
Performance Review of BC Ferries' Fuel Management

*British Columbia
Ferry Commission*

March 2015



Table of Contents

Executive Summary	1
Notice to Reader	2
Background	3
Scope and Approach	4
Results	5
BC Ferries Fuel Overview.....	5
Management of Consumption and Strategies to Minimize Consumption	6
Policies and Procedures for Procurement of Fuel	8
Reasonableness and Effectiveness of Hedging Strategies.....	10
Fuel Management Policies and Procedures Benchmarking.....	19
Conclusions and Recommendations	21
Appendix A	23

Executive Summary

PricewaterhouseCoopers LLP (“PwC”) was engaged by the British Columbia Ferry Commission (the “Commission”) to conduct a performance review of the fuel management practices of British Columbia Ferry Services Inc. (“BC Ferries”).

The Coastal Ferry Act allows for the Commissioner to conduct a performance review of one or more aspects of BC Ferries’ operations. The purpose of the performance reviews is to hold BC Ferries accountable and by doing so to raise public confidence that the company is operating efficiently, making prudent use of its resources, and operating in such a way as to keep ferry fares as low as reasonably possible.

Our review has included the following tasks:

- Assessing the policies and procedures for procurement of fuel;
- Assessing the reasonableness and effectiveness of hedging strategies;
- Assessing the management of consumption and the strategies to minimize consumption; and
- Benchmarking fuel management policies and procedures against best practices of comparable organization.

The main findings include the following:

- BC Ferries’ efforts to manage and minimize consumption of fuel have been effective;
- BC Ferries have defined procedures in place to manage consumption and costs and are compliant with these policies and procedures; and
- The current deferral account mechanism in place that acts as a hedge against fuel price volatility is considered appropriate.

We have identified the following issues for consideration by the Commissioner:

- BC Ferries has adopted the policy of locking into fixed price swaps when pricing is available at or below the indicative set price. There is no strong evidence that suggests that the indicative set price is the optimal point to hedge fuel costs. Although the decisions to lock into fixed price contracts at or below the indicative set price are being driven to avoid fuel surcharges and provide fare certainty for periods of time, the strategy does not necessarily result in the best value for fare payers. As a policy that is in the interest of users, fuel hedging may be used to limit increases in fares to the rate of inflation.

Notice to Reader

This Report is issued by PwC for the exclusive use of the Commission in connection with its performance reviews of BC Ferries.

Our work did not constitute an audit conducted in accordance with generally accepted auditing standards, an examination of internal controls nor attestation nor review services in accordance with the standards established by the Canadian Institute of Chartered Accountants. Accordingly, we do not express an opinion nor any other form of assurance on the financial or other information, or operating internal controls, of BC Ferries.

Our assessment of effectiveness was not evaluated on the basis of International Accounting Standards Board (IASB)'s requirements for hedge accounting IFRS 9 *Financial Instruments* or any other accounting standard. Our assessment is based on the effectiveness of hedging relative to the fuel set price used in the price cap determination.

PwC did not examine, compile or apply agreed upon procedures to satisfy the requirements of the Canadian Institute of Chartered Accountants to the financial information used in this Report and we therefore are unable to express assurances on such information except where expressly stated in the Report to form part of the scope of our work.

Our work is based primarily on the information and assumptions listed in the body of this Report. While we read information from various sources we did not perform checking or verification procedures except where expressly stated in the Report to form part of the scope of our work. Our work and commentary is subject to assumptions, which may change with the benefit of further detailed information. We make no representation regarding the sufficiency of our work and had we been asked to perform additional work, additional matters may have come to our attention that would have been reported to the Commission.

Some of the documents and figures we reviewed were produced by third parties. We did not corroborate or verify these documents and figures with these parties. It is outside the scope of our review to evaluate the methodology used to conduct independent studies; therefore, we have accepted the information as presented, including conclusions. We did review the credentials of external consultants that BC Ferries management relied upon and that we were unfamiliar with.

The outputs of the Report are intended to provide the Commission with information to assist in informing their decision making process pertaining to BC Ferries. PwC accepts no liability in respect of any loss, damage or expense of whatsoever nature caused by any use the reader may choose to make of this Report, or which is otherwise consequent upon the gaining of access to the Report by the reader.

Our Report, including schedules and appendices, must be considered in its entirety by the reader. Selecting and relying on specific portions of the analyses, or factors considered by us in isolation may be misleading.

Background

In April 2003, the Province of British Columbia (the “Province”) established the British Columbia Ferry Authority (the “Authority”), an independent corporation that holds the single issued voting share of BC Ferries.

BC Ferries, as the operating subsidiary of the Authority, provides coastal ferry services on the west coast of British Columbia. With 35 vessels travelling between 47 terminals, on 24 routes, BC Ferries is one of the largest ferry operators in the world, both in terms of fleet size and passengers carried. Its fleet includes a number of older vessels and BC Ferries has undertaken a process to upgrade its fleet and conduct necessary maintenance.

A Coastal Ferry Services Contract existing between the Province and BC Ferries defines service levels on each regulated route and the British Columbia Ferry Commission sets price caps across the route groups every four years. Within its operating framework, BC Ferries can decide on fares, and can access capital markets directly. The Commission is a provincial regulatory agency operating under the Coastal Ferry Act with responsibilities for making regulatory decisions affecting ferry operators in the Province, including BC Ferries.

Under Section 46.1 of the Coastal Ferry Act, the Commissioner may conduct a performance review of one or more aspects of a ferry operator’s operations including ancillary services. The purpose of the performance reviews is to identify any opportunities for further efficiencies in the operations of BC Ferries which may be incorporated in the determination of the price caps for future performance terms.

In conjunction with the price review which commenced early in October 2014, the Commission is conducting performance reviews of several areas including fuel management. The Commission sought the assistance of PwC to conduct the performance reviews.

Scope and Approach

The scope of the performance review includes the following:

1. Assessing the management of consumption and the strategies to minimize consumption

We assessed consumption by:

- Summarizing the fuel consumption management strategies employed by BC Ferries;
- Analyzing the effectiveness of these policies with reference to historical results; and
- Analyzing the impact of phasing in the use of LNG ferries.

2. Assessing the policies and procedures for procurement of fuel

We assessed the policies and procedures by:

- Summarizing the key policies and procedures for the procurement of fuel employed by BC Ferries; and
- Analyzing the results of the most recent competitive procurement against the stated objectives.

3. Assessing the reasonableness and effectiveness of hedging strategies

We assessed the hedging strategies by:

- Summarizing the financial risk management policies pertaining to fuel cost hedging employed by BC Ferries;
- Analyzing the effectiveness of the hedging strategies currently used; and
- Analyzing the results of the hedging program against its stated objectives.

4. Benchmarking fuel management policies and procedures against best practices of comparable organizations

We benchmarked by:

- Identifying comparable entities and summarizing the fuel management policies employed by each; and
- Comparing the fuel management practices of BC Ferries against these companies operating in a similar business environment and with similar objectives.

Our work has included interviews with BC Ferries' management and discussions with the Commissioner, reviews of various internal BC Ferries documents and reports to the Commissioner, review of fuel purchase and hedging contracts and external benchmarking of various data sets and hedging programs.

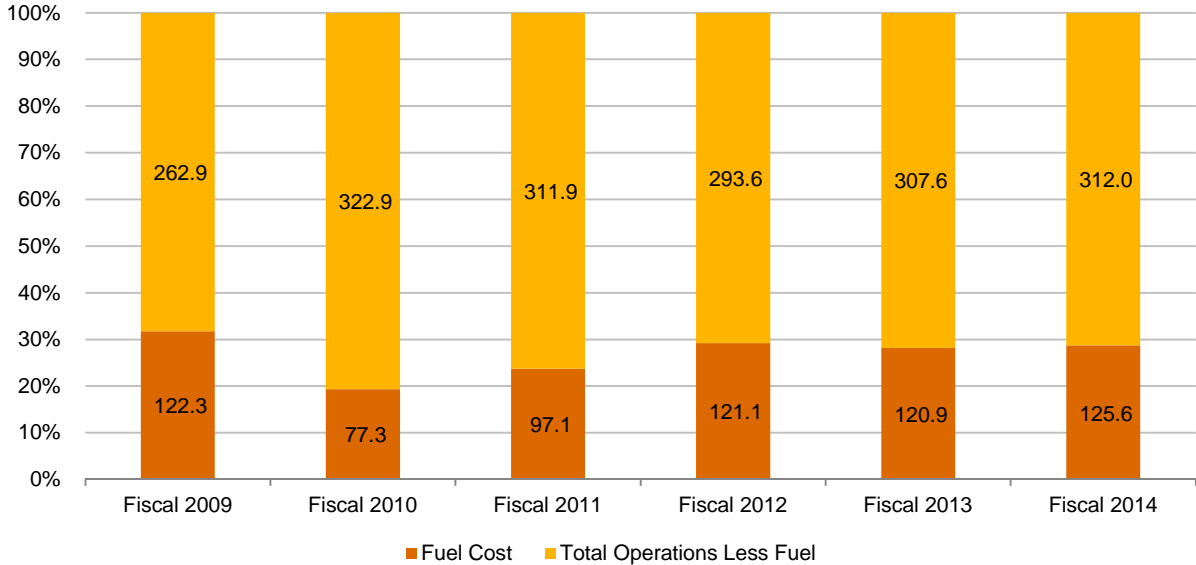
Results

BC Ferries Fuel Overview

BC Ferries' fleet runs on marine diesel fuel and fuel costs represent BC Ferries' second largest operating expenditure behind labour costs. Figure 1 indicates that fuel costs have ranged from 19% to 32% of total operating costs since the beginning of Performance Term 2 ("PT2") in April 2008 and totalled \$125.6m in fiscal 2014.

Figure 1

Fuel Cost as a Percentage of Total Operating Cost (In Millions of CAD)



BC Ferries attempts to minimize fuel costs and fuel price volatility through strategies including:

- Consumption management initiatives and capital projects to minimize fuel consumption;
- Running a competitive procurement process; and
- Making use of a fuel deferral account mechanism and financial derivative hedging program.

PwC has evaluated the success of each fuel management component against their stated objectives and against comparable entities in the following sections.

Management of Consumption and Strategies to Minimize Consumption

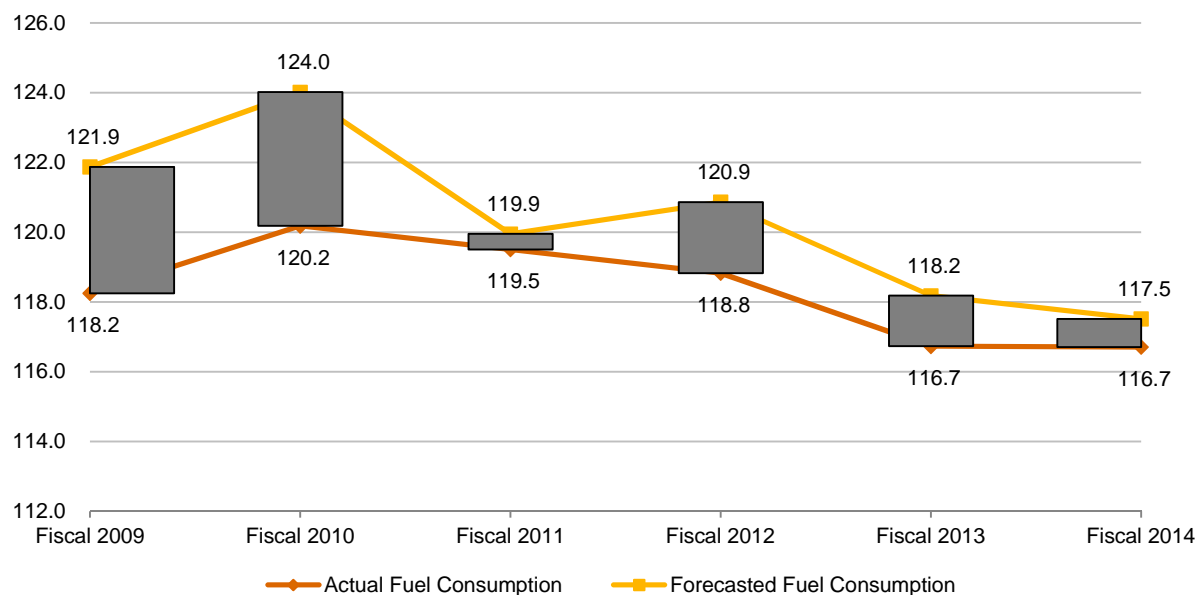
Summary of Fuel Consumption Management Strategies

BC Ferries principally aims to reduce fuel consumption through fleet deployment optimization and realization of operational efficiencies.

Figure 2 demonstrates that BC Ferries' actual fuel consumption has been below forecasted amounts in each of the fiscal years since the beginning of PT2.

Figure 2

Actual vs. Forecasted Fuel Consumption (In Millions of CAD)



Although the minimum number of sailings that BC Ferries must deliver on its routes is specified in the Coastal Ferry Services Contract, sailings may be cancelled for extraordinary reasons such as safety, poor weather, or operational issues, including maintenance to vessels or docks. BC Ferries realized fuel consumption savings of 1 million litres or 0.9% of targeted consumption by eliminating discretionary sailings where possible in fiscal 2014.

BC Ferries optimizes fleet deployment by substituting a vessel with a smaller, more fuel efficient vessel in order to tailor its service to demand. However, fuel consumption from fleet deployment changes exceeded the consumption target by 67,000 litres or 0.06% of the target in fiscal 2014 due to requirements to use less efficient vessels when traffic demand is greater than expected, or when repairs and maintenance require a vessel substitution.

Tactics used to realize fuel consumption savings through operational efficiencies include:

- Minimizing fuel burn by enabling minimum transit speeds during each voyage;
- Engineering practices that aim to ensure optimum performance of main engines and ancillary;

- Using shore power consumption tracking to better understand electrical power consumption and reduce electrical load and associated power costs; and
- Implementing Shipboard Energy Efficiency Management Plans which provide the Company with an enhanced ability to implement, evaluate, and share local initiatives for improving vessel operating efficiency and optimizing fuel consumption across the fleet.

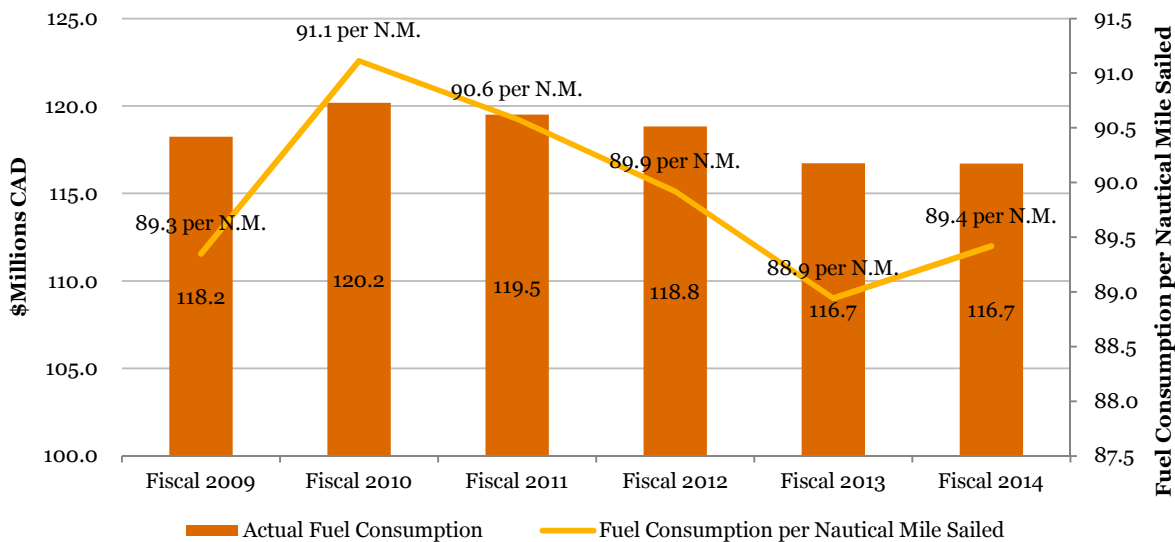
Additionally, during fiscal 2014, BC Ferries either continued or completed work on several capital projects aimed at generating fuel consumption savings in future years including:

- A \$20.0m project to extend the useful life of the *Tachek* which included more efficient propulsion systems and hull coating which are expected to result in fuel saving of 15% compared to the pre-upgrade vessel;
- Shore power upgrades which allow vessels to connect to shore power when docked overnight as opposed to using auxiliary ship service generators using fuel; and
- A cable ferry project for service on the route connecting Buckley Bay on Vancouver Island and Denman Island with projected cost savings of \$80.0m over the useful life of the ferry and a 50% energy savings compared to the existing ferry on the same route.

Despite these initiatives, Figure 3 demonstrates that although actual fuel consumption has decreased since the beginning of PT2, the average fuel consumption per nautical mile sailed is roughly the same as in fiscal 2009 despite the initiatives undertaken. This suggests limits to the effectiveness of the fuel saving measures undertaken by BC Ferries on a go forward basis. Reducing the consumption of fuel on a per nautical mile sailed basis may be driven more by the use of newer, more fuel efficient vessels.

Figure 3

Average Fuel Consumption per Nautical Mile Sailed (In Millions CAD, Except per Mile Measures)



Impact of Phasing in of LNG Powered Ferries

As disclosed in the Fuel Strategies Update Report to the Commission dated June 27, 2014, BC Ferries is planning to transition to alternate fuels including liquefied natural gas in order to reduce costs and emissions. Transition to LNG will result in the volume erosion of existing diesel fuel supply agreements and possible reduction in existing discounts.

In response to a question posed regarding the impact of LNG conversion on fuel consumption, management indicated that “the main benefits of LNG conversion are financial and environmental. While LNG propulsion systems are not expected to result in lower fuel consumption, they are expected to generate fuel cost savings as a result of the significant price differential between LNG and marine diesel. LNG also offers environmental benefits, cutting carbon emissions by about 25 per cent, sulphur oxides by almost 100 per cent and nitrogen oxides by 85 per cent, which translates into much cleaner exhaust emissions than marine diesel fuel.”

Policies and Procedures for Procurement of Fuel

Summary of Key Policies and Procedures for Procurement of Fuel

PwC has identified the following key BC Ferries policies and procedures in place to ensure the procurement of fuel at the lowest possible cost based on the BC Ferries' Fuel Strategies Reports and Updates filed annually with the Commission:

1. BC Ferries conducts a formal competitive procurement for the supply of fuel and marine lubricants in order to achieve best overall value for the Company.
2. In order to achieve volume discounts, BC Ferries has consolidated purchases of fuel and marine lubricants to the fewest number of suppliers.

PwC has assessed BC Ferries' compliance with the above criteria as follows:

1. Based on the information provided, PwC understands that BC Ferries issued a marine diesel fuel and marine lubricant RFP on the BC Ferries business opportunities website on November 23, 2010. RFP's were issued to numerous major and minor oil companies. Of the 17 issued, a total of 7 responses were received. Proposals had to meet requirements for fuel consumption specifications, delivery location, volume, and frequency and schedule requirements. Additionally, proposals were evaluated against the following criteria to determine whether the proposal provides the best overall value for BC Ferries:
 - Overall cost of the program;
 - Delivery performance;
 - Established fuel and lubricant delivery infrastructure to BC Ferries' terminals and vessels;
 - Proponent's innovative ideas and recommendations for service, performance and financial improvements including, but not limited to, cost reduction or revenue generation incentives and guarantee of supply;
 - Proponent's pricing programs which diminish price volatility;
 - Efficiency, safety, reliability and suitability of products and/or services;
 - Environmental responsibility of the proponent;
 - Proponent's willingness to accept contract terms;

- Proponent's reputation, experience, and success in providing similar service to other organizations; and
- Proponent's initiatives in support of the RFP that improved value but remained congruent with BC Ferries' objectives.

Under the contract, the purchase price effective April 1, 2011 is adjusted using a Base Price Adjustment Mechanism whereby the rate paid is equal to the Average Rack Price less a volume discount. The Average Rack Price is equal to the average of the daily rack postings for ultra-low sulphur diesel from the first and last day of the previous week as published by Chevron Canada Limited, Shell Canada Products Limited, Imperial Oil Limited and Suncor at Vancouver.

2. PwC reviewed the current Marine Diesel Fuel Supply contract between BC Ferries and the supplier that has been in place since April 1, 2011 and has been renewed under the same terms and conditions to March 31, 2015. PwC also reviewed the Amending Agreement entered into and effective August 7, 2013 to allow BC Ferries to realize a volume discount by consolidating all purchases of marine lubricants from the current supplier of marine fuel.

PwC understands that the procurement process as described above will be initiated sometime in the next six months as the current contract with the supplier is in its final year.

Given that purchase price is based on an average of prices from other suppliers and that BC Ferries has consolidated all purchases of marine fuel and lubricants to one supplier in order to maximize the volume discount received, BC Ferries has achieved value for the Company.

Reasonableness and Effectiveness of Hedging Strategies

Summary of BC Ferries Financial Risk Management Strategies

PwC has assessed BC Ferries' compliance with their key risk management strategies pertaining to fuel price risk as articulated in the Fiscal 2015 Financial Risk Management Strategy and Parameters Reference Document and the Financial Statements for the years ended March 31, 2014 and 2013 as follows.

BC Ferries Risk Management Policy	PwC Assessment of Compliance
<p>BC Ferries may use a fuel hedging program to augment the use deferral accounts and surcharges or rebates to mitigate the impact of fuel market price volatility on the Company's earnings and cash flows.</p>	<p>As stated in BC Ferries Financial Statements for the years ended March 31, 2014 and 2013, BC Ferries enters into hedging contracts in order to reduce price volatility and add a fixed component to the inherent floating nature of fuel prices.</p>
<p>The hedging mandate is to use hedging instruments solely for the purpose of reducing risk and that positions will not be taken for speculation or gain.</p>	<p>As stated in BC Ferries Financial Statements for the years ended March 31, 2014 and 2013, fuel price hedging instruments are used solely for the purpose of reducing fuel price risk, not for generating trading profits. The swap contracts used to hedge fuel price risk are consistent with this strategy.</p>
<p>The Company's strategy is to lock in fixed price swaps when pricing is available at or below the indicative set price, using hedging proxies that are expected to be highly effective over the term of the hedge.</p>	<p>Based on the supporting documentation provided, BC Ferries has currently hedged 71% of projected consumption for the balance of PT3 and approximately 70% of projected consumption for the duration of fiscal 2016 using NYMEX ULSD swap contracts at a per litre price below that of the indicative set price. Based on the discussion included in the section below titled <i>Hedging Objectives and Strategy</i>, PwC has determined that the fuel hedging by BC Ferries is expected to be effective for costs components hedged, however significant residual risks affecting fuel prices may exist even after hedging.</p> <p>We have <u>not evaluated</u> the effectiveness of hedging in relation to International Accounting Standards Board (IASB)'s requirements for hedge accounting IFRS 9 <i>Financial Instruments</i> or any other accounting standard.</p>
<p>Approved derivative products include futures/forwards, simple options (caps, floors, collars) and exchange/swap agreements as appropriate.</p>	<p>Based on the supporting documentation provided, BC Ferries has entered into swap contracts in order to hedge fuel costs. These contracts are within the parameters set out by the policy.</p>

BC Ferries Risk Management Policy	PwC Assessment of Compliance
The term of contracts are not to exceed three years and monthly hedges are not to exceed: a maximum of 95 percent of anticipated monthly fuel consumption for the immediately following 12 month period; a maximum of 90 percent of anticipated monthly fuel consumption for the 12 month period thereafter; or maximum of 85 percent of anticipated monthly fuel consumption for the period thereafter to the end of the 36th month.	Current hedging contracts do not extend beyond the end of fiscal 2016 and therefore do not exceed the restrictions place on the term of hedging contracts.
Maximum allowable foreign currency exposure is restricted to zero. Management is permitted to participate in foreign denominated derivatives, provided that these obligations are transferred into Canadian dollar obligations.	The swap contracts are denominated in Canadian dollars and therefore result in no foreign currency exposure.
BC Ferries has set a minimum credit rating for counterparties for derivative transactions at single A or higher for all counterparties.	The counterparty to the swap contracts are with Schedule 1 banks that meet the minimum credit ratings.

Overview of Fuel Hedging

BC Ferries is a purchaser of marine diesel fuel (Vancouver Rack ULSD) and therefore, could utilize hedges to mitigate its exposure to rising fuel prices.

Fuel hedging and risk management strategies typically fall into two categories:

- **Physical hedging:** This may include forward fixed price agreements for the physical delivery of fuel in the future or long term storage of fuel. Physical hedging is a risk management strategy that allows participants to lock in their costs, avoid price volatility and assist in budgetary controls.
- **Financial hedging:** This may include financial instruments such as swaps, options, costless collars or other structures of varying complexity. A financial hedge is established by taking the opposite exposure, through derivatives, to a referenced asset that has a high correlation to the price of fuel. Financial hedges do not involve physical delivery of fuel. A financial hedge may be more flexible than a physical hedge, especially if the underlying asset to hedge is illiquid. Financial hedging is a risk management strategy that allows participants to reduce price volatility and assist in budgetary controls.

BC Ferries has utilized fuel commodity swaps, a financial hedging instrument, during the current and previous performance terms. A commodity swap is an agreement where cash flows are exchanged dependent on the price of an underlying commodity. One party will pay a fixed price (and received a floating price) while the other will pay a floating price (and receive a fixed price) for a specified quantity of a commodity over the term of the agreement. BC Ferries enters the fixed paying leg of a swap to hedge its fuel costs.

Hedging Objectives and Strategy

The objective of a hedge is to offset the price movements of an asset being hedged. The value of the hedging instrument may not always move in line with the underlying exposure; this is referred to as basis risk. A perfect hedge will have zero change in the basis between the underlying and the asset being hedged. An effective hedge typically references an asset that is highly correlated¹ (i.e. > 0.90) and has a beta² close to 1.00 to the asset being hedged.

BC Ferries' fuel costs consist of Canadian dollar denominated Vancouver Rack ultra-low sulphur diesel ("ULSD") fuel price adjusted for discounts, delivery charges and various taxes.

$$\text{BCF Procurement Price} = \text{Vancouver Rack ULSD} - \text{Volume Discount} - \text{Prepayment Discount} + \text{Delivery Charges} + \text{Federal Excise Tax} + \text{BC Motor Fuel Tax} + \text{BC Carbon Tax} + \text{GST}$$

Vancouver Rack ULSD is physically the same product as the widely traded New York Harbour ULSD. The difference in prices between these two products reflects foreign exchange and locational market structures (locational basis).

$$\text{Vancouver Rack ULSD} = \text{NY Harbour ULSD} +/- \text{Foreign Exchange} +/- \text{Locational Basis}$$

BC Ferries could ideally utilize Vancouver Rack ULSD swaps that offset the price of fuel purchases which would result in minimum basis risk. However, such hedges are outright unavailable or only available with prohibitive costs. As an alternative, BC Ferries utilizes swaps that reference a proxy fuel related asset with the goal of offsetting underlying marine diesel prices. The asset referenced in the swap is merely a proxy, therefore, price movements in fuel may not be fully offset by the gains and losses from the hedge.

BC Ferries has indicated that the current hedging strategy involves hedging the ULSD and foreign exchange components of the total fuel costs using swap contracts based on the notional value of NY Harbour ULSD futures traded on the New York Mercantile Exchange (the "NYMEX"). BC Ferries has previously used swap contracts based on the notional value of light sweet crude (WTI) during PT2.

¹ Correlation is a statistical measure of how two variables move in relation to one another. The closer the correlation is to 1.00, the more similar the change in the variables over time. An effective hedging proxy should have a high correlation with the price of the item being hedged.

² Beta is statistical measure of the volatility of the price of a security in relation to the price of another security. Where correlation is a measure of the likeness between the changes in the prices of two variables, beta is a measure of the magnitude of the changes of prices in two variables. The betas of the hedging proxy and the item being hedged should be consistent over time.

Figure 4

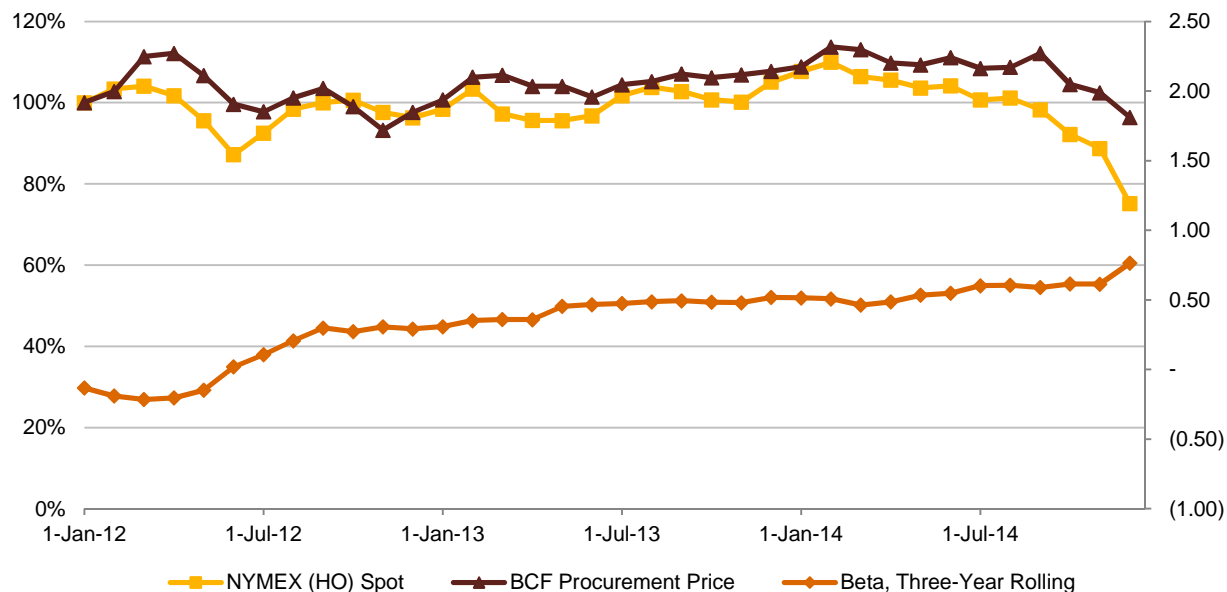
Cost Components with Base Price	Cost Components with Hedged Items	Cost Components with Hedging Instrument
Base Price (Vancouver Rack ULSD)	NYMEX ULSD (New York Harbour)	CAD-Denominated NYMEX ULSD Swaps
	CAD-USD	
	Locational Basis	
	Supplier discounts and charges	
Supplier discounts and charges	Supplier discounts and charges	Supplier discounts and charges
Fixed Taxes	Fixed Taxes	Fixed Taxes
Value Added Tax	Value Added Tax	Value Added Tax

Vancouver Rack ULSD and NYMEX ULSD is the same physical project, therefore, swap contracts can be expected to hedge the NY Harbour and foreign exchange components of Vancouver Rack ULSD costs. However, the locational basis for NY Harbour ULSD cannot be hedged and remains a significant retained risk after hedging.

Figure 5 illustrates the correlation and beta between the price of NYMEX ULSD futures and the actual BC Ferries procurement price over the three-year and one-year periods ended December 31, 2014, respectively.

Figure 5

NYMEX NYMEX ULSD vs. BC Ferries Procurement Price - 3 Year

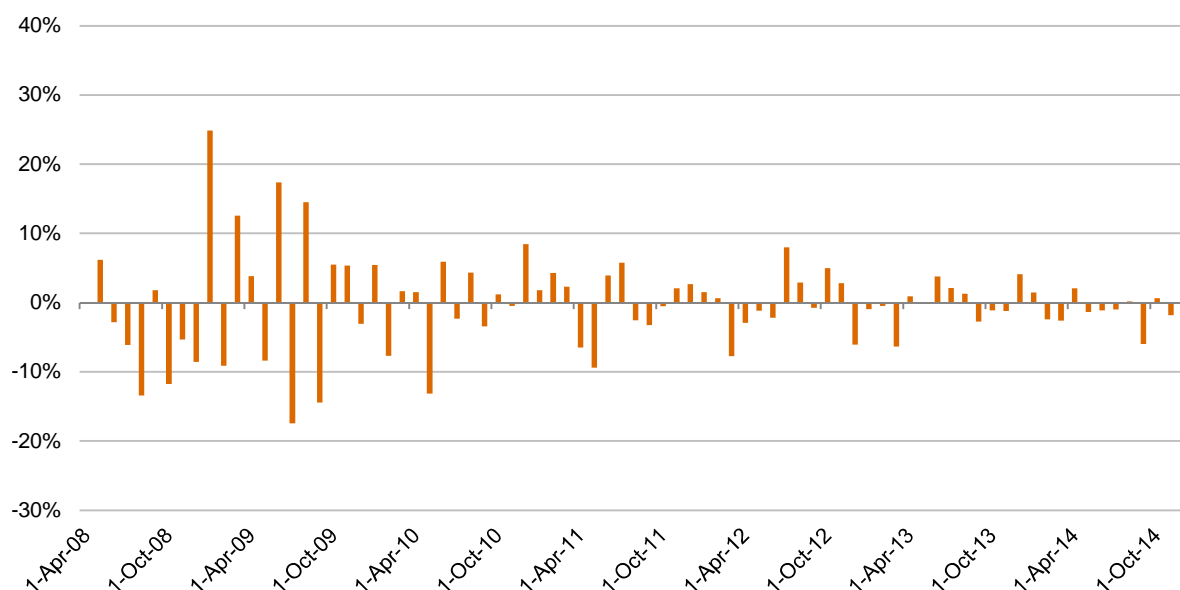


The correlation between movement of NYMEX ULSD prices and the BC Ferries procurement price over the period January 1, 2012 to December 31, 2014 is equal to 69% and the three-year rolling beta has ranged from -22% to 76%. The correlation between movement of the NYMEX ULSD prices and the BC Ferries procurement price over the period January 1, 2014 to December 31, 2014 is equal to 94% and the one-year rolling beta has ranged from 50% to 104%.

Figure 6 illustrates the historical indicative basis risk³ of NYMEX ULSD compared to the BC Ferries procurement price which explains the relative movements between the two prices on a percentage basis. A perfect hedge would result in a 0% difference in the price movements indicating that the two prices have moved in union.

Figure 6

Difference in Monthly Returns (NYMEX ULSD vs. BCF Procurement Price)



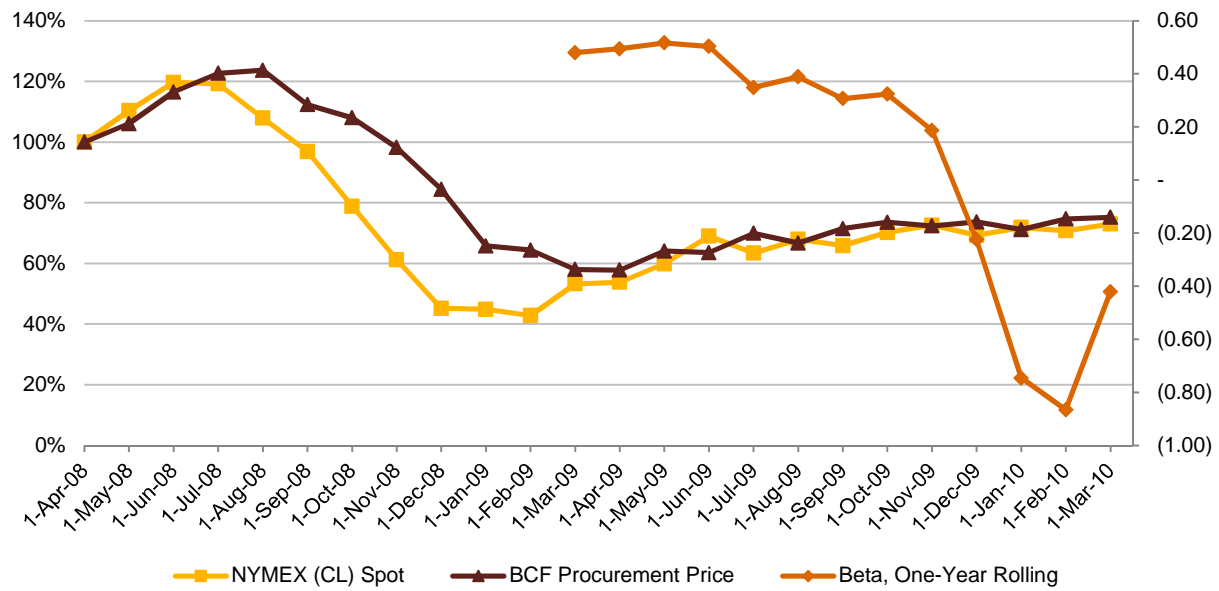
Although the volatility of differences in returns has decreased in recent years, Figure 6 suggests that basis risk has been significant. BC Ferries had previously highlighted basis risk as one of the reasons for not hedging at the time. The other reasons were exposure to mark-to-market earnings risks and potential to for locking in fare surcharges. Mark-to-market earnings risks no longer apply with the application of IFRS 9 and BC Ferries' current hedging strategy only enters into hedges to avoid fare surcharges.

PwC noted that prior to using NYMEX ULSD futures as a hedging proxy. BC Ferries used light sweet crude oil (WTI) as a proxy over the period April 1, 2008 to March 31, 2010. Figure 7 illustrates the correlation and beta between the BC Ferries procured price and light sweet crude oil over the actual period of the contracts.

³ Basis risk is the risk associated with an imperfect hedge that results because of the difference between the price of the asset being hedged and the price of the asset serving as the hedge.

Figure 7

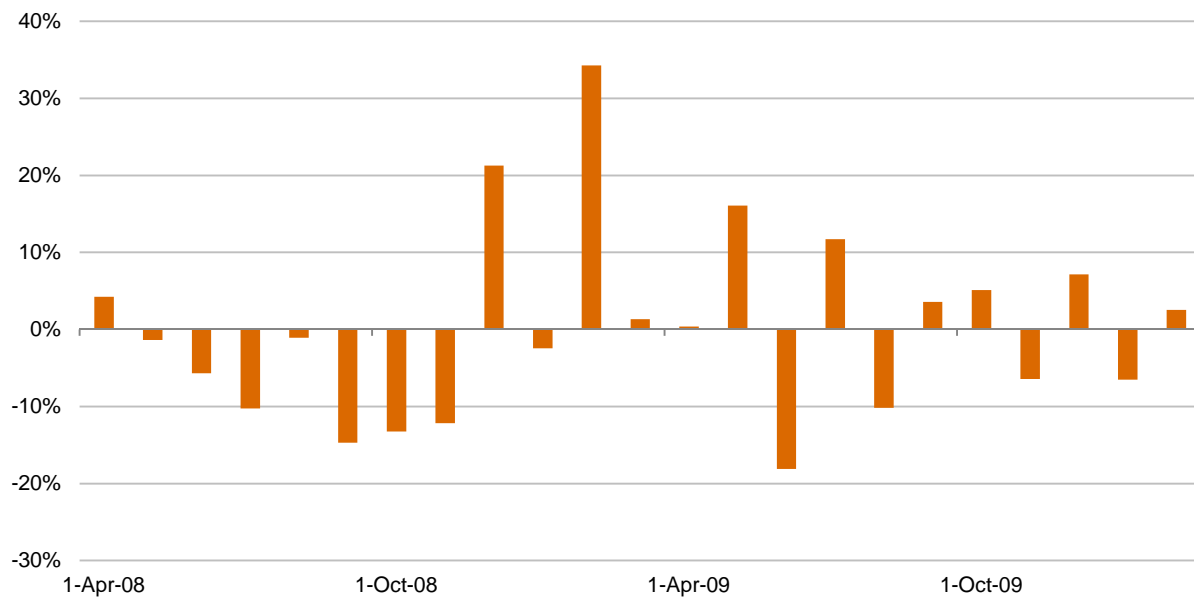
NYMEX Light Sweet Crude WTI vs. BC Ferries Procurement Price



The correlation between movement of the light sweet crude oil future contract prices and the BC Ferries procurement price over the period April 1, 2008 to March 31, 2010 is equal to 84% and the one-year rolling beta ranged from -87% to 52% over the same period. Figure 8 illustrates the historical indicative basis risk of light sweet crude (WTI) compared to the BC Ferries procurement price.

Figure 8

Difference in Monthly Returns (Light Sweet Crude WTI vs BCF Procurement Price)



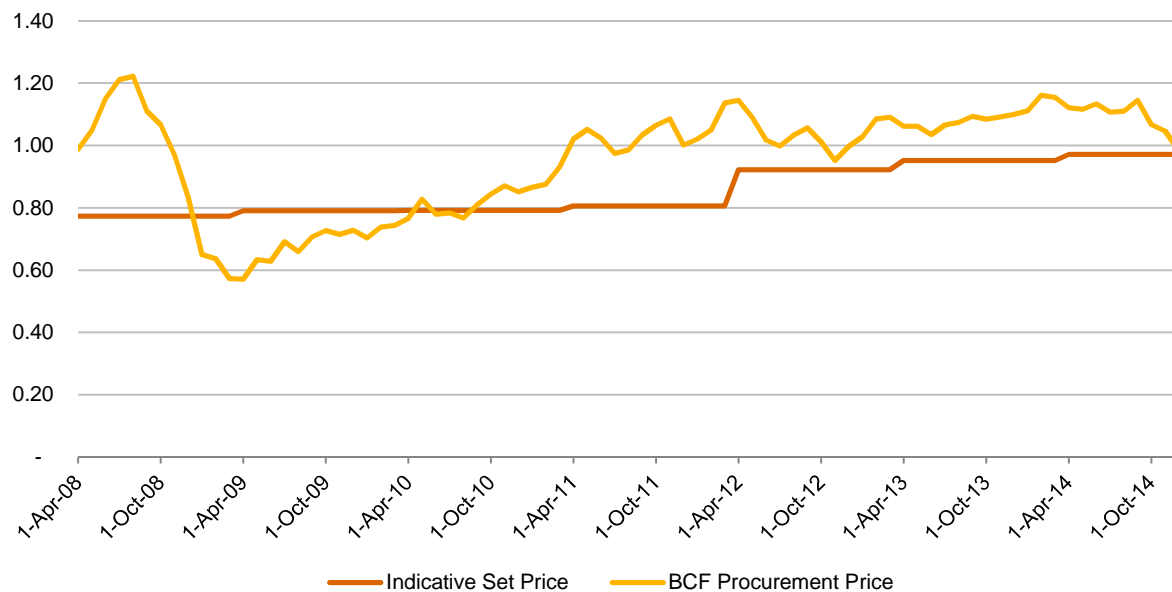
The basis risk illustrated in Figure 7 suggests that light sweet crude is not a more effective hedge than NYMEX ULSD. This is expected as light sweet crude is not the same physical product as ULSD and therefore, carries additional basis risks.

Historical Data and Results of Hedging Activities

The historical relationship between the indicative set price established by the Commission in each performance term and BC Ferries' actual fuel procurement price is illustrated in Figure 9.

Figure 9

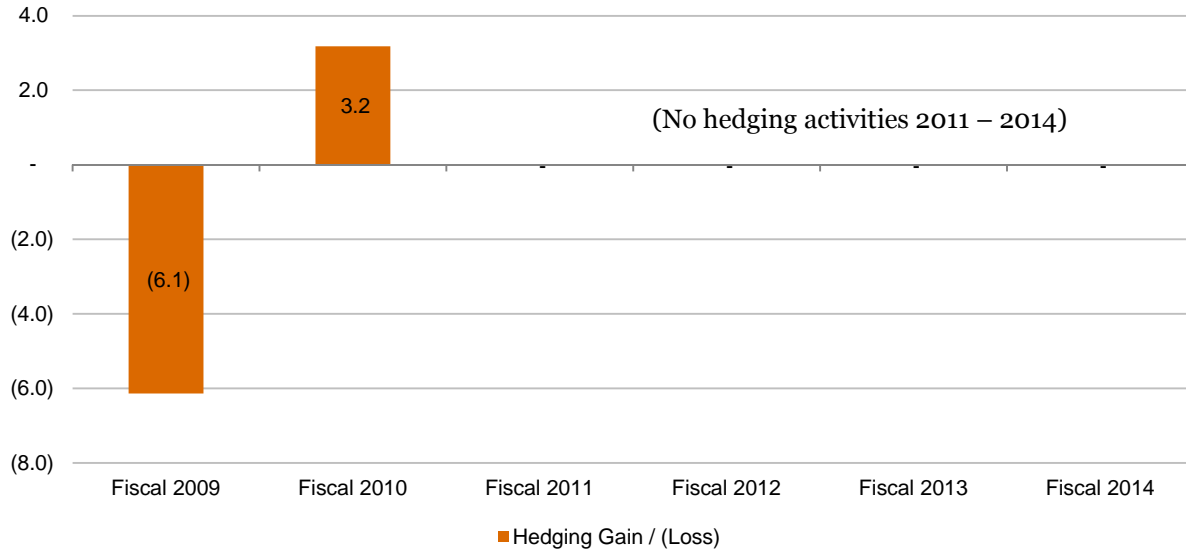
Performance Term Set Price vs. BCF Fuel Procurement Price Correlation



As indicated in the chart, the BC Ferries procurement price has been above the indicative set price since April 1, 2008 with the exception of a portion of fiscal 2009 and fiscal 2010. In accordance with their financial risk management policies, BC Ferries locked in to fixed price swaps when the Company's procurement price fell below the indicative set price in fiscal 2009. The financial results of these hedging activities are illustrated in Figure 10.

Figure 10

Historical Hedging Gains / (Losses) (In Millions of CAD)



Hedging losses totalled \$6.1m in fiscal 2009 and a \$3.2m gain in fiscal 2010. The hedging program was discontinued in between fiscal 2011 and fiscal 2014 as the procurement price exceeded the indicative set price. Overall, hedging activities resulted in a total loss of \$3.0m since the inception of performance term 2.

PwC noted that BC Ferries' hedging strategy is to lock into fixed price swaps when fuel pricing is available at or below the indicative set price. While it is understood that the use of hedges may result in lower fare volatility and prices, it is not clear why the decision to hedge is linked to the indicative set price. There is no strong evidence that suggests that the indicative set price is the optimal point to hedge fuel costs. Although the decisions to lock into fixed price contracts at or below the indicative set price are being driven to avoid fuel surcharges and provide fare certainty for periods of time, the strategy does not necessarily result in the best value for fare payers.

Fuel Management Implementation and Maintenance Costs

BC Ferries has estimated that the incremental cost of implementing and maintaining a hedging program to be negligible and consists only of the following costs:

- Monthly settlement wire transfer fees of approximately \$15 per month;
- Demands on management's time for approvals of swap contracts ; and
- Demands on employees' time related to tracking contracts against forecast fuel consumption, settling monthly contracts, mark-to-market adjustments for financial reporting purposes, and other documentation to comply with financial reporting requirements.

The costs included above include only those that would be eliminated should the hedging program be discontinued. BC Ferries noted that financial risk management program activities such as maintaining a Board approved strategy and associated financial risk management parameters for derivatives, keeping abreast of changes in accounting for hedges and market monitoring places demands on management's time regardless of whether or not they are currently hedging.

Fuel Deferral Account Mechanism

Commencing June 25, 2012, the Commission implemented a fuel deferral account mechanism whereby BC Ferries defers differences between actual fuel costs and indicative set prices for settlement in future tariffs.

While BC Ferries' fuel price risk is effectively mitigated by the fuel deferral mechanism, BC Ferries faces risk from increased fuel prices in other ways, namely in the form of decreased ridership due to demand elasticity and negative public perception. As a result, the current fuel deferral account mechanisms in place provide natural incentive for BC Ferries to procure fuel at the lowest possible price.

Fuel Management Policies and Procedures Benchmarking

Comparison of Fuel Management Policies and Procedures with Other Organizations

PwC has developed a list of comparable organizations for the purpose of comparing fuel management policies based on the attributes shared by both BC Ferries and the organization with which it is being compared. The comparables listed in Appendix A were selected based on their exposure to similar fuel price risk as well as because they operate in the transportation sector.

As indicated in Appendix A, comparable entities use a variety of options to hedge their exposure of commodity risk including long-term contracts, derivatives and surcharge mechanisms. PwC noted that there is no consensus strategy to address fuel price risk based on the comparables analysed.

- Of the five airlines examined, three hedged their fuel costs using derivative financial instruments while two do not hedge their fuel price risk. Of the airlines that hedge, percentages of total consumption hedged do not exceed 40% and the term of the contracts do not exceed four years.
- Of the four other ferry operators examined, each hedged their fuel costs using derivative financial instruments. The financial instruments used by ferry operators include swap contracts, forward contracts and option contracts. Scandferries ApS uses a Bunker Adjustment Factor (“BAF”) surcharge to pass 65% of any fuel price increases on to fare payers with another 20% being hedged using financial instruments. This BAF is similar to the surcharge system currently in place at BC Ferries which passes 100% of fuel price volatility on to fare payers. Marine Atlantic also uses a combination of a fuel surcharge and financial instruments to hedge fuel costs. Where BC Ferries uses NYMEX ULSD as a proxy for the marine diesel consumed, Marine Atlantic uses both heating oil and heavy fuel. Although Washington State Ferries does not disclose the details of their hedging strategy, they indicate that they hedge to achieve budget stability and not necessarily for cost savings.
- Of the two railways examined, neither hedges used long term supply contracts or derivative financial instruments. Instead, each has implemented a fuel surcharge program to mitigate the impact of rising fuel prices.
- Of the three public transit operators examined, two have entered into long term supply contracts with one having secured up to 75% of forecasted fuel consumption for the next 12 months. The remaining public transit operator hedges using heating oil based swap contracts.
- Of the two shipping companies examined, one hedges using commodity options while the other does not currently hedge.

The diversity of policies adopted by the entities examined suggests that the optimal hedging policy is dependent on the competitive environment the entity operates in as well as the entity's objectives.

Higher leveraged companies may be more susceptible to increased fuel costs compared to less levered companies. It would be prudent for highly leveraged companies to hedge because rising fuel costs could rapidly erode earnings. Less levered companies may choose not to hedge because they are better positioned to withstand an increase in fuel prices. As a result, less levered companies may also be in a better position to take advantage of lower prices should the price of fuel decrease.

Some entities hedge to obtain budget certainty because of the regulatory environment they operate in. For example, Washington State Ferries hedges for budgetary reasons as it operates as a component of the

Washington State Department of Transportation and has little budget flexibility. The potential costs of hedging are outweighed by the need to achieve budget certainty in this case.

Where a company can pass volatility in fuel costs on to the customer, they do not hedge their fuel risk. Canadian National Railway and Canadian Pacific Railway operate in an oligopoly and have both adopted the policy of passing any incremental fuel costs on to customer because there is little market competition. Because both companies have adopted surcharge mechanisms, the consumer has no other option than to bear the fuel price risk.

BC Ferries operates in an effective monopoly and can therefore pass on any fluctuation in fuel prices to fare payers much like Canadian National Railway and Canadian Pacific Railway can in the Canadian rail market. Furthermore, budget certainty is achieved through the use of the fuel deferral account mechanism. Consequently, the advantage of BC Ferries hedging fuel price risk from a user perspective is unclear.

Conclusions and Recommendations

The conclusions and recommendations of our report are as follows:

Fuel Consumption

BC Ferries has implemented significant measures to effectively management fuel consumption including fleet deployment optimization and realization of operational efficiencies. Although total fuel consumption has decreased over the period since the beginning of PT2 and at a faster rate than forecasted, the total fuel consumption per nautical mile sailed has remained flat over the period. PwC also analysed the impact of phasing in LNG-powered ferries and determined that any lost volume discount will be offset by reductions in overall fuel costs as well as environmental considerations.

Further reductions in consumption will come from a number of initiatives including the introduction of newer and more fuel-efficient vessels.

Policies and Procedures for Procurement of Fuel

BC Ferries currently procures approximately 95% of forecasted fuel consumption from one supplier. Based on the details provided from when the last RFP was issued in November 2010, BC Ferries has successfully obtained value for its stakeholders by consolidating marine fuel and lubricant purchases with one supplier in order to obtain the greatest volume discount possible. Furthermore, the base rate under the contract is calculated with reference to the average of a group of local competitors which ensures that BC Ferries is paying a competitive base rate.

The current procurement policies and procedures appear appropriate.

Hedging Practices

BC Ferries has currently entered into financial hedging contracts for the remainder of PT3 and for a portion of PT4 using swap contracts based on the notional value of NYMEX ULSD. The NYMEX ULSD swaps could be expected to effectively hedge certain components of fuel costs. However, based on the correlation and beta analysis performed by PwC, NYMEX ULSD futures were not able to hedge significant risk in total fuel costs that are retained by BC Ferries. PwC also analysed the actual hedging results from the fiscal 2009 and fiscal 2010 program and determined that NYMEX WTI futures similarly left significant total fuel cost risks with BC Ferries.

PwC also examined BC Ferries' policy of entering into fixed price swaps when pricing is available at or below the indicative set price. It is not clear in BC Ferries' financial risk management policy or fuel strategies reports what the advantage of this policy is to the fare payer.

PwC recommends that financial risk management policies in respect of derivative hedging be revisited to specify the benefit provided by the policy of locking into fixed price swaps when pricing is available at or below the indicative set price. As a policy that is in the interest of users, fuel hedging may be used to limit increases in fares to the rate of inflation. If no clear benefit from the policy is identified, hedging activities are discouraged.

PwC also examined the fuel cost deferral mechanism and determined that although the mechanism mitigates fuel price risk, BC Ferries is still incentivized to procure fuel at a price that is most beneficial to reducing fares in order to maintain ridership levels.

Comparison with Other Organizations

BC Ferries is comparable to entities that operate in a business environment with little competition and can therefore afford to pass any incremental increases in fuel costs on to consumers without losing market share or risking their ability to continue as a going concern. Furthermore, the fuel cost deferral mechanism provides BC Ferries with the budget certainty that other entities achieve through financial instrument hedging. Consequently, it is unclear what incentive BC Ferries has to engage in hedging activities other than the fuel deferral account mechanism.

The current system of passing on all fluctuations in fuel procurement prices via fuel rebates and surcharges appears appropriate.

Appendix A

	Long-Term Contract	Derivative Hedge	Hedging Proxy	Hedge Strategy	Fuel Price Risk Management Attributes		Source	Additional Details
					Percentage Hedged			
Airlines								
Air Canada	No	Yes	"Crude-oil and refined products"	"Call options and call spreads"	40% 2014; 10% 2015		Q3 MD&A, September 30, 2014	"In order to manage its exposure to jet fuel prices and to help mitigate volatility in operating cash flows, Air Canada enters into derivative contracts with financial intermediaries"
American Airlines, Inc.	No	No	N/A	N/A	N/A		Q3 MD&A, September 30, 2014	"We have not entered into any transactions to hedge our fuel consumption. As a result we fully realize any increase or decrease in fuel price"
Southwest Airlines Co.	No	Yes	"WTI crude oil, and refined products, such as heating oil and unleaded gasoline"	"Financial derivative instruments for both short-term and long-term time frames and primarily uses a mixture of purchased call options, collar structures, call spreads, put spreads and fixed price swap agreements."	31% 2014, various through to 2018		Q3 MD&A, September 30, 2014	"The Company endeavors to acquire jet fuel at the lowest possible cost and to reduce volatility in operating expenses through its fuel hedging program."
United Airlines, Inc.	No	Yes	"Aircraft fuel or crude oil"	"Commonly used financial hedge instruments...swaps, call options, collars, three way collars, four-way collars"	39%, 24%, 1% for 2014, 2015, 2016, respectively		Q3 MD&A, September 30, 2014	"The Company routinely hedges a portion of its expected aircraft fuel requirements to protect against increases in the price of fuel."
WestJet Airlines Ltd.	No	No	N/A	N/A	N/A		Q3 MD&A, September 30, 2014	"As at September 30, 2014, we have no fuel derivative contracts outstanding. We will continue to monitor and adjust to movements in fuel prices and may re-visit our hedging strategy as changing market and competitive conditions warrant."
Ferry Operators								
British Columbia Ferry Services Inc.			"Heating Oil (NYMEX)"	Cash-settled commodity swaps	71% fiscal 2014; -70% fiscal 2015		Fiscal 2015 Financial Risk Management Strategy and Parameters	"The fuel hedging program augments the use of a deferral accounts and surcharges/rebates to mitigate the impact of fuel market price volatility on the company's earnings and cash flow." "Management recommends a continuation of the current approach to fuel hedging that seeks to lock in fixed price swaps only when they are below the indicative set price."
Stena AB	No	Yes	Undisclosed	"The group uses forward contracts, swaps and options to hedge its oil price risk"	Undisclosed		Annual Report 2013	"The Group is exposed to the price of bunker fuel used for the operation of its vessels and uses forward contracts, swaps and options to hedge its oil price risk."
Scandferries ApS	No	Yes	Undisclosed	Bunker Adjustment Factor ("BAF") and undisclosed financial instruments	65% BAF; 20% instrument = 85% in 2014		Annual Report 2013	"The primary risk associated with commodities related to the purchase of fuel for the vessels is due to the oil market's high volatility. This risk is incorporated in the contracts with customers (via BAF surcharge), and about 65% of the total bunker cost if hedged by these means." "In addition approximately 20% has been covered via bunker hedge contracts."
Marine Atlantic Inc.	No	Yes	"#2 heating oil and #6 heavy fuel 1%"	"In order to manage the risk associated with fuel price variation, the Corporation enters into derivative contracts (swaps) with financial intermediaries."	Undisclosed		Annual Report 2013/2014	"The objectives of the Corporation's fuel hedging policy are to stabilize fuel budget variances and the fuel surcharges charged to customers throughout the years. This variance is managed through fuel hedging activities as well as the fuel surcharges charged to customers."
Washington State Ferries	No	Yes	Undisclosed	Undisclosed	Undisclosed		Ferries Fuel Hedging Update - Senate Transportation Committee December 7, 2011	"The purpose of hedging is to achieve budget stability, not necessarily savings."
Railways								
Canadian National Railway Company	No	No	N/A	N/A	N/A		Q3 MD&A, September 30, 2014	"CN has implemented a fuel surcharge program with a view of offsetting the impact of rising fuel prices. The surcharge applied to customers is determined in the second calendar month prior to the month in which it is applied, and is calculated using the average monthly price of WTI crude oil for revenue-based tariffs and On-Highway Diesel for mileage-based tariffs."
Canadian Pacific Railway Limited	No	No	N/A	N/A	N/A		Q3 MD&A, September 30, 2014	"CP employs a fuel cost recovery program designed to automatically respond to fluctuations in fuel prices and help mitigate the financial impact of rising fuel prices. Fuel surcharge revenue is earned on individual shipments; as such, fuel surcharge revenue is a function of freight volume."
Public Transit								
BC Transit	Yes	No	N/A	Long-term fuel purchase contract extends into 2015	Undisclosed		Annual Report 2013/2014	"Management does not have the authority under the British Columbia Transit Act to enter into financial commodity derivative contracts." "Management entered into a fixed price physical supply contract during the year for operating purposes fixing certain fuel purchases during fiscal 2014."
TransLink	Yes	No	N/A	The Authority has entered into multiple fixed price future agreements with the objective of achieving budget stability on up to 75% of monthly expected diesel purchase volumes up to 2014.	75%		Annual Report 2013	"Commodity risk is considered moderate as TransLink uses natural gas, electricity, gasoline and diesel to run its fleet of transit vehicles. The majority of its bus fleet is powered by diesel fuel. In managing this risk, up to 75% of the next 12 months estimated diesel fuel is on fixed price contracts."
Toronto Transit Commission	No	Yes	"Quoted price of heating oil on the NYMEX"	"Swaps"	Undisclosed		Annual Report 2013	"Financial derivatives consist of heating fuel swaps with financial institutions which help manage TCC's exposure to fluctuating fuel prices by setting a fixed price for a future purchase of a fixed quantity of fuel. Heating fuel swaps are used because they are an openly traded commodity that most closely relates to the diesel fuel consumed by TCC."
Shipping								
Hapag-Lloyd AG	No	Yes	"Commodity options"	"Commodity options"	80%		Annual Report 2013	"As a result of its operating activities, the Hapag-Lloyd Group is exposed to a market price risk for the procurement of bunker fuel. The risk management's basic objective is securing up to 80% of forecasted bunker requirements. Derivative instruments in the form of commodity options are used to hedge against price fluctuation."
Teekay Corporation	No	No	N/A	N/A	N/A		Form 20-F for the Period Ending 12/31/2013	"From time to time we may use bunker fuel swap contracts relating to a portion of our bunker fuel expenditures. As at December 31, 2013, we were not committed to any bunker fuel swap contracts."