

# MULTI-MODAL COMPARISON OF FUEL COST ASSESSMENTS ONTO TRANSPORTATION CUSTOMERS

*Prepared for:*

**SOY TRANSPORTATION COALITION  
AND THE  
U.S. SOYBEAN EXPORT COUNCIL**

*Prepared by:*



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## **I. Introduction**

Fuel costs have been rising for several years, especially during 2008. Transportation providers have been unable to keep pace with the changes in fuel costs and have resorted to fuel cost recovery programs. These programs are an attempt to offset the abnormally higher than anticipated and planned fuel costs. Recovery programs come in a variety of forms and are often referred to as fuel surcharges that are assessed on the cost to move freight.

For a shipper, these have become extraordinary costs, having to absorb the costs or pass on as rate increases to their customers. The substantial nature of the higher fuel costs has led shippers to consider alternate logistics chains. For example, shippers that employed trucks to move products and goods have sought out intermodal as an alternative to lessen the impact of rising fuel costs. The idea is that intermodal is able to achieve greater efficiencies moving goods with a gallon of fuel than what can be achieved by truck.

The Soy Transportation Coalition (STC) and the U.S. Soybean Export Council (USSEC) commissioned this study to assess the nature and recovery aspects of fuel cost programs. The objective was to develop an understanding of how fuel costs – whether imbedded in the published or contract rate and/or via a fuel surcharge – are passed onto customers.

The STC had two primary goals for this study:

- To understand how providers of transportation – airlines, barge companies, maritime carriers, railroads, trucking companies, and to an extent parcel carriers – pass fuel costs onto customers; and
- To understand how fuel surcharges among transportation providers compare – both within their particular mode and across transportation modes.

STC commissioned Informa Economics, Inc., a Memphis, TN based consulting and research firm, to conduct the study and prepare this report.

### **A. Key Challenges and Issues**

In preparing this report, several data challenges and issues had to be overcome. First, there is no standard fuel surcharge program. Transportation providers and shippers alike have, over time, developed their own fuel recovery strategies used in contracts to move commodities and freight. Fuel surcharge programs vary for a number of reasons, including the geographic territory the transportation provider operates, the equipment being used, the type of traffic being moved (for example, some commodities are higher density than others), and the competitive environment that various modes operate.

The key for this study was to establish a framework to assess all modes in a consistent manner. The difficulty was obtaining information related to fuel costs paid, fuel recovery information by carrier and mode, and establishing fuel surcharge baselines. To overcome this, Informa, working together with the STC, identified key transportation companies that are publically traded who make available information that can be used for fuel cost analysis. While key financial information is fairly consistent among operators and carriers, not all of them reported detailed fuel cost information including their total spend on fuel, the amount of revenues from fuel recovery programs, participation in fuel hedging programs, etc. Unlike other modes, Class I railroads provide the most detail in readily available form because of requirements by the Department of Transportation's Surface Transportation Board. No other mode of transportation is required to report fuel cost information, and most do not.

To prepare the analysis for this report, Informa reviewed financial data of publically traded transportation carriers (annual reports, SEC filings, and quarterly transcripts), conducted interviews with representatives from those publically traded companies, with representatives from privately held transportation carriers, and with shippers to clarify information and to understand other details of respective programs.

The goal was to develop a framework for a standardized comparison for all transportation modes. The information used to help standardize the comparisons of fuel surcharges and ultimately the rate of recovery, included:

- Total operating revenues,
- Total fuel costs,
- Fuel hedging activities, and
- Fuel surcharge recovery ratios
  - fuel surcharge recovery divided by total fuel cost, or
  - as reported by the transportation provider

The first part of this report, section II Overview and Use of Fuel Surcharges, reviews fuel surcharges and summarizes programs in place by mode and carrier. Section III, includes an analysis of fuel surcharges that were incurred and extracted by mode and carrier. The ratio of fuel surcharge recovery by mode and carrier is discussed in section IV. A comparison of shipping soybeans and soybean oil by mode is presented in section V. The summary and conclusions for fuel surcharge programs are discussed in section VI.

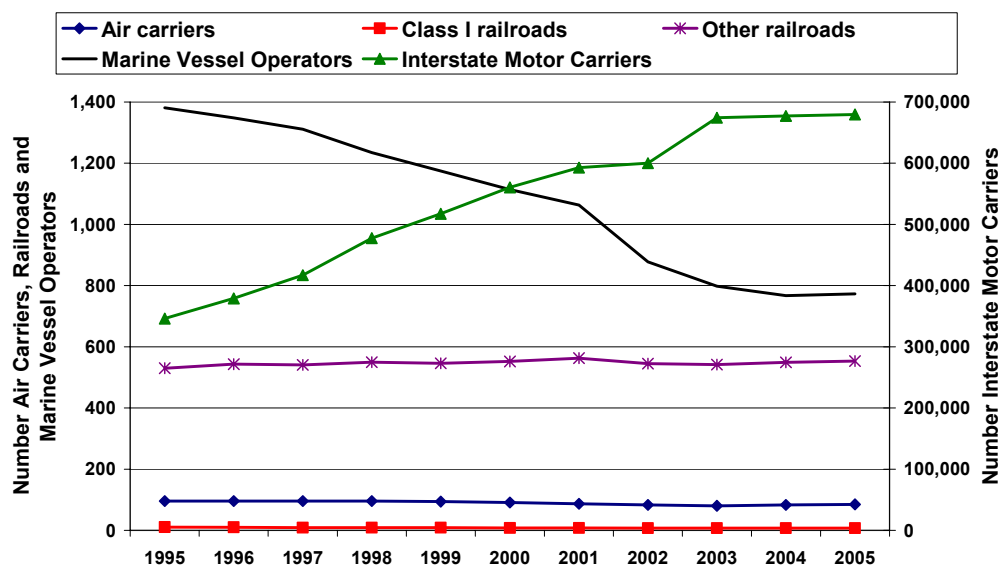
## II. Overview and Use of Fuel Surcharges

### A. General Background

A fuel surcharge is an additional cost to the shipper if the price of fuel exceeds an agreed upon price level. For transportation providers, the purpose of a fuel surcharge program is to limit the impact of a fuel price increase on their profitability and to prevent constant adjustments in rates. The net impact of a fuel surcharge program is to transfer fuel price risk from the transportation provider to the shipper. In addition, a fuel surcharge program allows the transportation company to offer the base rate to the shipper over a time period. Without a fuel surcharge program, the transportation company has to constantly adjust its rates to compensate for fuel price changes.

From the outset, there is no one standard fuel surcharge program across all modes, within a mode, and in many cases, for a particular transportation provider. In many respects, the number of fuel surcharge programs is innumerable when considering how many transportation providers operate in the United States. In 2005, there were more than 681,000 transportation providers across the United States, an increase of 96% from 1995. The number of carriers by mode is disproportionately high among interstate motor carriers who represent 99.8% of all carriers as shown in Figure 1. Unlike motor carriers, the number of marine vessel operators has fallen from nearly 1,400 in 1995 to less than 800 in 2005. The number of air carriers and railroads has remained fairly constant over the same time period, with 7 Class I railroads, about 550 other railroads, and 85 air carriers. The point is, with this many carriers and operators, conceivably there are probably just as many fuel surcharge programs.

Figure 1: Air Carriers, Railroads, Interstate Motor Carriers and Marine Vessel Operators

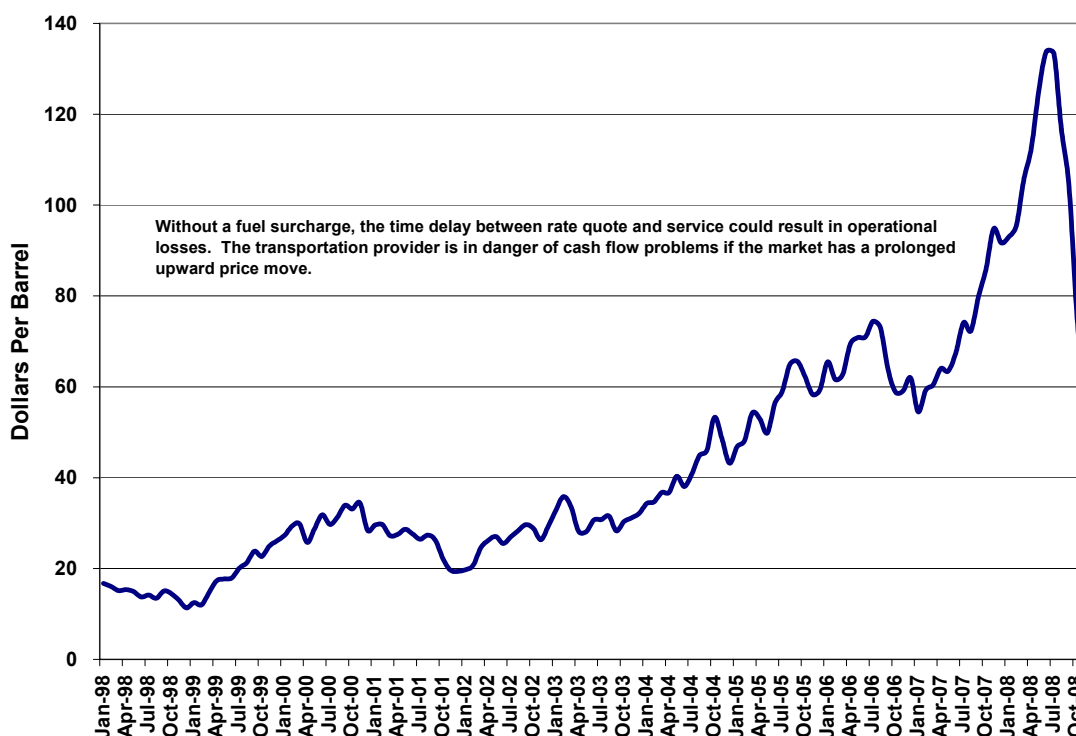


Source: Department of Transportation, Bureau of Transportation Statistics

For a shipper, a fuel surcharge program is inequitable because if the price of fuel exceeds the baseline, the planned or anticipated price, the shipper pays the additional increase in fuel price. However, for a shipper, if the price of fuel declines below the baseline price, the shipper does not pay less for fuel. One way to view a fuel surcharge program is that it is a cash option call without a price premium.

Are fuel surcharges needed? With the level of volatility in fuel prices, transportation providers of all types have instituted fuel surcharges as part of their transportation contracts with shippers. This has always been true but until an extended major fuel price rally actually occurred, that led to substantial bankruptcies among motor carriers and threatened the profitability of others, many transportation companies did not consider fuel price risk as a serious problem until prices started to turn higher as shown in Figure 2.

Figure 2: West Texas Intermediate Spot Price



Source: Department of Energy, Energy Information Agency

For any transportation provider, a major problem is operational capital because the costs for a transportation provider are front loaded. The cost of equipment, fuel, employees, and living expenses must be met until sustainable revenue is realized. A carrier develops its transportation rate based on total expenses, equipment downtime, backhaul opportunities, plus profit margin for a particular move. An increase in fuel cost, deadhead miles and/or downtime decreases profits. Fuel cost is determined by the market on a daily basis and is very difficult to control or predict.

As a general rule, larger transportation providers were more aware of the importance of fuel cost management. For example, a large trucking company with a thousand trucks has the economy of scale needed to have available resources to manage its fuel costs, whereas small, independent owner operators would manage fuel price risk with a fuel surcharge clause. Until recently, the attitude for many transportation providers was that fuel price fluctuations would even out over time.

Transportation providers will always insist on a fuel surcharge program to minimize the fuel price risk impact on their profit margins. That being stated, a major concern for transportation providers is having a ratable level of service. That is, maintaining a consistent volume from an origin to a destination. The larger and more ratable the

volume moved, the more market power the shipper has to negotiate a freight rate and the fuel surcharge program with a transportation provider.

A variety of fuel surcharges are used by the transportation industry, including a distance base, percent of base rate, a flat rate, fuel escalator clauses, fuel recovery, etc. A distance base fuel surcharge attempts to assess a surcharge fee by the amount of fuel used for the movement. The distance in miles is multiplied by a fuel surcharge amount. This is an attempt to account for the amount of fuel consumed for the movement.

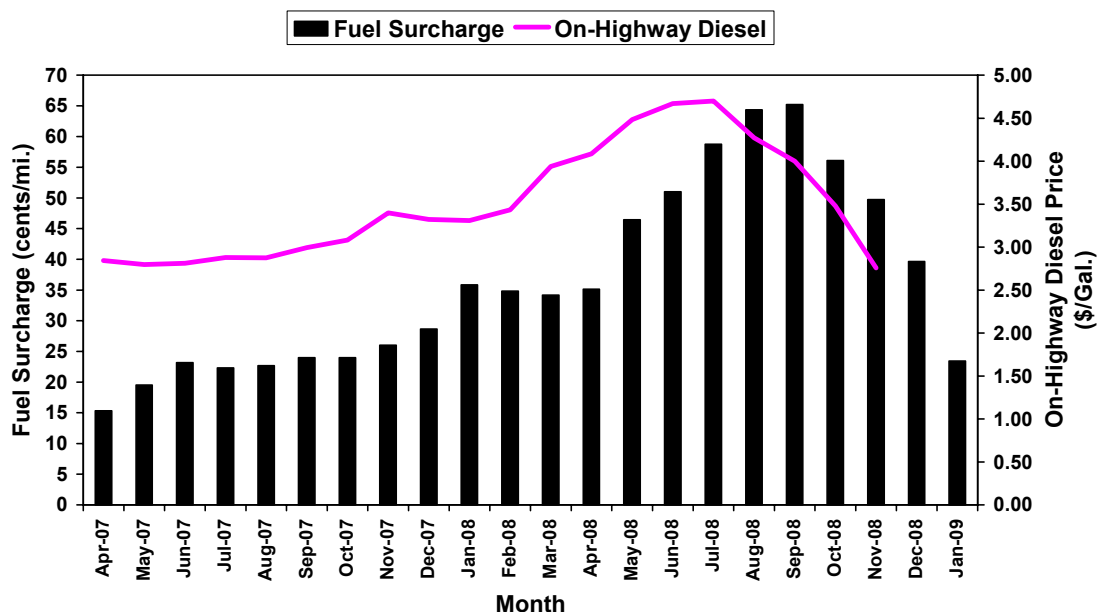
A percent of base rate assesses a fuel surcharge in percentage terms times the cost for movements. This ignores the distance or actual fuel consumed. However, it can be argued that the base rate reflects distance and fuel consumed. But it also reflects other operating costs and margins.

A fuel escalator clause is part of a negotiated freight contract on the price of fuel built into the contract. If the price of fuel exceeds the base level, the shipper will be subject to an escalator while conversely, if the price falls below the base level, the contract price is adjusted accordingly.

Fuel surcharges are undesirable to a shipper because the shipper wants to be able to plan what their transportation costs will be during the year. A constant transportation cost allows the shipper to better predict business margins for the year. The way this problem is resolved is the transportation provider will quote the shipper a rate that includes a higher baseline fuel price. Like any negotiations, the fuel surcharge program will be heavily influenced by the market power of the shipper and transportation provider, and the potential profits involved. This means a small trucking firm that can be easily replaced will not be able to negotiate as solid of a contract as compared to a railroad that has a captive shipper on its network. From the standpoint of a shipper, how the fuel surcharge program is administered can have a significant impact on the cost of transportation.

In order to give the shipper some predictability in what their total transportation cost will be, fuel surcharges are typically based on the price of fuel during a prior time period. For example, among barge operators, the fuel surcharges were based on the price of fuel three months prior. As a result, the shipper knew what the transportation cost would be for the next three months. Now many barge operators have incorporated a one month lag. Railroads on the other hand base their fuel surcharges on the price of fuel (i.e., on-highway diesel fuel) or product two months prior as summarized in Figure 3. Many trucking companies assess their fuel surcharges on a weekly basis.

Figure 3: Average Class I Railroad Fuel Surcharges (Cents per Mile) and On-Highway Diesel Price (\$ per Gallon)

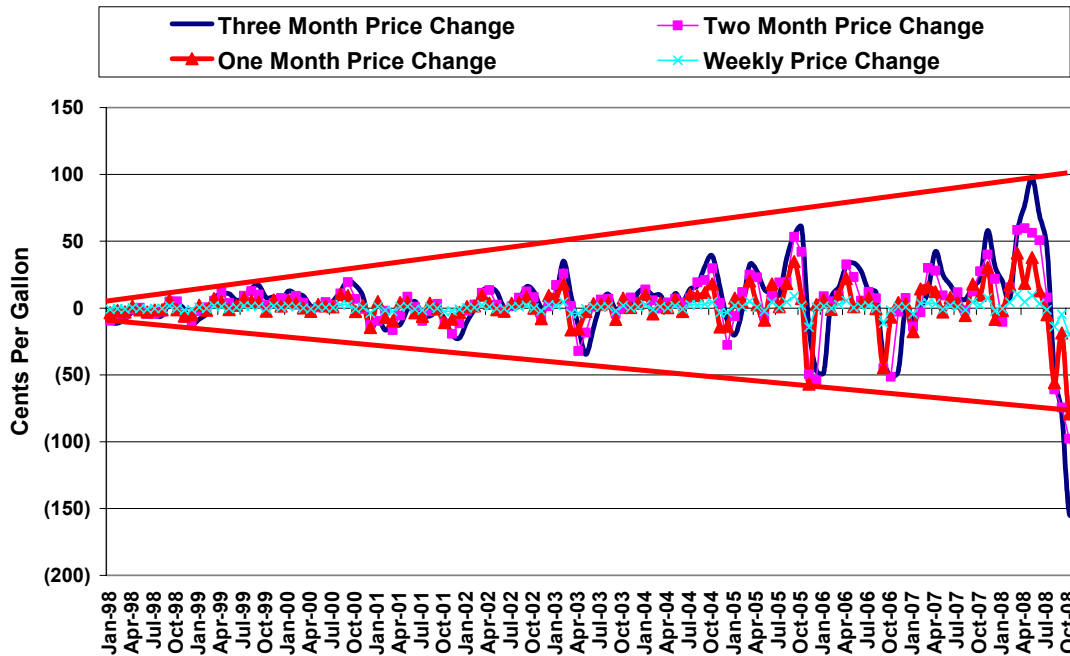


Source: Individual Class I railroad websites; Jan. 2009 tentative

The lag time depends on the mode of transportation, but the time period is shrinking as fuel price volatility increases as shown in Figure 4. If fuel prices are in a freefall, a shipper that understands freight rates should build inventory to take advantage of the soon to be lower landed freight rate. As a general rule, truck carriers assess fuel surcharges based on the previous week, barge carriers fuel surcharge is based on the previous month, and rail carriers the previous two months.

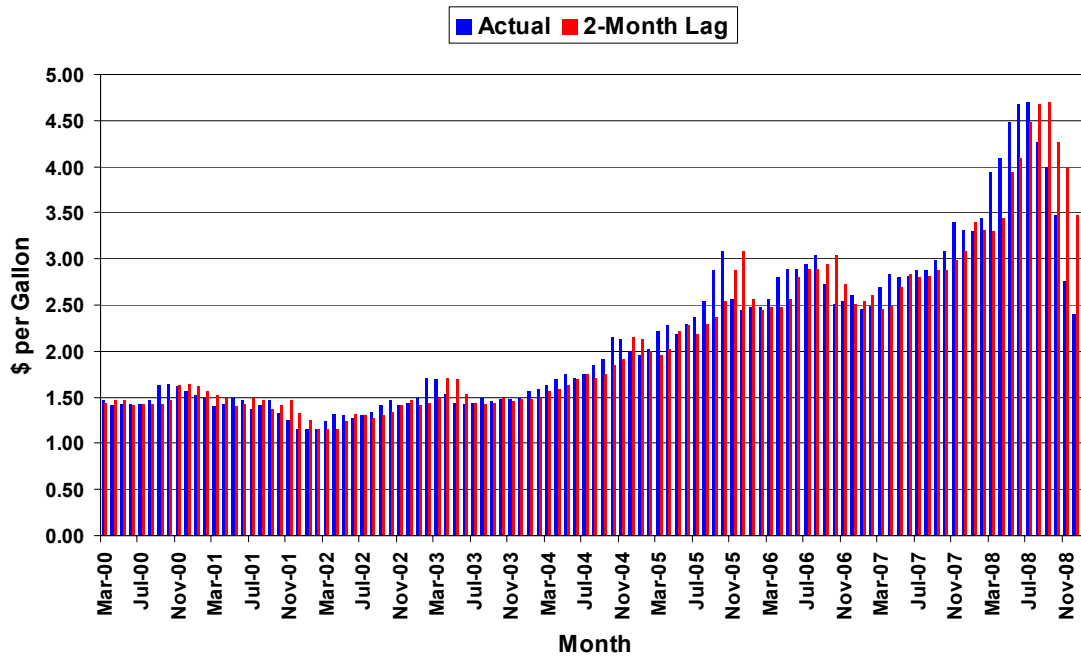
To illustrate this further, a lag benefits the shipper and transportation provider differently. For example, railroads assess fuel surcharges on the average price of fuel two months prior; whereas, the fuel consumed is a cost during the month purchased. When fuel prices are increasing, the differential between actual fuel costs during a month is a greater proportion than the amount of revenues collected from fuel surcharges. Conversely, when the price of fuel is declining the differential narrows, leading to a lower proportion of actual costs and fuel surcharge revenues collected. As illustrated in Figure 5 and Figure 6, a transportation provider using the on-highway diesel price as their benchmark lost 65-cents per gallon during April 2008 when fuel prices were rising. However, during November 2008, market conditions had changed and the transportation provider realized a \$1.24 per gallon gain, collecting more in fuel surcharge revenues than they paid in actual fuel costs.

Figure 4: Low Sulfur Diesel Spot Price



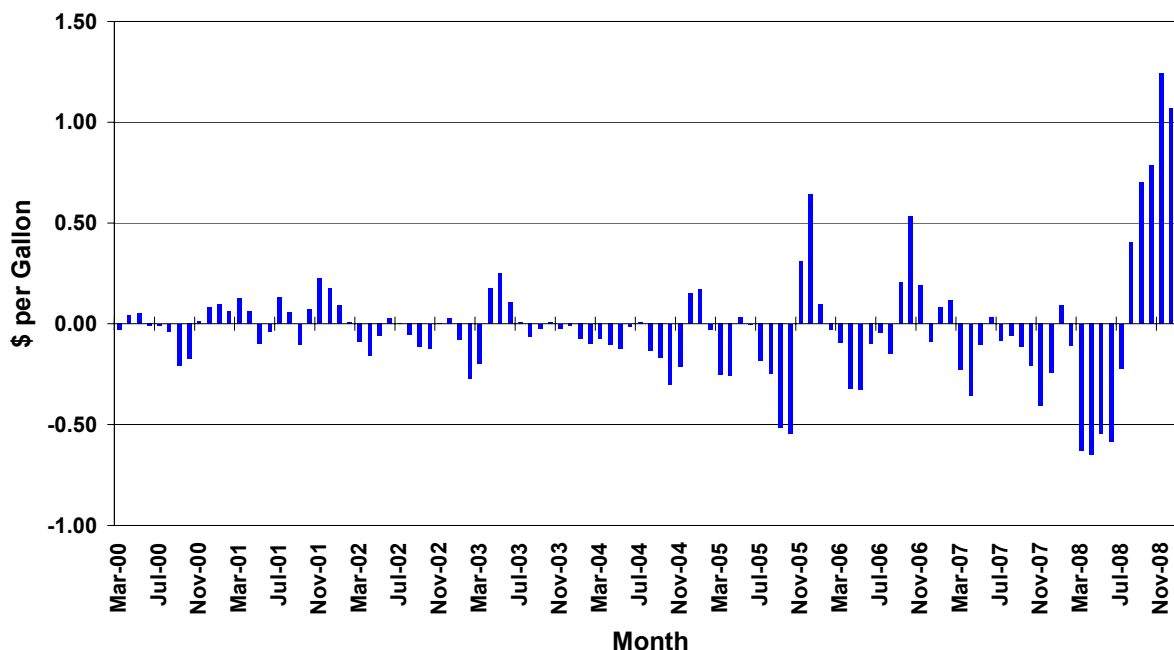
Source: Department of Energy, Energy Information Agency

Figure 5: On-Highway Diesel Price, Actual and 2-Month Lag



Source: Department of Energy, Energy Information Agency

Figure 6: On-Highway Diesel Price Differential, Actual Less 2-Month Lag



Source: Department of Energy, Energy Information Agency

## B. Fuel Surcharge Programs

There is no standard fuel surcharge program among transportation providers. There are similarities among the modes, but not a single, standard program. Among all the modes, or even within a mode, an individual transportation provider will have several programs themselves. Both shippers and carriers would like for all their contracts to be the same for accounting purposes. The lack of conformity concerning fuel surcharges has resulted in how fuel surcharge programs are administered being a major point of contention during negotiations. That being said, many fuel surcharge programs evolve around a standard index to base the program, such as the U.S. Department of Energy (DOE) On-Highway Diesel (OHD) price.

### 1. Trucking Fuel Surcharges

Of the different modes of transportation, trucking is the largest, most versatile mode of transportation with the greatest number of carriers. The trucking industry is comprised of large companies to single truck owner operators. Trucking fuel surcharges are based on a percent of rate or a distance based approach, and tends to be updated weekly. The DOE's Energy Information Agency (EIA) releases its price update each Monday afternoon. The index is available on a regional basis. Each week, after the OHD is released, truck companies adjust the freight rate higher or lower depending on price of diesel. The impact of changes to the price of fuel by region is shown in Table 1. The

example assumes a truck rate that includes a baseline fuel price of \$2.21 per gallon diesel.

**Table 1: Truck Fuel Surcharge Example**

Region	Average Price	Baseline Price	Increase Per Gallon	Average MPG	Surcharge Per Mile
New England (CT, ME, MA, NH, RI VT)	\$ 2.85	\$ 2.21	\$ 0.64	5	\$ 0.13
Central Atlantic (DE, MD, NJ, NY, PA & DC)	\$ 2.75	\$ 2.21	\$ 0.54	5	\$ 0.11
Lower Atlantic (FL, GA, NC, SC, VA, WV)	\$ 2.56	\$ 2.21	\$ 0.35	5	\$ 0.07
Midwest (IL, IN, IA, KS, KY, MI, MN, MO, NE, ND, SD, OH, OK, TN, WI)	\$ 2.50	\$ 2.21	\$ 0.29	5	\$ 0.06
Gulf Coast (AL, AR, LA, MS, NM, TX)	\$ 2.47	\$ 2.21	\$ 0.26	5	\$ 0.05
Rocky Mtn. (CO, ID, MT, UT, WY)	\$ 2.45	\$ 2.21	\$ 0.24	5	\$ 0.05
West Coast (AL, AZ, CA, HI, NV, OR, WA)	\$ 2.43	\$ 2.21	\$ 0.22	5	\$ 0.04

Source: EIA based on December 8, 2008 Low Sulfur Diesel Prices

The average base freight rate, minus the baseline fuel price, divided by the miles per gallon is the fuel surcharge rate. The fuel surcharge amount is the fuel surcharge rate multiplied by the number of miles driven. So, if the haul is 100 miles, the fuel surcharge would be \$0.13 in New England or \$0.04 in the West Coast. The difference in the amount of the fuel surcharge does present a problem for carriers that travel cross country through multiple regions

Shippers that use multiple carriers will provide their own fuel surcharge schedule to truck operators to use when developing their base rates for that shipper. A shipper provided fuel surcharge program helps minimize accounting difficulties and allows shippers to determine what the base freight rates are. As a result, the truck operator will adjust the base rate to meet the new fuel surcharge rate, provided the truck operator wants the business.

**2. Class I Railroads**

On January 26, 2007, the Surface Transportation Board of the Department of Transportation ruled that railroads could no longer apply a fuel surcharge as a percentage of the freight revenue on regulated traffic. To comply with this rule, the Class I railroads implemented a mileage based fuel surcharge starting in second quarter 2007.

The Class I railroads are in a position to better pass along fuel cost increases than any other mode of transportation. Because railroads own their own track, a railroad can be the exclusive carrier on many routes.

Class I railroads use two basic indices to base their fuel surcharge rates, the On Highway Diesel Fuel (OHD) price or the West Texas Intermediate (WTI) crude oil price. The respective base prices and incremental change in fuel cost and commodity type for fuel surcharges by railroad are shown in Table 2 and Table 3 respectively. The change in fuel varies by railroad and commodity. For example, BNSF has the lowest base fuel rate as shown in Table 2; however, for coal, they have the highest incremental change in fuel cost as shown in Table 3.

**Table 2: Class I Railroad Base Fuel Rates**

Railroad	On-Highway Diesel Price (\$ per Gallon)					West Texas Intermediate Crude Price (\$ per barrel)				
	Bulk	Coal	Grain	Intermodal	All Other Carload	Bulk	Coal	Grain	Intermodal	All Other Carload
BNSF	N/A	1.25	1.25	1.25	1.25	N/A	N/A	N/A	N/A	N/A
CN	2.30	2.30	2.30	N/A	2.30	25.00	25.00	25.00	N/A	25.00
CP	2.25	2.25	2.25	N/A	N/A	24.00	24.00	24.00	N/A	24.00
CSX	200	200	200	N/A	200	23.00	23.00	23.00	N/A	23.00
KCS	2.30	2.30	2.30	N/A	2.30	N/A	N/A	N/A	N/A	N/A
NS	N/A	N/A	N/A	N/A	N/A	90.00	90.00	90.00	N/A	90.00
UP	2.30	2.30	2.30	N/A	2.30	N/A	N/A	N/A	N/A	N/A

Source: Class I railroad websites

Notes: CSX On Highway Diesel Fuel price is based on cents per gallon while all the other Class I Railroads use \$ per gallon. N/A = not available or not reported.

**Table 3: Change in Fuel Surcharge (\$ per mile) by Incremental Change in Fuel Cost (above base level), by Class I Railroad and Commodity Type**

Class I Railroad	Fuel Index	Coal		Ag Products		All Other Carload		Bulk	
		Change in Fuel	Change in FSC	Change in Fuel	Change in FSC	Change in Fuel	Change in FSC	Change in Fuel	Change in FSC
BNSF	OHD (\$/gal.)	\$ 0.0600	\$ 0.0100	\$ 0.0400	\$ 0.0100	\$ 0.0400	\$ 0.0100	N/A	N/A
CN	OHD (\$/gal.)	\$ 0.0300	\$ 0.0058	\$ 0.0300	\$ 0.0058	\$ 0.0300	\$ 0.0060	\$ 0.0300	\$ 0.0058
CP	OHD (\$/gal.)	\$ 0.0240	\$ 0.0050	\$ 0.0240	\$ 0.0050	\$ 0.0220	\$ 0.0050	\$ 0.0240	\$ 0.0050
CSX	OHD (\$/gal.)	\$ 0.0400	\$ 0.0100	\$ 0.0400	\$ 0.0100	\$ 0.0400	\$ 0.0100	N/A	N/A
KCS	OHD (\$/gal.)	\$ 0.0400	\$ 0.0100	\$ 0.0400	\$ 0.0100	\$ 0.0400	\$ 0.0100	N/A	N/A
NS	WTI (\$/bbl.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UP	OHD (\$/gal.)	\$ 0.0500	\$ 0.0100	\$ 0.0500	\$ 0.0100	\$ 0.0500	\$ 0.0100	N/A	N/A

Source: Class I railroad websites

Notes: N/A = not available or not reported. Canadian railroads use the term “Bulk” to represent coal, grain, sulphur, and fertilizer. NS does not report a mileage based fuel surcharge program on their website. Intermodal is reported on percentage base instead mileage based.

**BNSF Railway (BNSF)**

The BNSF uses the OHD price to assess its fuel surcharge on carload shipments, starting at a base fuel price of \$1.25 per gallon. BNSF was the first railroad to implement a mileage-based fuel surcharge program. The fuel surcharge is applied to

movements that originate and terminate on BNSF and to the BNSF portion of Rule 11 shipments (an interline shipment between carriers where each carrier bills the customer separately for their services). The mileage surcharge also applies to certain movements involving BNSF and one or more short lines. Customers using BNSF can calculate their mileage via BNSF's website, [www.bnsf.com](http://www.bnsf.com).

BNSF also applies a mileage-based fuel surcharge to interline moves for which BNSF has pricing authority. Interline mileage will be the non-familiarized interactive miles available in ALK Technologies' PC\*Miler Rail router. BNSF uses the PC\*Miler and the fuel surcharge router to calculate total miles for those interline moves.

### **Canadian National (CN)**

The Canadian National fuel surcharge is indexed to EIA's OHD. The base rate starts at \$2.30 per gallon (for this report, assume all currencies are USD unless otherwise stated). The mileage based fuel surcharge varies based on two commodities: bulk and other carload commodities. The surcharge for bulk commodities varies by \$0.00575 for each \$0.03 change in the price of OHD. The surcharge for other carload commodities varies by \$0.0060 for each \$0.03 change in the price of OHD as seen in Table 3 above.

### **Canadian Pacific (CP)**

Effective January 1, 2009, the Canadian Pacific fuel surcharge was indexed to the WTI with a trigger price of \$24 per barrel. The revised program includes two monthly assessments, the first through the fifteenth and the sixteenth through the last day of the month. For the first half of the month, the fuel surcharge is based on the 15 day average WTI price prior to twenty days preceding the first day of the month. For the second half of the month the 15 day average WTI price prior to twenty days preceding the sixteenth of the month will be used.

For the percentage based fuel cost adjustment, tariff 9000, when the WTI equals or exceeds \$24, the applied fuel surcharge will be 2% of the linehaul freight charges. When the WTI exceeds \$27 the fuel surcharge will increase an incremental 0.4%, and will be applied to the linehaul freight charges.

For the mileage based fuel cost adjustment, tariff 9700, when the OHD equals or exceeds \$2.25 per gallon of the applicable 15 day period, the fuel surcharge will be assessed. For bulk shipments the fuel surcharge will be adjusted by one-half cent per revenue mile per railcar for each 2.4 cent change in OHD average price in excess of \$2.249 per gallon. The carload factor will be adjusted by one-half cent per revenue mile for each 2.2 cent change in the OHD average price in excess of \$2.249 per gallon. The source mileage will be ALK Technologies PC\*Miler Rail.

### **CSX Transportation (CSX)**

The CSX fuel surcharge is indexed to the OHD. CSX uses the monthly average from two months prior to the current month for diesel price. The index is published monthly on Wednesdays following the last Monday of each month.

Beginning at \$2 per gallon OHD, and for each additional 4 cents, there will be a fuel surcharge of 1 cent per rail mile (one-way) from origin to destination. The source mileage will be ALK Technologies PC\*Miler Rail. After retrieving the miles, multiply the miles for the one-way trip times the applicable cents per mile.

**Kansas City Southern (KCS)**

The Kansas City Southern fuel surcharge is applicable when the EIA OHD monthly average price reaches or exceeds \$2.30 per gallon. Once the OHD prices average \$2.30 per gallon, the fuel surcharge increases \$0.01 per mile for each \$0.04 per gallon change in OHD after the initial surcharge of \$0.05 at the \$2.30 level. The fuel surcharge rates are changed on the first day of each month based on the monthly average OHD cost per gallon from two months prior.

**Norfolk Southern (NS)**

In June 2008, NS issued a revised fuel surcharge program. The revised surcharge program applies to all local and joint line traffic moving on NS issued private price authorities with notes that reference specific tariffs. The program is based on the monthly average West Texas Intermediate (WTI) crude price. The fuel surcharge will be 0.4% of the linehaul freight charge for every \$1 per barrel, or portion thereof, by which the WTI average price exceeds \$90.

Tariff moves are not assessed a fuel surcharge by NS. Instead, NS rebases the tariff rate to reflect market conditions and the cost of operations.

**Union Pacific (UP)**

The Union Pacific distance or mileage based fuel surcharge program uses the OHD to assess its fuel surcharges. The basis for the surcharge is determined by the average price of the OHD for a calendar month, as reported weekly on the EIA web site ([www.eia.doe.gov](http://www.eia.doe.gov)). In the event the average monthly price of OHD equals or exceeds \$2.30 per gallon, a surcharge beginning at \$0.05 per mile will apply. For every five cent increase above \$2.30 per gallon, the surcharge applied will increase by \$0.01 per mile. If the average OHD price drops below \$2.30 per gallon, no fuel surcharge will be billed to the shipper.

The surcharge will be billed to applicable shipments beginning the second month following the month on which the average price calculation was based. (For example, the average reported price for the month of February 2007 would determine the fuel surcharge applied throughout the month of April 2007.) The PC\*Miler Rail product will be used to calculate total miles. If interline price routing is involved, mileages will be calculated via the revenue route junction(s) of the price used to rate the shipments. Fractions of dollars resulting from the application of a fuel surcharge will be dropped if less than fifty cents and increased to the next whole dollar if fifty cents or more.

### **3. Air Transport**

Due to the high level of fuel use, air carriers generally have a sophisticated hedging program. Companies in other modes of transportation will hedge their fuel costs, but with air carriers it is essential for survival.

Some air carriers have adopted fuel surcharges as a way to limit their margin risk. Margin is the amount of money that must be put up to buy or sell a futures contract. When the respective market moves against the futures position, the carrier must put up more money or unwind the position. In times of high volatility, there is a risk the money the company put aside will not be enough to cover the margin calls.

#### **AMR Corporation (AMR)**

The American Airlines Cargo fuel index is based upon the weekly average spot price of Kerosene-Type Jet Fuel as reported by the EIA in the Weekly Petroleum Status Report. The index is calculated by averaging the weekly spot prices in the New York Harbor, U.S. Gulf Coast, Los Angeles, Rotterdam (ARA) and Singapore markets.

Fuel surcharges are determined when the American Airlines Cargo Fuel Index reaches specific trigger points for two consecutive weeks. Once the index equals, exceeds or falls below the applicable trigger for two consecutive weeks, the American Airlines Cargo fuel surcharge is adjusted accordingly.

#### **United Airlines (UA)**

United Cargo publishes a fuel index based on representative jet fuel prices from around the world. United Cargo bases its decisions on whether to implement, rescind, or increase a fuel surcharge in part using the average weekly jet fuel index.

#### **Other Air Carriers**

The other airlines reviewed in this study, Cathay Pacific, Continental Airlines, Delta Airlines, Japan Airlines, and Northwest Airlines do not provide specific information regarding their fuel surcharge program. Southwest Airlines does not have a fuel surcharge program for passenger travel; however, their cargo business does assess a fuel surcharge.

The fuel surcharge percentage for FedEx Express and UPS services is subject to monthly adjustments based on a rounded average of the U.S. Gulf Coast (USGC) spot price for a gallon of kerosene-type jet fuel. FedEx Ground is based on the OHD. Fuel Surcharges are negotiated separately for international shipments.

### **4. Barge**

Barge companies use a variety of fuel surcharge programs that vary by operator. Some have standard schedules that are updated annually as necessary while others incorporate a fuel escalator on a contract by contract basis. For the most part, the fuel

surcharge or fuel escalator is based on the actual price of marine diesel fuel for the previous month or quarter.

## **5. Ocean**

### **Horizon**

Horizon's fuel surcharge varies for different moves. Their fuel surcharges are based on percentage of container rates and adjust changes to fuel costs.

### **Maersk Lines**

Maersk Lines recently changed its Bunker Adjustment Factor (BAF). The BAF formula has been adjusted for all of Maersk's trade routes. The BAF adjustments are monthly or quarterly depending on the route. The rates are based on twenty and forty foot containers.

### **Matson**

Matson's fuel surcharge is similar to Horizon. Fuel surcharges are based on percentage of container rates and adjust with fuel costs.

### **Trailer Bridge**

Trailer Bridge's ocean fuel surcharge is based on the price of fuel. The fuel surcharges for domestic truck movements are charged on a per mile basis and are stipulated in the Company's tariff at predetermined levels based upon the price of fuel.

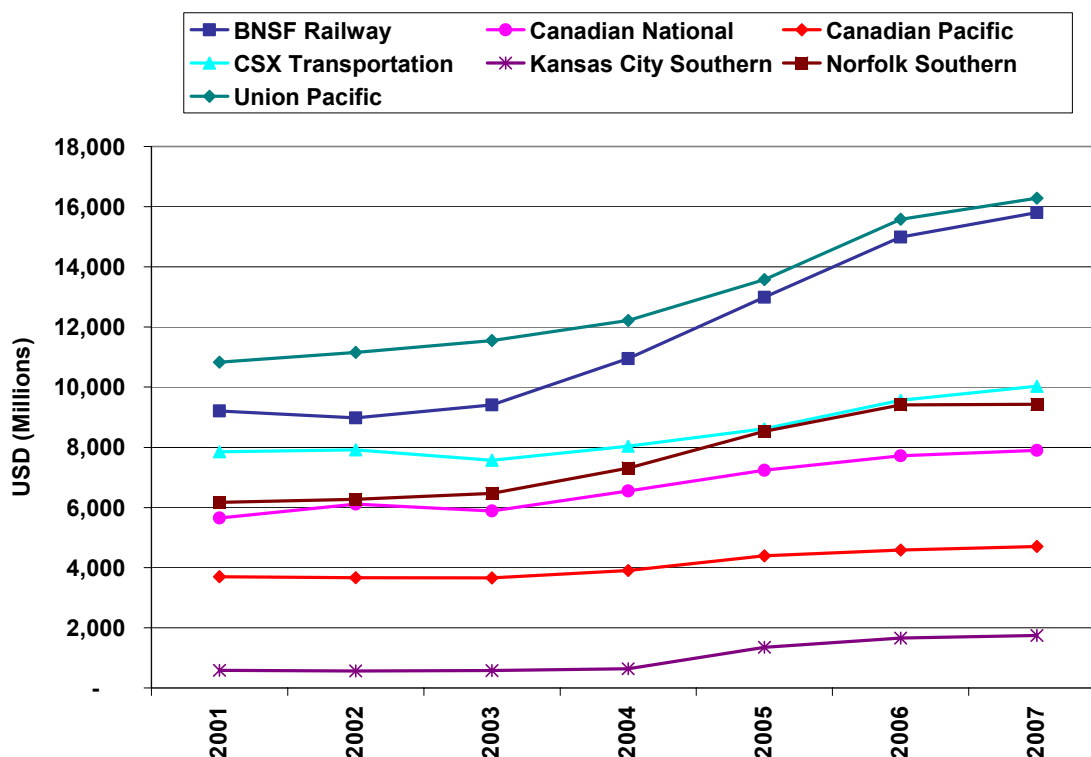
The other ocean carriers reviewed in this study, Hanjin, Seaboard International Shipping Company, and Yang Ming Marine Transport Corporation, did not provide specific information regarding their fuel surcharge program.

### III. Analysis of Fuel Surcharges Incurred and Extracted

#### A. Railroad

Operating revenues among all Class I railroads increased an average 9% annually from 2001-2007. Union Pacific (UP) had the highest operating revenues, but Burlington Northern Santa Fe (BNSF) increased its revenues almost to the level of UP as shown in Figure 7. These two railroads operate mainly in the western United States, west of the Mississippi River. CSX Transportation (CSX) and Norfolk Southern (NS) are located in the eastern United States and have the third and fourth highest operating revenues, respectively. The Canadian National (CN) and Canadian Pacific (CP) are the largest Canadian railroads with substantial operations in the U.S. The operating revenues of these two Canadian railroads are the fifth and sixth largest, respectively. The Kansas City Southern (KCS) railroad operates through out the center of the United States and into Mexico more as a north-south carrier. KCS's operating revenue is the smallest among all Class I railroads.

Figure 7: Class I Railroad Operating Revenues 2001-2007

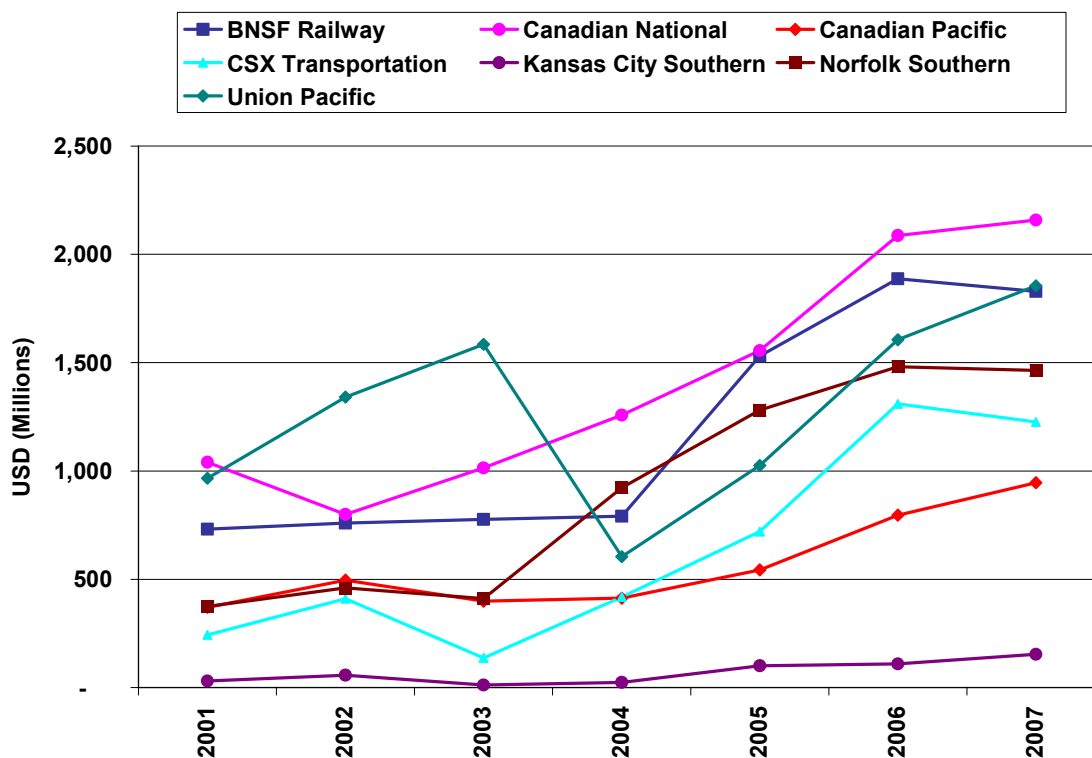


Source: Annual reports of Class I railroads

Since 2005, net revenues at CN exceeded those at BNSF and UP. In 2006 and 2007 CN had some tax benefits that were mentioned in their annual reports. However,

without these tax benefits, CN would still be ahead of BNSF and UP for net revenues. NS has higher net revenues than CSX and CP has higher net revenues than KCS. It is important to note that in 2005 all KCS financials included moves to and from Mexico. Net revenue by Class I railroad is shown in Figure 8.

Figure 8: Class I Railroad Net Revenues 2001-2007



Source: Annual reports of Class I railroads

The seven Class I railroads continued their respective trends toward higher operating and net revenues during 2008. Quarterly earnings for 2008 among the Class I railroads are summarized in Table 4.

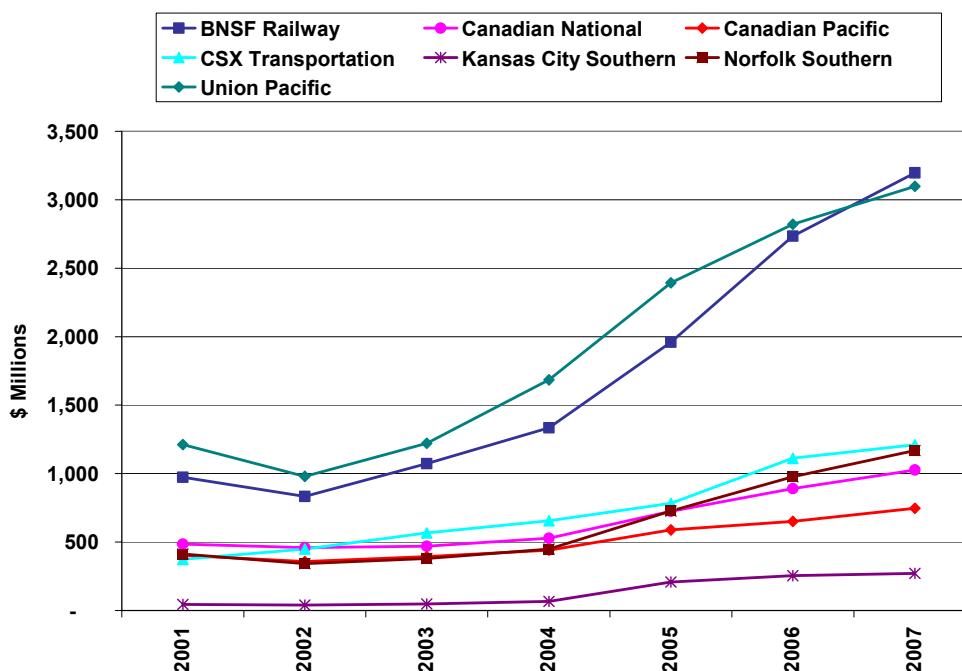
A sizeable portion of a railroad’s expenses is fuel. Fuel expenses are shown in Figure 9. Fuel expenses at BNSF and UP are three times larger than the others.

Table 4: 2008 Quarterly Earnings by Class I Railroad (\$ Millions)

Company and Category	2008Q1	2008Q2	2008Q3
<b>BNSF Railway</b>			
Operating Revenue	4,261	4,478	4,906
Net Income	455	350	695
<b>Canadian National</b>			
Operating Revenue	1,927	2,098	2,257
Net Income	311	459	552
<b>Canadian Pacific</b>			
Operating Revenue	1,147	1,220	N/A
Net Income	91	155	N/A
<b>CSX Transportation</b>			
Operating Revenue	2,713	2,907	2,961
Net Earnings	351	385	382
<b>Kansas City Southern</b>			
Operating Revenue	451	486	492
Net Income	38	55	52
<b>Norfolk Southern</b>			
Operating Revenue	2,500	2,765	2,894
Net Income	291	453	520
<b>Union Pacific</b>			
Operating Revenue	4,270	4,568	4,846
Net Income	443	531	703

Source: Annual reports of Class I railroads

Figure 9: Fuel Costs by Class I Railroad, 2001-2007 (\$ Millions)



Source: Annual reports of Class I railroads

Just like operating revenues, operating expenses have increased over time as well. UP had the highest operating expenses in 2007 followed by BNSF, CSX, NS, CN, CP, and KCS as shown in Table 5.

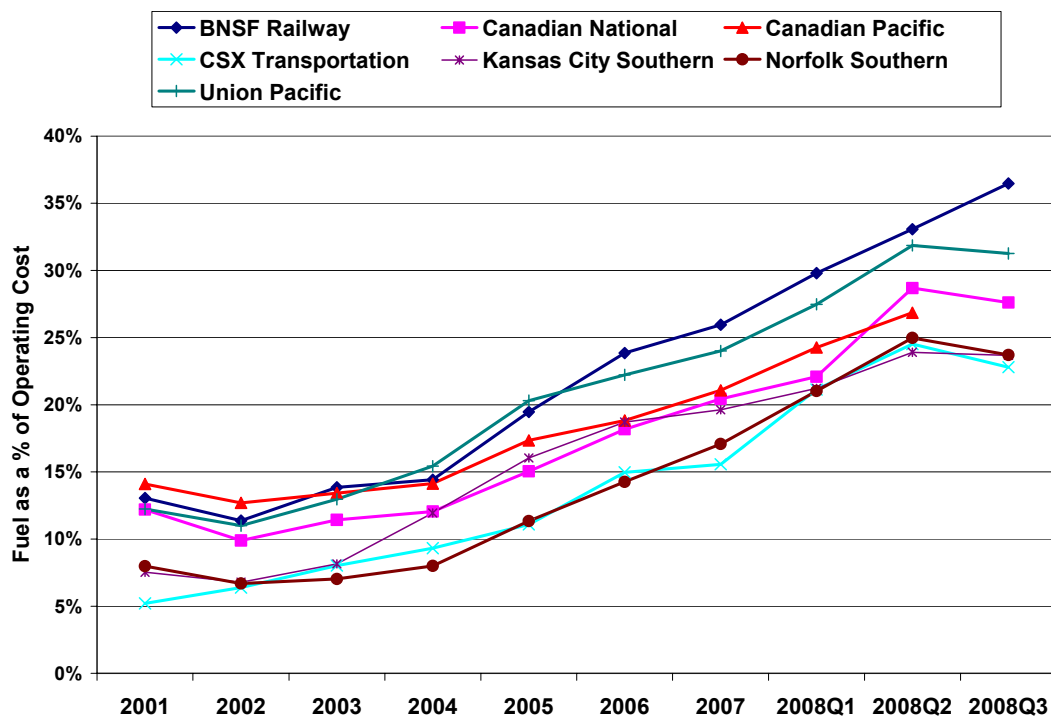
**Table 5: Total Operating Expenses by Class I Railroad (\$ Millions)**

Company	2003	2004	2005	2006	2007	2008Q1	2008Q2	2008Q3
BNSF Railway	7,748	9,260	10,060	11,464	12,316	3,386	3,764	3,699
Canadian National	4,107	4,380	4,822	4,899	5,021	1,404	1,391	1,413
Canadian Pacific	2,931	3,114	3,390	3,455	3,543	949	969	N/A
CSX Transportation	7,053	7,040	7,068	7,428	7,774	2,087	2,190	2,228
Kansas City Southern	581	556	1,290	1,355	1,380	367	382	381
Norfolk Southern	5,404	5,610	6,410	6,850	6,847	1,922	1,966	2,000
Union Pacific	9,418	10,920	11,783	12,694	12,908	3,482	3,637	3,631

Source: Annual reports of Class I railroads

Fuel represents over 30% of BNSF and UP's operating cost. Through 2008, BNSF's fuel as a percentage of total costs increased to more than 35%. Fuel as a percent of costs at NS increased as well, peaking at one-fourth of all expenses. Fuel as a percent of operating costs leveled off or decreased at the other railroads. CP had not reported its third quarter 2008 earnings at the time of this report, but more than likely its fuel percentage peaked as well. Fuel as percent of total operating cost by railroad is shown in Figure 10.

**Figure 10: Fuel as a Percentage of Operating Cost by Class I Railroad**



Source: Annual and quarterly reports of Class I railroads

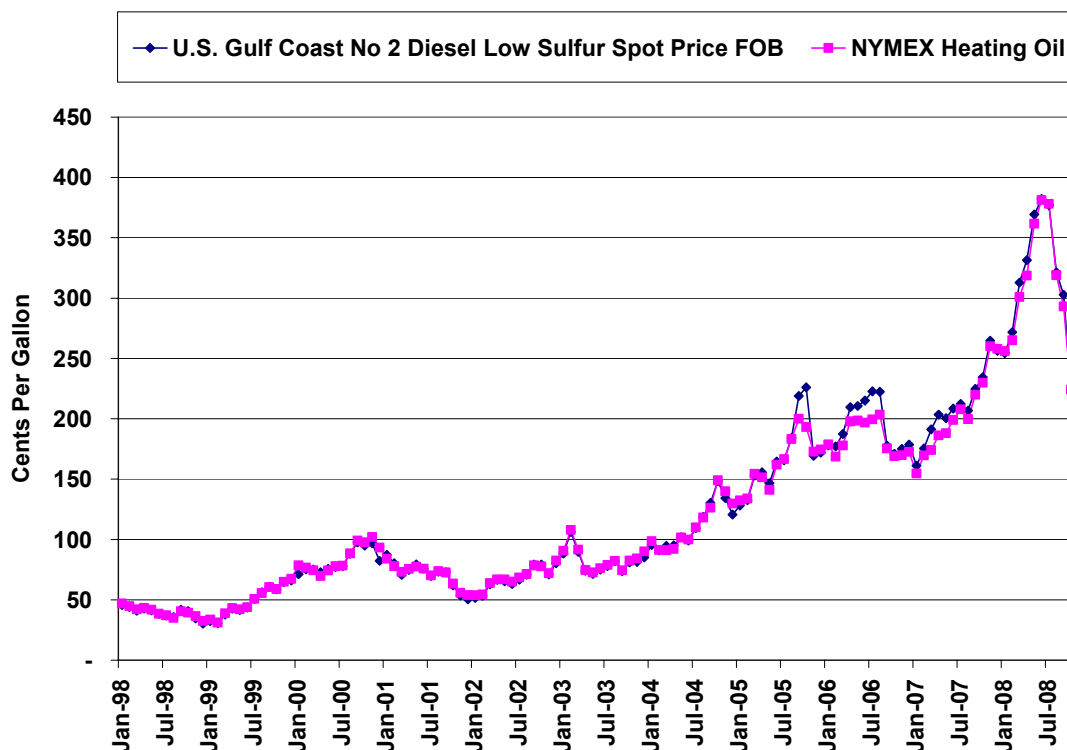
Some transportation providers and shippers hedge their fuel as a mechanism to offset or minimize their exposure to fuel price volatility. Hedging fuel risk is taking an opposite position in a futures market. A futures position is a standardized forward contract that will be executed in the future. If a company knows that it has to sell a particular asset at a particular time in the future, it can hedge by taking a short position, therefore locking in the price of delivery. This is called a short hedge. Similarly, a company that knows that it will need an asset in the future can take a long hedge, thus locking in the price of purchase.

The difference between a futures price and a local price is basis. Using futures shifts the price risk from flat or cash price risk to basis risk. It is very important to note that hedging does not improve the financial outcome it just reduces the uncertainty in the price of a commodity.

A perfect hedge is when the future price is 100% correlated with the cash price. Since fuel surcharges are derivative contracts, a contract that is based on a published price, a perfect hedge is possible by basing the fuel surcharge on the futures price. For example, if a fuel surcharge for a trucking company is based on the nearby NYMEX Heating Oil Contract, then a shipper could hedge the fuel cost by buying a NYMEX Heating Oil Contract in the month the product will be shipped.

If the fuel surcharge is based on the EIA reported OHD price, the NY Heating Oil Contract could be used to hedge the fuel cost, but basis risk will exist. The correlation between the two prices is highly related as shown in Figure 11.

Figure 11: Gulf Coast Number 2 Diesel and NYMEX Heating Oil



Source: EIA and NYMEX

As an example of a fuel hedge opportunity, consider that if during May 2008, a December NYMEX Heating Oil Contract was bought at \$3.6163 per gallon to insure the cost of fuel did not continue to increase. The EIA Gulf Coast Diesel Number 2 Fuel in May cost \$3.6931 per gallon. In November, the hedge was unwound with the NYMEX Heating Oil Contract at \$1.8513 per gallon and the EIA Gulf Coast Diesel Number 2 Fuel at \$1.8068 per gallon. Hedging prevented the shipper from making \$1.77 per gallon of diesel on the fuel surcharge contract as shown in Table 6. The shipper did gain \$0.12 per gallon of diesel in basis moves.

Table 6: Diesel Fuel Hedging Example (Dollars per Gallon)

Category	May-08	Nov-08	Gain or Loss
EIA Gulf Coast Diesel Number 2 Fuel	\$3.69	\$1.81	\$1.89
December NYMEX Heating Oil Contract	\$3.62	\$1.85	(\$1.77)
Basis	\$0.08	(\$0.04)	\$0.12

In addition to fuel surcharges, some railroads report their base fuel hedging programs to offset rising fuel costs. These hedges used by railroads are usually made several months in advance. Some railroads do not report their participation in these programs, or have recently discontinued the use of such programs. The amount of fuel hedged and the cost involved are summarized in Table 7. BNSF has participated in fuel hedge

programs for a number of years, and appears to be the leader in such actions. The UP has restarted its fuel hedging program in 2007. However, the specific amount of hedging UP did in 2007 and 2008 is unknown.

**Table 7: Hedging Activities by Class I Railroad**

Company and Category	2001	2002	2003	2004	2005	2006	2007	2008
<b>BNSF Railway</b>								
Hedged Gallons (millions)	378	296	101	95	158	101	6	42
Hedge Cost (\$ per Gallon)	0.50	0.57	0.86	0.87	1.03	1.04	1.30	2.67
<b>Canadian National</b>								
Hedged Gallons (millions)	200	264	263	196	203	69	DISC	DISC
Hedge Cost (\$ per Gallon)	0.63	0.61	0.59	0.63	0.74	0.89	DISC	DISC
<b>Canadian Pacific</b>								
Hedged Gallons (millions)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hedge Cost (\$ per Gallon)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>CSX</b>								
Hedged Gallons (millions)	N/A	N/A	N/A	236	359	57	DISC	DISC
Hedge Cost (\$ per Gallon)	N/A	N/A	N/A	0.70	0.81	0.84	DISC	DISC
<b>Kansas City Southern</b>								
Hedged Gallons (millions)	N/A	N/A	N/A	10	3	N/A	N/A	N/A
Hedge Cost (\$ per Gallon)	N/A	N/A	N/A	0.65	0.68	N/A	N/A	N/A
<b>Norfolk Southern</b>								
Hedged Gallons (millions)	370	393	374	157	N/A	N/A	N/A	N/A
Hedge Cost (\$ per Gallon)	0.68	0.66	0.76	0.86	N/A	N/A	N/A	N/A
<b>Union Pacific</b>								
Hedged Gallons (millions)	407	552	145	120	DISC	DISC	DISC	DISC
Hedge Cost (\$ per Gallon)	0.66	0.56	0.63	0.74	DISC	DISC	DISC	DISC

Source: Annual and quarterly reports of Class I railroads

Notes: UP had two fuel basis swaps cover a total of 151 million gallons of diesel fuel for the period August 2006 through July 2008. N/A = not available or not reported. DISC = Discontinued

Total fuel recoveries include revenues from fuel surcharges and hedging activities. Among the railroads that reported fuel hedging activity, the BNSF had the greatest success with fuel recovery through its fuel surcharges and hedging activities. However, NS recovered the greatest percentage of total fuel costs. Revenues, fuel expenses, and fuel recoveries for the seven Class I railroads are shown in Table 8. The surcharge fuel recovery ratio represents the amount of fuel surcharge revenues collected divided by total fuel costs.

Table 8: Overview of Revenues, Costs, and Fuel Recoveries by Class I Railroads (\$ Millions)

Company and Category	2003	2004	2005	2006	2007	2007Q2	2007Q3	2007Q4	2008Q1	2008Q2	2008Q3
<b>BNSF Railway</b>											
Operating Revenue	9,413	10,946	12,987	14,985	15,802	3,843	3,948	4,366	4,261	4,478	4,906
Net Income	777	791	1,531	1,887	1,829	433	530	517	455	350	695
Total Fuel Cost	1,073	1,335	1,959	2,734	3,197	771	814	960	1,009	1,245	1,349
Fuel Recovery	110	357	1,100	1,700	1,850	N/A	N/A	N/A	660	840	1,080
Fuel Surcharge Recovery Ratio	10%	27%	56%	62%	58%	N/A	N/A	N/A	65%	67%	80%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	68	338	531	341	310	N/A	N/A	N/A	N/A	N/A	N/A
<b>Canadian National</b>											
Operating Revenue	5,884	6,548	7,240	7,716	7,897	2,027	2,023	1,941	1,927	2,098	2,257
Net Income	1,014	1,258	1,556	2,087	2,158	516	485	833	311	459	552
Total Fuel Cost	469	528	725	890	1,026	249	251	307	310	399	390
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	47	52	50	17	DISC	DISC	DISC	DISC	DISC	DISC	DISC
Recovery from Hedging	49	112	117	64	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Canadian Pacific</b>											
Operating Revenue	3,661	3,903	4,392	4,583	4,708	1,216	1,188	1,188	1,147	1,220	1265
Net Income	399	413	543	796	946	257	219	342	91	155	173
Total Fuel Cost	393	440	588	651	747	194	186	196	230	260	276
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	10	33	13	8	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	26	32	59	32	21	5	4	N/A	4	N/A	N/A
<b>CSX Transportation</b>											
Operating Revenue	7,573	8,040	8,618	9,566	10,030	2,530	2,501	2,577	2,713	2,907	2,961
Net Earnings	137	418	720	1,310	1,226	324	407	365	351	385	382
Total Fuel Cost	566	656	783	1,112	1,210	289	305	357	432	526	497
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	239	289	384
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	55%	55%	77%
Percent of Fuel Hedged (%)	N/A	18	48	9	DISC	DISC	DISC	DISC	DISC	DISC	DISC
Recovery from Hedging	N/A	63	249	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(continued)

**Table 8: Overview of Revenues, Costs, and Fuel Recoveries by Class I Railroads (\$ Millions)**  
*(Continued)*

Company and Category	2003	2004	2005	2006	2007	2007Q2	2007Q3	2007Q4	2008Q1	2008Q2	2008Q3
<b>Kansas City Southern</b>											
Operating Revenue	581	640	1,352	1,660	1,743	427	441	460	451	486	492
Net Income	12	24	101	109	154	30	47	55	38	55	52
Total Fuel Cost	47	66	207	254	271	66	67	76	78	91	90
Fuel Recovery	4	17	82	128	133	N/A	N/A	N/A	42	49	63
Fuel Surcharge Recovery Ratio	9%	25%	39%	50%	49%	N/A	N/A	N/A	53%	53%	69%
Percent of Fuel Hedged (%)	25	13	4	DISC	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Norfolk Southern</b>											
Operating Revenue	6,468	7,312	8,527	9,407	9,432	2,378	2,353	2,454	2,500	2,765	2,894
Net Income	411	923	1,281	1,481	1,464	394	386	399	291	453	520
Total Fuel Cost	380	449	727	977	1,169	249	258	353	404	491	474
Fuel Recovery	N/A	N/A	401	352	DISC	N/A	N/A	N/A	319	410	535
Fuel Surcharge Recovery Ratio	N/A	N/A	55%	36%	N/A	N/A	N/A	N/A	79%	84%	113%
Percent of Fuel Hedged (%)	62	63	N/A	N/A	DISC	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	46	140	148	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Union Pacific</b>											
Operating Revenue	11,551	12,215	13,578	15,578	16,283	4,046	4,191	4,197	4,270	4,568	4,846
Net Income	1,585	604	1,026	1,606	1,855	446	532	491	443	531	703
Total Fuel Cost	1,221	1,684	2,393	2,821	3,098	753	786	894	957	1,159	1,135
Fuel Recovery	112	330	1,017	1,619	1,478	N/A	N/A	N/A	453	585	750
Fuel Surcharge Recovery Ratio	9%	20%	42%	57%	48%	N/A	N/A	N/A	47%	50%	66%
Percent of Fuel Hedged (%)	13	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	28	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Annual and quarterly reports of Class I railroads

Notes: Negative numbers in the hedging rows indicate the company lost money on its hedging activity, while a positive number is the amount gained from hedging activity. KCS: Starting in 2005, all numbers include U.S. and Mexico for all categories. CP: hedge amounts are in Canadian Dollars, all other numbers are in U.S. Dollars. CP had 3% of its fuel hedged in 2008 and 2% in 2009. They have no hedges for 2010. N/A = not available or not reported. DISC = Discontinued. CN does not directly report fuel surcharge revenue. However, STB data shows fuel surcharge revenues for Grand Trunk Railway (CN subsidiary in U.S.) and Soo Line Railroad (CP subsidiary in U.S.) as shown in Table 9. CSX did not report fuel surcharge recovery data in their financial or SEC filings; as a result, STB data was used for this table.

Class I railroads are required to report fuel surcharge information for movements in the United States to the Surface Transportation Board (STB). Data from Class I railroad annual reports and SEC filings were shown Table 8. However, STB numbers are used in Table 9. STB and company annual reports are different based on reporting timelines and revisions made later in the year that impact previous quarters' financial statements.

Total fuel cost and fuel recovery for 2008 were summed together from first quarter 2008 through fourth quarter 2008 as shown in Table 9. Increases in fuel surcharge recovery ratios were realized from first quarter 2008 until fourth quarter 2008. Fourth quarter 2007 was included in the total for 2008 to show the increase in fuel surcharge recovery from 2007 through 2008 (also shown in Figure 12).

**Table 9: Class I Railroad Fuel Cost, Fuel Recovery, and Fuel Recovery Ratios for Fourth Quarter 2007 through Fourth Quarter 2008 as Reported by STB**

Railroad	2007Q4	2008Q1	2008Q2	2008Q3	2008Q4	Total 2008	Total Q4 07 and 08
<b>BNSF</b>							
Total Fuel Cost	1,007	1,061	1,306	1,372	969	4,708	5,715
Fuel Recovery	534	641	816	1,034	750	3,241	3,774
Fuel Surcharge Recovery Ratio	53%	60%	62%	75%	77%	69%	66%
<b>CSX</b>							
Total Fuel Cost	378	432	526	497	322	1,776	2,154
Fuel Recovery	191	239	289	384	281	1,193	1,384
Fuel Surcharge Recovery Ratio	50%	55%	55%	77%	87%	67%	64%
<b>Grand Trunk Corporation (CN)</b>							
Total Fuel Cost	77	74	98	91	63	326	403
Fuel Recovery	52	63	64	85	60	272	323
Fuel Surcharge Recovery Ratio	67%	85%	65%	93%	95%	83%	80%
<b>KCS US</b>							
Total Fuel Cost	47	50	59	61	39	208	255
Fuel Recovery	24	28	33	45	32	138	162
Fuel Surcharge Recovery Ratio	50%	55%	56%	74%	83%	66%	63%
<b>NS</b>							
Total Fuel Cost	357	408	497	479	275	1,659	2,016
Fuel Recovery	242	319	409	535	360	1,623	1,864
Fuel Surcharge Recovery Ratio	68%	78%	82%	112%	131%	98%	92%
<b>Soo Line Railroad (CP)</b>							
Total Fuel Cost	34	39	46	41	26	152	186
Fuel Recovery	16	20	23	33	23	98	114
Fuel Surcharge Recovery Ratio	47%	51%	49%	80%	87%	65%	61%
<b>UP</b>							
Total Fuel Cost	908	957	1,158	1,135	732	3,982	4,890
Fuel Recovery	409	453	585	750	534	2,323	2,732
Fuel Surcharge Recovery Ratio	45%	47%	51%	66%	73%	58%	56%

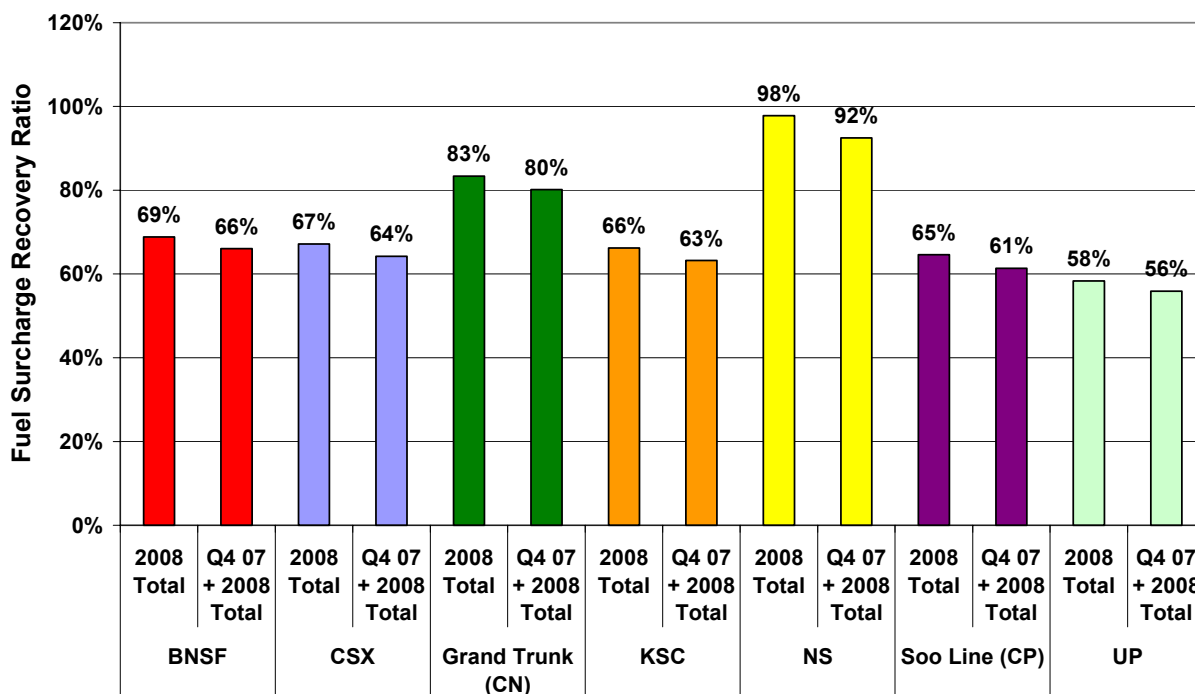
Source: STB Railroad Fuel Surcharge Recovery Quarterly Reports

Notes: Total Fuel Cost and Fuel Recovery are reported as millions U.S. dollars. CN, CP, and KCS are all represented as U.S. rail moves only.

Class I railroad fuel surcharge recovery ratios during 2008 were considerably higher than in previous years. The higher ratios reflect the impact of the lag affect used to assess fuel surcharges. Fuel surcharge information reported to the STB for fourth quarter 2007 and 2008 totals is shown in Figure 12 as well as a quarterly breakdown of

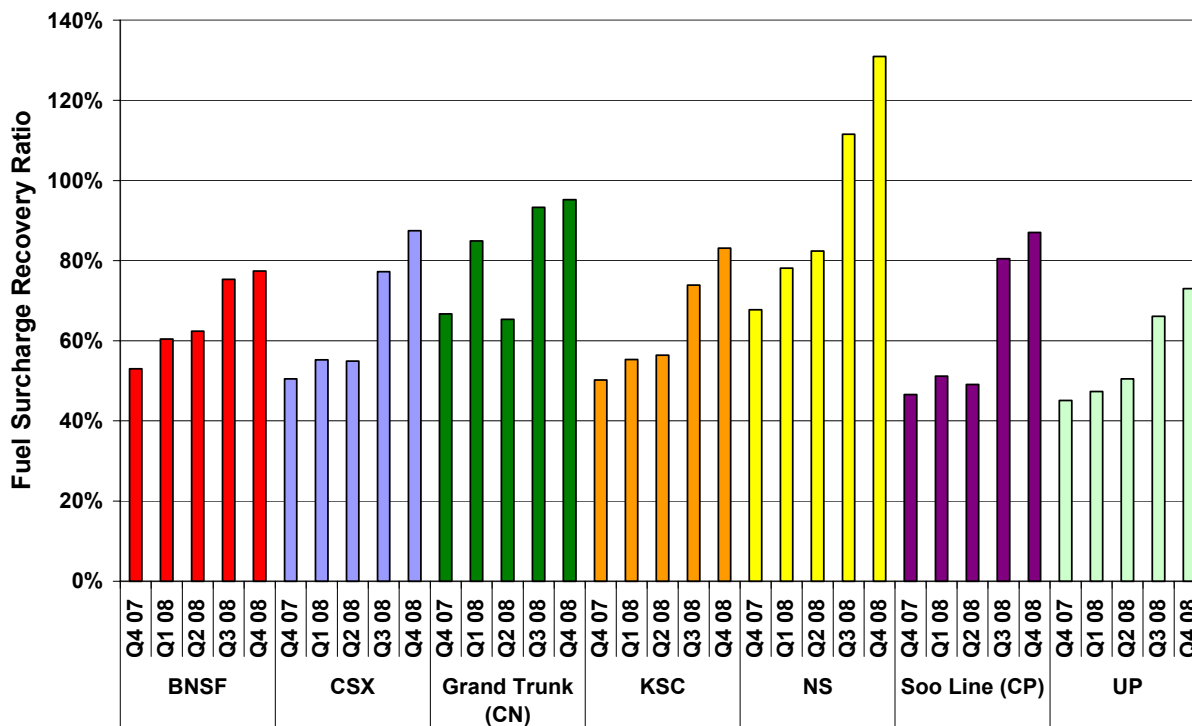
the fuel surcharge information in Figure 13. In 2008, NS had the highest fuel surcharge recovery at 98% followed by the Grand Trunk Railway (CN) with 83%. Unlike its eastern competitor NS, the CSX fuel recovery ratios were 30 points lower. The western U.S. railroads, BNSF and UP, were more similar in their recovery ratios, around 10% differences.

**Figure 12: Class I Railroad Fuel Surcharge Recovery Ratio for 2008 and Fourth Quarter 2007 plus 2008**



Source: STB Railroad Fuel Surcharge Recovery Quarterly Reports

Figure 13: Class I Railroad Quarterly Fuel Surcharge Recovery, Quarter 4 2007 – Quarter 4 2008



Source: STB Railroad Fuel Surcharge Recovery Quarterly Reports

Total fuel expenses less the fuel surcharge revenues for fourth quarter 2007 through fourth quarter 2008 are shown in Table 10. Most railroads did not report fuel recovery from fuel surcharges in each annual report. However, because the railroads are required to report fuel data to the STB, fuel information was obtained for fourth quarter 2007 through fourth quarter 2008 for all Class I railroads. Norfolk Southern fuel surcharge revenue exceeded their actual fuel costs by \$55 million during the third quarter of 2008 and \$85 million during the fourth quarter of 2008 while paying substantially more during the fourth quarter of 2007 and the first two quarters of 2008. The NS and the other railroads benefited from the rapid drop in the cost of fuel during the second half of 2008 while benefiting from fuel surcharge assessments pegged to two prior when fuel prices were substantially higher.

**Table 10: Total Fuel Cost less Fuel Surcharge Revenue by Class I Railroad (\$ Millions)**

<b>Company</b>	<b>2007Q4</b>	<b>2008Q1</b>	<b>2008Q2</b>	<b>2008Q3</b>	<b>2008Q4</b>
BNSF Railway	473	419	491	338	219
Canadian National	25	11	34	6	3
Canadian Pacific	18	19	23	8	3
CSX Transportation	187	193	237	113	40
Kansas City Southern	23	22	26	16	7
Norfolk Southern	115	89	88	(55)	(85)
Union Pacific	499	504	573	385	198

Source: STB Fuel Surcharge Reports

Notes: Canadian National is represented by Grand Trunk Railway and Canadian Pacific is represented by Soo Line Railroad for STB reporting. Information reported by CN, CP, KCS represent fuel surcharge recovery data for U.S. based movements, fourth quarter 2007 through fourth quarter 2008.

## **B. Ocean**

Six publically traded ocean container lines were analyzed in order to assess their fuel surcharge recovery ratios. Unlike railroads, many container lines did not directly report fuel costs and recovery in their financial reports. Matson listed number of barrels of oil purchased with high and low prices paid during the year. The mid point of those prices was used to calculate total fuel costs by multiplying the average price by the number of gallons purchased by year.

Maersk Shipping Lines had the highest operating and net revenues of the six ocean carriers used in this study. Like rail, fuel costs have escalated over the years for these carriers. Unlike the Class I railroads, ocean carriers are international companies and acquire fuel from all parts of the world from various international shipping lanes. For example, an ocean liner in transit from Asia to the East Coast United States may receive fuel in the Mediterranean Sea. This leads to currency differentials and may be the reason each company does not clearly explain their fuel cost from year to year. Financial information as well as fuel recoveries through surcharges and hedging activities is shown in Table 11.

In 2007, Maersk stated in its 2007 annual report their fuel costs totaled \$2,970 million. Maersk’s fuel surcharge program recovered \$1,485 million of the fuel cost, approximately a 50% recovery during 2007. Since the other international companies either did not mention their fuel recovery or fuel cost in the same year, a fuel recovery ratio could not be calculated.

For domestic shipping companies, Trailer Bridge and Matson had higher fuel recoveries than Horizon. Trailer Bridge and Matson recovered nearly 70% or higher of their fuel cost through their fuel surcharges in the years 2004 to 2007. Using information from Matson’s financial statements, their fuel surcharge per container the past seven years

varied from 3.25% in 2001 to 23.5% in 2007, and 19.5% through third quarter 2008. Matson adds the calculated fuel surcharge (the percent times the container rate) to the rate per container. The base price is established on market conditions for fuel and adjusted every month or two.

**Table 11: Financial and Fuel Recovery Information by Ocean Carrier (\$Millions)**

<b>Company and Category</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Hanjin Shipping</b>							
Operating Revenue	N/A	3,617	4,671	5,416	5,841	6,341	7,466
Net Revenue	N/A	15	248	564	472	482	157
Total Fuel Cost	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Horizon Lines</b>							
Operating Revenue	715	804	886	980	1,096	1,116	1,207
Net Revenue	18	22	15	14	(18)	72	29
Total Fuel Cost	N/A	N/A	136	148	168	170	178
Fuel Recovery	N/A	N/A	44	59	88	134	145
Fuel Surcharge Recovery Ratio	N/A	N/A	33%	40%	52%	79%	82%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	0	0	(1)	N/A
<b>Maersk Line</b>							
Operating Revenue	18,014	19,308	23,970	26,490	34,843	43,743	51,218
Net Revenue	784	1,370	3,169	4,690	3,389	2,723	3,427
Total Fuel Cost	N/A	N/A	N/A	N/A	2,000	2,700	2,970
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	1,485
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	50%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	22	33	12	102	132	110	249
<b>Matson</b>							
Operating Revenue	673	680	776	850	878	946	1,007
Net Revenue	61	42	93	108	128	106	127
Total Fuel Cost	25	38	46	52	79	94	148
Fuel Recovery	11	16	25	37	55	98	116
Fuel Surcharge Recovery Ratio	43%	41%	53%	71%	70%	104%	78%
Percent of fuel hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Company and Category</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Seaboard Intl Shipping Co</b>							
Operating Revenue	385	383	409	499	638	742	822
Net Revenue	24	17	6	62	91	106	104
Total Fuel Cost	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**(continued)**

**Table 11: Financial and Fuel Recovery Information by Ocean Carrier (\$Millions)  
(continued)**

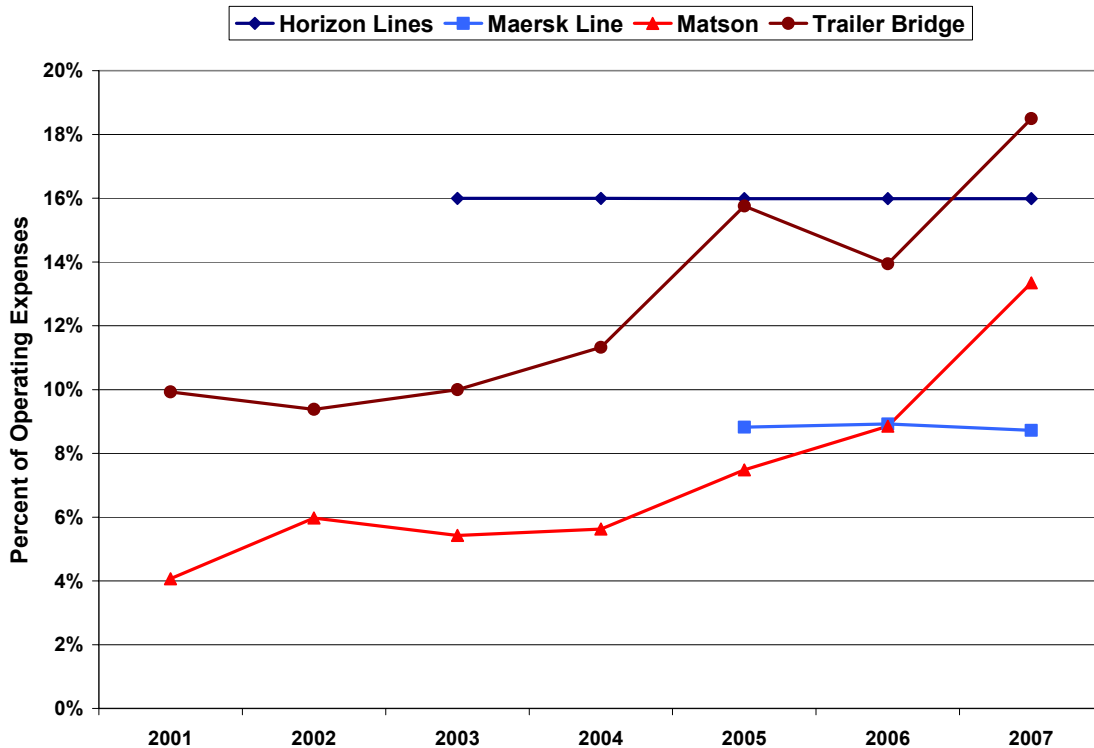
Company and Category	2001	2002	2003	2004	2005	2006	2007
<b>Trailer Bridge</b>							
Operating Revenue	N/A	76	86	99	106	110	116
Net Revenue	N/A	(7)	(5)	4	8	(0)	(0)
Total Fuel Cost	11	7	9	10	14	15	19
Fuel Recovery	N/A	N/A	N/A	7	12	17	17
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	69%	86%	115%	92%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Yang Ming Marine Transport Corp</b>							
Operating Revenue	1,575	1,552	2,111	2,654	3,046	3,301	4,073
Net Revenue	(20)	33	193	294	289	36	185
Total Fuel Cost	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Annual reports of ocean carriers; Federal Reserve Bank of St. Louis.

Notes: Hanjin, Maersk, and Yang Ming financial data was converted into USD based on yearly average currency rates. Seaboard revenue only represents the Marine Segment. Seaboard hedge value represents fuel oil purchases. Matson data is represented by Ocean Transportation. Horizon 2005 fuel recovery is listed in the financial statements as Bunker and Intermodal fuel surcharges included in rates to offset rising fuel costs. Horizon states in their financial statements that fuel surcharge represented 12% of total revenues in 2007 and 2006, and stated 8% for 2005, 6% in 2004, and 5% for 2003. Horizon's total fuel cost is based on the average of 16% of total operating expense because that is the percentage represented by Trailer Bridge. Matson's 2000 fuel cost was used to estimate the other year's fuel expense. Matson's total fuel cost is based on the average cost for a barrel of oil purchased multiplied by the number of barrels purchased. Matson reported fuel surcharge revenues of \$12 million in 2004, \$18 million in 2005, \$43 million in 2006, and \$18 million in 2007. N/A = not available or not reported.

Horizon, Maersk, Matson, and Trailer Bridge reported their fuel cost from 2001 through 2007. However, Hanjin, Seaboard, and Yang Ming did not report their fuel cost for that time period. Trailer Bridge had the ratio of fuel to operating expenses of the four reported ocean carriers as shown in Figure 14. From 2003 until 2007 Horizon's fuel was around 16% of its operating expense, while Maersk was steady for three years around 9%. Matson's fuel percentage of operating expenses mirrored Trailer Bridge in that it seemed to increase at similar rates over the seven year period.

Figure 14: Fuel as a Percentage of Operating Expenses by Ocean Carrier



Source: Annual reports of ocean carriers

In addition to the base freight rate, container lines include several types of surcharges besides a fuel or bunker adjustment factor (BAF) surcharge. Any given rate may include other surcharges including a chassis, container yard, currency adjustment factor, thermal handling charges, container freight station recovery, arbitrary charges, and cotton R., as summarized in Table 12.

**Table 12: Basic Ocean Container Freight Rate Tariff Charges**

Base Ocean Rate	
Surcharges	
SC BAF	Bunker Adjustment Factor
SC Chassis	Chassis Surcharge
SC CY	Container Yard
SC CAF	Currency Adjustment Factor
SC THC	Terminal Handling Charge
SC CFS Rec	Container Freight Station Recovery
SC ARB	Arbitrary Charge
SC Cotton R.	Raw Cotton
Sub-Total	
Total Rate	

Source: USDA-AMS

In 2008, Maersk Lines introduced its new BAF formula to calculate fuel surcharges. This change was applied to all trades as an effort to overcome inconsistencies with pricing and determining specific BAFs. Fuel surcharge rates for various ocean routes and container size are shown in Table 13.

**Table 13: Maersk Line’s Bunker Adjustment Factor (BAF) by Shipping Lane (\$ per Container)**

Shipping Lanes	20 Foot Dry	40 Foot Dry	20 Foot Reefer	40 Foot Reefer
Southern Africa/Europe/Southern Africa	\$ 390	\$ 780	\$ 670	\$ 1,340
Transatlantic - Eastbound	\$ 115	\$ 230	\$ 115	\$ 230
Transatlantic - Westbound	\$ 140	\$ 280	\$ 140	\$ 280
Transatlantic - Eastbound (origin USWC)	\$ 170	\$ 340	\$ 170	\$ 340
Transatlantic - Westbound (destination USWC)	\$ 210	\$ 420	\$ 210	\$ 420
Far East to USWC, Canada, and Guam	\$ 125	\$ 250	\$ 125	\$ 250
Far East to US Atlantic/Gulf & Canada EC	\$ 195	\$ 390	\$ 195	\$ 390
USWC, Canada, and Guam to Far East	\$ 55	\$ 110	\$ 55	\$ 110
US Atlantic/Gulf & Canada EC to Far East	\$ 85	\$ 170	\$ 85	\$ 170

Source: Maersk Line website (www.maersk.com)

Notes: 40 Foot Dry and Reefer also include 40’ high cube and 45’ containers.

An example of a Maersk Line freight rate moving soybeans from Oakland, CA to Tokyo, Japan is shown in Table 14. The rate includes the BAF, handling charges, arbitrary charges, and carrier security charges. Additionally, extra charges such as cleaning fees of \$75 are assessed if this service is requested.

**Table 14: Ocean Container Rate for Soybeans from California to Japan  
(\$ per Forty Foot Container)**

Base Ocean Freight	\$ 1,115.00
Bunker Adjustment Factor	\$ 250.00
Handling Charge - Destination	\$ 320.04
Arbitrary Charge - Destination	\$ 150.00
Carrier Security Charge	\$ 6.00
<b>Total</b>	<b>\$ 1,841.04</b>

Source: Maersk Line website (www.maersk.com)

Notes: Effective December 2008

### C. Truck

Trucking companies move a large number of products across the United States. Like, rail and ocean carriers, they also apply a fuel surcharge to their rates. However, most of the publically traded trucking companies did not report fuel cost or fuel recoveries. J.B. Hunt reported its fuel cost, which increased every year from 2001 to 2007. They also reported their fuel recovery from 2003 to 2007, which increased each year. In 2007, they recovered 104% of their fuel cost as shown in Table 15. Heartland, Marten, and USA Truck reported fuel surcharge recoveries lower than J.B. Hunt. From 2005-2007, J.B. Hunt recovered 95% of their fuel cost through fuel surcharges while Heartland, Marten, and USA Truck averaged 55% among themselves.

J.B. Hunt's fuel recovery numbers are higher because of their rail partnerships to which they typically pay the rail partner a portion of their fuel surcharge revenues for the rail portion. Whenever a truck load is moved by intermodal, the trailer is then subsequently moved by the railroad. This type of move saves the trucking company fuel cost. From the intermodal move, the trucking company collects the fuel surcharge from the shipper while the railroad assesses J.B. Hunt the fuel surcharge for the rail portion.

**Table 15: Financial and Fuel Recovery Information by Trucking Carrier  
(\$ Millions)**

<b>Company and Category</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Con-way Inc.</b>							
Operating Revenue	1,892	1,982	2,164	2,532	2,817	4,221	4,387
Net Revenue	156	143	189	247	331	402	264
Total Fuel Cost	N/A	N/A	N/A	N/A	241	283	359
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Heartland Express</b>							
Operating Revenue	N/A	N/A	405	457	524	572	592
Net Revenue	N/A	N/A	57	62	72	87	76
Total Fuel Cost	N/A	N/A	62	83	124	146	164
Fuel Recovery	N/A	N/A	N/A	29	60	81	87
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	34%	48%	56%	53%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>J.B. Hunt</b>							
Operating Revenue	2,100	2,248	2,434	2,786	3,128	3,328	3,490
Net Revenue	33	52	96	146	207	220	213
Total Fuel Cost	226	211	232	289	389	447	464
Fuel Recovery	N/A	N/A	87	167	336	430	480
Fuel Surcharge Recovery Ratio	N/A	N/A	37%	58%	86%	96%	104%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Landstar System</b>							
Operating Revenue	1,393	1,507	1,597	2,020	2,518	2,514	2,487
Net Revenue	43	49	51	72	120	113	110
Total Fuel Cost	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	174
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Marten Transport</b>							
Operating Revenue	N/A	N/A	N/A	N/A	460	519	560
Net Revenue	N/A	N/A	N/A	N/A	25	25	15
Total Fuel Cost	N/A	N/A	N/A	N/A	108	135	149
Fuel Recovery	N/A	N/A	N/A	N/A	57	75	84
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	53%	56%	56%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Company and Category</b>							
	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Ryder System</b>							
Operating Revenue	5,006	4,776	4,802	5,150	5,741	6,307	6,566
Net Revenue	19	94	131	216	227	249	254
Total Fuel Cost	N/A	N/A	122	138	186	209	232
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(continued)

**Table 15: Financial and Fuel Recovery Information by Trucking Carrier (\$ Millions) (continued)**

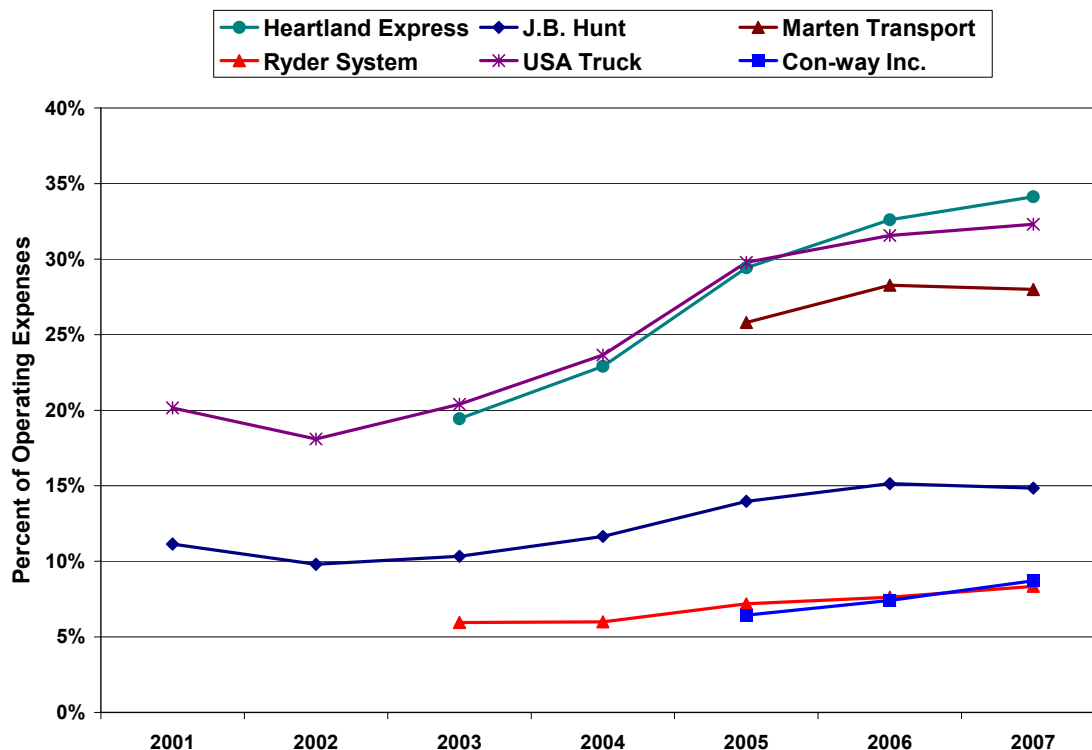
Company and Category	2001	2002	2003	2004	2005	2006	2007
<b>Ryder System</b>							
Operating Revenue	5,006	4,776	4,802	5,150	5,741	6,307	6,566
Net Revenue	19	94	131	216	227	249	254
Total Fuel Cost	N/A	N/A	122	138	186	209	232
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>USA Truck</b>							
Operating Revenue	252	274	299	363	440	466	482
Net Revenue	1	3	3	7	16	12	0
Total Fuel Cost	50	48	59	82	121	139	153
Fuel Recovery	8	5	13	27	63	80	91
Fuel Surcharge Recovery Ratio	16%	11%	21%	33%	52%	58%	59%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>YRC Worldwide</b>							
Operating Revenue	2,492	2,547	2,812	6,767	8,742	9,919	9,621
Net Revenue	15	(94)	41	184	288	277	(638)
Total Fuel Cost	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Annual reports of trucking companies

Notes: Con-Way Revenue is just for Transportation Services 2001-2005, and Menlo Logistics is included in 2006 and 2007. Landstar revenue includes Carrier and Multimodal Segments as well as Insurance. Insurance typically represents nearly 2% of revenue. Starting in 2003 all three segments for Landstar was combined. Ryder fuel costs include a combination of Supply Chain Solutions and Dedicated Contract Carriage. YRC Worldwide revenue includes Yellow and Roadway Transportation. N/A = not available or not reported.

The truck fuel as a percentage of operating expenses is higher than ocean and more similar to the Class I railroads. From 2003 until 2007, Heartland Express increased its recovery ratio from nearly 20% to about 35%. Marten, Ryder, and Con-way only slightly increased their fuel as a percentage of operating expenses. Landstar and YRC Worldwide did not report their fuel cost during 2001 through 2007. Fuel as a percent of operating expenses by truck carrier is summarized in Figure 15.

Figure 15: Fuel as a Percentage of Operating Expenses by Truck Carrier



Source: Annual reports of truck carriers

### D. Parcel Carrier

The two large parcel carriers in this study include Federal Express (FedEx) and United Parcel Services (UPS). These two companies have substantial revenues and fuel expenses. Both companies operate international and domestic services to deliver packages. UPS typically has higher operating and net income than FedEx, however, in 2007 net income at UPS was lower as summarized in Table 16.

The fuel surcharge programs at both companies are based on market conditions for jet fuel and highway diesel fuel. Surcharges are adjusted on a monthly basis. The percentages applied to package costs by each company are shown in Table 17. FedEx Express and UPS Air have the highest percentage of fuel recovery.

**Table 16: Financial and Fuel Recovery Information by Parcel Carrier (\$ Millions)**

Company and Category	2001	2002	2003	2004	2005	2006	2007
<b>Federal Express</b>							
Operating Revenue	19,629	20,607	22,487	24,710	29,363	32,294	35,214
Net Revenue	584	710	830	838	1,449	1,806	2,016
Total Fuel Cost	1,143	1,100	1,349	1,481	2,317	3,256	3,533
Federal Express Ground Revenue	2,237	2,711	3,581	3,910	4,680	5,306	6,043
Ground Operating Income	175	337	494	522	604	705	813
Ground Fuel Cost	4	8	11	16	48	93	117
Ground Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Express Revenue	15,534	15,327	16,467	17,497	19,485	21,446	22,681
Express Operating Income	847	811	783	629	1,414	1,767	1,955
Express Fuel Cost	1,063	1,009	1,231	1,343	2,012	2,786	2,946
Express Fuel Recovery (Dom)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Express Fuel Recovery (Intl)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Freight Revenue	835	1,960	2,443	2,689	3,217	3,645	4,586
Freight Operating Income	55	168	193	244	354	485	463
Freight Fuel Cost	41	72	154	172	257	377	468
Freight Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fed Ex Recovery from Hedging	92	DISC	DISC	DISC	DISC	DISC	DISC
<b>United Parcel Service</b>							
Operating Revenue	30,321	31,272	33,485	36,582	42,581	47,547	49,692
Net Revenue	2,399	3,182	2,898	3,333	3,870	4,202	382
Total Fuel Cost	1,000	952	1,050	1,416	2,085	2,655	2,974
US Domestic Packages Rev	24,391	24,280	25,362	26,960	28,610	30,456	30,985
US Domestic Package Op. Profit	3,969	3,925	3,657	3,702	4,493	4,923	(1,531)
Fuel Recovery Air %	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery Ground %	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery \$ Amount	348	251	395	685	1,368	1,910	1,800
Total International Package Revenue	4,280	4,720	5,609	6,809	7,977	9,089	10,281
International Package Op. Profit	139	338	732	1,149	1,494	1,710	1,831
Fuel Recovery %	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery \$ Amount	N/A	N/A	N/A	231	489	678	690
Total Supply Chain and Freight Revenue	1,650	2,272	2,514	2,813	5,994	8,002	8,426
Total Supp Ch & Freight Op. Profit	(146)	(167)	56	138	156	2	278
Fuel Recovery %	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery \$ Amount	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UPS Total Fuel Surcharge Recovery Ratio	35%	26%	38%	65%	89%	97%	84%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Annual Reports of Parcel Carriers.

Notes: N/A = not available or not reported. DISC = Discontinued.

**Table 17: Annual Average Percentage Fuel Surcharges by Parcel Carrier**

Company and Category	2001	2002	2003	2004	2005	2006	2007
<b>Federal Express</b>							
Ground Fuel Recovery	1.25%	0.63%	1.20%	1.40%	2.00%	3.54%	4.18%
Express Fuel Recovery (Dom)	1.50%	4.00%	3.54%	4.38%	8.96%	13.69%	12.91%
Express Fuel Recovery (Intl)	1.50%	4.00%	3.08%	3.97%	8.60%	12.58%	12.98%
Freight Fuel Recovery	N/A	N/A	3.50%	5.30%	10.90%	16.30%	17.80%
<b>United Parcel Service</b>							
Fuel Recovery Air %	1.25%	0.78%	1.47%	7.07%	10.23%	14.02%	12.17%
Fuel Recovery Ground %	N/A	N/A	N/A	N/A	2.86%	4.13%	4.30%

Source: Annual reports of FedEx and UPS

Notes: N/A = not available or not reported.

## E. Barge

American Commercial Lines (ACL) and Kirby are the only publically traded barge companies. Both carriers reported operating net revenues in their financial statements for 2001-2007. However, only ACL reported a fuel recovery for first quarter 2008. The financial and fuel recovery information for ACL and Kirby is shown Table 18. ACL's first quarter 2008 earnings call revealed that they recovered around 85% of their fuel cost, mostly through fuel surcharges. Their fuel cost was \$54 million.

Information on ACL's hedging program showed that in 2004 the company lost \$520,000. Then in 2006, they lost \$28,000. However, in 2003, they were able to offset \$452,000. Discussions from quarterly transcripts indicated that during third quarter 2008, ACL had offset \$1,000,000 in fuel cost with their fuel hedging activities.

**Table 18: Financial and Fuel Recovery Information by Barge Operator (\$ Millions)**

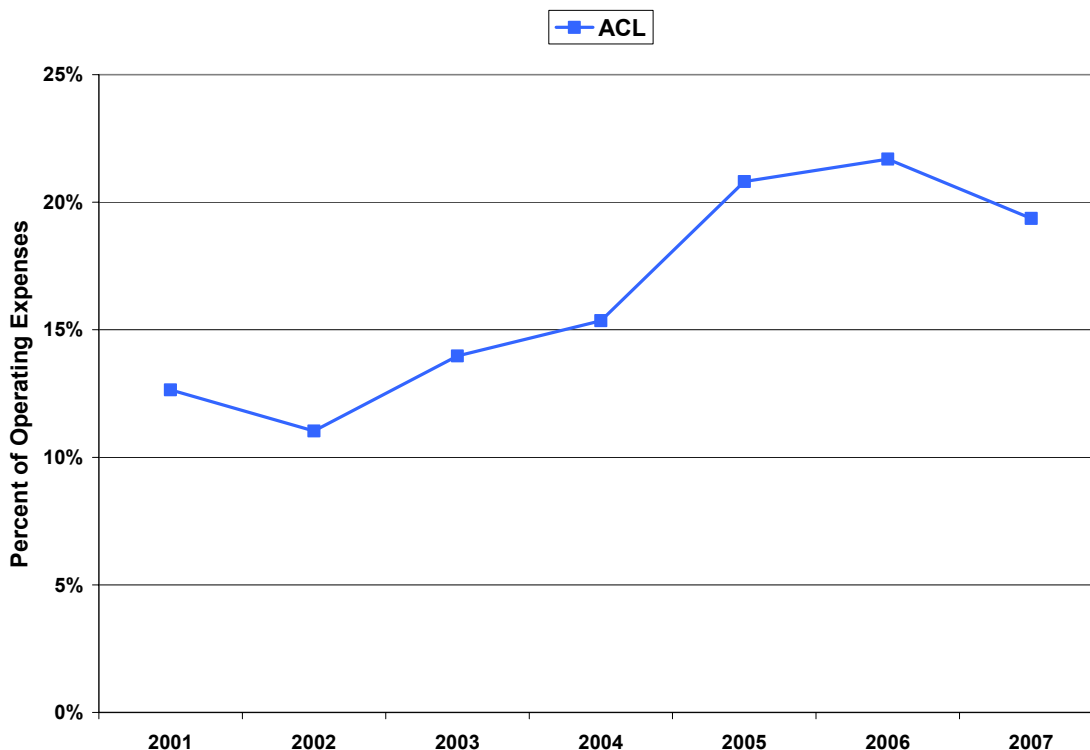
Company and Category	2001	2002	2003	2004	2005	2006	2007	2008Q1
<b>Kirby</b>								
Operating Revenue	567	535	613	675	796	984	1,173	N/A
Net Revenue	40	27	41	50	69	95	123	N/A
Total Fuel Cost	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>ACL</b>								
Operating Revenue	789	713	594	605	715	943	1,050	271
Net Revenue	(6)	(70)	(62)	4	12	92	44	2
Total Fuel Cost	94	79	83	90	127	157	169	54
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	85%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	0	(1)	DISC	(0)	N/A	N/A

Source: Annual reports and quarterly transcripts of barge operators

Notes: Kirby's operating revenue is based on Marine Transportation and Diesel Engine services. Kirby's Marine Transportation sector typically represents 80-85% of revenues. N/A = not available or not reported.

Of the two publically traded barge companies, fuel cost was only reported by ACL. Their fuel as a percentage of operating expenses increased from 2001 through 2007 as shown in Figure 16. In 2006, their fuel cost was about 22% of operating expenses, decreasing slightly in 2007 to less than 20%.

Figure 16: Fuel as a Percentage of Operating Expenses by Barge Operator



Source: Annual report of barge carrier

### F. Airline

Six domestic airlines were analyzed, including American (AMR Corp.), Southwest, Northwest, Continental, Delta, and United Airlines. Two International airlines were also evaluated, Cathay Pacific and Japan Airlines. Cathay Pacific, Japan Airlines and AMR Corp. reported fuel surcharge recovery as shown in Table 19. In 2006, AMR Corp. had a fuel surcharge recovery ratio slightly over 1% while Cathay Pacific reported a 54% fuel recovery ratio in 2007 and Japan Airlines reported a 14% ratio in 2006.

From 2001 through 2007, operating revenues for the airlines continued to increase as shown in Table 19. However, most airlines have seen negative net incomes during this same time period. Southwest is the only domestic airline in this report that demonstrated positive net income from 2001 until 2007. By adopting fuel hedging to offset rising fuel costs, Southwest has been able to maintain its positive net income.

**Table 19: Financial and Fuel Recovery Information by Airline (\$ Millions)**

Company and Category	2001	2002	2003	2004	2005	2006	2007
<b>AMR Corp.</b>							
Operating Revenue	18,963	17,420	17,440	18,645	20,712	22,563	22,935
Net Revenue	(2,470)	(3,330)	(844)	(134)	(89)	1,060	965
Total Fuel Cost	2,888	2,562	2,772	3,969	5,615	6,402	6,670
Fuel Recovery	0	0	0	0	49	75	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	0.9%	1.2%	N/A
Percent of Fuel Hedged (%)	40	40	32	21	15	17	14
Recovery from Hedging	29	4	149	99	64	97	239
<b>Cathay Pacific</b>							
Operating Revenue	3,902	4,243	3,798	5,490	6,546	7,913	9,659
Net Revenue	84	511	167	567	424	556	924
Total Fuel Cost	639	607	663	989	1,466	1,646	1,820
Fuel Recovery	N/A	N/A	N/A	N/A	508	842	992
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	35%	51%	54%
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	26	2
Recovery from Hedging	N/A	N/A	N/A	N/A	23	55	4
<b>Continental Airlines</b>							
Operating Revenue	8,969	8,511	9,001	9,899	11,208	13,128	14,232
Net Revenue	144	(330)	188	(238)	(39)	468	687
Total Fuel Cost	1,229	1,023	1,319	1,587	2,443	3,034	3,354
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	30
Recovery from Hedging	(7)	10	N/A	61	N/A	(40)	31
<b>Delta Airlines</b>							
Operating Revenue	13,879	13,866	14,308	15,235	16,480	17,532	19,154
Net Revenue	(1,602)	(1,309)	(785)	(3,308)	(2,001)	58	1,096
Total Fuel Cost	1,828	1,684	1,943	2,931	4,466	4,433	4,686
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	299	136	152	105	-	(108)	51
<b>Japan Airlines</b>							
Operating Revenue	14,015	12,847	17,970	17,862	19,343	18,910	19,548
Net Revenue	337	(293)	100	(819)	273	(406)	(138)
Total Fuel Cost	2,147	2,000	2,121	2,259	2,619	3,240	3,571
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	447	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	14%	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	75	N/A
Recovery from Hedging	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Company and Category</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
<b>Northwest Airlines</b>							
Operating Revenue	9,905	9,976	10,077	11,279	12,286	12,568	12,528
Net Revenue	(868)	(846)	(265)	(505)	(919)	740	1,104
Total Fuel Cost	1,727	1,439	1,554	2,203	3,132	3,386	3,378
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	12	2	6	N/A	25	N/A	40
Recovery from Hedging	N/A	55	105	29	21	N/A	113

(continued)

**Table 19: Financial and Fuel Recovery Information by Airline (\$ Millions)**  
(continued)

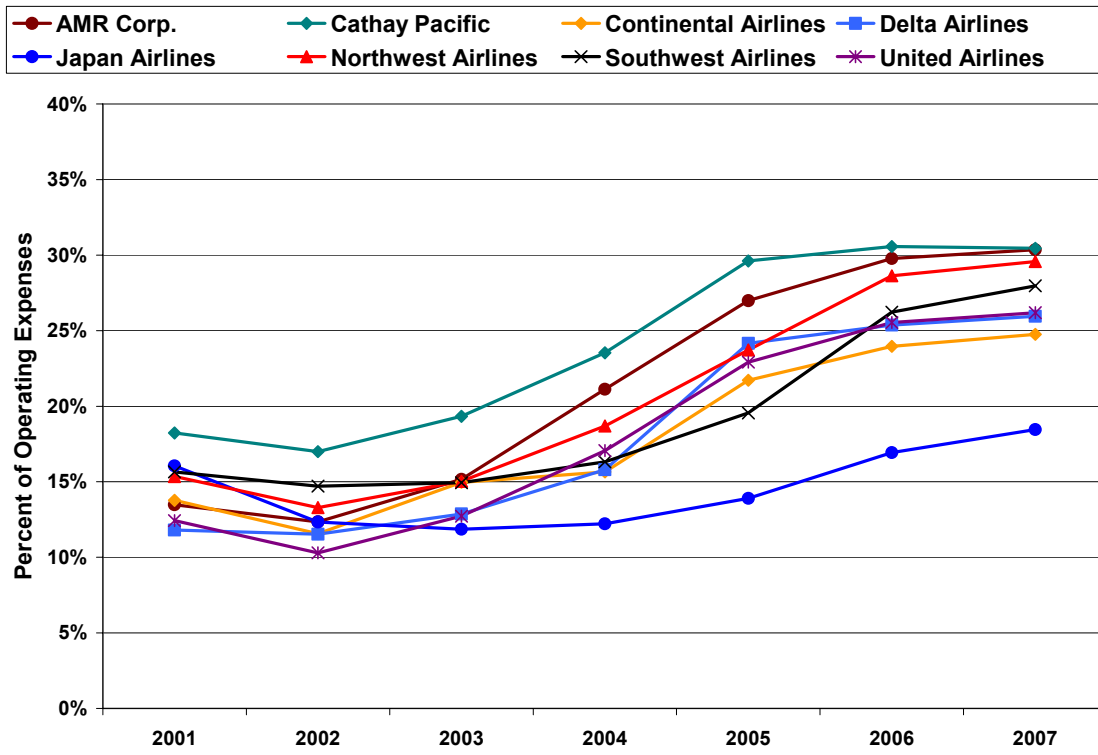
Company and Category	2001	2002	2003	2004	2005	2006	2007
<b>Southwest Airlines</b>							
Operating Revenue	5,555	5,522	5,937	6,530	7,584	9,086	9,861
Net Revenue	631	417	483	554	725	934	791
Total Fuel Cost	771	762	830	1,000	1,341	2,138	2,536
Fuel Recovery	0	0	0	0	0	0	0
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	80	60	83	85	85	N/A	90
Recovery from Hedging	80	45	171	455	900	675	727
<b>United Airlines</b>							
Operating Revenue	17,396	15,822	14,928	16,391	17,379	19,340	20,143
Net Revenue	(2,145)	(3,212)	(2,808)	(1,721)	(575)	(58)	403
Total Fuel Cost	2,476	1,921	2,072	2,943	4,032	4,824	5,003
Fuel Recovery	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fuel Surcharge Recovery Ratio	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Percent of Fuel Hedged (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Recovery from Hedging	N/A	N/A	-	N/A	N/A	(26)	83

Source: Annual reports of airline carriers; Federal Reserve Bank of St. Louis.

Notes: N/A = not available or not reported. Financial information for Cathay Pacific and Japan Airlines was converted from Hong Kong Dollars and Japanese Yens to United States Dollars based on the average annual currency rates.

Fuel expenses have increased over the last seven years for airline carriers. Fuel is the largest expense incurred by an airline carrier. The two international airlines used in this report, Cathay Pacific and Japan Airlines had the highest percentage and lowest percentage respectively of fuel to operating expenses ratio, as shown in Figure 17. Of the domestic airline carriers analyzed for this report, AMR Corp. used the most fuel relative to its operating expenses from 2003 through 2007. In 2003, the airlines experienced steep increases in fuel costs.

Figure 17: Fuel as a Percentage of Operating Expenses by Airline



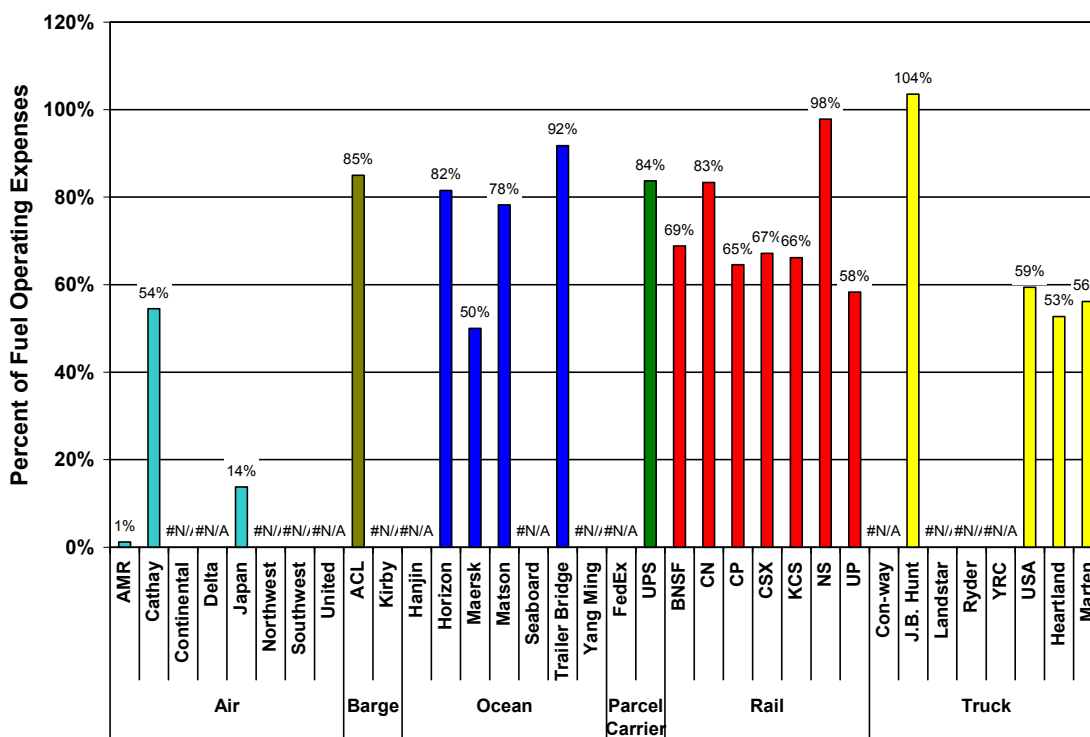
Source: Annual reports of airline carriers; Federal Reserve Bank of St. Louis.

### IV. Analysis of Fuel Surcharge Recovery

This section reviews the fuel surcharge recovery efforts by mode and carrier. Not all carriers reported their fuel recovery efforts and not all reported in a consistent manner. To assess the fuel surcharge recovery, Informa used a ratio of total fuel surcharge revenues divided by total fuel cost. For those operators reporting fuel surcharge revenues, Informa used information available in annual financial reports, quarterly earnings releases and calls with analysts, and STB data.

Over half of the publically traded transportation carriers analyzed discussed fuel surcharge recovery in their financial statements and documents. At least one fuel surcharge recovery ratio was found for each mode of transportation from 2007, as shown in Figure 18. The highest recovery ratio was reported by J.B. Hunt at 104%, followed by Norfolk Southern with a recovery ratio of 98% and Trailer Bridge at 92%.

**Figure 18: Fuel Recovery Ratios by Mode and Operator for Select Time Periods**



Source: Annual reports and quarterly transcripts of transportation carriers, STB, and Informa Economics analysis

Notes: ACL based on 2008Q1 data; Japan Airlines based on 2006 annual numbers. All railroad fuel recovery ratios are based on STB reported data for all four quarters of 2008. Canadian National numbers are represented by Grand Trunk Railway and Canadian Pacific is represented by Soo Line Railroad as reported by STB for US moves. In addition, KCS is represented by US moves as reported to STB. All other carriers based on 2007.

During 2007 the Class I railroads had lower fuel surcharge revenues relative to their total fuel costs. Part of the lower recovery ratio can be explained by the nature of the traffic hauled by railroads. Approximately one-third of the traffic the railroads move is coal, a one-way move with no backhaul. The railroads are unable to fully recover the higher fuel costs incurred for the backhaul move. Grain carloadings, approximately 10% of total carloadings are similar to coal. However, in 2008 the Class I operators achieved higher fuel surcharge revenues because of the radical downward drop in fuel prices and the railroads timing to collect surcharge revenues from the prior time periods that more than exceeded the actual cost of fuel purchased during the month of operation. During 2008, NS had the highest fuel surcharge recovery ratio at 98% while UP had the lowest at 58%. Once the other modes report 2008 information it may be the case that all modes experienced improved surcharge recovery, but for now, railroads were able to achieve significant benefits from the drastic change in the cost of fuel relative to the time period use for fuel surcharges.

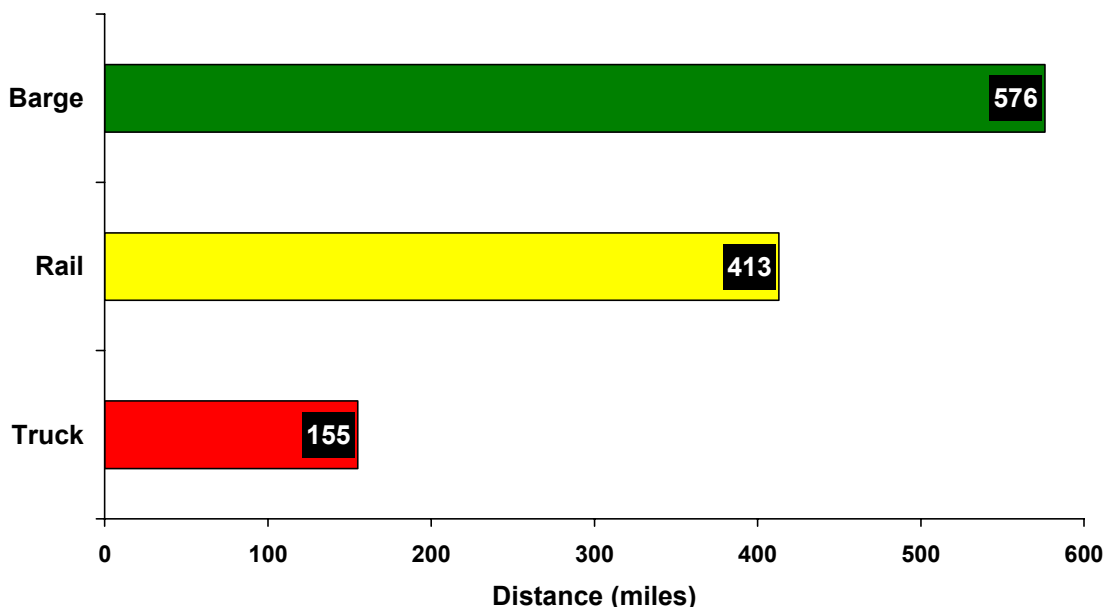
Ocean carriers tend to have fairly strong fuel surcharge recovery ratios among the different modes. Ocean carriers are able to attract backhaul moves by which they can extract fuel surcharge revenues on revenue generating moves. Truck operators demonstrated to have the next highest recovery ratios, similar to the ocean carriers. Truck operators also attract backhaul moves that potentially have fuel surcharges included as part of the cost of the movement.

## V. Fuel Efficiency Analysis

This section evaluates fuel efficiencies among the modes and the impact moving soybeans and soybean oil to market positions.

The Texas Transportation Institute, the Maritime Administration of the Department of Transportation, and the National Waterways Foundation released an updated fuel efficiency study. In the report, “A Modal Comparison of Domestic Freight Transportation Effects on the General Public,” it was shown that moving one ton of goods with one gallon of fuel by barge can haul the same ton 2.7 times more miles than a truck and 40% further than rail. Rail can move one ton of product 1.7 more miles than truck. According to the report, a typical dry bulk barge can be loaded with 1,750 tons and a liquid bulk barge with 27,500 barrels of product, rail 110 tons and truck 25 tons. The efficiencies by mode are shown in Figure 19.

**Figure 19: Fuel Efficiency Moving One Ton of Goods with One Gallon of Fuel for Rail, Truck, and Barge**



Source: Texas Transportation Institute

With the U.S. number 2 diesel fuel averaging less the \$1.40 per gallon during early December 2008, moving one ton of product by barge is equivalent to \$0.0023 per tonmile, \$0.0032 for rail and \$0.0087 by truck. On a tonmile basis, moving product by barge would be 28.3% lower than rail that is 62.5% less than truck, while barge is 73.1% less than truck.

A comparison of shipping soybeans and soybean oil to select market locations by mode was developed for this section. The analysis reflects freight rates and fuel surcharges

for December 2008. Soybeans were evaluated for movements to export position in the Pacific Northwest through Seattle, WA and New Orleans, LA. The movement to the PNW originated in Waterloo, IA and was moved 2,262 miles by train. The shipment to New Orleans originated in Davenport, IA and was hauled 1,326 miles by barge. For a truck comparison, a shipment originating in Waterloo, IA traveled 270 miles (a distance that is typically much longer than an average soybean movement by truck) to Davenport, IA.

For all modes, the freight rate represents the substantial portion of the overall freight bill, 86% for rail, 80% for truck and 73% for barge on a ton basis as shown in Table 20. Despite the barge fuel surcharge having a higher share of the total freight cost, rail had the highest fuel charge level at \$8.02 per ton compared to \$5.95 for barge and \$5.84 for truck. On a tonmile basis, rail had the lowest rate for the fuel surcharge at \$0.0035 compared to \$0.0045 by barge and \$0.0216 by truck. The tonmile comparisons for the soybean movement for the fuel surcharge rate and total rate are shown in Figure 20.

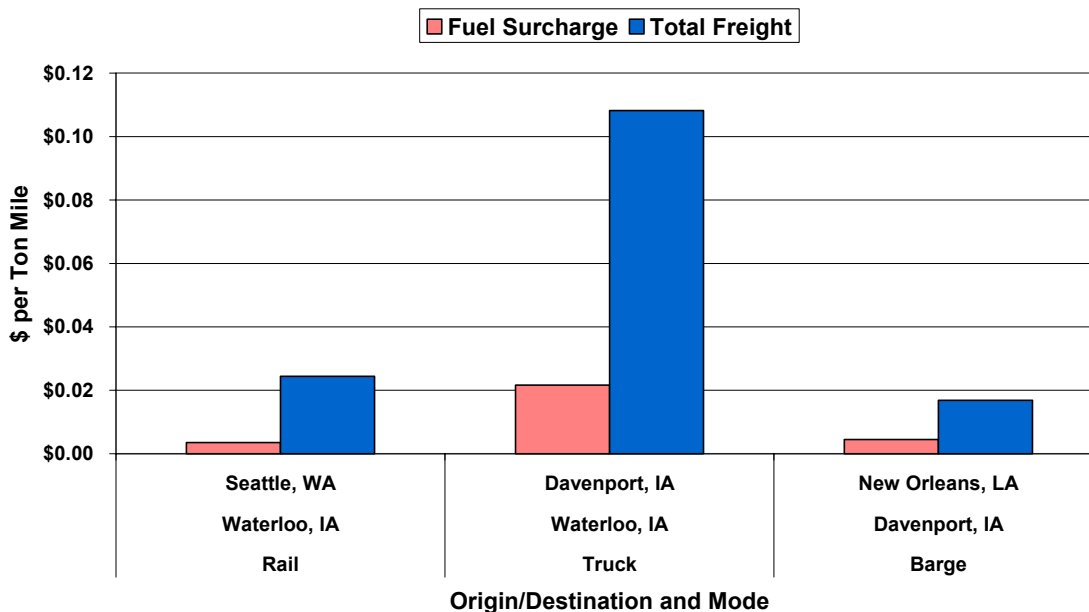
The soybean oil movement was compared for shipments from Decatur, IL to Mobile, AL by rail for 843 miles, a barge shipment of 1,026 miles from Cahokia, IL to New Orleans, and 272 miles from Decatur to Cahokia, IL by truck. For the soybean oil shipment, truck had the highest impact at \$5.32 per ton, followed by barge at \$4.43 and rail at \$3.50. The tonmile impact of the fuel surcharge results in a similar cost as soybeans at \$0.0042 by rail and \$0.0043 by barge while truck was \$0.0196.

**Table 20: Comparison of Soybean and Soybean Oil Movements to Market Position by Mode**

Soybean Movement to Export Position								
Mode	Origin	Destination	Mileage	\$ per Ton			\$ per Tonmile	
				Freight Rate	Fuel Surcharge	Total Freight	Fuel Surcharge	Total Freight
Rail	Waterloo, IA	Seattle, WA	2,262	\$ 47.19	\$ 8.02	\$ 55.21	\$ 0.0035	\$ 0.0244
Truck	Waterloo, IA	Davenport, IA	270	\$ 23.37	\$ 5.84	\$ 29.21	\$ 0.0216	\$ 0.1082
Barge	Davenport, IA	New Orleans, LA	1,326	\$ 16.36	\$ 5.95	\$ 22.31	\$ 0.0045	\$ 0.0168
Soybean Oil Movement to Export Position								
Mode	Origin	Destination	Mileage	\$ per Ton			\$ per Tonmile	
				Freight Rate	Fuel Surcharge	Total Freight	Fuel Surcharge	Total Freight
Rail	Decatur, IL	Mobile, AL	843	\$ 20.98	\$ 3.50	\$ 24.48	\$ 0.0042	\$ 0.0290
Truck	Decatur, IL	Cahokia, IL	272	\$ 21.29	\$ 5.32	\$ 26.61	\$ 0.0196	\$ 0.0783
Barge	Cahokia, IL	New Orleans, LA	1,026	\$ 12.17	\$ 4.43	\$ 16.60	\$ 0.0043	\$ 0.0119

Source: Informa Economics analysis based on railroad websites, barge freight rates, and conversations with truck operators, as of December 2008.

**Figure 20: Comparison of Soybean Freight Costs and Fuel Surcharges by Mode (\$ per tonmile)**



**A. Example of Rail Fuel Surcharge Comparisons for Soybean and Soybean Oil Moves**

Five Class I railroads were compared to demonstrate the impact of their respective fuel surcharge programs and current tariff rates moving soybeans and soybean oil from the Midwest to different points of export position. Western soybean movements originated in southern Minnesota and Northern Iowa for shipment to Seattle, WA. These moves are represented by UP, BNSF, and CN. Eastern movements compared Decatur, IL to Mobile, AL and Brunswick, GA shipped on CSX and NS.

Soybean oil moves were evaluated for originations in Decatur, IL to Mobile, AL and to Brunswick, GA. These moves were represented by CSX and NS.

The results for the soybean and soybean oil per car rates are shown in Table 21. These rates were for single car moves. Unit trains typically have lower rates due to the greater efficiencies operating multiple cars from a single location to a single destination. The fuel surcharges were based on mileage from origin to destination. The fuel surcharge for December 2008 was about 40 cents per mile for BNSF, CSX, and the UP, while the fuel surcharge for CN was 25 cents per mile. Norfolk Southern does not use a fuel surcharge program when pricing public rates, rebasing its tariffs to reflect changes in fuel costs instead.

BNSF and CSX have the lowest tariff rates for their respective moves. Even though the CN had a lower fuel surcharge, its carload tariff was significantly higher leading to the

highest rate on a tonmile basis among the western movements compared. The fuel surcharge rates reported by BNSF and UP were the same, leaving distance as the variable that ultimately determines the total fuel surcharge. However, UP's tariffs were higher than BNSF's leading to a higher tonmile rate overall.

Even though NS does not use a distance based fuel surcharge, its rebased tariff is at a level that makes it have the highest per tonmile rate among all railroads shown in this example for both soybeans and soybean oil.

**Table 21: Rate Comparisons for Soybeans and Soybean Oil to Export Position for Select Class I Railroads**

Rail and Product	Origin	Destination	Price	Fuel Surcharge	Mileage	Total FSC	Total Cost	Tonmiles	\$/Tonmile
BNSF - Soybeans	Waterloo, IA	Seattle, WA	\$ 5,191	\$ 0.39	2,262	\$ 882	\$ 6,073	248,820	0.024
	Minneapolis, MN	Seattle, WA	\$ 4,510	\$ 0.39	1,728	\$ 674	\$ 5,184	190,080	0.027
CN - Soybeans	Waterloo, IA	Vancouver, BC	\$ 8,941	\$ 0.25	1,964	\$ 486	\$ 9,427	216,040	0.044
	Albert Lea, MN	Vancouver, BC	\$ 6,507	\$ 0.25	1,835	\$ 454	\$ 6,961	201,850	0.034
UP - Soybeans	Cedar Rapids, IA	Seattle, WA	\$ 6,816	\$ 0.39	1,809	\$ 706	\$ 7,522	198,990	0.038
	Minneapolis, MN	Seattle, WA	\$ 7,040	\$ 0.39	1,600	\$ 624	\$ 7,664	176,000	0.044
CSX - Soybeans	Decatur, IL	Mobile, AL	\$ 2,287	\$ 0.40	843	\$ 337	\$ 2,624	84,300	0.031
	Decatur, IL	Brunswick, GA	\$ 3,301	\$ 0.40	982	\$ 393	\$ 3,694	98,200	0.038
NS - Soybeans	Decatur, IL	Mobile, AL	\$ 5,872		843		\$ 5,872	84,300	0.070
	Decatur, IL	Brunswick, GA	\$ 6,487		982		\$ 6,487	98,200	0.066
CSX - Soybean Oil	Decatur, IL	Mobile, AL	\$ 2,019	\$ 0.40	843	\$ 337	\$ 2,356	81,139	0.029
	Decatur, IL	Brunswick, GA	\$ 2,289	\$ 0.40	982	\$ 393	\$ 2,682	94,518	0.028
NS - Soybean Oil	Decatur, IL	Mobile, AL	\$ 3,349		843		\$ 3,349	81,139	0.041
	Decatur, IL	Brunswick, GA	\$ 3,636		982		\$ 3,636	94,518	0.038

Source: Class I railroad websites

Notes: All prices are for private covered hopper. Norfolk Southern does not indicate the amount of fuel surcharges in its public rates. Fuel surcharges are for December 2008.

## VI. Summary and Conclusions

Fuel price volatility has become an important feature in the cost of moving freight around the world. Even though crude oil prices have fallen from record levels during the summer of 2008, there is still anticipation that prices will again turn higher. Transportation providers and shippers alike are breathing a bit easier not having higher fuel costs. But the reality is the high crude oil prices made an indelible impression on the industry and fuel surcharges became an important feature moving freight.

Despite some similarities, there is no universal or standard fuel surcharge program within and across modes. Fuel surcharges vary for a number of reasons including geography and topography of operation, equipment being used, the density of the commodity, and the competitiveness among modes.

Transportation providers and many shippers employ a variety of techniques and approaches to determine fuel charges. A transportation provider will use a fuel surcharge to offset higher than anticipated fuel costs. A shipper may have its own fuel surcharge schedule it provides the carrier (typically truck carriers) to use when bidding on freight. For the shipper, this allows them to better manage and monitor changes to fuel surcharges. A transportation provider will then construct a base freight rate and compete with other carriers on the base rate level.

The Class I railroads by nature of the oversight by the Surface Transportation Board of the Department of Transportation have more consistent fuel surcharge programs than other modes. The railroad industry is the only industry that has to report substantial details on its fuel surcharges. The other modes only report or provide fuel surcharge guidance as necessary. Other providers do not have a standard program and instead use fuel escalators on a contract by contract basis.

Based on information made available by the publically traded transportation providers, the Class I railroads (during 2008) and ocean carriers have the highest rate of fuel surcharge recovery; while the truck carrier's level of recovery is lower. Unlike the ocean container lines and truck carriers who can more readily attract backhaul freight moves, the nature of the commodities the railroads move tend to be front haul moves with little opportunity for a backhaul. With no backhaul, the transportation provider is unable to pass along a fuel surcharge to reposition the empty units for reloading. The railroads high level of fuel recovery during 2008 was due to the lag affect in how they assess fuel surcharges.

Understanding and knowing how the modes apply the fuel surcharge can work toward the benefit of a shipper to time shipments in order to gain an advantage in the lag effect of when the fuel surcharge is applied.