

DECARBONIZING AEROSPACE

A road map for the industry's lower-emissions future

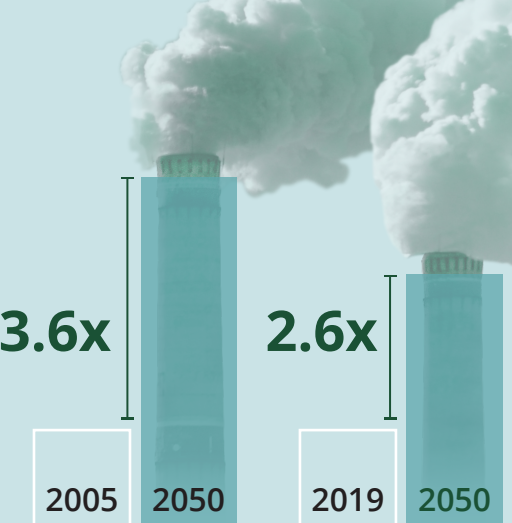


By 2050, the commercial aviation industry could expect

10 BILLION PASSENGERS

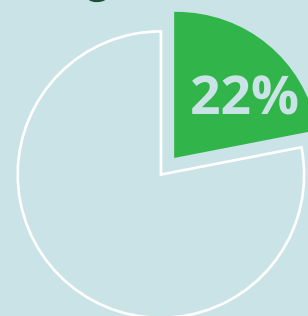


to fly 20 trillion kilometers, generating 2,350 million tons of CO₂ emissions.



Without decarbonization,

that translates into 2.6 times the emissions generated in 2019 and 3.6 times the emissions generated in 2005, making the aviation industry responsible for 22% of the planet's total emissions by 2050.



This could lead to:

About US\$40 billion REVENUE DECLINE

110,000 commercial aerospace jobs WORKFORCE REDUCTION

Regulations reducing short flights and promoting the use of more sustainable alternate modes of transportation, such as electric trains, may come into force.

While all carbon emissions matter,

SCOPE 3 EMISSIONS

are the most difficult to address, given the number of stakeholders involved.

70% of the industry's total carbon footprint

Two solutions have significant potential to reduce Scope 3 emissions:

Together, these two could reduce up to 63% or 1,490 million tons of CO₂ emissions through 2050.

1 ELECTRIC PROPULSION
BETTER FOR SHORTER FLIGHTS

2 SUSTAINABLE AVIATION FUELS (SAFs)
BETTER FOR LONGER FLIGHTS

REDUCED EMISSIONS BASED ON FLIGHT LENGTH

Flight Length	Electric Propulsion Reduction	Sustainable Aviation Fuels Reduction
SHORT (<500 miles)	60%	
MEDIUM (500-1k miles)	35%	40%
LONG (>1k miles)		75%

SIX IN 10 INDUSTRY LEADERS

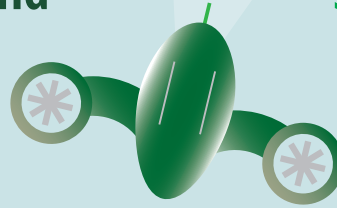
believe that electric propulsion will be a more sustainable and environmentally friendly solution compared to the current modes of aerial mobility.

But the incremental cost of switching to electric propulsion could add up to

US\$90 billion

BY 2050

Robust collaboration among all the aerospace ecosystem players will be key to driving the adoption and growth of electric aircraft.



For SAFs, the focus should be on scaling production capabilities to drive down the price and increase demand.

Source: John Coykendall, Steve Shepley, and Aijaz Hussain, *Decarbonizing aerospace: A road map for the industry's lower-emissions future*, Deloitte Insights, 2021.

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