

High Fuel Prices— Implications for Airports

June 2008

“You can’t underestimate the spike in fuel prices and how it is fundamentally changing the industry.”

Richard Anderson, Delta Air Lines CEO, May 2008

The fuel bill for U.S. airlines is expected to increase 72% in 2008, according to recent projections by the Air Transport Association of America (ATA). This projected increase is consistent with a 76% increase in the price of West Texas Intermediate crude oil between April 2007 and April 2008. As a result, fuel is expected to account for nearly 40% of total airline costs in 2008, compared with 10% of the total in 1998. Such dramatic increases in fuel prices present new challenges for U.S. airlines, whose business models were designed for \$65 per barrel oil, to explore a variety of options to operate in a \$100+ per barrel oil environment. These options include fuel surcharges, overall capacity reductions, elimination of less profitable routes, ancillary revenue opportunities, mergers and consolidation, additional alliances, and fleet modernization. The challenge for airport operators is to understand how the changes being made by U.S. airlines today may affect passenger demand, airport revenue, facility requirements, and overall airport operations in the future.

A HISTORICAL PERSPECTIVE

Since 1970, four oil price shocks (defined as a 50% or more increase in oil prices sustained for at least four quarters) have occurred, with the fourth still ongoing, according to oil industry analysts.

- In 1974, oil prices increased 119% in response to the 1973 oil embargo as well as decreasing production by the Organization of Petroleum Exporting Countries (OPEC), declining

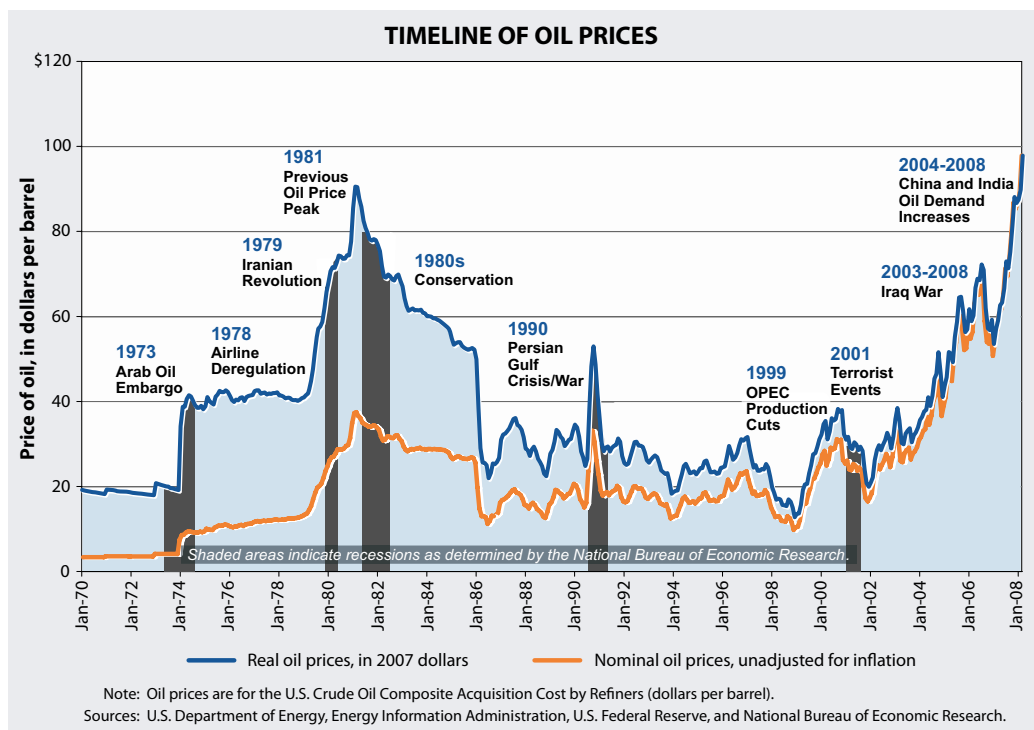
domestic crude oil production, and increasing U.S. demand.

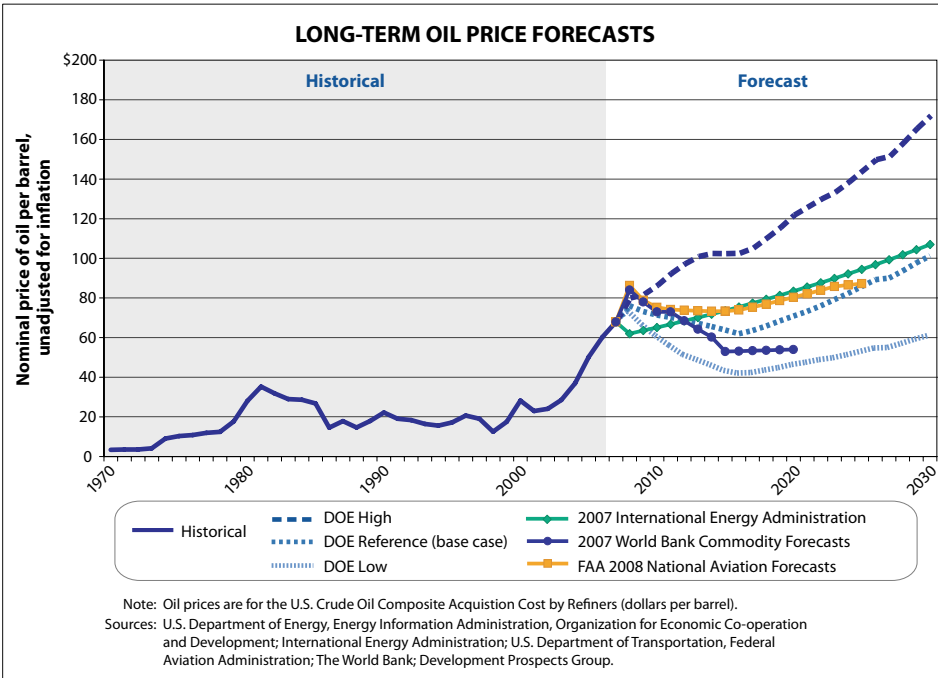
- From 1979 to 1981, oil prices increased 59%, reflecting increased demand related to airline deregulation in 1978 and the Iranian revolution in 1979, which resulted in a decrease of 3.9 million barrels per day in Iran’s oil production.
- From 1998 to 2000, oil prices increased 114%, as a result of OPEC production cutbacks in 1999.
- From 2003 to 2005, oil prices increased 66% and, by 2008, oil prices had more than tripled as a result of the Iraq war, which began in 2003, as well as increasing oil demand from China, India, and other developing countries, the devaluation of the U.S. dollar, and limited refinery capacity.

There are notable differences between the four oil price shocks of the last nearly 40 years. The first two shocks were characterized by double-digit inflation and interest rates and higher than today’s average unemployment rates. Unlike the first three mentioned above, the current oil price shock has been characterized by steep and steady increases in oil prices prolonged over several years.

LONG- AND SHORT-TERM OIL PRICE FORECASTS

The sustained increases in oil prices in recent years raise questions about future price levels. Will the current oil price spike be followed by a return to previous oil prices, as occurred after the 1970s, or will future prices remain at these levels? Long-term forecasts of future oil prices reflect a number of factors,





including the development of alternative fuels, advances in efficiency and technology to reduce fossil fuel dependence, and a correction of the current conditions contributing to sustained high fuel prices today (i.e., political instability, strong demand by developing countries, investor speculation in response to devaluation of the U.S. dollar, and limited refinery capacity). Long-term oil price forecasts are prepared by the U.S. Department of Energy (DOE), the International Energy Administration, and the World Bank.

In contrast, the short-term view of future oil prices is typically based on a frequent readjustment of the most recent price levels. Short-term forecasts are prepared by the DOE as well as a number of financial investors and commodity traders, such as Morgan Stanley, Goldman Sachs, Deutsche Bank, Lehman Brothers, and Barclay's Bank. On May 16, 2008, Goldman Sachs Group, Inc., raised its New York crude-oil price forecast for the second half of 2008 by 32%, citing supply constraints. Goldman Sachs now forecasts that West Texas Intermediate, the benchmark crude grade traded in New York, will average \$141 a barrel in the second half of 2008, up from its previous forecast of \$107, and will further increase in 2009 to an average of \$148 per barrel. Goldman Sachs also predicts a "super-spike" in oil prices to \$150 to \$200 per barrel within 2 years.

AIRLINE ECONOMICS OF \$100+ PER BARREL OIL

Higher oil prices translate into higher airline operating costs. Although airline non-fuel costs have decreased since 2003, this has been more than offset by increased fuel costs along with increased revenues per available seat mile (ASM), resulting in significant pressure on airlines to increase revenues in the short term.

AIRLINE FINANCIAL RESULTS AND CAPACITY

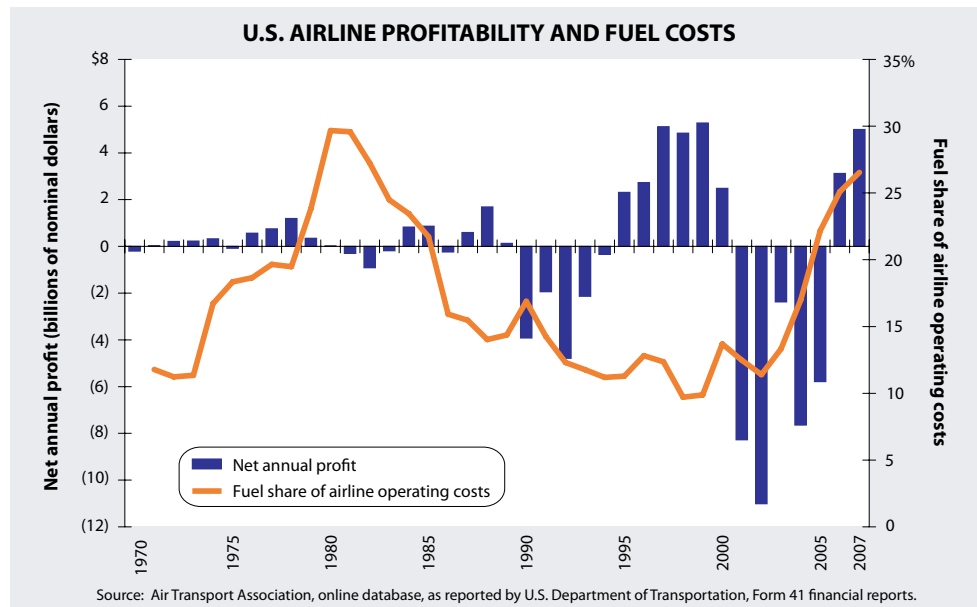
Since December 2007, nine airlines have ceased operations and one airline has

entered Chapter 11 bankruptcy protection. Nearly all of these airlines were low-cost or regional carriers that cited the rising cost of fuel as a contributing factor to their financial difficulties.

Eight of the nine largest U.S. airlines sustained losses during the first quarter of 2008, reflecting rising fuel costs and a softening of domestic demand. U.S. airlines are implementing capacity reductions and retiring older aircraft with higher fuel consumption rates. According to industry analysts, U.S. airline domestic capacity is expected to decrease approximately 20% in 2008, with seven of the nine largest airlines (all except Alaska and Southwest) planning capacity reductions.

AIRCRAFT OPERATING COSTS

Aircraft operating costs, including fuel costs, vary significantly among aircraft types, particularly when measured in terms of cost per available seat mile. Older aircraft, such as the B-737-300 and the MD80, have substantially higher fuel costs compared to newer aircraft, such as the B-737-800 or the A321. For example, American Airlines estimates that the replacement of its MD80 (140 seats) by a B-737-800 (148 seats) will reduce fuel consumption by 20% to 30% for a given trip length. Similarly, while the fuel cost differential is less, the total operating costs for 50-seat regional jets (RJs) are higher than the operating costs for larger RJs and turboprops.



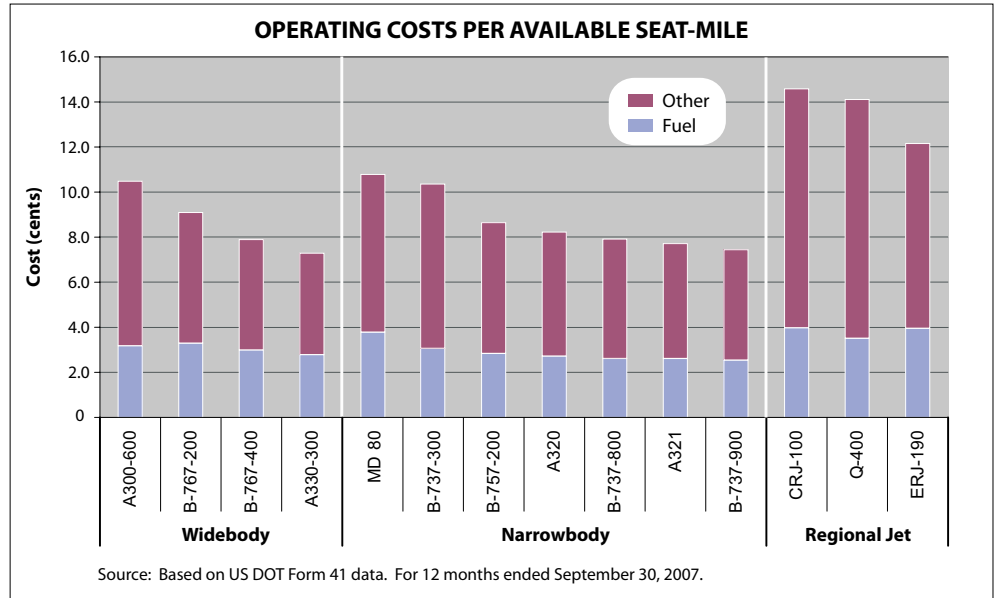
AIRLINE STRATEGIES TO DEAL WITH RISING FUEL COSTS

In recent years, airlines have taken advantage of fuel hedging programs to offset rising fuel prices. A hedge locks in the prevailing price for future deliveries of jet fuel and allows airlines to limit the uncertainty related to future fuel costs. A fuel hedge requires a significant upfront transaction cost and presents financial risk if fuel prices fall below the price the airline agreed to in a hedge contract. In 2008, Southwest and Alaska airlines have hedged about 70% and 40%, respectively, of their fuel costs, according to ATA data. During the first quarter of 2008, Southwest expects to save \$300 million in fuel costs (70% of its fuel hedged at \$51 per barrel). The other large U.S. airlines have hedged much smaller shares of their fuel, averaging about 10% during the first quarter of 2008. As a result, U.S. airlines are testing and implementing new strategies to operate in a \$100+ per barrel oil environment, including:

- **Fuel surcharges.** During summer 2008, fuel surcharges for domestic trips are expected to average about \$50 per round trip, compared with international fuel surcharges averaging \$200 for trips to Europe and \$250 for trips to Pacific Rim destinations.
- **Baggage fees.** In 2008, a number of airlines began charging a \$25 fee for checking a second bag as a way to cover the rising costs associated with transporting checked bags. American Airlines announced plans to charge \$15 for the first bag checked beginning in June 2008.

- **Priority seating.** U.S. airlines have implemented programs to offer passengers select seating options for an additional fee. Southwest Airlines initiated its Business Select

announced that it would retire 40 to 50 aircraft from its mainline fleet, including MD80 and A300 aircraft, as well as 35 to 40 RJs and turbo-prop aircraft.



program, offering passengers the option of paying a higher fare for first choice of seating on a flight. Other airlines, such as Virgin America and JetBlue Airways, offer passengers the option of paying an additional fee for bulkhead and exit-row seats, which provide more leg room.

- **Aircraft Retirement.** U.S. airlines are retiring the oldest and least-fuel-efficient aircraft (such as the DC-9, MD80, and A300) from their fleets in an effort to reduce domestic seating capacity and fuel costs. In May 2008, American Airlines

- **Replacement of small regional jets.** High fuel costs are prompting a reversal of a 15-year airline trend of substituting 50-seat RJs for 110- to 140-seat aircraft on thin-demand routes because the ownership and operating costs of 50-seat RJs, were lower per mile flown. High fuel costs are making the 50-seat regional jets unprofitable to fly. American and Delta recently announced plans to retire 50 and 70 of the 50-seat RJs, respectively, from their fleets in 2008.

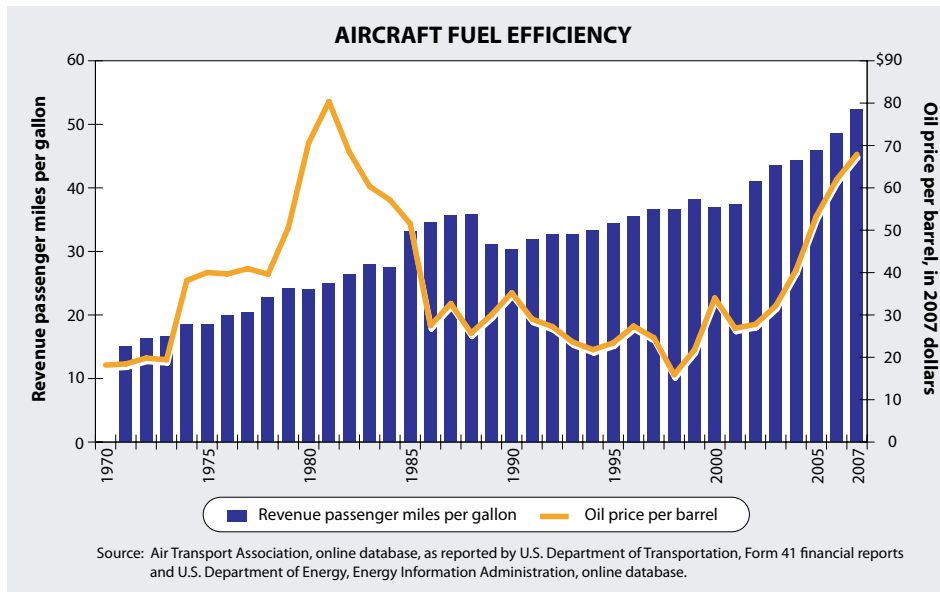
- **Discontinuation of service.** In the past year, nearly 30 cities across the United States have lost scheduled airline service, according to the Bureau of Transportation Statistics.

- **Rationalization of airline routes.** According to published airline schedules, the number of scheduled flights in the United States decreased 2.5% in May 2008, representing 21,100 fewer flights than in May 2007, as airlines rationalize route decisions and fare revenue opportunities.

CAPACITY ADJUSTMENTS BY NINE LARGEST US AIRLINES IN RESPONSE TO RISING FUEL PRICES

Airline	Q1 2008 Net income (millions)	Capacity Announcements as of May 2008
Alaska Airlines	(\$35.9)	Anticipates redeploying 3% to 5% of existing network capacity to generate new revenue in fall
American Airlines	(\$328.0)	System capacity to decrease 3% to 4% in 2008, with 5% to 6% reduction in domestic mainline capacity and 5.5% to 6.5% decrease in regional affiliate capacity
Continental Airlines	(\$80.0)	Will reduce domestic mainline capacity 5% on an annual run rate basis starting fall 2008
Delta Air Lines	(\$274.0)	Will reduce domestic capacity 9% to 11% in second half of 2008
JetBlue Airways	(\$8.0)	Will increase capacity for full year 2008 by 3% to 5% over 2007, including capacity reductions planned for fourth quarter 2008
Northwest Airlines	(\$4,100.0)	Additional domestic capacity reduction of about 5% compared with 2008 business plan
Southwest Airlines	(\$30.0)	Increase 2009 year-over-year available seat mile capacity growth to 2% to 3%
United Airlines	(\$542.0)	Will reduce mainline domestic capacity by about 8% by the end of 2008
U.S. Airways	(\$236.0)	Will reduce mainline capacity by about 2% to 4% in second half 2008

Source: Individual airline websites.



IMPLICATIONS FOR AIRPORTS

The implications of high fuel prices and the potential effects on the airline industry highlight a need for airport operators to do downside scenario planning. Airport operators need to evaluate how reduced passenger activity will affect Passenger Facility Charge, concession, and other revenue sources, airport capital improvement programs, facility requirements, and airport operations.

PASSENGER DEMAND

High oil prices can reduce passenger demand by (1) increasing airfares as airlines attempt to recover higher fuel costs, (2) decreasing disposable income and the propensity to travel as rising fuel costs also increase the costs of all other goods and services, and (3) limiting

service frequencies and available seats as airlines trim schedules and reduce domestic seating capacity. However, passenger demand should be analyzed on an airport-by-airport basis to understand all implications. A number of factors could offset the effect of high oil prices on passenger demand at a given airport, such as a large share of business travelers who are less sensitive to increases in airfares, a market that provides significant numbers of connecting passengers and revenue at an airline connecting hub, or a market served with 50-seat regional jets that commands yields sufficient to cover the relatively higher aircraft operating costs.

AIRPORT REVENUE

The impact of high oil prices on airport revenues is a function of passenger demand levels, the ability of airlines to implement service and capacity reduc-

tions, and existing airport-airline agreements. Airport revenue can be reduced by (1) decreasing passenger demand, leading to reduced concession and other nonairline revenues that result from passengers traveling through an airport, (2) decreasing airline landed weight and landing fees related to airline service reductions, and (3) returns of terminal and other airport rented space.

FACILITY REQUIREMENTS

High oil prices may delay the need for additional airport facilities and potentially affect:

- Gate and apron space demand and requirements as service is reduced and airline fleets change and adapt to higher oil prices
- Airport car parking options compared with less expensive off-airport options
- Rental car demand compared with off-airport or public transportation options
- The frequency of fueling at gates and delays as airlines attempt to reduce fuel ferrying costs
- Demand for new biofuel storage facilities, as alternative fuels come on the market
- Security processing time as passengers try to minimize extra bag costs by carrying bags on aircraft

AIRPORT OPERATIONS

High oil prices may have a direct effect on airport operations in terms of energy use. As a result of high oil prices, a number of airport operators are preparing energy master plans to reduce the energy consumption of terminal facilities as well as ground vehicles. ■

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