



BRITISH COLUMBIA FERRY SERVICES INC.

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Fuel Strategies - Update Report

June 28, 2013

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## INTRODUCTION

This document provides an update on the initiatives set out in the Fuel Strategies Report of British Columbia Ferry Services Inc. (“BC Ferries” or the “Company”) filed with the British Columbia Ferry Commission (the “BCFC”) on October 29, 2012 (the “Fuel Strategies Report”).

On June 21, 2012, BC Ferries submitted an application to the British Columbia Ferries Commissioner pursuant to Section 41.1 of the *Coastal Ferry Act* to establish a fuel price deferral mechanism for the third performance term (“PT3”). On September 30, 2012, BCFC issued Order 12-03 in response to the application. The Order required BC Ferries to update the BCFC annually on its strategies to optimize fuel cost savings, and set out a timeline for the submission by BC Ferries of the required information. By Order 12-03A, issued February 28, 2013, BCFC amended the timeline set out in Order 12-03 with the result that BC Ferries must provide its annual update on the Company’s fuel strategies within 90 days of its fiscal year end.

The Fuel Strategies Report described the Company’s plan for reducing fuel consumption and specified fuel consumption targets for the fiscal year ending March 31, 2013 (“2012/13”). Also included was BC Ferries’ plan to transition to alternate fuels and an overview of the Company’s strategies for cost-effective fuel procurement.

In this update to the Fuel Strategies Report, BC Ferries presents the results of the Company’s fuel consumption reduction measures in 2012/13, and sets out its target for fuel consumption in the fiscal year ending March 31, 2014 (“2013/14”). In addition, updates are provided on BC Ferries’ plan to transition to alternate fuels and the Company’s strategies for cost effective fuel procurement.

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## PART 1: FUEL CONSUMPTION REDUCTION PLAN

### A. Fuel Consumption Results – 2012/13

Fuel is an important cost element for BC Ferries, being the Company's second-largest operating expense. In 2012/13, fuel costs were \$120.9 million, down from \$121.1 million in 2011/12. BC Ferries' fuel costs are a function of the volume consumed as well as the market price of marine diesel.<sup>1</sup>

As explained in the Fuel Strategies Report, the price of the marine diesel that BC Ferries uses to fuel its fleet is market-driven. While BC Ferries has been successful in ensuring that it receives the best market pricing for fuel and its delivery to the Company's ships through running competitive procurement processes, as well as through hedging where appropriate<sup>2</sup>, it cannot control the market price of fuel.

BC Ferries does, however, have a degree of influence, within limits, over the volumes of fuel it consumes. The savings in fuel costs in 2012/13 were realized through a reduction in overall fuel consumption.

As described in the Fuel Strategies Report, the Company aims at achieving fuel consumption savings, where possible, through:

- Sailing reductions;
- Fleet deployment optimization; and
- Realization of operational efficiencies.

Through initiatives in these areas, the Company reduced annual fuel consumption by over 3.8 million litres, or 3.1 percent<sup>3</sup>, from 2003/04 to 2011/12 (and 6.3 million litres from 2002/03).

Building on this significant achievement, the Company set a target to reduce fuel consumption in 2012/13 by a further 600,000 litres or 0.55 percent from the volume consumed in 2011/12. Through continued focus on the fuel reduction initiatives set out in the Fuel Strategies Report, the Company exceeded this target and achieved year-over-year fuel consumption savings in 2012/13 of 2.1 million litres or 1.8 percent (see Figure 1 and Table 1).

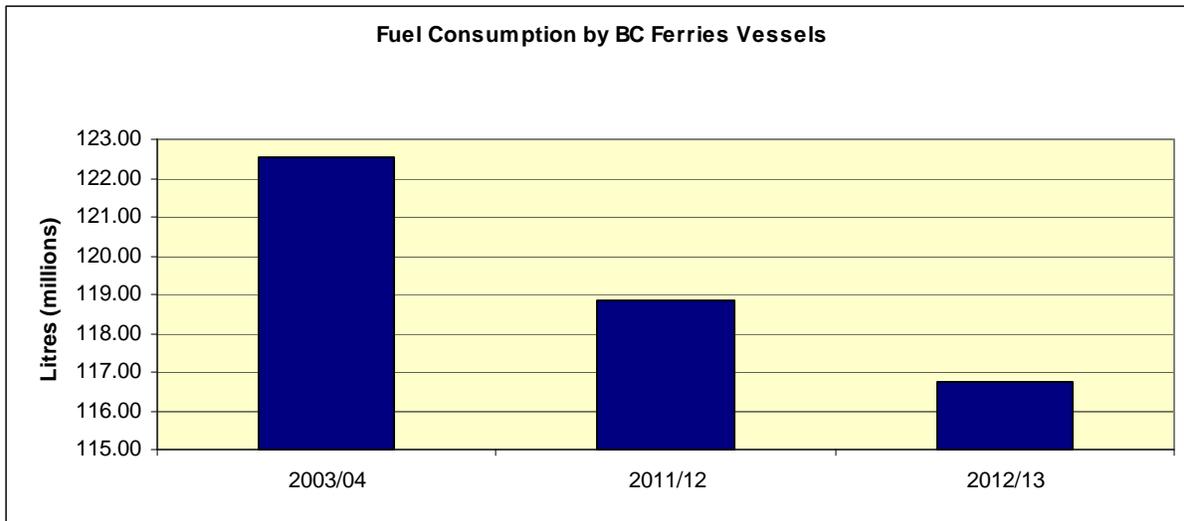
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<sup>1</sup> BC Ferries' fleet runs on marine diesel fuel, and in this document "fuel" or "fuel oil" is a reference to marine diesel fuel.

<sup>2</sup> See BC Ferries' *Fuel Price Hedging Strategy for the Third Performance Term* dated April 30, 2012, previously submitted to BCFC.

<sup>3</sup> Restated.

**Figure I: Fuel Consumption**



**Table 1: Targeted and Actual Fuel Consumption Savings**

Base Year Fuel Consumption (million litres)	Fiscal Year	TARGET Fuel Consumption (million litres)	ACTUAL (million litres)			
			Fuel Consumption	Variance Actual / Target	Year-over-year Savings	Savings from Base Year
2003/04		122.6				
	2011/12	120.9	118.8	2.1	0.7	3.8
	2012/13	118.2	116.7	1.5	2.1	5.9
	2013/14	117.5 <sup>4</sup>	TBD			

Contributing to the 2012/13 fuel savings results against target were the following:

Sailing Reductions

Savings in fuel consumption in 2012/13 were realized from a reduction of 98 sailings required to be delivered on the major routes as agreed to by the Province of British Columbia (the "Province") in the Coastal Ferry Services Contract as amended for PT3. Fuel consumption savings associated with this reduction (approximately 0.7 million litres), in addition to other extraordinary factors that resulted in sailing cancellations, such as adverse weather and operational issues, generated fuel consumption savings during the fiscal year of 1.7 million litres.

<sup>4</sup> The 2013/14 target is higher than the level of fuel consumed in 2012/13 reflecting, in part, the fact that savings were realized in 2012/13 as a result extraordinary events such as adverse weather and operational issues. As such events are outside the Company's control, it is not possible to forecast them. Hence, no fuel consumption savings associated with such cancellations are reflected in the 2013/14 target. This matter is addressed more fully in Part B below.

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### Fleet Deployment

Partially offsetting the savings realized through sailing reductions were increases in fuel consumption arising from situations where the Company was required, for various operational reasons, to substitute a larger vessel for the one planned to operate on a particular route. As described in the Fuel Strategies Report, the Company continually endeavours to optimize its fleet deployment. When the opportunity exists, BC Ferries may choose to substitute a vessel with a smaller, more fuel-efficient one to tailor its service to the demand. Conversely, however, there are times when a less efficient vessel must be used on a route, such as when traffic demand is expected to be greater than planned and a larger vessel is available, or when repairs and maintenance require a vessel substitution.

### Efficiencies

During 2012/13, the Company continued to exert significant effort to manage its operations and reduce the consumption of energy in all forms. The tactics to realize fuel consumption savings through operational efficiencies set out in the Fuel Strategies Report continued to be pursued in 2012/13 and contributed positively to the fuel consumption savings results for the year. These included: tactics to minimize fuel burn by enabling constant minimum transit speed during each voyage; engineering practices to minimize fuel burn through ensuring optimum performance of main engines and ancillary equipment; and other tactics to minimize inefficient or unnecessary fuel burn. New initiatives undertaken during the fiscal year included the following:

- An energy assessment was conducted on the *Queen of Oak Bay* to determine means to reduce energy consumption while underway and in port. The recommendations include capital investments to achieve greater efficiencies. The recommendations are under review for possible implementation during the vessel's three-quarter life upgrade in 2014/15. Consideration is being given to conducting a similar assessment on other large vessels in the fleet.
- Shipboard meters to measure shore power consumption and reduce energy consumption were installed on large vessels. These will enable the ships' crew to monitor and better understand their electrical power consumption when the vessel is connected to shore power. It will assist in making changes towards reducing the vessel electrical load and associated electricity costs. In turn, this may reduce the power consumption of the vessel while in operation, thereby resulting in savings through less fuel being required for the generators.
- A shipboard energy efficacy management plan ("SEEMP") was implemented onboard the *Northern Adventure*. Effective January 1, 2013, a SEEMP is required for all vessels that are governed by International Maritime Organization ("IMO") standards. The *Northern Adventure* is the Company's only vessel under IMO standards. The SEEMP focuses on the largest sources of energy consumption onboard and serves to monitor and prove that efforts are being made to reduce energy consumption. In essence, during its regular ship inspections, the Classification Society (Lloyd's Register) will ensure all necessary measures are in place to minimize greenhouse gases emitted from the vessel.

During the year, the Company also continued work respecting several capital projects that offer the potential to generate fuel consumption savings in future years. These were as follows:

### Cable Ferry

After four years of studying the feasibility of a cable ferry, on November 23, 2012, BC Ferries announced its decision to proceed with plans to design and build a cable ferry for service on the route between Buckley Bay on Vancouver Island and Denman Island.

The cable ferry is an innovative initiative and is part of BC Ferries' ongoing efforts to identify and pursue opportunities that have the potential to enhance the Company's cost effectiveness in delivering safe, reliable and quality ferry service. Extensive design and analysis has been conducted to date, including: validation of environmental conditions; hydrodynamic testing of the vessel; cable load analysis and dynamic interaction of the ferry and berths; and the determination

of operational criteria, cable specification and safety factors. Regulatory approvals for the cable ferry have been obtained, including approval from the Department of Fisheries and Oceans under the *Canadian Environmental Assessment Act* and approval from Transport Canada under the *Navigable Waters Protection Act*.

BC Ferries has now moved into the detailed design phase for the cable ferry and for the terminal infrastructure. The Company expects to conclude a procurement process for the construction of the vessel and terminal works by the coming summer. The new 50-car vessel is expected to be in service by the fall of 2014.

Due to the higher efficiency of a cable drive system (versus propellers), the propulsion power is expected to be reduced by over 50 percent as compared to the existing ferry (*Quinitsa*). The cable ferry is also a candidate for the eventual adoption of natural gas propulsion and/or hybrid electrical propulsion.

#### Tachek

The Company is pursuing technological changes for the *Tachek* that are expected to improve fuel consumption, including the installation of shaft generators (i.e., two service generators that would operate from the main propulsion shafts instead of using diesel engines) and a battery-operated bow thruster. These changes are being made as part of the life extension project for the vessel now underway.

Continued focus by the Company on the fuel savings initiatives set out in the Fuel Strategies Report and further described above will continue in 2013/14.

### **B. Fuel Consumption Reduction Target – 2013/14**

For 2013/14, the Company has set a fuel consumption target of 117.5 million litres. This reflects a reduction of 0.7 million litres from the 2012/13 fuel consumption target of 118.2 million. In 2013/14, the Company expects to realize fuel consumption savings from core service level reductions for the major routes agreed to by the Province in the PT3 Coastal Ferry Services Contract. The 2013/14 target reflects 169 fewer round trips on the major routes than were budgeted for in 2012/13.

The 2013/14 target is higher than the level of fuel consumed in 2012/13 reflecting the fact that the Company has, over the past number of years, refined its operating procedures to achieve maximum fuel efficiency, and the opportunity for further significant improvements in the absence of significant capital investments is limited. Further, the target for 2013/14 assumes all budgeted rounds trips are delivered. Fuel consumption savings in the order of 0.6 million litres were realized in 2012/13 from sailing cancellations which resulted from extraordinary events such as adverse weather and operational issues. While it is expected that some sailings in 2013/14 will need to be cancelled for weather and other events outside the Company's control, it is not possible to forecast such events and, hence, no fuel consumption savings associated with such cancellations are reflected in the 2013/14 target. In addition, the 2013/14 target includes 71 supplemental sailings on the major routes ('manager's discretion sailings'), which will be delivered only if required to meet demand. To the extent that such sailings are not required, the Company will realize incremental savings in fuel consumption.

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## PART 2: PLAN TO TRANSITION TO ALTERNATIVE FUELS

BC Ferries actively monitors and pursues innovation and emerging technologies respecting the use of alternatives to conventional fuels. The Fuel Strategies Report set out three key areas of focus by BC Ferries respecting the transition to alternative fuels. The following provides an update on activities undertaken in each of these areas.

### Biodiesel

Since September 2009, BC Ferries' fleet has used 5 percent, or B5, biodiesel to fuel its vessels, making the Company one of the largest consumers of biodiesel in British Columbia. A B5 fuel blend is used in all service areas where the product is available. Currently, 31 vessels in the BC Ferries fleet are fuelled with biodiesel. BC Ferries continues to monitor the availability of the product for opportunities to use this fuel for other vessels in the fleet.

### Liquefied Natural Gas

BC Ferries continues to study the feasibility of using liquefied natural gas ("LNG") to fuel its vessels. The Company believes that a move to this fuel source would reduce costs and emissions. At this time, LNG is over 50 percent less expensive than the fuel the Company currently uses, and meets all current and proposed domestic and international emissions regulations.

BC Ferries is presently in the planning stages of its second new build program, which focuses on the minor and intermediate-sized vessels of the fleet. Four to five of these vessels are expected to be replaced over the next 10 years. The Company believes that LNG is a viable option for future new vessels and has established a policy that, for all new vessel acquisitions, all requests for proposals ("RFP") will require potential proponents to include option pricing for LNG-fuelled engines. This will enable the Company to conduct appropriate business analysis as to the cost effectiveness of the option. For certain vessel replacements, this may include dual fuel options.

The *Queen of Burnaby* and the *Queen of Nanaimo* have been earmarked for replacement, and several options are currently being considered. The options were presented to the BCFC on May 22, 2013 in the Company's application under section 55(2) of the *Coastal Ferry Act* for approval of the project to replace these vessels. The recommended option is to replace these two vessels with two 145-car capacity open-deck vessels and one 125-car capacity open-deck vessel that would be available for additional sailings when the demand is high and temporary vessel replacement for several other vessels when they are undergoing maintenance. To acquire these vessels, BC Ferries' intent is to pursue a design-build contract with a shipyard which would be selected through a formal RFP process. Among the key design elements to be finalized through the design-build process are those respecting LNG. While BC Ferries' present intent is to acquire LNG-fuelled vessels, further technical and financial analyses, including whether a single or dual fuel source for the vessels is preferable, will be required before a final decision is made.

The Company is also continuing to analyse the economic and technical feasibility of converting existing vessels to LNG as they are undergoing major retrofits. The Company has several vessels scheduled for mid-life upgrades beginning in 2014/15, the first of which is expected to be the *Queen of Capilano*. The Company is expected to make its decision later this year on whether to convert this vessel to LNG as part of its mid-life upgrade.

To proceed with LNG as a fuel source for new and/or existing vessels, further analyses with respect to how the Company will bunker LNG is required. BC Ferries is continuing to review the feasibility of fuelling the vessels from LNG tanker trucks parked on the vessel car deck. This is how the Company now bunkers diesel fuel. This option was supported by the feedback received from industry partners in BC Ferries' 2011/12 study of the possible conversion of the *Queen of Capilano* to LNG. However, further analysis is being undertaken by BC Ferries to determine if this approach would meet the Company's and industry safety standards, as informed by emerging standards from the IMO, Classification Societies, and from the Canadian Standards Association.

While there is considerable experience with LNG-fuelled ferries in northern Europe, the European ferries are fuelled from LNG tanker trucks parked at the quayside (i.e., alongside the ferry), fuelling jetties with LNG bunkering facilities or from LNG barges. The LNG ferries currently under construction for STQ, the Quebec ferry operator, will also be fuelled in that manner. The current configurations of BC Ferries' berths do not enable a quayside fuelling option.

The parked location of a diesel fuel truck on the car deck reduces the risk to BC Ferries of diesel pollutant spill during bunkering operations. The risk of LNG spill to the environment is negligible which, from the perspective of ensuring environmental regulatory compliance, affords BC Ferries more options for where the tanker trucks can be located for refuelling of the vessels.

BC Ferries will analyse bunkering both from the car deck and from an alternate shore side location. This work is likely to guide development of Canadian regulations and standards in this area.

Also, there are a number of yet to be tested pricing assumptions around the delivered cost of LNG. BC Ferries' intent is to issue a Request for Expressions of Interest to potential LNG suppliers to have these issues addressed.

#### Hybrid Plant Design

As described in the Fuel Strategies Report, innovation and emerging technologies for electric power grid management have the potential to make use of energy sources that are alternatives to diesel fuel. In addition, advanced power grid management can achieve efficiencies in generator loading to optimize fuel consumption. The practicality and cost of this technology is not yet determined. BC Ferries continues to monitor advancements in this technology.

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

BC Ferries has been able to achieve significant savings in fuel costs through implementation of innovative fuel procurement strategies.

As described in the Fuel Strategies Report, BC Ferries' approach in the past five years has been to consolidate fuel and marine lubricant volume with fewer suppliers. This has generated a number of positive outcomes for BC Ferries. Where previously, BC Ferries had been paying full or marginally-discounted rack pricing, combining all possible volume with a single major supplier generated sufficient volumes to trigger greater volume discounts. The result has been annual savings approaching \$3.0 million per year.

In addition, by accepting a commitment to one major supplier, a previously unavailable pre-payment discount formula was offered that has resulted in additional savings approaching \$0.5 million per year. 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. The combined volume resulted in cost of goods savings of approximately \$0.15 million per year. Bundling of the marine lubricant purchases with the fuel purchases has provided increased efficiencies and other benefits resulting in savings approaching \$0.06 million per year (these savings made up a portion of the volume-based discount off the stated rack rate).

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 expiring March 31, 2013 with three additional one-year extension options. As at September 30, 2012, BC Ferries had exercised the first option to extend for one year until March 31, 2014. BC Ferries must declare intent to exercise the second one-year extension by September 30, 2013.

While competitive 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. As explained in the Fuel Strategies Report, 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. There are two issues with this approach in practice. Firstly, cost-effective fixed-price contracts have not been available to BC Ferries. Historically, and for the foreseeable future, fuel suppliers are unwilling to lock into pricing for the necessary volumes for any significant period of time. (This is a reflection of the difficulty of forecasting forward prices of fuel oil, which is the same difficulty encountered by BC Ferries.) Secondly, in cases where a supplier will offer pricing over longer periods, the pricing has been cost prohibitive. The supplier must include a significant risk premium in its pricing to account for the inherent volatility in the market price of fuel oil.

Fuel price volatility continued throughout 2012/13, with prices ranging from a low of \$0.919 to a high of \$1.153 per litre (measured at Tsawwassen). The annual average cost of delivered fuel was \$1.035 per litre, exceeding the year's regulatory set price of \$0.933 by more than 10 cents per litre. The unfavourable price variance led to regulatory fuel costs deferred of \$11.3 million over the fiscal year. BCFC Order 2012-03 authorizes BC Ferries to proactively manage the fuel deferral accounts provided that account balances are within 2 percent of the pre-surge tariff revenue. BC Ferries closely monitors fuel prices and forecasts deferral account balances, and proactively manages the deferral account balances in accordance with the terms of BCFC Order 2012-03 to minimize fare volatility due to frequent surcharge and rebate adjustments. The fiscal year began with surcharge levels of 5 percent on the three routes connecting Vancouver Island with the Lower

Mainland and the minor routes, and 2.5 percent on the route connecting Langdale and Horseshoe Bay. In July all surcharges on the non-Northern routes were adjusted to 2 percent, and by the end of November all surcharges were removed. Through proactive monitoring and application of surcharges, the Company was able to keep the deferral accounts well within the 2 percent trigger with minimal fare volatility, despite significant fuel price volatility.

BC Ferries continues to monitor the fuel market and supply landscape. Experts do not expect significant changes over the next year. Global supply and demand will continue to drive the 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, resulting in the need to implement new fuel surcharges during the fiscal year. The Company expects to implement a surcharge on its non-northern routes in July, 2013. As BC Ferries moves towards evaluating and potentially implementing LNG fuel supply, additional research will be performed to assess competitive market conditions, options for security of supply, bunkering methodology and all applicable pricing mechanisms. If LNG fuel supply becomes a reality at BC Ferries, the volume erosion impact on existing diesel fuel supply agreements will have to be carefully assessed going forward. There is an expectation that cannibalization or marine diesel volume loss due to LNG conversions would reduce the existing discounts applied to BC Ferries volume, notwithstanding the potential LNG alternative cost benefits.

## CONCLUSION

Through focussed effort, BC Ferries has achieved significant fuel consumption savings. The Company remains committed to pursuing cost effective initiatives to enhance the fuel efficiency of its operations further without compromising safety and operational readiness. For 2013/14, the Company's fuel consumption target is 117.5 million litres. The Company will strive to realize savings in excess of this target. The use of alternate fuels or alternate propulsion technology 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, fuel procurement strategies are actively employed to capitalize on any cost savings opportunities and will continue to be reviewed to ensure optimization of results.