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# **British Columbia Ferry Services Inc.**

Performance Term Four

Fuel Management Plan

Submitted to the  
British Columbia Ferries Commissioner

In Accordance with  
Order 15-03

**March 30, 2016**

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## INTRODUCTION

This fuel management plan for the four years of performance term four (“PT4”), April 1, 2016 to March 31, 2020, is submitted by British Columbia Ferry Services Inc. (“BC Ferries” or the “Company”) to the British Columbia Ferries Commissioner (“Commissioner”) in accordance with the requirements of Order 15-03 *Final Decision on Price Caps for the Fourth Performance Term Pursuant to the Coastal Ferry Act*, dated September 16, 2015. The Order states:

*BC Ferries is required to submit a fuel management plan prior to the start of PT4 setting out strategies for fuel procurement, minimizing fuel consumption and the transition to alternate fuels during PT4. BC Ferries must provide a report on the outcomes of their fuel management plan as part of their submission for performance term five.*

This document is structured in three parts, each responding to a specific reporting requirement of Order 15-03. Part 1 provides BC Ferries’ strategies for minimizing fuel consumption in PT4. Part 2 sets out BC Ferries’ strategies to transition to alternate fuels during the upcoming performance term and Part 3 contains an overview of BC Ferries’ strategies for fuel procurement.

In the fiscal year ended March 31, 2015 (“fiscal 2015”), BC Ferries’ fuel management policies and practices were independently reviewed by PricewaterhouseCoopers LLP (“PwC”) for the Commissioner in conjunction with the price cap determination process for PT4. This was one of four performance reviews conducted by the Commissioner, the purpose of which for each was to *“hold BC Ferries accountable and by doing so to raise public confidence that the company is operating efficiently, making prudent uses of its resources, and by operating in such a way as to keep ferry fares as low as reasonable possible.”*

PwC reviewed BC Ferries’ policies and practices in the three areas addressed in this plan. In its report, *Performance Review of BC Ferries’ Fuel Management*, released by the Commissioner on March 18, 2015, PwC concluded that:

- BC Ferries’ efforts to manage and minimize consumption of fuel have been effective;
- BC Ferries has defined procedures in place to manage consumption and costs and is 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.

In PT4, BC Ferries will focus on ensuring its fuel management practices and policies continue to remain effective. The Company is proud of the significant accomplishments it has made to date in managing its fuel costs and reducing its fuel consumption and overall environmental footprint; however, more can be done. BC Ferries is committed to continuing to pursue fuel-efficient technologies and operational practices and optimizing its fuel procurement processes. This plan sets out the specific initiatives and strategies BC Ferries will undertake in PT4 to further its focus in these areas to help ensure a fuel efficient and sustainable ferry operation for years to come.

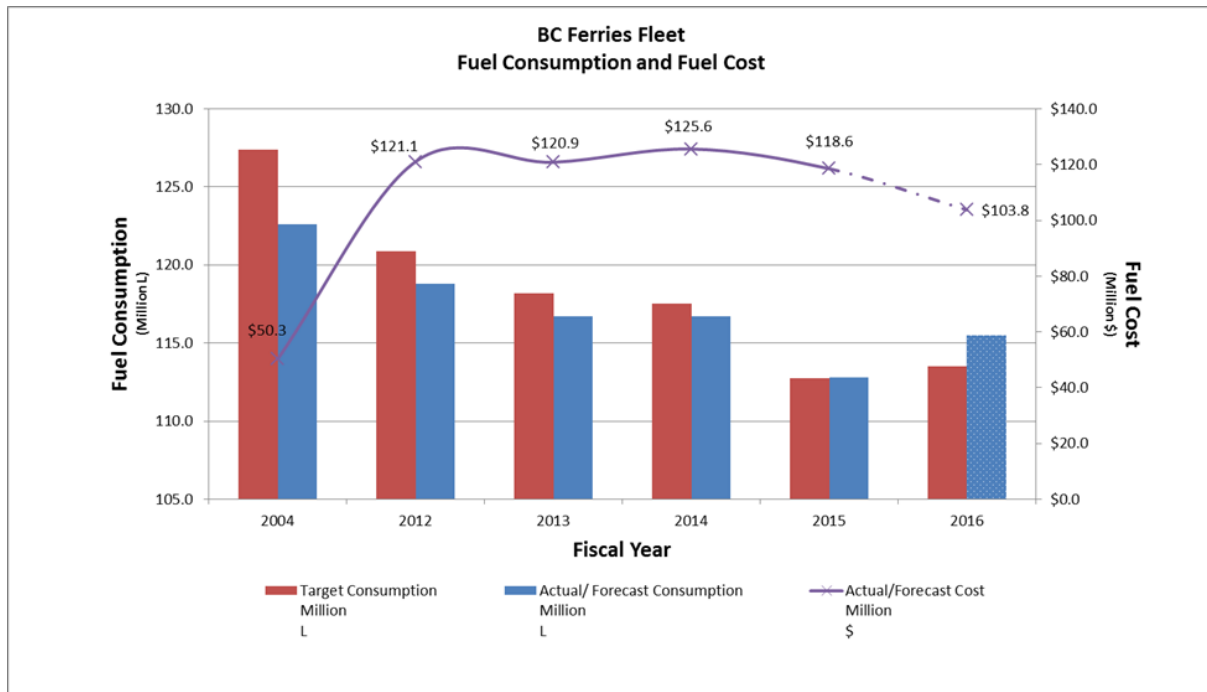
## PART 1: FUEL CONSUMPTION REDUCTION STRATEGIES

### Introduction

Fuel is the second largest operating expenditure incurred by BC Ferries. In fiscal 2015, fuel cost was \$118.6 million or 16.4 percent of BC Ferries' total operating costs. Reflective of lower prices for diesel, fuel costs in fiscal 2016 are forecast to be \$103.8 million.

In recent years, BC Ferries has pursued and implemented competitive fuel procurement processes to ensure it receives the best market price for delivered fuel (see Part 3 of this Plan). This has been coupled with a focussed effort on finding ways to enhance the overall fuel efficiency of the Company's vessels and on-shore facilities. The results have been significant. For fiscal 2016, the Company forecasts that its diesel fuel consumption will be over 7 million litres or 6 percent less than it was in fiscal 2004. This represents a reduction in CO<sub>2</sub> emissions of approximately 19,000 tonnes or the equivalent of taking approximately 3,500 cars off the road for a year.

Figure 1: Fuel Consumption and Fuel Costs



The fuel consumption savings achieved to date have been realized through aggressive efforts by the Company to identify and pursue all viable fuel savings initiatives. The Company's focus in this area reflects its general commitment to progressive and responsible energy management which is intended to ensure the highest practicable energy efficiencies in the Company's overall operations

and the sustainable growth of its business. This commitment is enshrined in the Company's energy management policy, which has as its objectives:

- Delivering an energy awareness program, through the existing internal energy management team, to all employees;
- Providing continual education of employees on how to conserve energy and how to recognize and minimize unnecessary consumption in their work area;
- Setting targets to reduce energy consumption and, at a minimum, not exceeding baseline levels;
- Establishing regular reporting of energy use to key operating area personnel;
- Reducing expenditures on energy by understanding rate structures and managing consumption accordingly;
- Identifying savings opportunities by conducting energy studies or audits at appropriate facilities;
- Implementing cost-effective facility and equipment upgrades that will achieve energy savings;
- Participating in incentive programs for energy conservation and/or greenhouse gas deferral projects;
- Establishing energy-efficiency targets as design specifications in major retrofits of facilities or vessels and in purchasing guidelines; and
- Providing guidance for best practices in energy management, including equipment selection, operation and maintenance, as well as monitoring, targeting, and reporting energy usage.

These objectives also underpin the Company's recently announced SeaForward program. This program combines existing environmental conservation projects and community investment activities with new and innovative endeavours to reduce BC Ferries' environmental footprint, improve the sustainability of its operations and support coastal communities. BC Ferries' energy and fuel management programs are important elements of this program, as are its strategies to transition to alternative fuels (see Part 2 of this Plan).

While the Company has made significant strides and continues to focus its efforts in all areas of energy and fuel management, the ability to extract future savings from fuel consumption reduction initiatives at levels comparable to those achieved historically is challenged by the practicality and cost-effectiveness of the technologies available, BC Ferries' aged fleet and the service level constraints within which the Company operates.

## Fuel Savings Initiatives

BC Ferries has and continues to exert significant effort to manage its operations efficiently and to reduce its consumption of energy in all of its forms. BC Ferries recognizes that not only does a more fuel efficient operation mean lower costs, which helps lessen the upward pressure on fares, it results in a smaller environmental footprint of the Company's operations. These are both important objectives of the Company, its customers and the communities BC Ferries serves.

BC Ferries endeavours to minimize fuel consumption principally through initiatives aimed at optimizing fleet deployment and achieving operational efficiencies. These largely preclude adjustments in service levels to achieve fuel savings, given the prescriptive requirements of the Coastal Ferry Services Contract with the Province in terms of the minimum number of sailings that BC Ferries must deliver on each of its routes, irrespective of traffic demand.

### Fleet Deployment Optimization

The Coastal Ferry Services Contract places requirements on BC Ferries in regard to the vessel capacity that must be provided on each of the routes. Within these constraints, BC Ferries endeavours to optimize the deployment of its fleet, where possible, by substituting a vessel with a smaller, more fuel efficient one in order to tailor its service to traffic demand. BC Ferries is limited in these endeavours as it must sometimes use less efficient vessels when traffic demand is greater than expected or when repairs and maintenance require vessel substitution. Nevertheless, fleet deployment optimization strategies present opportunities for continued fuel savings and will continue to be a focus in PT4. This includes initiatives aimed at improving traffic forecasts at the route and sailing levels to enable better vessel deployment planning and overall asset utilization.

### Operational Efficiencies

BC Ferries' success in realizing significant reductions in energy consumption over the past number of years reflects its corporate culture of innovation, operational excellence and continuous improvement. Numerous initiatives to enhance energy efficiency have been developed and implemented by BC Ferries in recent years. A number are highlighted below.

- BC Ferries' newest vessel, the *Baynes Sound Connector*, officially entered service on Route 21 (Buckley Bay to Denman Island) on February 9th, 2015. The *Baynes Sound Connector* is a cable ferry which enables superior environmental performance by using less than half the fuel of the conventional vessel that it replaced on the same route (*Quinitsa*). Based on projected yearly fuel savings, greenhouse gas emissions will be reduced by approximately 480 tonnes of CO<sub>2</sub> equivalent annually, which is approximately the same as the CO<sub>2</sub> emissions of 100 cars every year.

- Advanced low friction coating has been applied on the hulls of BC Ferries' vessels, which is designed to reduce hull drag, resulting in a reduction in fuel consumption of up to 3 percent.
- Over 90 percent of BC Ferries' vessels are now fitted with a shore power connection so that they do not burn fuel while docked in the evenings and during refits. Since this program was implemented at the beginning of fiscal 2015, fuel consumption savings in the order of 1.2 million litres have been realized.
- Since 2004, BC Ferries has reduced fuel consumption in eight older major vessels with the use of electronic speed pilots and has been promoting anti-idling of vehicles at the terminals and onboard the vessels.
- BC Ferries has been a Power Smart partner with BC Hydro since 2008, and energy management projects completed and/or in progress since then will result in approximately 1.3 gigawatt hours of annual energy savings, equivalent to the energy consumption of 118 average homes. In 2014, BC Ferries received a Power Smart Excellence Award from BC Hydro for being a Power Smart Leader and implementing energy improvements throughout the organization. Energy saving projects have included lighting retrofits, energy studies, information technology server virtualization, and heating and ventilation improvements.

As was noted by PwC in its report, *Performance Review of BC Ferries' Fuel Management*, while the fuel efficiency initiatives undertaken by BC Ferries to date have generated significant reductions in fuel consumption, the average fuel consumption per nautical mile has remained largely unchanged since fiscal 2009. This suggests that limits to the ability to extract significant incremental savings from these initiatives exist. BC Ferries believes that the greatest opportunity for realization of further significant fuel savings rests with the Company's vessel renewal plan. This long-term plan envisages the replacement of 18 aged minor and intermediate-sized vessels with newer, more fuel-efficient vessels, as well as mid-life upgrades of the Spirit class vessels to enable them to operate using liquefied natural gas ("LNG").

For PT4, BC Ferries will continue its focus on fleet renewal. This will ensure continued safe and reliable service while generating significant benefits from a fuel efficiency and environmental perspective. Highlights of the planned investments in this area include:

- *Salish Class Vessels Project*  
In July 2014, BC Ferries entered into contracts with Remontowa Shipbuilding S.A. in Gdansk, Poland to build three new intermediate class vessels to replace two of the Company's aged vessels, the *Queen of Burnaby* and the *Queen of Nanaimo*. Each of the new Salish class vessels is designed to be dual-fuel capable, so they can run predominantly on LNG with ultra-low sulphur marine diesel fuel as a backup. The first vessel, the *Salish*



*Orca*, is expected to enter service in 2016, the first year of PT4, followed by the other two new vessels, the *Salish Eagle* and *Salish Raven*, in 2017. These vessels will be smaller in size than the vessels they replace and will have new modern engine technology. Both factors are expected to contribute positively to optimizing fuel consumption, as they are expected to be approximately 15 percent more fuel efficient than the vessels they replace. In addition, as a result of their use of LNG, they will have lower emissions and lower fuel cost.

- *Spirit Class Vessels Mid-Life Upgrades Project*

The *Spirit of British Columbia* and the *Spirit of Vancouver Island*, will undergo their mid-life upgrades in PT4, which will include the installation of dual-fuel engines that will run primarily on LNG, but will also be capable of running on ultra-low sulphur marine diesel, the fuel source they currently use. Importantly, the new propulsion systems will result in lower fuel costs as a result of the use of lower cost natural gas fuel. As the largest consumers of fuel in the BC Ferries fleet, it is expected that the dual-fuel conversion of these vessels will reduce their cost of fuel by approximately 50 percent. The conversions will also have the added benefit of cleaner exhaust emissions. It is expected that the converted *Spirit of British Columbia* and *Spirit of Vancouver Island* will be in service sometime during 2018 and 2019, respectively.

- *Minor Vessel Replacement Project*

BC Ferries' minor vessel replacement project involves the replacement of certain of the Company's minor vessels that will have reached the end of their service life with new vessels in a standardized class. While the timelines are yet to be finalized, this project envisages three new vessels coming into service late in PT4, with further vessels to follow later. It is expected that these new vessels will be able to achieve significant fuel consumption efficiencies compared to the vessels being replaced. These efficiencies will primarily be driven by:

- Latest technologies in relation to lighting, heating and energy recovery;
- Improved hull design arising from the use of the latest ship building design technologies such as Computational Fluid Dynamics in order to reduce vessel drag;
- Better underwater hull paint coatings that will also reduce vessel drag; and
- A more efficient propulsion system, possibly involving a hybrid diesel battery system similar to that recently installed on the *Tachek*.

In conjunction with the focus on fleet renewal, BC Ferries will continue in PT4 to pursue initiatives to optimize the fuel efficiency of its current assets and operations. Initiatives that will continue in the performance term include:

- *Operational Policies and Practices*
  - Increased crew awareness and education to optimize vessel operating procedures, including vessel economical speed, wind, tides, weather forecast, and other factors affecting vessel operations;
  - Extending training on various tools, including navigation equipment, radar, and electronic speed pilot, for better traffic management and reduced vessel fuel consumption;
  - Enhancing crew skills for optimal ship handling, car deck loading, and communication between terminal and vessel so that the “on-schedule” performance is achieved at economical speed to minimize fuel consumption;
  - Working with a leading sea traffic management solutions provider to implement a traffic management solution (initially as a pilot on three routes) to achieve, among other objectives, reduced vessel fuel consumption by improving operational practices respecting vessel speed management through better marine traffic management;
  - Implementing Shipboard Energy Efficiency Management Plans, including development and tracking of an energy efficiency operational index for each vessel, which provides an enhanced ability to implement, evaluate and share local initiatives for improving vessel operating efficiency and optimizing fuel consumption across the fleet;
  - Expanding power consumption tracking for ship service loads to enable better management of the electrical load in operating and tied up modes leading to savings in power consumption from shore and from fuel-burning ship generators; and
  - Recognizing crew and shore side employees for fuel and energy conservation accomplishments, and continuing to work to instill a sense of pride and accountability for optimal operational standards.
  
- *Engineering Policy and Practices*
  - Maintaining engines to prevent efficiency losses;
  - Renewing engines to take advantage of design improvements which optimize fuel consumption;
  - Ensuring fuel and lubricant quality standards to minimize equipment energy losses;
  - Performing heating boiler maintenance and boiler renewal; and
  - Utilizing waste heat recovery systems.

- *Other Tactics*
  - Minimizing propulsion idling in the berth prior to the first loading and departure on daily route service;
  - Using tensioning winches while loading/unloading and during tie-ups where feasible;
  - Connecting to electrical service from shore to minimize generator run time where cost-effective;
  - Using ballast/trim tanks on Coastal Class vessels and the *Northern Expedition* to keep the propeller optimally submerged when underway;
  - Operating the *Northern Adventure* and *Northern Expedition* on a single engine and single propeller shaft during pre-approved, low risk legs of the voyage (summer time operations only). Similarly, utilizing shaft generators instead of diesel generators during low risk legs of the voyage and when weather permits<sup>1</sup>;
  - Maintaining hull coating standards to minimize hull friction losses;
  - Performing in-water repair techniques to minimize energy losses as a result of strike damage to propeller blades, rudders and underwater appendages; and
  - Performing regular hull and propeller cleaning.

In addition to the foregoing, new technologies and initiatives may emerge in PT4 that offer the potential to generate additional energy savings and reduce emissions. BC Ferries remains committed to pursuing such opportunities where they are cost effective and practical to implement.

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<sup>1</sup> BC Ferries' Senior Masters have set specifics guidelines as to where and when these tactics can be applied safely.

## **PART 2: STRATEGIES TO TRANSITION TO ALTERNATIVE FUELS**

### **Introduction**

BC Ferries actively monitors and pursues innovation and emerging technologies respecting the use of alternatives to conventional fuels. The Company's initiatives in this area are set out in this part of the Plan. The Company's focus on transitioning to alternative fuels reflects its commitment to ensuring sustainable and cost effective operations.

BC Ferries has been a proud member of Green Marine since 2014. Green Marine is a globally recognized, voluntary, industry sustainability initiative for ship operators, ports, terminals, the seaway and shipyards. It is a program to reduce the environmental footprint of marine operations by promoting a culture of continuous improvement and exceeding regulatory compliance. BC Ferries received its Green Marine certification in May 2015. Like all participants, BC Ferries must demonstrate year-over-year improvement in measurable ways to maintain its Green Marine certification; a challenge BC Ferries welcomes.

As a member of Green Marine, BC Ferries embraces the goals of the initiative, which comprise:

- Demonstrating corporate leadership in the search for best environmental practices in accordance with a sustainable development approach;
- Carrying out its activities in a responsible manner with a view to minimizing its environmental impacts;
- Aiming for continuous improvement of its environmental performance;
- Developing and promoting voluntary protection measures;
- Integrating sustainable development practices that are technically and economically achievable; and
- Collaborating with governments and citizen groups in the progressive implementation of the action plans arising from the Green Marine Environmental Program.

Emission reduction is one of the focus areas of Green Marine. In addition to practices to reduce fuel consumption, Green Marine encourages the use of higher-quality fuel and technologies to achieve emission reductions. These objectives are at the heart of BC Ferries' strategies to transition to alternative fuels, the key initiatives of which are set out below.

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## Alternatives to Conventional Fuels

### Renewable Fuels

Since 2007, BC Ferries' vessels have been burning diesel fuel with ultra-low sulphur content (15ppm). Additionally, where supply is available, the Company's vessels burn 5 percent, or B5, biodiesel. BC Ferries is, in fact, one of the largest consumers of biodiesel in British Columbia. B5 fuel blend is a mix of 5 percent canola-based biodiesel with 95 percent low sulphur petroleum diesel. Biodiesel burns cleaner with significantly less unburned hydrocarbons, carbon monoxide and particulate matter in emissions. Hydrogenation derived renewable diesel (HDRD), a relatively new renewable fuel and considered a second generation biofuel, is on the horizon for possible introduction as a fuel supply for the fleet, provided quality and performance requirements can be met.

### Liquefied Natural Gas

BC Ferries continues to move forward towards using LNG as a fuel source for its fleet. LNG is a greener and much cleaner fuel source with very favourable environmental impacts compared to diesel fuel. LNG adoption cuts carbon emissions by about 25 percent, SO<sub>x</sub> (sulphur oxides) by almost 100 percent and NO<sub>x</sub> (nitrogen oxides) by 85 percent, which translates to much cleaner exhaust emissions than diesel fuel. In addition to the benefits of lower emissions, LNG also continues to be less expensive than the ultra-low sulphur diesel that the Company currently uses, which translates to lower overall fuel expense, which in turn helps lessen the upward pressure on fares.

BC Ferries believes that LNG is a viable option for future new vessels and, as discussed in Part 1 of this Plan, the Company's three new Salish class vessels, which will operate on the Southern Gulf Island routes as well as between Comox and Powell River, will have the capability to run on it. BC Ferries has also analyzed LNG as an option for existing vessels undergoing major retrofits, and intends to pursue this option where it is economically and technically feasible. The Company's two largest vessels, the *Spirit of Vancouver Island* and the *Spirit of British Columbia*, which operate between Swartz Bay and Tsawwassen, will be undergoing mid-life upgrades in PT4, which will include the conversion of their main propulsion systems to dual-fuel capable, such that they will use LNG as their primary fuel.

The Company actively pursues LNG conversion grants made available by the industry and/or governmental agencies. Early in 2016, BC Ferries signed an agreement to receive up to \$10 million contribution from FortisBC Energy Inc. as part of the Natural Gas for Transportation incentive funding initiative. This funding will be used to partially offset the capital cost of converting the two Spirit class vessels to dual-fuel capability. While this agreement does not obligate

BC Ferries to purchase LNG from FortisBC, the funding is conditional upon a number of factors including a long term LNG procurement contract for these vessels.

#### Alternative Fuels, Electrical and Hybrid Propulsion

Innovation and emerging technologies for electric power grid management have the potential to make use of energy sources that are alternatives to diesel fuel. BC Ferries plans to consider hybrid power generation concepts for future vessel acquisition programs, such as the minor vessel replacement project referenced in Part 1 of this Plan, as well as possibly for the *Baynes Sound Connector*. The hybrid propulsion system recently installed on the *Tachek* has proven to be reliable and has generated efficiencies in terms of fuel consumption as well as reduced the total cost of ownership of the new asset.

BC Ferries has engaged in a research partnership with the federal government and the University of Victoria to evaluate stored energy solutions (e.g. batteries or capacitors) for short duration routes. As part of this research, BC Ferries has been collecting field data from one of the Company's vessels, the *Klitsa*, which operates on the route connecting Mill Bay and Brentwood Bay. The outcome of this initial research is expected to be complete in late spring of 2016, with the potential for further collaboration in this area.

The Company also plans to continue tracking the introduction of purely electrical driven ferries by other operators, particularly in the Norwegian and Scottish ferry sectors, with a view to the potential adoption of this type of technology for new ferries that operate (shuttle) on short duration routes.

Furthermore, BC Ferries will continue to monitor global marine ferry industry trends and investigate and study other alternate fuels, such as methanol, with an aim to reducing Company's operating costs as well as its environmental footprint.

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## **PART 3: STRATEGIES FOR COST EFFECTIVE FUEL PROCUREMENT**

### **Introduction**

BC Ferries has been able to achieve significant savings in fuel costs through implementation of innovative fuel procurement strategies. This section of the Plan provides an overview of the Company's strategies in this area.

### **Procurement Approach**

BC Ferries currently purchases in the order of 115 million litres of ultra-low sulphur diesel annually to fuel its ships. To obtain best overall value, BC Ferries consolidates the procurement of both its diesel and marine lubricant requirements with a single major supplier. Historically, when BC Ferries relied on multiple suppliers, it had been subject to full or marginally discounted rack pricing. Combining all possible volume with a single major supplier has triggered greater volume discounts; the result of which has been significant annual fuel cost savings, which has helped lessen the upward pressure on fares.

In addition, by accepting a commitment to one major supplier, the Company achieved pre-payment discounts. Complex delivery schedules and associated bridging fees have been managed efficiently and effectively through the supplier distribution networks, and are charged to BC Ferries at cost. Finally, further savings have been achieved by consolidating all marine lubricant purchases with a single supplier and combining them in a single contract with fuel.

Formal competitive procurement processes for the supply of fuel and marine lubricants are, and will continue to be, conducted by BC Ferries in order to achieve best overall value for the Company. BC Ferries' fuel and marine lubricant contracts are set over a fixed initial term with options to extend. The current agreement with BC Ferries' primary supplier is five years, comprised of an initial fixed term of two years (which expired March 31, 2013), with three additional one-year extension options. BC Ferries has exercised two one-year extensions and is now in the final term of the contract which is set to expire March 31, 2016. In accordance with BC Ferries' policy, a public tender process has been undertaken to select a supplier for the next contract term. This process is proceeding as planned with the intent of ensuring that a new five year contract is in place by at the start of the term which is April 1, 2016.

### **Fuel Deferral Accounts**

While its fuel procurement processes help to ensure that BC Ferries acquires its fuel at competitive prices, no amount of competitive procurement can insulate BC Ferries from market volatility. BC Ferries could, in theory, mitigate the impact of fuel price volatility by entering into fixed-price contracts with its fuel suppliers for the length of each performance term. A fixed cost per litre for

the entire performance term could then be used in the calculation of price caps, eliminating any need for fuel surcharges or rebates. Unfortunately, long-term fixed-price contracts include a prohibitive risk premium.

The fuel cost deferral account mechanism is the primary means by which BC Ferries mitigates fuel price risk. It allows for BC Ferries to recover from its customers, fuel costs that are higher than the set price established by the Commissioner through the implementation of fuel surcharges, or to give back lower fuel costs through fuel rebates. Order 15-03A *Establishment of Fuel Deferral Accounts Pursuant to Section 41.1 of the Coastal Ferry Act*, dated September 28, 2014, authorizes BC Ferries to use deferral accounts in PT4, one for the major and minor routes and one for the northern routes, as defined in the Coastal Ferry Services Contract, and sets out the terms and conditions for their management. BC Ferries closely monitors fuel prices and forecast deferral account balances, and proactively manages the deferral account balances in accordance with the terms of the Order to minimize fare volatility due to frequent surcharge and rebate adjustments.

### **Fuel Hedging**

The use of fuel surcharges and rebates can have an effect on traffic and, thereby, the revenue and earnings of the Company. Surcharges increase the cost of ferry service to BC Ferries' customers, which negatively impacts traffic levels due to price elasticity. Surcharges and rebates also create an environment of price uncertainty that can further negatively impact traffic levels. Fuel hedging can complement the use of fuel deferral accounts, increasing price certainty and thereby mitigating the potential negative impacts of fuel price volatility on customers, traffic levels and revenue.

The Company's current hedging strategy is to undertake hedge transactions when those transactions are reasonably expected to reduce the potential for fuel surcharges. The strategy augments the use of fuel deferral accounts in hedging fuel price risk and the resulting negative impacts of surcharges on traffic, and improves price certainty for BC Ferries' customers.

Hedging the commodity cost using derivatives has challenges. First, with fuel prices based on Vancouver rack and derivatives based in New York Harbour or Cushing, Oklahoma, BC Ferries would retain some basis risk. Second, long-term hedging may expose the Company's earnings to significant mark-to-market swings in valuation. Nevertheless hedging is effective at reducing fuel price volatility and, as a result, when the Company has the opportunity to lock in prices at or below the regulatory set price it has done so, with the result that it has been able to reduce or eliminate surcharges or put rebates in place.

In December 2014, the price of New York Harbour ultra-low sulphur diesel dropped to a level lower than the regulatory set price for fuel, a position it retained for the remainder of fiscal 2015 and all



of fiscal 2016. As a result, BC Ferries layered in a number of ultra-low sulphur diesel hedges representing approximately 70 percent of the Company's forecast diesel consumption for the 15 month period from January 2015 through to the end of March 2016 (the end of performance term three). With 70 percent of consumption hedged at below the regulatory set price, BC Ferries removed all fuel surcharges in December of 2014. Subsequently, the Company implemented a one percent fuel rebate, which started on April 1, 2015. Fuel swap prices have persisted below the regulatory set price for PT4 throughout fiscal 2016. By December 31, 2015, BC Ferries had locked in fixed price swaps for approximately 70 percent of its forecast diesel fuel consumption through the end of December 31, 2017. This allowed the Company to further increase its fuel rebate to 2.9 percent effective April 1, 2016.

BC Ferries continues to monitor the fuel market and supply landscape. Generally, experts expect fuel prices to recover slightly and remain within the current range of highs and lows in the next few years. Global supply and demand is expected to continue to drive crude prices and, in turn, the rack prices in the market. Local supply and demand conditions will also continue to influence rack pricing in the Vancouver market. Any sustained movement in the Vancouver rack price would impact the delivered price of fuel to BC Ferries.

As BC Ferries moves forward with using LNG, it will evaluate the economics of hedging LNG commodity pricing and the effectiveness of an LNG hedging program.

### **Liquefied Natural Gas Supply**

Based on the response to a request for expressions of interest issued by BC Ferries in September 2013, an LNG supplier was selected for the first group of BC Ferries' dual-fuelled vessels (the Salish class vessels) scheduled to come into service in 2016 and 2017. As LNG fuel usage becomes a reality at BC Ferries, the impact of volume erosion on the economics of diesel fuel supply agreements will have to be carefully assessed.

Should the supply infrastructure grow as anticipated on the west coast of British Columbia, and as the Company's fleet of LNG powered vessels continues to grow, more supply options and therefore more competition for the supply of LNG is expected to occur in the marketplace, which should generate benefits to LNG consumers, including BC Ferries.

Going forward the Company will continue to use competitive procurement processes to ensure BC Ferries' operational and commercial requirements for the supply and delivery of LNG are met in a cost effective manner.

## CONCLUSION

BC Ferries remains committed in PT4 and beyond to pursuing cost effective initiatives to enhance the fuel efficiency of its operations further without compromising safety and operational readiness.

The use of alternate fuels or alternate propulsion technology, particularly those enabling the use of LNG, forms part of BC Ferries' strategies to minimize fuel cost in future years, and initiatives to further explore opportunities in this area will continue.

Finally, prudent fuel procurement strategies are actively employed to capitalize on any cost savings opportunities and will continue to be reviewed to ensure optimization of results.