



FLIGHT OPTIMIZATION:

THE SUSTAINABILITY AND COST REDUCTION BENEFITS OF OPTIMIZING COMMERCIAL FLIGHT PATHS

Today's commercial airlines are working to meet sustainability goals designed to help combat climate change. At the same time, the airlines' need to enhance profit margins creates a set of complex challenges for the aviation industry.

Thankfully, technologies on the market can help with these challenges – including a new generation of flight profile optimization tools that can increase sustainability while also creating cost saving. But before exploring the ways in which flight profile optimization tools impact an airline's carbon footprint and bottom line, we should explore why overcoming these challenges is so imperative for today's commercial airlines as well as the planet.

The Case for Cutting Carbon and Costs

In 2021, the International Air Transport Association (IATA) established a goal for the global air transport industry to be carbon-neutral by 2050. This has made reducing the amount of jet fuel burnt a priority for many airlines looking to reduce their carbon footprints.

By reducing fuel consumption, airlines can also position themselves to support the industry's carbon neutrality goals. And they can benefit in another way – by creating cost savings that can help with profitability, which for some airlines can be razor-thin.

According to IATA, in 2022, approximately 30 percent of a commercial airline's operating expenses were fuel costs. Thus, a commercial airline can potentially improve its bottom line by reducing the amount of fuel that it burns. This is important because the IATA projects that airlines will have a profit margin in the single digits (\$2.20 in profit per passenger) in 2023.

Technologies that can reduce fuel consumption can benefit both the environment and an airline's bottom line, and this is why adopting flight profile optimization tools is an attractive option for airlines across the commercial aviation industry.

FPO Helps Deliver Cost and Sustainability Benefits

Collins Aerospace has witnessed its FPO solution reduce fuel consumption by up to 1,000 lbs. (approximately 150.9 gallons or 454 kg) per aircraft on certain flights of more than 2,100 nautical miles. This reduced fuel consumption would result in 7,000 fewer pounds of CO2 being released into the atmosphere per flight, and a cost savings of approximately \$439 per flight.

While those numbers may appear low, it's important to remember that airlines fly thousands of transcontinental flights per year. The savings can be impressive when extrapolated across an airline's annual flight schedule.

For example, if an airline were to fly 3,600 transcontinental flights per year, they could potentially recognize more than \$1.5 million in total cost savings at year-end by utilizing the Collins Aerospace FPO solution. They could also potentially keep more than 25 million pounds of CO2 from being released into the atmosphere.

But can FPO also deliver fuel savings when flights are traveling shorter distances?

Collins Aerospace has witnessed its FPO solution reduce fuel consumption by up to 498 lbs. (approximately 74.7 gallons) during mid-continental flights ranging from 750 – 1,500 nautical miles. This reduced fuel consumption would result in a \$217 savings per flight.

With many airlines operating more than 36,000 mid-continental flights per year, FPO could potentially deliver a total cost savings of more than \$7.8 million while keeping 125 million pounds of CO2 from entering the atmosphere.

Conclusion

While commercial airlines are benefiting from post-pandemic travel demands, profit margins are always top of mind. As airlines look to improve profitability and deliver real value to shareholders, one method is to improve the management of operating expenses.

Collins' FlightHub FPO combined with its FlightHub EFF solutions can enable pilots to make better flight path decisions and help keep airline costs in check by reducing the amount of fuel they burn on every flight. It can also help airlines meet the aggressive carbon emissions goals that have been set for the industry.

With carbon reduction goals looming and airlines making just a few dollars in profit from each passenger, FPO is a solution that can help reduce the amount of CO2 entering the atmosphere and save millions of dollars for airlines by reducing the amount of fuel they burn on each flight.

While reviewing historical flight paths, I saw a map of one flight last summer from Seattle to Washington, D.C. The route from Seattle to D.C. should be a straight line, but this flight was more like a hockey stick because, to avoid a predicted storm, the plane flew to Georgia, and then turned north to travel up the coast to get to Washington, D.C. Not only did this flight path burn more fuel, but it required thousands of extra pounds of fuel to be loaded onto the flight, which then further impacted its fuel efficiency. This is a great example of where FPO could help."

-Jon Merritt, Collins Aerospace