

**British Columbia Ferry Services Inc.**

**Results of the  
Fuel Consumption Reduction Plan  
to March 31, 2008**

**Submitted to: British Columbia Ferries Commissioner**

**Submitted: August 28, 2008**

## Introduction

This document reports on BC Ferries' results to March 31, 2008 in implementing the *Fuel Consumption Reduction Plan* (the "Plan") that was submitted to the British Columbia Ferries Commissioner (the "Commissioner") in response to Order 05-06.

The Commissioner issued Order 05-06 in response to BC Ferries' request for an extraordinary price cap increase. On November 28, 2005, BC Ferries submitted an application under Section 42 of the Coastal Ferry Act for an extraordinary price cap increase due to continued increases of world fuel prices. In his Order 05-06 granting the extraordinary price cap increase, the Commissioner required that BC Ferries provide a plan to the Commission identifying fuel saving measures taken and those proposed over the subsequent two fiscal years (2006/07 and 2007/08) that would result in a reduction of 1% from the 2005/06 base level of fuel consumption in fiscal 2006/07 and a further 1% in fiscal 2007/08.

BC Ferries submitted its Plan to the Commissioner on June 15, 2006. The Plan set out potential fuel reduction projects and strategies across BC Ferries' operations to respond to the targets as set out by the Commissioner under Order 05-06.

In the *Fuel Consumption Reduction Plan Update Report* submitted to the Commissioner on July 30, 2007, BC Ferries' reported on the fuel savings initiatives implemented and the fuel savings achieved in fiscal 2006/07, the first year of the Plan. As part of the report, BC Ferries' proposed an adjustment to the fiscal 2007/08 fuel consumption target as originally set out in the Plan to recognize the introduction of the *Northern Adventure* and the corresponding changes in deployment of vessels on the northern routes. The proposed adjustment was subsequently accepted by the Commissioner and forms the basis against which BC Ferries' performance in reducing fuel consumption in fiscal 2007/08 is herein reported.

This document reports on the fuel consumption reduction initiatives undertaken and the fuel savings achieved by BC Ferries during the two fiscal years comprising the Plan. In each of fiscal 2006/07 and 2007/08, BC Ferries achieved more fuel savings than were targeted in the Plan. Over the two year term of the Plan, the total reduction in fuel consumption was 7.8 million litres, which was over twice the original cumulative target.

While fiscal 2007/08 was the final year of the Plan, the significance of fuel costs to BC Ferries' operation is such that fuel conservation measures will continue to be a focus of the company going forward.

Building on its success in achieving the fuel consumption reduction targets set out in the Plan, BC Ferries will actively continue to explore opportunities for reducing fuel consumption and, in accordance with Memorandum 24(A) issued by the Commissioner on July 16, 2008, will provide information to the Commission on the possible fuel conservation initiatives that will be pursued in the next two years and will report on progress in implementing such initiatives on an annual basis.

## Fuel Savings and Targets Overview

Fuel is an important cost element for BC Ferries, being the company's second largest operating expense. BC Ferries has and continues to actively manage its fuel consumption. As reported in the Plan, between fiscal 2002/03 and 2005/06, BC Ferries was successful in reducing annual fuel consumption by over 7 million litres. Notwithstanding these significant savings, BC Ferries committed to further fuel savings of 1% in fiscal 2006/07 and a further 1% in fiscal 2007/08. As illustrated in Table 1 below, in both fiscal years, BC Ferries achieved greater fuel savings than targeted, with the result that over the two year term of the Plan, the reduction in total fuel consumption was 7.8 million litres.

**Table 1  
Targeted and Actual Fuel Savings**

Fuel Consumption Reduction Plan			
Base Year Fuel Consumption (litres)		Target Fuel Savings (litres)	Actual Fuel Savings (litres)
<b>2005/06</b>	115,657,242		
		<b>2006/07</b>	1,156,572
		<b>2007/08</b>	2,313,145
		<b>Total</b>	3,469,717
			7,812,198

### Fuel Savings Results in 2006/07

In the *Fuel Consumption Reduction Plan Update Report* submitted to the Commissioner on July 30, 2007, BC Ferries' reported on the fuel savings initiatives implemented in fiscal 2006/07. In the July 30 Update, BC Ferries reported that the company had successfully reduced fuel consumption by 3.4 million litres during 2006/07, thereby exceeding the fuel savings target of 1% set in the Plan for the year. Please see Table 3 below for further detail on the fuel savings achieved in fiscal 2006/07.

### Fuel Savings Target in 2007/08

Also in the *Fuel Consumption Reduction Plan Update Report*, BC Ferries proposed a revision to the fiscal 2007/08 fuel consumption base in order to reflect changes in the northern service which occurred after the filing of the Plan. The fiscal 2005/06 adjusted base removed the total annual fuel consumption of the *Queen of the North* ("QoN"), which equated to a reduction of 4,060,000 litres. For fiscal 2007/08, BC Ferries proposed the base be adjusted to take into account the introduction of the *Northern Adventure* and the resulting additional fuel consumption. The Commissioner approved the proposed adjustment.

Table 2 below provides the adjusted fuel consumption target for fiscal 2007/08.

**Table 2  
Fuel Savings Target for 2007/08**

	Litres of Fuel
Normalized Fuel Consumption for 2005/06*	115,657,242
<b>Fuel Consumption Reduction Target (2%)</b>	<b>(2,313,145)</b>
Target Fuel Consumption June 2006 Plan	<b>113,344,097</b>
<i>REMOVE:</i>	
Entire North Region (QoN already removed)	(6,553,836)
<i>ADD:</i>	
Change in Northern Routes Deployment^	14,932,860
<b>TARGET FUEL CONSUMPTION for 2007/08</b>	<b>121,723,121</b>

\*Note: As identified in the Plan

^Note: Northern routes vessel deployment introduced the *Northern Adventure* into service

While the fuel savings target for the second year of the Plan remained at 2.3 million litres, the additional large vessel deployed on the northern services resulted in a revised target for total fuel consumption of 121.7 million litres for fiscal 2007/08.

## 2007/08 Fuel Consumption Reduction Initiatives

Below is the list of fuel saving measures undertaken in 2007/08 in order to achieve the fuel savings target. These initiatives build on the measures successfully implemented in the first year of the Plan.

### Operational

#### Development of Vessel and Route Specific Best Operating Practices

Over 2007/08, BC Ferries had further success in developing and implementing operating practices that optimize route and vessel efficiency. Included in these practices is the goal of maintaining on-time performance, which results in decreased fuel usage since vessels are not running at full speed trying to catch up and remain on schedule.

Best operating practices were implemented across the fleet with the company continuing to achieve fuel savings.

#### Electronic speed control - ESP 1000 fuel monitors

Certain fuel monitors have the ability to automatically control engine pitch, speed and position to optimize fuel efficiency. The *Queen of Alberni* underwent a trial system for new fuel monitor technology using the ESP 1000 fuel monitor in fiscal 2005/06 which resulted in 7% fuel savings. Based on the success of the trial, BC Ferries began a program to install ESP 1000 fuel monitors on a number of the larger vessels. Due to technical issues, this initiative is currently under review and further installation of the ESP 1000 monitors has been deferred.

## **Engineering/Technical**

### Engine Betterments

The *Queen of New Westminster* had two main engines upgraded in a refit of November 2005 which resulted in noticeable fuel savings. The two remaining engines were upgraded in November 2006 including the replacement of turbochargers, camshafts, cylinder liners and pistons. While 2006/07 recorded significant savings on the vessel, those savings were offset in 2007/08 by 170,942 litres due to heavier traffic on Route 30 (Duke Point to Tsawwassen) which negatively impacts on-time performance and consequently requires the vessel to speed up in order to maintain the schedule. Net savings over the two years was 408,138 litres.

The *Quinitsa* underwent an extensive refit over the late winter and spring of 2008, including engine replacements. As the *Quinitsa* did not return to service until May 2008, no fuel savings from engine betterments were realized in fiscal 2007/08, although fuel savings from this work are anticipated in fiscal 2008/09.

### Hull Re-surfacing

During 2006/07, the *Quinitsa* underwent hull re-surfacing and, in combination with the introduction of the best operating practices program, continued to show improvement in overall fuel efficiency.

The *Quinsam*, sister ship of the *Quinitsa*, was initially scheduled to undergo hull re-surfacing in 2007/08; however, this initiative was deferred until the 2008/09 drydocking and refit.

## **Other**

Additional fuel savings were achieved year-over-year from other factors which were not included in the Plan. The other factors include:

- Changes in caretaking of vessels, including a reduced state of readiness when vessels are out of service,
- Changes in refit schedules,
- Changes in vessel deployments, particularly in the north.

The impact of these other factors on fuel consumption will fluctuate from year to year.

## Fuel Savings Results to March 31, 2008

Table 3 below, sets out the actual fuel savings realized in fiscal 2006/07 and 2007/08. In each fiscal year, BC Ferries achieved greater fuel savings than targeted, with the result that over the two year term of the Plan, fuel consumption was reduced well in excess of the 3% cumulative target. While certain fuel savings measures in the table below are identified as being the direct cause of specified fuel savings, the causal relationship is difficult to determine with precision, and the indicated savings attributed to each initiative are best estimates only.

**Table 3**  
**Fuel Consumption Reduction Initiatives and Savings**  
**For 2006/07 and 2007/08**

<b>Initiative</b>	<b>ESTIMATED 2-Year Fuel Savings</b>	<b>ACTUAL Fuel Savings 2006/07</b>	<b>ACTUAL Fuel Savings 2007/08</b>	<b>TOTAL ACTUAL 2 Year Fuel Savings</b>	<b>Variance 2-Year Actual versus Estimated</b>
	<b>(litres)</b>	<b>(litres)</b>	<b>(litres)</b>	<b>(litres)</b>	<b>(litres)</b>
<b>Fuel Savings Measures</b>					
Fuel Monitors <sup>^</sup>	1,847,000	905,038	371,971	1,277,009	-569,991
Best Operating Practices	810,000	405,973	254,643	660,616	-149,384
Queen of New Westminster - Upgrade	786,700	579,080	-170,942	408,138	-378,562
Quinitsa Hull Re-surfacing	6,100	36,329	34,305	70,634	64,534
Quinitsa New Engines <sup>◆</sup>	30,800	0	0	0	-30,800
SOBC Propeller Upgrades*	55,700	0	0	0	-55,700
SOBC Bulbous Bow*	55,700	0	0	0	-55,700
Quinsam Hull Re-surfacing <sup>◆</sup>	11,000	0	0	0	-11,000
<i>Sub-Total</i>	<i>3,603,000</i>	<i>1,926,420</i>	<i>489,977</i>	<i>2,416,397</i>	<i>-1,186,603</i>
<b>Other Factors &amp; North</b>	0	1,494,436	3,901,365	5,395,801	5,395,801
<b>Total Actual Fuel Savings</b>	<b>3,603,000</b>	<b>3,420,856</b>	<b>4,391,342</b>	<b>7,812,198</b>	<b>4,209,198</b>
<i>Targeted Fuel Savings</i>		<i>1,156,572</i>	<i>2,313,144</i>	<i>3,469,717</i>	
<b>Actual Fuel Savings Achieved In Excess of Target</b>		<b>2,264,284</b>	<b>2,078,198</b>	<b>4,342,481</b>	

<sup>^</sup> Monitors were not rolled out on some vessels

\* Program did not meet projected Internal Payback requirements so was not undertaken

<sup>◆</sup> Program savings will not be realized until FY 2008/09

## **Conclusion**

BC Ferries successfully achieved the 1% target in fiscal 2006/07 with fuel savings of 3.4 million litres and achieved a further 1% in fiscal 2007/08 with fuel savings of 4.4 million litres. The total fuel savings achieved exceeded the two year target of 3.5 million litres as set in the Commissioner's Order 05-06.