## **Fuel Efficiency**

## **Use Cases**

1. With more than 5,000 flights per day on 1,250 aircraft, jet fuel is critical to Delta’s operation and performance. The airline uses about 3.9 billion gallons of fuel every year, and optimizing fuel use is a key focus of Delta’s innovative approach to the airline business model.
2. Delta’s unique fleet is an important component of how the airline has strengthened its financial performance, helping to ensure the company can be profitable in good times and bad. Fuel burn per available seat mile is down 6 percent since 2008.
3. From gate to gate, saving an incremental 11 million gallons of fuel annually through improved arrival and departure procedures, onboard weight reduction and more. Delta encourages the use of ground power air and electricity so pilots can turn off the auxiliary engine and limit fuel burn. Additionally, flight attendants ask that shades be lowered when landing in warm stations to conserve energy needed to cool the plane.
4. Despite these reductions, the nature of burning jet fuel means some environmental impact is unavoidable. That is the reason Delta led the U.S. aviation industry in 2007 by launching a carbon offset program, allowing Delta passengers to track and compensate for the environmental impact of their flight by investing in projects that produce measurable benefits to the atmosphere, like wind energy.
5. Delta’s network strategy makes optimal use of aircraft, taking into account fuel efficiency and giving fuel-efficient aircraft more utilization
6. Winglets, wingtip devices that reduce drag and improve fuel efficiency by 3 percent, can be supported by nearly 75 percent of Delta’s fleet. Since 2009 Delta has retrofitted more than 200 aircraft with winglets, 98 percent of Delta’s eligible fleet is now equipped.
7. In the air, streamlined flight paths and more fuel-efficient aircraft, including those outfitted with winglets, help to improve efficiency. On descent Delta works closely with the Air Traffic Organization to implement optimized profile descents, allowing planes to descend without leveling off.
8. Delta encourages the use of ground power air and electricity so pilots can turn off the auxiliary engine and limit fuel burn. Additionally, flight attendants ask that shades be lowered when landing in warm stations to conserve energy needed to cool the plane.
9. Before takeoff, flight groups work to target the optimal amount of fuel for the plane to reach the gate at destination, eliminating unnecessary fuel weight. Pilots are then encouraged to use a single engine taxi to limit fuel use and utilize reduced power takeoffs when possible.
10. With major improvements to fuel efficiency over the past decade, Delta isn’t stopping. The airline is innovating and exploring technology and fleet additions that would take fuel efficiency to the next level over the next five years, all while maintaining Delta’s high return on invested capital and investment grade balance sheet.

## Data: Fuel Efficiency

Delta  Air Lines is one of the major airlines in the United States. The airline serves more than 180 million customers each year and offers more than 15,000 daily flights. The company serves more than 300 destinations in about 50 countries with a fleet of 800 plus aircraft along with maintenance, repair, and cargo operations.

Their operations are divided into two segments: Airlines and Refinery. The airline segment includes passenger airlines and cargo. The refinery segment supplies and procures jet fuels for the airlines. Delta directly owns an oil refinery in Pennsylvania, operated by subsidiary Monroe Energy.

Owing to Delta’s massive fleet and the number of flights per day the airline uses about 3.4 billion gallons of fuel every year. Back in 2016, the fuel consumption was 930 million gallons in the first quarter, 1.05 billion gallons in the second quarter, 1.10 billion gallons in the third quarter, and 941 million gallons in the last quarter.

Delta produces its own fuel from it’s refinery segment and obtains the shortfall from agreements with third parties. Fuel cost had been going up until the end of 2018 after which the prices saw a small downtrend almost throughout 2019.

In the first quarter of 2017, the consumption dropped down to 918 million gallons and then increased to 1.05 billion gallons in the second quarter, 1.11 billion gallons in the third quarter, and 959 million gallons in the fourth quarter.

The consumption then increased to 936 million gallons in the first quarter of 2018, 1.07 billion gallons in the second quarter, 1.14 billion gallons in the third quarter, and 975 million gallons in the fourth quarter.

In 2019 the consumption had increased to 962 million gallons in the first quarter, 1.10 billion gallons in the second quarter, 1.15 billion gallons in the third quarter, and 999 million gallons in the fourth quarter.

As we can see the fuel consumption has increased for almost all quarters when compared to the same quarter in the previous year. The consumption has increased year on year as well from 4.02 billion gallons in 2016 to 4.03billion gallons in 2017 to 4.121 billion gallons in 2018 and 4.211 billion gallons in 2019.

It is assumed that in the coming years the demand for fuel for Delta is going to increase, the fuel prices could also hit a low in the coming years as the demand for fuel has dried up this could help Delta in a cost reduction for the next few years.