

## Agenda item 9a) - Annex A; Future Flight Innovation Zone Fund

**Report theme:** Future Flight Innovation Zone Fund

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### Background

One of the transformational programmes in the Build Back Better Plan is to establish a Future Flight Programme for sustainable aviation technologies and fuels, with a key action being to develop a Future Aviation Test and Innovation Zone that is focussed around two key sites in Yeovil (Leonardo) and Exeter (the airport).

Several milestones have been met in the last three years to establish some secure foundations to take this activity from concept to operation. These are set out in Appendix A. Most notably, a feasibility study funded by the LEP was completed in 2022 that enabled the concept of this Zone to be marketed at UK and international industry events, and a workshop was held with the regulator, the Civil Aviation Authority (CAA), in June 2023 to explore how their Innovation Team could support development of the Zone.

The proposal has steadily gained traction with a range of local and national stakeholders including the Connected Places Catapult, Met Office, local authorities (East Devon, Devon, Plymouth and Somerset), business, and other industrial partners. We also have the following live enquiries that are being actively progressed with partners:

- Commercial Drone delivery Company
- Hydrogen Powered aircraft
- Electric planes for pilot training
- Renewables infrastructure at the airport for hydrogen / electric
- Decarbonisation of Executive Jets
- Drones for civil and defence purposes

With support from the LEP's Sustainable Aviation Programme Board, in particular the chair Judy Groves from the Rigby Group who has facilitated pro-bono support from a national PR company to work with us, a new 'prospectus' for the UK Future Flight Innovation Zone (FFIZ) has been developed. This is attached for information. We are confident that this professional marketing material will generate many more enquiries.

### Proposal

The CAA Innovation Team have confirmed they are keen to partner with us to support the acceleration of future flight technology regulation within FFIZ and have scoped out what they could provide as part of our overall offer to the industry. This comprises:

- Dedicated CAA Innovation Advisor to provide rapid innovation regulatory guidance and recommendations, including clarification of any queries and potential mitigations.
- Access to Subject Matter Experts across the CAA, eg. Flight Operations, Airworthiness, Airspace Integration, Noise, etc.
- General help to maximise the chances of developers wanting to test in the Zone to obtain regulatory approval for test within acceptable deadlines.

The advantages of this arrangement with the CAA are that technology developers would be able to access CAA advice and guidance far quicker than via the normal CAA 'sandbox' route, and at less cost. Other than the UKRI Future Flight Sandbox, there is currently only one other national organisation that the CAA has this relationship with, therefore if FFIZ could offer this facility it would serve to make us extremely competitive. It would also enable the CAA's Innovation Advisor to develop a working relationship with the two operating sites and build up knowledge of the specific characteristics, providing strategic advice on any future improvements that could be made. More information about how the sandbox would work is contained in Appendix B.

There is clearly a cost to the CAA for providing this service, especially as the Innovation Team is set up as a commercial arm of the regulator. They have developed a proposal based on 200 days of an Innovation Adviser and an additional 84 days to include Subject Matter Experts at a cost of £240,000 per annum. At this stage we are unsure how much time we would require but indications are that the CAA could operate this service broadly on a pay as you go principle, in part reflecting the start-up phase the Zone is currently in. The CAA are very supportive of the principle of a Heart of the SW regional sandbox and are prepared to be as flexible with the funding model as they can be. However, an up-front commitment is required to ensure that a CAA Innovation Adviser is in place to be responsive to requests for advice and guidance.

There will also be infrastructure requirements at our test sites, principally based at Exeter and Yeovil. We are aware that there will be open calls from UKRI and others for demonstrators early next year. Having resource available to allow us to quickly respond with local solutions to the challenges set by these calls will help us considerably and improve our success chances. Setting aside additional funding could also look to place Exeter Airport at the heart of a South West Energy Hub, exploring sustainable energy solutions that will power the 3rd aviation revolution which includes the integration of eVTOL (electric vertical take-off and landing), regional electric and hydrogen aircraft. A route to wider exploitation could see the benefits of this research stretching out to the wider UK airport infrastructure.

We are therefore proposing to establish a Future Flight Innovation Zone Fund using some of the unspent Local Growth Funding to a) enable technology companies to apply for support from the CAA on regulatory requirements, and b) for partners to progress proposals for relevant infrastructure to facilitate integration of the future flight technologies and multi-modal decarbonisation solutions. Indications at this stage are that the fund would benefit from being circa £150,000 in scale due to the likely demand.

Discussions with the CAA are ongoing to establish how this could work in practice. Further work is also required on how exactly this fund will operate, who will manage it and what the governance should be. We will be discussing this at the next Sustainable Aviation Programme Board on 30<sup>th</sup> January. It would be helpful to know in advance whether the LEP is supportive in principle of this FFIZ Fund. Assuming the answer is yes, a business case will be brought back to OIC in March.

### **Stakeholder Support**

The LEP's Sustainable Aviation Programme Board have been actively supporting our work to develop the Future Flight Zone and several of them participated in the CAA workshop to help promote the benefit to the CAA of working more strategically with us. A list of members is included at Appendix C.

The Connected Places Catapult, a Programme Board Member, have been particularly supportive of our work. They provide us with current and future technology intelligence, ensure we are networked into national activity, and are keen to help us to deliver a regional demonstrator. Recent discussions have also taken place with the Satellite Applications Catapult, who also have an ambition for regional Centres of Excellence for future flight technologies, and the British Standards Institute, who very much want to work with a commercial airport demonstrator.

We have a strong representation from Local Authorities on the Programme Board who have demonstrated enthusiasm and commitment for the work we have been developing. Somerset County Council (now Somerset Council) submitted the Regulators Pioneer Fund bid on behalf of the Board and East Devon District Council have been working with us to develop a bid to the DfT's Transport Innovation & Research Grant programme, which aims to facilitate the creation of an Airport Readiness Index – developing a process of assessing a local airport's 'readiness' towards the integration of either electric or hydrogen flight operations.

The Met Office has been particularly interested in working with one of our drone operators to conduct real-time atmospheric testing, and the academic partners (GW4 and the University of Exeter) are actively looking at how we can access relevant NERC and UKRI grant programmes.

### **Justification**

As referred to earlier, we have a secure and growing pipeline of technology developers who require test and demo facilities and we believe that by stepping up our marketing and comms activity, this interest will grow extensively. We also have several national institutions wanting to work with us. Due to the growing number of invitations we are receiving to talk at national events, and with two Programme Board members

(Corinne Matthews, HotSW LEP, and Andy Wood, East Devon DC) successfully appointed to the Future Flight Community Integration Group (a partnership between UKRI and DfT), it is becoming ever more apparent that we have a leading Test and Demo Zone eco-system.

We understand that the exploitation and commercialisation of just uncrewed air systems (UAS) could potentially add tens of billions of pounds to the UK economy in the next 10 years through productivity benefits and lower costs. If the UK fully adopts UAS, PwC estimate they could contribute up to £45 billion to the UK economy by 2030. It should be more than possible for our area to attract a reasonable market share of this if we can fully develop the Future Flight Innovation Zone. Supporting the decarbonisation of aviation will bring additional benefits, especially if we can help to develop green aviation corridors across the South West.

The benefit of working with an extensive range of partners to support the place dynamic of planning and societal acceptance, skills and training, climate science, clean energy propulsion, MRO, and wider supply chain support is evident to all involved.

### **Conclusion**

The chair of the LEP's Sustainable Aviation Programme Board, Judy Groves (Rigby Group Marketing Director), has written to the LEP Chair to confirm the FFIZ Fund has the support of the whole group. Her letter is attached at Appendix D.

## Appendix A – Key Milestones

1. 2020 Heart of the SW LEP, Exeter and Newquay Airports join the 2Zero Project led by Ampaire to successfully bid for UKRI Future Flight Phase 2 funding. Other project partners comprise Rolls Royce and the University of Nottingham. Project outcomes include developing the propulsion systems for the hybrid electric plane, modelling the viability of routes, and researching the infrastructure that regional airports require for operations of HE aviation. Test flight takes place from Exeter to Newquay August 2021. UKRI require a local Advisory Board which the LEP supports setting up and includes representatives from the Met Office, East Devon Council, University of Exeter and West of England Aerospace Forum (WEAF).
2. 2020/21 Heart of SW LEP successfully bids to Government for a Smart and Sustainable Aviation Inward Investment High Potential Opportunity. Government request that we partner with the West of England to broaden the regional impact.
3. 2021 - Sustainable Aviation is included in the LEPs Build Back Better Plan as a transformational programme with a Board established to support delivery. Comprised of representatives from the Met Office, GW4 Universities, Connected Places Catapult, Ampaire, Leonardo, Local Authorities, Yeovil & Exeter Colleges, WEAF etc. and chaired by Judy Groves of the Rigby Group / Exeter Airport.
4. 2022 – Commission a report from Fraser Nash Consultants to research the viability of establishing a Future Aviation Test Zone. The report suggests that following extensive interviews with stakeholders and examining the local and regional eco-system that a test zone focussed on Exeter Regional Airport and Yeovil (iAero / Leonardo) would fulfil a requirement for supporting the commercialisation of future flight technologies.
5. The iAero Innovation Centre is officially opened, allowing improved access to Leonardo's Technology and Innovation Team, where significant interest is shown to opening up the facilities and runway for test facilities for partner and mutually advantageous technologies.
6. 2022/23 – A suite of marketing materials and a video are produced for Farnborough International Airshow (July 2022) the World Sustainable Skies Summit (April 2023) and Paris Airshow (July 2023) Attendance at these events begins to produce a reasonable size pipeline of companies who wish to work with us on projects that will require testing facilities / CAA approvals. Including a drone delivery company (FDI), hydrogen fuelled executive jets (FDI), electric aircraft for pilot training, hydrogen regional aircraft, airport electric infrastructure and drones for civil and defence purposes.
7. The Board with help from Fraser Nash applied for £0.5M from the Regional Pioneers Fund to establish the framework and architecture for the Test Zone. Despite a positive response the bid was not successful which led to the Board segmenting the activity and examining other methods to deliver activity.
8. Interactions with the Civil Aviation Authority – Every aspect of flight must be regulated by the CAA. The CAA have an Innovation Team that has supported the UKRI funded Future Flight Projects with an experimental sand box mechanism. Those projects that are not part of the FF programme must make their own applications to the CAA and progress through a queuing system that can take some time. We spoke with the CAA Innovation Team who hosted a workshop to allow us to outline our vision and activity. This was well received with the CAA being impressed with the extensive range of stakeholders we had supporting the proposed Future Flight Innovation Zone. In addition, we have also received a visit to Yeovil from the CAA Rapid Response Team who are also concerned with accelerating the regulatory framework for Beyond Visual Line of Sight (BVLOS) specifically for drones for civil and defence use cases.

## **Appendix B – The Sandbox**

Why the Regulatory Sandbox? Existing regulations are not always fit for the purpose of the novel products and services developed.

The CAA must look to change regulations or develop new ones, but the content and scope of future regulations remains unknown. As a result, obtaining exemptions from the CAA for the demonstrations of innovative products and services in live environments remains complicated, and sometimes unsuccessful. Also, new products and services are being developed without any guarantee that they will comply with future regulations.

The CAA Regulatory Sandbox (The Sandbox) services address these challenges.

The Sandbox helps consortia to maximise the regulatory readiness of their innovation and increase the prospects of:

- Complying with future regulations, and
- Obtaining the exemptions required to demonstrate their products and services in live environments.

The Sandbox helps to maximise regulatory readiness by ensuring development activities address the key risks and unknowns that innovation brings in terms of safety, security and consumer protection.

At the Engagement stage, the CAA and the consortia (in our case the Future Flight Innovation Zone) develop a common understanding of the innovation, the regulations that apply to it, and where there are gaps in regulations. Where there are gaps in regulations, the CAA clarifies the unknowns and risks that innovation brings with regards to safety, security and consumer protection.

At the Planning stage, the consortia propose design mitigations for the unknowns and risks. These are then explored through tests and simulations in safe environments (Testing stage) to encourage learnings (Learning Stage). Short iterative cycles of 'Planning, Testing and Learning' are favoured to eliminate unknowns and risks, and rapidly converge towards clarity and focus on how innovation addresses the fundamentals of safety, security and consumer protection.

## **Annex C – Sustainable Aviation Programme Board Members**

Centre for Future Clean Mobility (Univ. of Exeter)

Connected Places Catapult

Devon CC

East Devon DC

Exeter Aerospace

Exeter College

GW4

iAero Centre

Independent Aerospace Expert

Met Office

Plymouth CC

Rigby Group (Exeter Airport)

Somerset Council

SWMAS

WEAF

Yeovil College

## Appendix D

### Letter from Judy Groves – Chair of the Heart of the South West Sustainable Aviation Programme Board

8<sup>th</sup> January 2024

Dear Karl

As you know, I have had the pleasure of chairing the Heart of the South West LEP's Sustainable Aviation Programme Board since its inception in July 2021. I wanted to provide a summary of the milestones we have achieved during this time, and to advise you of the Board's intentions as the LEP's activities transition to local authorities.

The Board has a wide and active representation from local authorities (Somerset, Devon, Plymouth and East Devon), academia (Exeter and Yeovil Colleges, University of Exeter, GW4), industry (Exeter Airport, Leonardo, Exeter Aerospace, Frazer Nash), Met Office, Connected Places Catapult, WEA and SWMAS. Much has been achieved over the past couple of years, which includes in summary:

- Commissioning a report from Fraser Nash Consultants in January 2022 to research the viability of establishing a Future Aviation Test Zone. The report suggested that following extensive interviews with stakeholders and examining the local and regional eco-system that a test zone focussed on Exeter Regional Airport and Yeovil (iAero / Leonardo) would fulfil a requirement for supporting the commercialisation of future flight technologies.
- Official opening of the iAero Innovation Centre in February 2022, allowing improved access to Leonardo's Technology and Innovation Team, where significant interest is shown to opening up the facilities and runway for test facilities for partner and mutually advantageous technologies.
- A suite of marketing materials and a video for Farnborough International Airshow in July 2022, which have also been used at the World Sustainable Skies Summit in April 2023 and Paris Airshow in July 2023. Attendance at these events has produced a reasonable size pipeline of companies who wish to work with us on projects that require test and demonstration facilities. Examples include a drone delivery company (FDI), hydrogen fuelled executive jets (FDI), electric aircraft for pilot training, hydrogen regional aircraft, airport electric infrastructure, and drones for civil and defence purposes.
- A work programme to establish the framework and architecture for the Test Zone has been developed, with the Civil Aviation Authority (CAA) engagement identified as the priority for 2023.
- A workshop in June 2023 with the CAA Innovation Service to present the Future Aviation Test Zone construct. The meeting was extremely valuable, and the CAA is very supportive of our and keen to form a partnership. Additionally, the CAA Rapid Response Team have also expressed an interest in supporting testing at Yeovil.

The work of the Sustainable Aviation Programme Board is now at an important juncture, with work underway to turn the Test Zone concept into reality. I have facilitated support from a national PR Agency to develop a prospectus for (new name) the UK Future Flight Innovation Zone (FFIZ). We are also embarking on a formal partnership with the CAA to establish a Sand Box for FFIZ, which will be a real USP for our area and a significant attractor to companies looking for somewhere to test future flight technologies.

This important next stage for FFIZ comes at a time when there is a great deal of uncertainty about what will happen to the transformational programmes within the Build Back Better Plan as LEP activities transition into the four upper tier Local Authorities. At our Programme Board meeting on 11<sup>th</sup> December, we had a

wide ranging discussion about how best to continue our work to drive forward FFIZ and in particular, how to manage and fund the range of activity including the CAA partnership.

I am pleased to advise you that the Board members present agreed unanimously that the Sustainable Aviation Programme Board should continue to provide a multi-stakeholder strategic overview for future activity. This governance does require support from one or more partners to replace the LEP staff resource that has undertaken this role to date. Who could/should deliver FFIZ was less certain, but I am working at pace with Claire Gibson and Corinne Matthews to explore options. I am hopeful that we will be able to identify a delivery body/mechanism in time for your Board meeting in January when I hope the LEP Board will support the use of uncommitted Local Growth Deal funding to establish a Future Flight Innovation Zone Fund.

The LEP demonstrated real foresight when it established the Sustainable Aviation Programme Board, and all the board members are grateful for the crucial support it has provided over the last 2.5 years.

Yours sincerely

**Judy Groves**

**Chair**

**Heart of the South West Sustainable Aviation Programme Board**