



The decarbonisation challenge

As the consequences of climate change become increasingly apparent, Tine Haas, Director Airports and Aviation at Dornier Group, discusses the crucial role regional airports play in the overall reduction of aviation's carbon footprint.

With 2050 (and for some 2030) deadlines looming, the pressure to achieve aviation's ambitious net zero targets is ever more pressing.

While large international airports have been the focus of many decarbonisation initiatives, regional airports have an equally important role to play in reducing aviation's carbon footprint.

To support these smaller airports in their transition towards more sustainable operations, Dornier offers a range of technical expertise as well as consultancy services and has worked with various regional airports, including Memmingen, Braunschweig, Kiel and Schwäbisch Hall.

Its support for these airports has

included developing climate roadmaps, setting targets, analysing the potential of different emission reduction measures – ranging from on-site solar power generation and the switch to heat pumps to the transition to electrical vehicle fleets. By drawing on Dornier's experience from implementing projects in the renewables and energy fields around the globe, reliable benchmarks for associated capital and operating costs of adopting these measures can be provided.

Dornier's work with regional airports has shown that getting started on the decarbonisation journey can be a daunting task as they are often constrained by technical and financial resources.

However, to remain competitive and operate sustainably in the long-term, regional airports must tackle this topic today and act now to reduce their carbon footprint.

THE ROAD TO DECARBONISATION

Developing a roadmap with realistic milestones provides a structured approach and can help regional airports navigate the complexities of reducing their carbon footprint.

An important step in this process is the evaluation of proposed reduction measures in terms of cost-effectiveness. This will allow airports to choose the appropriate measure, which will result in significant emission reductions.

The largest part of an airport carbon footprint results from energy consumption. Hence, the transition from fossil-fuel-dependent energy sources to renewable energy alternatives should be the priority.

Investing in on-site solar power plants, heat pumps or combined heat and power district plants fired by biomass can help reduce carbon emissions and reliance on traditional energy sources. However, the initial capital costs for facilities and technological integration can present obstacles.

Another aspect to be considered is operational safety. For example, the installation of solar panels requires safety assessments to be carried out, including the consideration of glint and glare issues for pilots and air traffic control (ATC) staff.

Compliance with obstacle limitation surfaces and any interference with communications, navigation and surveillance (CNS) equipment also have to be factored in.

As we are already seeing at many airports around the world, decarbonising ground operations is an important aspect of reducing the carbon footprint of regional airports. Switching from traditional fossil fuel-powered baggage tugs/tractors, aircraft tugs and other

vehicles to electric alternatives can significantly decrease emissions.

The challenge here is ensuring there is sufficient charging infrastructure and available grid capacity, as well as the investment costs of fleet modernisation.

The use of sustainable aviation fuel (SAF), which is available now as a drop-in fuel, enabling airlines to reduce their carbon emissions immediately, is another area for airports to engage with.

Although these emissions are not directly under an airport's control, airports still need to support this transition and ensure SAF is available at their facilities where possible.

Collaborating with fuel suppliers and airlines to make SAF more accessible and affordable is going to be key to achieving the industry's net zero targets.

COHESIVE APPROACH

It is prudent to take a holistic cross-sectorial approach by employing best practice assessments when exploring and choosing the appropriate carbon reduction measures. What's more, finding economically viable solutions is a must.

Dornier's cross-sectional approach enables airports to build up their in-house capacity with regards to greenhouse gas (GHG) accounting and target-setting, as well as communicating efforts to the public and the community.

By working through the steps to formulate a roadmap with realistic milestones, management teams will develop an understanding of the airport's current carbon footprint, why certain measures are more appropriate and how to manage carbon reductions in the future.

In particular, an understanding of the significance of net zero versus carbon neutrality needs to be developed so that the necessary measures required to achieve the desired goals can be implemented.

Equally important is the need to gain management commitment for the targets, as well as the necessary budget approval.

To help with all of this, Dornier can support airports with tailored workshops

and its data-based target model for energy savings – addressing issues from target setting, evaluation of measures, cost implications and carbon management plans to obtaining ACI's Airport Carbon Accreditation.

Collaboration with the communities around airports is also key when it comes to finding cost-effective investment scenarios.

The optimal solution for a particular airport can only be found by exploring different business cases paired with a clear understanding of the initial capital costs, the potential benefits, financing options and the impact on the local community.

CHALLENGES AND OPPORTUNITIES

The decarbonisation of regional airports might pose several challenges. However, it also presents a unique opportunity to foster sustainable practices, drive innovation and generate income.

The important thing to remember is that every airport is different and what works for one will be different for another.

Buying green power off the grid might be the best solution for one airport, while another will benefit more from producing its own solar power on site and selling it back to the grid to generate additional revenue.

Various questions need to be addressed before the best solution can be found. These might include: Are the existing connections sufficient for feeding back into the grid? Is additional investment required for infrastructure upgrades? Is a battery storage solution possible? Is a phased approach preferable?

But whether it is investing in solar power, transitioning to electric vehicle fleets, switching to geothermal systems or improving surface access, regional airports have an important role to play in the decarbonisation of aviation.

By investing in renewable energy and sustainable infrastructure, regional



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A Chartered Professional Engineer (CPEng) with over 20 years' experience in the transport sector, she has worked with airport operators, airlines, investors, municipalities and financial institutions in Europe, Asia, the US and New Zealand.

Her recent experience includes assignments with the German Association of Regional Airports on a decarbonisation programme, a strategic study on cargo development at Frankfurt Airport for Fraport AG and project work on decarbonisation roadmaps and the ACI Airport Carbon Accreditation with Memmingen Airport, Kiel Airport, Braunschweig Airport and Schwäbisch Hall Airport.

Haas also currently serves as Europe's representative on the ACI World WBP Advisory Board and was recognised in 2021 with the ACI Europe Best WBP Award.

airports can significantly reduce their carbon footprint and contribute to a greener future for air travel. They can also serve as facilitators for the collaboration of industry stakeholders.

By the end of this decade, regional airports will be one of the main arenas for the implementation of new technologies such as electric and hybrid-electric propulsion for short-haul flights, as well as being incubators for the decentralised production of SAF. But the time to act is now. ■