Written evidence submitted by GKN Aerospace Services Ltd

About GKN Aerospace

GKN Aerospace is the world's leading multi-technology tier 1 aerospace supplier. As a global company serving the world's leading aircraft manufacturers, GKN Aerospace is market leading in aerostructures, engine systems, transparencies and wiring systems and operates in 13 countries at 41 manufacturing locations employing approximately 15,000 people.

In the UK, GKN Aerospace undertakes large scale manufacturing work for civil and defence customers as well as cutting-edge research and development activities addressing the challenge of creating more sustainable global aviation technologies. Employing over 3,000 people across five sites in Bristol, Luton, Portsmouth and the Isle of Wight, GKN Aerospace is a core part of the UK's aviation and defence industrial base.

1. The UK's Strategy for Reaching Net Zero Aviation

1.1 GKN Aerospace is fully supportive of the Government's plan to achieve net zero aviation by 2050, with interim targets of at least 15% by 2030 and 40% by 2040. The plan set out in the Transport Decarbonisation Plan and Jet Zero Strategy is a credible and realistic way to achieve these goals.

1.2 GKN Aerospace agrees with the Government's view that there is no single technological solution to reach net zero by 2050. In the decades approaching 2050 it is important to maximise these three key steps; efficiency improvements of current technologies, sustainable aviation fuels and zero-emission propulsion technologies. However, we believe that the ultimate goal which will bring the largest long-term benefits (both to the environment and to the UK exchequer) is that of zero emission propulsion technologies such as hydrogen powered flight.

1.3 Over the past century the aviation and aerospace sectors have proven themselves to be highly innovative and prosperous industries for the UK, further support through the ATI to maintain global leadership on zero emissions aviation would help secure this trend. The ATI funded H2GEAR project is a prime example of the work being undertaken by UK industry that will provide world-leading sustainable flight technology. Successful delivery of this project and subsequent industrialisation will not only create thousands of jobs in the UK, but also create exportable UK intellectual property that could become a global standard.

1.4 To make rapid progress and achieve the UK's net zero aviation ambitions, GKN Aerospace supports the ADS proposal to create a step-change in investment through the Aerospace Technology Institute (ATI). An investment of £3.8bn to 2030 by Government, alongside co-investment from the industry, would unlock further industry investment of up to £27 billion by 2050 to industrialise net zero aerospace technologies in the UK.

1.5 Furthermore, investment through the ATI would remove over 600m tonnes of carbon through UK developed technology by 2050, representing around 20 percent of total global aviation emissions. Realising these ambitions will create levelling up opportunities across the UK and create an additional 120,000 high value jobs in the UK aerospace sector by 2050.

1.6 The ATI will play a significant role in furthering the progress towards zero emission flight, and the Government should reiterate its support for the ATI in the upcoming spending review.

2. Operational Efficiencies

2.1 Overall, GKN Aerospace agrees with the Government's approach to reducing emissions through immediate operational efficiencies. From a technological stand-point, GKN Aerospace is confident that the approach as laid out in the Transport Decarbonisation Plan and Jet Zero Strategy is a credible and realistic way to achieve our shared net zero goals by 2050.

2.2 Improving the efficiency of our current aviation system offers the best opportunities for short- to medium-term reductions in CO2 emissions. Improvements in the short term have the potential to create the vital momentum to encourage investment in technologies that will achieve our longer-term goals.

2.3 There is huge potential to increase the efficiency of conventional aircraft (those powered by fossil fuel or SAF) through improvements to jet engines, wings, structures, and other systems. Similarly, the industrial processes by which these structures and technologies are manufactured are capable of further efficiencies. GKN Aerospace continues to improve and innovate on these industrial processes to make the industrialisation of these new aerospace technologies even more sustainable.

2.4 GKN Aerospace is developing the technologies that will enhance existing aircraft, as well as innovating to support a new generation of aircraft producing no emissions at all. As demonstrated in the consultation, this is a huge task, but one that comes with great opportunities: not only to help tackle climate change, but also to provide new, high quality jobs and ensure a sustainable future for the UK.

2.5 Projects funded by GKN Aerospace and the ATI, such as the Wing of Tomorrow project led by Airbus with GKN as a key partner, are a critical part of creating greater efficiencies in modern aviation. Continuation, and most importantly stability of funding, through the ATI is a vital part of creating system efficiencies in the short term. The rate at which the in-service aircraft models can be upgraded with new technologies relies on stable funding for R&D activities and confidence in the medium to long-term policy and regulatory environment.

2.6 From an industrial perspective, a key part to improving industrial processes is increasing Government funding of cross-sectoral initiatives and bodies. Organisations such as the High Value Manufacturing Catapult and National Composites Centre are prime examples of bodies that have the ability to positively impact a wide range of sectors. Greater efforts to create synergies and incentives for industry, especially the supply chain, to utilise cross-sector funds and initiatives will create a more efficient and effective UK ecosystem.

2.7 It is important that the policy framework surrounding system efficiencies is flexible enough to facilitate technological developments and enable them to be integrated into existing fleets and the supporting aviation infrastructure in a timely fashion. Often presenting as a race against time, it is important that the UK's policy framework is proactive and ambitious in nature in order to meet the global sustainability challenge.

3. Zero Carbon Fuels

3.1 Commercialisation of zero carbon fuels across the single-aisle and wide-body fleets serving the majority of global aviation remains a long-term, but high-impact, goal for the aerospace industry.

3.2 The ATI funded and GKN Aerospace-led H2GEAR programme presents the best opportunity for the UK to become pioneers of zero-emissions flight technologies. The purpose of this programme is to create a ground-based demonstrator of a hydrogen fuel cell system, where liquid hydrogen is converted into electricity to power an electric motor, eliminating all greenhouse gas emissions.

3.3 With ongoing ATI funding, GKN Aerospace plans to bring together a UK consortium to further develop this technology, creating a 19 passenger, hydrogen fuel cell flight demonstrator aircraft. Starting in 2023, this next phase of development would lead to a further government and industry investment of in excess of £50m supporting over 3000 jobs.

3.4 GKN Aerospace believes that this technology will be applicable on aircraft of up to 100 passengers with a range of up to 1500 nautical miles. This range would cover the vast majority of flights currently served by both regional jets and single aisle platforms. The technological journey to accomplish this will require sustained and stable investment, from both Government and Industry, over the coming years.

3.5 In the nearer term, electric powered flight for small passenger aircraft is far closer to industrialisation and commercialisation. This could provide real opportunities for the UK's aerospace sector in the coming years.

3.6 Working with UK and international partners, GKN Aerospace is contributing to the development of electric aircraft such as the ALICE aircraft (in partnership with Eviation). This electrically-powered aircraft will be the first of its kind in the world, capable of covering 440 nautical miles (or 506 miles), enough to cover the UK's current longest domestic flight (the 469 mile trip from Gatwick to Inverness) on a single charge.

3.7 The ALICE aircraft demonstrates the increased pace of R&D and accelerated time to market that is vital to meet the 2040 timescales. Using traditional R&D methods and timelines this project would have taken three years to complete, GKN Aerospace and our partners achieved the same objective in 14 months.

3.8 GKN Aerospace estimates that our addressable market for electric aircraft stands at around $900m per annum. From a UK prosperity perspective this is an incredible opportunity to become global leaders on a segment of the global aviation market that is set to increase in value year on year. For the ALICE aircraft he first year of service could potentially be as close as 2023.

3.9 This will require coordinated effort across the UK's aviation ecosystem to create the policies, regulations and infrastructure to enable aerospace manufacturers, airlines and airports to move upgrade to zero emissions flight. It is vital that Government works in close partnership with aerospace businesses develop the necessary roadmaps to deliver this aspiration.

4. Jet Zero Council

4.1 The Jet Zero Council has already proven itself to be an influential asset to the UK's efforts. The Council has coalesced all the relevant stakeholders around the Government's goals and begun to identify the levers which we must pull in the coming years and months to achieve our shared targets.

4.2 Most critical to the transition to zero emission aviation is the continuation of political and uplift of financial support to these technologies. GKN Aerospace believes that zero emission flight is the long-term future of aviation, with system efficiencies and SAF being important and necessary steps on that path. However, it is critical that focus and funding is maintained on zero emissions flight through the coming years and decades. The Jet Zero Council is a critical central point in the UK's ecosystem.

5. Aviation

5.1 GKN Aerospace does not believe that reducing demand for air travel is a viable solution for meeting the UK's sustainable aviation targets or maintaining a long-term lower national carbon footprint. The UK must pursue technological solutions to these challenges and further support the aviation sector as it recovers from the impact of the global pandemic.

5.2 Indeed, GKN Aerospace believes that short-haul, domestic and public service obligation (PSO) flights in the UK provide ideal opportunities for industry to test and pilot sustainable aviation technologies and platforms such as the ALICE aircraft noted above.

6. UK Supply Chain

6.1 GKN Aerospace is a UK-owned company and we take pride in investing in the UK and working with our UK supply chain. We believe that the UK's aerospace supply chain has the ability to create and sustain world-leading zero-emissions aerospace technologies. If this is to be fully realised it is important that the aerospace sector can benefit from targeted and cross-sector initiatives. Programmes such as Supply Chains for the 21st Century (SC21) and the National Aerospace Technology Exploitation Programme (NATEP) are important for improving the competitiveness of the UK supply chain. Similarly, broader initiatives based around Industry 4.0 and the digitisation of engineering and manufacturing are vital if the UK is to improve industrial efficiency and national output.

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