Your Name

Course Name

Professor’s Name

Date

FUEL EFFICIENCY

One of the most difficult difficulties facing the aviation industry is improving fuel efficiency, and airports have a role to play in accomplishing the objective of more efficient air travel (Appadoo, 2015). Without a doubt, the cost of fuel is the most pressing issue confronting today's airspace users. The high cost of jet fuel is causing havoc on airlines' finances, with a fuel expense of US$62 billion in 2004, an increase of US$15 billion from 2003. The likelihood of the industry returning to profitability – based on an oil market returning to US$34 per barrel of crude after peaking at US$55 in New York last October – is looking bleak. Indeed, the oil market forward curves appear to be at historic highs and are here to stay (Appadoo, 2015). Fuel efficiency is a widespread concept in the aviation business, affecting everything from aircraft design and construction to aviation regulatory requirements, airline operations, and air navigation service providing. This essay will attempt to examine all of these fields' existing and potential contributions. The role of the environment as a driver of fuel economy is also explored, as well as the slew of strategies that airlines, in particular, are employing to alleviate the impact of high fuel prices on their operations. Finally, in the context of the recently established industry-wide 'Fuel Action Campaign,' this article will showcase IATA's actions and policies (Appadoo, 2015).

The fuel efficiency of jet aircraft has been steadily improving; today's new aircraft use 70% less fuel per seat than early jets. Engine efficiency improvements accounted for about 40% of the gain, while airframe efficiency gains accounted for 30%. For new production airplanes, these enhancements have historically averaged 1-2 percent per year (Koff, 1991; Albritton et al., 1996; Condit, 1996). The rather constant and consistent rate of improvement seen over several decades is expected to continue. In the long run (2050) compared to 1997, a 40–50 percent increase in total aircraft production fuel efficiency is expected (ICCAIA, 1997g) (Appadoo, 2015). Increased use of modern high-bypass engine technology, which focuses on increased engine pressure ratios and higher temperature combustors to maximize engine efficiency, has resulted in improved engine fuel economy.

Recent aerodynamic innovations, including as supercritical airfoils and winglets, have already given significant improvements in aerodynamic efficiency over first-generation jet transports, and there are a plethora of new aerodynamic technologies worth developing and implementing. Laminar flow control is one of the most promising, especially for improving efficiency in jet transports (Appadoo, 2015). Fuel efficiency has become more important than ever before in determining an airline's aircraft type selection. It's worth noting that the B787 Dreamliner is marketed as the 'Chief Efficiency Officer.' The B787, which seats 217 to 289 passengers and has a range of up to 8,500 nautical miles, has been praised by Boeing for its flexibility and fuel economy. The plane will be 20% more fuel efficient than comparable jets now on the market, according to Boeing. The FAA also lowered the 10% fuel reserve limit for foreign flights last summer; smaller reserves on overseas flights cut weight and save money. Through 2008, the FAA intends to assist airlines in reducing fuel costs by 1%. However, the organization adds that exceptions on fuel standards for international routes are given on a case-by-case basis due to safety concerns. American Airlines and Continental Airlines have been allowed to carry less fuel so far, with American saying that the new regulation will save them $10.5 million per year in fuel costs. For European airlines, the potential for cost savings from reduced fuel reserves is substantially lower, as they already run with contingency fuel that is less than half that of their American counterparts.

Works Cited

Appadoo, R. (2021). *Facing the fuel efficiency challenge*. Airport Review. Retrieved 13 December 2021, from https://www.internationalairportreview.com/article/1907/facing-the-fuel-efficiency-challenge/.