

ATKINS

Member of the SNC-Lavalin Group



SUSTAINABLE AVIATION:

ACHIEVING NET ZERO IN A POST-COVID WORLD

JUNE 2021



Imperial College
London



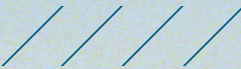


A UNIQUE OPPORTUNITY

**THE AVIATION SECTOR IS IN A PRIVILEGED POSITION;
IT HAS THE POWER TO MAKE A TANGIBLE IMPACT ON
THE FUTURE OF OUR PLANET.**

Its sheer size, its economic weight and its scope for innovation gives us a unique opportunity to lead collaboration across stakeholders and pave the way for a new, cleaner, and futureproof era of sustainable aviation.

Our historic impact on the environment gives us a unique responsibility to turn things around – and this sense of responsibility is only compounded when we look at the stakes surrounding our success or failure, in terms of economic and societal impact.



PROGRESS TO 2020

AT THE BEGINNING OF 2020, WE WERE IN A POSITIVE PLACE...

...in terms of addressing decarbonisation and expansion, with the publication of the Sustainable Aviation Road-Map setting out a groundbreaking commitment – and a plan – to achieve net zero by 2050, while accommodating a 70% increase in passenger numbers.

The UK was poised to be a global hub for thrusting green aviation technologies into the mainstream, through smarter flight operations and airspace management, new aircraft and engine technology, sustainable aviation fuels (SAF) and electrification.



JUST AS HOPES WERE HIGH, COVID-19 HIT



COVID-19 SETBACKS

Ongoing travel restrictions imposed by the pandemic has meant aviation has faced a global crisis, and as a result, progress has stalled. Ambitions that seemed achievable in February 2020, now seem further from our grasp as unprecedented challenges amass.

Specifically, cash flow has been at a critical low point, with airlines operating a skeleton service, if at all, since the start of the

pandemic and airport operators shutting terminals. To compound the issue, once travel bans are lifted, aviation funding remains uncertain as governments' policies adapt to Covid-19 risks.

Diminished capital has created obstacles across the range of interventions and technologies needed to address net zero, and progress on the green agenda has slowed,

although ambition has not wavered.

THERE'S NO DOUBT THE CHALLENGES WE





BUILD BACK BETTER

THERE IS, HOWEVER, MUCH REASON FOR HOPE.

Covid-19 has acted as a risk amplifier, compounding existing challenges to achieve net zero, and creating delays. But it's clear the aviation sector, and central government, remain committed to implementing the Sustainable Aviation Road-Map and achieving net zero by 2050.

There's a renewed appetite across the sector to invest in new technologies and bring them forward. So much so that the Aerospace Technology Institute (ATI) programme has had to close to new applications for the rest of the year.

With the sector still on track to build the first SAF plant in the UK, we could soon be in a position to begin immediate implementation of SAF across long-haul aviation.

Which, providing SAF credentials can be clearly demonstrated as being truly sustainable, have the potential to address up to 80% of aviation emissions, and effect genuine progress, quickly, with little need for infrastructure upgrades.

A NEW WAY FORWARD

BY ITS VERY NATURE, AVIATION HAS ALWAYS BEEN INEXTRICABLY DEPENDENT ON SYSTEMIC FACTORS BEYOND ITS CONTROL, AND POST-COVID, THIS POSITION HAS BEEN EXACERBATED.

It's clear that now, a new paradigm needs to emerge to deliver net zero, and a sustainable future. Our progress will remain tied up with public perception and attitudes, investment pressures, application and innovation of existing technologies, as well as government policy and regulatory frameworks. But more fundamentally, new links need to be established with

partners across infrastructure, energy and new technologies if we are to minimise the risks and maximise the opportunities as we collectively transition to a net zero world.

We need new business models and embedded collaboration to ensure we're in step with advances in carbon capture, utilisation and storage, as well as greenhouse gas removal solutions

(both natural and technological) and hydrogen energy technologies, to name a few. We also need to call on the government to produce the right suite of support, and give substance to the ambitions stated in Jet Zero.

Work has started to bring the sector together, to test the Sustainable Aviation Road-Map in the context of Covid, with

Atkins facilitating a successful workshop at the beginning of 2021 to stimulate discussion and initiate collaboration. This resulted in a detailed synthesis report, setting out the key points raised during the workshop, which is available on request.



CONSIDERATIONS FOR CHANGE

TAKE SOME TIME TO CONSIDER THESE KEY **CHALLENGES** AND HOW WE MIGHT COME TOGETHER IN DIALOGUE TO TACKLE THEM.

LET'S USE THIS MOMENT IN TIME AS **AN OPPORTUNITY TO MAKE A REAL SHIFT-CHANGE IN APPROACH**, AND START TO THINK DIFFERENTLY AS A SECTOR – TOGETHER.



HOW CAN WE INCREASE INVESTOR CONFIDENCE AT THIS CRUCIAL TIME?

CHALLENGES

Even before Covid-19 hit, the sector faced significant challenges regarding uncertainty in green technologies. SAF plants aren't even built yet, and we're not sure of exact development or operational costs.

Tried and tested business models will need to be reinvented; many airlines depend on quick turnaround times for their financial viability, and alternative green fuels such as hydrogen and electric power may not allow the kind of quick refuelling times that current business models rely on.

Long investment cycles have always been a problem, and with significant lead times for implementation of new airport infrastructure, we really are up against it. We need investment now if we're going to meet targets.

When we add Covid 19 and Brexit uncertainties into the mix, it creates the perfect storm for investor hesitancy.

POSSIBLE SOLUTIONS

Government support is key – and it has already been approached for £500m in SAF funding, which once allocated, will give investors some security.

We can work on building transparency around whole system costs and the risks associated with investment in decarbonisation. We need to work with the energy sector to build clarity, by researching the sustainability and cost-effectiveness of new fuels, and opening a dialogue with governments that have already invested substantially in H2 fuel.

We can also speed up the process to demonstrate value for investors, with the implementation of technologies, such as SAF, which require little additional infrastructure investment to get going.



HOW CAN WE INFLUENCE PUBLIC PERCEPTION?

CHALLENGES

Before the pandemic, there was a real appetite among the general population for greener travel options in a carbon-constrained world, with flying becoming increasingly stigmatised as a 'dirty' and unacceptable among affluent young travellers in the West.

Cultural changes in corporate attitudes regarding remote working and virtual conferencing mean we may see a reduction in business travel in regions most impacted by Covid – something that will undoubtedly save companies money. Transparency and information sharing will become more important for decision-makers in the business travel segment, who will need to report to shareholders and colleagues on the cost of carbon.

Although these factors may affect the sector differently in different regions and among different demographics, the Sustainable Aviation Road-Map forecasts a continuous increase in passenger numbers globally – driven largely by growing economies and an emerging middle class in developing countries with large populations.

Business and leisure travellers will make sustainable and economic choices on their amount and types of travel; the sector will need to manage these dynamics alongside demonstrable action on net zero ambition whilst growth, whilst grappling with the economic impacts of Covid.

POSSIBLE SOLUTIONS

Public awareness campaigns and information sharing can go a long way to fostering a true understanding of the potential impact of developing technologies. Transparency will show how hard the sector is working, increasing trust and going some way to mitigating flight 'shame'. But the reality is that such a broad scale consumer behavioural change will likely need to be driven by a proactive government, taking a leading role through policy, incentives and education to make this happen.

Actions speak louder than words when it comes to changing hearts

and minds. If we can fast-track early applications of innovations, people will get a glimpse of what is possible.

When it comes to business travel, it's clear blunt policy tools such as taxes and incentives will have a key part to play – and we need the government to step up in this regard. But what we as a sector can do right now is start modelling possible scenarios to inform new economic frameworks that are more resilient to major changes in the business class market. Join us for some workshops on this coming up later this year.





HOW CAN WE WORK TOGETHER BETTER?

CHALLENGES

The implementation of the Sustainable Aviation Road-Map needs fresh and diverse thinking through effective collaboration to propel real progress.

In a post-Covid climate, it's vital that new energy carriers, OEM manufacturers and fuel suppliers work in partnership with airport operators, airspace managers and airlines to ensure that equipment,

infrastructure, operations, safety and investment windows are undertaken in lockstep to facilitate efficient transition to new technologies.

To make decarbonisation a reality within agreed timescales, a coordinated approach to operations – backed up by policy – is essential. Airport and airspace management needs clear, centralised standards, and regulation is required to ensure fair allocation of clean fuel.

POSSIBLE SOLUTIONS

One of the key elements currently missing is a government support package that matches their stated ambition in Jet Zero. They urgently need to provide investment, policy and guidance and if we are to incorporate sustainable aviation into mainstream within the next 29 years. We as a sector will need to work together through consistent lobbying and collaborative, coordinated messaging

to government in line with the wider net zero narrative to ensure this happens.

Ultimately, we need a new paradigm for working together at the highest level, forged through deliberate and structured partnerships embedded across all stakeholder groups to create a systemic shift and a new vision for net zero in a post-Covid world.



ATKINS

Member of the SNC-Lavalin Group



SUSTAINABLE AVIATION: ACHIEVING NET ZERO IN A POST-COVID WORLD

JUNE 2021

CONTACT:

DAN JONES

Market Director – Aviation

T: +44 1372 75 2508

E: Daniel.jones@atkinsglobal.com



Imperial College
London

