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Assessment of BC Ferries' PT5 Submission

British Columbia Ferry Commission

March 2019

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Executive Summary

PricewaterhouseCoopers LLP ("PwC") was engaged by the British Columbia Ferry Commission (the "Commission") to assess the reasonableness of the following submissions made by the British Columbia Ferry Services Inc.'s ("BC Ferries" or the "Company") under Section 40 of the Coastal Ferry Act for Performance Term Five ("PT5"):

- Performance Term Four Report to the British Columbia Ferries Commissioner
- Report on Fuel Management Plan Outcomes in Performance Term Four
- Capital Plan Fiscal Years 2019 through 2030
- Strategies for Enhanced Efficiency in Performance Term Five and Beyond
- Traffic Demand Forecast (fiscal years 2019 through 2024)

PwC was also asked to assess financial forecasts developed by BC Ferries for PT5 and calculate price caps based on efficiency targets and financial sustainability objectives for the Company.

The significant findings of our report are as follows:

- **Performance Term Four Report**
  - Costs and other financial information included in the PT4 report are reasonable and BC Ferries has satisfactorily explained unusual trends or variances between actual and forecasted results.
  - BC Ferries' forecasted results for the balance of PT4 can be relied on to produce reasonable and supportive projections for PT5. A concern, however, is the significant increase in labour in PT4 - specifically overtime hours - that impact labour cost forecasts in PT5.
  - The efficiency target outcomes set by the Commission for PT4 of a $100 million reduction in the PT4 Capital Plan, operating efficiency gains of $4.9 million/year and productivity gains of $2 million/year are on track with the price cap, but enhanced documentation in PT5 is warranted.
  - Price cap compliance and pricing of Drop Trailer services in PT4 are consistent with the Commissioner's Orders.
- **Report on Fuel Management Plan Outcomes in Performance Term Four**
  - Fuel management plan outcomes for PT4 have been met.
  - Fuel consumption and costs have been effectively managed.
  - Hedging of gas prices would reduce commodity risk associated with LNG prices and should be considered.
  - Accelerated conversion to electric vessels could further reduce fuel costs.
- **Capital Plan Fiscal Years 2019 through 2030**
  - The Capital Plan is designed to meet the requirements of the Coastal Ferry Services Contract. It is also consistent with the objectives of the 2012 Coastal Ferry Act Regulatory Review and corporate objectives with regard to pursuing standardization objectives for vessels and terminals.
  - The capital efficiency target outcomes set by BC Ferries for PT4 appear to have been generally met.
  - The 2019-2030 Capital Plan includes introduction of 17 new vessels and retirement of 13 vessels which should reduce the average age of the fleet to a more optimal level.
  - We have no concerns with enhanced Capital Planning Processes put in place in November 2017. We note an improved framework integrating Fleet and Terminal Master Planning.
  - There should be an update to the discount rate for future Section 55 capital project applications.

- The very large Capital Plan does impact financial results through increased capital charges. Consideration could be given to alternatives including passenger-only services on certain routes that could reduce the scale of terminal projects.

- **Strategies for Enhanced Efficiency in Performance Term Five and Beyond**
  - The initiatives identified in the PT5 efficiency plan appear to be consistent with the Coastal Ferry Act Regulatory Review. They also address environmental objectives of reducing emissions.
  - The opportunities identified in the efficiency plan for PT5 are considered reasonable. In some cases they lack quantification and specific timelines, including for the full conversion to electric-powered vessels that would enhance the plan. A recommendation is for BC Ferries to provide a report to the Commission prior to PT5 quantifying a conversion plan with timelines.
- **Traffic Demand Forecasting**
  - MIDAS, the new traffic forecasting method, is a suitable approach to utilize the forecasting of BC Ferries traffic on the major routes. Demand drivers and price elasticities relationships appear to be reasonable on major and minor routes.
  - BC Ferries project minor growth in traffic in PT5; traffic forecast results are influenced by a projected slowdown in the growth of the economy.
  - Over and above the base MIDAS forecasts, strategic revenue management initiatives designed to increase yields are forecasted to help traffic growth in PT5.
  - There are no major concerns with BC Ferries' demand forecasting approach. On an overall basis, BC Ferries' demand forecasting methodology and its associated methodologies are considered appropriate for purposes of price cap rate setting.
- **PT5 Forecasts**
  - BC Ferries' forecast model was vetted and relied upon by PwC for purposes of analysis
  - Options were assessed based on BC Ferries' traffic and operating expense forecasts, its 12 year Capital Plan and projected debt at forecasted yields.
  - Increases in operating expenses have been satisfactorily explained, including any increases above the rate of inflation.
  - The methodology for forecasting fuel costs are appropriate.
  - A base case is calculated to allow BC Ferries sufficient revenues to meet forecasted operating and debt obligations and long term financial sustainability objectives.
  - The Commissioner has set an efficiency target of 1% for PT5. Examples of potential areas of focus to achieve the efficiency target include reductions in overtime labour costs and IT administration costs.
  - The Commissioner has considered the base case information developed by PwC and has requested an assessment on whether BC Ferries will be able to satisfy debt covenants and debt ratio targets with a price cap of 2.3%, the efficiency target of 1%, an assumption that the capital program will be fully funded as presented, and an assumption of no indexing of current provincial ferry transportation fees. Based on those assumptions, a price cap of 2.3% for PT5 is considered appropriate and reasonable.

Introduction

Purpose and Scope of the Assessment

PricewaterhouseCoopers LLP ("PwC") was engaged by the British Columbia Ferry Commission (the "Commission") to assess the reasonableness of the following submissions made by the British Columbia Ferry Services Inc.'s ("BC Ferries") under Section 40 of the *Coastal Ferry Act* for Performance Term Five ("PT5") on September 28, 2018:

- Performance Term Four Report to the British Columbia Ferries Commissioner
- Report on Fuel Management Plan Outcomes in Performance Term Four
- Capital Plan Fiscal Years 2019 through 2030
- Strategies for Enhanced Efficiency in Performance Term Five and Beyond
- Traffic Demand Forecast (fiscal years 2019 through 2024)

We have analyzed BC Ferries' actual results and forecasts for PT4 as well as BC Ferries' forecasts for PT5. The main purpose of the analysis is to assess the reasonableness of the assumptions and forecasting methodologies underlying BC Ferries' forecast for PT5 and to recommend adjustments where appropriate. The results of this analysis are to be used by the Commission in determining the price caps for each year in PT5.

The scope the assessment includes the following key questions:

- Has BC Ferries satisfactorily explained unusual trends or variances between actual and forecasted results?
- Can the forecasting model prepared by BC Ferries be relied upon to produce accurate reasonable and supportive projections?
- Is the information provided by BC Ferries accurate, reasonable and supportive of the forecast for PT5?
- Will the forecasts provided allow BC Ferries to meet their debt covenants?

The PT5 submission responds to the specific information requirements of the *Coastal Ferry Act*. It contains information on the ferry services BC Ferries has provided and expects to provide in PT4 in relation to the regulated routes for which a price cap is to be set by the Commissioner for PT5.

Our workplan has included:

- meetings with the Commissioner
- meetings with and presentations by BC Ferries management
- written questions to BC Ferries;
- review of information supporting PT4 performance and PT5 forecasts including detailed operating expenses, revenue forecasts and traffic forecasts
- review of detailed schedules supporting the Capital Plan
- review of independent forecasts of fuel prices, interest rates, debt rating reports and other data
- review of a financial forecast model and scenario analysis

In addition, compliance work was conducted on PT4 Price Cap Reporting and Drop Trailer Operations to support the PT4 performance work.

The assessment was led by PwC's Capital Project & Infrastructure group and supported by Stantec who reviewed the traffic forecasting methodology.

Organization of the Report

This report is organized into six parts:

1. Assessment of BC Ferries PT5 Submission and Supporting Documentation
2. Assessment of Fuel Management Plan Outcomes in Performance Term Four
3. Assessment of BC Ferries' 2019-2030 Capital Plan Submission
4. Assessment of Strategies for Enhanced Efficiency in PT5 and Beyond
5. Assessment of BC Ferries' Traffic Demand Forecasting
6. BC Ferry Commission PT5 Price Cap Assumptions

Notice to Reader

This Report is issued by PwC for the exclusive use of the Commission in connection with its assessment of PT5 submissions by 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 Chartered Professional Accountants of Canada. 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.

PwC did not examine, compile or apply agreed upon procedures to satisfy the requirements of the Chartered Professional Accountants of Canada 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.

Further this Report does not constitute an opinion as to legal matters, including the interpretation of the *Coastal Ferry Act* or any other similar matters. The economic impact of the various procurement options is also outside the scope of PwC's 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 norepresentation 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 its schedules 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.

Assessment of BC Ferries' PT5 Submission and Supporting Documentation

Part 1 of BC Ferries' PT5 submission is the Performance Term Four Report, structured in six sections as follows:

- Core Ferry Services
  - This section provides information the core ferry service that BC Ferries has provided and reasonably expects to provide on the designated ferry routes in PT4.
- Tariffs for Core Ferry Services
  - This section provides information on the tariffs, including reservations, that BC Ferries has charged and expects to charge on the designated ferry routes in PT4.
- Service Fees
  - This section provides information on the service fees that BC Ferries has received and reasonably expects to receive in PT4.
- Revenues from All Other Services
  - This section provides information on the revenues that BC Ferries has earned and reasonably expects to earn in PT4.
- Expenses
  - This section provides information on the expenses that BC Ferries has incurred and reasonably expects to incur in respect of the provision of service on the designated ferry routes in PT4.
- Alternative Service Providers
  - This section provides information on the actions taken by BC Ferries in the current performance term to seek alternative service providers to provide ferry transportation services on one or more of the designated ferry routes where so ordered by the Commissioner.

Our assessment of this section has focused on the review of BC Ferries' financial forecasts for the balance of PT4 based on traffic forecasts.

Historical Traffic Trends

Following years of decline in traffic, both passenger and vehicle traffic have seen consecutive annual growth since F2014. Traffic in F2018 has approached historical highs.

Figure 1

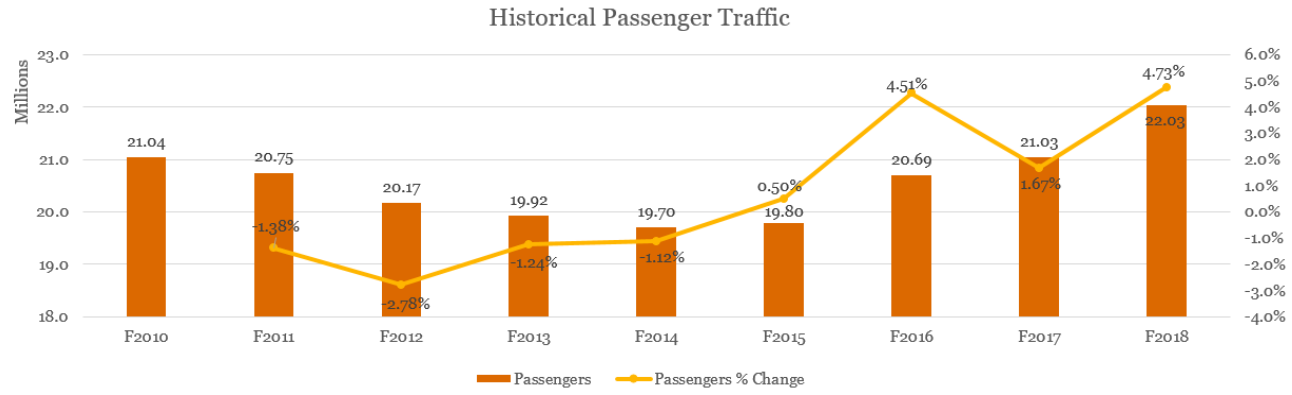
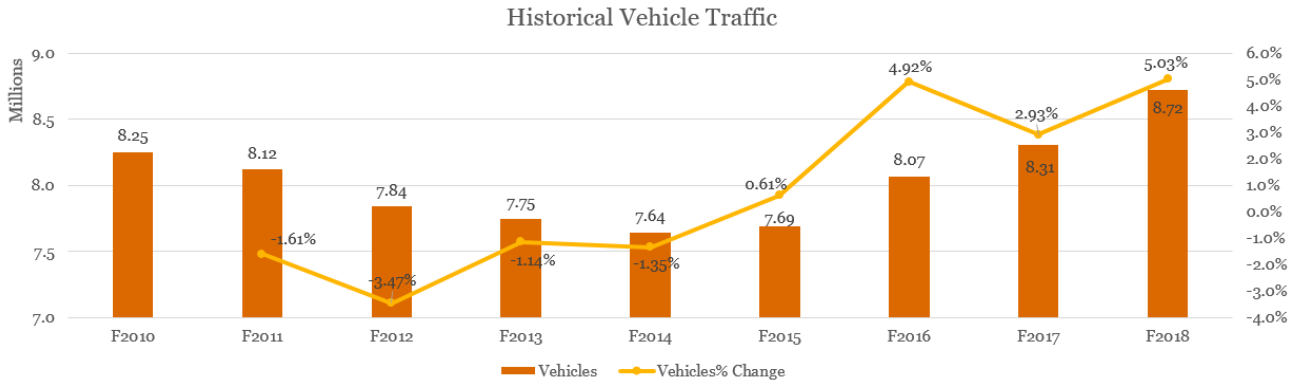


Figure 2



Traffic Forecasts for the Balance of PT4

Traffic in PT4 to date has been stronger than anticipated, particularly on the major routes, peaking in F2018. Traffic increases are due to a combination of factors, including a strong economy, a low Canadian dollar that has encouraged tourism from the US and travel within BC and the rest of Canada, and low fuel costs. A lowering of fare price increases for PT4 beginning in F2017 to levels less than general inflation and fare freezes and fare reductions starting in F2018 have also contributed to traffic growth.

Figure 3

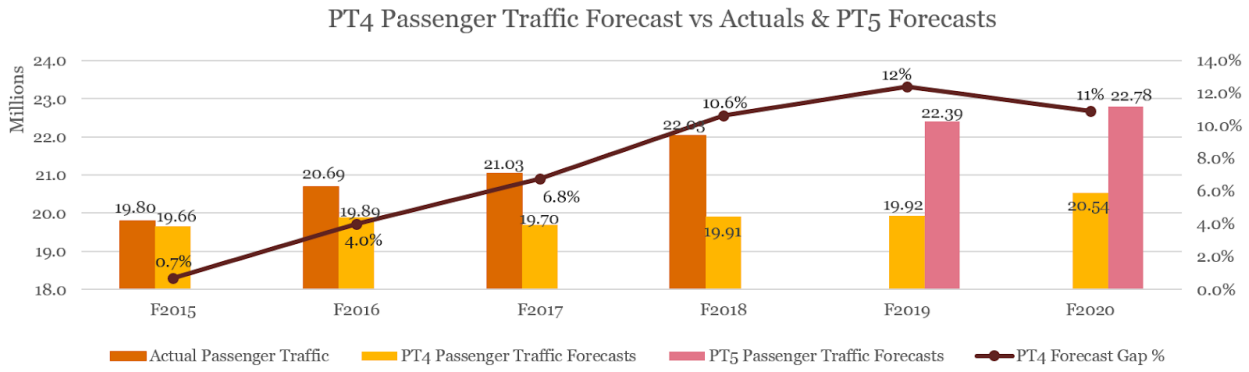
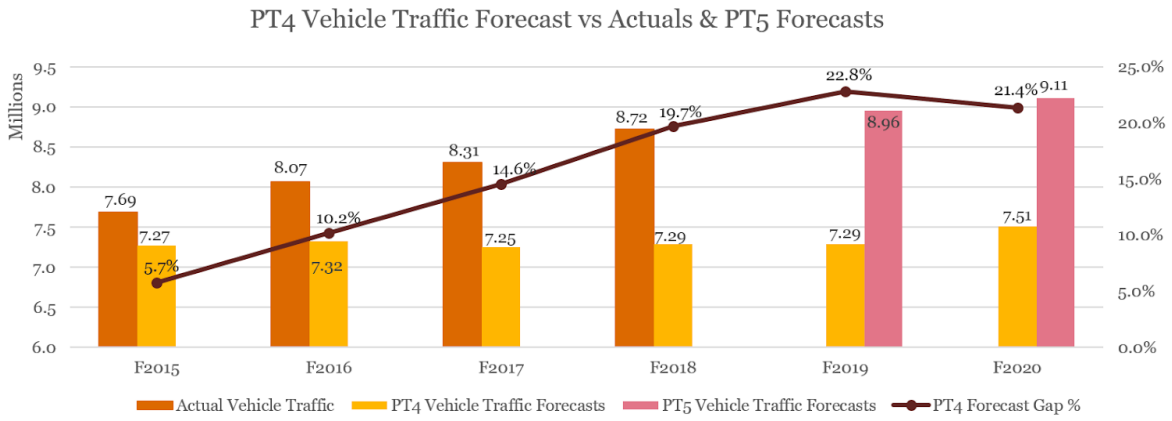


Figure 4



BC Ferries expects growth in F2019 of 2.6% for vehicles and 1.6% for passengers and in 2020 1.7% for both vehicles and passengers. These forecasts include the impacts of seasonality, fare, business initiatives, and core traffic drivers. In F2019, no net impact from seasonality is expected, and the majority of traffic growth is influenced by fares. On April 1, 2018, BC Ferries applied a fare reduction of 15% on northern routes, the minor routes, and the major route connecting Horseshoe Bay and Langdale. Fares are expected to remain at these levels through March 2020. BC Ferries and the Province are each contributing to cover the cost of these fare reductions. Fares on the major routes connecting Metro Vancouver with Vancouver Island remained unchanged from F2018 levels.

The British Columbia senior passenger discount increased from 50% to 100% for travel Monday to Thursday on the major and minor routes. The Province will contribute an additional $20 million towards offsetting the value of the enhance British Columbia seniors' discount through March 2020. The fare and seniors' discount initiatives are contracted to be in place until March 2020.

Core traffic drivers are expected to remain positive through F2019. The British Columbia and Canadian economies and tourism are expected to continue to grow in F2019, though at lower levels than experienced in F2017 and F2018.

The forecast traffic growth for F2020 is 1.7% over F2019. Seasonality will have some impact, but the majority of this growth is driven by fares, business initiatives, and continued growth in core traffic drivers.

Seasonality in F2020 will be a positive traffic driver, given a full Easter long weekend, compared to just half in F2019.

Fares are expected to remain at the same level as F2019. Assuming inflation in F2020 and no fare changes, real (inflation adjusted) fare will decrease and have a positive impact on traffic. Business initiatives related to a new website and variable pricing are expected to drive traffic volumes by offering customers discounted fares on low demand sailings on the major routes between Vancouver Island and Metro Vancouver.

The growth in F2019 in core traffic drivers is expected to continue at near or slightly lower levels through F2020.

Assessment of Financial Forecasts for the Balance of PT4

In order to assess the reasonableness of the starting point for the PT5 forecasts, we have first examined the variance analysis for the forecasts for F2018 and F2019 contained in the PT5 Submission.

The following table compares actual results in F2018 to the PT5 Submission forecast for F2019.

Figure 5

($million)	Actual	Submission	Year Over Year	
	FY2018	FY2019	$ Change	% Change
Revenue	$ 937.3	$ 966.4	$ 29.1	3.1%
Operating Expenses	661.0	683.5	22.5	3.4%
EBITDA	276.3	282.9	6.6	2.4%
Amortization	159.9	173.5	13.6	8.5%
Net Financing Expense	55.2	58.7	3.5	6.4%
Other Expenses	1.2	0.0	-1.2	-100.0%
Net Earnings	$ 60.0	$ 50.7	$ (9.3)	-15.5%

Comparison of Actual F2018 Results vs. PT5 Submission F2019 Budget

Based on the PT5 submission provided by BC Ferries, the largest drivers of change between F2018 and F2019 are as follows:

- Revenue will increase due to:
  - Continuation in strong traffic - positive traffic trends have continued into the first half of F2019 and the fare freeze along with fare initiatives are having a positive impact on both passenger and vehicle traffic.
  - Growth in ancillary revenues, mainly due to increases in catering and retail revenue as well as expanded retail space on the Spirit of British Columbia.

  These increases are partially offset by:

  - Decreases in fare revenue reflecting the impact of the fare initiatives which include the fare freeze on the major routes connecting Metro Vancouver with Vancouver Island, the 15% fare rollback on all other routes, and the restoration of the 100% British Columbia seniors'

discount on the major and inter-island routes. This is partly offset by provincial government contributions for fare initiatives, growth in traffic and reservations.

- Operating expenses will increase due to:
  - increases in wages and benefits, including wage rate increases, higher benefit costs mainly resulting from the employer health tax, staffing service enhancements and additional round trips.
  - increases in diesel price and higher overall fuel consumption partly resulting from additional round trips, partially offset by gains from diesel hedging and higher proportion of LNG consumption.
  - increase in contracted services including IT enhancements and project support.
  - Maintenance costs will increase to reflect wage rate increases, higher benefit costs, variations in vessel refit schedule and other vessel and terminal maintenance requirements offset by the effect of savings to be realized from service level adjustments.
  - Administration costs will increase as a result of increases in labour costs including the employer health tax and other miscellaneous expenses.
- Financing expense is forecast to increase by $3.5 million in F2019, mainly due to a reduction in interest earnings resulting from a lower cash balance, an increase in interest expense, and a reduction in capitalized interest.
- Depreciation and amortization expenses will increase as the remainder of PT4 will have an above average level of capital spending, with $343 million in capital expenditures planned for F2019. As a result, depreciation and amortization expense is forecast to increase to $173.5 million in F2019.

The results in Figure 5 agree with the explanations provided by BC Ferries and appear reasonable.

The following table compares forecasted results in F2019 to the PT5 Submission forecast for F2020.

Figure 6

($million)	Submission	Submission	Year Over Year	
	FY2019	FY2020	$ Change	% Change
Revenue	$ 966.4	$ 992.3	$ 25.9	2.7%
Operating Expenses	683.5	710.0	26.5	3.9%
EBITDA	282.9	282.3	-0.6	-0.2%
Amortization	173.5	183.2	9.7	5.6%
Net Financing Expense	58.7	62.3	3.6	6.1%
Other Expenses	0.0	0.0	0.0	0.0%
Net Earnings	$ 50.7	$ 36.8	$ (13.9)	-27.4%

Comparison of PT5 Submission F2019 Budget vs. PT5 Submission F2020 Budget

Based on the PT5 submission provided by BC Ferries, the largest drivers of change between F2019 and F2020 are as follows:

- Revenue will increase due to:
  - Continuation of positive economic conditions, the ongoing fare initiatives, and the new Fare Flexibility and Digital Experience Initiative.
  - Continuation of growth in ancillary revenues, driven by catering and retail revenue.

- Operating, maintenance and administration expenses will increase due to:

- Increases in labour costs including wage rate increases and higher benefit costs resulting from the employer health tax, and staffing additional round trips.
- Increase in costs related to business transformation initiatives enabled by major IT projects
- Increases in O&M costs due to variability in refit and maintenance activities, the annualization of Route 28 service costs, and fleet deployment.
- Increase in other expenses, reflecting a general inflationary increase.

These increases are partly offset by:

- Decreases in fuel expense due to increase in forecast diesel prices being more than offset by an increase in the proportion of LNG consumption following the conversion of the *Spirit of Vancouver Island* to duel-fuel propulsion.

- Financing expense is forecast to increase by $3.6 million in F2020 to $62.3 million, with the year-over-year change mainly due to an increase in interest expense from a forecast $250 million debt issuance in support of BC Ferries' PT5 12-Year Capital Plan.
- Depreciation and amortization expenses will increase due to $439 million in capital expenditures planned for F2020. As a result, depreciation and amortization expense is forecast to increase to $183.2 million in F2020.

The results in Figure 6 agree with the explanations provided by BC Ferries and appear reasonable.

Reasonableness of PT4 Expense Growth

With the high rates of unanticipated traffic growth in PT4, peaking in F2018, operating, maintenance and administration expenses, including labour, have followed a similar growth trend relative to traffic. Fuel costs are more dependent on commodity prices as opposed to traffic and show a different pattern.

Figure 7

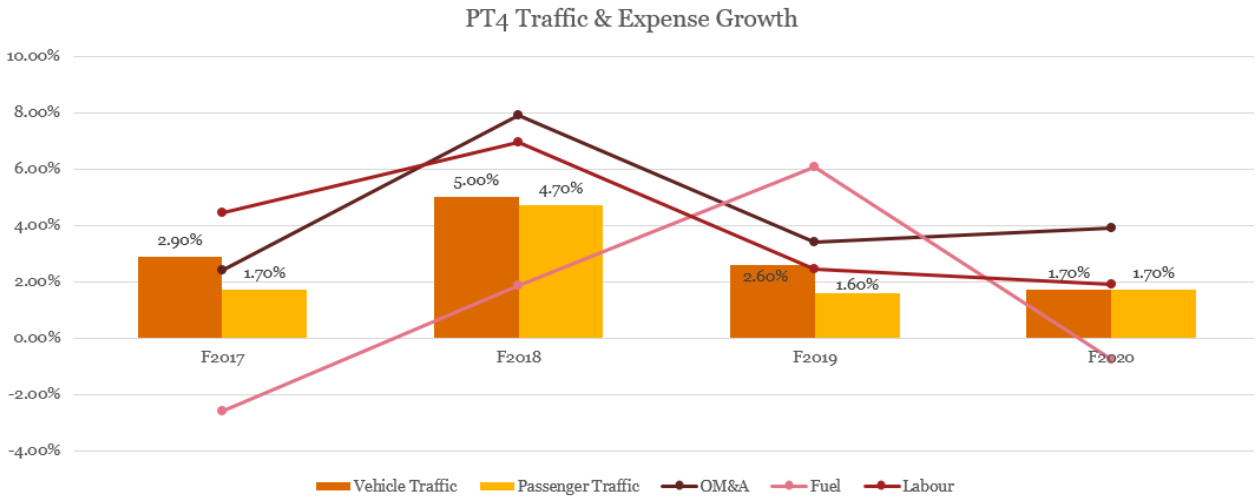


Figure 8

PT4 Traffic and Expense Growth rates	F2017	F2018	F2019	F2020
Vehicle Traffic	2.9%	5.0%	2.6%	1.7%
Passenger Traffic	1.7%	4.7%	1.6%	1.7%
OM&A	2.4%	7.9%	3.4%	3.9%
Fuel	-2.6%	1.9%	6.1%	-0.8%
Labour	4.4%	6.9%	2.5%	1.9%

Reasonableness of Overtime

Labour costs have increased at a higher rate than traffic, primarily due to an increase in overtime to service higher numbers of full and overloaded sailings, and the addition of extra sailings. Total round trips in F2017 was 77,892 compared to 79,082 in F2018, a 1.5% increase.

Traffic levels have caused on-time performance challenges which increase the frequency of accumulated sailing delays, leading to an increase in overtime. As traffic continues to grow in the remainder of PT4 and it appears evident more sailings will be needed to meet daily traffic, extended operating days (and therefore more overtime hours) are scheduled to help carry the additional traffic. The Company was able to reduce unscheduled overtime in F2018 despite higher traffic growth due to a shift in growth to scheduled overtime.

Figure 9

PT4 Actual Labour, Overtime, Overloads and Utilization	F2017	F2018
Labour	4.4%	6.9%
Unscheduled Overtime	8.9%	-2.1%
Scheduled Overtime	8.7%	19.3%
% Sailings Overloaded	10.3%	12.4%
Major Route Capacity Utilization	70.4%	73.8%
Minor Route Capacity Utilization	69.8%	67.4%
Other Route Capacity Utilization	51.7%	54.9%
Overall Capacity Utilization	62.0%	65.2%
Total Round Trips	1.3%	1.5%

Despite the strong correlation of increased labour costs with increased traffic and the higher overall net earnings resulting from the traffic growth, the significant increase in scheduled and unscheduled overtime is a potential concern, particularly as it creates a higher base on which PT5 forecasts are based. Overtime hours increased by 88,710 or 29% from F2015 to F2018. Efforts may be required by the Company to reduce these totals. This topic is addressed further in the last section in the discussion regarding efficiency targets for PT5.

Figure 10

Overtime	F2015	F2016	F2017	F2018
Scheduled Overtime	109,932	113,447	123,289	147,041
Unscheduled Overtime	196,433	232,647	253,415	248,034

Annual administration expenses, which represent approximately 5% of total operating expenses, have also been increasing, Administration expenses excluding Information Technology ("IT") have grown 2.9%, while IT has grown approximately 10.7% in F2018. The major factors of the growth in IT administration expenses are:

- F2017 and F2018 were marked by major project implementations for the Oracle Payroll project and for the new booking, ticketing, and check-in system (ACE project). These two years saw above-average use of contractors and software licensing fees associated with these rollouts.
- Commencing in F2018, IT PMO salaries and benefits were aligned to reflect the higher allocation of resources relating to overall corporate IT project governance and guidelines.
- An increase in "Labour" and "Professional Computer & Other" expenses due to a permanent lift in staffing and licensing fees required for the sustainment of the new information systems. The

added ongoing labour and licensing fees were fully anticipated and were supported by the capital project business cases.

Impact of Fare Initiatives in PT4

There are two initiatives involving fares which had an impact on forecast revenue and equity over the course of the performance term.

1. BC Ferries' decision to keep fares flat in F2018:

Without any additional funding, BC Ferries held the fares flat in F2018 on all traffic types and routes except for vehicle fares on the major routes. This initiative is estimated to have the following impact over the remainder of PT4:

Figure 11

Net Foregone Revenue from F2018 Fare Initiative *($Millions)*	**F2018**	**F2019**	**F2020**
F2018 Flat Flares	$6.6	$6.6	$6.6

2. The F2019 and F2020 fare initiatives that were partly funded by the Province:

BC Ferries agreed with the Province to enact fare initiatives on April 1, 2018. These initiatives included a fare freeze on routes 1, 2, and 30, a 15 percent fare reduction on all other routes, and a restoration of the 100 percent discount for BC seniors traveling mid-week. The overall result for BC Ferries is net foregone revenue and equity of approximately $39 million over the final two years of the performance term ($16.7 million in F2019 and $22.3 million in F2020.

The following table shows the projected foregone fare revenue, the financial compensation from the province (labeled "Province Contribution"), and the net impact on BC Ferries' fare revenue and equity (labeled "BC Ferries Contribution") for PT4 due to these initiatives.

Figure 12

BC Ferries - Provincial Fare Initiatives *($Millions)*	**Foregone Fare Revenue**		**Provincial Contribution**		**BC Ferries Contribution**	
Year	**F2019**	**F2020**	**F2019**	**F2020**	**F2019**	**F2020**
Routes 1, 2, 30 flat	$7.5	$15.4	$3.7	$7.7	$3.7	$7.7
Thrufare 15% reduction	$0.2	$0.2	$0.1	$0.1	$0.1	$0.1
Route 3 15% reduction	$7.6	$8.6	$3.8	$4.3	$3.8	$4.3
Minors & North 15% reduction	$18.2	$20.4	$9.1	$10.2	$9.1	$10.2
Subtotal	$33.5	$44.6	$16.7	$22.3	$16.7	$22.3
Seniors	$9.8	$10.2	$9.8	$10.2	-	-
Total	**$43.3**	**$54.8**	**$26.5**	**$32.5**	**$16.7**	**$22.3**

The resulting net impact to BC Ferries' total revenue, compared to what the Company could have earned with no fare initiatives, is as follows:

Figure 13

Foregone Revenue *($Millions)*	**F2018**	**F2019**	**F2020**	**Total**
2018 BC Ferries Initiatives	$6.6	$6.6	$6.6	$19.8
2019/20 BC Ferries - Province Initiatives	-	$16.7	$22.3	$39.0
Elimination of Fuel Deferral Balance	$15.7	-	-	-
Total Foregone Revenue	**$22.3**	**$23.3**	**$28.9**	**$58.8**

PT4 Capital Expenditures

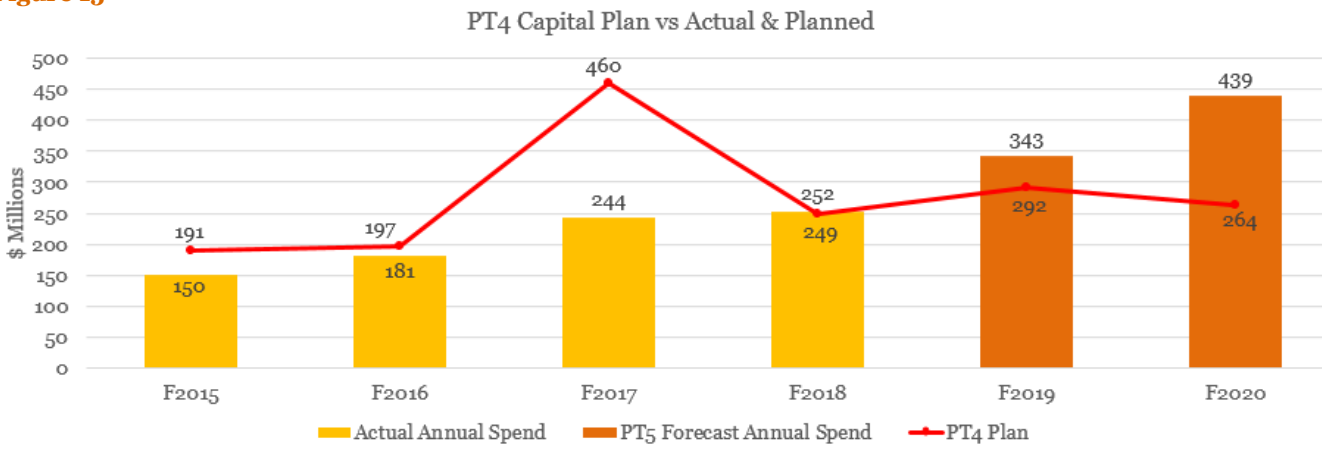
From F2015 - F2017, actual capital expenditure amounts were lower than forecasts detailed in BC Ferries' PT4 Submission. In F2018, with the exception of new vessels, actual capital expenditure amounts were also lower than PT4 forecasts. The large variance in F2017 related to vessel expenditures is primarily a result of a shift in timing of vessel expenditures. $46 million dollars of duty savings related to the Salish class vessels also contribute to this amount. Smaller variances are primarily due to deferred investments and changes in scope.

Figure 14

Capital Expenditures	**F2015**			**F2016**			**F2017**			**F2018**		
$ Millions	PT4	Actual	Δ	PT4	Actual	Δ	PT4	Actual	Δ	PT4	Actual	Δ
Vessel Upgrades & Modifications	60.2	43.8	(16.4)	86.2	85.8	(0.4)	90.8	71.2	(19.6)	114.3	110.1	(4.2)
Terminal Marine Structures	45.0	47.6	2.6	29.0	24.3	(4.7)	36.1	22.9	(13.2)	55.4	20.5	(34.9)
Information Technology	26.6	23.5	(3.1)	27.2	31.9	4.7	32.5	30.9	(1.6)	27.6	24.4	(3.2)
Terminal Upgrades & Equipment	6.0	9.7	3.7	9.4	10.8	1.4	17.8	12.8	(5.0)	32.1	15.7	(16.4)
New Vessels	52.9	25.2	(27.7)	45.1	28.4	(16.7)	283.1	105.9	(177.2)	19.7	81.6	61.9
Total	190.6	149.8	(40.8)	196.9	181.2	(15.7)	460.3	243.7	(216.6)	249.1	252.3	3.2

As seen in figure 15, actual capital spend compared to the PT4 Plan is lower in F2015-F2017 and projected to be higher in F2018-F2020. Further analysis on the Capital Plan is described in a separate section.

Figure 15



Debt Covenants

BC Ferries has two key debt covenants: a maximum debt as a percentage of total capitalization and a minimum debt service coverage ratio ("DSCR"). The Master Trust Indenture (MTI) contains several tests prior to incurring additional indebtedness; including ensuring that the Leverage Ratio does not exceed 85% and the DSCR is at least 1.5:1. BC Ferries is also subject to several covenants, one of which requires debt service coverage (earnings before interest, taxes, depreciation, amortization, and rent) must be at least 1.25 times the debt service cost, otherwise it is in default of its loan obligations and remedies must be pursued.

As per DBRS's rating report on BC Ferries issued January 17, 2019: "DBRS is of the view that the outlook for the business remains favourable. However, while not expected, this view may change if the final decision by the Commissioner regarding PT5 includes setting the target DSCR or equity-to-total capitalization ratio at a level that represents a material erosion from current levels. A negative rating action may be possible if the Company becomes unable to reliably maintain a DSCR of at least 2.5x."

In PT4, BC Ferries is forecasting to achieve positive debt metrics as outlined in Figure 16. Improved metrics are primarily due to positive operating results driving higher EBITDA and retained earnings. Metrics were further supported by the fact that there were no new bond issues in PT4.

Figure 16

PT4 Debt Covenants	F2017	F2018	F2019	F2020
Debt to Capitalization	74.8%	72.5%	70.5%	71.9%
Debt Service Coverage Ratio	3.20x	2.79x	2.74x	2.65x

Achievement of Targets in the Capital Plan and Efficiency Plan in PT4

Separate from BC Ferries stated plans for PT4, the Commissioner's order setting price caps for PT4 established a target of a $100 million reduction in the Capital Plan and operating efficiency gains of $4.9 million/year and productivity gains of $2 million/year.

BC Ferries' actual cumulative capital spending since the last performance term submission in F2015 has been tracking below the rate contemplated in the PT4 capital plan. Between F2015 and F2018, BC Ferries spent $827 million on capital projects, which is $270 million less than the $1,097 million forecasted in the PT4 submission. The net underspend is primarily due to:

- The deferral of projects, including the Langdale terminal development and the Fleet Maintenance Unit site development. Deferrals on these two projects have also impacted the timelines of other upland infrastructure projects planned for Swartz Bay and Horseshoe Bay.
- Real cost savings were achieved with the first three Salish class vessels which cost nearly $50 million less than the PT4 capital plan forecast mainly as a result of duty savings.

While deferral of spending does not incur real cost savings, deferral of projects in PT4 into PT5 and beyond allow for better timing of capital spend to match demand. Capital projects budget should be continuously re-evaluated with respect to future market conditions and align with demand and operating results.

Actual operating expenses for the duration of PT4 are higher than forecasted. This increase in operating expenses is primarily due to a significant increase in passenger and vehicle traffic.

Figure 17

Total Expenses ($Millions)	F2017	F2018	F2019	F2020
PT4 Forecast	849.6	870.0	896.3	918.0
Actual / PT5 Forecast	817.8	877.3	915.7	955.5
$Difference	**-31.8**	**7.3**	**19.4**	**37.5**

The higher traffic demand has led to an increase in full and overloaded sailings and sailing delays, which in turn has led to an increase in overtime labour costs. The majority of this increased overtime occurs in the peak summer months on the busier major and minor routes. The increased congestion has also contributed to a decline in on-time performance.

Figure 18

On-time Performance	F2016	F2017	F2018	F2019
Actual / PT5 Forecast	90.8%	89.5%	89.0%	TBD
Target	91.0%	91.0%	91.0%	91.0%

The achievement of the efficiency targets do not appear to have been documented in a formal way, except that in PT4, revenue growth has been achieved at a higher rate than expense growth, leading to higher net earnings throughout the performance term as compared to the PT4 price cap forecasts. While the efficiency targets are on track with the price cap, enhanced documentation in PT5 is warranted.

Figure 19

Net Earnings ($Millions)	F2017	F2018	F2019	F2020
PT4 Forecast	7.7	7.7	0.1	13.8
Actual / PT5 Forecast	77.4	60.0	50.7	36.8
$Difference	**69.7**	**52.3**	**50.6**	**23.0**

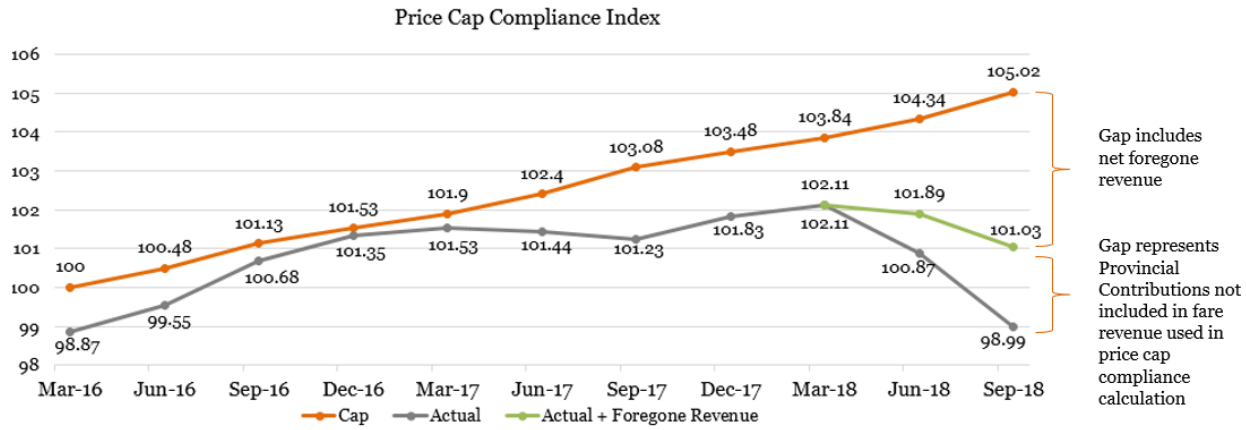
Alternative Service Providers

No alternative service providers were pursued in PT4.

Price Cap Compliance

Price cap compliance during PT4 was determined based on a review of BCFS' supporting analysis used to calculate price cap indexes. The analysis provided was for an interim PT4 period from July 1, 2018 to September 30, 2018. The analysis is consistent with the Commission's Orders. In addition, key inputs for historical revenues and traffic volumes could be accurately traced back to the general ledger and accounting systems for the selected sample quarterly period ending September 30, 2018. BCFS appears to be in full compliance with price caps for the PT4 period from April 1, 2016 to September 30, 2018. Based on the provincial government Fare Initiative that resulted in reduced fares on the minor routes and a decision by BC Ferries not to raise fares on the major routes starting in F2018, the actual fare index is well below the price cap. A reset of the price cap for PT5 based on the actual fare index at the end of PT4 could give consideration to foregone revenue.

Figure 20



Drop Trailer Compliance

Drop Trailer compliance with Order 11-01 during PT4 was determined based on a review of revenues, operating expenses, and route overhead calculations. The analysis provided was for an interim PT4 period from July 1, 2018 to September 30, 2018. The analysis determined the ferry operator is pricing above direct and indirect service costs. In addition, key inputs for revenues, rebates, credit notes could be accurately traced back to the general ledger and respective invoices. Operating expenses including labor costs were also traced back to the general ledger and payroll. Route overhead calculations were vetted against route and service statement reports. Only minor discrepancies were found which result in only small adjustments to indirect costs. BC Ferries appears to be in full compliance with Order 11-01 for the PT4 period from April 1, 2016 to September 30, 2018.

Conclusions

Costs and other financial information included in the PT5 Submission are reasonable and BC Ferries has satisfactorily explained unusual trends or variances between actual and forecasted results. The forecasted results for the end of PT4 are appropriate for forecasting of PT5 results.

Assessment of Fuel Management Plan Outcomes in Performance Term Four

BC Ferries is required to provide a report on the outcomes of their fuel management plan as part of their submission for PT5.

Its report is divided into three sections:

- Section 1 focuses on fuel consumption management at BC Ferries and explains the key drivers of fuel consumption and the impact that increased traffic has had on fuel consumption since March, 2016.
- Section 2 provides an update on the significant progress the Company has made, and continues to make, in its planned transition to alternative fuels.
- Section 3 focuses on the Company's continued actions to manage the price it pays for fuel.

Fuel is BC Ferries second largest expense and is subject to a fuel management program that aims to minimize cost and consumption. Two types of fuel are consumed: diesel and LNG. A cable ferry has also been introduced that relies on diesel.

Fuel consumption is generally very predictable and is influenced by service or round trips provided, the type of fuel, and the speed of travel. Fuel needs per AEQ have been lessening over time with the introduction of more efficient engines and ship designs that are also reducing emissions.

In PT4, higher traffic has resulted in more sailings and higher fuel consumption. However, overall fuel expense has declined, due to a reduction in fuel prices and the shift to cleaner and lower-cost alternative fuels.

Fuel Consumption

Figure 21

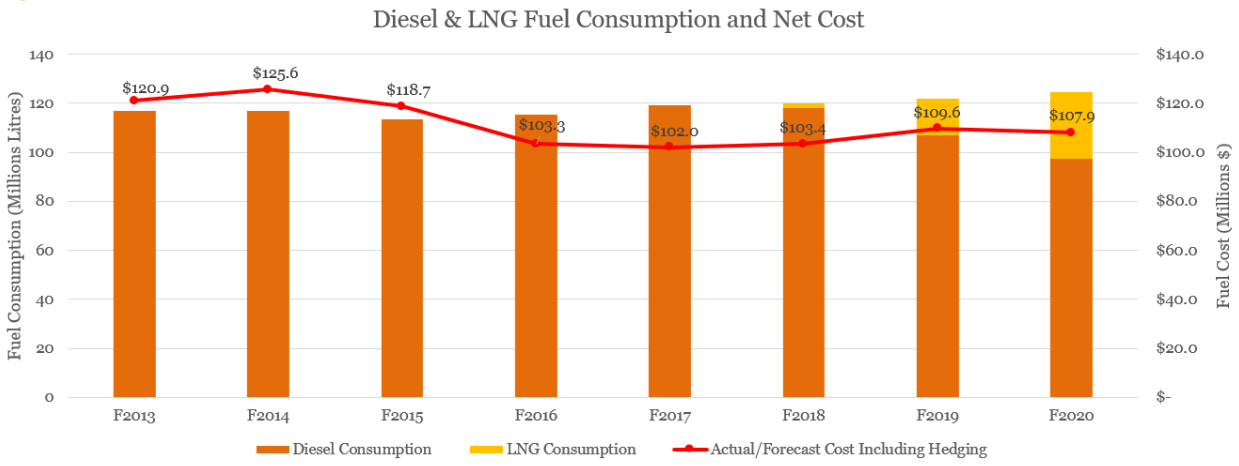


Figure 22

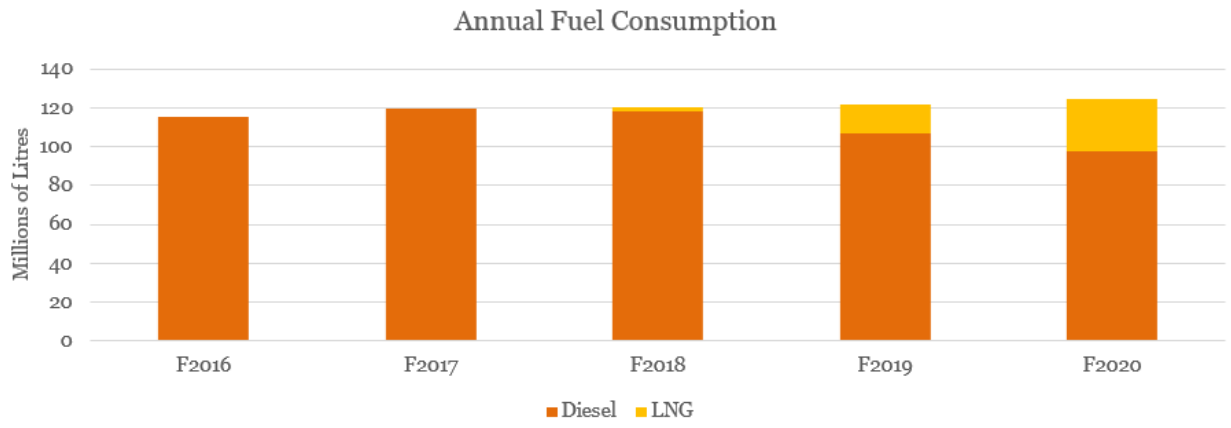
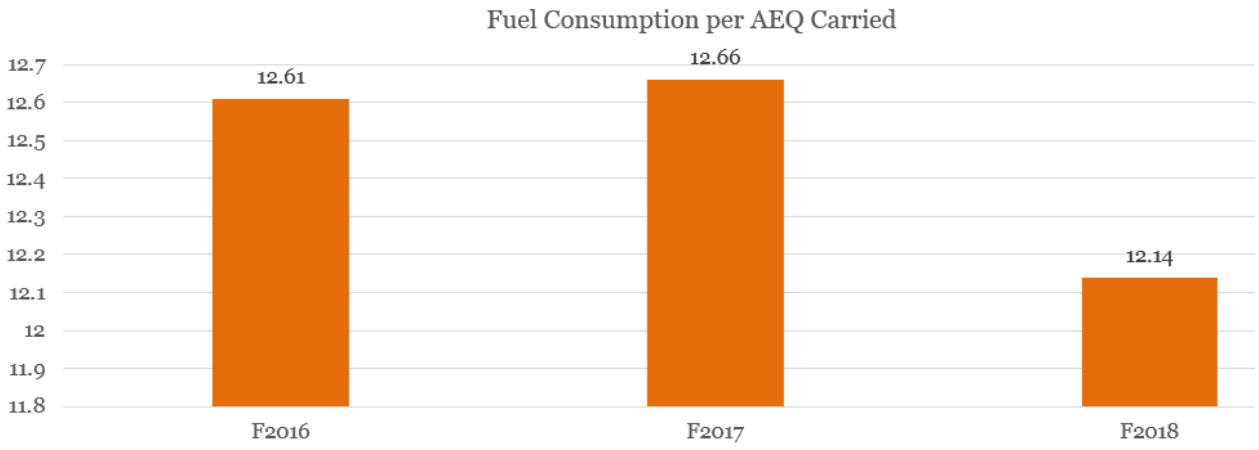


Figure 23

PT4 Fuel Consumption	F2017	F2018	F2019	F2020
Diesel (Litres)	119.4	118.2	106.8	97.4
LNG (DLEs)	-	2.0	14.9	27.1
Total Litres	**119.4**	**120.2**	**121.7**	**124.5**

Fuel consumption per AEQ carried has improved with more traffic and fuel efficiency initiatives. Fuel consumption per AEQ improved 3.7% over the F2016 - F2018 period.

Figure 24



Diesel fuel prices declined in the F2013 - F2018 period, before increasing in F2019. LNG prices have increased since they were introduced in F2018.

Figure 25

Average Fuel Price	F2013	F2014	F2015	F2016	F2017	F2018	F2019	F2020
Diesel (Litres)	$1.04	$1.08	$1.05	$0.89	$0.85	$0.86	$0.96	$0.97
LNG (DLEs)	-	-	-	-	-	$0.45	$0.48	$0.49

Fuel Management

Fuel management has translated into fuel savings. BC Ferries estimate that fuel savings from the introduction of three Salish class vessels and engine conversions of two Spirit class vessels total $17.1 million.

Figure 26

Initiative	Timing	PT4 fuel savings ($ millions)
Three new Salish Class Ferries	The first Salish arrived in BC January 2017, the second in March 2017, and the third in June 2017	**$8.9**
Engine conversions of the Spirit Class vessels	MLU for the Spirit of Vancouver Island: Sept 2018 - May 2019 MLU for the Spirit of British Columbia: Sept 2017 - May 2018	**$8.2**

BC Ferries has implemented a Clean Technology Adoption Plan that will see more new vessels that are fueled by diesel and by electricity. While the designs of new vessels will allow for full conversion to electric power, there are no timelines specified for the introduction of electric-powered vessels.

Fuel Deferral Program

BC Ferries has been in compliance with the fuel deferral program. As of the date of the review, there were no surcharges in place.

Figure 27

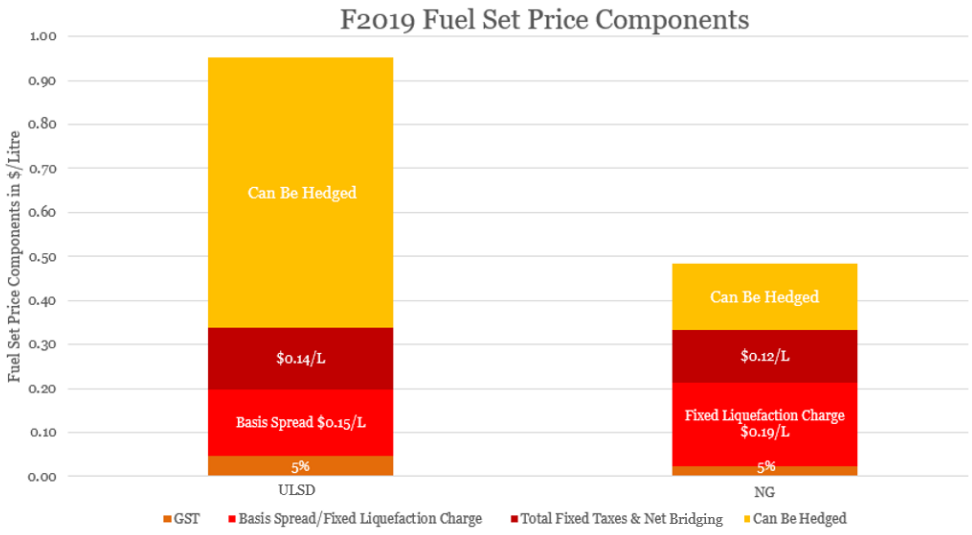
PT4 Fuel Deferral	F2017	F2018	F2019	F2020
Opening Balance	-$6.13	$4.45	-$0.24	$4.46
Fuel Price Variance to Set Price	-$7.63	-$8.63	$0.70	$0.00
Rebates	$18.07	$19.39	$4.50	$0.00
Government	$0.14	$0.29	-$0.50	$0.00
Other Adjustments	$0.00	-$15.74	$0.00	-$4.46
Ending Balance	**$4.45**	**-$0.24**	**$4.46**	**$0.00**

BC Ferries has an active hedging program in place for diesel but not LNG. BC Ferries started shifting fuel consumption towards LNG in F2018. Due to the relatively recent shift towards this commodity BC Ferries has not yet started a hedging program for LNG. Compared to diesel, LNG also has a lower proportion of total costs that can be hedged. As it becomes a larger share of total fuel costs, hedging may be beneficial.

Figure 28

PT4 Set Fuel Price	F2017	F2018	F2019	F2020
Diesel (per Litre)	$0.915	$0.933	$0.952	$0.971
LNG (per DLE)	$0.464	$0.473	$0.483	$0.492

Figure 29



Conclusions

PT4 fuel management goals and initiatives have been largely met. Fuel consumption is relatively flat, with decreased diesel consumption and increased LNG consumption. Improved fuel efficiency is reflected in the lower fuel consumption per AEQ, based on higher traffic and the introduction of LNG-powered vessels. Hedging of gas prices would reduce commodity risk associated with LNG prices and should be considered. In addition, accelerated conversion to electric vessels would further reduce fuel costs.

Assessment of BC Ferries' 2019-2030 Capital Plan Submission

Introduction

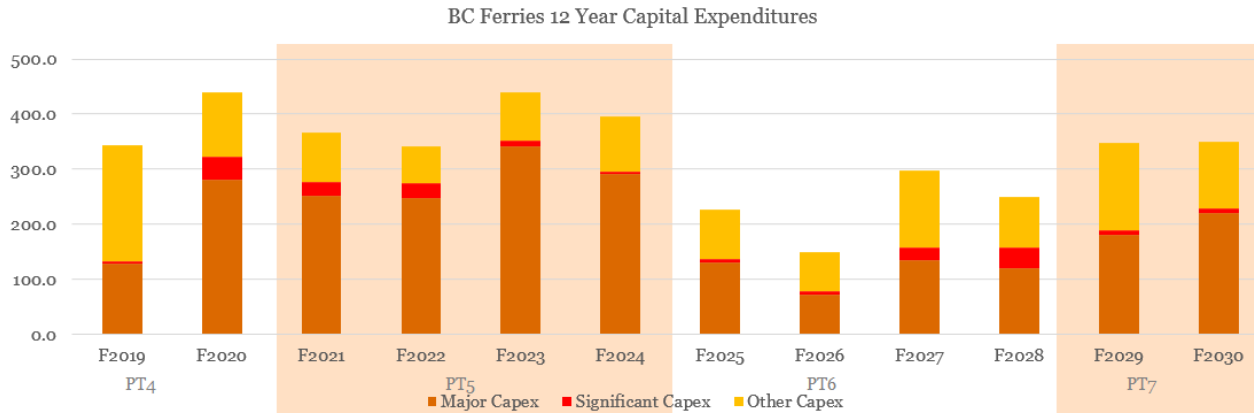
PwC has assessed the BC Ferries' 2019-2030 Capital Plan Submission to the Commission pursuant to Section 64.1 of the Coastal Ferry Act (the "Capital Plan"). The review of the Capital Plan has occurred in two stages. The first stage involved a review of an initial plan for public release submitted on September 28, 2018 from which a number of questions and additional analysis were requested of BC Ferries. These were reviewed in a second stage.

As part of the review we have conducted the following:

- Reviewed requirements of Section 64.1;
- Reviewed Capital Plan Submission requirements and sample submissions in a number of regulated industries including those regulated under price cap systems;
- Discussed the Capital Plan with the Commissioner;
- Reviewed the Capital Plan and the Schedule of Projects (including the public and non-public versions);
- Compared the Schedule of Projects to the content and format of the previous 12-year Capital Plan developed by BC Ferries; and
- Reviewed supplemental analyses developed by BC Ferries.

Capital Plan Summary

Figure 30



- The Capital Plan Submission is based on the current Coastal Ferry Services Contract with the Province of BC for the delivery of ferry services on coastal routes. On this basis it contemplates no changes in the contract in terms of the number or regulated routes and levels of service.

- The Capital Plan covers the F2019-F2030 period: the last 2 years of PT4, PT5, PT6, and the first 2 years of PT7.

- The Capital Plan includes: the introduction of 17 vessels with 13 vessels retiring; the replacement and/or upgrade of the Horseshoe Bay Terminal, Swartz Bay Terminal, and Langdale terminal; 2 berth replacements/rebuilds; and IT projects.

- The estimated total costs of the Capital Plan are in excess of $3.9 billion over the next 12 years. Capital projects are categorized between Major (61%), Significant (5%) and Other (34%). Major projects are as defined by the thresholds described in the Commission Order 19-03. Significant projects fall below the thresholds but are considered important. Other projects include a large number of projects of a lesser magnitude.

- Generally vessel replacements and mid-life upgrades are based on asset management plans that require replacement/betterment or compliance with regulatory requirements.

- The Capital Plan identifies standardization as a corporate-wide objective with asset replacements.

- Other types of investments for terminals and IT are based on internal payback, expansion and changing business requirements.

- Corporate initiatives also influence the nature of investments. Significant trends include the desire for asset standardization, a move towards LNG as a cheaper source of fuel, and a Customer Experience Modernization Initiative.

- Capital projects are to be planned within BC Ferries' Master Planning Framework. Condition reports and risk classifications also affect the timing of projects and the degree of corporate oversight.

Approach to the Capital Cost Estimates

BC Ferries' approach to cost estimates varies by time to implementation and by asset category. Most projects listed in the capital plan fall into the charter stage. Projects at this point will have relatively low scope and budget definition compared to projects in the implementation phase. Project charters are reviewed and updated annually, with updates informed by market conditions and evolving priorities and plans of the Company. Closer to implementation, most projects are activated through a pre-implementation request, which releases a small amount of funds relative to the overall project budget to assess options and better define the scope of the project. The effort spent in this pre-implementation phase helps inform a more detailed project scope and budget for the business case stage.

Vessels

- Charter budget: New vessel construction costs consist of the shipyard contract and BC Ferries' internal costs including project management, travel, vessel load out, testing, regulatory obligations, third party consultants, and other administration expenses. The shipyard portion is estimated using a mix of recent projects and market studies, and BC Ferries' internal costs are estimated using past project experience. Existing vessel projects consist primarily of scheduled lifecycle upgrades (quarter, half, and three-quarter life upgrades). High-level scope requirements are identified by vessel teams and budget placeholders are developed based on past project experience.
- Business case budget: For new vessels, charter or pre-implementation budgets are refined based on market intelligence, including market reports from standard industry publications, third-party brokerage research reports, or direct shipyard estimates (either from a request for expression of interest or a pre-contract request for proposal). Internal costs are refined using any new information available, such as anticipated vessel crew levels, location of the shipyard, and expected size of the project team. For existing vessels, a detailed project scope is created by the project manager with input from the vessel's engineering superintendent and shipboard management, as well as other stakeholders. The budget is then developed bottom-up with cost estimates broken down to the scope-item level.

Terminals

- Charter budget: Terminal charters are included in the capital plan based either on an asset condition assessment or a desired improvement from the business. Charters include high-level scope development, costing, and phasing, which is developed internally by the project manager for most projects, and with the input of a design or cost consultant for larger projects. The scope at this stage is high level, describing broad infrastructure elements expected to meet the business need.
- Business case budget: Significant work is done for projects at the business case stage to clearly define the scope of the project, including preliminary engineering design. Budgets are typically developed bottom-up with input from a design consultant.

Information Technology

- Charter budget: Most charter-stage projects assign scope based on an expected product lifecycle, spanning from initial installation, to minor upgrade, and then to major upgrade or replacement. Budgets attached to the charter-level scope are typically top-down estimates based on similar prior projects. Further definition and bottom-up elements are added by subject matter experts as more is learned about the needs of the business.
- Business case budget: For projects at the business case stage, requirements have been gathered and more is known about the planned project scope. The Project Manager develops the scope with input from the project owner and other stakeholders. The budget is built bottom-up based on the project plan, and is often informed by market information like a request for information or request for proposal.

Active projects across all asset categories, including those in the pre-implementation stage and in the implementation (post business case), are reforecast monthly. Forecasts will evolve as more detail information is received (RFP response, contract negotiation, contract finalization, change requests, and realization of results).

Commentary

A number of good industry practices are observed with BC Ferries' capital planning processes. BC Ferries have developed master plan summaries for vessels and terminals. The Company has demonstrated appropriate procurement processes for capital projects. Project Governance Framework and Guidelines that were updated in November, 2017 also have various control mechanisms are also imbedded within the framework. Previous reviews including a number of S55 reviews have demonstrated that capital projects are supported by robust business cases and appropriate governance.

A performance review of BC Ferries' procurement practices in 2018 concluded that BC Ferries has solid procurement policies and practices in place, with good practices identified in numerous areas and in their ongoing continuous improvement activities. BC Ferries has a strong capital planning process that supports proactive planning for related procurement activities to enable alignment of strategic objectives. Additionally, a well-defined policy and governance framework supports strong consistency, risk management and control within procurement processes, and procurement and supply chain performance is regularly measured and reported.

The capital planning process from the first 12-year Capital Plan has improved from PT4. The submission contains a Fleet Master Plan summary and a Terminal Network Master Plan summary that are integrated. They address alignment of capital projects within the two master plans, a 25-year investment schedule, a fleet overview, a long-term fleet deployment plan, fleet retirement and decommissioning and general design standards and guidelines.

The Fleet Master Plan summary details how the fleet will be standardized, where ships will be deployed, when ships will be replaced, and with what type of vessel. The Fleet Master Plan summary reflects the Company's best available knowledge, including traffic trends and customer needs. The master plan, in many cases, prescribes replacement plans several years in advance.

BC Ferries has refined the planning process with the creation of the Terminal Network Master Plan, with standards for terminal development that vary by terminal category (major, minor staffed, minor unstaffed, northern). Under this master plan, the Company has been working to create a terminal development plan for each site, which creates a 25-year vision for how each terminal will be developed. As a result of this process, several projects in the Capital Plan have been updated with refined cost estimates based on more concrete scope information than what the PT4 Capital Plan included.

Analysis requested of BC Ferries

The Capital Plan primarily represents a listing of all projects and a high level description of major projects. It is based on a "bottom up" development approach particularly as it applies to vessel and terminal replacements. Based on the original submission, PwC asked for clarifications and further analysis on a number of issues, including the following:

- a comparison of the actual cost and timing of all capital projects in PT4 against those contained in the original price cap submissions.
- more detail on:
    - how vessel and terminal replacements are consistent with standardization objectives and
    - the impact of the Capital Plan on the average age of the fleet
- more detail on the approaches taken was requested to identify and assess projects that are not based on regulatory or replacement/betterment. More detail was requested for projects based on internal payback including how incremental revenues or other benefits are to be measured. Risk mitigation approaches for these types of projects were also requested.
- more detail on how BC Ferries plans to address user interests in planning vessel and terminal amenities.
- a description of how specific capital projects are part of Efficiency Plans.

The responses by BC Ferries to the questions are considered adequate. Further analysis is provided below.

Capital Expenditure Performance

In order to assess capital expenditure performance, we conducted the following:

- reviewed the actual capital expenditures in PT2, PT3 and PT4 and compared these to the respective performance term forecasts; and
- reviewed the changes in fleet age as a result of capital investments in vessels.

Actual vs Forecast Capital Expenditures

Capital expenditures in PT2 and PT3 are summarized in the following tables. Performance against the associated 5-year Capital Plans has been adequate. Capital expenditures in PT2 were $91m lower than

forecast in the PT2 submission, mostly due to lower costs associated with the acquisition of three Super C vessels. Offsetting these lower costs were higher IT, terminal and other costs.

Capital expenditures in PT3 were $30m higher than forecast, mostly due to higher terminal costs.

Many of the variances are related to timing of when planned projects are implemented and when expenditures are booked for accounting purposes. There was also a delayed effect with duty remissions for the C class vessels and the Northern Expedition.

Based on discussions with BC Ferries management and the experience with S55 Applications, most vessel projects have come in on or under budget. Greater variances appear to have existed with some of the terminal and IT projects.

Figure 31 - PT2 Capital Expenditures ($ millions)

PT2 CAPEX ($million)	Forecast	Actual	Difference
Vessel	680.8	543.2	137.6
Terminal	163.0	187.4	(24.4)
FMU & Other	2.5	11.0	(8.5)
IT	11.3	58.7	(47.4)
General Allowance	60.0	(1.0)	61.0
Total	**917.6**	**799.3**	**118.3**

Figure 32 - PT3 Capital Expenditures ($ millions)

PT3 CAPEX ($million)	Forecast	Actual	Difference
Vessel	110.4	110.7	(0.3)
Terminal	32.5	72.4	(39.9)
FMU & Other	50.5	39.9	10.6
IT	3.2	3.7	(0.5)
Total	**196.6**	**226.7**	**(30.1)**

The predictability of the cost and timing of projects lessens the further out in time within the Capital Plan. The differences in the forecasts for PT4 and PT5 between the PT4 Submission and the PT5 Submission are shown in the following tables.

Figure 33 - PT4 Capital Expenditures ($ millions)

PT4 CAPEX ($million)	PT4 Forecast	Actual/Submission Forecast	Difference
Vessel	845.7	830.0	15.7
Terminal	257.5	151.9	105.6
FMU & Other	57.2	144.9	(87.7)
IT	104.4	151.3	(46.9)
Total	**1,264.8**	**1,278.1**	**(13.3)**

Figure 34 - PT5 Capital Expenditures ($ millions)

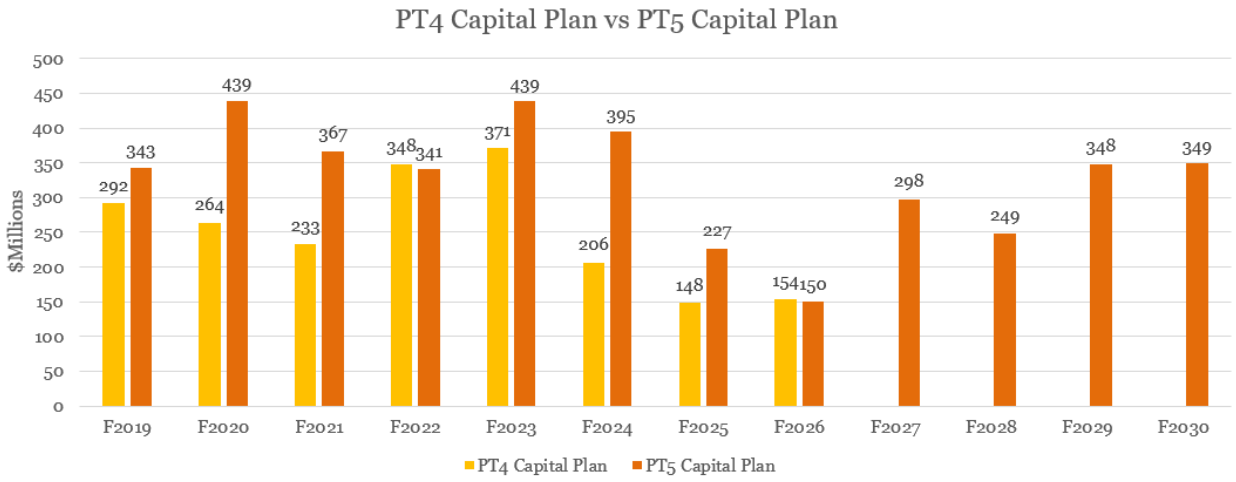
PT5 CAPEX ($million)	PT4 Submission Forecast for PT5	PT5 Submission Forecast for PT5	Difference
Vessel	744.6	1,025.3	(280.7)
Terminal	328.7	371.6	(42.9)
FMU & Other	14.8	84.2	(69.4)
IT	70.6	60.4	10.2
Total	**1,158.7**	**1,541.5**	**(382.8)**

Time horizons

The PT4 capital plan covered the 12-year period between F2015 and F2026, and the PT5 capital plan covers the period between F2019 and F2030, meaning there are eight common years between the two plans covering F2019 to F2026.

Figure 35 below shows the actual and forecast spend for the eight common years, and the four years specific only to the PT5 plan.

Figure 35



New Vessels

The increase from the PT4 plan to the PT5 plan is more than fully explained by the major vessels in the plan. The PT4 plan had spending to replace four major vessels in the early to mid-2020s. The PT5 plan includes the replacement of the same four vessels, with an incremental vessel added for reasons outlined in the capital plan submission. In addition, with four years added to the plan, the PT5 plan also needs to incorporate spending to replace the *Queen of Oak Bay* and *Queen of Surrey*, which are scheduled to retire in the early 2030s.

The PT5 plan introduces a total 17 new vessels, and sees 13 vessels retire within the 12 year period from F2019-F2030.

Figure 36

Difference	PT4 Plan (F2015-F2026)	PT5 Plan (F2019-F2030)
Major Vessels	4 Vessels	5 Vessels
All Other Vessels	15 Vessels	12 Vessels
Total	**19 Vessels**	**17 Vessels**

Vessel Upgrades and Overhauls

Combining the vessel upgrades and vessel overhauls categories, the PT5 plan has a lower spend compared to the PT4 plan of over $80 million for existing vessel projects. The largest source of positive variance for the PT5 plan is in the timing of the Spirit class mid-life upgrade project. Other changes include reduced scope on several vessel upgrade projects, which include the Coastal class quarter life upgrades, which have been reduced from a total of almost $44 million in the PT4 plan to $20 million in the PT5 plan.

Terminals

The PT5 terminal project portfolio has a $316 million higher spend to the PT4 portfolio. In the years common to the PT4 and PT5 capital plans (F2019 to F2026), there is an $88 million higher spend, which can be partly attributed to construction price inflation across the portfolio, and partly to refined scope on several terminal development projects.

The remaining $228 million of higher spend in the terminals portfolio is the result of the years unique to the PT5 plan (F2027 to F2030) having planned spending that is higher than the years unique to the PT4 plan (F2015 to F2018). The projects in F2027 to F2030 are largely based on estimates of when the terminal assets will need age and condition-based work.

Information Technology

The PT5 plan shows higher spend of $18 million for IT compared to the PT4 plan. The IT portfolio of projects is largely based on a replacement cycle, with assets moving from initial installation, to minor upgrade, and then major upgrade/replacement. The biggest contributing factor to the increased spend is the timing of the ACE project, which has significant spending in the years leading up to the start of the PT5 plan. Also, compared to forecasted expenses and timing in the PT4 plan, the fare flexibility and digital experience project is over the initial budget and delayed by up to two years. Note this causes delay in efficiencies and benefits that will be realized from this IT initiative.

FMU & Other

The PT5 plan shows a higher spend of $154 million for the FMU & Other category. The FMU site development plan accounts for a majority of the spend, and is the result of an updated site plan and cost estimates. The PT5 plan also includes spend for a new Supply Chain Management building and new marine structures at the FMU site in the F2029 to F2030 time horizon.

Key Drivers for Capital

Key drivers for capital projects include the following:

- Regulatory
- Replacement / Betterment
- Internal payback
- Corporate Initiatives

The key drivers for Major Capital projects in the Capital Plan are shown in the following table. The Major Projects include spend on 23 new vessels, the redevelopment of the Horseshoe Bay Terminal, redevelopment of the Swartz Bay Terminal, redevelopment of the Langdale Terminal, 2 berth replacement/rebuild and IT project for the new reservation system. The main driver with the majority of Major Capital is Replacement/Betterment.

Figure 37

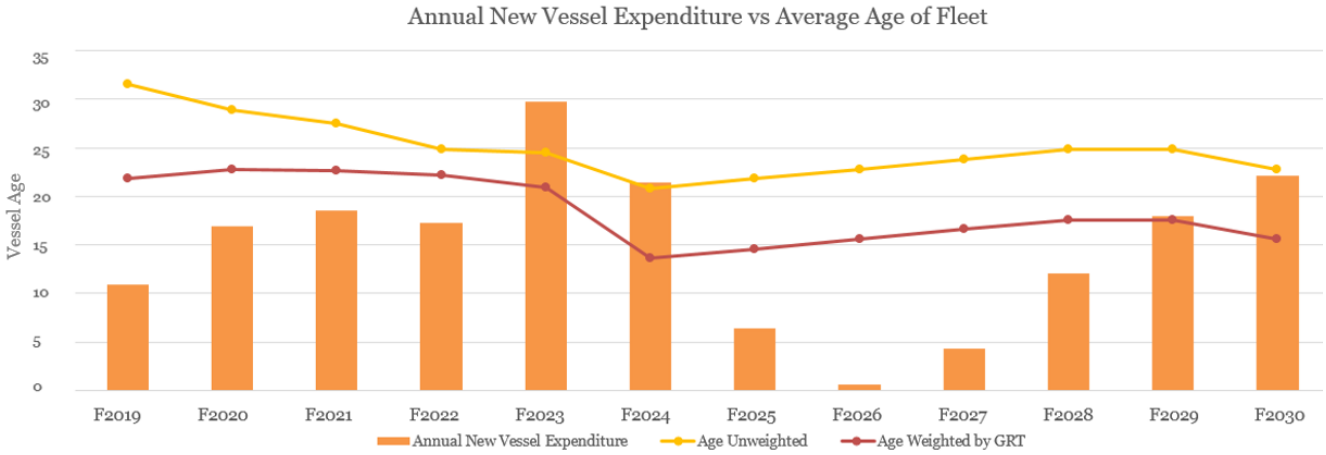
Major Capital Projects	Primary Driver	Expanded Driver / Explanation
Prior Approval - Route 28 - Purchase/Modify Northern Sea Wolf	Replacement	Expansion - a larger vessel with greater capacity for food service was required for the new direct route between Port Hardy and Bella Coola
Prior Approval - North Island Princess & Howe Sound Queen Replacements	Replacement	Replaces Northern Island Princess & Howe Sound Queen (vessels retired)
New Vessel - Mayne Queen - Replacement	Replacement	Expansion - a larger Salish class vessel will expand capacity on Route 5
New Vessel - Powell River Queen - Replacement	Replacement	Expansion - two Island class vessels will combine to increase peak capacity and sailing frequency on Route 23
New Vessel - Bowen Queen - Replacement	Replacement	Expansion - two Island class vessels will combine to increase peak capacity and sailing frequency on Route 19
New Vessel - Queen of Alberni - Replacement	Replacement	Expansion - a larger vessel will provide greater capacity on major routes
New Vessel - Queen of New Westminster - Replacement	Replacement	Expansion - a larger vessel will provide greater capacity on major routes
New Vessel - Queen of Coquitlam - Replacement	Replacement	Expansion - a larger vessel will provide greater capacity on major routes
New Vessel - Queen of Cowichan - Replacement	Replacement	Expansion - a larger vessel will provide greater capacity on major routes
New Vessel - Incremental Major Vessel #1	Expansion	The vessel enables peak-season five-vessel service on Route 1, and could enable the extension of 2-vessel operation on Route 3 beyond the summer months
New Vessel - Quinitsa - Replacement	Replacement	Replaces Quinitsa (vessel retired)
New Vessel - Quinsam - Replacement	Replacement	Expansion - two Island class vessels are planned to replace the Quinsam
New Vessel - Queen of Oak Bay - Replacement	Replacement	Replaces Queen of Oak Bay (vessel retired)
New Vessel - Queen of Surrey - Replacement	Replacement	Replaces Queen of Surrey (vessel retired)
New Vessel - Kahloke - Replacement	Replacement	Expansion - Island class vessel is larger than the retiring Kahloke
New Vessel - Klitsa - Replacement	Replacement	Replaces Klitsa (vessel retired)
New Vessel - Tachek - Replacement	Replacement	Expansion - Island class vessel is larger than the retiring Tachek
New Vessel - Quadra Queen II - Replacement	Replacement	Replaces Quadra Queen II (vessel retired)
Langdale Terminal Development	Expansion	Betterment - the Langdale terminal development will add an overhead passenger walkway, a new passenger terminal building, revamp the pick-up/drop-off area, and enable ticketing (and the fare flexibility and digital experience initiative)
Swartz Bay Terminal Development	Replacement	Expansion/betterment - the Swartz Bay foot passenger terminal and adjacent warehouse are undersized for their purposes
Horseshoe Bay Terminal Development	Expansion	Betterment - restructure the compound for greater operational efficiency
Swartz Bay Berth 3 Replacement	Replacement	Expansion/betterment - the replacement is assumed to be a standardized major berth with active-lift ramps - the existing berth serves as a tie-up berth for major vessels and an operational berth for minor/intermediate vessels
Langdale Berth 1 Rebuild and Shore Stabilization	Replacement	Betterment - Berth 1 is the only two-level berth at Langdale; it does not employ active-lift ramps, and is not capable of accepting larger vessels (Coastal or Spirit class)
Prior Approval - Fare Flexibility and Digital Experience	Replacement	Expansion/betterment/internal payback - expected to drive incremental traffic and provide flexible pricing
Fleet Maintenance Unit Site Development	Replacement	Expansion/betterment - an improved site layout and onsite lift capacity is expected to reduce operating costs and enable vessel refit work to be completed internally.

These projects are also described in relation to corporate initiatives in the Efficiency Plan.

Average Age of the Fleet

The impact of the Capital Plan on the average of the fleet is shown in the following chart. The current average age of the fleet at over 32 years is considered suboptimal. The investments in new vessels and refit upgrades results in lower average age of the fleet. By F2030, the average age of the fleet is 22 years on an (unweighted) basis which is considered more optimal as most new vessels have a useful life approaching 50 years.

Figure 38



Fleet Standardization

The Company's efforts to standardize terminal berths and vessels appear to be consistent with the objectives of the 2012 Coastal Ferry Act Regulatory Review and the Company's stated goals.

Discount Rate Applied in Business Cases

We reviewed the calculation of the discount rate of 7.01% used by BC Ferries in its business case analysis for capital projects. It is based on its weighted average cost of capital ("WACC") calculated prior to the changes to the Coastal Ferry Act which eliminated the regulated rate of return on equity. Under assumptions of a target equity of 17.5% which is used in price cap determinations and a slightly lower weighted average cost of debt, the WACC is 6.35%. There is therefore a case for an updated discount rate for future section 55 capital project applications. A lower discount rate suggested in the table below will have two impacts. It would put a higher value on the savings generated from new investment and with projects whose benefits accrue more over time. This calculation is indicative only as the cost of equity has not been reassessed.

Figure 39

	Current Discount Rate	Scenario 1
Cost of Equity	12.73%	12.73%
Equity %	22.5%	17.5%
Cost of Debt	5.35%	5.00%
Debt %	77.5%	82.5%
WACC	**7.01%**	**6.35%**

User interests

A number of steps are taken by BC Ferries to seek the input of users in planning vessel and terminal amenities. These appear to be reasonable.

Electric-Powered Vessels

BC Ferries plans to replace 19 vessels over the next 14 years. In 2017, two diesel-electric hybrid Island class vessels were procured for service in the Northern Gulf Island routes. These vessels are expected to be in service in 2020 and their introduction will result in the retirement of the North Island Princess and the Howe Sound Queen.

In addition, planning is currently under way for the next seven vessels to be replaced, being three Bowen class and four major vessels. At this time, the Company plans to replace the Bowen class vessels with one dual-fuel (LNG-diesel) Salish class vessel and four diesel-electric hybrid Island class vessels. BC Ferries' application for the Commissioner's approval of this major capital expenditure was approved in January, 2019.

While the Island class vessels have been identified for future conversion to all-electric propulsion, a few challenges need to be overcome before the technology is adopted:

Power infrastructure

Sufficient power needs to be available from BC Hydro to charge the vessel quickly. In some locations where the technology is being considered, like Port McNeil and Texada Island, there is sufficient power at the nearest substation and the challenge would be the power's transit to the terminal and the ship. In other locations, such as Swartz Bay, BC Hydro has capacity constraints that would require infrastructure improvements. The Company has had discussions with BC Hydro over the past year and a half, but there is not yet resolution on when or how this infrastructure would be built. A terminal energy storage study is being conducted with BC Hydro and a consultant to explore storage options to help reduce the impact to the BC Hydro network.

Charging interface from shore to ship

The technology for rapid-charging a vessel from the shore infrastructure is still not mature. Rapid-charging is necessary due to the schedule constraints on most routes, which allow for only a short time in dock. BC Ferries has engaged external consultants to review various technologies that have been tried in Europe, and has directly met with prospective suppliers. Each path forward involves significant investment and some technical risk. There is an initiative among European operators to develop a "standard" charging solution. As the systems are recently developed they need to be proven they would work at the Company's terminals.

Energy storage on vessels and route dynamics

Equally important is planning for sufficient onboard storage capacity and/or fast vessel charging capabilities to meet the service schedule, with the associated vessel power management system. Some routes identified as suitable for Island class vessels that have relatively longer lengths and sailing times with short turnarounds may make charging within the service day difficult, even with a fast-charging solution. Thus more than one electrification strategy is required, and each strategy must be matched to the operational profile of the route.

The above challenges are not insurmountable, but they are not expected to be solved in time for the Bowen class replacements to be all-electric at the time of their entry into service. Different propulsion

systems and fuel sources for the new major vessels will be considered in the upcoming business case, although the PT5 financial modeling assumed they will be dual-fuel (LNG-diesel).

Conclusions

The 2019-2030 Capital Plan is designed to meet the requirements of the Coastal Ferry Services Contract. It is also consistent with the objectives of the 2012 Coastal Ferry Act Review and the Company's stated goals with regard to pursuing standardization objectives for vessels and terminals. The Capital Plan Submission does not contain alternative plans beyond compliance with the CFSC that have the potential to reduce system costs, improve efficiency and/or better address user needs.

We are satisfied with the responses received and have no concerns with the Capital Planning Processes. We have only a minor concern with the Planned Capital Expenditures with regard to the discount rate used in business case analysis which does not impact the PT5 price cap decision. On an overall basis, we consider the Capital Plan to be reasonable.

Assessment of Strategies for Enhanced Efficiency in PT5 and Beyond

Introduction

As part of its PT5 Submission pursuant to section 40(1.1) (a) of the Coastal Ferry Act, BC Ferries is required to submit an Efficiency Plan. It submitted a document describing *Strategies for Enhanced Efficiency in Performance Term Five and Beyond* on September 28, 2018. PwC has assessed this document in relation to the following:

- Consistency with Coastal Ferry Act Regulatory Review objectives;
- Overall Reasonableness;
- Impact on price caps; and
- Relationship with the Capital Plan.

Summary of the Strategies for Enhanced Efficiency

The plan focuses on four opportunities for further efficiency gains. Two of the opportunities can be realized within the terms and conditions of the CFSC. The remaining two opportunities would require changes to the CFSC.

The strategies are summarized in the following table.

Figure 40

Strategies	Description
Strategies within the terms and conditions of the CFSC:	
1. Low-Carbon Clean Technology	In PT5 the company's efforts center on 3 vessel projects: • **Island Class New Build:** Total of 6 new vessels, these vessels will be operated using diesel-electric propulsion with the option to upgrade to a full electric solution. • **Salish Class New Build:** One additional dual-fuel capable Salish class vessel to operate in the Southern Gulf Islands. • **Major Vessel New Build:** Replace 4 C-class vessels with 5 standardized, interoperable vessels with the potential of using alternative fuel.
2. Maintenance and Labour Opportunities	**Maintenance:** Renew and improve the Facility Maintenance Unit to improve efficiency and capacity at the site and providing access to an internal ship repair facility. **Labour:** Work with Marine Workers' Union (the "Union") to renegotiate the Collective Agreement which expires in 2020, aiming for increased flexibility and productivity improvements (e.g. live aboard vessels) opportunities.

3. Service Strategy Initiatives	**Major Routes Initiative:** Add an incremental major vessel to improve service resiliency and allow for supplementary service in the summer months. The objectives of the major routes initiative include: • Increasing capacity and flexibility to meet demand and service challenges; • Retiring older, less efficient ships. **Inter-Island Routes Vessel Replacement Strategy:** Stakeholder engagement identified a preference for higher frequency service provided by two smaller vessels lower frequency service provided by one larger vessel. Benefits include: • Increase in overall and foot passenger capacity; • Increase in sailing frequency and commuter sailings; • Consistent service with flexibility to meet peak and variable demand; • Retirement of older, less efficient ships; • Less terminal infrastructure requirements and local road congestion
4. Customer-Focused Information Technology	**Digital Strategy:** technology to enhance the customer experience and promote efficiency through increased self-serve options. **Revenue Management:** Introduction of variable pricing in PT4 on reservable routes to enable demand flexibility and improve capacity utilization. A frequent traveller program is also under consideration.
5. Opportunities to Grow and Diversify	Explore opportunities to grow and diversify revenues to mitigate the impact of business cycles and support continued financial sustainability and fare affordability. Potential areas of exploration include: • New routes, including passenger only services; • Commercial service opportunities; • Increased ship repair and ship modification capabilities; • Joint venture and other business opportunities; • Developing multiple related uses for land and terminal assets;

Improving On-time Performance

BC Ferries actively monitors on-time performance and continually looks for opportunities to make improvements. BC Ferries' on-time performance can be affected by uncontrollable factors (i.e delays caused by weather, medical emergencies and other emergency responses, and periods of high traffic demand) as well as vessel substitutions resulting from planned and unplanned vessel maintenance and refit activities, as well as by necessary terminal dock maintenance or closures.

Current initiatives to improve on-time performance include adjusting and/or expanding sailing schedules, adjusting crewing schedules, refining vehicle loading processes during peak periods, and limited revenue management initiatives aimed at shifting traffic to lower demand sailings.

BC Ferries is also seeking long-term opportunities to improve on-time performance through investments in terminal redevelopment and vessel replacement.

Scheduling Adjustments/Expansions

- The schedules for routes 2 (Horseshoe Bay to Nanaimo), 3 (Horseshoe Bay to Langdale), and 8 (Horseshoe Bay to Bowen Island) were recently revised to spread out the time between sailings

and to reflect a more accurate estimate of the time required per round trip. The scheduled time per round trip was extended and the standard operating day was expanded to accommodate this.
- Addition of early morning sailings on route 1 (Swartz Bay to Tsawwassen) to draw traffic forward earlier in the day, especially large commercial vehicles, reducing negative impacts of congestion on on-time performance.
- Coordination of departures and arrivals on routes with connecting traffic between routes 3 and 7 (Earls Cove to Saltery Bay); 17 (Comox to Powell River) and 18 (Powell River to Texada Island); and 4 (Swartz Bay to Fulford Harbour) and 1.

Vehicle Loading and Operational Procedures

- Use of separate, dedicated loading teams at major terminals to assist during busy periods.
- Staging of traffic for throughput efficiency at Horseshoe Bay and Tsawwassen terminals.
- Use of liquefied natural gas (LNG) fuel to reduce the incremental costs of increasing speed to maintain on-time performance.
- Continuous improvement of operational scripts to enable standardized work practices to support improved on-time performance.

Revenue Management and Reservations

- Increased allocations for reserved traffic on some sailings on the major routes to manage arriving traffic and to reduce the negative impacts of congestion on on-time performance.
- Use of revenue management to draw traffic to low volume sailings, reducing the negative impacts of congestion to on-time performance.

Future Capital Investments

- Construction of an overhead foot passenger walkway at Langdale terminal to separate passengers and vehicles, enabling them to load and off load at the same time.
- Replacement of terminal berths' conventional ramps, (which cannot be adjusted with vehicle traffic on them) with active lift ramps (which can be so adjusted) to improve loading and unloading efficiencies.
- Construction of standardized berths including double lane loading and unloading.
- Redevelopment of Horseshoe Bay terminal with an objective of improving throughput efficiency.
- Full roll-out of revenue management on Routes 1, 2 and 30 (Tsawwassen to Nanaimo) to draw traffic to low volume sailings and to minimize congestion at peak sailing times.
- New vessel design undertaken with a view to enhancing on-time performance. For example, for the new major vessels, BC Ferries is exploring vessel door design modifications to enable double lane loading and unloading of semi-trailer trucks and large commercial vehicles, as well as the feasibility and cost/benefit of a higher maximum service speed than the vessels they are replacing.

Revenue Opportunities

BC Ferries is actively exploring opportunities to grow existing revenue streams which will help to mitigate the financial impact from cyclical downturns in ferry traffic and contribute to long term financial sustainability. Many of the opportunities are in the early stages of consideration and accordingly, the PT5 capital plan includes no specific investments for their implementation. Examples of opportunities include:

- Passenger-only service from Royal Bay in Colwood to Ship Point in downtown Victoria, and from Royal Bay to Esquimalt Harbour at Canadian Forces Base Esquimalt: The vision for this service is an operation similar to the existing seabus service in Vancouver, providing a quick, reliable, and affordable commuter service for working professionals in the capital region. This service would be a key component for an integrated transportation strategy for southern Vancouver Island.

- Intermodal partnerships with car sharing services and transit operators, to create a seamless and efficient travel experience for ferry users.
- Enhanced commercial services business through a commercial customer's contract with the Nanaimo Port Authority's existing vehicle processing centre.

Conclusions

The initiatives identified in the efficiency plan appear to be consistent with the 2012 Coastal Ferry Act Regulatory Review and corporate objectives. While we consider the opportunities within the efficiency plan to be reasonable, we observe that:

- no specific ASD opportunities have been identified;
- as a result of the significant capital cost associated with the redevelopment of the Fleet Maintenance Unit, this project should be carefully evaluated in relation to alternatives; and
- no specific timelines for full electric solutions with vessels opportunities to grow and diversify have been established.

Assessment of BC Ferries' Traffic Demand Forecasting

Traffic is the most significant driver of the financial forecasts. Included in the traffic forecast model is an elasticity mechanism which adjusts traffic projections based on forecasted rates. Figures 41 and 42 illustrate the base traffic forecasts for passenger and commercial vehicles, and total passengers, respectively, over the F2019 - F2030 period. These forecasts exclude the impact of the BC Government decision announced on February 22, 2019 to restore 2,700 round trip sailings on 10 minor and northern routes.

Figure 41

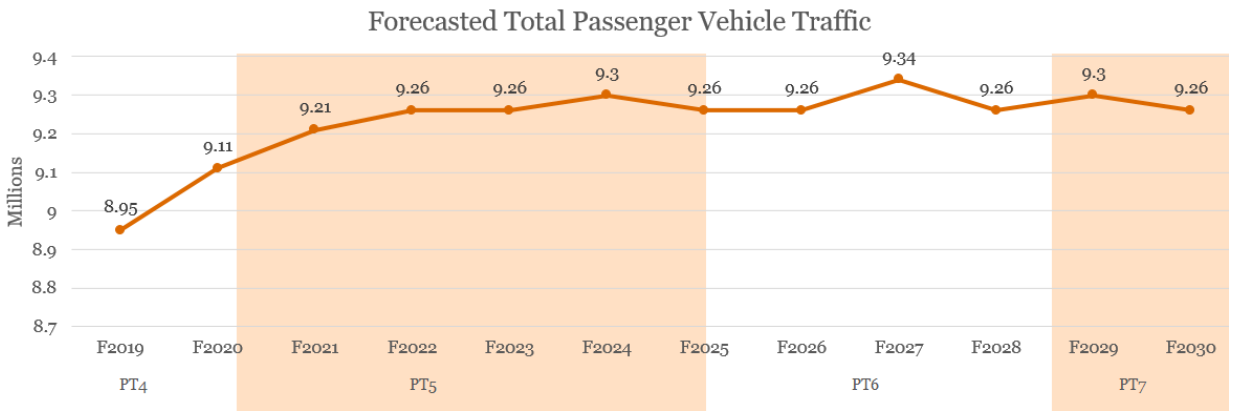
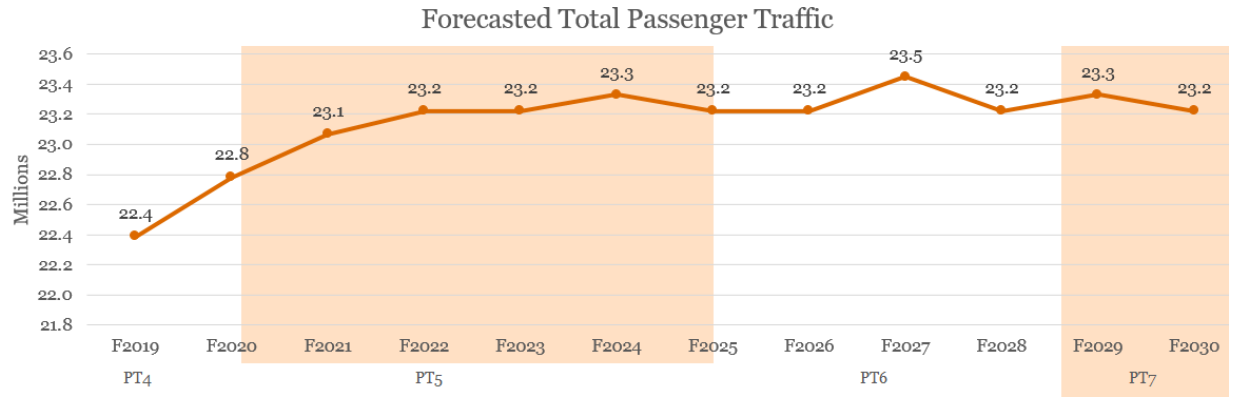


Figure 42



Overview

The traffic forecasts are split into two time components. The first was the remainder of PT4 and the second was for PT5 and onward. For the remainder of PT4, BC Ferries used detailed budget models to arrive at route-by-route forecasts. These budget models take into consideration seasonality, major events, timing of promotions, other fare changes, service changes, economic conditions and other informative factors. For PT5 onward, either econometric models were developed or long-term growth rates were developed to provide traffic forecasts for specific route groupings.

While both the PT4 and PT5 traffic demand models generated fare elasticities (as shown in the table below), they are not directly comparable, as the two demand forecasts were produced using different methods and with different sets of economic variables.

Figure 43

Route Grouping	PT4 Model Fare Elasticity	PT5 Model Fare Elasticity
Route 1	-0.230	-0.419
Route 2	-0.280	-0.326
Route 30	-0.200	-0.326
Route 3	-0.170	-0.373

The sample period used in the modelling is a key contributor to the differing results. BC Ferries limited the PT5 model sample size to eliminate problematic endogenous fares from the sample. The start date of the PT5 data sample was set to 2009, which was after several years of dynamic (endogenous) pricing, major economic events such as the 2008 financial crisis, and after a period of significant annual fare increases. Compared to the PT4 sample period, the PT5 sample period was marked by lower price variability along with the main price changes predictably occurring on the first day of each fiscal year. This more stable pricing around a higher base price than was experienced during the PT4 sample period contributed strongly to the PT5 model having higher elasticities than were estimated for PT4.

Commercial traffic forecasts were derived from BC Ferries' core passenger vehicle forecasts. Commercial and passenger vehicle traffic are strongly correlated and it is reasonable to expect this to continue in PT5. For this reason, BC Ferries used its passenger vehicle forecast when formulating its commercial vehicles forecast for the PT5 submission.

Stantec was retained by PwC on behalf of the Commissioner to assess a new approach to traffic forecasting undertaken by BC Ferries that forms part of the Performance Term Five (PT5) Submission. The scope of this assessment includes the following:

- Comment on the changes in traffic forecasting methodology between PT4 and PT5;
- Comment on PT5 traffic forecast results and associated prices elasticities; and
- Conclude and make recommendations if deemed necessary.

The assessment was conducted at a high level and was based on a review of the PT5 Submission, questions to BC Ferries and discussions with management. It did not include access to traffic forecasting models or input data used to undertake the forecasts in the PT5 submission.

Changes in Traffic Forecasting Between PT4 and PT5

Changes in Methodology

BC Ferries changed the forecasting methodology for the PT5 submission. In the PT4 submission, a Structural Time Series Model (STSM) was developed to undertake the short to medium term route traffic forecasts, while for the PT5 submission, a simpler approach was adopted with two methods to undertake the forecasts: The major routes were modelled using a Mixed Information Data Sampling (MIDAS) approach, while the routes with lower traffic volumes were modelled with the long-term growth rate method.

This revised methodology was used to forecast traffic for the remaining two years of PT4 and the entirety of PT5. For the remainder of PT4 a more granular (budget level) approach was used in addition to the more long-run macro-economic components of the forecasting approach.

The changes in the methodology were due to structural changes in the economy which limited the use of input data such as tourism and employment projections in previous modelling. The Stantec team's view is that the granularity of the PT5 traffic forecasts by the combination of MIDAS and long-term growth methodologies can satisfy the needs of setting price caps.

Changes in Explanatory Variables

1. **Removal of Retail Gas Prices and Addition of Tourism**

   According to BC Ferries, in the PT4 models, gas prices were found to be significant in most of the major route models, but this did not hold in the PT5 models. Gas prices were used in the PT4 models because of their strong correlation with the CAD/USD exchange rate, which, in turn, was strongly correlated with BC Ferries traffic. The correlation was not significant during the PT5 forecasting.

   Tourism was added to the PT5 models to reflect the strong resurgence in tourism since the Canadian Dollar depreciated significantly in 2014/2015. BC Ferries assumed that the relationship between BC Ferries traffic and the CAD/USD exchange rate could be better represented through tourism factors (in the PT5 models) than gas prices (PT4 models).

   The change to tourism as an explanatory variable can be rationalized as the gas price is only one of the influencers to the tourism activities. Also, in PT5, the separate projections of the U.S/International visitors to BC and the Canadian Residents Returning to BC could better reflect the two different sources in the tourism activities.

2. **BC Employment vs Long-Term Unemployment**

   According to BC Ferries, in the PT4 models, employment was tested as a traffic driver, but it did not end up being significant. It was thought that this was due to the sample period for the PT4 models which included the 2008 financial crisis. Because the crisis was in the PT4 sample period, long term unemployment was used to represent a structural shift/break from the 2008 financial crisis rather than a short-term measure of economic performance. For the PT5 models, the sample period started after the financial crisis, which reduced the need for a structural shift/break adjustment. This allowed for BC Employment to be included in the PT5 models and was found to be a significant traffic driver.

   For the application of Employment as a core driver, a potential consideration could be given to a more refined boundary or the occupations that have direct correlations with the BC Ferries traffic. Nevertheless, it is Stantec's opinion that the switch from Long-term Unemployment to BC Employment (in PT5) is an improvement (compared to PT4) in capturing explanatory factors behind the traffic volumes.

Other Changes

BC Ferries changed the primary dependent variables in the econometric models from the separate vehicle and foot passenger models to a passenger vehicle only approach. A stabilization of the foot passenger to vehicle passenger ratios was identified post implementation of the Rapid Transit (Canada Line) in 2009.

Though separate foot passenger and vehicle models would provide a better granularity and insights in the forecast, the simplified approach can be considered to be sufficient after careful examination in the

historical relationship between the foot passengers versus the passenger's vehicle data. The relationship is applicable given there are no major/impactful transit projects in the PT5 period to be implemented.

PT5 Forecast Results and Price Elasticities

Passenger Vehicle

The passenger vehicle forecasts in 2019 and 2020 continued to grow but at a lower rate compared to the growth rates in the fiscal years of 2017 and 2018. In the PT5 years (2021 to 2024), the passenger vehicle forecasts flattened. It is the Stantec team's view that the baseline results can reflect the trend of traffic with the slowdown of economic growth and the limitation of capacity on major routes. However, it should be noted that the uncertainty in the future such as an economic downturn may result in the traffic forecasts differing from the base scenario established in the PT5 submission.

Commercial Vehicle and Foot Passenger

The traffic forecasts were focused on the passenger vehicles for both MIDAS and long-term growth methodologies. The forecasted commercial vehicles and foot passengers were derived from the passenger vehicles forecasts in PT5.

The base growth rate for commercial vehicles was applied as the base growth rate for passenger vehicles. There were two modifications applied to the model distinguishing the commercial vehicles growth from that of the passenger vehicles:

- Seasonality adjustments were made to the fiscal years (FYs) to account for the shifting of Easter in and out of various FYs. This adjustment was opposite for commercial vehicles and passenger vehicles (Easter has a positive effect on passenger vehicle traffic while it has a negative effect on commercial vehicles).
- Passenger vehicles growth rates had an adjustment for business initiatives such as the Fare Flexibility and Digital Experience Initiative (FFDEI).

With the two modifications to distinguish the trend of commercial vehicles from passenger vehicles, the resulting commercial vehicle demands is considered reasonable.

The base growth rate for total passengers was applied as the base growth rate for passenger vehicles with the following adjustments:

- Similar to passenger vehicle forecast, total passenger growth was expected to be above the base growth level due to incremental traffic from FFDEI.
- The seasonality adjustments made to passenger vehicles were also made to total passengers.

This forecasting method for total passenger is a common practice and widely applied. However, we did not have access to the vehicle occupancy information nor was it documented in the submission. It is a general trend that vehicle occupancies increase slightly due to the introduction and implementation of more HOV lanes, which might lead to a minor uptick in the total passengers.

Senior Passengers

It is noted that a significant demographic change – the increasing of the senior population in the total population – was accounted in the forecasts. In the PT5 forecasts, seniors were assumed to grow at a rate consistent with BC Stats demographic projections. An adjustment was made to adult passenger traffic to account for adults transitioning into seniors. Though there are more sophisticated ways to estimate the senior passengers, this simplified method of applying the BC Stats projections is considered acceptable.

Elasticities

Elasticities for major routes were directly obtained from the MIDAS model coefficient for real fares. Real fares were the average fare for 2 adult passengers and a standard-length passenger vehicle. Though the estimated elasticities for the major routes ranging from -30% to -40% were significantly reduced compared to the correspondent PT4 elasticities ranging from -5% to -20%, it is assumed that the higher fare in PT5 could be the reason.

The elasticities for the minor and northern routes were not re-estimated for PT5. Elasticities from the PT4 models were used.

Though different methodologies were applied in estimating the elasticities, they all appear reasonable and fall within an acceptable range.

Impact of the FFDEI & Seniors Program on Traffic

The MIDAS model does not factor in the impact of the FFDEI program and the Seniors Discount Program. The traffic impact of these two programs is very small in PT5 on a relative basis. Going forward accounting for these initiatives may become more important as they grow in significance.

Figure 44

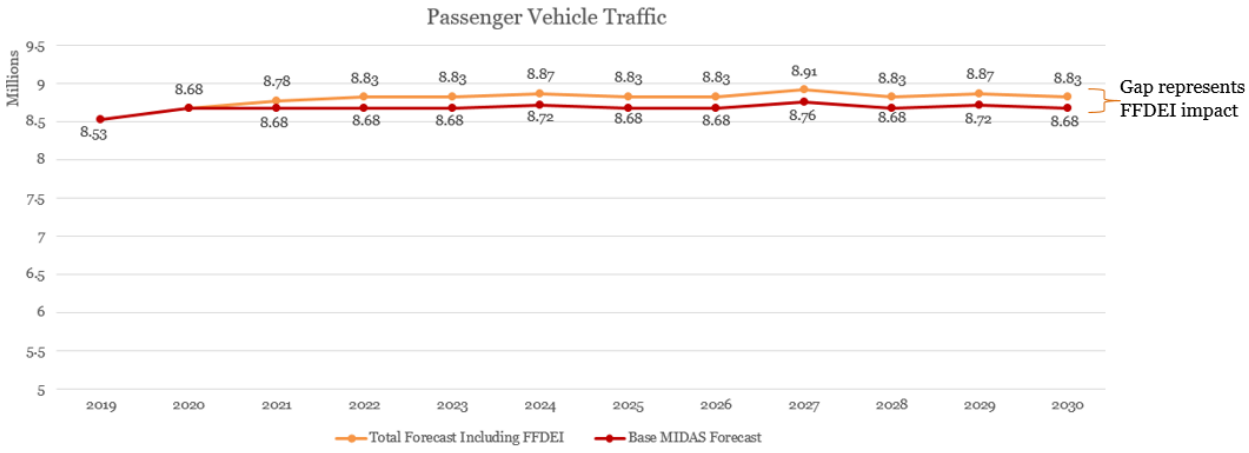
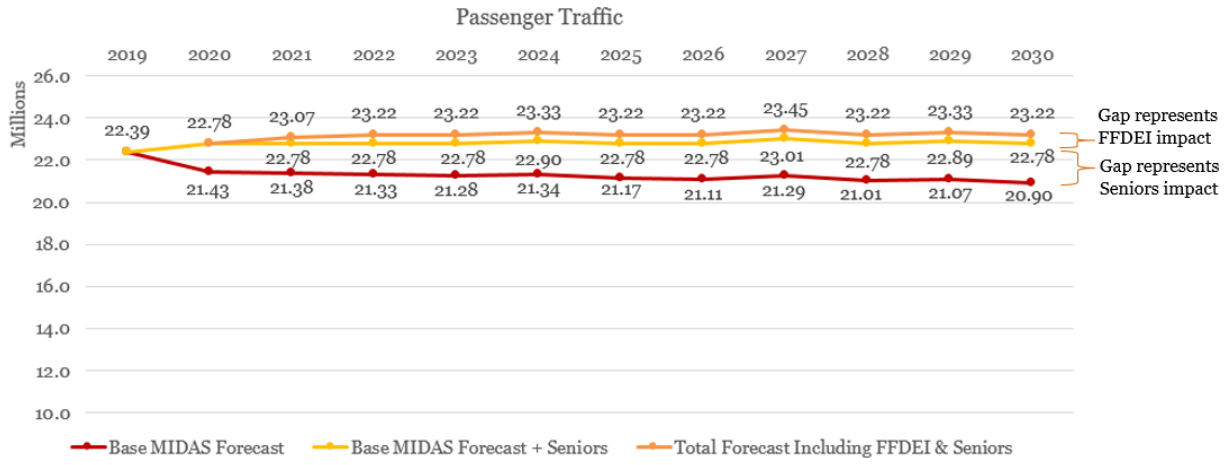


Figure 45



Conclusions and Recommendations

Notwithstanding some reservations, the methodologies and results in the PT5 submissions are acceptable. BC Ferries' demand forecasting methodology and its associated assumptions in the PT5 submission are considered appropriate for the purpose of price cap setting. Nevertheless, below are some recommendations to the traffic forecasting methodologies:

- Add a capacity constraint to the econometric model, given the at/close to capacity operation for some routes during the peak periods;
- A holistic model for the total passenger travel activities between the mainland and various islands, which can specify different trip purposes, modes, and with more detailed social-economic inputs, can be beneficial to estimate the elasticities and forecasting long-term demands; and
- Scenario modelling can be used to add more context to the baseline scenario, such as to investigate the level of economic downturn's effects on the traffic demand.

BC Ferry Commission's PT5 Price Cap Assumptions

The PT5 plan represents the Company's strategic direction to provide a sustainable and responsive service. The plan was developed in support of stable and affordable fares.

BC Ferries' PT5 LT Forecast model is a comprehensive model based on the current service plan defined in accordance with the CFSC and contains the following key components and assumptions:

- Provincial contribution - service fees and social programs continue as do contracted route fees and a federal subsidy
- Traffic Growth - based on traffic modelling that result in incremental growth in PT5
- Revenues - based on traffic forecast, assumed price cap and ancillary services
- Operating expenses - based on labour expenses consistent with the collective agreement to F2020, other operating expenses indexed to inflation, fuel prices based on forecasts, and fleet and terminal maintenance plans
- Borrowing requirements - approximately $1 billion by the end of PT5 based on long term bond rates
- Capital Plan - based on the 12-year Capital Plan reflective of fleet and terminal requirements and key initiatives

BC Ferries have developed the model that is linked to its Long Term Revenue Model whereby base year results are linked back to historical results and are reconcilable to its general ledger and audited financial statements.

The forecasts exclude the impact of the BC government decision to restore 2,700 round trip sailings on 10 minor and northern routes ferry routes that were cut in 2014 announced on February 22, 2019. BC Ferries have advised PwC that the revenue impact will be neutral as a result of contributions from the Province.

PwC has not audited a financial forecast model provided by BC Ferries to the Commission. However, we have:

- Discussed the model with BC Ferries management;
- Correlated the price elasticities contained in BC Ferries' Demand Forecasting Analysis to the model;
- Confirmed the opening equity balance in the model based on the F2018 projected results;
- Agreed capital plan balances to the 12-year Capital Plan;
- Agreed debt amounts and interests rates to the PT5 Submission;
- Checked sample formulas and calculations with a focus on tariff revenues and debt calculations; and
- Reviewed year-over-year variances for reasonableness.

The Commissioner has asked PwC to assess a number of scenarios to arrive at a Commission base case. The primary objective of the assessment is to establish rates that reflect a balance between rate affordability, maintaining service levels and meeting demand, and allowing BC Ferries to satisfy its debt covenants, maintain its high credit rating and meet financial sustainability objectives.

The PT5 price cap has been targeted to meet a DSCR>2.5x and leverage ratio<82.5% at the end of the performance term. The DSCR target is based on maintaining the current debt rating. This results in a

financial model scenario whereby PT5 fares are set at 2.3%, slightly above the Bank of Canada long term rate of inflation of 2%.

Key Assumptions

The key assumptions are summarized in the following table. The model is based on BC Ferries' base forecasts including an opening equity of $578.4M in F2019. This figure agrees with the total equity amount per the FY2018 audited financial statements.

Figure 46

	F2021	F2022	F2023	F2024
Price Cap	2.30%	2.30%	2.30%	2.30%
Additional Traffic Growth	1.12%	0.50%	-0.10%	0.37%
Ferry Transportation Fees	155.4M	155.4M	155.4M	155.4M
Seniors Yield Adjustment	($10.2M)	($10.2M)	($10.2M)	($10.2M)
Diesel Price per Litre	$1.030	$1.043	$1.047	$1.050
Productivity Target	1.00%	1.00%	1.00%	1.00%

The Commissioner's forecasts based on these assumptions are shown in the following table. The forecasts exclude the impact of the BC Government decision announced on February 22, 2019 to restore 2,700 round trip sailings on 10 ferry routes that were cut in 2014. The impact of the decision is expected to be revenue neutral to BC Ferries as the Company will be compensated for any route losses.

Figure 47

Financial Results ($million)	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024
Total Revenue	951.4	969.9	989.9	1,006.0	1,029.1
Total Expenses	918.4	936.7	965.1	990.4	1,027.2
Net Earnings	33.0	33.2	24.8	15.6	1.9

Figure 48

Debt Covenants	F2020	F2021	F2022	F2023	F2024
Debt to Capitalization	72.1%	73.0%	73.8%	75.7%	77.3%
Debt Service Coverage Ratio	2.61x	2.91x	3.07x	2.78x	2.50x

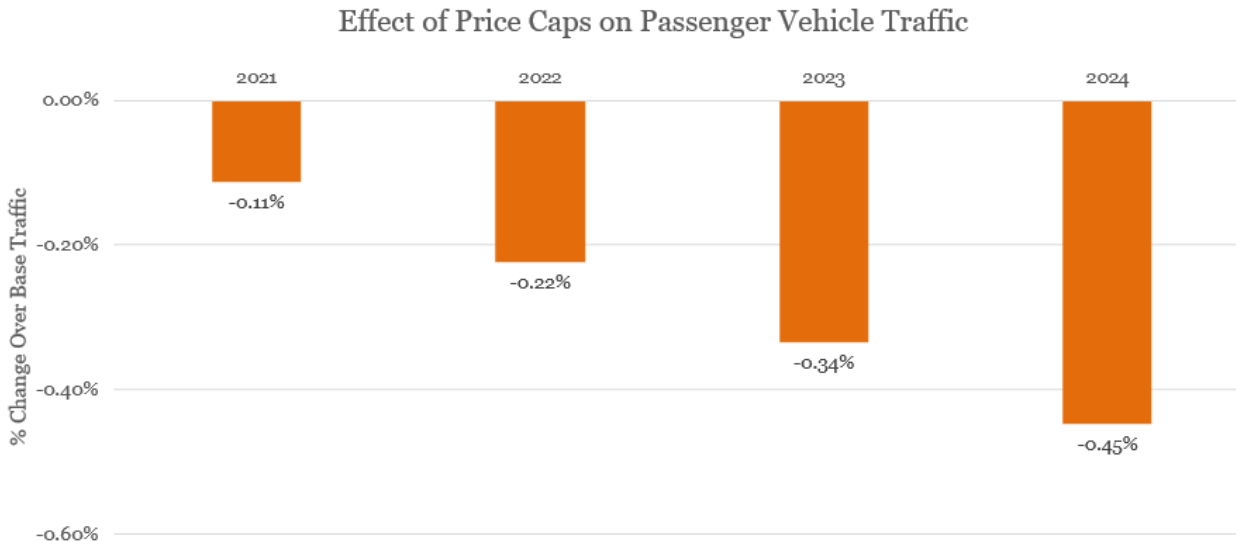
Commissioner's Price Cap Effects on Traffic

The BC Ferries forecast model is designed such that an increase of price caps over the current level of 1.90% will result in decreases in traffic based on elasticity factors estimated by BC Ferries.

BC Ferries has different elasticity assumptions for Passenger Vehicle, Commercial Vehicle, and Passenger segments. BC Ferries has assumed there is zero elasticity for commercial traffic and minor routes which translates into no impact on commercial traffic and minor routes as a result of price cap increases.

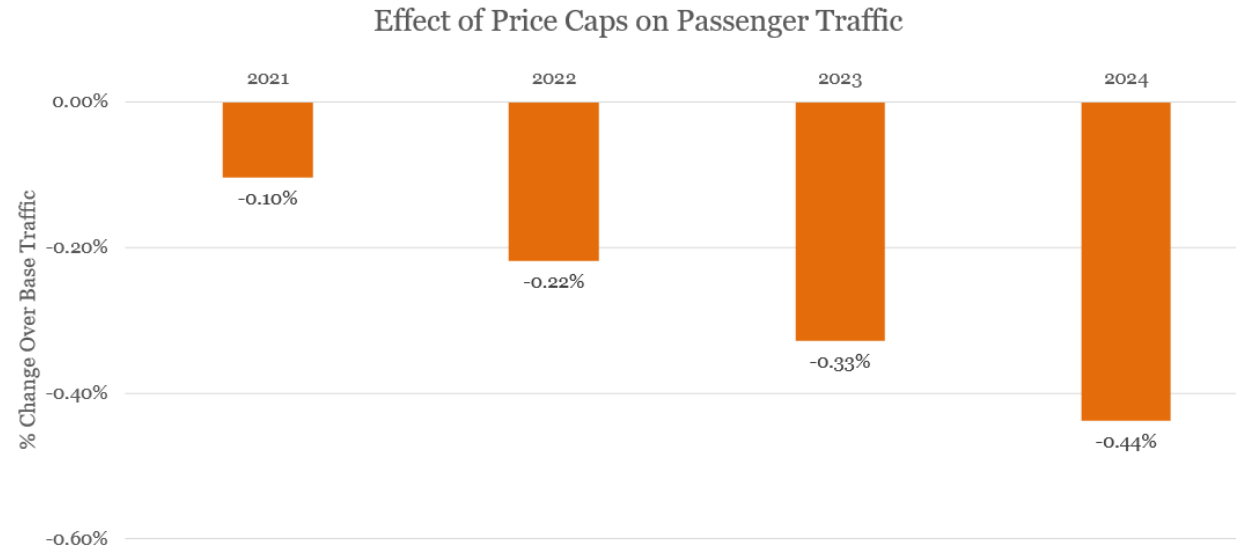
As illustrated in Figure 49, passenger vehicle traffic is estimated to decrease an average of 0.28% compared to base traffic as the result of higher price caps.

Figure 49



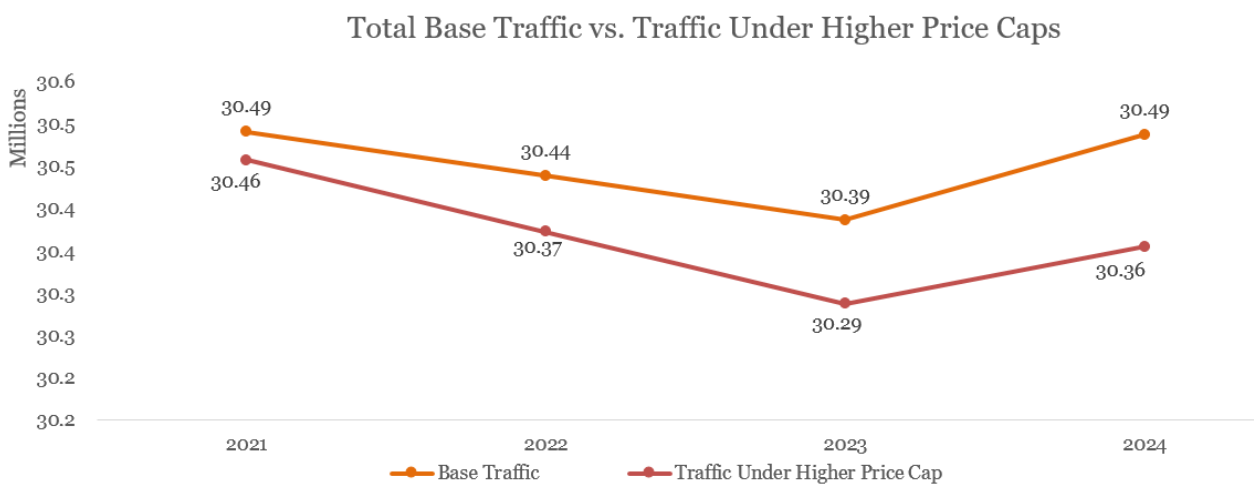
An increase in price caps results in a larger impact on passenger traffic as illustrated in Figure 50

Figure 50



As illustrated in Figure 51, increases in price caps above the current 1.90% base in PT5 and results in an increasing divergence of volumes from the base traffic amounts. The difference is forecast to accumulate to 132,2691 passengers by the end of PT5.

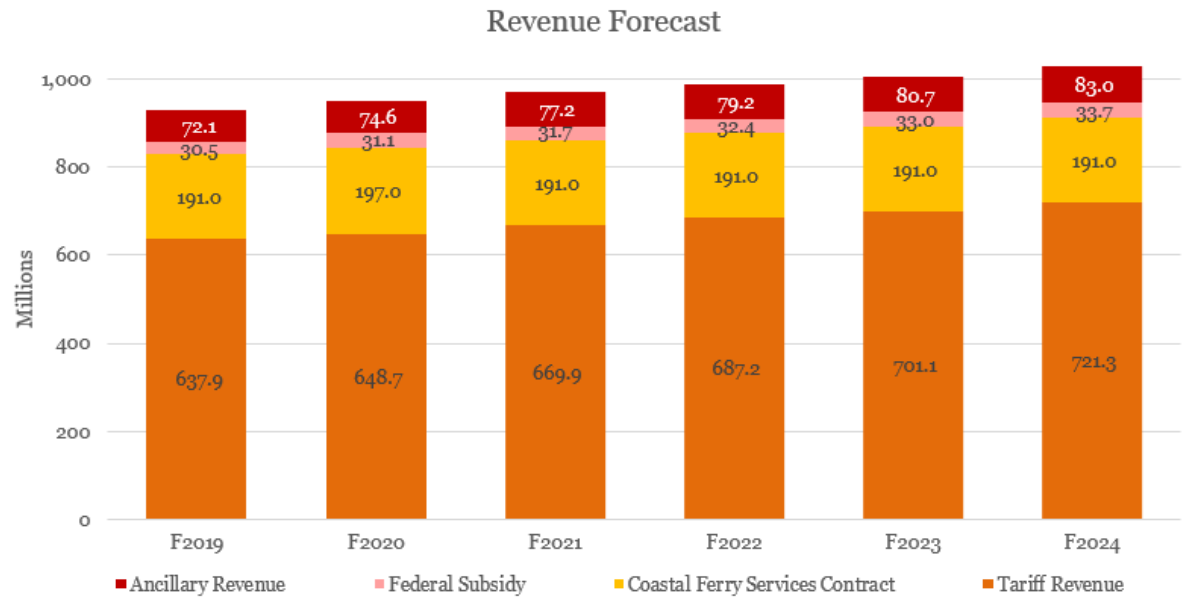
Figure 51



Total Revenue

Figure 52 illustrates the projected composition of total revenue for the remainder of PT4 and for the duration of PT5.

Figure 52



Tariff Revenue

The largest revenue source for BC Ferries is vehicle and passenger fares which, in combination with reservation fees, comprise a total of 69% of the forecasted revenue in F2019. Tariff and reservation revenues are most sensitive to changes in price cap levels, changes in traffic levels, the percentage of traffic on high and low margin routes as well as the implementation of promotional fare programs. Growth in revenue from tariffs and reservations has tapered off and is projected to remain relatively flat in the period between F2019 and F2024. The annual change in revenue is driven by increases/decreases in

traffic and the growth rate in passenger, passenger vehicle, and commercial vehicle is all projected to decline. The table below summarizes the forecasted growth rates in traffic with a same price cap assumption throughout the forecast period:

Figure 53

	F2019	F2020	F2021	F2022	F2023	F2024
%Δ Traffic	1.92%	1.75%	1.12%	0.51%	-0.10%	0.38%

Impact of Time of Day Pricing

The proposed change to free reservations and time-of-day pricing is intended to be yield neutral and traffic positive as compared with the existing pricing structure consisting of paid reservations and a standard-rate drive-up fare. Customers will have additional choices for advance booking, including discounts for reserving on less busy sailings, a standard fare for other sailings, and a higher-priced fare product that allows flexibility to change bookings without penalty and other benefits that are yet to be determined.

To be traffic positive, the structure needs to provide sufficient discounting on off-peak sailings to entice travelers to shift to those sailings, allowing space for more time-sensitive travelers to fill the peak sailings. It is also expected that discounted advance purchase fares will help to grow traffic and revenue overall.

To be yield neutral despite no-charge advance booking, the Company must offer a range of fare products whose expected fare mix and average yields overcome the lost revenue from reservations. BC Ferries believes that the price choices available to customers will ensure that this is achievable. BC Ferries is deploying revenue management software that will enable it to control the mix of fare products and prices at a sailing level, providing it with significantly more demand management capability and pricing flexibility than it has today.

The projected net impact of the new pricing structure, including traffic and yield considerations described, is set out below:

Figure 54

Impact of New Pricing Structure *($Millions)*	F2020	F2021	F2022	F2023	F2024
Fare Flexibility and Digital Experience Initiative (FFDEI) Revenue	$1.20	$7.41	$11.36	$11.68	$11.89

Ancillary Revenue

Ancillary revenues represent approximately 8.0% of the forecasted revenue in F2019. In addition to fares and reservation revenues for transportation services, BC Ferries earns revenues from non-regulated ancillary goods and services. Catering and retail sales, both on and off the vessels make up the majority of these revenues. Other revenue generating activities include parking, vacation package revenue and hosteling. Although these revenues are not regulated, they reduce upward pressure on fares and are thus an important component of the forecasts used in the financial model for the purposes of setting price caps.

Ancillary revenues increased by 8.2% in F2018 primarily due to increased catering and retail sales on the major routes driven by higher traffic and average sales per passenger. Ancillary revenue is forecast to grow by 3.1% in F2019 as traffic levels continue to increase and as the expanded retail space on the Spirit of British Columbia performs as expected. Ancillary revenue is forecast to grow by 3.5% in F2020 with higher traffic and an expansion of retail space on the Spirit of Vancouver Island.

Provincial Service Fees

Provincial service fees under the Coastal Ferry Service Contract represented 21% of total forecasted revenues in F2019. Ferry transportation fees are paid to BC Ferries in exchange for providing service on each regulated ferry service route. Other components of provincial contributions include Route 28 & Route 11 and Contracted Route Fees. Additional service fees include the Senior Fare Initiative and Fare Initiatives. Under the Commissioner's assumptions, all provincial contributions including additional service fees will remain flat for PT5.

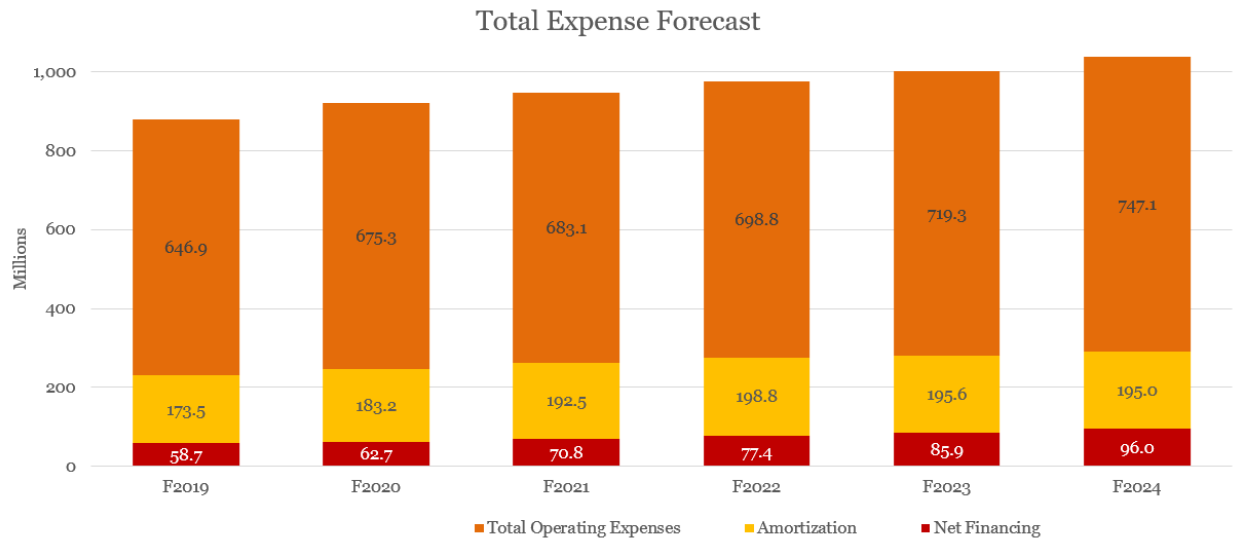
Federal Contract

Revenues from the Federal Contract represent 3% of total forecasted revenues in F2019. The Federal Contract exists in perpetuity for the provision of ferry services in BC. The annual payments are subject to growth at the rate of growth of the Vancouver Consumer Price Index. In the base case model 2.0% per annum increases have been assumed over the duration of PT5.

Expenses

Figure 55 illustrates projected composition of total expenses for the remainder of PT4 and for the duration of PT5. Total expenses exclude efficiency targets.

Figure 55



Salaries, Wages & Benefits

Salaries, Wages & Benefits represent 59% of total operating expenses or 43% of total expenses including amortization and net financing expense in F2019. Labour expense increases are pending renegotiation of the collective agreement with the BC Ferry and Marine Workers' Union. The current collective labour agreement expires in October 2020. The five-year deal reached in 2015 had a wage increase of 8.55% over the length of the contract, along with increases in health and welfare benefits. The Salaries, Wages & Benefits described do not include provincial increases to MSP and Payroll Tax or additional labour costs related to Strategic Initiatives that are described separately from base O,M & A expenses.

Fuel Costs

Fuel costs represent 17% of total operating expenses or 12% of total expenses including amortization and net financing expense. A comprehensive analysis of fuel costs is provided in the section dealing with the

Assessment of Fuel Management Plan Outcomes in Performance Term Four. There will be a 6% increase in fuel costs in F2019 due to significantly higher diesel prices forecasted and higher overall fuel consumption from additional round trips. These increases are partially offset by gains from diesel hedging and higher proportions of LNG consumption. In F2020 there is a 1% decline in fuel costs primarily due to the conversion of vessels to duel-fuel propulsion which will increase the proportion of LNG consumption. From F2021 onwards increases in fuel range from 1%-3%, primarily driven by fluctuations in fuel costs.

Diesel commodity forecasts are an average of the Futures Curve Forecast, Consensus Economic Forecast, and Reserve Evaluators for WTI Forecast. The full diesel cost is the diesel commodity forecast price plus a total margin, basis, bridging and tax component. LNG commodity forecasts are an average of the Futures Curve Forecast and Reserve Evaluators HH Forecast. The full LNG cost is the LNG commodity forecast price plus a total margin, delivery, discounts, and fixed taxes component. Forecasts only apply for the duration of PT5, beyond PT5 fuel costs increase at the rate of inflation. PwC were able to agree the averaging for diesel and LNG to the forecasts.

Figure 56

Diesel Procurement Cost Breakdown: Futures Curve

	Futures Curve F2021
WTI (USD/bbl) (1)	61.88
CAD/USD (2)	1.26
WTI (CAD/bbl)	78.0
Conversion Rate (bbl to L)	159
WTI (CAD/L)	0.49
Vancouver Rack Spread ($ / litre)	0.327
Net Bridging (3)	(0.021)
Total fixed $ / Litre taxes (4)	0.185
Total fixed $ / Litre added to commodity price	0.491
Diesel Price before GST	0.9809
GST Rate	5%
GST	0.05
Diesel Price after GST	1.030

1 Price based on average implied Futures Curve, Consensus, and Oil Forecasters forecast results as of August 31, 2018

2 Foreign exchange forward curve is based on the average USD/CAD forward contract for August 31, 2018

3 Weighted Average Bridging Costs

4 Carbon Tax and Excise & Motor Fuel Tax less Trailing Excise Tax Rebate

Figure 57

LNG Procurement Cost Breakdown: Futures Curve

	Futures Curve F2021
HH NG (USD/MMBtu)	3.01
CAD/USD (2)	1.26
HH NG (CAD/MMBtu)	3.78
Conversion Rate (MMBtu to GJ)	1.055
NG (CAD/GJ)	3.59
Conversion Rate (GJ to DLE)	25.9
NG (CAD/DLE)	0.138
HH-Sumas Spread	-0.04
Liquifaction, Delivery (CAD/DLE)	0.26
Carbon Tax (CAD/DLE)	0.09
Total fixed $ / DLE added to commodity price	0.31
LNG Price before GST	0.447
GST Rate	5%
GST	0.022
LNG Price After GST	0.469

1 Futures curve prices are based on the average Henry Hub settlement for August 31,, 2018

2 Foreign exchange forward curve is based on the average USD/CAD forward contract for August 31,, 2018

Figure 58

PT5 Fuel Forecast	F2021	F2022	F2023	F2024
Diesel Forecast	1.030	1.043	1.047	1.050
LNG Forecast	0.469	0.487	0.495	0.504

Figure 59

Fuel Set Price Comparison	F2021	F2022	F2023	F2024
PT4 Diesel $/Litre	0.92	0.93	0.95	0.97
PT5 Diesel $/Litre	1.03	1.04	1.05	1.05
% Difference	**12.57%**	**11.79%**	**9.98%**	**8.14%**
PT4 LNG $/DLE	0.464	0.473	0.483	0.492
PT5 LNG $/DLE	0.469	0.487	0.495	0.504
% Difference	**1.08%**	**2.96%**	**2.48%**	**2.44%**

Figure 60

Carbon Tax	F2021	F2022	F2023	F2024
Diesel Carbon Tax ($/L)	0.1150	0.1280	0.1304	0.1330
Total % of Diesel Cost	11%	12%	12%	13%
Carbon Tax $ Cost - Diesel	$10.80	$11.80	$12.00	$11.40
LNG Carbon Tax ($/DLE)	0.089	0.098	0.098	0.098
Total % of LNG Cost	19%	20%	20%	20%
Carbon Tax $ Cost - LNG	$2.80	$3.40	$3.40	$5.30
Total Carbon Tax $ Cost	**$13.60**	**$15.20**	**$15.40**	**$16.70**

* Beginning April 1, 2018, B.C.'s carbon tax rate is $35 per tonne of carbon dioxide equivalent emissions. The tax rate will increase each year by $5 per tonne until it reaches $50 per tonne in 2021.

Other Expenses

Other expenses comprise 24% of total operating expenses or 18% of total expenses including amortization and net financing expense. Other expenses include materials & supplies, contracted services, insurance tax and utilities, forecast / business case adjustments, MSP and Payroll Health Tax and operating expenses due to strategic initiatives. Growth in other expenses is forecast to range from -1.7% to 7.4% over the remainder of PT4 and duration of PT5, averaging 2.8% per year. The large variability is primarily due to strategic initiative expenses; excluding strategic initiatives expenses, growth ranges from -8.9% to 4.0%, averaging 1.2% per year.

Amortization

Amortization expense represents 20% of total expenses in F2019. Amortization expense is expected to increase from F2020 to F2022 which coincides with significant capital expenditures planned in those years. As several vessels are retired and replaced, new assets coming into service drives the higher depreciation and amortization growth rates, ranging from 3%-9% through F2022 and then taper off to the end of PT5.

Financing Expense

Financing expense represents 6.7% of total expenses in F2019. An increase in finance expense is projected in PT5 due to additional financing required for significant capital expenditures totalling ~$3.9 billion over the next 12 years.

PwC has correlated interest rate forecast used in the forecast model against Bloomberg forecasts for AA rates bonds. The interest rate forecast reflects the yield curve which is upwards sloping but still relatively flat.

Increases in Operating Expenses above the rate of inflation

Growth in operating expenses above the inflationary rate of 2 percent in PT5 is the result planned business initiatives, variability in the refit schedule, project training and feasibility, or other adjustments such as the payroll health tax.

- F2022 (2.3 percent): The main incremental expenses are the Bowen Class replacements and a full year of incremental labour expenses related to providing the new amenities and ticketing services at the Langdale terminal.
- F2023 (2.9 percent): The reason for the increase is high project training and expenses related to the introduction of the new major vessels.

- F2024 (3.7 percent): The incremental expense is largely related to operating an incremental major vessel (includes the expenses of two C-Class vessels year-round on Route 3 (Langdale-Horseshoe Bay), and five-vessel service in the summer on Route 1 (Swartz Bay - Tsawwassen), and continued project training expense to introduce the new major vessels.
- F2025 (2.0 percent): Expenses are higher than the prior year, as the full year's impact is seen on the added expenses related to the incremental major vessel, and are offset partly by a reduction in training expenses as project training for the new major vessels is complete.
- F2028 (3.3 percent): F2028 is forecast to be an unusually high refit year (in accordance with the long-range maintenance plan), with refit expenses higher than the years prior and subsequent.

Depreciation & Amortization and Net Financing expenses also experience years in which they are projected to grow faster than 2 percent annually. Net Financing expense is forecast to grow by more than 2 percent in all years of PT5 and for the first and last years of PT6.

Increases in Depreciation & Amortization reflect new assets going into service with depreciation expenses on the new assets higher than the depreciation expenses of the retiring assets. Increases in Net Financing expense reflect the increased debt requirements, which are the result of capital spending in excess of cash flow generated by operating activities.

Summary Variance Analysis

Figure 61

Opex Summary $ Millions	F2018	F2019	%Δ	F2020	%Δ	F2021	%Δ	F2022	%Δ	F2023	%Δ	F2024	%Δ
O, M & A	**624.6**	**639.7**	**2%**	**652.1**	**2%**	**666**	**2%**	**678.6**	**2%**	**690.5**	**2%**	**705.4**	**2%**
Adjustments & Additional Expenses**	6.5	7	0%	23.2	2%	17.1	-2%	20.2	0%	28.8	1%	41.7	2%
Operating Expenses*	**631.1**	**646.7**	**2%**	**675.3**	**4%**	**683.1**	**0%**	**698.8**	**2%**	**719.3**	**3%**	**747.1**	**4%**

*Total operating expenses exclude efficiency targets.
**Adjustments & Additional expenses include MSP and Payroll Health Tax as well as Operating Expenses due to Strategic Initiatives.

Loss/(Gain) on Disposal

The loss on disposal and revaluation of property, plant and equipment and intangible assets are primarily due to capital assets impairments.

Net Earnings

Net earnings is forecasted to decrease over the next five years as operating expenses and financing costs continue to grow at a faster rate than revenue.

Debt & Credit Ratings

The following table outlines the forecast for debt repayment, new issuances, and annual net change in debt through the end of F2028 based on the PT5 submission and its assumptions. Actuals may vary with changes to revenues, operating expenditures, and capital expenditures.

Figure 62

Changes in Debt	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028
New Issuance	-	250	200	150	250	200	100	-	100	-
Repayment	-37	-60	(47)	(14)	(14)	(14)	(14)	(13)	(12)	(12)
Net Change in LT Debt	**-37**	**190**	**153**	**136**	**236**	**186**	**86**	**(13)**	**88**	**(12)**
Cumulative	**-37**	**153**	**306**	**442**	**678**	**864**	**950**	**937**	**1024**	**1,012**

Price caps are established with the intention of allowing BC Ferries to achieve by the end of the performance term target debt which is not higher than 82.5% of total capitalization and a debt service coverage ratio which is 2.50:1 or higher.

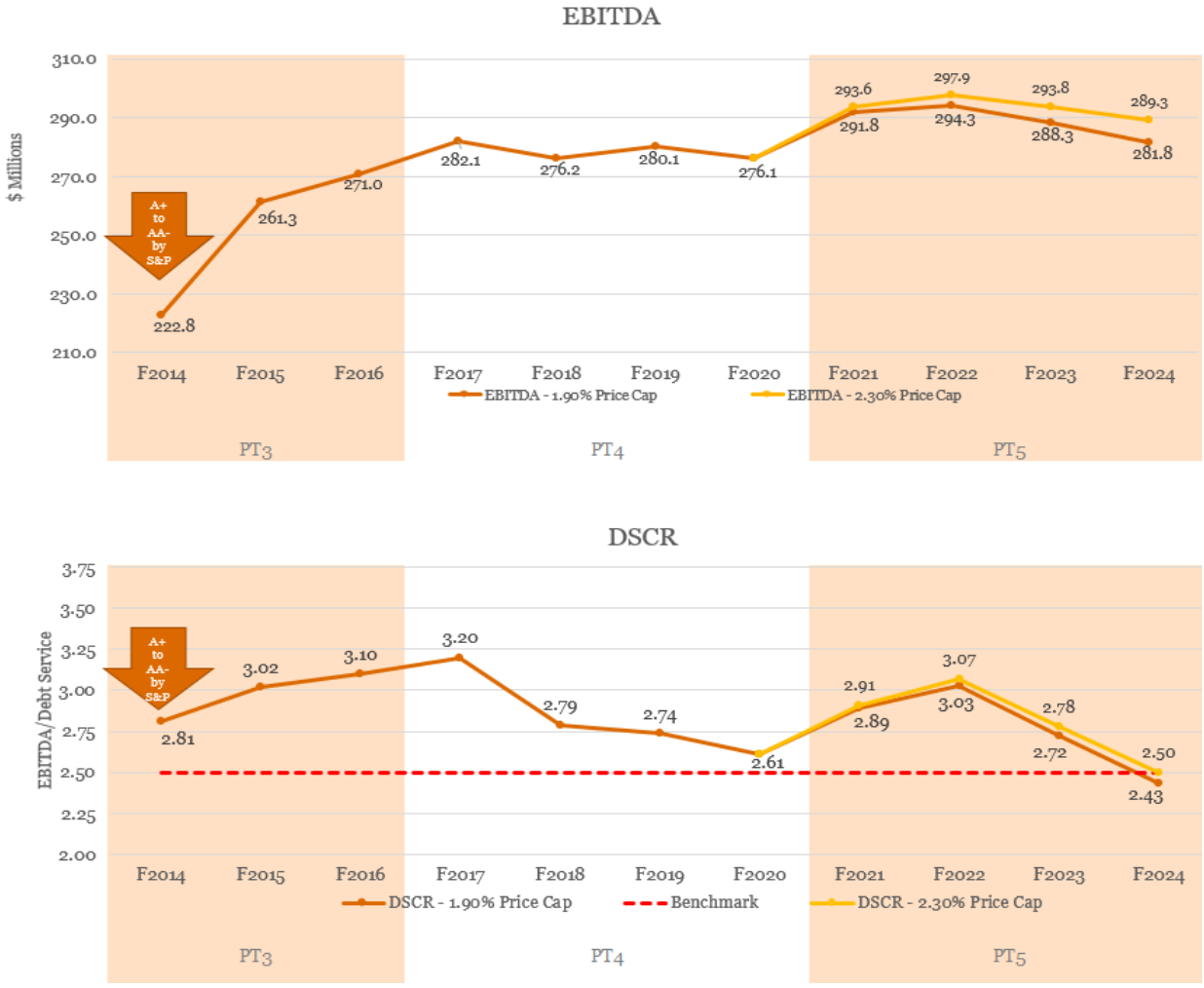
Figure 63 and Figure 64 illustrates the debt to capital and debt service coverage ratios under the model based on a 1.90% price cap and no indexation of provincial fees. The total debt target of 82.5% is met but DSCR of 2.50x falls short. (This is the main reason why price caps are set slightly higher than the forecasted rate of inflation.) The actual bond covenants are met in each year during PT5.

Figure 63

PT5 Debt Covenants	F2021	F2022	F2023	F2024
Debt to Capitalization	73.0%	74.0%	76.0%	77.8%
Debt Service Coverage Ratio	2.89x	3.03x	2.72x	2.43x

There are a number of factors that will influence the credit rating. Below is a graph that shows BC Ferries' historical and forecasted EBITDA and DSCR based on a 1.90% price cap assumption with no indexation of provincial fees. It shows the approximate timing of the upgrades to the A+ and AA- ratings. It also shows cash flows declining to levels closer to the previous A+ rating. This analysis is again indicative only, as there are a number of adjustments to EBITDA that are made in the calculation of the debt covenants.

Figure 64



Efficiency Targets for PT5

BC Ferries is expecting fuel efficiencies from conversion to LNG and maintenance efficiencies from redevelopment of the Fleet Maintenance Unit. PT5 initiatives including the addition of an incremental vessel and the Fare Flexibility & Digital Experience Initiative ("FFDEI") are also expected to generate efficiencies.

The shift from diesel to LNG generates a decreased reliance in diesel and reduction/lower rate of increase in overall fuel cost. In addition, the Fleet Maintenance Unit site development is projected to generate incremental reductions in operating expenses due to efficiencies related to vessel maintenance expense.

Figure 65

PT5 Efficiencies ($millions)	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028	F2029	F2030
Diesel to LNG												
Diesel	$101.7	$94.6	$96.5	$96.2	$96.5	$89.7	$69.4	$66.8	$68.1	$69.5	$70.9	$72.3
LNG	$7.2	$13.3	$14.8	$16.7	$17.0	$27.2	$43.7	$47.7	$48.7	$49.6	$50.6	$51.6
Total Fuel Cost	**$108.9**	**$107.9**	**$111.4**	**$112.9**	**$113.6**	**$116.9**	**$113.1**	**$114.5**	**$116.8**	**$119.1**	**$121.5**	**$123.9**
FMU Development												
Reduction in OPEX	$0.0	$0.0	-$1.1	-$1.2	-$2.7	-$2.5	-$2.5	-$2.6	-$2.6	-$2.7	-$2.7	-$2.8

The two initiatives are also expected to drive incremental revenue as shown in the following table.

Figure 66

Initiative Revenue ($millions)	F2019	F2020	F2021	F2022	F2023	F2024	F2025	F2026	F2027	F2028	F2029	F2030
Incremental Vessel	-	-	-	-	-	$3.8	$3.9	$4.0	$4.1	$4.2	$4.3	$4.4
FFDEI	-	$1.2	$7.4	$11.4	$11.7	$11.9	$12.1	$12.3	$12.5	$12.8	$13.0	$13.2
Total Revenue	**-**	**$1.2**	**$7.4**	**$11.4**	**$11.7**	**$15.7**	**$16.0**	**$16.3**	**$16.6**	**$17.0**	**$17.3**	**$17.6**

Commission's Efficiency Target

The Commissioner has set a 1% efficiency target aimed at reducing total operating expenses by the same percentage. This is consistent with targets set in PT4 (efficiency gains of $4.9 million/year and productivity gains of $2.0 million/year). Setting a percentage target as opposed to a dollar amount target allows for more flexibility if operating expenses fluctuate.

An example of an area that BC Ferries could focus on to achieve the efficiency target in PT5 is labour costs. Labour costs have tended to be correlated with traffic. However, labour costs have increased at much higher rates than traffic in F2017 and F2018 as outlined below.

Figure 67

Comparison of Growth Rates	F2015	F2016	F2017	F2018
Vehicle Traffic	0.6%	4.9%	2.9%	5.0%
Passenger Traffic	0.5%	4.5%	1.7%	4.7%
Labour	0.6%	4.7%	4.0%	7.0%
% Sailings Overloaded	8.5%	9.5%	10.3%	12.4%
Overall Capacity Utilization	51.9%	54.1%	62.0%	65.2%

The higher rates of increase in labour is primarily the result of increased overtime that peaked in F2018 with high traffic. Unscheduled overtime was highest in the peak summer months as a result of increased oversailings on the major routes and a number of the busier minor routes.

Figure 68

PT4 Growth in Actual Labour, Overtime, Overloads and Utilization	F2016	F2017	F2018
Labour	4.6%	4.4%	6.9%
Unscheduled Overtime	21.6%	12.6%	2.3%
Scheduled Overtime	4.6%	10.3%	19.8%
Labour Costs Per Sailing	$4,333	$4,466	$4,704

The following graph shows operating costs per sailing over the F2016 - F2024 period. OM&A costs per sailing peak in F2020 but then moderate from there. In contrast Salaries, Wages & Benefits per sailing are maintained at F2020 levels. As growth in traffic flattens out in PT5, there appears to be scope to explore efficiencies with reducing overtime hours.

Bringing labour cost back in line with pre-F2019 results, particularly through a reduction in the scheduled and unscheduled overtime, can be expected to deliver the 1% efficiency target, and possibly more.

Figure 69

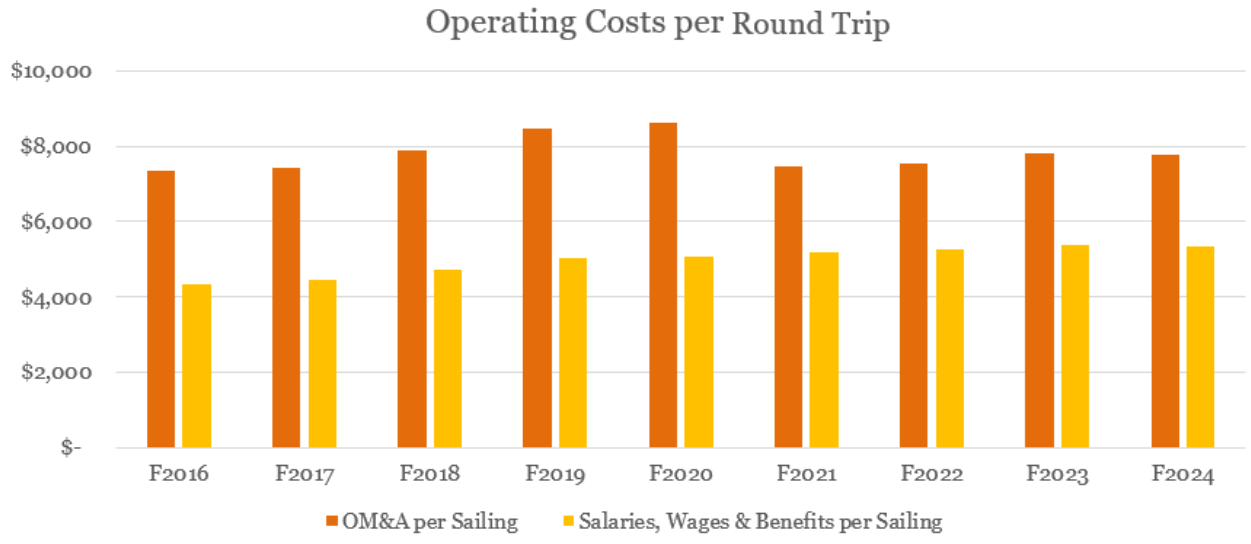


Figure 70

	F2016	F2017	F2018	F2019	F2020	F2021	F2022	F2023	F2024
OM&A per Round Trip	$7,331	$7,411	$7,875	$8,168	$8,526	$8,538	$7,929	$8,161	$8,456
Salaries per Round Trip	$4,333	$4,466	$4,704	$4,831	$5,079	$5,097	$4,797	$4,883	$5,087

Alternative Service Providers

In PT5, service on Route 13 connecting Langdale, Gambier and Keats will continue to be provided by an alternative service provider as will service on the unregulated routes specified in the Coastal Ferry Services Contract. In addition, the BC Ferries expects to continue to contract with alternative service providers for a wide range of other services including, for example, parking, food services and K9 security at certain terminals, employee travel services, and environmental services including sewage pumping and hauling. No new ASP initiatives are identified for PT5.

Conclusions

BC Ferries' forecast model was vetted and relied upon by PwC for purposes of analysis. Options were assessed based on BC Ferries' traffic and operating expense forecasts, its 12-year Capital Plan and projected debt at forecasted yields. Increases in operating expenses have been satisfactorily explained, including any increases above the rate of inflation. The methodology for forecasting fuel costs are appropriate.

Costs included in the Commissioner's PT5 forecast model as well as the Commissioner's assumptions are considerable reasonable and the forecast model can be relied on to produce reasonable and supportive projections.

The Commissioner has considered the base case information developed by PwC and has requested an assessment on whether BC Ferries will be able to satisfy debt covenants and debt ratio targets with a price cap of 2.3%, an efficiency target of 1%, an assumption that the capital program will be fully funded as presented, and an assumption of no indexing of current provincial ferry transportation fees. Based on those assumptions, a price cap of 2.3% for PT5 is considered appropriate and reasonable.