenge Fund, SATE 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 started in November 2020 and ended in July 2022. The second phase kicked off from July 2022 and is currently due to end in March 2025 following an approved extension.

## PROJECT UPDATE

Demonstration Flights and Technology Updates

**Windracers** has conducted 9 weeks of trials in the Orkney Islands between Eday, Westray and North Ronaldsay with the ULTRA self-flying cargo aircraft. Operating a trial for this duration has allowed Windracers to gain knowledge and experience of operations in remote locations and brings the technology closer to commercial applications. The aircraft has a cargo capacity of 700L, a payload capacity of 100kg, and a range of up to 600km.

Windracers integrated its flight schedule with the existing logistics network to establish potential opportunities. Streamline Shipping Group, which handles 90% of last-mile deliveries to the Scottish islands of Orkney and Shetland, used its electric van as part of the sustainable transport journey. As part of their path to net zero, Streamline state that drones present an opportunity to make more regular deliveries and collections of locally-produced goods from island communities.

Windracers is now planning to undertake trials in early 2025 across Shetland and the Western Isles, pending CAA approval. Use cases are being developed to further provide insight into how the technology can improve connectivity and services. A stakeholder event held on 10th September in Kirkwall offered local businesses and stakeholders an opportunity to see the aircraft up close and gain wider information on the programme.


**ARC Aerosystems** are continuing to develop the C600 aircraft from its initial tethered Visual Line of Sight (VLOS) flight last year at Wick John O'Groats Airport. Recent positive engagements with the CAA provide confidence that incremental untethered VLOS flights can take place later this year, moving to full power flights in early 2025.

**Hybrid Air Vehicles** (HAV) and HITRANS are continuing to develop full business cases for the commercial operation of the Airlander 10 aircraft in the region for passenger and freight services, building on initial concept and feasibility work. HAV will reserve early production slots for six Airlander 10 aircraft for the HITRANS region.

Airport Infrastructure & Operational Systems

**Cranfield Aerospace Solutions** are leading on the work package dedicated to airport infrastructure and operational systems, working closely with EMEC, Cranfield University, UHI, HIAL and the CAA. Several documents are being developed to help inform hydrogen operations in the future at smaller regional airports and aerodromes, including a Concept of Operations (CONOPS) for the technological, operational and logistical challenges of fuelling hydrogen powered aircraft, and fuel assurance procedures and risk assessments covering different forms of hydrogen fuel for aviation.

Development of a Dedicated Test Environment Airspace

SATE has been selected as one of six projects under the **CAA Integration Sandbox** that will help safely integrate drones flying beyond visual line of sight (BVLOS). HIAL and Windracers have partnered for the Sandbox trial that will see operations across Orkney. The SATE airspace trial will facilitate the establishment and cost-effective uncrewed aviation operations on a commercial scale within Orkney that will fulfil key use cases around logistics, survey and inspection. Learnings from the six trials will support the CAA's ongoing development of policy and regulations to enable drone flights to be fully integrated with other airspace users.

SATE also kicked off Phase 4b of WP5 in July, working with Egis to develop a submission ready Airspace Change Proposal, Safety Assurance Package and Trial Plan for the trial airspace test environment.

Events

SATE hosted the first regional sustainable aviation conference, **Taking Flight**, in May in Inverness, discussing the readiness of new forms of sustainable aviation and the pathway to commercial services. The conference focused on key next steps – the regulation, certification, industrialisation and finance required to bring final products to market successfully. Over 80 people attended from across academia, public and private sectors.



SATE also featured at **Innovation Zero** in London after being invited to join the Innovate UK stand to showcase a Future Flight Challenge funded project. The event also featured presentations from partners Loganair and HAV.

The **Farnborough International Airshow** in July brought together a range of SATE partners to promote the value of sustainable aviation and ongoing work in the Highlands & Islands. Several partners exhibited, including Cranfield Aerospace, Flare Bright, Windracers, HAV, and funders UKRI. Loganair, UHI, Arcadis and the SATE team also attended, with David Holden featuring on HAV's panel on zero emissions regional aviation, chaired by the former marketing director of EasyJet.



In August, the **Climate Minister** visited SATE partner EMEC's pioneering clean energy test and demonstration facilities in Eday, where Lukas Princ spoke to the Minister about SATE, and Windracers also attended to showcase their self-flying cargo aircraft.

SATE is sponsoring this year's **Orkney Aviation Festival** – an annual event to showcase the past, present and future of aviation in Orkney – taking place from 12th-14th September. SATE is holding an open day plus an evening of presentations featuring HITRANS, Cranfield Aerospace, HAV, Windracers, HIAL & Egis.

<u>Awards</u>

SATE has been shortlisted for a National Transport Award in the Digital and Technology Excellence in Transport category, and for a CiTTi Award in the Urban Air Mobility category.

Future Funding

UKRI held a **Future Flight Challenge Phase 4** briefing in August. The team are continuing to develop the proposal and business case for a multi-year programme to deliver and commercialise future flight technologies, aligned with the new government priorities. There is a strong message from industry, research and government that further support is required to deliver the promise of future flight, and to accelerate new forms of transport to help solve societal challenges and transport inefficiencies. Phase 4 is intended to focus on the delivery of mature and integrated aviation solutions, working in collaboration across other departments and R&D programmes. SATE is continuing to liaise with the programme, and we are hopeful that further information will be shared following the Autumn budget.

We have secured HITRANS involvement in three **Horizon Europe** bids focusing on optimising multimodal network and traffic management, harnessing data from infrastructure, mobility of passengers and freight transport. Our role within each of the bids has a different focus between either passenger transport, freight transport, or integration with existing systems such as Go-Hi. The indicative total budget per project is between €4-€6m, with 2 projects expected to be funded. HITRANS allocated budget within the project will be funded at 100%. The outcomes of the bids are expected by the end of the year.

**BUDGET**

HITRANS receive 100% funding based on the organisation classification within the UKRI programme. To cover costs associated with the Lead Partner move, and the recent additional budget within SATE to lead on WP5 airspace activities, HITRANS current budget sits at £968,455.

**RISK REGISTER**

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

Policy
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.

Financial
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:** Jayne Golding
**Designation:** SATE Manager
**Date:** 9th September 2024