ATCO Electric
YUKON

October 27, 2023

Yukon Utilities Board
Box 31728
Whitehorse, YT Y1A 6L3

Attention: **Mr. Richard Buchan**
Chair

Re: **ATCO Electric Yukon (AEY)**
2023-2024 General Rate Application (GRA)
Response to Board Order 2023-24

Further to Board Order 2023-24 dated October 19, 2023, AEY provides the following further responses to the Information Requests, as listed below.

Direction 1: AEY shall provide further and better responses to the IRs identified in Appendices A and B attached to this Board Order

AEY Response:

This direction has been addressed below with respect to each of the Appendices.

Direction 2:

In respect of the hyperlinks contained in the Application and in some of its IR Responses, AEY is to file a separate document referencing the location (PDF page number) of the hyperlink in the Application or the IR number and PDF page number in the IR Responses.

AEY Response:

Please find enclosed a separate document referring to the location of each hyperlink in the Application or Information Response labelled as Direction 2 Attachment 1 – Hyperlink Reference Listing. As noted in the Hyperlink Reference Listing, the NWT Public Utilities Board is in the process of updating its website, and the link originally provided in response to AEY-YUB-003, footnote 3, is no longer valid. As such, AEY is unable to provide an updated link to the document, but the document itself has been provided as Reference Document 7.

Direction 3: AEY is further ordered to file the actual documents that the hyperlinks refer to.

AEY Response:

Please find enclosed the referenced documents labelled as Direction 3 – Reference Documents 1 through 20.

Direction 4: In response to IR AEY-YUB-22(a), AEY referenced BCUC Decision G236-23. For regulatory efficiency, AEY shall file that Decision on the record of this proceeding.

AEY Response:

Please find enclosed the referenced BCUC Decision labelled as Direction 4 Attachment 1 – BCUC Decision and Order G-236-23.

Directions 5 to 7: In response to AEY-YUB-046(a), the Board requested that AEY update GRA Schedule S9.2 to include references to all applicable business case numbers AEY provided in the Application. The Board notes that this appears to have largely been done; however, certain business cases for which costs appeared on multiple lines within GRA Schedule S9.2 do not include a reference to the business case. Accordingly, the Board requires AEY to respond to AEY-YUB-046(a) and "insert an additional column in GRA Schedule S9.2 providing the business case reference to each of the line items in that schedule" for all business cases.

While AEY has, in several IR Responses, confirmed that the "presentation" of certain information in GRA Schedule S9.2 is not accurate and committed to updating this information in its compliance filing.

The Board finds that those updates to GRA Schedule S9.2 to reflect the correct actual and/or forecast information for each business case or portion thereof are required before the oral hearing to ensure that the Board has a complete record.

AEY Response:

Please find enclosed a clean and blackline version of the updated Schedule 9.2 labelled as Direction 7 Attachment 1 – Schedule 9.2 Update. In preparing the Schedule 9.2

Update, AEY identified seven Business Cases that met the threshold but were inadvertently excluded from the original submission, as well as one business case that required an update. AEY has included these as references to the responses.

Board Order 2023-24 - Appendix A

AEY-UCG-004(a-b): AEY is directed to provide the information requested by UCG using a table with column headings: Project name and Business Case #; Year placed into rate base; Forecast costs in Business Case; Actual costs added to rate base; Variance explanation.

AEY Response:

Please find enclosed the requested table labelled as AEY-UCG-004(a-b) Attachment 1. Approved or Applied Forecast costs for projects for 2018-2022 are not available; therefore, there is no variance explanation for these projects included in the attachment.

AEY-UCG-004(a-b): AEY is also directed to provide an explanation to UCG of its interpretation of the provisions of the Public Utilities Act which it believes permits AEY to capitalize the non-test years capital expenditures.

AEY Response:

AEY, as a public utility service provider, has an obligation under Section 26 of the *Public Utilities Act* (the Act) which states:

> Every public utility shall maintain its property and equipment in such a condition as to provide safe, adequate, and proper service,[1]

To ensure that AEY adheres to this mandate, AEY continues to undertake necessary capital projects, even in years that fall outside a Test Year and have not yet been included in a General Rate Application for approval from the Board. When undertaking a capital project, AEY ensures that costs are prudently incurred and that the project is required to meet the needs of its customers and to ensure continued safe and reliable service.

[1] Public Utilities Act, Part 2, Section 26 – Maintenance of Property and Equipment, p. 16.

As detailed in the Application, these expenditures are capitalized in accordance with AEY's Capitalization Policy, which has been filed with the Board in this proceeding as well as prior proceedings. In a General Rate Application, AEY includes capitalized original cost, less any accumulated depreciation in its applied for opening rate base and provides details of the capital expenditures since the test period and any capital that is currently being, or planned to be, constructed or acquired within the test period.

In AEY's view, the capital expenditures it had incurred (original cost) to construct or acquire an asset and the determination of prudency of those costs is within the purview of the Board in a General Rate Applications as outlined in Section 32(3) of the Act.

> "In determining a rate base the board shall give due consideration to the cost of the property when first devoted to public utility use, to prudent acquisition cost less depreciation, amortization, or depletion, and to necessary working capital."[2]

The Board has discretion with regard to the prudency of the costs included in rate base and revenue requirement and an obligation to enable utilities to recover prudently incurred costs and earn a fair return on rate base. AEY does not believe the Board has jurisdiction to prevent the capitalization of capital expenditures as required under accounting standards under the Act.

Board Order 2023-24 - Appendix B

AEY-NY-004: The Board is of the view that at a minimum AEY should outline the steps it will take and provide timelines on how it will address this issue in the future.

AEY Response:

AEY has not indicated in this, or any prior proceedings, that it will not consider suggestions from its customers.

AEY's new billing system has gone live as of August 2023. In Q2 2024, following a stabilization period of approximately 6 months, AEY will consider Mr. Yee's suggestions

[2] Public Utilities Act, Part 2, Section 32 – Rate Base of Public Utilities, Subpart 2, p. 19.

and is committed to working with YEC to update the billing statement presentation in accordance with Board Order 2023-08, whereby AEY's and YEC's respective Rider R and Rider J amounts will be rolled into base rates. The findings in Board Order 2023-08, however, suggest that temporary adjustment riders, rate stabilization mechanisms, and government subsidies that are temporary in nature and updated from time to time should continue to be displayed separately for greater transparency.[3]

With respect to the Rider F Fuel Adjustment rider, AEY notes that once AEY's Rider R and YEC's Rider J amounts are adjusted to reflect AEY's and YEC's respective GRA approved revenue requirements (which include the latest forecast fuel prices), the Rider F Fuel Adjustment rider will virtually be reset to zero (or very close to zero, depending on residual carryovers). As the Rider R and Rider J amounts will be rolled into base rates on the billing statements and as Rider F will be close to zero, these updates should help streamline and improve the information presented on the billing statements.

AEY-NY-005: The Board is of the view that AEY has not adequately responded to this IR and directs AEY to respond to the question as originally asked.

AEY Response:

In AEY's view, the primary advantage to customers of being informed of what they are actually paying for electricity is that it allows them to make informed decisions about energy usage, including adjusting their energy usage to save on their monthly bills. That advantage only arises if the information on billing statements is useful and comprehendible. In AEY's view, the inclusion of AEY's and YEC's respective Rider R and Rider J amounts in base rates is most useful with respect to informing customers of the breakdown in charges on their billing statements. AEY's position remains that temporary rate adjustment riders, rate stabilization mechanisms, and government subsidies that are temporary in nature and updated from time to time should continue to be displayed separately for greater transparency.

[3] Board Order 2023-08, PDF p. 13, para. 55.

AEY-NY-008: The Board is of the view that AEY has not adequately responded to this IR and directs AEY to respond to the question as originally asked.

AEY Response:

AEY is not trying to obscure the fixed or variable charges. AEY's objective is to present complex utility rates in a manner that is clear, detailed, and informative to all customers. AEY is of the view that incorporating AEY's and YEC's respective Rider R and Rider J amounts into base rates on the billing statements, as approved in Board Order 2023-08, will help simplify the overall presentation of the bills while not omitting any important details. In addition, AEY will consider the suggestion to improve the value of the billing statements, including further details on rates that accompany the total charges.

AEY-NY-010: The Board is of the view that at a minimum AEY should outline the steps it will take and provide timelines on how it will address this issue in the future.

AEY Response:

The changes to billing statements that are in accordance with Board Order 2023-08 will also be applied to the online bill calculator. AEY anticipates that the new billing system will be stabilized in Q2 2024. After this time, AEY commits to updating the bill calculator to match the output that is displayed on the bill statements, with AEY's and YEC's respective Rider R and Rider J amounts rolled into the base rate charges. At that time, AEY will also consider further improvements to the online bill calculator, such as a summary output, descriptions of riders, and customer and energy charge rates.

We trust the foregoing is satisfactory. If you have any questions, please contact me at Elizabeth.Rogers@atco.com or (780) 919-8190.

Yours truly,

Beth Rogers, CPA CMA
Director, Regulatory

ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Hyperlink Listing

Line No.	Hyperlink	Hyperlink Location	PDF Page Number	Document	Document Reference
1	https://tradingeconomics.com/canada/gdp-growth-annualized	2023-2024 AEY GRA - Application	150	Canada GDP Growth Annualized - 2023 Data - 2024 Forecast - 1961-2022 Historical	Reference Document 1
2	https://tradingeconomics.com/canada/unemployment-rate	2023-2024 AEY GRA - Application	150	Canada Unemployment Rate - September 2023 Data - 1966-2022 Historical	Reference Document 2
3	https://tradingeconomics.com/canada/inflation-cpi	2023-2024 AEY GRA - Application	151	Canada Inflation Rate - September 2023	Reference Document 3
4	https://yukon.ca/en/our-clean-future-yukon-strategy-climate-change-energy-and-greeneconomy.	AEY Responses to YUB - Part 1 of 2 (Response to AEY-YUB-002, footnote 3)	31	Our Clean Future	Reference Document 4
5	https://yukon.ca/en/our-clean-future-yukon-strategy-climate-change-energy-and-greeneconomy.	AEY Responses to YUB - Part 1 of 2 (Response to AEY-YUB-002, footnote 4)	31	Our Clean Future	Reference Document 4
6	https://docs.bcuc.com/documents/proceedings/2022/doc_67371_b-2-fbc-2023-annualreview-application.pdf	AEY Responses to YUB - Part 1 of 2 (Response to AEY-YUB-003, footnote 1)	35	FortisBC Inc. Annual Review for 2023 Rates Application Materials	Reference Document 5
7	https://docs.bcuc.com/documents/proceedings/2023/doc_72776_b2fbc2024annualreviewratesapplication.pdf	AEY Responses to YUB - Part 1 of 2 (Response to AEY-YUB-003, footnote 2)	35	FortisBC Inc. Annual Review for 2024 Rates Application Materials	Reference Document 6
8	The NWT Public Utilities Board is in the process of updating its website, and the link originally provided in AEY-YUB-003, footnote 3, is no longer valid	AEY Responses to YUB - Part 1 of 2 (Response to AEY-YUB-003, footnote 3)	35	EXHIBIT 2022-002-013 - 2023-03-07 Northland Utilities (NWT) Limited 2023 Amended GRA	Reference Document 7
9	https://www.canada.ca/content/dam/cra-arc/formspubs/pbg/t2sch444/t2sch444-23e.pdf	AEY Responses to YUB - Part 1 of 2 (Response to AEY-YUB-008, footnote 1)	84	Yukon Business Carbon Price Rebate (2023 and later tax years)	Reference Document 8
10	https://yukonutilitiesboard.yk.ca/pdf/YECL_GRA_2016-2017/YUB-YECL_2016-2017_GRA__Vol_3__November_3__2016_(unsecured)_.pdf	AEY Responses to YUB - Part 2 of 2 (Response to AEY-YUB-047, footnote 1)	61	YECL 2016-2017 General Rate Application	Reference Document 9
11	https://yukonutilitiesboard.yk.ca/pdf/Board_Orders_2010/Board_Order_2017-01_Appendix_A_-_Reasons.pdf	AEY Responses to YUB - Part 2 of 2 (Response to AEY-YUB-047, footnote 2)	61	Yukon Utilities Board Board Order 2017-01 Appendix A: Reasons for Decision April 27, 2017	Reference Document 10
12	https://yukonutilitiesboard.yk.ca/about/mandate-of-the-board/.	AEY Responses to NDP (Response to AEY-NDP-009, footnote 1)	22	Yukon Utilities Board Mandate	Reference Document 11
13	https://www.atcoelectricyukon.com/en-ca/customer-billing-rates/2023-general-rate-application.html.	AEY Responses to UCG Part 1 of 4 (Response to AEY-UCG-001, footnote 1)	2	ATCO Electric Yukon Website - 2023 General Rate Application Summary	Reference Document 12
14	https://yukonutilitiesboard.yk.ca/proceedings/atco-electric-yukons-2023-2024-general-rate-application/.	AEY Responses to UCG Part 1 of 4 (Response to AEY-UCG-001, footnote 2)	2	Yukon Utilities Board Website	Reference Document 13
15	https://emrlibrary.gov.yk.ca/EcDev/Yukon_Economic_Outlook/2016-May.pdf, PDF pp. 3-4	AEY Responses to UCG Part 1 of 4 (Response to AEY-UCG-007, footnote 1)	118	Yukon Economic Outlook - May 2016	Reference Document 14
16	https://docs.bcuc.com/documents/proceedings/2022/doc_67371_b-2-fbc-2023-annualreview-application.pdf, PDF p. 22.	AEY Responses to UCG Part 1 of 4 (Response to AEY-UCG-007, footnote 2)	119	Fortis BC - 2023 Annual Review of Rates	Reference Document 15
17	https://docs.bcuc.com/documents/proceedings/2023/doc_72776_b2fbc2024annualreviewratesapplication.pdf, PDF p. 23.	AEY Responses to UCG Part 1 of 4 (Response to AEY-UCG-007, footnote 3)	119	Fortis BC - 2024 Annual Review of Rates	Reference Document 16
18	https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401	AEY Responses to UCG Part 1 of 4 (Response to AEY-UCG-007(a) Attachment 1)	120	Stats Canada - Yukon CPI	Reference Document 17
19	https://yukonutilitiesboard.yk.ca/pdf/Board_Orders_2020/Board_Order_2023-01.pdf.	AEY Responses to UCG Part 2 of 4 (Response to AEY-UCG-042, footnote 1)	6	YUB - Board_Order_2023-01	Reference Document 18
20	https://yukon.ca/en/2023-24-fiscal-and-economic-outlook	AEY Responses to UCG Part 2 of 4 (Response to AEY-UCG-058, footnote 1)	197	Yukon 2023-24 Fiscal and Ecnomic Outlook	Reference Document 19
21	https://www.atcoelectricyukon.com/content/dam/web/electric-yukon/yecl-yec-terms-of-service-july-2011.pdf	AEY Responses to UCG Part 4 of 4 (Response to AEY-UCG-096, footnote 1)	127	Yukon Energy Corporation and The Yukon Electrical Company Limited Terms and Conditions of Service	Reference Document 20

ATCO Electric
YUKON

YUB Board Order 2023-24
Directions 3: Reference Documents 1-20

Will be filed Separately

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British Columbia Utilities Commission

Generic Cost of Capital Proceeding

(Stage 1)

Decision
and Order G-236-23

September 5, 2023

Before:
D. M. Morton, Panel Chair
A. K. Fung, KC, Commissioner
K. A. Keilty, Commissioner
T. A. Loski, Commissioner

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EXECUTIVE SUMMARY

The British Columbia Utilities Commission (BCUC), pursuant to section 59(5)(b) of the *Utilities Commission Act* (UCA) is responsible for ensuring that shareholders of the utilities it regulates are afforded a reasonable opportunity to earn a fair return on their invested capital.

On January 18, 2021, the BCUC noted that significant time had passed since the BCUC's 2013 and 2016 cost of capital reviews and over that period, changes have occurred in financial markets, and pursuant to section 82 of the UCA, issued a Notice of Initiating a Generic Cost of Capital (GCOC) Proceeding.

The BCUC determined that a two-stage proceeding to establish public utilities' cost of capital was appropriate for the GCOC proceeding. Stage 1 of the GCOC proceeding will determine the deemed capital structure and allowed return on equity (ROE) of FortisBC Energy Inc. (FEI) and FortisBC Inc. (FBC) (collectively, FortisBC). Stage 2 will determine matters related to the benchmark utility, including whether utilizing a benchmark utility remains an appropriate approach and, if so, whether one or both or neither of these utilities should serve as a benchmark for establishing the cost of capital for other utilities in British Columbia (BC).

FEI and FBC jointly engaged Mr. James Coyne (Mr. Coyne) of Concentric Energy Advisors Inc. (Concentric) as their expert consultant in Stage 1 of the GCOC proceeding. The BCUC engaged Dr. Jonathan A. Lesser (Dr. Lesser) of Continental Economics, Inc. (Continental Economics) as an independent expert. Dr. Lesser opined on Mr. Coyne's expert analysis. Dr. Lesser did not perform his own independent calculations and did not present capital structure or ROE recommendations. No Intervener engaged an expert to provide expert evidence on FortisBC's cost of capital.[1]

Key Principles

The purpose of Stage 1 of the GCOC proceeding is to set a fair return for FEI and FBC. When determining the utilities' cost of capital, the Panel is guided by certain fundamental regulatory principles, including the Fair Return Standard which requires three elements to be met for a fair and reasonable return on capital:

a) The comparable investment requirement – the return on capital should be comparable to the return available from the application of the invested capital to other enterprises of like risk;

b) The financial integrity requirement – the return on capital should enable the financial integrity of the regulated enterprise to be maintained; and

c) The capital attraction requirement – the return on capital should permit incremental capital to be attracted to the enterprise on reasonable terms and conditions.

In the BCUC's application of the Fair Return Standard, the utility must also be assessed based on the standalone principle. That principle provides that the utility should be regulated as if it were a standalone entity, raising capital on the merits of its own business and financial characteristics, regardless of affiliations within the holding

[1] Corix Multi-Utility Service Inc., Pacific Northern Gas Ltd and Pacific Northern Gas (N.E.) submitted a Brattle Report on the use of a Benchmark Utility (Exhibits B6-4 and B9-5).

company structure. The BCUC had noted the relevance of the standalone principle in past cost of capital decisions, and we continue to adhere to this principle to determine FEI and FBC's cost of capital in this proceeding.

Informed judgment, with the support of quantitative and qualitative evidence made available to us during the proceeding, plays a significant role in determining the appropriate cost of capital for each of the two utilities. Therefore, by necessity, certain aspects of our decision are as much art as science.

Approach to the Cost of Capital Determination

When determining the cost of capital and the allowable return, there are four key elements that the Panel considers:

1. The actual returns of a proxy group of peer utilities.
2. The business risks facing FEI and FBC, including how those risks may have changed since the last time the BCUC approved a cost of capital for those companies.
3. The credit ratings of FEI and FBC.
4. The results of various financial models that are designed to assess how the market prices risk and considers earnings in the evaluation of cost of capital.

Not one of the above elements is, in itself, determinative. Rather, the Panel considers all of these elements together, applying an appropriate weight to each of them as it determines the allowed cost of capital.

The Panel also makes determinations on "adders" to the ROE as applied for by FortisBC to account for flotation costs incurred by the parent company and for the need for "financial flexibility", again based on consideration of the above elements.

Consideration of Peer Data Set

To provide appropriate comparators for the allowed ROE and capital structure for FEI and FBC, the Panel determined a "proxy group" of peer companies that are both publicly traded and comparable to FEI and FBC's business and financial characteristics in order to assess each company's data. FortisBC and its expert, Mr. Coyne, presented proxy group data from both United States (US) and Canadian gas utilities and also combined these US and Canadian utilities into a North American proxy group. We agree with Mr. Coyne that some of the companies in his Canadian proxy group would not pass the same screening criteria he applied to his US proxy groups. The Panel finds merit in using a combined North American proxy group and removing certain non-qualifying Canadian utilities.

The Panel was presented with three sets of data during the proceeding, starting with December 2021 data when FortisBC filed its evidence and last updated in October 2022. The Panel is persuaded about the reasonableness of using the October 2022 market data, being the most recent publicly available data, to inform its establishment of an appropriate cost of capital.

Business Risks and Credit Ratings

Given the impact of business risk on utilities' expected return, the Panel reviews this from the perspective of the shareholder, as it is an important consideration for investors when making their investment decisions. Part of this review includes investors' consideration of credit ratings and changes in business risks.

Overall, the Panel finds that FEI's overall business risk to the shareholder has increased since 2016 while FBC's business risk has not changed materially for the shareholder since 2013. However, the Panel considers FEI and FBC's current credit ratings satisfactory for maintaining the financial integrity of each respective utility and that FEI and FBC do not require an improvement in those credit ratings for each utility to continue to attract capital on reasonable terms.

Financial Models

Regulators typically rely on financial models in their determination of an approved ROE because the actual cost of equity for a regulated utility cannot be observed. All models are simplifications of reality, using simplifying assumptions and as such, each model is subject to varying degrees of criticism. Quantitative models produce a range of reasonable results from which the ROE is selected.

The Panel considers three financial models:

1. The Capital Asset Pricing Model (CAPM), based on the relationship between non-diversifiable risk and expected return;
2. The Discounted Cash Flow (DCF), based on the premise that today's stock price represents investors' expectations regarding future cash flows from holding that stock, in terms of dividends and price appreciation; and
3. The Risk Premium Model, based on the premise that common equity capital is riskier than debt and, therefore, equity investors require a greater return than would debtholders.

For the CAPM, Mr. Coyne and Dr. Lesser have different opinions on how to estimate the key variables of risk-free rate and market risk premium (MRP), as well as the data sources for the beta coefficients, a measure of the risk of a security relative to the market. After examining the evidence and considering the views of the experts, we determine that Mr. Coyne's estimated risk-free rate based on forecast long-term government bond yields is reasonable, his data sources and averaging of adjusted data to estimate betas are acceptable, and his method to forecast the MRP, including a 50:50 weighting of historic and forward MRPs, sufficiently balances and moderates the assumption of higher analyst expectations over the next five years with the actual achieved MRPs over a long history. As a result, we are not relying on the CAPM results based on Mr. Coyne's interpretation of Dr. Lesser's preferred approach.

The Panel uses a CAPM ROE, exclusive of an adder for flotation costs and financial flexibility, of 9.90 percent for FEI and 9.77 percent for FBC, respectively, after removing Enbridge Inc. and Canadian Utilities Limited from the North American gas proxy group, as it weights the results of the different ROE models in the overall determination.

For the DCF model, Mr. Coyne presented two versions of the model: a constant DCF model and a Multi-Stage DCF model, consisting of three stages. Mr. Coyne only uses the latter's results in his ROE recommendations. Both experts agree on the merits of using the Multi-Stage DCF model. Consistent with the BCUC's preferred approach in the last two GCOC proceedings, the Panel finds that a Multi-Stage DCF model is preferable to a Constant Growth DCF model because the former allows for recognition that the proxy utility companies' dividend growth rates may not perform the same in different time horizons. Also, since no interveners commented on the pros and cons of using a two-stage versus a three-stage DCF model and most of them supported the three-stage DCF model presented by Mr. Coyne, the Panel finds it reasonable to use a three-stage DCF model to estimate the ROE for FEI and FBC, with each of the first two stages lasting five years.

Furthermore, both experts are aligned on key aspects of the multi-stage DCF analysis such as using recent average stock prices to calculate the dividend yield, forecast growth in earnings rather than dividend growth rates, and analysts' estimates for forecast earning growth rates. However, the two experts disagree on the data sources for the dividend growth rates in the first and third stage. After examining the evidence and considering the views of the experts, the Panel finds that using multiple sources for the analysts' forecasts of earnings growth rates is better than using a single source, as averaging can mitigate the impact of any one forecast. In the third stage, the Panel finds that using the gross domestic product (GDP) price deflator would be better than using consumer price index (CPI) to derive nominal GDP growth rates because the GDP price deflator is more representative of the market as a whole than CPI. However, as no evidence was presented using the GDP deflator, the Panel reluctantly accepts the use of CPI as a reasonable forecast to be used in the determination of long-term growth rates, while noting that the use of CPI may result in an overstated ROE. In the end, the Panel accepts Dr. Lesser's submission that the difference between the two would likely not be determinative in setting the ROE. As for the second (transition) stage, the Panel accepts the methodology employed by Mr. Coyne to transition between the first stage and the third stage growth rates.

The Panel uses a multi-stage DCF ROE, exclusive of an adder for flotation costs and financial flexibility, of 8.93 percent for FEI and 8.99 percent for FBC, respectively, after removing Enbridge Inc. and Canadian Utilities Limited from the North American proxy groups, as it weights the results of the different ROE models in the overall determination.

In the Panel's view, relying on more models is especially important at times when the pure market-based models like the DCF and the CAPM tend to get whipsawed by volatility in the market. The Panel finds that considerable weight should be given to the use of a Risk Premium Model for the purposes of determining the appropriate ROE for FEI and FBC given the recent volatility in the market and economic conditions.

The Panel notes that the Federal Energy Regulatory Commission has recognized the theoretical validity and value of the Risk Premium Model, as it has adopted that model along with the CAPM and DCF models, which it weights equally for determining the cost of capital for regulated electric transmission companies in the US. The Panel uses a Risk Premium Model ROE of 10.12 percent for FEI and 10.16 percent for FBC, respectively, as it weights the different ROE models in the overall determination.

Ultimately, the Panel finds that assigning an equal weighting to each of the three financial models is appropriate to determine the approved ROE for FEI and FBC.

Overall Determinations

The Panel finds that the appropriate way to account for required financial flexibility is in the context of determining the appropriate capital structure.

The Panel accepts that any reasonable and prudently incurred flotation costs incurred by a public utility are recoverable from ratepayers, over and above the approved costs of capital. However, there is no evidence before the Panel that FEI or FBC incurs any flotation costs and therefore there are no costs to recover. FEI and FBC can request recovery of actual costs incurred by the parent company by providing applicable invoices or other supporting documentation from the parent when FEI and FBC issue additional equity. Those expenditures, if and as incurred, can be considered for recovery from the ratepayers of FEI or FBC through review and approval as part of each utility's revenue requirement process.

The Panel finds that 45.0 percent equity thickness for FEI meets the comparable investment and capital attraction requirements in the Fair Return Standard because 45.0 percent is premised on FEI's proxy group and supported by the Panel's assessment of FEI's business risk.

The Panel finds that a modest upward adjustment of 1.0 percent for financial leverage and flexibility for FBC is warranted to conform with the Fair Return Standard. The Panel determines that the deemed equity component for FBC is 41.0 percent.

Based on the evidence examined and submissions received in Stage 1 of the GCOC proceeding, the Panel determines the following equity component in the deemed capital structure and allowed ROE will meet the Fair Return Standard:

- For FEI, a deemed equity component of 45.0 percent and an allowed ROE of 9.65 percent; and
- For FBC, a deemed equity component of 41.0 percent and an allowed ROE of 9.65 percent.

Effective Date

The Panel determines that the deemed capital structure and allowed ROE for FEI and FBC as set out in this decision be implemented, effective January 1, 2023. Each of FEI and FBC is directed to file, within 30 days of the date of this decision, a compliance filing for January 1, 2023 permanent rates, and if applicable, an evidentiary update for each utility's 2024 Annual Review proceedings to reflect and implement the deemed capital structure and allowed ROE as approved.

FEI is the current benchmark (Benchmark Utility) for other utilities in BC that use a Benchmark Utility to set their rates. The Panel notes it would be unfair for these utilities to retrospectively collect or refund customer monies without an appropriate mechanism for doing so or without adequate notice to ratepayers. However, while each utility's situation may be unique, some balance must be factored in to ensure consistency and fair treatment amongst all utilities. In terms of specific mechanism, the Panel considers that the benefits of establishing interim rates for all other utilities that use a Benchmark Utility to set their capital structure, along with equity return, outweigh other mechanisms.

The Panel directs that interim rates, effective January 1, 2024, be established on a refundable or recoverable basis for all other utilities, except FBC, that currently use the Benchmark Utility to set each utility's capital structure and equity return, pending the BCUC's final decision on Stage 2 of the GCOC proceeding. The Panel confirms Stage 2 of the GCOC proceeding will commence 60 days after the date of this decision.

1.0 INTRODUCTION

1.1 Background

The British Columbia Utilities Commission (BCUC), pursuant to section 59(5)(b) of the *Utilities Commission Act* (UCA) is responsible for ensuring that shareholders of the utilities it regulates are afforded a reasonable opportunity to earn a fair return on their invested capital.

On October 11, 2012, the BCUC established that FortisBC Energy Inc. (FEI) would serve as the benchmark (Benchmark Utility) for any other utility in British Columbia (BC) that uses a Benchmark Utility to set rates.[2] FEI's common equity component was set at 38.5 percent and its return on equity (ROE) was set at 8.75 percent, effective January 1, 2013.[3] On March 25, 2014, the BCUC set the common equity component or equity ratio of the capital structure and equity risk premium over the Benchmark Utility for other regulated utilities in the province.[4] FortisBC Inc. (FBC) was one of the regulated utilities and a full review of its capital structure and equity risk premium was undertaken as part of that proceeding.[5] The BCUC determined that an equity ratio of 40 percent and an equity risk premium of 40 basis points (bps)[6] over the Benchmark Utility for FBC was appropriate.[7] Subsequently, on August 10, 2016, the BCUC reaffirmed FEI's cost of capital.[8] The BCUC also suspended use of the automatic adjustment mechanism formula previously approved in 2013.

By letter dated January 18, 2021, the BCUC noted that significant time had passed since the BCUC's 2013 and 2016 cost of capital reviews and over that period, changes have occurred in financial markets, and pursuant to section 82 of the UCA, issued a Notice of Initiating a Generic Cost of Capital (GCOC) Proceeding.

1.2 Purpose and Scope of the Generic Cost of Capital Proceeding

Purpose of the Proceeding

The purpose of the GCOC proceeding is to establish a method to determine the appropriate cost of capital for regulated utilities in BC[9], as well as to review the appropriateness of continuing the use of a Benchmark Utility, and if so, the appropriate cost of capital for the benchmark.

[2] BCUC 2013 GCOC, Order G-148-12 with Reasons for Decision dated October 11, 2012, Directive 1.
[3] BCUC 2013 GCOC Stage 1, Order G-75-13 and Decision dated May 10, 2013, Directives 1 and 2.
[4] BCUC 2013 GCOC Stage 2, Order G-47-14 and Decision dated March 25, 2014 (2014 Decision), Directives 1 to 6.
[5] 2014 Decision, pp. 4, 60–87.
[6] 1 basis point = 0.01 percent.
[7] 2014 Decision, p. 86.
[8] FEI Application for its Common Equity Component and Return on Equity for 2016 (FEI 2016 COC), Order G-129-16 and Decision dated August 10, 2016 (2016 Decision), Directives 1 and 2.
[9] Order G-156-21 with Reasons for Decision.

Two-Stage Proceeding

By Order G-156-21, the BCUC determined that a two-stage proceeding to establish public utilities' cost of capital was appropriate for the GCOC proceeding, where Stage 1 sets the benchmark ROE (Benchmark ROE) based on a Benchmark Utility, and Stage 2 uses a generic methodology for each utility to determine its unique cost of capital in reference to the Benchmark Utility.[10] Hereafter, Stage 1 refers to the first stage of the GCOC proceeding and Stage 2 refers to the second stage of the same proceeding.

By Order G-205-21, the BCUC determined that the review of deferral account financing costs, as well as any other matters that may arise out of Stage 1 and Stage 2 should be within the scope of the GCOC proceeding, after the completion of Stage 2.[11]

By Order G-281-21, the BCUC found that it was appropriate and efficient to first determine the cost of capital for FEI and FBC, collectively FortisBC, as both utilities are the largest investor-owned natural gas and electric utilities, respectively, in BC.[12] Pursuant to Order G-281-21, and as amended by Order G-288-21, FortisBC filed its evidence for FEI and FBC.[13] By Order G-106-22, the BCUC confirmed that the decision on FEI and FBC's capital structure and ROE will be determined first in Stage 1, and then the BCUC would move onto reviewing which, if any, of the utilities will be the Benchmark Utility in Stage 2.[14]

Order G-106-22 also sets out the scope of Stage 1 as follows:[15]

1. The determination of the allowed ROE and deemed capital structure of FEI and FBC, and the effective dates for which FEI and FBC's cost of capital will take effect.

2. Whether re-establishment of a formulaic ROE automatic adjustment mechanism (AAM) is warranted. If a return to the use of a formulaic ROE AAM is warranted, then:

    a) The specifications of the ROE AAM formula.

    b) The frequency that the ROE AAM will apply (i.e. annually or some other frequency) and to whom the ROE AAM will apply.

    c) The date for which the ROE AAM will take effect.

3. The criteria, off-ramps, or other triggers to warrant a future cost of capital proceeding.

4. Any other items that may arise during the proceeding to be considered in Stage 1.

[10] Order G-156-21 with Reasons for Decision dated May 21, 2021
[11] Order G-205-21 with Reasons for Decision dated July 7, 2021
[12] Order G-281-21 with Reasons for Decision dated September 24, 2021, p.6. , Order G-156-21 with Reasons for Decision dated May 21, 2021, Appendix A, p. 7
[13] Exhibit B1-8, p. 1.
[14] Order G-106-22 dated April 21, 2022.
[15] Ibid.

FortisBC Proposal

In its evidence dated January 31, 2022, FortisBC proposes the following deemed capital structure and ROEs for FEI and FBC, respectively:[16]

- For FEI, a common equity ratio of 45 percent with an ROE of 10.1 percent representing an increase from FEI's current common equity ratio of 38.5 percent and ROE of 8.75 percent; and
- For FBC, a common equity ratio of 40 percent with an ROE of 10.0 percent representing an increase from FBC's current ROE of 9.15 percent, with no change to its common equity ratio.

1.3 Regulatory Process

Stage 1 included a BCUC public hearing process involving the participation of experts in the cost of capital field and several participants, including regulated utilities and interveners.

Experts

Two experts figured prominently in Stage 1: FEI and FBC jointly engaged Mr. James Coyne (Mr. Coyne) of Concentric Energy Advisors Inc. (Concentric) as each utility's expert consultant. The BCUC engaged Dr. Jonathan A. Lesser (Dr. Lesser) of Continental Economics, Inc. (Continental Economics) as an independent expert.

Dr. Lesser's involvement in Stage 1 includes submissions of consultant reports, responses to information requests (IRs) and participation in the oral hearing. Dr. Lesser opined on Mr. Coyne's expert analysis. Dr. Lesser did not perform his own independent calculations and did not present capital structure and ROE recommendations. No intervener engaged an expert to provide expert evidence on FortisBC's cost of capital.[17]

Application Review Process

In accordance with the regulatory timetable established by the BCUC, the BCUC undertook a comprehensive public review process, including the following:

- BCUC Consultant, Dr. Lesser's of Continental Economics consultant report (filed as Exhibit A2-3): "Continental Economics, Inc. Dr. Jonathan A. Lesser Regulated Utility Cost of Capital: Theory and Canadian Practice Report dated August 4, 2021." (Dr. Lesser's Report)[18]
- One round of utilities and interveners' IRs on the BCUC consultant, Dr. Lesser 's Report
- Filing of evidence by FBC and FEI, including evidence of Mr. Coyne (Mr. Coyne Evidence)[19] of Concentric (FortisBC's Evidence)
- Two rounds of IRs on FortisBC's Evidence

[16] Exhibit B1-8, p. 1.
[17] Corix Multi-Utility Service Inc., Pacific Northern Gas Ltd and Pacific Northern Gas (N.E.) submitted a Brattle Report on the use of a benchmark utility (Exhibits B6-4 and B9-5).
[18] Exhibit A2-3, Continental Economics Inc., "Regulated Utility Cost of Capital: Theory and Canadian Practice" by Dr. Lesser dated August 4, 2021.
[19] Exhibit B1-8, Appendix C, Evidence of Mr. James Coyne, Concentric Energy Advisors Inc., Regarding the Cost of Capital Estimation.

- IR No. 2 to Dr. Lesser regarding Mr. Coyne's Evidence
- Filing of FortisBC's Rebuttal Evidence
- One round of IRs on FortisBC's Rebuttal Evidence
- Update to Mr. Coyne's Model
- Two procedural conferences held on April 14, 2022 and July 8, 2022
- Oral hearing held from November 7, 2022 to November 9, 2022
- Undertakings to the oral hearing
- FortisBC's Final Argument filed by December 23, 2022
- Final arguments from interveners filed by January 27, 2023
- FEI's Reply Argument filed by February 21, 2023

After the filing of arguments, on May 8, 2023, the BCUC invited parties to make submissions on the effective date for all other utilities that use the Benchmark Utility to set their capital structure and equity return.[20] Written submissions from parties were received by May 31, 2023 and replies were received by June 14, 2023.

Registered Utilities and Interveners

Public utilities regulated by the BCUC were categorized as either *Affected Utilities* or *Other Utilities*. The Affected Utilities were designated given each utility's active participation in previous cost of capital proceedings that set a benchmark ROE or the anticipated interest of each utility in the GCOC proceeding as investor-owned utilities. These Affected Utilities were expected to take a lead role in filing evidence for cost of capital matters that may impact them. Other Utilities were also expected to participate as applicants in the GCOC proceeding.

The following Affected Utilities participated in the GCOC proceeding:

- FEI
- FBC
- Corix Multi Utility Services Inc. (Corix)
- Pacific Northern Gas Ltd. (PNG)

The following Other Utilities participated in the GCOC proceeding:

- FortisBC Alternative Energy Service Inc. (FAES)
- Nelson Hydro
- Kyuquot Power Ltd. (KPL)

[20] Exhibit A-31.

- Creative Energy Vancouver Platforms Inc. (Creative Energy)
- River District Energy (RDE)

The following parties registered as interveners:

- Residential Consumer Intervener Association (RCIA)
- Movement of United Professionals (MoveUP)
- Clean Energy Association of BC (CEABC)
- Association of Major Power Customers of BC (AMPC)
- Industrial Customers Group (ICG)
- Commercial Energy Consumers Association of British Columbia (the CEC)
- British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, Tenants Resource and Advisory Centre, and Together Against Poverty Society (BCOAPO)
- British Columbia Hydro and Power Authority (BC Hydro)
- Boralex Ocean Falls Limited Partnership (Boralex)

2.0 KEY PRINCIPLES AND DECISION FRAMEWORK

Fair Return Standard

The purpose of Stage 1 is to set a fair return for FEI and FBC. When determining the utilities' cost of capital, the Panel is guided by certain fundamental regulatory principles, including the Fair Return Standard, where the BCUC has a duty to approve rates that will provide the utilities' shareholders a reasonable opportunity to earn a fair return on their invested capital.[21] The Supreme Court of Canada established the principles surrounding the concept of "fair return" for a regulated company in *Northwestern Utilities Limited v. City of Edmonton*[22]:

> The duty of the [National Energy] Board was to fix fair and reasonable rates; rates which, under the circumstances, would be fair to the consumer on the one hand, and which, on the other hand, would secure to the company a fair return for the capital invested. By a fair return is meant that the company will be allowed as large a return on the capital invested in its enterprise, (which will be net to the company,) as it would receive if it were investing the same amount in other securities possessing an attractiveness, stability and certainty equal to that of the company's enterprise. (per Lamont J.)

The Fair Return Standard, as discussed in the National Energy Board's Decision,[23] is fundamental to cost of equity proceedings and requires three elements to be met for a fair and reasonable return on capital:

[21] BCUC 2013 GCOC Stage 1, Order G-75-13 and Decision dated May 10, 2013 (2013 Decision), p. 12.
[22] [1929] S.C.R. 186.
[23] TransCanada PipeLines Limited, RH-2-2004 at p. 17.

a) The comparable investment requirement – the return on capital should be comparable to the return available from the application of the invested capital to other enterprises of like risk;

b) The financial integrity requirement – the return on capital should enable the financial integrity of the regulated enterprise to be maintained; and

c) The capital attraction requirement – the return on capital should permit incremental capital to be attracted to the enterprise on reasonable terms and conditions.

All three standards must be met, and none ranks higher in priority to the others.

Standalone Principle

In the BCUC's application of the Fair Return Standard, the utility must also be assessed based on the standalone principle.[24] Mr. Coyne explains that the standalone principle provides that the utility should be regulated as if it were a standalone entity, raising capital on the merits of its own business and financial characteristics, regardless of affiliations within the holding company structure.[25] The BCUC had noted the relevance of the standalone principle in past cost of capital decisions and we continue to adhere to this principle to assess FEI and FBC's cost of capital in this proceeding.

Relevance of Past BCUC Decisions

While past BCUC decisions are informative and provide historical context, they are not determinative in this GCOC Stage 1 Decision. We must evaluate the evidence presented in the current proceeding. The use of comparable proxy peers and financial models play a large part of this proceeding, where that evidence was explored extensively by the two cost of capital experts, the BCUC and interveners. FEI and FBC's respective business risks and credit rating information were also similarly tested as part of this proceeding.

Informed judgment, with the support of quantitative and qualitative evidence made available to us during the proceeding, plays a significant role in determining the appropriate cost of capital for each of the two utilities. Therefore, by necessity, certain aspects of our decision are as much art as science.

Decision Framework

We structure the remainder of our decision as follows:

- Section 3.0 provides an overview of the peer data and the timeframe to use that are relevant to our ROE determinations with proxy group data guiding our capital structure determinations.
- Section 4.0 discusses the business risk changes for FEI and FBC from the shareholders' perspective since the BCUC's last assessment of this issue, and the impact this may have on the utilities' overall capital structure.

[24] 2013 Decision, pp. 96, 100.
[25] Exhibit B1-8-1, Appendix C, p. 11.

- Section 5.0 reviews financial modelling analyses presented by Mr. Coyne and the expert evidence of Dr. Lesser.
- Section 6.0 summarizes all the relevant evidence and the Panel's various findings to arrive at a final determination on FEI and FBC's capital structure and ROE and applies a reasonableness check on same.
- Section 7.0 establishes the effective date of our determinations and the timing of Stage 2. Section 8.0 addresses other issues raised during this proceeding.

2.1 Legislative Requirement

The BCUC, pursuant to section 59 of the UCA, is responsible for establishing rates that are not unjust, unreasonable, unduly discriminatory or unduly preferential:

> 59 (1)A public utility must not make, demand or receive
>
> (a) an unjust, unreasonable, unduly discriminatory or unduly preferential rate for a service provided by it in British Columbia, or
>
> (b) a rate that otherwise contravenes this Act, the regulations, orders of the commission or any other law.

Pursuant to section 59 (5), a rate is "unjust" or "unreasonable" if the rate is:

> (a) more than a fair and reasonable charge for service of the nature and quality provided by the utility,
>
> (b) insufficient to yield a fair and reasonable compensation for the service provided by the utility, or a fair and reasonable return on the appraised value of its property, or
>
> (c) unjust and unreasonable for any other reason.

In discharging its duty under section 59 of the UCA, the BCUC must at the same time give effect to the regulatory compact by ensuring that shareholders of the regulated utilities are afforded a reasonable opportunity to earn a fair return on their invested capital, otherwise commonly referred to as cost of capital.

2.2 Approach to the Cost of Capital Determination

When determining the cost of capital and the allowable return, there are four key elements that the Panel considers:

1. The actual returns of a proxy group of peer utilities.
2. The business risks facing FEI and FBC, including how those risks may have changed since the last time the BCUC approved a cost of capital for those companies.
3. The credit ratings of FEI and FBC.
4. The results of various financial models that are designed to assess how the market prices risk and considers earnings in the evaluation of cost of capital.

Not one of the above elements is, in itself, determinative. Rather, the Panel considers all of these elements together, applying an appropriate weight to each of them as it determines the allowed cost of capital.

The Panel also makes determinations on "adders" to the ROE applied for by FortisBC to account for flotation costs incurred by the parent company and for the need for "financial flexibility", again based on consideration of the above elements.

3.0 CONSIDERATION OF PEER DATA SET

To provide appropriate comparators for the allowed ROE and capital structure for FEI and FBC, our first task is to determine a group of peer companies with ROE data that is readily available. Therefore, we look to publicly traded companies that have business and financial characteristics comparable to those of FEI and FBC to serve as a "proxy" for purposes of the ROE estimation process.

The following sections examine the possible alternatives presented in this proceeding: a Canadian proxy group, a US proxy group, and a North American proxy group. It also discusses the timing of the data sets on which to base the determination of the ROE.

3.1 Consideration of US Data

Mr. Coyne submits that several Canadian regulators, including the BCUC, have recognized the integrated nature of Canadian and US financial markets, that Canadian utility companies are competing for capital in global financial markets and that Canadian data are limited by the small number of publicly traded utilities. As a result, Canadian regulators have adopted a pragmatic view of the use of US data and proxy groups to estimate the allowed ROE for Canadian regulated utilities. Mr. Coyne notes that in its last GCOC decision, the BCUC affirmed the reasonableness of using US market data and proxy groups.[26]

3.2 Proxy Group Selection

Both Mr. Coyne and Dr. Lesser agree with the need to establish a proxy group of companies for the Panel to consider when it determines an appropriate ROE for FEI and FBC. While Mr. Coyne and Dr. Lesser's respective approaches may have differed on the criteria used to select the firms in the proxy group, ultimately, Dr. Lesser "withdrew" his evidence on proxy groups during cross-examination and supported using Mr. Coyne's proxy groups.[27]

Mr. Coyne developed five proxy groups for his ROE analysis (see Table 1). He notes that the selected companies possess a set of business and financial attributes that are similar to FEI and FBC's regulated gas and electric utility operations, thus providing a reasonable basis for ROE and capital structure estimates.

The Canadian proxy group is comprised of publicly traded, regulated Canadian electric and natural gas utility companies. Due to their limited number, the only screening criterion was an investment grade credit rating, which all companies in the utility sector possess. In contrast, to create a group of essentially pure-play US gas

[26] Exhibit B1-8-1, Appendix C, pp. 37–38.
[27] Transcript Volume 4, p. 421.

and electric utilities with similar risk profiles to FEI and FBC respectively, Mr. Coyne applied the screening criteria discussed below.

He explains that the utilities must:[28]

- Have credit ratings of at least BBB+ from Standard &Poor's Global Ratings (S&P) or Baa1 from Moody's Investors Service (Moody's);
- Consistently pay quarterly cash dividends;
- Have positive earnings growth rate projections from at least two sources;
- Derive at least 65 percent (gas proxy) or 70 percent (electric proxy) of operating income from regulated operations in the period from 2018 to 2020;
- Derive at least 90 percent of regulated operating income from natural gas distribution (gas proxy) or electric (electric proxy) utility service in the period from 2018 to 2020; and
- Not have been involved in a merger or other significant transformative transaction during the evaluation period.

Table 1: Proxy Groups Companies[29]

Company	Canadian Utilities	U.S. Gas Utilities	U.S. Electric Utilities	N.A. Gas Utilities	N.A. Electric Utilities
Algonquin Power and Utilities Corp.	✓				✓
AltaGas Ltd.	✓			✓	
Canadian Utilities Limited	✓			✓	✓
Emera Inc.	✓				✓
Enbridge, Inc.	✓			✓	
Hydro One, Ltd.	✓				✓
New Jersey Resources Corporation		✓		✓	
Northwest Natural Gas Company		✓		✓	
ONE Gas, Inc.		✓		✓	
Spire, Inc.		✓		✓	
Alliant Energy Corp.			✓		✓
American Electric Power Company			✓		✓
Duke Energy Corporation			✓		✓
Entergy Corporation			✓		✓
Exelon Corp			✓		✓
Evergy Inc.			✓		✓
NextEra Energy Inc.			✓		✓
OGE Energy Corporation			✓		✓
Pinnacle West Capital Corp.			✓		✓
Portland General Electric Company			✓		✓

[28] Exhibit B1-8-1, Appendix C, pp. 37, 39–42.

[29] Information in the table has been compiled from Exhibit B1-8-1, Appendix C, Figures 18-22, pp. 40–43.

As shown in Table 1, there is only one Canadian proxy group, comprised of six companies that are a combination of both gas and electric companies. For the US proxy groups, four US gas distribution utility companies and 10 US electric companies met the respective screening criteria. Mr. Coyne then created North American proxy groups by combining the Canadian and US regulated utilities. On the gas side, he chose the three Canadian regulated utilities that have significant natural gas operations, plus the US gas proxy companies. For the electric side, he selected the four Canadian regulated utilities that are primarily electric companies, plus the US electric proxy companies.[30]

Table 2 and Table 3 compare FEI and FBC with the Canadian and US proxy companies on key metrics such as size (as measured by market capitalization), revenues, assets, and the share of regulated income.

Table 2: Canadian and US Gas Utilities[31]

Canadian Utilities	**Market Cap (Can$ million) as of 12/31/21**	**Total revenue (Can$ million) as of 12/31/20**	**Total assets (Can$ million) as of 12/31/20**	**Regulated income/total income (%)[32]**
FEI	n.a.	1,385[33]	7,738[34]	100%[35]
AltaGas Ltd.	7,651	5,587	21,532	140%
Canadian Utilities Limited[36]	9,878	3,233	20,296	64%
Enbridge Inc.	100,103	39,087	160,276	16%
U.S. Utilities	**US$ million**	**US$ million**	**US$ million**	**Regulated gas income/total reg income (%)**
New Jersey Resources Corporation	3,940	1,954	5,570	101%
Northwest Natural Gas Company	1,495	759	3,599	91%
ONE Gas, Inc.	4,158	1,530	6,029	100%
Spire, Inc.	3,375	1,855	8,241	100%

[30] Exhibit B1-8-1, Appendix C, pp. 41–42.

[31] Information in the table has been compiled from Exhibit B1-8-1, Appendix C, Exhibit JMC-FEI-3, pp. 1–2.

[32] Source: Company 10-K reports, average of three most recent years.

[33] Exhibit B1-8-1, Appendix C, Figure 47, p. 107.

[34] Ibid., Appendix D, pdf p. 472.

[35] Ibid., Appendix C, p. 112.

[36] Canadian Utilities Limited is a combination electric and gas utility. Earnings are 53.3% electric and 46.7% gas; Assets are 56.4% electric and 43.6% gas; and revenues are 47.1% electric and 52.9% gas.

Table 3: Canadian and US Electric Utilities[37]

Canadian Utilities	**Market Cap (Can$ million) as of 12/31/21**	**Total revenue (Can$ million) as of 12/31/20**	**Total assets (Can$ million) as of 12/31/20**	**Regulated income/total income (%)**
FBC	n.a.	412[38]	2,437[39]	100%[40]
Algonquin Power and Utilities Corp.	12,276	2,249	16,850	86%
Canadian Utilities Limited	9,878	3,233	20,296	64%
Emera Inc.	16,432	5,506	31,234	92%
Hydro One, Ltd.	19,687	7,290	30,294	100%
U.S. Utilities	**US$ million**	**US$ million**	**US$ million**	**Reg. electric income/total reg income (%)**
Alliant Energy Corp.	15,390	3,416	17,710	91%
American Electric Power Company	44,810	14,919	80,757	100%
Duke Energy Corporation	80,668	23,453	162,388	91%
Entergy Corporation	22,641	10,114	58,239	99%
Exelon Corp	56,418	33,039	129,317	91%
Evergy Inc.	15,574	4,913	27,115	100%
NextEra Energy Inc.	183,185	17,997	127,684	100%
OGE Energy Corporation	7,683	2,122	10,719	100%
Pinnacle West Capital Corp.	7,964	3,587	20,020	100%
Portland General Electric Company	4,732	2,145	9,069	100%

In Mr. Coyne's view, the US gas and electric proxy groups are more comparable to FEI and FBC, respectively, in terms of business risk than the Canadian proxy group utilities, many of which have significant non-gas or non-electric operations and unregulated operations.[41] In response to Dr. Lesser's critique that the Canadian proxy group includes both gas and electric utilities and consequently is neither comparable to FEI or FBC,[42] Mr. Coyne explained that he presented a Canadian proxy group to address any concerns that may arise regarding the comparability of US proxy groups in establishing the allowed ROE for FEI and FBC.[43] Mr. Coyne submits that his US proxy groups address concerns regarding the comparability of these companies to FEI and FBC respectively, from an investment perspective because:[44]

1) The US gas proxy group is comprised of companies that derive 91 percent of each company's net operating income from regulated activities, 99 percent of operating income and 98 percent of revenues from gas utility operations, and dedicate 97 percent of assets to regulated gas utility service; and

[37] Information in the table has been compiled from Exhibit B1-8-1, Appendix C, Exhibit JMC-FBC-3, pp. 1–2.
[38] Exhibit B1-8-1, Appendix C, Figure 57, p. 133.
[39] Ibid., Appendix D, pdf p. 576.
[40] Ibid., Appendix C, p. 138.
[41] Exhibit B1-8-1, Appendix C, p. 55.
[42] Exhibit A2-20, BCUC IR 1.3.
[43] Exhibit B1-21, Part 2, p. 9.
[44] Exhibit B1-8-1, Appendix C, p. 55.

2) The US electric proxy group is comprised of companies that derive 95 percent of each company's net operating income from regulated activities, 97 percent of both operating income and revenues from electric utility operations and dedicate almost 97 percent of assets to regulated electric utility service.

In response to an IR asking Dr. Lesser what weight he would place on the Canadian versus US proxy groups, he stated that a better statistical approach would be to combine the Canadian and US companies into a joint North American proxy group for gas and electric utilities, respectively.

Dr. Lesser explained that this approach is reasonable because the countries' economies are highly integrated and capital markets are international. Dr. Lesser also suggested that one could evaluate differences between the allowed ROE values calculated for the Canadian and US companies. As an example, Dr. Lesser explained that if the four Canadian electric companies all had much lower allowed ROEs than the US companies, the BCUC could take that into consideration when setting the ROE for FEI and FBC.[45]

At the oral hearing, Mr. Coyne noted his agreement with Dr. Lesser's recommendation to use a North American proxy group for electric and gas utilities. Mr. Coyne also noted, one would have to "accept a little bit less Canadian representation" in forming a North American proxy group and explained that it is challenging to find a Canadian company that would pass the same screening criteria that he applied to the US companies.
With respect to a North American gas proxy group, Mr. Coyne believes that, of the Canadian companies, only AltaGas Ltd. would pass the screening criteria. (Enbridge Inc. would not pass due its low proportion of earnings from natural gas operations and similarly, Canadian Utilities Limited would not pass due to an approximate equal focus on electric and gas operations). With respect to a North American electric proxy group, Mr. Coyne expects three to four Canadian companies would pass the screening criteria. [46]

FortisBC acknowledges that Mr. Coyne developed his initial recommendation based on the results of his US proxy groups, consistent with the BCUC's 2016 Decision.[47] However, the evidence in this proceeding suggests that it would be appropriate for the BCUC to give primary weight to results based on Mr. Coyne's North American gas and electric proxy groups, in line with both experts' evidence, who agree that the extent of economic and market integration in North America justifies the use of North America-wide proxy groups to estimate the authorized ROE for FEI and FBC.[48]

Based on Mr. Coyne's explanation, FortisBC states that since only one Canadian gas company and three Canadian electric companies pass his screening criteria, there are substantial similarities in the composition of the US proxy groups and the North American proxy groups.[49] FortisBC also notes that Mr. Coyne testified that he has been advocating for using a North American proxy group approach for many years and would embrace a decision by the BCUC to adopt this approach in this proceeding.

FortisBC states that Dr. Lesser is in full agreement with Mr. Coyne on the extent of integration of the North American economy and capital markets and had advocated for the use of integrated North American gas and

[45] Exhibit A2-20, BCUC IR 1.3.
[46] Transcript Volume 3, p. 336 Line 21 to p. 338 Line 8.
[47] FBC Application for its Common Equity Component and Return on Equity for 2016 [FEI 2016 Cost of capital (COC)], Order G-129-16 and Decision dated August 10, 2016 (2016 Decision).
[48] FortisBC Final Argument, pp. 139–140.
[49] Ibid., pp. 140–141.

electric proxy groups. Dr. Lesser explains that "*per se* geographical constraints on the location of proxy group companies may eliminate comparable firms." Dr. Lesser observes that the Federal Energy Regulatory Commission (FERC) now allows for Canadian companies to be included in proxy groups for setting ROEs for pipelines and transmission utilities, given the level of integration and the similarity in how they are regulated.[50]

Positions of Parties

ICG

ICG does not challenge the proxy group companies of Concentric.[51] ICG agrees with FEI and FBC's submissions that the BCUC should place the greatest weight on the North American proxy groups.[52]

BCOAPO

Given the agreement of both Dr. Lesser and Mr. Coyne that the preferred approach is to use the North American proxy groups for gas and electric utilities, BCOAPO agrees with FortisBC's submission that "the BCUC should place the greatest weight on the North American proxy group results in light of the expert evidence." However, BCOAPO points to statements by Mr. Coyne and FortisBC, where both parties indicated that only three out of four Canadian electric utilities and only one out of three Canadian gas utilities would pass the screening criteria to be included in the appropriate North American proxy groups. Therefore, BCOAPO submits that the results for the North American proxy groups will need to be revised.[53]

As part of its final argument, BCOAPO has recalculated the ROE from the Multi-Stage DCF model and CAPM for: 1) a revised North American gas utility proxy group by removing Enbridge Inc. and Canadian Utilities Limited, leaving just AltaGas Ltd. as a Canadian gas utility in the new North American gas proxy group and 2) a revised North American electric utility proxy group by removing only Canadian Utilities Limited and leaving Algonquin Power and Utilities Corp., Emera Inc., and Hydro One Ltd. as the three Canadian electric utilities in the new North American electric proxy group.[54]

The CEC

The CEC submits that the experts' agreement on the proxy groups and on the North American integration of the two economies and capital markets is useful to the BCUC. However, the CEC does not agree that the integration leads automatically to the exclusion of US proxy group data and results by replacement with a North American proxy group. There are significant differences in the data which the CEC submits should be considered and given substantial weighting.[55] Thus, the CEC recommends that the BCUC give substantial weighting to the Canadian utilities, US utilities, and North American utilities proxy groups, and then average the results of each of these proxy groups.[56]

[50] FortisBC Final Argument, pp. 142–143.
[51] ICG Final Argument, p. 8.
[52] Ibid., p. 10.
[53] BCOAPO Final Argument, pp. 11–12.
[54] Ibid., pp. 43–44.
[55] The CEC Final Argument, p. 39.
[56] Ibid., p. 42.

RCIA

RCIA opposes the inclusion of US market data in ROE calculations for two reasons. First, RCIA submits that "the Canadian MRP should only be measured against the Canadian proxy group, as being country (and market) specific." And second, if the BCUC were to accept US data, there is no evidence to support an equal weighting of Canadian and US data in ascertaining an appropriate Canadian ROE.[57]

FortisBC Reply Argument

FortisBC points out that ICG has used internally inconsistent reasoning to reach its low recommended ROE. On the one hand, ICG agrees with the experts that the BCUC should give the greatest weight to the North American proxy group when determining ROE. FortisBC surmises that ICG's position is no doubt influenced by the fact that this tends to reduce FBC's ROE significantly relative to using the Canadian proxy group. On the other hand, ICG advocates for only using the Canadian utilities when determining the common equity ratio, while giving no weight to the same US proxy companies that ICG advocates using for the ROE calculations included in the North American proxy group.[58]

FortisBC submits that BCOAPO's exclusions of two companies from the North American gas and/or electric proxy groups are unwarranted. Even though Mr. Coyne has stated that he would probably have had to exclude Enbridge Inc. and Canadian Utilities Limited from his North American proxy groups if his screens were rigidly applied to Canadian companies, FortisBC points out that he refrained from doing so, as it would have undermined the value of using a North American proxy group with too few comparable Canadian utility companies. As noted by Dr. Lesser, there is a trade-off between larger proxy groups providing more statistically valid results, while some firms become less "comparable" to the regulated firm under review. In conclusion, FortisBC submits that Enbridge Inc. and Canadian Utilities Limited should remain a part of the North American proxy groups.[59]

FortisBC submits that the CEC's suggestion to average results from all proxy groups is unnecessary. Citing the experts' agreement on the appropriateness of using North American proxy groups, FortisBC submits that this approach is more appropriate than averaging the results of the Canadian, US and North American proxy groups. FortisBC points to the experts' agreement on Mr. Coyne's screening criteria for the North American and US proxy groups, while both experts noted the limited size and composition of the Canadian proxy group.[60]

FortisBC submits that RCIA's opposition to US data is inconsistent with the consensus expert evidence and regulatory practice. FortisBC notes that RCIA stands as the only intervener not to acknowledge the need to rely on US data. FortisBC submits that RCIA's position that Mr. Coyne has used assumptions that "baselessly incorporate … non-Canadian data, which in turn raise the assumption values and subsequently the recommended ROEs" is without merit. Indeed, using the October 2022 data, FortisBC points out that relying on the Canadian proxy group tends to slightly increase the overall ROE.[61]

[57] RCIA Final Argument, p. 17.
[58] FortisBC Reply Argument, pp. 55–56.
[59] FortisBC Reply Argument, pp. 57–58.
[60] Ibid., p. 57.
[61] Ibid., p. 58.

FortisBC also submits that there is ample basis for using US data in ROE analysis: a) both experts agree it is appropriate and both favour North American proxy groups; b) the BCUC's 2016 Decision used the US proxy groups results, citing both increasing integration and the scarcity of Canadian publicly traded utilities; c) other Canadian regulators have taken a similar approach; and d) the extent of integration has only increased over time.[62]

Finally, FortisBC observes that RCIA has chosen to rely on US data to estimate the risk-free rate when this has the effect of suppressing its ROE results.[63]

Panel Determination

We begin our analysis by noting that both Mr. Coyne and Dr. Lesser agree with the need to establish a proxy group of companies. In doing so, we are cognizant of the need to ensure that we are indeed comparing apples to apples, notwithstanding any jurisdictional and operational differences between the utility in question and its proposed peers**.**

Furthermore, the makeup of any proxy group inherently involves some degree of professional judgment and discretion. Unfortunately, there are no reasonable comparators to FEI and FBC in BC. This is because FEI is the single largest natural gas distributor in the Province (PNG is considerably smaller), and in respect of FBC, there are no other vertically integrated electric utilities that are of comparable size within BC. This requires us to look elsewhere in Canada for suitable proxies to FEI and FBC.

In an ideal world, there would be sufficient comparators to each of FEI and FBC in Canada to allow the BCUC to use only data pertaining to Canadian counterparts as a starting point. However, the reality is to the contrary. As Mr. Coyne notes in his evidence, using a Canadian proxy group comprised of publicly traded, regulated Canadian electric and natural gas utility companies with comparable business and financial characteristics yields only six utilities (three electric and three gas). Due to this limited number, the only screening criterion that Mr. Coyne uses is an investment grade credit rating, which all six utilities possess. However, as Table 2 above shows, all three Canadian gas utilities (AltaGas Ltd., Canadian Utilities Limited and Enbridge Inc.) have total assets and annual revenues that range from double to 28x those of FEI, and one of them (Enbridge Inc.) only derives 16 percent of its total income from its regulated activities.

With respect to the three Canadian electric utilities, Table 3 shows that all three have total assets and annual revenues that range from 5x to 17x those of FBC. This suggests that these comparators may provide limited value for the purpose of determining an appropriate ROE for FEI and FBC and that our review of proxy groups therefore should not be confined to Canadian utilities alone.

With respect to using non-Canadian comparators, as Mr. Coyne correctly points out, several Canadian regulators, including the BCUC, have recognized the integrated nature of Canadian and US financial markets, that Canadian utilities are competing for capital in global financial markets and that Canadian data are limited by the small number of publicly traded utilities. This has led to Canadian regulators adopting a pragmatic view of the use of US data and proxy groups to estimate the allowed ROE for Canadian regulated utilities. We see no

[62] FortisBC Reply Argument, p. 58.
[63] Ibid., p. 59.

reason to deviate from the BCUC's previous determination regarding the reasonableness of using US market data and proxy groups and endorse the wisdom of continuing to do so in light of the small sample size of Canadian comparators notwithstanding any jurisdictional differences. We accept Mr. Coyne's evidence that the US gas and electric proxy groups are more comparable to FEI and FBC, respectively, in terms of business risk than the Canadian proxy group utilities, many of which have significant non-gas or non-electric operations and unregulated operations.

We agree as a matter of principle with the experts' suggestion to give primary weight to North American gas and electricity proxy groups. As Dr. Lesser notes, this change in practice is reflected in FERC now allowing for Canadian companies to be included in proxy groups for setting ROEs for US pipelines and transmission utilities because of the level of integration and the similarity in how they are regulated.[64]

We note that ICG and BCOAPO both agree with FortisBC's submission that "the BCUC should place the greatest weight on the North American proxy group results in light of the expert evidence." We reject the CEC's suggestion to give substantial and equal weighting to the Canadian utilities, US utilities, and North American utilities proxy groups, and to simply average the results of each of these proxy groups. For the reasons outlined above, we find the use of the Canadian proxy groups and US proxy groups alone to be inferior to that of using a North American proxy group which has a reasonable mix of both Canadian and US comparators, and the averaging of the results of these three groups to be a poor compromise. On balance, we find that having a proxy group of North American comparators trumps any jurisdictional or structural differences. In making this determination, we rely on the facts that financial and capital markets are highly integrated and that utility regulatory regimes in North America are sufficiently similar for the purpose of establishing a comparable ROE.

However, with respect to the use of a North American gas proxy group, Mr. Coyne believes that only AltaGas Ltd. from the Canadian utilities would pass the six screening criteria he uses to create a group of essentially pure-play US gas and electric utilities with similar risk profiles to FEI and FBC respectively (Enbridge Inc. would not pass due its low portion of earnings from natural gas operations and similarly, Canadian Utilities Limited would not pass due to an approximate equal focus on electric and gas operations). With respect to a North American electric proxy group, Mr. Coyne expects three to four Canadian companies would pass the screening criteria. As a result, we find merit in BCOAPO's submission that Mr. Coyne's North American proxy groups will need to be revised to exclude the non-qualifying Canadian utilities.

Finally, we reject RCIA's submission for the BCUC to only use Canadian data for the Canadian proxy group because it is country and market specific. Instead, we agree with FortisBC that there is ample basis to include US data in our ROE analysis because:

- There are insufficient comparators to each of FEI and FBC in Canada to allow the BCUC to use only data pertaining to Canadian counterparts;
- Both experts agree that the inclusion of US data is appropriate and both favour the use of North American proxy groups;
- The BCUC's 2016 Decision used US proxy groups results, citing both increasing integration and the scarcity of Canadian publicly traded utilities; and

[64] Exhibit A2-3, Lesser Report, pp. 14–15.

- Other Canadian regulators (and more recently FERC) have taken a similar approach; and the extent of North American financial and capital markets integration has only increased over time.

As for the weighting of the ROE results amongst the North American proxy group as between the Canadian utilities and the US utilities, we find that to be largely a matter of judgment that is within our discretion. However, we accept both Mr. Coyne and BCOAPO's caution about the need to remove the non-qualifying Canadian utilities from the proxy group based on Mr. Coyne's screening criteria and the resulting impact that this would have on our assessment of an appropriate ROE. In Sections 5.2.5 and 5.3.3 of this decision, we review the impact of the removal of the non-qualifying Canadian utilities from the North American proxy group on the resulting ROEs.

3.3 Use of Recent Data – October 2022

More than two years have elapsed since the BCUC initiated this proceeding on January 18, 2021. Mr. Coyne filed his original expert evidence with ROE results that were based on December 2021 data. As Mr. Coyne relied on the average of the CAPM and Multi-Stage DCF model to estimate the allowed ROE for FEI and FBC, he believes, based on the December 2021 data, that a reasonable estimate of FEI's required cost of equity is 10.1 percent and that of FBC is 10.0 percent, based on the US proxy groups. Not surprisingly, due to the passage of time, the Panel is concerned about the staleness of that data as a basis for establishing an ROE in 2023. Therefore, based on FortisBC's submission that both experts had indicated a preference for using the latest data, we directed Mr. Coyne to update his ROE analysis using market data inclusive of September 30, 2022.[65]

3.3.1 Mr. Coyne's Original ROE Results

Mr. Coyne's ROE results based on December 2021 data are shown in Table 4 below for the four models that he presented: CAPM, Constant Growth DCF, Multi-Stage DCF and Risk Premium Model.

Table 4: Summary of Results – December 2021[66, 67]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
CAPM	10.68%	10.67%	11.05%	11.12%	10.8%
Constant Growth DCF	11.61%	10.39%	10.99%	9.57%	9.87%
Multi-Stage DCF	10.28%	9.53%	10.05%	8.82%	9.07%
Risk Premium		9.97%	9.97%	10.01%	10.1%
Average	**10.9%**	**10.3%**	**10.7%**	**10.0%**	**10.0%**
Avg CAPM and Multi-Stage DCF	**10.5%**	**10.1%**	**10.6%**	**10.0%**	**9.9%**

Table 4 shows that the average of all four models for the US gas proxy group is 10.3 percent, within the range of 9.53 percent to 10.67 percent, and the four-model average for the US electric proxy group is 10.0 percent,

[65] Order G-217-22, Appendix A, p. 11.

[66] Information in the table has been compiled from Exhibit B1-8-1, Appendix C, Figures 1 and 2, pp. 4–5.

[67] DCF results are based on 90-day average stock prices for proxy group companies. Results include a 50 bps for flotation costs and financial flexibility, except for U.S. risk premium results. The risk premium analysis was only conducted for the U.S. proxy groups; thus, there are no risk premium results the Canadian proxy group. The CAPM results do not include a leverage adjustment using the Hamada formula. The CAPM results do not include an adjustment for FBC's small size.

within the range of 8.82 percent and 11.12 percent. As Mr. Coyne relied on the average of the CAPM and Multi-Stage DCF model to estimate the allowed ROE for FEI and FBC, he opines, based on the December 2021 data, that a reasonable estimate of FEI's required cost of equity is 10.1 percent and that of FBC is 10.0 percent, based on the US proxy groups. As noted earlier, Mr. Coyne views that the US proxy group utilities are more comparable to FEI and FBC, respectively, in terms of business risk than those of the Canadian proxy group.

3.3.2 ROE Results from the September 2022 Update

Based on FortisBC's submission that both experts had indicated a preference for using the latest data, the BCUC directed Mr. Coyne to update his ROE analysis using market data inclusive of September 30, 2022.[68] Mr. Coyne's updated analysis using the September 30, 2022 data lowered the two-model average (Multi-Stage DCF and CAPM) from 10.1 percent (proposed) to 9.3 percent for FEI and from 10.0 percent (proposed) to 9.5 percent for FBC, based on the respective US proxy groups. Mr. Coyne describes those results as counter-intuitive in a macro environment characterized by sustained higher levels of inflation and substantially higher interest rates.[69] In his view, the December 2021 market data represents more normal market circumstances, before the war in Ukraine, aggressive interest rates' increases, sustained elevated levels of inflation, amongst other factors, significantly impacted capital markets in 2022. Accordingly, Mr. Coyne considers the December 2021 results to be more indicative of the actual cost of equity than data ending in September 2022 which are skewed by these market disruptions. Given the highly abnormal nature of 2022 and the transitory market circumstances, he is reluctant to change his ROE recommendations based solely on the September 2022 market data.[70]

The updates are shown below in Table 5.

Table 5: Summary of Results – September 2022 Update[71, 72]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
CAPM	10.08%	9.87%	10.24%	10.43%	10.17%
Constant Growth DCF	11.74%	9.69%	10.72%	9.66%	9.92%
Multi-Stage DCF	10.24%	8.81%	9.57%	8.64%	8.93%
Risk Premium		10.12%	10.12%	10.17%	10.17%
Average	**10.7%**	**9.6%**	**10.2%**	**9.7%**	**9.8%**
Avg CAPM and Multi-Stage DCF	**10.2%**	**9.3%**	**9.9%**	**9.5%**	**9.6%**

Mr. Coyne's updated analysis lowered the two-model average (Multi-Stage DCF and CAPM) from 10.1 percent (proposed) to 9.3 percent for FEI and from 10.0 percent (proposed) to 9.5 percent for FBC, based on the respective US proxy groups. Mr. Coyne describes those results as counter-intuitive in a macro environment characterized by sustained higher levels of inflation and substantially higher interest rates.[73] In Mr. Coyne's view, these market circumstances require an examination of the models and inputs used to estimate ROEs and the

[68] Order G-217-22, Appendix A, p. 11.
[69] Exhibit B1-8-1-2, pp. 2, 4.
[70] Exhibit B1-8-1-2, pp. 6–7.
[71] Information in the table has been compiled from Exhibit B1-8-1-2, Figures 1 and 3, pp. 2–3.
[72] See footnote 67.
[73] Exhibit B1-8-1-2, pp. 2, 4.

application of informed judgment. With respect to the CAPM, Mr. Coyne expresses the following concern related to the estimation of government bond yields (risk-free rate):

> The forecast interest rates used in the September 2022 analysis are well below current levels. This may be due to the Consensus Economics' forecast lagging the fast-moving market, or to an expectation that central bank actions will stall the economy and bring down interest rates in the future. This has a direct impact on the CAPM and Risk Premium models.

With respect to the DCF models, Mr. Coyne expresses the concern that utility stock prices had responded slowly to the down market in 2022 so the 90-day historic stock price averages used in the DCF models are not reflective of the market condition as of the end of September 2022.

Therefore, Mr. Coyne has replaced the forecast bond yields with the current bond yields (spot price) in the CAPM formula to examine the impact of this factor on the output of the CAPM (see Table 6, CAPM results). Also, Mr. Coyne has replaced the 90-trading day average utility stock prices with the current stock prices (spot price). The Multi-Stage DCF model results increase significantly across all proxy groups, and for the most part, surpasses the December 2021 results (see Table 6, Multi-Stage DCF results).

Table 6: Summary of Results – September 2022 Update – Spot Update[74, 75]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
CAPM	**10.10%**	**10.33%**	**10.51%**	**10.88%**	**10.50%**
Constant Growth DCF	12.38%	10.04%	11.14%	10.17%	10.49%
Multi-Stage DCF	**11.06%**	**9.21%**	**10.07%**	**9.23%**	**9.61%**
Risk Premium		10.22%	10.22%	10.28%	10.28%
Average	11.2%	10.0%	10.6%	10.1%	10.2%
Avg CAPM and Multi-Stage DCF	10.6%	9.8%	10.3%	10.1%	10.1%

Mr. Coyne notes, when incorporating these input changes into the CAPM and DCF model, the model results shift back towards those estimated in December 2021. In his view, the December 2021 market data represents more normal market circumstances, before the War in Ukraine, aggressive interest rates' increases, sustained elevated levels of inflation, amongst other factors, significantly impacted capital markets in 2022. While Mr. Coyne would not rely on spot market data to estimate the CAPM and Multi-Stage DCF model, he considers the spot market results more indicative of the actual cost of equity than data ending in September 2022 skewed by these market disruptions. The highly abnormal nature of 2022 and the transitory market circumstances explain Mr. Coyne's reluctance to change his ROE recommendations based solely on the September 2022 market data.[76]

3.3.3 ROE Results from the October 2022 Update

At the oral hearing, Mr. Coyne offered to further update his ROE model results to the end of October 2022. His updates were based on both the 90-day and 30-day average stock prices for the DCF model and are shown

[74] Information in the table has been compiled from Exhibit B1-8-1-2, Figures 3 and 4, p. 6.
[75] See footnote 67.
[76] Exhibit B1-8-1-2, pp. 6–7.

below, in Table 7 and Table 8, respectively. That analysis shows an increase in ROE[77] from the September 2022 data to an ROE of 9.5 percent (90-day) and 9.8 percent (30-day),) respectively for FEI, and 9.6 percent (90-day) and 10.0 percent (30-day) for FBC, based on the October 2022 data which more closely approximate the results using the December 2021 data.[78]

A more in-depth discussion on the appropriate averaging period to calculate the dividend yield in the Multi-Stage DCF model can be found in Section 5.3.1 below.

Table 7: Summary of Results – October 2022 Update (Scenario A.2, 90-day)[79]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
CAPM	10.12%	9.96%	10.30%	10.51%	10.24%
Constant Growth DCF	11.98%	9.81%	10.95%	9.67%	10.09%
Multi-Stage DCF	10.46%	8.94%	9.72%	8.74%	9.11%
Risk Premium		10.12%	10.12%	10.16%	10.16%
Average	**10.9%**	**9.7%**	**10.3%**	**9.8%**	**9.9%**
Avg CAPM and Multi-Stage DCF	**10.3%**	**9.5%**	**10.0%**	**9.6%**	**9.7%**

Table 8: Summary of Results – October 2022 Update (Scenario A.3, 30-day)[80]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
CAPM	10.07%	10.27%	10.46%	10.82%	10.45%
Constant Growth DCF	12.35%	10.07%	11.22%	9.98%	10.44%
Multi-Stage DCF	10.93%	9.24%	10.03%	9.10%	9.52%
Risk Premium		10.12%	10.12%	10.16%	10.16%
Average	**11.1%**	**9.9%**	**10.5%**	**10.0%**	**10.1%**
Avg CAPM and Multi-Stage DCF	**10.5%**	**9.8%**	**10.2%**	**10.0%**	**10.0%**

During the oral hearing, Mr. Coyne discussed the October 2022 data beginning to reflect more normal conditions with alignment around expectations for utility stock prices to decrease and dividend yield to start increasing, "but yet not fully in sync with where bond yields were going."[81]

In its final argument, FortisBC submits that the evidence supports a finding that the required cost of equity for FEI and FBC is, respectively, 10.1 percent (on 45 percent common equity) and 10.0 percent (on 40 percent common equity). FortisBC states that these proposed ROEs are based on the recommendations of Mr. Coyne, who is the only expert in this proceeding who conducted a full cost of capital analysis.[82] FortisBC also notes the

[77] Consisting of the average of CAPM and Multi-Stage DCF ROEs.
[78] Transcript Volume 4, p. 574, Lines 11–12.
[79] Information in the table has been compiled from Exhibit B1-50, Figures 3 and 4, p. 6.
[80] Information in the table has been compiled from Exhibit B1-50, Figures 5 and 6, p. 7.
[81] Transcript Volume 4, p. 574, Lines 11–12.
[82] FortisBC Final Argument, p. 121.

experts' alignment on key aspects of the analysis, including the reasonableness of relying primarily on the most recent October 2022 data.[83]

FortisBC states that, although the BCUC should be giving the most weight to October 2022 data, the BCUC can take additional comfort from the fact that there is reasonable alignment between the December 2021 and October 2022 ROE results. Mr. Coyne regards the December 2021 results as more reflective of "more normal market circumstances" than the September 2022 results filed prior to the oral hearing. The October 2022 results show the markets emerging from extraordinary market conditions over the summer, which have suppressed the September 2022 Update model results.[84]

Positions of Parties

ICG

ICG agrees that the BCUC should adopt the use of the October 2022 data. However, ICG submits that the BCUC should not conclude that the October 2022 results are potentially understating the investor-required return, as this would be inconsistent with the Efficient Market Hypothesis[85] and investor expectations would be substituted with those of the BCUC.[86]

BCOAPO

BCOAPO points to the experts' agreement to use the most recent market data to justify BCOAPO's use of Mr. Coyne's October 2022 results for its own ROE calculations and recommendations.

The CEC

The CEC submits that the BCUC should give weight to Mr. Coyne's ROE calculations using October 2022 data in making its informed judgement about how capital markets are impacting ROE models and what is a fair return, as these results appear to be better and sufficiently recent. The CEC further submits that FortisBC's observation that there is reasonable alignment between results based on the October 2022 data and the December 2021 data is important and helps validate the use of the October 2022 data on which the BCUC should rely.[87]

The CEC notes the sensitivity of ROE modelling to movements in bond yields and prices in stock markets to be out of sync for extended periods of time, and that use of data that may not be in sync could distort the results significantly. The CEC submits that the experts' attention to this and the selection of preferred data points are important factors for the BCUC to be relying on and finding appropriate as the basis for its ROE decisions.[88]

[83] FortisBC Final Argument, p. 122.
[84] Ibid., p. 146.
[85] Efficient Market Hypothesis is described in Section 4.0.
[86] ICG Final Argument, p. 11.
[87] The CEC Final Argument, p. 38, 43.
[88] Ibid., p. 44.

RCIA

RCIA makes no submission *per se* on which data to use; however, RCIA has relied on the December 2021 data to make its ROE recommendations.

FortisBC Reply Argument

FortisBC states that, while RCIA does not explain why it has disregarded the October 2022 data, its reliance on December 2021 data is a significant determinant of its low ROE recommendations. Even if the BCUC were to accept each of RCIA's methodological changes to Mr. Coyne's CAPM, which FortisBC submits the BCUC should not do, simply updating RCIA's recommended changes with October 2022 data produces an ROE of 9.43 percent, which is significantly higher than RCIA's proposed 8.00 percent to 8.75 percent. And averaging that result with the Canadian Multi-Stage DCF result of 10.46 percent would result in an ROE of 9.94 percent for both FEI and FBC. FortisBC submits that these values support Mr. Coyne's recommendations of 10.1 percent (on 45 percent common equity) for FEI and 10.0 percent (on 40 percent common equity) for FBC.[89]

Panel Discussion

The Panel is persuaded by Mr. Coyne's evidence, as the only expert in the proceeding who has prepared a full cost of capital analysis, that the October 2022 data are beginning to reflect more normal conditions with alignment around expectations for utility stock prices to decrease and dividend yield to start increasing, albeit "yet not fully in sync with where bond yields were going."

The Panel accepts that overall, the October 2022 results show the markets emerging from extraordinary market conditions over the summer of 2022, which may have artificially suppressed Mr. Coyne's September 2022 Update model results due to market volatility.[90]

The Panel is persuaded about the reasonableness of using the October 2022 market data, being the most recent publicly available data, to inform us in the establishment of an appropriate cost of capital. In that regard, we note the two experts' alignment on key aspects of the analysis, including the reasonableness of relying primarily on the most recent October 2022 data.[91] We note that all the interveners who provided submissions on the timing of the data support the use of the October 2022 data.

While both FortisBC and the CEC point to the fact there is reasonable alignment between the results based on the October 2022 data and those based on the December 2021 data as an important factor that helps to validate the use of the October 2022 data,[92] we do not consider that to be persuasive. Rather, we find that the passage of time has rendered the December 2021 data stale as a basis for establishing an appropriate cost of capital in 2023, and that, absent special circumstances, reliance on the most current data provides a more sound and principled basis for setting the cost of capital.

[89] FortisBC Reply Argument, pp. 50–51.
[90] FortisBC Final Argument, p. 146.
[91] Ibid., p. 122.
[92] The CEC Final Argument, p. 38, 43.

4.0 BUSINESS RISK AND CREDIT RATINGS

FortisBC describes business risk analysis as an important factor in an investor's decision-making process and states, from the investors' perspective, any factor that may negatively impact a utility's current and future cash flows should be considered a risk.[93] FortisBC also notes that business risk and financial risk come into play in the determination of a fair return through a comparison with other utilities such as Mr. Coyne's analysis as part of the Application.[94]

FortisBC explains that both business risk and financial risk impact capital structure, as the BCUC has historically given substantial weight to business risk, and more particularly, changes in business risk, to justify its capital structure determinations for both FEI and FBC.[95] As such, FEI and FBC demonstrate how the changes in each utility's business risks justify FEI and FBC's proposed common equity ratios.

FortisBC also addresses financial risk in its submissions and the importance of maintaining FEI's and FBC's credit ratings, and provides evidence as to why weak financial metrics can result in negative rating action.[96] As Mr. Coyne explains, a more highly leveraged company requires higher net income to cover its fixed interest obligations, which must be paid before there is any net income for shareholders.[97] FortisBC explains, in addition to business risk, financial risk and credit ratings determine the utilities' ability to attract capital and maintain each utility's financial strength.[98]

Dr. Lesser describes under the semi-strong form of the Efficient Market Hypothesis that prices paid for different types of securities – both debt and equity – must reflect all relevant publicly available information available to investors. This also requires that all perceived risks are taken into account by investors. As part of the decision-making process, Dr. Lesser states, investors as a class must be aware of or have efficient access to all publicly available information, including bond ratings and rating agency reports, equity ratings and discussions by ratings agency reports, and the various methodologies used to determine the cost of debt and equity as contained in the finance literature.[99]

Dr. Lesser and Mr. Coyne both agree that if perceived risks are commonly believed, those risks will be relevant to the calculation of expected returns. Mr. Coyne also notes that looking at the last five years would show real risks that have come to fruition.[100] Mr. Coyne states that overall and taken together, business risk and financial risk are the primary elements of risk that investors consider when establishing their return requirements.[101]

Given the impact of business risk on utilities' expected return, the Panel will review this from the perspective of the shareholder, as it is an important consideration for investors when making their investment decisions. This is

[93] Exhibit B1-8-1, p. 2.
[94] Exhibit B-1, p. 2.
[95] Exhibit B1-8, p. 5.
[96] Ibid.
[97] Exhibit B1-8-1, Appendix C, p. 73.
[98] Exhibit B1-8, p. 25.
[99] Oral Hearing Transcript, Volume 4, p. 474, Exhibit B1-40, p. 15.
[100] Oral Hearing Transcript, Volume 4, p. 475, Volume 5B, p. 914.
[101] Exhibit B1-8-1, Appendix C, p. 73.

consistent with the BCUC's view of risk in the 2013 Decision,[102] as the probability that future cash flows will not be realized or will be variable, resulting in a failure to meet investor expectations.[103]

Part of this Panel's review includes investors' consideration of credit ratings and whether this has an impact on the Panel's overall determination of ROE and capital structure. The Panel notes that, while this section focuses on business risk, the related financial risk is addressed in Section 6.0 where the Panel makes its overall determinations on ROE and capital structure.

Therefore in this section, the Panel will focus on the following issues:

1. The importance of credit ratings and whether they ought to be an input in the overall determination on ROE and capital structure; and
2. Whether business risk has changed from an investor and shareholder's perspective for FEI and FBC.

4.1 Credit Ratings

Overview

Credit ratings take into account business and financial risks and can provide a broad measure of investment risk for investors.[104]

In determining whether specific credit ratings are to be maintained, credit rating agencies may take into account such factors as evolving concerns regarding energy transition impacts, as well as the utility's financial leverage. Credit ratings can affect a utility's access to debt, as well as its ability to earn a fair return, which may be supported (or countered) by sudden changes in credit ratings. For example, a significant downgrade in credit rating could impair the financial integrity of the utility by reducing its ability to maintain credit and access capital on reasonable terms.[105] Specifically, credit ratings can drive the cost of debt, whereby a higher credit rating is associated with a lower cost of debt and vice versa.[106]

In the 2013 Decision, the BCUC noted there were advantages to establishing an ROE and capital structure which would allow for existing investment grade rating to be maintained but also noted this may result in a capital structure or ROE that is suboptimal in the circumstances. The BCUC in the 2013 GCOC proceeding, supported the maintenance of an investment grade credit rating but only to the extent that it could be maintained without going beyond what is required by the Fair Return Standard.[107] Therefore, The Panel in this proceeding needs to determine the importance it should place on the maintenance of a credit rating when establishing the utility's capital structure and ROE.

Mr. Coyne has included credit ratings as part of his screening test for proxy groups in this proceeding, requiring an investment grade credit rating to ensure that the proxy group companies, like FEI and FBC, are in "sound

[102] BCUC 2013 GCOC Stage 1, Order G-75-13 and Decision dated May 10, 2013 (2013 Decision).
[103] 2013 Decision, p. 24.
[104] Exhibit B1-8-1, Appendix C, p. 43.
[105] 2013 Decision, p. 48.
[106] Exhibit B1-13, RCIA IR 2.2.1 and 4.1.2.
[107] 2013 Decision, pp. 48–50.

financial condition."[108] Credit analysts focus on the potential for default on debt obligations and rate the financial strength of the companies they cover, with BBB from S&P or Baa from Moody's being investment grade.[109] Mr. Coyne specifically screened "credit ratings of at least BBB+ from S&P or Baa1 from Moody's."[110] He notes that credit ratings are commonly used as screens in cost of capital analysis in regulatory proceedings; however, they are "exclusively focused on the risks for debt investors, but do not account for the risks for equity investors."[111]

FEI

FEI is rated by Moody's as of December 2022 and DBRS Morningstar (DBRS) as of March 2021, at A3 (stable)[112] and A (stable),[113] respectively. FortisBC explains that FEI's A level rating ensures that the utility is able to access capital markets on reasonable terms and pricing in most market conditions. FortisBC states, FEI's access to debt capital markets would be more restricted if FEI were downgraded from its current A-level rating to the BBB category rating. If FEI is downgraded to a BBB-category rating, coupled with the fact that FEI is facing increasing scrutiny from investors, credit rating agencies and financial institutions around environmental, social and governance (ESG)-related risks may make it more difficult for FEI to access debt capital markets, especially in times of significant volatility.[114]

Moody's provides the following overview of FEI's profile in its December 2022 Report:[115]

> FortisBC Energy Inc.'s (FEI) credit profile is driven by its low business risk gas transmission and distribution assets that operate in the credit supportive regulatory environment of British Columbia and its monopoly position in its service territory. The company has a long track record of earning its allowed return on equity and its cash flow continues to be highly predictable. These strengths are offset by the company's weak financial metrics that we forecast will be in the range of 11-13% CFO pre-W/C to debt. These financial metrics are primarily a product of a low allowed equity component of its capital structure, a relatively low return on equity, and depreciation rates.
>
> The stable outlook for FEI is based on our expectation of a continuing supportive regulatory environment and consistent, albeit weak, financial metrics that provide limited cushion at the current rating level.[116]

Moody's has also begun to incorporate ESG-related criteria into its credit rating analyses, while other investment firms and pension funds have adopted restrictions that prohibit them from owning equity or debt in companies seen as contributing to climate change.[117]

[108] Exhibit B1-8-1, Appendix C, p. 43.
[109] Ibid., Appendix C, p. 117.
[110] Ibid., Appendix C, p. 40.
[111] Exhibit B1-8-1, Appendix C, p. 43.
[112] Exhibit B1-50-1, Moody's Investors Service, Credit Opinion: FortisBC Energy Inc. dated December 9, 2022, p. 1.
[113] Exhibit B1-8-1, Appendix D – 2 Credit Rating Reports, FortisBC Energy Inc. DBRS – 2021 Credit Rating Report.
[114] Exhibit B1-9, BCUC IR 6.3.
[115] Exhibit B1-50-1, Moody's Investors Service, Credit Opinion: FortisBC Energy Inc. dated December 9, 2022, p. 1.
[116] Ibid., p. 2.
[117] Exhibit B1-8-1, Appendix C, p. 80.

Moody's provides an ESG impact score for FEI in its December 2022 Report of moderately negative indicating that FEI's ESG attributes have an overall limited impact on the current rating, with potential for future negative impact over time. Moody's states, the scores reflect high environmental risks, moderate social risks and low governance risks with greatest area of concern being "Environmental."[118] Moody's states that FEI's high environmental risk reflects its elevated exposure to carbon transition risk given BC's legislated commitments to reduce greenhouse gas emissions by 40 percent by 2030 and 80 percent by 2050 and that all of the company's network operations are gas.[119]

DBRS confirms FEI's current credit ratings and notes all trends are stable according to its March 2021 credit report on FEI.[120] FortisBC notes that the confirmations reflect FEI's strong financial and business risk profile and its financial profile remained solid in the last 12 months. Further, DBRS notes that 2021 credit metrics "remained relatively stable and consistent" with its required levels to support the current ratings and "FEI's liquidity was viewed as solid, reflecting stable cash flows, sizable credit facility availability, and the next long-term debt maturity is in 2026."[121]

In addition, DBRS acknowledges that the BCUC has initiated this GCOC proceeding, which will include a review of the deemed equity component of total capital structure and allowed ROE for FEI and other regulated utilities and notes that any material changes in the allowed ROE or deemed equity may affect FEI's credit profile.[122]

Positions of Parties

FortisBC submits that maintaining FEI's existing A-category rating is important for accessing capital on reasonable terms in variable market conditions. Furthermore, an increase in FEI's common equity ratio is required to support its existing credit rating, which is under strain from weak financial metrics, increased weighting for ESG criteria, and potential changes in interest deductibility rules.[123]

Interveners offer differing views on FEI's credit ratings.

The CEC submits that the objective of maintaining the FEI A credit rating is useful and appropriate for FEI customers. Further, the CEC submits that evidence with respect to equity thickness and its impact on credit ratings, "combined with understanding the credit rating process and the consequences for FEI and FBC borrowing and the impacts on customers," leads the CEC to favour increasing the FEI equity thickness, increasing it to 40 percent, and not overreaching on the ROE increases. The CEC submits that "the impact on the credit rating process is more critical than perhaps additional small percentages on the ROE increases."[124] The CEC also notes, "nobody in that 2016 proceeding was using terms like "Energy Transition" or Environmental, Social and Governance (ESG) based investing"[125] and that "[t]here is increasing weight being given by investors to ESG issues."[126]

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[118] Exhibit B1-50-1, Moody's Investors Service, Credit Opinion: FortisBC Energy Inc. dated December 9, 2022, pp. 6–7.
[119] Ibid., p. 7.
[120] Exhibit B1-8-1, Appendix D, FEI DBRS Rating Report dated January 5, 2022, p. 1.
[121] Ibid., p. 2.
[122] Ibid., p. 1.
[123] FortisBC Final Argument, pp. 79–80.
[124] The CEC Final Argument, p. 47.
[125] FortisBC Final Argument, p. 24.
[126] The CEC Final Argument, p. 47.

In contrast, BCOAPO argues that the "financial circumstances are not as "dire" as portrayed"[127] and notes that "FortisBC has confirmed that the impact due to changes in regulatory assets could be either up or down in a given year and that the credit rating agencies fully understand this."[128] BCOAPO concludes that much of the business and financial risk associated with the Energy Transition/ESG is already captured by the financial models (e.g. the increased Beta in the CAPM) used to determine the recommended ROE. As a result of the relevant considerations, BCOAPO's recommends an increase in FEI's equity ratio in the range of 40 percent to 42 percent.[129]

In response, FortisBC states that "[t]he primary consideration regarding ESG is not FEI's position relative to other gas companies, but rather the fact that it will be more challenging for FEI to maintain its current rating than it had been in the past given the increasing weight that investors and rating agencies are giving to ESG considerations."[130] FortisBC argues that "FEI needs a stronger balance sheet to counteract this downward pressure."[131] Furthermore, with respect to raising capital, FortisBC explains that FEI's ability has been "facilitated by its existing A level credit rating" and that "[m]aintaining an A level credit rating ensures FEI is able to access capital markets on reasonable terms and pricing in most market conditions."[132]

FBC

FBC is rated by Moody's as of December 2022 and DBRS as of March 2021 at Baa1 (stable)[133] and A (low) (stable),[134] respectively. FortisBC explains that FBC has limited access to the market compared to a larger A-level rated utility, such as FEI, due to FBC's smaller size, its credit rating, and restrictive trust indentures that are sensitive to changes in the cost of borrowing. Therefore, FortisBC states, maintaining FBC's credit rating is critical. If FBC's credit rating is downgraded, its access to capital markets would be further diminished and the pricing and terms for the financing of the debt component of its capital expenditures and operations would become less favourable.[135]

Moody's provides the following overview of FBC's profile in its December 2022 Report:[136]

> FortisBC Inc.'s (FBC) credit profile is driven by its credit supportive regulatory environment and the monopoly position of its stable vertically integrated utility assets. Like affiliate utility FortisBC Energy, Inc. (FEI), the company has a track record of earning its allowed return on equity and its cash flow continues to be highly predictable. This is offset by the company's weak financial metrics, that we forecast will be in the range of 8-10% CFO pre-W/C to debt. These financial metrics are primarily the product of a low allowed equity ratio, a low return on equity, depreciation rates as well as a significant capitalized lease adjustment.

[127] BCOAPO Final Argument, p. 61.
[128] Ibid., p. 61–62.
[129] BCOAPO Final Argument, p. 65.
[130] FortisBC Reply Argument, p. 29.
[131] Ibid., p. 29.
[132] Ibid.
[133] Exhibit B2-8, Moody's Investors Service, Credit Opinion: FortisBC Inc. dated December 12, 2022, p. 1.
[134] Exhibit B1-8-1, Appendix D – 2 Credit Rating Reports, FortisBC Inc. DBRS – 2021 Credit Rating Report.
[135] Exhibit B1-9, BCUC IR 26.1.
[136] Exhibit B2-8, Moody's Investors Service, Credit Opinion: FortisBC Inc. dated December 12, 2022, p. 1.

As with FEI, Moody's has begun to include a ESG score for FBC. As of Moody's December 2022 Report, FBC is rated neutral-to-low because its ESG attributes have a limited impact on the current credit rating. Moody's states, FBC's score incorporates moderately negative environmental and social risks and low-to-neutral governance risks.[137]

Moody's does not have a predominant concern about FBC's ESG considerations but states, FBC's moderately negative environmental risk is driven primarily by its exposure to physical climate risks.[138] Moody's notes that FBC's exposure to social risks is moderately negative, as there is a fundamental risk associated with regulated utilities that demographic and social trends could include social pressure of public concerns around affordability, utility reputational risks or environmental concerns. These pressures could result in adverse political intervention or regulatory challenges.[139]

DBRS states in its March 2021 credit report that the FBC rating reflects FBC's strong financial risk profile and DBRS 's view that the regulatory framework in BC is supportive and stable for FBC's business risk profile over the medium term.[140]

DBRS notes that any material changes in the allowed ROE or deemed equity as a result of GCOC proceedings may affect FBC's credit profile. FBC's credit metrics in 2020 remained solidly supportive of the current ratings and the cash flow-to-debt and interest coverage ratios were consistent with the 2019 levels. DBRS expects FBC's credit metrics to remain stable over the near to medium term. If FBC's credit metrics weaken significantly from the current level on a sustained basis, it could negatively affect the company's ratings. However, DBRS considers this scenario unlikely.[141]

Positions of Parties

FortisBC submits that FBC's financial metrics are very weak for its current rating and are consistent with a non-investment grade credit (i.e. Moody's Ba rating category). FortisBC states, FBC's credit rating is at risk of a downgrade if its financial metrics deteriorate further, which would have significant ramifications for FBC's ability to issue debt on reasonable terms and price. FortisBC submits that key determinants of FBC's weak financial metrics are the low allowed equity component of its capital structure and low return on equity.[142]

Interveners offer differing views on FBC's credit ratings.

The CEC accepts the need for FBC to maintain its credit rating and submits that the proposal to maintain its equity thickness at 40 percent is reasonable. The CEC acknowledges that a downgrade of FBC's credit rating would diminish its access to capital markets and to favourable prices and terms of financing for its debt issuances, as FBC has smaller and less frequent requirements to raise capital, which causes it to not be in the bond index. These issues contribute to weaker demand and lower liquidity for FBC bonds.[143]

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[137] Exhibit B2-8, Moody's Investors Service, Credit Opinion: FortisBC Inc. dated December 12, 2022, p. 6.
[138] Ibid., p. 7.
[139] Ibid.
[140] Exhibit B1-8-1, Appendix D, DBRS FBC Rating Report dated March 15, 2021, p. 1.
[141] Ibid., p. 2.
[142] FortisBC Final Argument, p. 116.
[143] The CEC Final Argument, pp. 49–50.

BCOAPO states that it does not accept that there is any evidence that FBC's business risk or its financial risk is as significant as FBC and Mr. Coyne would have parties believe. However, BCOAPO submits that due to FBC's weak credit rating, it accepts Mr. Coyne and FBC's recommendation that the deemed equity ratio be set at 40 percent.[144] BCOAPO states that in FBC's case, there is little discussion regarding the implications of ESG considerations on the company's access to capital and Mr. Coyne's evidence indicates that FBC would fall at the lower end of the carbon intensity spectrum. As a result, BCOAPO expects "that this characterization will continue to exert a positive, or at worst, a neutral influence in terms of FBC's access to capital, negating any concerns from an ESG perspective."[145]

ICG states that Mr. Coyne opines that FBC's core credit ratios provide little cushion for FBC to maintain its current long-term issuer rating of Baa1 from Moody's. However, ICG notes that the credit report filed as part of FortisBC's Undertaking No. 3 confirmed all FBC credit ratings and concluded that the credit metrics in 2021 remained solidly supportive of the current ratings. ICG states that the report acknowledges if FBC's credit metrics weaken on a sustained basis, it could negatively affect the company's ratings, but notes that this scenario is unlikely and FBC's financial profile remained stable and strong in 2021. ICG submits that this contradicts submissions in FortisBC's Final Argument where it states that FBC's financial metrics are now weak to the point of being generally inconsistent with its current rating.[146]

In response, FortisBC states, the Fair Return Standard requires more than meeting the lowest common denominator; a utility should be able to attract capital on reasonable terms, and financial integrity is also a relevant consideration. FortisBC submits that FBC is facing risk of a downgrade. FortisBC states that most of FBC's financial metrics are consistent with a non-investment grade credit rating, which if applied to FBC, would be a significantly pervasive and profoundly negative development for the utility and customers, as investors generally do not invest in non-investment grade entities, and raising capital would become extremely difficult for FBC.[147]

Panel Discussion

In determining an appropriate ROE and capital structure for FEI and FBC, the Panel considers that it should be careful not to adversely affect each utility's current credit ratings because investors view credit ratings as reflective of the credit rating agencies' assessment of their business and financial risks and hence, the riskiness of such investments.

The Panel is aware that both debt and equity investors, in particular institutional investors, rely on credit rating agencies' reports, which are readily available and updated regularly, to inform them about the wisdom of maintaining, reducing or increasing their respective investments. Furthermore, the Panel accepts FEI and FBC's submission that a lowering of credit agency ratings can raise concerns for potential investors about the utilities' cost of debt and access to the credit market at reasonable cost. Therefore, there are advantages to establishing an ROE and capital structure which will allow for the utilities' existing credit agency ratings to be maintained and

[144] BCOAPO Final Argument, p. 70.
[145] BCOAPO Final Argument, p. 68.
[146] ICG Final Argument, pp. 16–17.
[147] FortisBC Reply Argument, p. 39.

avoid eroding each utility's ability to access capital at reasonable cost.[148] Simply put, investors view credit ratings as reflective of the utilities' relative financial health and ability to access capital at a reasonable cost.

The BCUC must ensure that the entities it regulates maintain the ability to access capital at a reasonable cost to enable such entities to continue to finance company operations and make the necessary capital investments to maintain and upgrade company systems. Our goal is to have financially sound utilities operating in the province so as to avoid a worst case scenario in which a utility defaults because it is not able to access capital at a reasonable cost. We do not consider that allowing such a scenario to unfold is in the interest of the utility, ratepayers or the public. Accordingly, in establishing an appropriate ROE and capital structure for the utilities, we must strive to strike the right balance between debt and capital which does not result in a credit rating downgrade for the utility.

We observe that generally speaking, both FEI and FBC have relatively sound and stable credit ratings, notwithstanding concerns about increasing Energy Transition and ESG impacts in the case of FEI and weak financial metrics in the case of FBC as we discuss in the following two subsections. In setting the ROE and capital structure for each utility, we consider it prudent not to take any action that would directly or indirectly have an adverse impact on either FEI or FBC's current credit ratings, as that would drive up each utility's cost to access capital which in turn is likely to result in rate increases for FEI and FBC customers.

However, assuming the ROE remains the same and all else equal, as long as we do not decrease FEI or FBC's current equity component, we view the risk of a credit rating downgrade to be unlikely in the circumstances. Similarly, all else being equal, any increases in FEI or FBC's equity component that we may approve as a result of this proceeding are likely to improve the financial health and viability of the utilities to the mutual benefit of the utilities' shareholders and ratepayers.

In this case, FEI and FBC's current credit ratings are satisfactory for maintaining the financial integrity of the respective utility and do not require an improvement for each utility to be able to continue to attract capital on reasonable terms. Therefore, the Panel does not view the utilities' credit ratings *per se*, unlike business risks, as a relevant input that would warrant a higher or lower ROE or change in capital structure in these circumstances.

4.2 FEI Business Risk

FEI's business risk was last reviewed in the FEI 2016 Cost of Capital (FEI 2016 COC[149]) proceeding.[150] In its evidence here, FEI provides an overview of its business risks across nine categories: two of which it considers to be of similar risk-level since the FEI 2016 COC proceeding and the remaining seven of which it considers to be of higher risk. FEI used the same categories in the FEI 2016 COC proceeding, other than the Indigenous Rights and Engagement risk factor, that has now been promoted to its own risk category.[151] Additionally, some of the existing risk categories have new risk factors: energy supply renewable gas supply factor and operating attitudes towards fossil-fuel industry, municipal operating challenges, and cybersecurity. FEI notes, while all of the risk categories are important contributors to its overall business risk, political risk and regulatory risk have the

[148] 2013 Decision, p. 48.
[149] FBC Application for its Common Equity Component and Return on Equity for 2016 proceeding.
[150] Exhibit B1-8, p. 2.
[151] Exhibit B1-8-1, Appendix A, p. 1.

greatest potential to affect FEI's ability to earn its return on, and of, invested capital.[152] FEI summarizes its risk as follows:[153]

> The risk factor analysis demonstrates that FEI's overall business risk is significantly higher in comparison to the 2016 Proceeding for two reasons. First, most categories present higher risk since the 2016 Proceeding. Second, political and regulatory risk, which are both higher due in large measure to the Energy Transition, are the risk categories where changes presently have the greatest potential to affect FEI's ability to earn its return on, and of, invested capital.

Table 9 below provides a summary of this risk assessment.

Table 9: Summary of FEI's Business Risk[154]

Business Risk Category	Risk Factor	Change in Risk Since 2016
Business Profile		**Similar**
	Type and size of the utility	Similar
	Service area	Similar
	Customer profile	Higher
Economic Conditions		**Higher**
	Overall economic conditions	Higher
Political		**Higher**
	Climate action goals and expectations	Higher
	Energy policies and legislation	Higher
Indigenous Rights and Engagement		**Higher**
	Legislative and policy developments	Higher
	Aboriginal rights and title	Higher
	Social license/work interruption	Higher
Energy Price		**Higher**
	Commodity price	Higher
	Commodity price volatility	Higher
	Price competitiveness and carbon tax	Higher
Demand/Market		**Higher**
	Perception of energy	Higher
	New technology and energy forms	Higher
	Net customer additions	Higher
	Changes in building type and capture rates	Similar
	Changes in end-use market share	Higher
	Changes in use per customer	Similar
Energy Supply		**Similar**
	Availability of supply	Similar
	Access to supply	Similar
	Renewable Gas supply	New (Higher)
Operating		**Higher**
	Aging infrastructure and time dependent threats	Similar
	Third party damages	Similar
	Attitudes towards fossil-fuel industry	New (Higher)
	Municipal operating challenges	New (Higher)
	Cybersecurity	New (Higher)
	Unexpected events	Higher
Regulatory		**Higher**
	Regulatory uncertainty and lag	Higher
	Administrative penalties	Similar

[152] Exhibit B1-8-1, Appendix A, p. 2
[153] FortisBC Final Argument, p. 32.
[154] Exhibit B1-8-1, Appendix A, pp. 2–3.

While energy transition is not included as its own risk category in FEI's risk assessment, it covers a broad spectrum of risks that are transforming gas utilities' risk profiles in North America,[155] and therefore is discussed before the other risk categories, as it has implications for many of the other categories.

The sections below review each of the business risk categories and the positions of parties. To provide a comprehensive discussion, the Panel addresses all submissions received pertaining to FEI before making its overall findings and determinations on changes in FEI's business risk since the FEI 2016 COC proceeding.

Energy Transition

FortisBC reports the increasing pace of the energy transition from fossil fuels to cleaner sources of energy through electrification of the economy, and increased recognition of the effect of this transition on natural gas utilities by utility analysts and investors, represent what Concentric refers to as a "transformation of long-term risk environment" for natural gas utilities across North America.[156] FortisBC explains that the term "Energy Transition" risk is a new umbrella term which covers that spectrum of risk.[157]

FortisBC states that this risk is apparent in the provincial government's recently updated CleanBC Roadmap to 2030 (Roadmap) which establishes a greenhouse gas reduction obligation for natural gas utilities to reduce emissions from energy delivered to the buildings and industrial sectors. The Roadmap is anticipated to have a significant impact on FEI's competitive and operational landscape with implications for FEI's customer rates and throughput. FortisBC has characterized the policy developments associated with the Energy Transition as political risk, but also states that these developments impact other risk categories since the FEI 2016 COC proceeding such as Indigenous Rights and Engagement, demand/market, regulatory, operating, and economic conditions risks.[158]

Mr. Coyne notes that the Energy Transition creates stranded asset risk for FEI by introducing the possibility that significant portions of FEI's assets will cease being used and useful before being fully depreciated, which could impact growth prospects or profitability of FEI's operations.[159] Mr. Coyne also notes that although according to S&P, "[s]tranded costs have not up until now been an issue for gas local distribution companies," concerns about stranded assets have spiked recently, "[c]hallenges with respect to addressing stranded costs arising from the latest energy transition are likely to continue and intensify in 2021 and beyond."[160]

Dr. Lesser also considers Energy Transition risk to be primarily a regulatory/policy risk because companies are required to meet specific policy goals. The risks of meeting those goals can then result in secondary business and financial risks (e.g. cost-overruns associated with a new technology and stranded asset costs), depending on how regulators treat the companies' efforts to meet those regulatory/policy goals. Dr. Lesser notes that there is an inherent circularity in how Energy Transition risk should be treated. If, for example, legislators pass a law guaranteeing recovery of all potential stranded costs that may arise from the Energy Transition, then there is

[155] Exhibit B1-9, BCUC IR 4.1.
[156] Exhibit B1-8, p. 3.
[157] Exhibit B1-9, BCUC IR 4.1.
[158] Exhibit B1-8, p.3; Exhibit B1-8-1, Appendix A, p. 4.
[159] Exhibit B1-8-1, Appendix C, pp. 73, 90.
[160] Ibid., p. 90.

little additional financial risk to the utility. But if regulators are hostile to stranded cost recovery, then financial markets may require a premium to provide funds to the utility.[161]

Positions of Parties

BCOAPO submits that Energy Transition also includes elements of risk associated with Price (e.g. carbon taxes), Regulatory (e.g. increased complexity and need for flexibility) and Supply (e.g. issues related to Renewable Gas). BCOAPO accepts that political considerations driven by climate change are the impetus behind the risks associated with Energy Transition. However, to the extent current implemented policies addressing climate change concerns are identified and assessed in the consideration of the risks associated with FEI's other risk categories, such policies should not also be identified as political risk. [162]

The CEC submits, "the Energy Transition risks are real and moving quickly in BC" and the BCUC "needs to give significant weighting to the importance of the existential issues facing FEI."[163] However, the CEC finds FEI's risk analysis to be overstated and expects that FEI' s risk will be largely mitigated by new technologies and future developments.[164] Further, the CEC suggests there may be value in separating "the Energy Transition issue out when assessing FEI' s business risk, and evaluate this risk independently against time and other comparable utilities in Canada and the US, instead of addressing it in multiple areas and muddying the other analyses."[165] The CEC submits that it might be appropriate and in the public interest for the BCUC to determine an established risk factor that can be incorporated into FEI' s financial analyses to account for stranded asset risk.[166]

RCIA explains that the issue of Energy Transition "is not new" and "will be with us for a long time."[167] RCIA submits that FortisBC's business risk narrative identifies the same underlying challenges (e.g. climate change policies) as multiple different business risks. RCIA argues that FortisBC exaggerates the depth and breadth of those risks, as it fails to consider to what extent the various risks are duplicative, overlapping or are simply unlikely to result in any material and unrecoverable losses.[168]

MoveUP advocates for "explicit recognition" of diverging impacts, risks and opportunities arising between electric and gas utilities and that this is "foundational to achieving an orderly and rational response to evolving climate policy, including electrification."[169] MoveUP submits that unless carefully calibrated, increasing a gas utility's ROE to manage transition risk could potentially magnify risk and be self-defeating in the longer term.[170]

In reply, FortisBC states that Energy Transition represents a fundamental change that has a pervasive impact on FEI's business.[171] Additionally, FortisBC submits that the Energy Transition is a "notable" area "where BC is markedly different," and where FEI's risk has increased the most since the FEI 2016 COC proceeding.[172] More

[161] Exhibit A2-24, BCOAPO IR 14.3 and 14.4.
[162] BCOAPO Final Argument, p. 15.
[163] The CEC Final Argument, p. 48.
[164] Ibid, p. 28.
[165] Ibid., p. 11.
[166] Ibid., p. 3.
[167] RCIA Final Argument, p. 30.
[168] Ibid., p. 4.
[169] MoveUP Final Argument, pp. 1–2.
[170] Ibid., p. 2.
[171] FortisBC Reply Argument, p. 17.
[172] Ibid., p. 15.

details of FortisBC's reply to intervener arguments on Energy Transition risk are presented under individual risk categories below.

Business Profile

Business profile risk, as defined by FortisBC, is determined by analyzing the type and size, service area, and customer profile of a utility, which are its fundamental characteristics.[173] FortisBC explains that FEI's primary market continues to be residential and commercial space and water heating end-uses. Further, despite some shift in load to the more volatile / sensitive industrial and low carbon transportation sectors, FEI assesses its overall business profile risk to be similar to that in the FEI 2016 COC proceeding.[174]

Positions of Parties

BCOAPO and the CEC agree with FortisBC's business profile assessment.[175]

Economic Conditions

FortisBC assesses that the current Canadian economic environment continues to be dominated by uncertainty and explains that "the record high inflation rate, caused by government fiscal and monetary policy to boost economic growth and improve employment, and BC's challenges for long-term economic growth points to higher risk."[176] Mr. Coyne also comments that the war in Ukraine, aggressive federal action on interest rates, historic high levels of inflation, and pull back on the fiscal stimulus required to support the pandemic ailing economies in Canada and the US have had significant impacts on capital markets in 2022.[177] However, FortisBC does explain that FEI's operations and maintenance (O&M) expenditures and growth capital are indexed to a composite inflation factor (minus a productivity factor of 0.5 percent) and are less impacted by high inflation rates, but FEI's sustainment capital is forecast.[178] FortisBC also notes that utility stocks are generally characterized as defensive and most investors holding utility stocks expect that utility earnings remain stable and grow slowly in most economic conditions.[179]

Positions of Parties

BCOAPO agrees that there is both greater uncertainties associated with the economic outlook for BC (and Canada), particularly in the short-term, and lower prospects for longer term growth.[180] However, the CEC recommends that the BCUC assign no weight to 'Economic Conditions' as a risk factor, as the CEC submits that almost all these items may all be considered as undiversifiable risk. The CEC states that there is little evidence to support a finding that FEI experienced economic woes to a greater extent than those of other utilities, and that this should be considered as conjecture at best.[181]

[173] Exhibit B1-8-1, Appendix A, p. 8.
[174] Ibid., pp. 3–4.
[175] BCOAPO Final Argument, p. 14, The CEC Final Argument, p. 13.
[176] Exhibit B1-8-1, Appendix A, p. 4.
[177] Transcript Volume 3 – Proceedings November 7, 2022, p. 158.
[178] Exhibit B1-9, BCUC IR 13.1.1.
[179] Ibid., BCUC IR 21.1 and 21.1.1.
[180] BCOAPO Final Argument, p. 14.
[181] The CEC Final Argument, pp. 13–14.

In response, FortisBC argues that similar macro-economic conditions can still lead to different impacts on different utilities based on the particular characteristics of the utility and its jurisdiction.[182]

Political

FortisBC considers political risk to be "the most notable of all of the risk factors."[183] FortisBC explains that government policies and regulations at all levels, as well as stakeholder interests, have a significant impact on FEI's operations, competitiveness, and ability to achieve its important initiatives. Additionally, FortisBC stresses, "[t]he overall thrust of climate change and energy policies is moving at a more rapid pace than at the time of the 2016 Proceeding and the role of natural gas, or even Renewable Gas, within the province's future energy landscape is unclear."[184]

While FEI believes that gas infrastructure is an optimal tool to reach decarbonization goals, there is a lack of awareness and acceptance of that role, given it is not directly discussed in net zero climate goals and plans. FortisBC states that this is apparent in the provincial government's recently updated Roadmap which is anticipated to have a significant impact on FEI's competitive and operational landscape with implications for customer rates and throughput. FortisBC states that the risk is further compounded by the fast pace of legislation and policies on electrification initiatives which increase competition with electricity. FortisBC assesses that FEI's political risk has increased significantly relative to the political risk environment at the time of the FEI 2016 COC proceeding.[185]

Positions of Parties

BCOAPO accepts that political risk faced by FEI has increased, primarily because governments are now clearly paying attention to and responding to climate change concerns, and acknowledges that there is also political risk associated with the lack of government direction regarding the role BC gas utilities will play in addressing climate change concerns.[186] BCOAPO views that "the critical aspect regarding political risk is the uncertainty regarding future policies and the impact they will have on FEI's business."[187] The CEC agrees that there is a growing bias against the use of natural gas on the part of multiple policymakers. The CEC suggests, there should be consideration for other political risks such as the "significant political upheaval in the US over the last few years"[188] and that it is important that the BCUC not overlook other aspects of the political environment when considering FEI' s political risk.[189]

With respect to the CEC's arguments regarding political upheaval in the US, FortisBC submits that the "BCUC should not consider the new and untested information. In any event, the link between political upheaval in the US and policies around the Energy Transition are not immediately apparent."[190]

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[182] FortisBC Reply Argument, p. 18.
[183] Exhibit B1-8-1, Appendix A, p. 4.
[184] Ibid.
[185] Ibid.
[186] BCOAPO Final Argument, pp. 15–16.
[187] Ibid.
[188] The CEC Final Argument, p. 16.
[189] Ibid., p. 17.
[190] FortisBC Reply Argument, p. 19.

RCIA states that FEI's business risk narrative identifies the same underlying challenges (i.e. climate change policies) as multiple different business risks, which RCIA notes, does not provide clear, objective evidence validating an absolute increase in business risk.[191] RCIA submits that climate change and related topics have been part of the public discourse for many years and is not a new issue.[192] In reply, FortisBC states that FEI has not claimed that policy risk is new per se, but rather has demonstrated that the risk is significantly higher than at the time of the FEI 2016 COC proceeding.[193]

Indigenous Rights and Engagement

FortisBC has assigned Indigenous Rights and Engagement risk its own category in this proceeding (previously subsumed under political risk) to reflect the increasing significance of these considerations for FEI's overall business. This risk assesses the potential for utility operations to be impacted by policy or legislation concerning Aboriginal rights and title or by Indigenous groups intervening directly in the utility regulatory process or by asserting Aboriginal rights and title. As provincial and federal governments navigate reconciliation and implement the UN Declaration on the Rights of Indigenous Peoples, FEI has assumed a higher level of business risk related to its relationship with Indigenous groups compared to what it anticipated at the time of the FEI 2016 COC proceeding.

FortisBC explains most land in BC is not subject to treaty (the land is unceded), and most Indigenous groups in BC are not signatories or adherents to a treaty (historic or modern) unlike in many other provinces. FortisBC states that Indigenous groups in BC are diverse and the added uncertainty from outstanding claims to Aboriginal title and rights further complicates the landscape within which FEI operates. Most of FEI's operations are in areas not covered by treaty, meaning that these areas are subject to assertions of Aboriginal title and may be subject to legal claims for title in the future. However, FEI also has some operations in treaty areas. Combined with regulatory updates that have increased consultation requirements and include a focus on seeking consensus and consent of Indigenous groups, as well as the risk of litigation in the absence of consent, FEI considers that it faces an elevated risk of cost escalation, project delays, and/or projects being denied approval.[194]

Positions of Parties

BCOAPO agrees that FEI faces an elevated level of business risk related to relationships with Indigenous groups in BC relative to the time of the FEI 2016 COC proceeding. However, BCOAPO notes that FEI has not been a party to any litigation initiated by Indigenous groups based on the duty to consult in either the five-year period prior to or since the FEI 2016 COC proceeding and has not faced any formalized work disruptions (e.g. protests or blockades) initiated by Indigenous groups, and no projects have been denied as a result of issues regarding the duty to consult with Indigenous groups. Similarly, FEI is not currently involved in any judicial reviews based on claims of inadequate consultation or other Indigenous rights litigation.[195]

[191] RCIA Final Argument, p. 31.
[192] Ibid., pp. 29–30.
[193] FortisBC Reply Argument, p. 20.
[194] Exhibit B1-8-1, Appendix A, pp. 4–5, 44.
[195] BCOAPO Final Argument, p. 17.

BCOAPO also highlights that FEI has mitigation in place as it actively addresses the risks associated with its increased duty to consult by reaching out to Indigenous groups early (sometimes in absence of a Crown determination), as "FEI's goal is to engage early, often, and thoroughly."[196] BCOAPO is also concerned that there is overlap and double-counting with FEI's Regulatory risk, differentiating that "the duty to consult on projects (prior to making applications to regulatory bodies) should be considered an Indigenous Rights and Engagement risk, while the increase in interventions and participation by Indigenous groups in regulatory processes should be considered a Regulatory risk."[197]

In response to BCOAPO, FortisBC states that its business risk assessment already accounts for mitigation and investors are aware of publicly available information, including plans, strategies and capital investments that would mitigate the utilities' risk.[198] In regards to double-counting and overlap, FortisBC states its risk analysis is a holistic assessment of a complex matrix of factors affecting different aspects of FEI and FBC's businesses, and FortisBC has never suggested that the BCUC's role is to carry out a rote tallying of categories.

FortisBC explains investors will inevitably approach risk assessment in different ways, but the ultimate objective will always be to assess the potential for not earning a return on and of invested capital. The risk categories that FortisBC has employed are a useful presentation format for identifying the types of considerations that inform investment decisions and are consistent with the categories and factors used in previous cost of capital proceedings, thus facilitating comparisons over time.[199]

The CEC recommends that the BCUC find the Indigenous Rights and Engagement concerns to be largely mitigatable and less risk than that in 2016. The CEC submits that many utilities face issues with respect to Indigenous Rights and Engagement issues, and so the risk may be somewhat undiversifiable. The CEC argues that provincial policy has been made clearer, given certain pronouncements mandating steps to entities dealing with Indigenous Peoples which were not clearly mandated in 2016.

The CEC notes that there has been considerable movement regarding Indigenous Peoples for engaging in reconciliation activities and the CEC expects that this may turn from being a risk increase to being a positive reduction of risk.[200] The CEC also submits that this category should be included in the political category as it was previously. The CEC states that it is important for the BCUC to exercise caution when separating out items that were previously considered together, in that it potentially leads to selection or framing bias, and weighting becomes more difficult.[201]

In response to the CEC, FortisBC argues that utilities in BC are exposed to unique risks because, unlike in other provinces, most land is not subject to treaty (the land is unceded), and most Indigenous groups in BC are not signatories or adherents to a treaty (historic or modern). [202] Further, FortisBC's "commitment to developing meaningful relationships with Indigenous communities cannot fully mitigate risk, and FEI's risk assessment is post-mitigation."[203] FortisBC argues that business uncertainty associated with Indigenous Rights and

[196] BCOAPO Final Argument, p. 18.
[197] Ibid., p. 17.
[198] FortisBC Reply Argument, p. 11.
[199] Ibid., p. 5.
[200] The CEC Final Argument, p. 18.
[201] Ibid., p. 17.
[202] FortisBC Reply Argument, pp. 20–21.
[203] Ibid.

Engagement has increased since the FEI 2016 COC proceeding.[204] Finally, FortisBC submits that trying to recategorize risks at this point would be counter-productive.[205]

Energy Price

FortisBC states the risk relating to energy prices is higher than what it was during the FEI 2016 COC proceeding. FortisBC explains that energy prices impact a utility's business risk because price is among the factors that can influence consumer energy choices. It argues that FEI's overall energy price risk is higher due to:[206]

- Natural gas commodity prices being higher: Current market prices for natural gas are higher than in 2015 and forecasted to increase as demand from power generation and liquefied natural gas (LNG), and a potential decline in crude oil production, puts pressure on prices;
- Natural gas prices being more volatile: Market prices are expected to remain volatile as a result of extreme weather events, changes in natural gas demand for power markets in the region, and anticipated growth in demand to supply the LNG export market. The volatility is greater than that presented in the FEI 2016 COC proceeding; and
- Subsidies and tax incentives / disincentives making electric appliances cheaper than gas appliances: The current price advantage of natural gas versus electricity is not expected to be maintained, especially with recent rate announcements from BC Hydro which will see electricity rates held fairly flat over the next several years. Current and planned increases in carbon tax rates will continue to negatively affect natural gas price competitiveness relative to electricity.

Further, the increasing share of higher cost Renewable Gas in FEI's gas supply portfolio contributes to FEI's higher price competitiveness risk as Renewable Gas is more expensive than natural gas. Moreover, new technology which supports the use of electricity, such as electric heat pumps, that have a higher upfront and installation cost than natural gas-fired equipment, are more cost competitive when government-provided incentives and rebates are considered.[207]

Positions of Parties

BCOAPO agrees that FEI's energy price risk has increased since the FEI 2016 COC proceeding. However, based on BCOAPO's view that natural gas commodity risk is similar to that in 2015 for the long term, BCOAPO does not view FEI's energy price risk as having increased to the same degree as suggested by FEI.[208] BCAOPO notes that when natural gas commodity prices are looked at in real terms (i.e. adjusted for inflation) current commodity prices are high relative to those in 2015. However, forecast commodity prices (post 2023) are in line with those from 2015 to 2016. However, BCOAPO does agree with FortisBC with respect to increased natural gas price volatility and decreased competitiveness.[209]

[204] FortisBC Reply Argument, p. 21.
[205] Ibid., p. 6.
[206] Exhibit B1-8-1 Appendix A, pp. 53–78.
[207] Ibid., pp. 5, 70.
[208] BCOAPO Final Argument, pp. 18–19.
[209] Ibid., p. 19.

In reply, FortisBC submits that BCOAPO's attempt to downplay the risk is incongruous with its acknowledgement that current commodity prices are high relative to those in 2015 and its agreement about increased price volatility and decreased competitiveness.[210]

The CEC recommends that the BCUC finds the energy price risk to be similar to 2016 and assign limited weight to energy price as a risk category. The CEC does not agree that an increase in natural gas price will necessarily equate to an increase in the risk that the company will not recover its ROE, as the higher price is caused by increasing demand. The CEC submits that "this approach to assessing risk is not consistent with the definition of risk as it relates to achieving ROE but is rather FEI's shotgun and 'general impression' approach to including any number of possible items without refining the analysis to assess whether or not it actually results in risk to the utility in its ability to achieve its ROE."[211]

The CEC accepts that price competitiveness and the narrowed cost differential with electricity potentially represent something of a higher risk. However, the CEC submits that the cost of adding renewable natural gas supply to the portfolio should be treated as a mitigating factor with respect to the effects of the Energy Transition and will likely serve to mitigate the political, regulatory and customer risk. Finally, the CEC expects volatility may have little impact on the ability of the utility to recover its ROE.[212]

In reply to the CEC, FortisBC argues that FEI is purchasing more renewable gas to mitigate its Energy Transition risk, but that does not mean its energy price risk is not higher because of it. FortisBC states, FEI is not required to demonstrate that it will not recover its ROE, but rather, in the long term, investors would perceive risk to the recoverability of their invested capital from an increase in the risk related to energy price. FortisBC submits that the CEC is "conflating investor-perceived risk (the relevant consideration in cost of capital analysis) with actuarial risk (an irrelevant consideration)."[213]

MoveUP submits, as gas commodity and delivery costs increase relative to electricity, more customers will prefer electric energy solutions, adding yet another accelerator to declining customer growth and a core customer base will be left to bear the utility's fixed costs and return on its invested capital. Responding to this risk cycle by increasing ROE without regard to these impacts would add fuel to the fire. MoveUP states that the BCUC must be mindful of the rate impacts of risk-based increases in gas utilities' rates of return to avoid a dynamic where satisfying immediate return entitlements accelerates a potential capital funding crisis over time. MoveUP argues that rewarded capital today could become stranded capital earlier in the future.[214]

In reply to MoveUP, FortisBC explains that all rising costs, not just increasing cost of capital, affect a utility's competitiveness; all prudent costs of providing utility service, including cost of capital, must be recovered. FortisBC submits that FEI needs to be well-financed to navigate the Energy Transition and encouraging the flight of capital away from a capital-intensive business is a poor recipe for success.[215]

[210] FortisBC Final Argument, p. 21.
[211] The CEC Final Argument, pp. 19–20.
[212] Ibid., p. 20.
[213] FortisBC Reply Argument, p. 22.
[214] MoveUP Final Argument, p. 3.
[215] FortisBC Reply Argument, pp. 3–4.

Demand/Market

FortisBC states overall, since the FEI 2016 COC proceeding, FEI's demand/market risk has increased. FortisBC states that customer energy choices have had the tendency to be driven by market factors such as energy price, accessibility, ease of use, reliability, and availability. However, FortisBC explains that demand and market changes pose challenges to FEI's ability to attract and retain customers and maintain market share and throughput levels driven by:[216]

- BC residents' worsened perception of natural gas as customers' energy choices are increasingly influenced by a desire to minimize negative environmental impacts;
- New technologies and building techniques, supported by policies that are negatively affecting gas demand;
- While Renewable Gas can be a relatively affordable option, the electric options such as high-efficiency heat pumps are gaining faster and more widespread traction among customers and policy makers;
- FEI experiencing a downward trend in net residential customer additions and in its share of natural gas use in space heating and water heating applications;
- In the residential sector, where due to BC's high turnover rate, a large segment of its existing customers' homes may be torn down and rebuilt with electric-only options to meet more stringent code requirements;
- FEI's risk profile which continues to be impacted by the gradual decline in single-family dwellings, where FEI has higher capture rates in favour of multi-family dwellings; and
- FEI's new residential customers who continue to have lower use per customer (UPC) than average residential customers do,[217] although this is somewhat offset by load growth in the more volatile and economically sensitive transportation and industrial sectors.[218]

FortisBC states that all of these factors create challenges for natural gas utilities in retaining and attracting load, despite lower natural gas commodity prices relative to other energy forms. [219]

Positions of Parties

BCOAPO submits that FEI's assessment of the increase in risk associated with Market/Demand is overstated.[220] BCOAPO submits that recent trends in UPC have been more favourable than those leading up to the FEI 2016 COC proceeding and argues that increases in UPC for the non-Residential sectors have more than offset any trend to lower UPCs in the Residential sector.[221] BCOAPO views there is overlap (and likely double counting) between the various factors assessed under Market/Demand, as the increased use of electric heat pumps is a consideration for 'New Technology and Energy Forms' but is also a contributor to the risk assessment with respect to 'Net Customer Additions' and 'Changes in end-use Market Share'.[222]

[216] Exhibit B1-8-1, Appendix A, pp. 5, 78–88.
[217] Ibid., p. 5.
[218] Ibid., p. 57.
[219] Ibid., p. 78.
[220] BCOAPO Final Argument, p. 22.
[221] Ibid., pp. 21–22.
[222] Ibid., p. 22.

In reply to BCOAPO, FortisBC submits that in the context of the Energy Transition, the past is not the best predictor of the future and several factors that are expected to impact FEI's market share and UPC, such as electric heat pumps, are expected to reduce UPC, and municipal policy is expected to reduce FEI's ability to connect to new customers.[223]

The CEC recommends that the BCUC find there to be similar risk as those found in 2016 based on the evidence in the FEI Long Term Gas Resource Plan (LTGRP) proceeding and avoid unduly exaggerating the political risk of the Energy Transition when considering this category.[224] Moreover, the CEC notes that declining market share does not necessarily represent declining revenues or an inability for the utility to achieve its ROE and that most of the risk areas identified in demand/market risk are at least largely captured in political risk.[225]

In reply to the CEC, FortisBC submits that FEI's evidence in this proceeding on demand/market risk is consistent with the LGTRP proceeding. FortisBC also submits that a reasonable investor would perceive risk to their prospects of recovery in light of FEI's diminishing market share. FortisBC explains that investors take a long-term view of risk and would negatively perceive declining market share. A smaller customer base generally means that the revenue requirements are recovered from fewer customers over fewer billing determinants. An investor considering long-term risk will realize that this pattern will increase the prospects of further loss of market share and even higher rates (i.e. a spiral).[226]

RCIA submits that expansion opportunities are particularly relevant to FEI's overly conservative projections and that realistically, FEI's revenues could be substantially higher in the near future than they are currently. This windfall opportunity should substantially offset many of the business risks alleged by FEI.[227] RCIA also notes that "FEI's annual demand forecast indicates expected demand over the next 3-5 years (and longer) will be strong, even under worst-case scenarios."[228]

In reply to RCIA, FortisBC states that FEI's primary business continues to be in serving space and water heating load in the residential and commercial sectors. FortisBC submits that focusing only on overall units of energy demand from FEI distracts from the other risk factors affecting the demand/market risk category, including downward changes in end-use market share, downward trends in net customer additions, and increased gas supply costs. These trends are indicative of longer-term risk, which is the focus of risk assessment, not three to five year forecasts. In addition, adding load from LNG to the core residential and commercial sectors to mitigate load losses in exposes FEI to higher revenue (and potentially earnings) volatility.[229]

Energy Supply

FortisBC states, relative to 2015 levels, FEI's energy supply risk remains similar. FortisBC notes that availability and accessibility of natural gas supply to FEI's service territory remain unchanged, as natural gas producers forecast production increases to meet demand growth for gas-fired power generation and LNG. Additionally, FEI

[223] FortisBC Reply Argument, pp. 22–23.
[224] The CEC Final Argument, p. 22.
[225] Ibid., pp. 21–22.
[226] FortisBC Reply Argument, pp. 23–24.
[227] RCIA Final Argument, p. 26.
[228] Ibid., p. 27.
[229] FortisBC Reply Agrument, pp. 24–25.

continues to rely on a single system for a significant portion of its gas requirements.[230] FortisBC has also added a new risk factor to this category, 'Renewable Gas Supply', which it deems as higher change in risk since 2016, albeit there is no change in the overall risk category. FortisBC argues that there is increased risk arising from issues with suppliers, competition for Renewable Gas supply, and barriers to gas system readiness and acceptance of non-local supply.[231]

Positions of Parties

BCOAPO agrees with FEI's risk assessment regarding natural gas commodity supply and access. The CEC recommends that the BCUC find the energy supply risk to be similar to that in the FEI 2016 COC proceeding while assigning moderate weight to this category.[232]

Operating

FortisBC submits that operating risk includes the physical risks to the utility system arising from technical and operational factors, including asset concentration, the technologies employed to deliver service, service area geography, human error, and weather.[233] FortisBC explains that operating risk factors continue to include infrastructure integrity and time dependent threats, along with third-party damages and unexpected events (including the COVID-19 pandemic, Enbridge T-South pipeline rupture, as well as more frequent extreme weather events).[234] While these types of operating risks have always been present, there is a growing recognition in the industry of utility exposure to significant unforeseen events and the importance of resiliency.[235]

FortisBC acknowledges that there is a risk management process for FEI's reliability and resiliency integrity projects, and it prioritizes the projects based on the importance of managing those risks.[236] Of note, FEI has also added several new risk factors to this category (including attitudes towards fossil-fuel industry, municipal operating challenges, and cybersecurity), which it deems as higher change in risk since 2016 and contribute to the overall risk category assessment as higher.[237]

FortisBC submits that the negative public sentiment towards the fossil-fuel industry may hinder FEI's ability to recruit skilled workers, complete already approved projects on time and budget, meet environmental and safety requirements or obtain the necessary approvals and operating permits. Additional municipal requirements and associated costs arise in the context of both FEI's ongoing operating and maintenance activities and its larger construction projects. These additional requirements may result in increased costs to FEI or challenges requiring additional time to resolve. FortisBC submits that its approach is to manage these additional requirements by negotiating an acceptable compromise with municipalities, and typically, FEI and the municipality are able to reach a compromise, which is consistent with FEI's rights and obligations.[238]

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[230] Exhibit B1-8-1, Appendix A, p. 6.
[231] Exhibit B1-8-1, Appendix A, pp. 97–107.
[232] BCOAPO Final Argument, p. 22, The CEC Final Argument, p. 23.
[233] Exhibit B1-8-1, Appendix A, p. 108.
[234] Ibid., p. 6.
[235] Exhibit B1-8, p. 16.
[236] Oral Hearing Transcript, Volume 5B, p. 887.
[237] Exhibit B1-8-1, Appendix A, p. 2–3.
[238] Ibid., p. 111.

Positions of Parties

BCOAPO agrees that FEI's operating risk has increased but not to the degree implied by FEI.[239] BCOAPO notes that there is a potential overlap of contributors in the operating risk category as to FEI's political risk with respect to attitudes towards the fossil-fuel industry, including the province's updated Roadmap, which are increasing concerns around natural gas utility activities and increasingly strict environmental and safety laws, regulations and enforcement policies since 2015.[240] BCOAPO also states that "there is no reference in the evidence presented to a successful cyber-attack on FEI that impacted its operations" and that while BCOAPO "acknowledges that lack of occurrence does not mean a risk does not exist", in BCOAPO's view, "past occurrences do provide an indication as to the degree of risk involved."[241]

In reply to BCOAPO, FortisBC states that the lack of a previous occurrence does not mean a risk does not exist and points to the fact that utilities such as FEI are vulnerable to cyberattacks and the consequences may be severe.[242]

The CEC submits that, overall, the operating risk for FEI is at least similar, if not better, than that during the FEI 2016 COC proceeding due to the new capital projects likely to be undertaken to enhance reliability and resiliency and recommends that the BCUC assign moderate weight to this category.[243] The CEC submits that there are very substantial resources being devoted to mitigating the risks and recommends that the BCUC weigh the value of these risk mitigation and resiliency projects significantly to avoid having ratepayers fund the projects without having the associated risk reduction recognized financially in the setting of the ROE.[244] The CEC "expects that cyber security may be a higher risk, but also notes that this is an undiversifiable risk in that nearly all companies are facing increased issues in this field."[245]

In response to the CEC, FortisBC argues with respect to new projects, FEI's risk assessment is post-mitigation, some of these projects have not yet been approved and implemented, and that cybersecurity risk is "increasingly gaining weight in investors' perception of risk."[246]

RCIA submits that although unpredictable weather is an operational challenge, it is not clear the potential impact of unpredictable weather is a genuine threat to FortisBC achieving its approved ROE or return of capital, as it is not clear that extreme weather events will impede FortisBC's ability to achieve its ROE or that associated costs will not be recoverable through rates or government funding.[247]

In reply to RCIA, FortisBC states that it is not required to demonstrate that each risk factor will impede FEI's ability to achieve its ROE, only that investors would perceive a long-term risk of recovering their investment. Considering FEI's recent experience with a high volume of high-impact weather events, FortisBC submits that a reasonable investor would perceive an elevated level of risk.[248]

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[239] BCOAPO Final Argument, p. 23.
[240] BCOAPO Final Argument, p. 23.
[241] Ibid.
[242] FortisBC Reply Argument, p. 25.
[243] The CEC Final Argument, p. 24.
[244] Ibid.
[245] Ibid.
[246] FortisBC Reply Argument, p. 26.
[247] RCIA Final Argument, p. 30.
[248] FortisBC Reply Argument, p. 26.

Regulatory

FortisBC states that as a regulated public utility, FEI is dependent on regulators for timely and fair approvals to earn its return on and of capital, which results in regulatory risk.[249] FortisBC explains that there is an increased level of regulatory uncertainty and increased potential for regulatory lag in both BCUC and other regulatory processes.[250] FortisBC has assessed FEI's overall regulatory risk as higher than what was assessed in the FEI 2016 COC proceeding, with certain risk factors increasing and others being similar. Regulatory discretion in approving or denying a utility's applications is the main cause of regulatory uncertainty which in itself gives rise to the risk that the allowed return does not accord with the Fair Return Standard, that rates are set at a level that does not provide FEI with an opportunity to earn its fair return, or that necessary investments are not approved.

The underlying BCUC regulatory framework remains the same, but there are new developments that merit note. There is uncertainty caused by the level of regulatory support for the implementation of certain initiatives and the BCUC's decision to consider a more generic approach to deferral account financing treatment. FortisBC also mentions there are increased requirements for stakeholder consultation, environmental reviews, Indigenous rights and title, and municipal operating challenges.[251]

Positions of Parties

BCOAPO acknowledges that BCUC has discretion which, inherently, creates risk, but points out that FortisBC has acknowledged that it "generally finds the BCUC's decisions to be well reasoned (irrespective of whether a decision is favourable to FortisBC or not)."[252] BCOAPO submits that "the requirement for seeking the free, prior and informed consent ("FPIC") of Indigenous Peoples before proceeding with project development and, in particular, before proceeding with an application for regulatory approval (from the BCUC or any other approval authority) is a legitimate risk. However, it should not be double counted" and "not included in the assessment of Regulatory risk as FEI has done."[253] With respect to FortisBC's concerns regarding deferral account financing, BCOAPO submits that both FEI and FBC will have a full opportunity to present their views and that "the BCUC is open to considering specific circumstances after it has made decisions on a generic basis."[254]

In response to BCOAPO, FortisBC argues that "the fact a BCUC decision is well-reasoned does not mean the decision will be favourable from an investor's perspective."[255] Furthermore, with respect to double-counting, FortisBC submits that "recategorizing these distinct impacts does not make the risk any less real to investors."[256]

The CEC recommends that the BCUC find the regulatory environment to be generally favourable and the risk similar as in 2016.[257] The CEC submits that there is little regulatory risk associated with a utility not being enabled to earn a fair return and what may be considered as 'generally fair' regulation should not be interpreted

[249] Exhibit B1-8-1, Appendix A, p. 115.
[250] Exhibit B1-8-1, Appendix A, p. 115.
[251] Ibid., pp. 6–7.
[252] BCOAPO Final Argument, p. 25.
[253] Ibid.
[254] Ibid.
[255] FortisBC Reply Argument, p. 26.
[256] Ibid., p. 27.
[257] The CEC Final Argument, p. 27.

to have significant risk.[258] With respect to approvals, the CEC submits that the 'lack of assured approval' should not be equated with significant risk or that the utility will not be given its opportunity to earn a fair return.[259] Furthermore, the CEC notes that most utilities suffer from regulatory lag and submits that the "issues related to Indigenous communities and municipal challenges have been fully addressed in Indigenous Rights and Engagement and political risk and should not be re-reviewed in Regulatory Risk."[260]

In response to the CEC, FortisBC argues that utilities have lower overall returns (combined equity ratio and ROE) relative to the market; the rate regulator has discretion over setting the allowed ROE and other decisions that can have a material impact on the long-term success of the utility; short-term regulatory risk also arises from rates being set on a forecast basis; and FEI is subject to a number of other regulatory regimes, including Environmental Assessment processes, municipal requirements, and the requirements and processes of Indigenous communities.[261]

Panel Determination

Although the business risks presented by FEI are categorized, we consider business risks holistically since a utility is affected by the interplay between all its business risks, some of which may offset others.

Business risk evaluation is a matter that does not lend itself to a simple delineation of items into absolutely discrete categories. Nor does it lend itself to the application of an algorithm or equation in a purely mechanistic manner to calculate risk either overall or by category. Thus, the Panel accepts that there is inevitably some overlap between the business risk categories but does not consider this to be problematic.

The Panel accepts that FEI used the same risk categories as in the FEI 2016 COC proceeding thus facilitating comparisons over time. Additionally, the Panel considers it reasonable to expect that new business risk factors will emerge over time such as the Indigenous Rights and Engagement risk which has been promoted to its own risk category in this proceeding. Overall, the Panel considers that the categories of business risk and the risk factors are reasonable and appropriate, however are not all equal, for the purposes of evaluating overall changes in business risk for FEI.

The Panel notes costs associated with certain risk categories such as commodity prices and Indigenous engagement activities will largely be borne by ratepayers since increases in operating costs and capital projects are generally recoverable through rates. In contrast, some elements of Energy Transition risk pose an existential risk to FEI's shareholders and impact the risk of stranded assets which increases the risk that shareholders will not be able to earn their full return. Therefore, the Panel will not consider changes in ratepayer risks in isolation as changes to FEI's overall business risk.

In order to assess the extent of the impact of changes in business risks on shareholders' expected return, the Panel needs to consider investors' perceptions of business risks in addition to the real business risks that have emerged in the last few years. A cumulation of perceived ratepayer risks could shift the risk to the shareholder if

[258] The CEC Final Argument, pp. 27–26.
[259] Ibid., pp. 25–26.
[260] The CEC Final Argument, p. 25.
[261] FortisBC Reply Argument, pp.27–28.

the utility is no longer viewed as an attractive investment. Both experts, Mr. Coyne and Dr. Lesser, agree that if perceived risks are commonly believed, they will be relevant to the calculation of expected returns.

The Panel will not review all of the submissions made by FEI and interveners on the various business risk categories. Instead, we will focus on how FEI's various business risk categories have changed since 2016 from a shareholder and investor perspective. Thus, we have not focused on business profile and energy supply risk categories, as we agree that both are similar to 2016 and no parties raised an issue with FEI's assessment. We note that changes in business risks for an investor must also be considered, in part, relative to comparable entities, not just against itself at a previous point in time. Therefore, we will focus on those areas where FEI has noted changes in risk and discuss whether we agree with FEI's assessment of those changes and whether they increase risk, real or perceived, to the shareholder and investor as opposed to the ratepayer. We begin our analysis with an assessment of FEI's economic conditions risk below.

Economic Conditions

FEI submits that the economic condition risk has increased largely due to inflation increases caused by the current economic environment. The Panel notes that FEI has not provided price-elasticity evidence that demonstrates inflationary pressures on rates have caused, or will cause, a reduction in consumption. Evidence presented indicates that energy customer retention is influenced by the worsening perception of natural gas but not by increases in inflation. Additionally, the Panel notes that FEI is continuing to forecast customer additions in the prevailing economic conditions.

The Panel acknowledges that economic conditions are different than in 2016; however, we are not convinced that this risk results in any increased real risk to the shareholder or investor as FEI's O&M expenditures, and its growth capital are currently indexed to a composite inflation factor under its multi-year rate plan and are recoverable from ratepayers. If this mechanism wasn't effective, the Panel expects that FEI would make an application to the BCUC to correct it.

Similarly, while there may be a higher risk of the economy worsening, the Panel is not persuaded that this will result in investors perceiving FEI or any utility stocks to be less attractive as a result. As noted by FortisBC, utility stocks are characterized as defensive and investors holding utility stocks expect earnings to remain stable and grow slowly in most economic conditions. Therefore, the Panel disagrees with FortisBC's assessment that the economic conditions pose a higher risk to FEI's shareholder and investors than in 2016, as this is a risk borne by the ratepayer. Accordingly, **the Panel finds that the economic conditions risk for FEI's shareholder and investor is similar to what it was in 2016.**

Political

FortisBC notes that the Energy Transition risk is apparent in the BC government's recently updated Roadmap which is anticipated to have a significant impact on FEI's competitive and operational landscape, resulting in FEI to assess its political risk as significantly higher than 2016. The evidence shows that the Energy Transition represents a fundamental change that has a pervasive impact on FEI's business and that the change in BC is markedly different than in other jurisdictions as a result of government policies relating to climate change, decarbonization and electrification that have emerged since 2016. The Panel considers this to be the biggest driver of real and perceived risk for FEI's shareholder primarily as a result of all levels of government addressing

climate change concerns and the uncertainty regarding the role that BC's natural gas utilities will play in addressing climate change concerns, especially when compared to utilities operating in other jurisdictions since the FEI 2016 COC proceeding.

The Panel agrees with BCOAPO that "the critical aspect regarding Political risk is the uncertainty regarding future policies and the impact they will have on FEI's business" [262] and agrees with the CEC that there is a growing bias against the use of natural gas on the part of multiple policymakers. Accordingly, **the Panel finds that the political risks faced by FEI's shareholders have increased significantly since 2016.**

Indigenous Rights and Engagement

FEI assesses its business risk related to relationships with Indigenous groups in BC as higher relative to the time of the FEI 2016 COC proceeding. The Panel acknowledges there are uncertainties and unknowns, as FEI's operations are subject to land claims due to the lack of treaties in BC compared to other parts of Canada which add to the perceived risks for FEI's investors. This uncertainty is greater for FEI relative to other utilities in North America, but the Panel finds it hard to determine the precise magnitude of that difference and how it might change in the future. The Panel also notes that while project approvals for FEI are potentially impacted due to concerns in this area, the costs associated with these impacts are largely a ratepayer risk, as they are recoverable through rates.

BCOAPO agrees with FortisBC that FEI's risk is higher from 2016 but notes that FEI is not involved in any litigation initiated by Indigenous groups. The Panel is not persuaded by BCOAPO's comments. While FEI may not be involved in Indigenous litigation now or in the past, this does not diminish investors' perception that this risk exists, especially operating on unceded land. The CEC submits that Indigenous risk should be considered less risky than that in 2016, as it is largely mitigatable. The Panel disagrees. Rather, we agree with FortisBC that its commitment to developing meaningful relationships with Indigenous communities cannot fully mitigate investors' perception of Indigenous risks. Therefore, while this risk is largely borne by ratepayers, there is perceived risk by investors that could affect FEI's shareholders. As a result, **the Panel finds that the Indigenous Rights and Engagement risk to FEI's shareholders and investors is higher than it was in 2016.**

Energy Price

FEI's assessment is that the overall real energy price risk is higher than 2016 partially due to volatility in natural gas prices. While the Panel accepts that current natural gas prices are more volatile than in 2016 due to increased weather events, forecast LNG demand growth, and forecasted decreases in oil production, this increase in real energy price risk will be largely borne by the customer through rates. The Panel does note, however, that while natural gas prices are still lower than other forms of energy, as government policies encourage decarbonization by offering subsidies and tax incentives for electric appliances, natural gas' relative price advantage over electricity may not be maintained, thereby increasing perceived risk among investors. BCOAPO agrees with FortisBC except it submits that forecast natural gas commodity prices are in line with those in 2016. The Panel is not convinced that Commodity Price risk being similar to 2016 would offset the increased risk associated with price volatility, but nevertheless the associated costs would be recovered from ratepayers through FEI's rates. The CEC considers energy price similar to 2016, as it submits that adding renewable natural

[262] BCOAPO Final Argument, p. 15.

gas supply to the portfolio should be treated as a mitigating factor with respect to the effects of the Energy Transition and will likely serve to mitigate the political, regulatory and customer risk.

The Panel agrees with FortisBC that as FEI blends higher-cost renewable gas into its portfolio, this will likely serve to put pressure on its price advantage relative to other forms of energy, thereby increasing investors' perception of energy price risk. Therefore, while energy price risk is largely borne by ratepayers, it is reasonable that investors' perception of risk will increase if the relative natural gas price advantage may not be maintained, and this could affect investors' expected return. Accordingly, **the Panel finds that FEI's energy price risk to the shareholder and investor is higher than it was in 2016.**

Demand/Market

FortisBC lists several contributors to the increase in demand/market risk, including the worsening of BC residents' perception of natural gas and the development of new technologies, like electric heat pumps, that aim to shift demand away from natural gas. The Panel accepts that BC residents' energy choices are increasingly influenced by a desire to use energy efficiently, to adopt lower carbon and renewable energy sources, and to generally reduce the negative impacts of climate change leading to a reduction in the end-use market share for natural gas and resulting in an increase in perceived risk by investors and a real risk for shareholders as compared to 2016. The Panel also agrees this is anticipated to result in a future reduction of new customer capture rates and perhaps even attrition of existing customers. Fewer customers to cover costs may result in an increase in natural gas delivery rates for remaining customers.

BCOAPO states that FortisBC's assessment of FEI's demand risk is overstated and points out that increases in non-residential sectors' UPC have more than offset any trend in the lower residential sector UPC. The Panel is not persuaded by BCOAPO's argument, as we find the increased risk in this category to be driven by factors leading to a reduction in the market share for natural gas. However, we find that FEI's customers bear some of this risk, especially those customers that lack the financial means to convert their residences to alternative heating sources to mitigate increasing natural gas costs**.**

The CEC states that the Panel should find there to be similar risk as in 2016 based on the FEI LTGRP proceeding evidence and that declining market share does not necessarily represent declining revenues or an inability for the utility to achieve its ROE. Although the Panel agrees to an extent, we consider that declining market share would be perceived negatively by investors thereby affecting the shareholder's expected returns. Accordingly, **the Panel finds that FEI's demand/market perceived risk for the shareholder and investor to be higher than it was in 2016.**

Operating

FEI submits that, compared to the FEI 2016 COC proceeding, its operating risk has increased. While FEI states that negative attitudes toward the fossil-fuel industry may hinder FEI's ability to recruit workers, complete approved projects, and meet environmental and safety requirements or obtain necessary approvals and permits, no evidence has been provided to indicate this risk is higher than in 2016 or is perceived by potential investors as higher compared to other gas utilities.

The Panel accepts that permitting requirements are changing, which may lead to higher costs related to FEI's ongoing operating and maintenance activities and its larger construction projects. However, FEI did not present evidence that these changing requirements have resulted in expenditures for which it has not received approval to recover from its customers.

FEI also submits that other unexpected events, such as more frequent extreme weather events and increased incidences of cyberattacks, can impact its ability to maintain and operate its system, thereby increasing operating risk. The Panel agrees with FEI that it is not necessary to demonstrate that each risk factor will impede FEI's ability to achieve its ROE. Rather it is incumbent upon FEI to demonstrate that investors perceive a long-term risk of its ability to recover investments. FEI did not present evidence that demonstrates that investors view these risks as being greater for FEI than for other utilities, nor did FEI provide evidence demonstrating that it has been unable to recover its incurred expenditures needed to address these operating risks. Based on the foregoing, the Panel is not persuaded that FEI's overall operating risk has increased for its shareholder since 2016. **The Panel finds that FEI's operating risk is similar to what it was in 2016**.

Regulatory

FEI argues that its overall regulatory risk is higher than what was assessed in the FEI 2016 COC proceeding. FEI submits that regulatory uncertainty gives rise to the risk that the allowed return or rates may not meet the Fair Return Standard, or that necessary investments are not approved. However, FEI provides no evidence that regulatory uncertainty has led to an increase of perceived risk from investors or rates being set at a level that does not provide FEI an opportunity to earn its allowed return. The Panel agrees with the CEC that "the 'lack of assured approval' should not be equated with significant risk."

FEI submits that risk associated with regulatory lag and ultimate approval of cost recovery has also increased since 2016 when considering increased requirements for stakeholder consultation, environmental reviews, and Indigenous rights and title. While the Panel accepts that these requirements have become more onerous since 2016, FEI provides no evidence that these changing requirements have resulted in expenditures for which FEI has not received approval to recover from its customers nor is this risk perceived by investors to be higher for FEI than for other utilities.

With respect to FEI's submission that the BCUC's decision to consider that a more generic approach to deferral account financing treatment results in increased regulatory risk, no decision has yet been reached. The Panel agrees with BCOAPO that FEI (and FBC) will have a full opportunity to present their views in an open and transparent proceeding before the BCUC before any decision is made. Therefore, the Panel is not persuaded that FEI's overall regulatory risk has increased for its shareholder since 2016. **The Panel finds that FEI's regulatory risk is similar to what it was in 2016.**

Overall Business Risk

Interveners generally agree with FEI that its overall business risk has increased, but to a lesser degree than submitted by FEI. The CEC submits that FEI has a key risk in the Energy Transition, but that many of the other risks are overstated,[263] and recommends that the BCUC find FEI's business risk to be slightly higher than in

[263] The CEC Final Argument, p. 9.

2016.[264] RCIA submits that the perception of FEI risk appears to be higher today than it was in 2016, but states that FEI exaggerates the magnitude of such differences.[265] RCIA submits that given the absence of clear, objective evidence validating an absolute increase in business risk, RCIA opposes increasing FEI's equity thickness to the level requested by FEI.[266] BCOAPO agrees that FEI's business risk has increased since the FEI 2016 COC proceeding; however, it does not view FEI's business risk as having increased to the degree suggested by FEI.[267]

Given the findings discussed above associated with the changes in FEI's business risks to the shareholder, **the Panel finds that FEI's overall business risk has increased since 2016.** That increase is most significantly attributable to the increase in political risks associated with the Energy Transition and the cumulative effect of the perceived risks in Indigenous Rights and Engagement, energy price, and demand/market risks that could shift the risk to the shareholder if the utility is no longer viewed as an attractive investment by investors.

The Panel will address the impact of the increased business risk on FEI's capital structure and ROE, which are also influenced by factors beyond business risk, in Section 6.3 below (Overall Capital Structure and ROE).

4.3 FBC Business Risk

Unlike FEI, FBC's business risk was last assessed in the BCUC 2013 GCOC - Stage 2 proceeding.[268] In FortisBC's evidence, FBC provides an overview of its business risks across nine categories: four of which it considers to be of similar risk-level since 2013, with four categories considered to be of higher risk and only one considered to be lower.

FBC used similar categories as in the 2013 GCOC proceeding, other than the Indigenous Rights and Engagement risk factor. It was previously subsumed under political risk but has now been promoted to its own risk category. Additionally, the operating risk category has new risk factors: Project Resistance and Cybersecurity.[269] FBC summarizes its risk in the GCOC proceeding as "being similar to what was assessed in the 2013 Proceeding."[270] FortisBC prepared Table 10 below summarizing this risk assessment.

[264] The CEC Final Argument, p. 28.
[265] RCIA Final Argument, p. 31.
[266] RCIA Final Argument, p. 31
[267] BCOAPO Final Argument, p. 25
[268] Exhibit B1-8, p. 2
[269] Exhibit B1-8-1, Appendix B, p. 1.
[270] Ibid.

Table 10: Summary of FBC's Business Risk[271]

Business Risk Category	Risk Factor	Change in Risk Since 2013
Business Profile		**Similar**
	Type and Size of the Utility	Similar
	Service area	Similar
	Customer profile	Higher
Economic Conditions		**Higher**
	Overall economic conditions	Higher
Political		**Lower**
	Energy policies and legislation	Lower
Indigenous Rights and Engagement		**Higher**
	Legislative and policy developments	Higher
	Aboriginal rights and title	Higher
	Social license/work interruption	Higher
Energy Price		**Similar**
	Power supply cost	Higher
	Competition with electricity	Higher
	Competition with natural gas	Lower
Demand/Market		**Similar**
	New technologies	Similar
	Wholesale and Industrial load	Similar
	Use per customer	Similar
	End-use market share	Lower
Energy Supply		**Similar**
	Security and reliability of supply	Similar
Operating		**Higher**
	Infrastructure integrity	Similar
	Unexpected events	Higher
	Project resistance	New (Higher)
	Cybersecurity	New (Higher)
Regulatory		**Higher**
	Regulatory uncertainty and lag	Higher
	Administrative penalties	Similar

Similar to FEI's business risk assessment above, the sections below review each business risk category and the positions of parties. To provide a comprehensive discussion, the Panel addresses parties' submissions and then provides overall findings and determinations on changes to FBC's business risks since the 2013 GCOC proceeding.

Business Profile

FortisBC states that FBC's structure as a fully integrated electric utility contributes to a higher risk profile than that of a distribution-only utility of a similar size - a situation exacerbated by a less diverse and relatively small customer base, concentrated in a small, but geographically diverse service area. Twenty-five percent of FBC's revenue and more than 30 percent of load are attributable to two customer classes, Industrial and Wholesale, a significant number of which can receive service from alternate sources of supply with only limited notice.

[271] Exhibit B1-8-1, Appendix B, p. 2–3.

Despite the slight increase in FBC's customer profile risk due to a higher share of the industrial sector being concentrated in forestry and cryptocurrency mining for the company's load and revenue profile, FBC has assessed its overall business profile risk to be similar to what was assessed in the 2013 GCOC proceeding.[272] FortisBC also acknowledges the Government/Education/Health sector has grown from 15 percent of the load in the top 20 customers in 2013 to 20 percent in 2020.[273]

Positions of Parties

BCOAPO submits the make-up of the revenue contribution from FBC's top industrial customers has changed and shifted from the more volatile forestry and technology sectors to the more stable Government/Health/Education sector. Overall, BCOAPO questions whether the risk associated with FBC's customer profile has materially increased (if at all) since 2013 and submits that FBC's business risk is similar to that in 2013.[274]

The CEC submits that it does not find the addition of a cryptocurrency customer to be an added risk but should instead be viewed as further diversification with the benefit of additional load. The CEC recommends that the BCUC find that the business profile risk is similar, or potentially lower than that from the 2013 GCOC proceeding due to the effects of the Energy Transition.[275]

In reply to the CEC, FBC states that there is ample evidence that the addition of the cryptocurrency customer raises the overall risk profile of FBC's Industrial load.[276]

ICG submits that there has been no increase in business risk so there should be no increase to the equity ratio.[277]

Similarly, RCIA submits that there is a lack of clear, objective evidence validating an increase in FBC's business risk.[278]

Economic Conditions

FortisBC states that economic conditions can affect the ability of utilities to attach new customers or retain existing customers and maintain throughput levels, in addition to affecting utility access to capital and cash flow from customers. FortisBC assesses that the record-high inflation rate, caused by government fiscal and monetary policy, and BC's challenges for long-term economic growth, point to higher risk. However, FortisBC states that economic conditions pose an elevated level of risk to smaller utilities because the smaller utilities have fewer abilities to diversify their operations and protect themselves against economic-driven volatility.[279]

[272] Exhibit B1-8-1, Appendix B, p. 3, Exhibit B1-8, p. 19.
[273] Exhibit B1-9, BCUC IR 33.9.
[274] BCOAPO Final Argument, pp. 29, 36.
[275] The CEC Final Argument p. 30.
[276] FortisBC Reply Argument, pp. 31–32.
[277] ICG Final Argument, p. 16.
[278] RCIA Final Argument, p. 31.
[279] Exhibit B1-8-1, Appendix 8, p. 13.

Positions of Parties

BCOAPO agrees that there is both greater uncertainties associated with the economic outlook for BC (and Canada), particularly in the short-term, and lower prospects for longer term growth.[280] However, the CEC submits that the overall economic conditions affecting the globe should be considered to be undiversifiable risks and should be provided with little to no weight in the BCUC's determinations regarding corporate risk.[281]

In reply to the CEC, FBC states that it is axiomatic that economic conditions can bring different risk to different enterprises and part of the focus of this proceeding is the effect of changed economic conditions on cost of capital for utilities.[282]

Political

FortisBC defines political risk as the potential for governments or other stakeholders to intervene directly in the utility regulatory process or negatively impact utility operations through policy, legislation and/or regulations relating to such issues as tax, energy and environmental policies, industry structure, and safety regulations.[283] FortisBC states that the government push for electrification of the BC economy as the preferred option to reduce emissions is providing FBC with both opportunities and challenges. Namely, government policies to electrify the building and transportation sectors can increase FBC's market share and load; however, rapid policy-driven customer migration from fossil fuels to electricity presents operational challenges for FBC which has limited resources in a small geographical service territory.[284]

Therefore, FortisBC states that over-reliance of government policy on electrification as the only solution to the climate change crisis can lead to increased costs to FBC and its customers.[285] In addition, FortisBC states that the government's ability to subsidize BC Hydro customers is not a path open to FBC. BC Hydro is the primary beneficiary from FEI's challenges in the Energy Transition.[286] Overall, however, FBC assesses that its political risk is lower than what was assessed in the 2013 GCOC proceeding.[287]

Positions of Parties

BCOAPO and the CEC submit that FBC's political risk is lower now than in 2013 due to the Energy Transition and the associated policies that favour electrification.[288] However, the CEC disagrees that BC Hydro is the 'Primary Beneficiary of Fuel Switching' from FEI, as FBC is generally not in competition with BC Hydro. The CEC finds it incongruent that FortisBC is concluding that rapid growth presents risk while also stating that the lack of growth potential due to limited area size is a risk and recommends that little weight be assigned to these arguments.[289]

[280] BCOAPO Final Argument, p. 14, 29.
[281] The CEC Final Argument, p. 31.
[282] FortisBC Reply Argument, p. 32.
[283] Exhibit B1-8-1, Appendix B, p. 14.
[284] Exhibit B1-8, p. 18.
[285] Exhibit B1-8-1, Appendix B, pp. 14–15.
[286] Exhibit B1-8, p. 18; Transcript Volume 5A, p. 706.
[287] Exhibit B1-8, p. 18.
[288] BCOAPO Final Argument, p. 29, The CEC Final Argument, pp. 30–31.
[289] The CEC Final Argument, p. 31.

ICG states that the Energy Transition that limits the future growth prospects of FEI is mirrored in expanded FBC growth prospects. That is, the fundamental changes that are occurring in the energy sector for FEI are mirrored in fundamental changes to the business risks of FBC.[290]

In reply to the CEC, FortisBC states that FBC points out the following: (i) that BC Hydro is the primary beneficiary of fuel switching from FEI, to place the impact of fuel switching policy in its proper context, as BC Hydro has greater overlap between its service territory with that of FEI; (ii) municipal fuel switching policy is mostly being implemented in BC Hydro's service territory rather than FBC's; and (iii) heat pumps are more competitive in the Lower Mainland and Vancouver Island than in FBC's service territory. FortisBC also submits that the CEC's political risk argument overlooks how rapid growth from the Energy Transition could present risk; FBC has limited opportunity to expand its service territory, as it is surrounded by BC Hydro territory and growth in FBC's customer base and accelerated electrification in its existing service area could pose threats to grid integrity.[291]

In reply to ICG, FortisBC notes that ICG appears to base its position on the incorrect proposition that FBC's business risk and FEI's business risk is a zero-sum game. FortisBC submits that business risk is not limited to a consideration of the give-and-take growth prospects of natural gas versus electric utilities. FortisBC states that FBC faces higher risk in some areas and accelerated growth comes with its own set of risks to FBC.[292]

Indigenous Rights and Engagement

FBC defines the Indigenous Rights and Engagement risk as the potential for governments to negatively impact utility operations through policy, legislation and/or regulations concerning Aboriginal rights and title or by Indigenous groups intervening directly in the utility regulatory process or by asserting Aboriginal rights and title. FBC faces an elevated level of business risk related to relationships with Indigenous groups in BC relative to the time of the BCUC's 2013 GCOC proceeding. This elevated risk is based on the evolving nature of the Crown's relationship with Indigenous groups, developments in reconciliation in Canada, significantly increased expectations among Indigenous groups, and legal claims related to Aboriginal rights and title.[293]

Positions of Parties

BCOAPO submits that, while Indigenous Rights and Engagement risk has increased since 2013, FBC appears to be effectively managing the risk such that it has not impacted/will not impact FBC's business to the extent suggested by FBC's evidence.[294]

The CEC submits that the risk in this category is significantly lower than that for FEI in that FBC's land area is confined and there are fewer Indigenous groups affected by FBC operations. The CEC submits that the risk to FBC related to Indigenous Rights and Engagement is largely the same as it was in 2013. The CEC recommends that the BCUC find FBC's Indigenous Rights and Engagement risk to be similar as in the 2013 GCOC proceeding.[295]

[290] ICG Final Argument, p. 4.
[291] FortisBC Reply Argument, pp. 32–33.
[292] FortisBC Reply Argument, p. 31.
[293] Exhibit B1-8-1, Appendix B, p. 16.
[294] BCOAPO Final Argument, p. 30.
[295] The CEC Final Argument, p. 32.

In reply to the CEC, FortisBC submits that FBC's Indigenous rights and engagement risk must be viewed considering its small size — the fact that FBC's service territory engages with fewer Indigenous traditional territories than FEI does not work to lower FBC's risk. The potential impacts of FBC's operations on Indigenous communities are no less meaningful because its operations have the potential to affect fewer Indigenous groups.[296]

Energy Price

FortisBC states that the analysis of energy price risk focuses on power supply factors placing upward pressure on FBC's rates and on the competitiveness of FBC's rates. While the risks related to the BC Hydro Power Purchase Agreement rate increases remain similar to 2013, FortisBC notes that market price volatility and purchase agreements contract rate risk have increased.[297] The level of utility rates can influence consumers' energy choices. Specifically, higher electricity rates in FBC's service territory can hinder FBC's ability to attract new customers (particularly new industrial and larger commercial customers). In addition, higher electricity rates can discourage residential customers from using electricity for space heating and water heating which can affect FBC's market share and UPC.[298]

While FortisBC acknowledges that FBC's rate competitiveness risk compared to BC Hydro is similar to what it was in 2013, FortisBC states it is trending higher. In addition, FBC's rate competitiveness relative to natural gas is similar to that in 2013; however, given expected increases to gas and carbon tax rates, FBC expects its rate competitiveness to improve.[299]

Positions of Parties

BCOAPO submits that the price risk is not as great as suggested by FBC but accepts FBC's overall assessment that its overall price/rate competitiveness risk is similar to that assessed in the 2013 GCOC proceeding.[300] The CEC recommends that the BCUC find the energy price risk to be similar to its finding in the 2013 GCOC proceeding and potentially lowering as new technologies continue to provide benefits.[301] ICG submits that power supply costs may have increased, but have not increased FBC's business risks, as the number of customers that can choose between BC Hydro and FBC is not material and is limited to a very small geographical area, and for that reason, competition with electricity should not be considered a significant risk.[302]

In reply, FortisBC only acknowledges that BCOAPO agrees and, in response to the CEC, submits that new technologies, like wind and solar energy generation resources, do not provide reliable capacity and as such, declines in the cost of the energy produce simply shifting the risk to capacity. The benefits of policies favouring electricity are offset at present by other factors.[303] FortisBC does not address ICG's submissions in its reply argument.

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[296] FortisBC Reply Argument, pp. 33–34.
[297] Exhibit B1-8, p.18.
[298] Exhibit B1-8-1, Appendix B, p. 17.
[299] Exhibit B1-8, p. 19.
[300] BCOAPO Final Argument, pp. 30–31.
[301] The CEC Final Argument, p. 33.
[302] ICG Final Argument, pp. 5–6.
[303] FortisBC Reply Argument, p. 34.

Demand/Market

Demand risk, also referred to as market risk, generally refers to the risk arising from changes in consumer behaviour and the markets to which the utility has exposure.[304] FortisBC states that emerging technologies can provide challenges for FBC, as alternative sources of energy such as home solar generation can reduce the demand, while conversely new load requirements such as electric vehicle (EV) charging can increase the load requirements of FBC.

Both situations create risks for higher costs, as well as risks to grid integrity, including managing the timing of load on the system to avoid peak demand impacts. FortisBC also states that FBC continues to face demand risk in its wholesale and industrial customer segments because these customers are able to take service from competing utilities within the province, build generation to serve some or all of their load, or purchase electricity from the open market.[305] However, FortisBC states that no wholesale or industrial customers have left FBC, nor have they expressed an intent to leave FBC.[306]

In addition, FortisBC states that both building generation and arranging for third-party supply can be complicated and retail access to the open market for electricity purchases is not available.[307] Finally, FortisBC states that compared to 2013, FBC's residential and commercial UPC values have been on a downward trajectory while Industrial UPC has increased.[308] However, FBC has not included EV load growth in the declining residential UPC.[309] FBC expects an increase in its electricity thermal market share relative to natural gas and other fuel sources over the longer term as heat pump penetration increases, thereby reducing this aspect of FBC's market share risk from 2013 and current levels. Overall, FBC views its demand risk as similar to what was assessed in the 2013 GCOC proceeding.[310]

Positions of Parties

BCOAPO submits that there is limited risk to FBC of losing load from either wholesale or industrial customers seeking service from an alternative supplier or self generation. Also, BCOAPO notes that FBC has not taken the longer-term impact of EV load and heat pump penetration increases on the Residential UPC into account in its risk assessment. Finally, BCOAPO notes that the discussion of FBC's demand/market risk does not make any specific reference to the favourable trend of customers' energy choices trending towards more environmental and affordable sources of supply which will favor electricity. Overall, BCOAPO submits that the demand/market risk faced by FBC has likely decreased as compared to that in 2013.[311]

The CEC submits that there are always negatives and positives to be found with every type of change, and they should not be provided with weight unless they are likely to have a material impact. The CEC submits that in this case, the ability to meet peak load can reasonably be expected to be met with new infrastructure or demand

[304] Exhibit B1-8-1, Appendix B, p. 25.
[305] Exhibit B1-8, p. 19.
[306] Exhibit B1-9, BCUC IR 32.1.
[307] Ibid., BCUC IRs 32.1, 33.4.
[308] Exhibit B1-8, p. 19.
[309] Exhibit B1-10, BCOAPO IR 15.3.1.
[310] Exhibit B1-8, p. 19.
[311] BCOAPO Final Argument, p. 32.

side management as approved by the BCUC. The CEC recommends that the BCUC find the demand/market risk for FBC to be lower overall.[312]

In reply to BCOAPO and the CEC, FortisBC submits that FBC's overall demand/market risk is similar to what it was during the 2013 GCOC proceeding and stands by its final submissions.[313]

Energy Supply

FortisBC states, as in 2013, FBC's power supply comes from three sources:

i. Its own hydro generating plants - FortisBC describes the failure of a plant generating unit would result in the need to acquire replacement power, which may not be available due to either lack of available supply or available transmission, or may only be available on the open market at a significantly increased cost;

ii. Long-term contracts with suppliers - As long-term supply contract agreements expire, FBC states that there is no guarantee that it will be able to renew them, or that they could be renewed at a similar cost; and

iii. The wholesale market - FBC's dependence on the availability of third-party transmission capacity to meet demand increases the risk that FBC is not able to access cost-effective market supply.

FortisBC states that there is risk associated with each supply, but the level of risk remains similar to that in 2013.[314]

Positions of Parties

BCOAPO has no issues with FBC's assessment of its energy supply risk and the CEC agrees that the energy supply risk remains similar to that in the 2013 GCOC proceeding. However, the CEC recommends that the BCUC provide moderate weight to this category.[315]

FBC did not comment in its reply argument on the energy supply risk.

Operating

FortisBC states that operating risk is defined as the physical risks to the utility system arising from technical and operational factors, including asset concentration, the technologies employed to deliver service, service area geography, human error, and weather.[316] FortisBC explains that the primary operating risks associated with FBC's generation and infrastructure assets are related to the age and cost to maintain and upgrade these assets. FBC is exposed to additional risk from its transmission and distribution assets which are primarily above ground and the potential for increases in unpredictable extreme weather events, such as wildfires and flooding, to compromise the integrity of these assets.

[312] The CEC Final Argument, p. 33.
[313] FortisBC Reply Argument, p. 34.
[314] Exhibit B-8-1, Appendix B, pp. 41–42.
[315] BCOAPO Final Argument, p.34, The CEC Final Argument, p. 34.
[316] Exhibit B1-8-1, Appendix B, p. 43.

Other unexpected events, such as the COVID-19 pandemic, disrupt supply chains and cause delays in FBC's capital work, which impacts its ability to maintain and operate its system. Additionally, FBC has experienced an increase in incidences of cyberattacks and expects to see increased resistance to projects, which will lead to higher risks to execute projects on time at the lowest reasonable cost. Therefore, FBC assesses its operating risk as being higher than in 2013.[317]

Positions of Parties

BCOAPO accepts FBC's assessment that its operating risk has increased since 2013 based on the factors cited by FBC.[318] However, the CEC recommends that the BCUC find the operating risk to be similar to that in 2013.[319] The CEC does not consider the age and cost to maintain the generation infrastructure assets as a higher risk for FortisBC and considers it at least the same as, or lower than previously, as ratepayers pay for necessary upgrades. The CEC submits that there may be some degree of selection or framing bias as FBC does not address distribution or other infrastructure except with respect to 'Unexpected Events'. While the CEC agrees that there is an increase in unexpected events, such as extreme weather affecting transmission and distribution, the CEC notes that FBC has additional advanced metering infrastructure embedded in its network which can assist with mitigating risk to customers.

Regarding project resistance, the CEC submits that the utility has the obligation, and the capability, to plan for and seek approval for appropriate timing and costing so that it can continue to execute projects cost effectively and on time and recommends that little to no weight be assigned to FBC's arguments. The CEC submits that cyberattacks are on the rise generally and should be considered as a non-diversifiable risk.[320]

In reply, FortisBC states that FBC's risk assessment is post-mitigation, and while risks such as cybersecurity may broadly impact other entities, the risk is more acute for utilities than many other enterprises. The increased threat of cybersecurity attacks may have serious repercussions. In addition, FortisBC also notes that it has provided ample evidence of serious and increasingly frequent extreme weather events, which cause lengthy outage periods for customers and require resource-intensive transmission and distribution infrastructure rebuilds. FortisBC submits that the potential costs associated with these increasing risks may prevent FBC from earning its allowed return. [321]

Regulatory

FortisBC defines regulatory risk as the degree to which FBC, as a regulated public utility, is dependent on regulators for timely and objective approvals that directly impact its ability to earn a fair return on and of capital. FortisBC has assessed FBC's overall regulatory risk as higher than what was assessed in the 2013 GCOC proceeding, with certain risk factors increasing and others being similar. FortisBC states that regulatory discretion in approving or denying a utility's applications is the main cause of regulatory uncertainty which in itself gives rise to the risk that the allowed return does not accord with the Fair Return Standard, that rates are

[317] Exhibit B1-8, p. 20.
[318] BCOAPO Final Argument, p.34.
[319] The CEC Final Argument, p. 35.
[320] The CEC Final Argument, pp. 34–35.
[321] Fortis Reply Argument, p. 36.

set at a level that does not provide FBC with an opportunity to earn its fair return, or that necessary investments are not approved.

FortisBC states that there is uncertainty caused by the BCUC's decision to consider a more generic approach to deferral account financing treatment. FortisBC also notes that the risk associated with regulatory lag and ultimate approval of cost recovery has also increased since the 2013 GCOC proceeding when considering increased requirements for stakeholder consultation, environmental reviews, and Indigenous rights and title.[322]

In addition, FortisBC states that the failure to comply with the adopted BC Mandatory Reliability Standards (MRS) requirements can lead to the BCUC imposing administrative penalties against FBC. Compared to 2013, the scope and comprehensiveness of the BC MRS requirements have increased. While FBC strives to comply with the BC MRS requirements, there is always a risk that non-compliance may occur.[323]

Positions of Parties

BCOAPO submits that MRS requirements do not give rise to an increase in regulatory risk relative to 2013, as FBC is familiar with the requirements. BCOAPO submits that FBC's regulatory risk remains relatively unchanged from that in the 2013 GCOC proceeding.[324]

In reply, FortisBC does not address BCOAPO's submission on MRS.

The CEC does not view FBC's additional concerns to be significant and notes that the BCUC can approve additional funding to cope with MRS requirements. Therefore, the CEC also applies its views on regulatory risk for FEI to FBC and recommends that the BCUC find FBC's regulatory environment to be favourable.[325]

In reply to the CEC, FortisBC does not address the CEC's submission on MRS and repeats the same arguments for FBC as it did for FEI.[326]

ICG submits that there is no evidence to support FBC's conclusion that regulatory uncertainty and lag have increased.[327] In reply to ICG, FortisBC states that it provided evidence of these business risks in its evidence, in numerous responses to information requests, and at the oral hearing. [328]

Panel Determination

Similar to its approach with the assessment of FEI's business risks, the Panel focuses on how FBC's business risk categories have changed since 2013 from a shareholder and investor perspective. Thus, we do not focus on business profile, energy price and supply risk categories, as we agree that all of these are similar to 2013 and no parties raised any material issue with that assessment. We address where FBC has noted changes in risk and

[322] Exhibit B1-8, p. 20.
[323] Exhibit B1-8-1, Appendix B, p. 55.
[324] BCOAPO Final Argument, p. 35.
[325] The CEC Final Argument, pp. 27, 35.
[326] FortisBC Reply Argument, pp.27–28, 37.
[327] ICG Final Argument, p. 5.
[328] FortisBC Reply Argument, p. 37.

discuss whether we agree with the changes and whether they affect the risk, real or perceived, to the shareholder and investor rather than to the ratepayer. We begin our analysis with an assessment of FBC's economic conditions risk below.

Economic Conditions

FBC assesses that its economic conditions risk is higher than in 2013 due to record-high inflation rates caused by government fiscal and monetary policy, and BC's challenges for long-term economic growth. The Panel notes that FBC did not provide evidence that this risk is perceived differently by investors for FBC than for other utilities. Additionally, the Panel finds no evidence to support FBC's submission that this risk will affect FBC's ability to access capital or impact its cash flow from customers, as increased cost resulting from inflations are recoverable from ratepayers.

The Panel is not persuaded that the present short-term economic conditions will materially affect the ability of FBC to attach new customers or retain existing customers and maintain throughput levels. As the costs are recoverable from ratepayers, and investors do not perceive this risk higher for FBC than a comparable utility, **the Panel finds that FBC's economic conditions risk to the shareholder and investor to be similar to what it was in 2013.**

Political

FBC assesses its political risk as lower than what was assessed in 2013 and the Panel agrees. The Panel notes that FBC, as well as BCOAPO, the CEC and ICG all submit that the risk is lower than in 2013. The Panel also notes that ICG submitted that "the Energy Transition that limits on the future growth prospects of FEI are mirrored in expanded FBC growth prospects".

The Panel agrees that business risk is not limited to a consideration of the give-and-take growth prospects of natural gas versus electric utilities. We accept that rapid growth from the Energy Transition presents opportunities for FBC, both real and perceived. However, it could also present risks that it will not be able to effectively deal with such rapid growth. The Panel puts more weight on growth opportunities because current policies and investor perceptions favour FBC as an electric utility and opportunities in most cases come with certain degree of risk. Therefore, on balance, **the Panel finds that FBC's political risk to the shareholder and investor is lower than it was in 2013.**

Indigenous Rights and Engagement

FBC assesses that it faces an elevated level of risk related to relationships with Indigenous groups in BC compared to 2013. We do not disagree but we find this risk is mitigated, at least in part, by the likely recovery of the costs associated with project delays and increased engagement from ratepayers through rates.
The Panel is persuaded that the potential and perceived impacts of FBC's operations on Indigenous communities are no less meaningful to those of FEI merely because its operations have the potential to affect fewer Indigenous groups.

In our view, while this risk is largely borne by ratepayers, this issue is likely to impact investors' perception of risk. However, as with many risks, the risks associated with Indigenous Engagement and Consultation also comes with opportunity to engage with First Nations and we encourage FBC to seek out those opportunities.

Accordingly, **the Panel finds that FBC's Indigenous Rights and Engagement risk to the shareholder is somewhat higher than it was in 2013**.

Demand/Market

FBC assesses its demand/market risk as similar to what was assessed in 2013. However, the Panel notes that BCOAPO and the CEC submit that demand/market risk is lower than it was in 2013. BCOAPO submits that FBC has not taken the longer-term impact of EV load and heat pump penetration increases on the Residential UPC into account in its risk assessment or makes any specific reference to its customer's energy choices trending towards those favouring electricity. The Panel considers that emerging technologies can also provide challenges for FBC, as alternative sources of energy such as home solar generation can reduce the demand on new load requirements, thereby offsetting some of the reduced risk associated with potential EV and heat pump load. The Panel also notes that any cost differences as a result of load will be absorbed by customers through rates.

Although the CEC submits that FBC's ability to meet peak load can reasonably be expected to be met with new infrastructure or demand side management as approved by the BCUC, the Panel considers this does not result in a reduction of demand/market risk for FBC, as the associated costs would have always been recoverable through rates. Further, the Panel agrees with the CEC that there are always negatives and positives with every type of change, and such changes should not be provided with weight unless they are likely to have a material impact or perceived to have an impact. In this case, the Panel finds that overall, the negative and positive impacts offset each other with minimal impact to the shareholder, in addition, there has been no indication that investors perceive this risk as lower than in previous years or less than another utility. Accordingly, **the Panel finds that FBC's demand/market risk to the shareholder is similar to what it was in 2013.**

Operating

FBC assesses its operating risk as being higher than in 2013. FBC submits that it is exposed to additional risk from the potential for increases in unpredictable extreme weather events such as wildfires and flooding which compromise the integrity of its transmission and distribution assets. BCOAPO agrees with FBC. The CEC, however, submits that this risk is similar to that of 2013. ICG submits that no weight should be given to this risk category in determining the appropriate capital structure for FBC, implying that the risk is similar to that of 2013.

FBC submits that the primary operating risks associated with FBC's generation and infrastructure assets are related to the age of these assets and their maintenance and upgrade costs. FBC also submits that other unexpected events, such as the COVID-19 pandemic, disrupt supply chains, cause delays in FBC's capital work, and impact its ability to maintain and operate its system. Similarly, FBC states that incidences of increased cyberattacks represent an increase to FBC's operating risk. The Panel notes that FBC did not present evidence that demonstrates that investors view these risks differently for FBC than for other utilities, nor did FBC provide evidence demonstrating that its ability to maintain and operate its system has been compromised, nor has it been unable to recover its incurred expenditures needed to address these operating risks. Accordingly, the Panel

is not persuaded that FBC's operating risk has increased since 2013, and **the Panel finds that FBC's operating risk is similar to what it was in 2013.**

Regulatory

FBC assesses its overall regulatory risk as higher than what was assessed in 2013. FBC submits that risk has increased as a result of regulatory uncertainty, regulatory lag, and changing MRS requirements. BCOAPO, the CEC and ICG all submit that the risk is similar to what it was in 2013.

FBC submits that regulatory uncertainty gives rise to the risk that the allowed return or rates may not meet the Fair Return Standard, or that necessary investments are not approved. FBC provided no evidence that perceived regulatory uncertainty has led to its allowed return not meeting the Fair Return Standard, or rates being set at a level that does not provide FBC an opportunity to earn its allowed return. Similarly, FBC provided no evidence where recovery has been disallowed for approved investments. Finally, FBC provided no evidence that the likelihood of these outcomes occurring is higher today than in 2013, nor is the risk of these outcomes occurring or perceived to occur greater for FBC than it is for other utilities. Accordingly, the Panel is not persuaded that FBC's regulatory risk due to regulatory uncertainty has increased.

FBC submits that risk associated with regulatory lag and ultimate approval of cost recovery has also increased since the 2013 GCOC proceeding when considering increased requirements for stakeholder consultation, environmental reviews, and Indigenous rights and title. While the Panel accepts that these requirements have become more onerous since 2013, the Panel notes that FBC provided no evidence that these changing requirements have resulted in expenditures for which FBC has not received approval to recover the costs from its customers. Nor has FBC provided evidence that the likelihood of this occurring is higher today than in 2013, nor is the risk of this occurring or perceived to occur greater for FBC than it is for other utilities. Accordingly, the Panel is not persuaded that regulatory risk due to regulatory lag and ultimate cost recovery has increased.

FBC submits that the risk associated with MRS requirements has increased. FBC submits that MRS requirements have increased since 2013 and that there is always a risk that non-compliance with MRS may occur, which may lead to administrative penalties. The Panel accepts that MRS requirements have increased since 2013 and that non-compliance may lead to the imposition of administrative penalties. However, the Panel notes that the BCUC has not disallowed recovery of costs from customers associated with FBC meeting its MRS requirements, nor has FBC provided evidence that the likelihood of this occurring is higher today than in 2013, nor is the risk of this occurring or perceived to occur greater for FBC than it is for other utilities. Accordingly, the Panel is not persuaded that regulatory risk due to MRS requirements has increased. Thus**, the Panel finds the FBC's overall regulatory risk to the shareholder and investor to be similar to what it was in 2013.**

Overall Business Risk

While some of FBC's business risks have increased to a degree, these have been offset by reductions in other risk categories. The Panel notes that the CEC submits that overall, FBC's business risk is slightly lower than it was in 2013 due to the effects of the Energy Transition.[329] However, the CEC does not submit that this should result in a reduction to FBC's equity component. Other interveners submit that FBC's overall business risk is similar to that

[329] The CEC Final Argument, p. 30.

of 2013. RCIA submits that there is "… the absence of clear, objective evidence validating an absolute increase in business risk,"[330] and ICG submits that "[i]n the current circumstance of FBC, there has been no increase in business risk so there should be no increase to the equity ratio."[331] Finally, BCOAPO submits that "… the BCUC should conclude that, on an overall basis, FBC's business risk is similar to that of the 2013 GCOC proceeding";[332] however, BCOAPO also submits that FBC's business risk would be lower relative to that of other Canadian and US electric utilities[333].

Given the findings associated with each of the business risk categories, **the Panel finds that FBC's business risk overall has not changed materially since 2013.** This is attributable to most of the risk to the shareholder remaining similar to 2013 and the decrease in political risks associated with the Energy Transition compared to the perceived increase in risk for Indigenous Rights and Engagement, resulting in no net change in FBC's attractiveness as an investment to investors. The Panel will address the impact of this overall assessment of FBC's business risk on its capital structure and ROE, which are influenced by factors beyond business risk, in Section 6.3 below (Overall Capital Structure and ROE).

Having addressed the changes in business risks for FEI and FBC, we now review the various financial models used by the experts in assessing an appropriate ROE for the two utilities.

5.0 FINANCIAL MODELS

5.1 Rationale for the Use of Financial Models

Regulators rely on financial models because the cost of equity for a regulated utility cannot be observed. All models are simplifications of reality, using simplifying assumptions and as such, they are all subject to varying degrees of criticism.[334] Quantitative models produce a range of reasonable results from which the ROE is selected. Mr. Coyne states that the key consideration in determining the cost of equity is to ensure that the methodologies employed reasonably reflect investors' forward-looking views of the financial markets in general and the subject company (in the context of the proxy group) in particular.[335]

Dr. Lesser explains that models that are used by regulators to set the cost of capital for regulated utilities should possess certain characteristics: 1) a sound basis in financial theory; 2) model transparency; and 3) minimal reliance on subjective factor. In addition, they shouldn't be systematically biased.[336]

Dr. Lesser further explains that methodologies used to estimate the allowed return on equity for a regulated utility should be consistent with accepted financial theory and basic economics, namely, that the allowed return reflects the opportunity cost of capital. Non-market approach, such as the Comparable Earnings approach is

[330] RCIA Final Argument, p. 31.
[331] ICG Final Argument, p. 16.
[332] BCOAPO Final Argument, p. 36.
[333] Ibid.
[334] Exhibit A2-3, p. 22.
[335] Exhibit B1-8-1, Appendix C, p. 45.
[336] Exhibit A2-3, p. 22.

unlikely to reflect the opportunity cost of capital, as it bases allowed returns on accounting measures which can be influenced by specific events or differences in accounting practices.[337]

Model transparency reflects two important dimensions: understandability and replicability and requires, in Dr. Lesser's view, the reliance on data that is publicly available or available at a low cost.[338] Finally, all models involve some degree of subjectivity owing to the choices of inputs but Dr. Lesser explains that subjectivity can be reduced to some extent when regulators specify the methodologies and the inputs that should be used to implement those methodologies beforehand. For example, adjusting model results to account for perceived anomalous capital market conditions without any underlying basis in financial theory and no empirical support is subjective. He recommends that regulators question these types of adjustments, as they can undermine confidence that the resulting allowed ROE values are 1) just and reasonable and 2) consistent with "reasonable decision-making".[339]

Mr. Coyne explains that no model can exactly pinpoint the correct return on equity, but rather each model brings its own perspective and set of inputs that inform the estimate of ROE and as such, no model should be relied upon individually without corroboration from other approaches. Mr. Coyne also notes that using multiple models mitigates the inherent imperfections in each of the models and there is additional value in using multiple models during "volatile market conditions, such as those experienced over the last decade." Furthermore, analysts must apply informed judgment to assess the reasonableness of results and to determine the appropriate weighting to apply to results under prevailing capital market conditions.[340]

In its 2016 Decision, the BCUC acknowledged the need to use multiple methodologies in determining a fair return on equity, stating:

> The Panel notes that while there are some differing perspectives among the experts and parties, their views are generally consistent with the Brattle Group Report's finding that decisions should be informed by use of multiple financial models and other indicators of investor expectations where appropriate. The Panel agrees it should consider the "totality of information resulting from applying multiple tests." The Panel also agrees it should consider all of the information from the application of the models presented, as well as other indicators of the fair ROE and should apply its own judgment to determine the appropriate ROE.[341]

Mr. Coyne presented the results of four models: multi-stage DCF, constant growth DCF, CAPM and Risk Premium. His recommendations ultimately reflect the average output of multi-stage DCF and CAPM models, which is the approach adopted in the 2016 Decision.[342] Mr. Coyne supports the BCUC's previous approach of using multiple methodologies and believes it is appropriate to place equal weight on the results of the CAPM and Multi-Stage DCF model. But he also notes that FERC includes the Risk Premium Model, in addition to the CAPM and Two-Stage DCF models, to establish the return for electric transmission companies, and gives equal weight to the results of those three approaches. Mr. Coyne further points out that in volatile market conditions, there is additional value in using multiple models. All models have their strengths and weaknesses, so relying on

[337] Exhibit A2-3, p. 23.
[338] Ibid.
[339] Ibid., pp. 24–25.
[340] Exhibit B1-8-1, Appendix C, pp. 45–46, Exhibit B1-9, BCUC IR 44.3.
[341] 2016 Decision, p. 47.
[342] FortisBC Final Argument, p. 136.

an equal weighting of two (or more) improves both the reliability of the estimate and the confidence that stakeholders can place in the results.[343]

FortisBC states that Mr. Coyne and Dr. Lesser agree on the importance of using multiple models to estimate a utility's cost of equity and submits that, ultimately, the BCUC should consider the result of all four models used by Mr. Coyne, even if greater weight is applied to the CAPM and Multi-Stage DCF results.[344]

As BCOAPO observes, the evidence is clear that, despite the numerous points upon which Mr. Coyne and Dr. Lesser disagree, they do both agree that ROE estimates should be based on the use of multiple models. BCOAPO supports this premise as a reasonable response to a challenging issue.[345]

The Panel will discuss its views of each model in the next sub-sections, reviewing in turn the CAPM, the DCF methodology, and the Risk Premium Model. The Panel will then determine the various weightings to be attributed to each model in Section 6.3.

Briefly, the CAPM is based on the long-observed relationship between non-diversifiable risk and expected return, the DCF methodology is based on the premise that today's stock price represents investors' expectations regarding future cash flows from holding that stock in terms of dividends and price appreciation, and the Risk Premium Model is based on the premise that common equity capital is riskier than debt and, therefore, equity investors require a greater return than would bondholders.

5.2 Capital Asset Pricing Model

The CAPM is commonly used in business valuation and regulatory jurisdictions to estimate ROE. The CAPM financial model estimates the expected return of an investment or security based on its riskiness relative to the rest of the market. The BCUC has recognized the use of the CAPM in prior cost of capital decisions.[346]

The CAPM is based on the relationship between the required return of a security and the systematic risk of that security and is defined by the following equation:

$$K_e = rf + \beta(rm - rf) \qquad (1)$$

Where:

K_e = the required ROE for a given security;

rf = the risk-free rate of return;

β = Beta is the systematic risk of an individual security;

rm = the required return for the market as a whole; and

(rm – rf) = Market risk premium (MRP) is the premium that equity investors demand to compensate them for the extra risk they accept

[343] Exhibit B1-9, BCUC IR 44.3.
[344] FortisBC Final Argument, p. 136.
[345] BCOAPO Final Argument, p. 37.
[346] 2013 Decision, 2016 Decision.

Dr. Lesser states that the CAPM is the most used approach for estimating allowed ROE values. In his view, the model is understandable, transparent, based on sound financial theory, and there are readily available data with which to develop CAPM estimates. He explains that the assumptions used in deriving estimates for each of the three CAPM components can have a significant impact on the ROE result and that key empirical issues for regulators to consider when using the CAPM are as follows:

a) What risk-free rate (*rf*) should be used;

b) Whether to use raw or adjusted beta and to adjust for differences in leverage to reflect differences in capital structure;

c) How to determine the expected market return (*rm*) and whether the market-risk premium (*rm – rf*) should be historical or forward-looking;[347] and

d) Whether a size premium is appropriate.[348]

5.2.1 Risk-Free Rate

The risk-free rate of return is a theoretical return that carries no risk. Dr. Lesser points out that even though a truly "risk-free" asset does not exist, most regulators rely on long-term government bond yields as the risk-free rate when using the CAPM to set the allowed ROE because determining an allowed ROE is a long-term exercise and the yield on long-term government bonds is the closest thing to the hypothetical risk-free rate.[349]

Mr. Coyne and Dr. Lesser agree that the yield on long-term government bonds is the appropriate basis to estimate the risk-free rate of return. They also agree that using a 30-year horizon is appropriate.[350] However, one area of disagreement is Dr. Lesser's use of current average government bond yields instead of Mr. Coyne's use of forecast bond yields.[351]

Mr. Coyne states that since the bond yields in December 2021 remain near historical lows, adjustments are necessary to better reflect forward-looking circumstances because investors are factoring higher interest rates into their longer-term expectations and required returns. He relies on the 30-year forecast bond yields for his analysis, calculated as the 2022–2024 average *Consensus Economics* forecast of the Canadian 10-year government bond, later updated to 2023–2025, plus the average spread between 10-year and 30-year government debt. Mr. Coyne explains that the use of a forecast yield is appropriate, as it provides a forward-looking view of the cost of equity and accounts for the market's expectations for a return to more normal (higher) interest rates.[352] Also, Mr. Coyne emphasizes that it is a longstanding regulatory practice in Canada to base the cost of capital on an expectation of the bond yield using some sort of forecast.[353]

Dr. Lesser prefers using current average government bond yields. In his view, based on the Efficient Market Hypothesis, the current yield already reflects investors' collective expectations about interest rates such that using forecasts would amount to a double-counting of expectations. Also, he remarks that low interest rates

[347] Exhibit A2-3, p. 58.
[348] Ibid., p. 59.
[349] Exhibit A2-3, p. 45.
[350] Exhibit B1-8-1, Appendix C, p. 56, Exhibit A2-3, p. 46.
[351] Exhibit B1-21, p. 5.
[352] Exhibit B1-8-1, Appendix C, p. 56.
[353] Transcript Volume 3, p. 184, Line 13–16.

induced by government actions do reflect the true cost of capital and argues that the opposite begs the question of what is the "true" cost of capital.[354]

Dr. Lesser relies on both the 30-day and 90-day average bond yield. Dr. Lesser states that he often will use a one-month average (30-days) because interest rates tend to be less volatile than stock prices.[355] However, he also notes that it would be reasonable to use a slightly longer period, between one and three months (i.e. 90 days).[356] Dr. Lesser notes that, while he supports using the current yield, the decision on the time period is subjective on the best way to approach it, stating that "it may make very little difference" and there is no "optimal averaging period".[357]

Mr. Coyne disagrees and reiterates that under current market circumstances (around June 2022), when interest rates are changing rapidly as central banks in the US and Canada normalize monetary policy in response to higher than expected inflation, the use of current average yield tends to understate the level of interest rates during the period for which the cost of equity is being set.[358] During the oral hearing, Mr. Coyne explained:

> MR. COYNE: But case in point going back to December when we put our data together, our forecast bond yield for the U.S. long term is 2.91 percent and for Canada it was 2.58 percent. In October [2022], the actual for Canada is 3.374 and the actual for October in the U.S. is 4.04. So those numbers are already over a percent higher than what we had predicted -- what Consensus Economics had predicted back then. They had the trend right, but not the magnitude right of just how much it was going to increase. Had I adopted Dr. Lesser's approach back in December of 2021, I would have used a Canadian bond yield of only 1.76 percent and a U.S. bond yield of 1.84 percent. And as I said, they're now 4 percent in the U.S. and 3.3 percent in Canada. So it clearly would have underestimated what's occurred in the market for government bond yields, even the forecast underestimated what's occurred.[359]

Reflecting the Panel's determination that it should be using the October 2022 data to inform the establishment of an appropriate ROE, the following table presents the October 2022 risk-free rates resulting from the two experts' respective approaches.

Table 11: Summary of Risk-Free Rates[360]

Canada			
As of	**Forecast**	**Current 30-day**	**Current 90-day**
October 2022	3.21%	3.27%	3.09%
U.S.			
As of	**Forecast**	**Current 30-day**	**Current 90-day**
October 2022	3.50%	3.92%	3.43%

[354] Exhibit A2-3, p. 46.

[355] Transcript Volume 3, p. 182, Lines 5–8.

[356] Ibid., p. 201, Lines 22–26 to p. 202, Lines 1–9.

[357] Ibid., p. 201, Lines 22–26 to p. 202, Lines 1–9.

[358] Exhibit B1-21, p. 14.

[359] Transcript Volume 3, p. 184, Lines 17–26 to p.185, Lines 1–8.

[360] Information in the table has been compiled from Exhibit B1-8-1-2, A.2 Gas and Electric attachments for Forecast (Canada and US), Exhibit B1-8-1-2, B.6 Gas and Electric attachments for Current 30-day (Canada and US), Exhibit B1-8-1-2, B.7 Gas and Electric attachments for Current 90-day (Canada and US).

FortisBC submits that the risk-free rate should be determined using forecast bond yields, not current government bond yields. FortisBC states that the BCUC should find that Mr. Coyne's approach is most reasonable since it best reflects how investors make decisions. FortisBC refers to Mr. Coyne's statement that the entire forecasting industry is predicated on investors using forecasts, rather than just the current price, in making investment decisions. FortisBC also points out that Mr. Coyne's approach is consistent with the logic underpinning automatic adjustment mechanisms (AAMs) approved by Canadian regulators, including the previously BCUC-approved AAM, which has long been calibrated to forecast bond yields rather than current bond yields.[361]

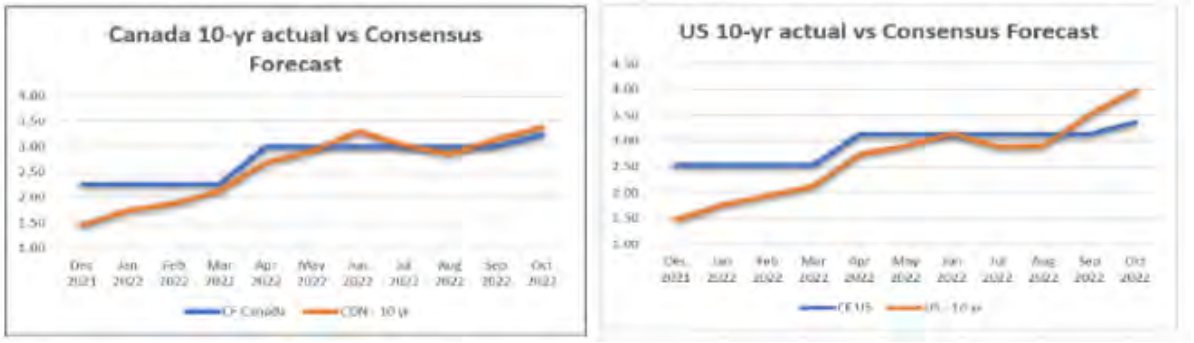
Regarding Dr. Lesser's view that based on the Efficient Market Hypothesis, "using a forecast of future yields on such bonds thus amounts to "double-counting" future expectations."[362] FortisBC remarks that Dr. Lesser concedes that "double- counting" is a misnomer, as Mr. Coyne is using the forecast instead of current bond yields (not adding them together). FortisBC also notes that Dr. Lesser acknowledges that investors look beyond the current price to inform investment decisions.[363]

In FortisBC's view, the reality is that current prices reflect many considerations other than investor expectations about the future, such as institutional investors settling trades at prices based on portfolio requirements:[364]

> A bond yield market is a chaotic place. There are billions and trillions of dollars traded each day in bond markets. Some traders have to get into positions, they have to get out of positions. They're optimizing what they need to do in that moment. That's different than having a three-to-five year outlook on what those markets are going to be.

FortisBC points out that forecast yields are now below the actual yields in both Canada and the US (see Figure 1). Thus, accepting Dr. Lesser's recommendation would, all else equal, increase Mr. Coyne's CAPM values. Dr. Lesser also agrees that Figure 1 shows that, regardless of whether one uses current or forecast bond yields, the cost of capital has increased since December 2021.[365]

Figure 1: Canada and U.S. 10-Yr Actual vs Consensus Forecast[366]



[361] FortisBC Final Argument, pp. 156–158.
[362] Exhibit A2-3, p. 46.
[363] FortisBC Final Argument, p. 158.
[364] FortisBC Final Argument, p. 158–159.
[365] Ibid., p. 161.
[366] Ibid., p. 162.

FortisBC submits that it is important to resolve this issue on a theoretical defensible basis, even if that means Mr. Coyne's CAPM results are lower than they otherwise would be if the BCUC were to adopt Dr. Lesser's recommendation.

Positions of Parties

ICG

Based on its support for the Efficient Market Hypothesis, ICG submits that model inputs should be based on current market prices rather than forecasts.[367]

BCOAPO

BCOAPO does not support or reject either expert's approach and notes that the results based on the October 2022 data are similar between the two experts, so provided that the BCUC uses the October 2022 data set to determine the ROE, there appears to be little difference in the risk-free rate regardless of which approach was used. However, this conclusion is entirely dependent upon the time period the BCUC chooses so BCOAPO submits that the approach chosen by the BCUC is important due to its potential influence on future panels.[368]

The CEC

The CEC notes that the experts disagree on the use of current government bond yields (Dr. Lesser) versus forecast government bond yields (Mr. Coyne) to determine the risk-free rate. The CEC submits that Dr. Lesser's concern with using data that may double-count investors' expectations has an important degree of validity. However, the CEC notes that the differences in the results are relatively small and that Mr. Coyne's choice appears to be the more conservative outcome. Therefore, the CEC supports Mr. Coyne's choice of forecast bond yields.[369]

RCIA

On the risk-free rate, RCIA notes that the debate is focused on whether to include a blend of actual and forecast rates (Mr. Coyne's method) or to use only actual rates (Dr. Lesser's). RCIA notes that any difference in risk-free rate estimates due to different assumptions will be 100 percent reflected in the calculated ROE based on the CAPM formula. Referencing the December 2021 and September 2022 data, RCIA concludes that the adoption of Mr. Coyne's assumptions regarding the risk-free rate results in a calculated ROE difference that does not track with actual changes in interest rates.[370] RCIA recommends adjusting Mr. Coyne's CAPM calculation by incorporating only actual risk-free rate data. [371]

FortisBC Reply Argument

[367] ICG Final Argument, pp. 6, 8.
[368] BCOAPO Final Argument, pp. 44–46.
[369] The CEC Final Argument, p. 41.
[370] RCIA Final Argument, pp. 11–14.
[371] Ibid., p. 20.

In reply to ICG's suggestion that using forecast bond yields is a rejection of the Efficient Market Hypothesis that underlies cost of capital models, FortisBC notes Mr. Coyne's observation that today's price not only incorporates future expectations but also additional investment considerations unrelated to what investors expect the price will be in the future. Were this not the case, there would be consistent alignment between current prices and forecasts. FortisBC states that this is one instance where clinging inflexibly to the academic Efficient Market Hypothesis is unhelpful to achieving a fair real-world result, considering that the Fair Return Standard is grounded in real-world considerations. FortisBC also points out that ICG's support for the rigid application of the Efficient Market Hypothesis in relation to risk-free rate is inconsistent with ICG's acceptance of using forecast bond yields in an AAM context.[372]

In response to RCIA, FortisBC notes that RCIA mischaracterized the nature of the disagreement between Mr. Coyne and Dr. Lesser on the risk-free rate when suggesting that Mr. Coyne proposed to use a blend of forecast and actual data. FortisBC points out that Mr. Coyne only used forecast bond yields. FortisBC also remarks that RCIA's focus on *ex post* forecast accuracy to oppose the use of forecasts because they are "fraught with uncertainty" misses the point. FortisBC states that the use of forecast bond yields recognizes that cost of capital is dictated by forward-looking investor expectation, and investors use forecasts.[373]

FortisBC also points out that RCIA uses the December 2021 data, despite the experts' agreement to use October 2022 data. Both forecast and actual bond yields increased significantly between these dates and FortisBC demonstrates that the differential between forecast and actual bond yield reverses in October 2022 such that the CAPM results based on actual bond yields rather than forecast bond yield would be 24 basis points (bps) higher, based on October 2022 data.[374]

Panel Determination

The risk-free rate is a key input in the CAPM, representing an estimate of the risk-free return that investors can expect to earn. Both experts agree that it is appropriate to base the estimated risk-free rate of return on the yield on long-term government bonds using a 30-year timeframe. None of the parties object to this approach. The Panel accepts this approach and notes that it is consistent with previous BCUC cost of capital decisions. We also recognize that the use of long-term rates is common in regulatory settings given that the rate of return is typically set for a longer period.

The experts disagree, however, on whether to estimate the risk-free rate using current or forecast bond yields. Consistent with views accepted in the 2016 FEI COC proceeding, Mr. Coyne states in his December 2021 evidence that since bond yields remain near historical lows, rates then do not reflect forward-looking circumstances because investors are factoring higher interest rates into their longer-term expectations and required returns. On the other hand, Dr. Lesser argues that the current yield already reflects investors' collective expectations about interest rates. ICG and RCIA support using current yields. The CEC and BCOAPO both note that the estimated risk-free rates using October 2022 data are similar between the two experts. Given we have already determined that using the October 2022 data is appropriate, we agree with BCOAPO that there appears to be little difference in the estimated risk-free rate regardless of which approach is used. This is especially the

[372] FortisBC Reply Argument, pp. 63–64.
[373] FortisBC Reply Argument, pp. 62–63.
[374] Ibid., p. 62.

case when using the 90-day average. Since recent increases in interest rates have impacted October 2022 results, we consider it reasonable to use the slightly longer 90-day period suggested by Dr. Lesser.

FortisBC points out that because the current yields are higher than the forecast yields in October 2022, Mr. Coyne's CAPM results are lower than they would be if the BCUC were to adopt Dr. Lesser's recommendation to use the current yield. Even though there is only a small difference between the current and forecast yields, FortisBC considers that the Panel should decide the "conceptually important issue" and argues that Mr. Coyne's forecast approach best reflects how investors make decisions because the current yield reflects additional investment considerations unrelated to what investors expect the price will be in the future. However, the Panel does not agree it is necessary to conclude on this issue for the purpose of setting the appropriate ROE for FEI and FBC in this proceeding because the October 2022 actual and forecast rates are closely aligned and interest rates are now trending above the historic lows in December 2021 that Mr. Coyne referred to.

We note that Mr. Coyne uses the forecast Canadian risk-free rate of 3.21 percent for the Canadian utilities in the North American proxy group and the forecast US risk-free rate of 3.50 percent for the US utilities in the North American proxy group. In Section 3.2, the Panel determined that it is appropriate to remove two Canadian utilities from the North American proxy groups and as a result, the risk-free rate would be weighted more towards the US risk-free rate than the Canadian risk-free rate. The Panel will consider the overall impact of this in Section 5.2.5 on Overall CAPM Results.

Based on the above determinations and subject to any adjustment noted in Section 5.2.5, **the Panel finds that Mr. Coyne's estimated risk-free rate based on forecast long-term government bond yields for his CAPM estimate is reasonable.**

5.2.2 Beta

Beta is the systematic risk of an individual security and represents the risk of the security relative to the market. Mr. Coyne employs several methods of measuring the beta coefficient for the Canadian and US proxy groups using estimates from both Value Line and Bloomberg. Mr. Coyne explains that:

- Value Line publishes the historical beta for each company based on five years of weekly stock returns and uses the New York Stock Exchange as the market index;
- Bloomberg produces beta estimates based on parameters entered by the user and Mr. Coyne computed Bloomberg betas based on five years of weekly stock returns and using the S&P 500 or the S&P/Toronto Stock Exchange (TSX) Composite as the market index; and
- Both Value Line and Bloomberg report adjusted betas.[375]

The following table presents the adjusted betas used by Mr. Coyne in his CAPM.

[375] Exhibit B-1-8-1, Appendix C, p. 57.

Table 12: Value Line and Bloomberg Betas[376]

October 2022	Value Line	Bloomberg
Canadian Group	0.80	0.88
U.S. Gas Group	0.84	0.80
North American Gas Group	0.84	0.88
U.S. Electric Group	0.89	0.89
North American Electric Group	0.88	0.86

Raw versus Adjusted Betas

Both experts recommend the use of Blume-adjusted betas to reflect a forward view of betas and their tendency to migrate toward the market mean over time, which is consistent with the forward-looking nature of estimating the allowed ROE for a utility.[377] Mr. Coyne also notes that both US utility regulators, including FERC, and the Brattle Group's 2012 study conducted for the BCUC also support the use of Blume-adjusted betas.[378]

One area of difference between the two experts is their data sources for adjusted betas. Mr. Coyne relies on Value Line and Bloomberg whereas Dr. Lesser recommends to only use Value Line to ensure consistency amongst all CAPM estimates,[379] as he notes that published betas can differ for the same firm due to differing estimating methods, historical periods, and data frequency being used.[380] However, Dr. Lesser also cautions that disputes over which published beta is "better," or whether practitioners should estimate their own betas, is likely to complicate the process for setting the allowed return.[381]

Despite Dr. Lesser's position, the evidence shows that Value Line does not publish adjusted betas for four out of six utilities included in Mr. Coyne's Canadian proxy groups.[382]

Adjusting Beta for Differences in Leverage

Dr. Lesser notes that, when applying the CAPM estimates of the proxy group to the utility under review, the differences in leverage must be accounted for.[383] If the capital structures of the proxy group firms differ significantly from the utility under review, as is the case for FEI and FBC, then the resulting CAPM estimates will not necessarily provide an accurate estimate of the required ROE.[384] For example, FEI's current deemed equity ratio is 38.5 percent while the average deemed equity ratio for the US gas proxy group is 53.4 percent.[385] To do this, the levered betas of the proxy group firms are unlevered to remove the financial risk component. The

[376] Information in the table has been compiled from Exhibit B1-50, Attachments A.2 FBC Electric, Tab "JMC-FBC-8.1 Avg CAPM" and FEI Gas, Tab "JMC-FEI-6.1 Avg CAPM".
[377] Exhibit B1-8-1, Appendix C, p. 59, Exhibit A2-20, BCUC IR 7.1, Exhibit A2-3, p. 42.
[378] Ibid., pp. 58–59.
[379] Exhibit B1-8-1, Appendix C, p. 59, Exhibit A2-20, BCUC IR 7.1.
[380] Exhibit A2-3, p. 41.
[381] Exhibit A2-20, BCUC IR 7.1.
[382] Exhibit B1-50, Excel Model A.2, Gas – Tab 6.1 and Electric – Tab 8.1.
[383] Exhibit A2-3, p. 43.
[384] Ibid.
[385] Exhibit B1-8-1, Appendix C, p. 120.

resulting beta values are called, asset betas. Next, these asset betas are re-levered using the capital structure of the regulated utility under rate review.[386] This can be done using the Hamada formula, shown below:[387, 388]

$$\beta_E = \beta_A \times \left[1 + (1 - t) \times \frac{D}{E}\right] \quad (2)$$

Where

β_E = the firm's pure equity beta
β_A = the firm's observed asset beta
D = the firm's amount of outstanding debt
E = the value of the firm's equity capital

In contrast, Mr. Coyne does not include an adjustment for leverage in his CAPM modelling because of his proposal to increase the equity ratio for FEI, reducing the disparity with those of the proxy groups and retaining FBC's existing equity ratio.[389] Mr. Coyne states that if the Hamada formula is used, as Dr. Lesser indicates is appropriate, the CAPM results for the US gas and US electric proxy groups are higher due to differences in the equity ratio between those proxy groups and the utilities under review.[390]

FortisBC notes that Mr. Coyne confirms his "complete alignment" with Dr. Lesser regarding the need to account for disparities in financial risk and the methods to do so (i.e. the Hamada adjustment to adjust the ROE in the CAPM analysis). Since FEI and FBC currently have significantly lower common equity ratios relative to the proxy group companies, the Hamada adjustment would increase the ROE relative to the one suggested by Mr. Coyne's model outputs. However, Mr. Coyne did not adjust the ROE results upwards to account for FEI and FBC's thinner equity. Instead, he has chosen to address the discrepancy in financial risk through his recommended capital structure because he notes that this is most consistent with how the BCUC typically accounts for differences in relative risk.[391]

Consequently, FortisBC highlights this issue as an important take-away for the BCUC. FortisBC submits that the BCUC cannot approve a common equity ratio below 45 percent for FEI and 40 percent for FBC without also adjusting the CAPM results upwards. This upward adjustment in ROE would be necessary to offset the larger disparity in financial risk.[392]

Positions of Parties

BCOAPO

On the topic of beta values, BCOAPO notes the agreement of both experts to use adjusted betas as opposed to raw betas and their reliance on different data sources for their betas. BCOAPO states that beta estimates are not

[386] Exhibit A2-3, p. 43.
[387] Ibid., pp. 43-44.
[388] The steps are: 1) the levered betas of the proxy group firms are unlevered to remove the financial risk component; and 2) the resulting betas (asset betas) are re-levered using the capital structure of the regulated utility under review. (Exhibit A2-35, p. 43).
[389] Transcript Volume 3, pp. 271–274.
[390] Exhibit B1-8-1, Appendix C, p. 59.
[391] FortisBC Final Argument, pp. 174–175.
[392] Ibid., pp. 176–177.

available from Value Line for all the gas and electric utilities included in Mr. Coyne's proxy groups and notes that, where values were available from both Value Line and Bloomberg, neither source consistently provides higher or lower values. Therefore, BCOAPO submits that Mr. Coyne's approach to use the average of values published by Value Line and Bloomberg is more appropriate.[393]

Furthermore, BCOAPO notes that both experts agree that it is possible to consider differences in financial leverage between the proxy groups' companies and FEI and FBC by adjusting the authorized ROE. While not specifically addressing the CAPM, BCOAPO also submits that, in conjunction with its recommended increase in deemed equity from 38.5 percent to between 40 to 42 percent, it would be reasonable to help recognize the differences in financial leverage between FEI and the North American gas proxy group by increasing FEI's ROE to 9.50 percent from the 9.38 percent calculated using the models.[394]

In order to help recognize both the financial leverage difference between FBC and the North American electric proxy group and the implications that size difference has on the CAPM results, BCOAPO submits that it would be reasonable for the BCUC to set FBC's authorized ROE at 9.5 percent as opposed to 9.01 percent as calculated using the models.[395]

The CEC

The CEC finds that, on balance, the evidence before the BCUC does not support additional adders to the FEI and FBC ROEs for differences in financial leverage and does not support, at this time, moving the equity thicknesses to those of the US proxy groups.[396] The CEC recommends that the BCUC remain sensitive to the trade-offs between equity thickness and the allowed ROEs, and consider in its AAM processes the possibility for both to be reviewed and adjusted on a formulaic basis.[397]

RCIA

Regarding the beta values, since there do not appear to be significant differences in the assumptions of the two experts, RCIA is not opposed to the beta values used by Mr. Coyne.[398]

FortisBC Reply Argument

In reply, FortisBC notes that BCOAPO acknowledges that there is a need to adjust the ROE upwards for FEI's relative financial risk compared to proxy groups, and states that BCOAPO's ROE recommendations include such an adjustment. BCOAPO does not state explicitly how much of an upward adjustment it has included for FEI's ROE but FEI states that this amount can be readily back-calculated as being only 12 bps. FortisBC submits that this is clearly insufficient, as a Hamada adjustment would increase the ROE by almost four times that amount.[399]

[393] BCOAPO Final Argument, p. 51.
[394] Ibid., p. 58.
[395] Ibid.
[396] The CEC Final Argument, p. 54.
[397] Ibid., p. 55.
[398] RCIA Final Argument, p. 11.
[399] FortisBC Reply Argument, p. 46.

Panel Determination

Beta is a key input into the CAPM and relies on a proxy group of companies to estimate the risk of FEI and FBC compared to the whole market. Consistent with common practice, Mr. Coyne uses five years of data in his analysis. His estimates are based on data from two credible third-party sources (Value Line and Bloomberg). In contrast, Dr. Lesser prefers to only use Value Line data to ensure consistency amongst all CAPM estimates. However, the evidence shows that Value Line does not publish adjusted betas for several of the utilities included in Mr. Coyne's Canadian proxy groups. Given this, the Panel agrees with BCOAPO that since there appears to be no upward or downward bias in either source of data, Mr. Coyne's approach using the average of values published by Value Line and Bloomberg is reasonable.

In Section 3.2, the Panel determines it appropriate to remove two Canadian utilities from the Mr. Coyne's North American proxy groups in accordance with BCOAPO's proposal to remove Enbridge Inc. and Canadian Utilities Limited which, since as stated by Mr. Coyne during the oral hearing, these companies were unlikely to have passed his screening criteria if applied strictly. This change impacts the overall beta result. The Panel will consider the overall impact of this in Section 5.2.5 on Overall CAPM Results.

Both experts agree that it is appropriate to use Blume-adjusted betas to reflect a forward-looking view and to adjust the raw data for the observed tendency of betas to migrate toward the market mean over time. Consistent with the views of the experts, the use of adjusted betas is accepted by US utility regulators, including FERC.

Mr. Coyne states that he is not aware of any Canadian jurisdiction that has specifically endorsed the use of Blume adjusted betas.[50] The BCUC has not accepted Blume-adjusted betas in previous proceedings. In the 2016 Decision, the BCUC placed limited weight on the experts' adjustments to beta because of a lack of empirical evidence supporting the applicability of the Blume adjustment to utility stocks.[51] Likewise, in the 2013 Decision, the BCUC stated:

> An adjustment of beta to the market average of one seems inconsistent with the lower risk in the industry, while realized return seems to indicate a beta that exceeds the industry average. The Panel finds that none of the positions fully explain the beta value and therefore accepts an intermediate beta estimate of 0.6 representing the range of reasonable estimates presented.[52]

However, the Panel notes Mr. Coyne's explanation that Dr. Blume found that his adjustment was applicable to all betas, ranging from a low of 0.50 to a high of 1.53, and in Mr. Coyne's view, there is no reason to expect that regulated utilities would be an exception to this rule.[53] Given the views of the two experts in this proceeding and since none of the parties object to Mr. Coyne's use of Blume-adjusted data, the Panel accepts the experts' recommendation to use the Blume-adjusted beta estimates for the proxy groups.

The Panel agrees with the experts that there is a need to account for leverage differences in the proxy group of companies and acknowledges that the Hamada adjustment is an appropriate approach to adjust for FEI and FBC's thinner equity. However, given that Mr. Coyne did not provide an October 31, 2022 update identifying the impact of the Hamada adjustment on his CAPM results, we accept Mr. Coyne's approach to addressing the discrepancy in financial risk through an adjustment to the capital structure. We agree this approach is consistent with how the BCUC typically accounts for relative risk. In determining an appropriate capital structure for FEI

and FBC as set out in Section 6.3, we acknowledge FortisBC's submission that Mr. Coyne's CAPM results are based on a common equity ratio of 45 percent for FEI and 40 percent for FBC.

5.2.3 Market Risk Premium

The MRP is the difference between the expected total return on a broad market portfolio and the return on the risk-free investment. Mr. Coyne describes the MRP as the amount that investors expect to earn above the risk-free rate as compensation for owning common stock, which is considered higher risk than government bonds.

To estimate the MRP, Mr. Coyne explains that:

- Estimates of the MRP generally fall into two categories, ex-post (historical arithmetic average) and ex-ante (forward-looking);
- The historical MRP is based on the arithmetic mean of the average annual return on large company stocks less the income-only return on long-term government bonds based on historical data from Duff & Phelps, a well-respected source of financial information for investors;
- The forward-looking MRP is calculated by subtracting the risk-free rate from the estimated total return for the overall market, using a DCF model applied to a proxy group for the market as a whole, such as the S&P 500 or the TSX; and
- First, an overall expected market return is estimated. Then, the risk-free rate is subtracted to get the MRP.[400]

Both experts acknowledge that the MRP can be calculated on either an historical or forecast basis.[401] Dr. Lesser notes that it is acceptable to average an historical MRP with a forward-looking MRP, using Mr. Coyne's methodology, if the forward-looking MRP is estimated using a reasonable methodology. However, Dr. Lesser does not consider the single-stage DCF approach (also known as the constant DCF approach) used by Mr. Coyne to be a reasonable approach to estimate a forward-looking MRP.[402]

Constant versus Multi-Stage DCF Model to Estimate the MRP

As noted above, a key area of difference between the two experts is whether to estimate the forward-looking MRP using the Constant DCF model, as advocated by Mr. Coyne, or the Multi-Stage DCF model, as preferred by Dr. Lesser.[403]

Mr. Coyne notes that a constant-DCF approach is consistent with the method used by FERC.[404] This method applies a single-stage DCF to the dividend-paying firms of the S&P 500 to estimate the market return and MRP, which Mr. Coyne considers appropriate because: (i) the S&P is updated regularly to remove slow-growing firms and (ii) that even though an individual company cannot sustain high growth rates forever, a broad market index can do so. The Constant DCF model employed by Mr. Coyne uses analyst growth forecasts for the S&P 500 and

[400] Exhibit B1-8-1, Appendix C, pp. 59–60.
[401] Exhibit B1-8-1, Appendix C, p. 60, Exhibit A2-5, BCOAPO IR 8.1.
[402] Exhibit A2-24, BCOAPO IR 18.4.4.
[403] Exhibit B-21, p. 5.
[404] Exhibit B1-8-1, Appendix C, p. 61.

TSX because those estimates reflect expectations of what an investor could earn by investing long-term in those indices. The analyst growth forecasts generally refer to a period of between three to five years.[405]

Dr. Lesser cautions regulators adopting the forward-looking approach to be aware that using a Constant DCF model is likely to yield estimates of market returns that are unreasonably high and statistically improbable.[406] In Dr. Lesser's opinion, FERC's rationale is based on a misconception. He explains:

> Using the expected returns for the S&P 500 or the TSX represent a proxy for the entire market. […] In the long-run, the market cannot grow faster than the economy as a whole for the simple reason that the market, in effect, is the economy.[407]

In response, Mr. Coyne points to his evidence that the historical growth rates of regulated utilities in Canada and the US as measured by earnings per share and dividends per share growth, have been higher than nominal growth domestic product (GDP) over 2005 to 2019, which also supports a view that the broad market can increase by more than the level of GDP growth (since utilities are generally slower growth companies). Mr. Coyne also states that since the S&P 500 consists of the most successful companies, they should not be expected to represent the economy overall, as implied by GDP.[408] However, Dr. Lesser disagrees with Mr. Coyne on this as he explains that, under the CAPM, the expected return in the market refers to the return on all publicly traded securities, not just a single proxy group such as the S&P 500:

> Mr. Coyne's "evidence" that the growth in the S&P 500 has exceeded GDP growth is therefore irrelevant. The entire market cannot grow faster than the economy in the long-run because the entire market effectively is the economy.[409]

Average of historical and forward-looking MRP versus forward-looking only MRP

Mr. Coyne uses an average of the historical MRP[410] and the forward-looking MRP across both Canada and the US Dr. Lesser relies on a country-specific, forward-looking MRP only.[411] Dr. Lesser recommends the use of a Canadian MRP for the Canadian proxy group, a US MRP for the US proxy groups, and an average of the two countries' MRP for the North American proxy groups.[412]

Mr. Coyne justifies his "averaging" method on the fact that the two economies are highly integrated and capital flows freely between them. Thus, the risk premiums for each country are highly correlated such that it is reasonable to derive a single forward-looking MRP estimate for both countries by averaging the four estimates.[413]

[405] Exhibit B1-9, BCUC IR 39.8.2.
[406] Exhibit A2-3, p. 52.
[407] Ibid.
[408] Exhibit B1-9, BCUC IR 39.4.
[409] Exhibit A2-24, BCOAPO IR 18.5.
[410] The historical MRP for the US is calculated over the period from 1926 to 2020, while in Canada, the historical MRP covers the period from 1919 to 2020. Exhibit B1-9, BCUC IR 40.1.
[411] Exhibit B1-21, pp. 17–18, Exhibit B1-8-1, Appendix C, p. 60.
[412] Transcript Volume 3, p. 211, Lines 1–6.
[413] Exhibit B1-8-1, Appendix C, p. 60.

In addition, Mr. Coyne explains that given the low-rate environment in December 2021, he would tend to place more reliance on the forward-looking MRP in the CAPM analysis. Mr. Coyne points to FERC's exclusive reliance on a forward-looking MRP in the CAPM and to Dr. Lesser's support for the use of a forward-looking MRP.[414] Despite this view, Mr. Coyne still proposes to take a simple average of these four estimates to estimate the MRP, citing the fact that there is a lot of controversy in Canada around what is the forward-looking MRP. By averaging both the historical and forward-looking MRPs, Mr. Coyne, brings both perspectives into play, stating, "being sympathetic to those who would argue that 100 years of history means something". Mr. Coyne continues and states, "if left to my own druthers absent that debate I'd probably give [the forward approach] 100 percent weight."[415]

The following table presents Mr. Coyne's historical and forward-looking MRPs for Canada and the US based on October 2022 data, where Mr. Coyne uses the Constant DCF model to derive the forward-looking MRPs.

Table 13: Market Risk Premiums – Canada and U.S. – October 2022[416]

	Canadian MRP	U.S. MRP
Historical	5.74%	7.46%
Forward-Looking	7.74%	8.21%
Average	7.29%	

In comparison, the forward-looking-only MRPs derived by Mr. Coyne using his interpretation of Dr. Lesser's preferred approach, i.e. the Multi-Stage DCF model, are shown in the table below. This approach to calculating the MRPs yields significantly lower MRPs than Mr. Coyne's and has a commensurate impact on the overall CAPM estimates.

Table 14: Market Risk Premiums – Canada and U.S. – October 2022[417]

Forward-looking MRP	Canada	U.S.
	October 2022	
30-day	5.47%	3.30%
90-day	5.66%	3.78%

FortisBC submits that the experts agree that the forward-looking MRP should be computed based on the total return on the S&P 500 Index (for US proxy groups) and the TSX (for Canadian proxy groups) but disagree on how to compute it. Fortis BC states that Mr. Coyne uses the Constant DCF model, like FERC, moderated by giving 50 percent weighting to historical data. FortisBC argues that Mr. Coyne's "very conservative approach" of averaging the constant growth DCF forward-looking MRP with historical returns is a concession to past controversy about how to forecast the forward-looking MRP.[418] FortisBC argues that although Dr. Lesser previously shared Mr.

[414] Exhibit B1-8-1, Appendix C, pp. 60–62.
[415] Transcript Volume 3, p. 217, Lines 21–15 to p. 218, Lines 1–14.
[416] Exhibit B1-50, Attachment A.2 FBC – Electric (Oct 2022 update 90 day), Tab JMC-FBC-8.1 Avg CAPM, Cell G6 or Attachment A.2 FEI – Gas (Oct 2022 update 90 day), Tab JMC-FEI-6.1 Avg CAPM, Cell G6.
[417] Information in the table has been compiled from Exhibit B1-50, Table 1, p. 2.
[418] FortisBC Final Argument, pp. 163–164.

Coyne's approach, he now advocates for a Multi-Stage DCF model, which is the reason for the very low Lesser CAPM result.[419]

FortisBC argues that applying Dr. Lesser's methodology and assuming that companies in the S&P 500 are only going to grow at the rate of GDP growth starting in Year 6 is not realistic. FortisBC notes that Dr. Lesser states that "companies absolutely can grow faster than GDP after five years".[420] FortisBC submits that Mr. Coyne provided evidence to back that up, showing that over a 92-year period (1929 to 2020), average annual returns on large company stocks have exceeded nominal GDP growth by 5.55 percent and that earnings per share (EPS) and dividend per share (DPS) of regulated utilities in Canada and the US grew faster than nominal GDP over the period 2005 to 2019. Since utility companies are generally slower growth companies, Mr. Coyne observes that it stands to reason that the broad market can also increase by more than the level of GDP growth.[421]

FortisBC submits that the forward-looking only MRPs derived from using Dr. Lesser's preferred approach produces an MRP that "defies logic":[422]

> A U.S. MRP of 3.30% or 3.78% […] is outside any reasonable range of the MRP estimates and 3.5% to 4.0% lower than the historical U.S. MRP of 7.46% from 1929-2021. […]
>
> Using Dr. Lesser's method for calculating the forward-looking MRP produces CAPM results that are well below the multi-stage DCF model results, the constant growth DCF results and the risk premium model results. This calls into question the reliability of the CAPM results using Dr. Lesser's inputs.

Positions of Parties

ICG

ICG notes that Mr. Coyne used the same approach for estimating the MRP in a testimony before the Alberta Utilities Commission (AUC) and that the AUC rejected Mr. Coyne's approach to calculating the MRP for the CAPM by giving it no weight because of unsupported and very high ROE recommendations. ICG submits that the BCUC should do the same. And although FERC also uses a Constant Growth DCF MRP, Dr. Lesser provides a comprehensive explanation as to why he does not support that approach.[423]

BCOAPO

BCOAPO submits that Mr. Coyne's argument in favour of using the Constant DCF model to estimate the forward-looking MRP is flawed. BCOAPO explains that an MRP is supposed to be based on the expected returns of the overall market, but indices like the S&P 500 do not represent the overall market and even the S&P 500 is biased, as it only includes companies with high capitalization.[424] Thus, BCOAPO submits that the Panel should consider results from the CAPM where the MRP is based on a Multi-Stage DCF model as recommended by Dr. Lesser.

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[419] FortisBC Final Argument, pp. 162–163, 167.
[420] Ibid., p. 165.
[421] Ibid., p. 165–166.
[422] FortisBC Final Argument, p. 166–167.
[423] ICG Final Argument, pp. 3, 11, 13, 15.
[424] BCOAPO Final Argument, p. 50.

Furthermore, BCOAPO submits that a more appropriate way to compare Mr. Coyne and Dr. Lesser's CAPM results would be to apply Mr. Coyne's averaging of historic and forecast MRP values to Dr. Lesser's CAPM methodology. In this way, BCOAPO submits that the Panel can compare apples to apples.[425] BCOAPO recalculates the "Lesser CAPM results" by replacing the MRP values with the average of the historic and forward-looking values. The BCOAPO-revised results are shown as "Lesser – Average CAPM (BCOAPO)" in the following table:

Table 15: BCOAPO Summary of CAPM ROE (excluding flotation costs) – October 2022 (90- Days)[426]

Proxy Groups:	Canada	U.S. Electric	NA Electric	U.S. Gas	NA Gas
Coyne – Average CAPM	9.62%	9.46%	9.80%	10.01%	9.74%
Lesser – Average CAPM (BCOAPO)	8.09%	8.45%	8.23%	8.03%	8.27%

BCOAPO concludes that "[j]ust as averaging tends to bring Mr. Coyne's results closer to those produced by the Multi-Stage DCF model, averaging also does the same for Dr. Lesser's. As a result, just as Mr. Coyne has characterized his use of averaging as "more conservative than relying solely on the forward-looking MRP", the same could be said for the use of averaging in Dr. Lesser's approach."[427]

The CEC

The CEC submits that Mr. Coyne's 50 percent split (between historical and forward-looking) helps moderate the result, and the CEC would support a weighting for additional historical data and lower weighting for the forward-looking data, which could justify a 70 to 90 bps reduction for the modelling data.[428]

The CEC also recommends that the BCUC adjust its overall ROEs for FEI and FBC downward by 80 bps for the CEC's perception that the modelling results are too forward looking and should be more grounded in the current and historical data.[429]

Regarding the use of the DCF model to estimate the MRP, the CEC notes that Dr. Lesser proposes the Multi-Stage DCF model whereas Mr. Coyne uses the Constant DCF model. The CEC states that Dr. Lesser's approach to limiting forecast market returns to five years and in Year 6 using forecast GDP was debated, with Mr. Coyne providing evidence showing that average returns on large company stocks, and even on regulated Canadian and US utilities, exceeded GDP growth historically. Based on these observations, the CEC submits that the arguments of Mr. Coyne appear to have merit for his CAPM modelling and that Dr. Lesser's CAPM modelling should not be used. The CEC does not support the view that the market is the economy and that it therefore cannot grow more than the GDP of a country in which that market operates (i.e. Dr. Lesser's view).[430]

[425] BCOAPO Final Argument, p. 49.
[426] BCOAPO Final Argument, p. 49.
[427] Ibid., p. 50.
[428] The CEC Final Argument, p. 41.
[429] Ibid., p. 43.
[430] Ibid., pp. 41–42.

RCIA

RCIA notes that the Canadian MRP, both historic and forward looking, is markedly lower than the US MRP. While Mr. Coyne justifies averaging the four MRP estimates to use in his CAPM formula based on the highly integrated nature of the Canadian and US markets, RCIA submits that there is no evidence to suggest that this integration is not already reflected within the respective market calculated MRP values.

RCIA also submits that the Canadian MRP should only be measured against the Canadian proxy group as being country (and market) specific. RCIA shows that the average of the historic Canadian MRP (5.54 percent) and the historic U.S MRP (7.25 percent) results in an MRP of 6.40 percent. Thus, Mr. Coyne's CAPM results are biased upwards by 77 bps relative to a Canadian-only MRP.[431] Although RCIA does not support the inclusion of US data in the calculation of ROE for FEI and FBC, if the BCUC were to accept it, RCIA submits that there is no evidence to support an equal weighing of Canadian and US data.[432]

In addition, RCIA comments on Mr. Coyne's approach to averaging both historic and forward-looking MRPs. RCIA notes that, while the historical US MRP was 7.25 percent over the 1926 to 2022 period, Mr. Coyne calculates and assumes that the difference between the stock market performance and the US bond yield will average 12.08 percent on a forward-looking basis. RCIA then cites Dr. Lesser's evidence that "forward market risk premiums that might be 12 or 13 percent" are in his view "a statistical impossibility".[433] Further, RCIA notes that Mr. Coyne's average MRP of 8.49 percent above the risk-free rate seems highly questionable when looking at historical Canadian MRPs.[434] RCIA concludes that in the context of a Canadian utility, Mr. Coyne's forward-looking MRP assumptions are not an impossibility, but history suggests them to be quite improbable.[435]

RCIA recalculates the average MRP based only on Canadian historic and forward-looking MRP and obtains 7.32 percent. RCIA points out that this level would have been exceeded only twice in the last ten decades. Thus, RCIA submits that Mr. Coyne's assumption of equal weighting of historical and forward-looking MRP biases the resulting MRP upward. RCIA submits that a much lower weighting of the forward-looking MRP may be appropriate such as 75 percent historical and 25 percent forward-looking. A 75-25 blending of Canadian historical and Canadian forward-looking MRPs results in an MRP assumption of 6.43 percent.[436] RCIA states this estimate would have been exceeded three times over the past ten decades. Thus, RCIA recommends using a 75-25 weighting as opposed to the 50-50 weighting of only Canadian data as it provides a better directional alignment with the available data. Based on Concentric's beta of 0.89, the CAPM result under this weighting would be approximately 79 bps lower than one derived from an equal weighting of historical and forward-looking data.[437,438]

[431] The difference (6.40 % - 5.54 %) multiplied by a beta of 0.89 equals 77 bps.
[432] RCIA Final Argument, pp. 15–17.
[433] Ibid., pp. 17–18.
[434] Ibid., p. 18.
[435] Ibid., pp. 18–19.
[436] 0.75 x 5.54% + 0.25 x 9.10% = 6.43%.
[437] (7.32%-6.43%) x 0.89 (Beta).
[438] RCIA Final Argument, p. 19.

FortisBC Reply Argument

In reply, FortisBC submits that ICG has misinterpreted the AUC's approach in the AUC 2018 Decision cited by ICG. In that decision, the AUC rejected all forward-looking DCF estimates, both single and multi-stage, in favour of relying exclusively on historical MRP data. Thus, using the AUC approach in the context of this GCOC proceeding would produce a higher MRP than Dr. Lesser's since historical MRPs are higher than MRPs calculated using a two-stage approach. FortisBC adds that there is no evidence on record showing that investors' expected return is equal to historical returns and as such, there is no support to rely only on historical MRPs like the AUC did in 2018.[439]

FortisBC also rejects BCOAPO's critique of using the Constant Growth DCF model to estimate the MRP as being flawed. FortisBC notes both experts' agreement that broad market indices (e.g. S&P 500) can be used as proxy for the entire market and that the evidence shows that these indices can and do grow more than GDP over long periods.[440]

FortisBC also submits that, while BCOAPO acknowledges an increase in the cost of capital since the last GCOC proceeding, its calculations still understate the required ROE due to their reliance on the Lesser CAPM result and mathematical errors.[441] FortisBC reiterates that the Lesser CAPM results are implausibly low due to a very low MRP and that even Dr. Lesser questions the validity of such low ROE results. Including unreasonably low results in an average, as BCOAPO has done, also makes the resulting average unreasonably low.

FortisBC states that BCOAPO implicitly acknowledges that the two-stage CAPM results are unreasonable because they adjust the forward-looking MRP upwards by averaging the forecast MRP with the historical average MRP. As BCOAPO notes, Mr. Coyne's CAPM results were already conservative due to his decision to base the MRP on a 50:50 blend of forecast and historical data. FortisBC concludes, there is no need to average Mr. Coyne's conservative CAPM results with any other CAPM results, adjusted or not. FortisBC states that, while BCOAPO's adjustment reduces the considerable gap between the Lesser CAPM results and every other model and reasonableness check, the adjusted results are still an outlier. Thus, the BCUC should only be using Mr. Coyne's CAPM analysis.[442]

In reply to the CEC, FortisBC explains why the CEC's recommended 80-bps downward adjustment is problematic: a) the CEC conceded that Mr. Coyne is already "conservative" in giving 50 percent weighting to historical MRP data; b) the CEC offers no explanation for how it arrived at this 80-bps adjustment; and c) this deduction is inconsistent with financial theory as CAPM analysis is intended to be forward looking. FortisBC states that it is a big and unjustified leap from the CEC's contention that "investors are not exclusively forward-forecast focused" to placing most of the weight on historical data.[443]

[439] FortisBC Reply Argument, pp. 69–70.
[440] FortisBC Reply Argument, p. 70.
[441] Ibid., p. 44.
[442] Ibid., pp. 45, 70.
[443] Ibid., pp. 42-43

In response to RCIA's use of Canadian data only for MRP, FortisBC submits that RCIA's view is flawed because:

- An inference cannot be drawn about relative expected returns of utilities in Canada versus the US from a differential in the countries' MRP;
- The MRP is a measure of potential earnings from investing in the market as a whole, not of relative expected returns; and
- The MRP differential between Canada and the US is due to the indices' different industry weightings, not expectations about utility earnings.

FortisBC also notes Dr. Lesser's support for averaging the Canadian and US MRP when looking at North American proxy groups. FortisBC remarks that this averaging approach is potentially conservative, as it would also be reasonable to only use US MRP since a potential investor in FEI/FBC can, as an alternative, obtain the US market return by investing in the S&P 500. FortisBC recalculates RCIA's downward adjustment based on October 2022 data to be 49 bps instead of the 77 bps calculated by RCIA based on December 2021 data.[444]

Furthermore, FortisBC rejects RCIA's assertion that Mr. Coyne's 50:50 approach biases the resulting MRP upwards. Instead, FortisBC considers that giving 50 percent weight to the historical MRP introduces a downward bias of approximately 180 to 190 bps. RCIA's use of a 75:25 blend further suppresses Mr. Coyne's already conservative 50:50 weighting. This is contrary to the consensus expert evidence that the MRP is intended to be forward looking, and Mr. Coyne is clear that his approach is only a pragmatic response to the controversy surrounding MRPs.

Panel Determination

The MRP is a key input into the CAPM. It represents the premium above the risk-free rate that equity investors demand to compensate them for the extra risk they accept when they invest in riskier assets. As Dr. Lesser notes, the theory underlying the CAPM includes all assets in the market (art, real estate, bonds, stocks, etc.). However, the two experts agree that, while there is no perfect proxy for the market, broad market indices such as the S&P 500 and TSX can be used as proxy for the entire market. Given the integration of North American markets, we accept their view, noting that several of the proxy group companies are included in these indices.

Since investor expectations are future focussed, we also support the experts' view that it is appropriate to consider forward-looking estimates in determining the MRP. We also accept that using a DCF approach based on the Bloomberg analysts' long-term growth rate estimates of companies included in the broad market indices is acceptable and is a reasonable starting point for estimating expected market returns. We note that Bloomberg explains that its long-term growth forecasts are received directly from contributing analysts and while different analysts apply different methodologies, the long-term growth forecast generally represents an expected annual increase in operating EPS over the company's next full business cycle. In general, these forecasts refer to a period of between three to five years.[445]

A key determinant for the Panel regarding the forward-looking MRPs is assessing the reasonableness of the growth expectation for the period beyond the five years estimated by analysts. The two experts differ on how to

[444] FortisBC Reply Argument, pp. 64–67.
[445] Exhibit B1-9, BCUC IR 39.8.2.

approach this issue. The Constant DCF model used by Mr. Coyne assumes the three-to-five-year analyst growth forecasts continue in perpetuity. Dr. Lesser prefers a multi-stage DCF approach that reverts to a GDP growth rate at a later stage. He cautions that relying on a constant growth DCF model is likely to yield estimates of market returns that are unreasonably high and statistically improbable.

The Panel places little weight on the two-stage forward-looking MRP model derived by Mr. Coyne based on his interpretation of Dr. Lesser's preferred approach. In this model, Mr. Coyne reverts to a GDP growth rate after five years. We agree that the MRP estimates produced using this assumption are too low and note that Dr. Lesser also questions the results. However, we object to FortisBC's characterization of this output as "the Lesser CAPM result". Dr. Lesser did not prepare this evidence and we do not know what result Dr. Lesser would have presented if he had been engaged to prepare ROE recommendations for FEI and FBC. Given that we place no reliance on the two-stage MRP estimate prepared by Mr. Coyne based on his interpretation of Dr. Lesser's approach, we agree with FortisBC that we should not be adjusting these results in the manner suggested by BCOAPO.

The Panel acknowledges that the evidence shows that market indices can and have grown by more than GDP over long periods. However, we have no evidence to support that investors expect the MRP to grow at the rates reflective of analyst forecasts in perpetuity. Given the recent market volatility and the downturn in market results over the last few years, it is not unreasonable that investors are expecting a higher return over the next five years. However, the Panel is not convinced that what follows is that investors expect an MRP of 8.0 percent[446] in the future compared to the long-term historical average Canadian and US MRP of 6.6 percent.[447]

Accordingly, the Panel must consider the extent to which it should rely on historic MRPs. While Dr. Lesser prefers a forward-looking MRP estimate, he explains that the economic rationale for using an MRP value based on historical data is that the future will resemble the past and the going-forward MRP will be similar to its average value in the past.[448] Mr. Coyne also prefers a forward approach but uses a 50:50 weighting of historic and forward data, "being sympathetic to those who would argue that 100 years of history means something." The Panel notes Mr. Coyne's concern in December 2021 that the historical MRPs would have underestimated the MRP in the then low interest rate environment due to the inverse relationship between interest rates and the MRP.[449] However, the Panel's reliance on October 2022 data, with higher interest rates, should alleviate this concern with using historical data.

FortisBC argues, because there is no evidence on record showing that investors' expected return is equal to historical returns, there is no support to rely only on historical MRPs like the AUC did in 2018 as suggested by ICG or to place greater weight on historical data as argued by RCIA and the CEC. As noted above, we also support the experts' view that it is appropriate to consider forward-looking estimates in determining the MRP. However, we disagree with FortisBC that there is no evidence to support the use of historic returns. As both experts noted, historic returns are regularly accepted as a basis on which to predict future returns. We also disagree with FortisBC that Mr. Coyne's 50 percent weight on historic MRPs is conservative.

[446] (7.74+8.21)/2.
[447] (5.74+7.46)/2.
[448] Exhibit A2-3, p. 47.
[449] Exhibit B1-8-1, Appendix C, p. 60.

In our view, the 50:50 weighting of historic and forward MRPs sufficiently balances and moderates the unsupported assumption that higher analyst expectations over the next five years are expected to continue in the future with the actual achieved MRPs over a long history. As a result, the Panel rejects ICG's submission to only use historical returns and RCIA and the CEC's submission to place greater weight on historical data, along with the related downward adjustment to the CAPM results that they both recommend.

We also reject RCIA's submission that we should use Canadian data only. Investors are free to invest in either the Canadian or US market. In our view, a simple averaging of the two is supportable for this reason and simplifies the estimation process.

5.2.4 Size Premium

Another issue with the CAPM is the size effect, which stems from an observation that smaller firms (where size is measured by market capitalization) tend to have higher returns than predicted by the CAPM.[450] Mr. Coyne notes that the BCUC previously found that the authorized ROE for FBC should be 40 bps higher than that of FEI due, in part, to the small size of FBC.[451] Dr. Lesser explains that to measure size premiums, most analysts rely on the Center for Research in Security Prices (CRSP)'s size premium estimates for 10 groups of market capitalization, published each year by Duff & Phelps.[452] Dr. Lesser typically incorporates a size premium in his analysis.[453]

While Mr. Coyne did not add a size premium to his CAPM ROE results, he nonetheless uses the Duff & Phelps data to calculate the size premium required for FBC. Mr. Coyne explains that his approach is to calculate the difference between the size premium associated with the average or median market capitalization of the US electric proxy group companies and the size premium associated with FBC's market capitalization.[454] Since the median market capitalization of the companies in his US electric proxy group falls in the second decile and that of FBC falls in the seventh decile, using the Duff & Phelps table, Mr. Coyne calculates that FBC's small size relative to his US electric proxy group companies would justify a size premium of approximately 105 bps (i.e. 1.54% - 0.49%).[455]

Dr. Lesser commented that Mr. Coyne's approach is without theoretical basis and arbitrary.[456] Rather, Dr. Lesser would adjust the CAPM estimates of each proxy group company by the required size premium so that the CAPM results would include a size adjustment.[457] This is also the methodology used by FERC to calculate the size premium.[458] Mr. Coyne calculates the size premium according to Dr. Lesser or FERC's methodology as 30 bps for the US electric proxy group and 38 bps for the North American electric proxy group.[459]

[450] Exhibit A2-3, p. 55.
[451] Exhibit B1-21, Part 2, p. 28.
[452] Exhibit A2-3, p. 55.
[453] FortisBC Final Argument, p. 177.
[454] Transcript Volume 4, p. 470, Lines 5–8.
[455] Exhibit B1-8-1, Appendix C, p. 5, Transcript Volume 4, p. 464, Lines 7–10.
[456] Transcript Volume 4, p. 471, Lines 7–10.
[457] Ibid., p. 468, Lines 4–23.
[458] Exhibit B1-50, p. 1.
[459] Ibid., Figures 14 and 16, pp. 11–12.

FortisBC submits that the experts agree that the CAPM underestimates the cost of equity for smaller companies and that the BCUC should find that Mr. Coyne's CAPM results for FBC are understated[460] and should consider a size premium for FBC, which is much smaller than the electric proxy group companies.[461] FortisBC notes that the BCUC has previously found, exercising a judgment-based approach, that the authorized ROE for FBC should be 40 bps higher than that of FEI due, in part, to the small size of FBC. This is smaller than what the Duff & Phelps table would indicate.[462] In short, FortisBC submits that the BCUC should find that Mr. Coyne's CAPM results for FBC are very conservative by virtue of not including a size premium of 105 bps, or alternatively, a minimum of 40 bps.[463]

Positions of Parties

BCOAPO

BCOAPO cites Mr. Coyne and Dr. Lesser who both acknowledge a "size effect" and notes that, while Mr. Coyne has not included a size adjustment in his ROE recommendations for FBC, he nonetheless calculates a size premium of 105 bps would be justified relative to the US electric proxy group companies.[464]BCOAPO surmises that similar results would likely apply to the revised North American electric proxy group which is made up largely of utilities from the US electric proxy group.[465]

BCOAPO submits that it would be reasonable for the BCUC to recognize the implications of this size difference on FBC's CAPM results. BCOAPO submits that in order to help recognize both the financial leverage difference between FBC and the North American electric proxy group and the implications that size difference has on the CAPM results, it would be reasonable for the BCUC to set the authorized ROE for FBC at 9.50 percent (as opposed to 9.01 percent), assuming a 50 bps allowance for floatation costs.[466]

The CEC

The CEC notes that both experts agree that CAPM underestimates the cost of equity for smaller companies leading to a size premium adjustment for FBC. The CEC remarks that the BCUC has previously set the size premium for FBC at 40 bps higher than FEI, which is smaller than the Duff & Phelps table of size premiums would indicate. FortisBC suggests that Mr. Coyne's recommendations should be viewed as conservative. The CEC submits maintaining the FBC 40-bps adder continues to be appropriate and any further movement on the size premium is not necessary.[467]

FortisBC Reply Argument

FortisBC notes that, while BCOAPO acknowledges the need for a size premium for FBC, it recommends an amount far less than the 105 bps calculated by Mr. Coyne based on Duff & Phelps. FortisBC states that

[460] FortisBC Final Argument, para. 359, p. 177.
[461] Ibid., para. 244(f), p. 122.
[462] Ibid., para. 364, p. 179.
[463] Ibid., para. 365, p. 180.
[464] BCOAPO Final Argument, p. 55.
[465] Ibid.
[466] Ibid., p. 58.
[467] The CEC Final Argument, pp. 55–56.

BCOAPO's own calculations suggest an implicit size premium of 46 bps, but when considering a mathematical error made by BCOAPO, the implicit size premium is reduced to 21 bps.[468]

Panel Determination

Both experts agree that smaller firms tend to have higher returns than predicted by application of the CAPM. We also note that Mr. Coyne does not propose to adjust his FBC CAPM results to reflect a size premium. However, we note that FortisBC submits that the BCUC should find that Mr. Coyne's CAPM results for FBC are understated by a minimum of 40 bps and should consider a size premium for FBC, which is much smaller than the electric proxy group companies. The Panel will review the implications of the lack of a size premium in making its overall determination on the capital structure and ROE for FBC in Section 6.3 (Overall Capital Structure and ROE).

5.2.5 Overall CAPM Results

In Section 5.2.1, the Panel finds that Mr. Coyne's estimated risk-free rate based on forecast long-term government bond yields for his CAPM estimate is reasonable. In Section 5.2.2, the Panel accepts Mr. Coyne's beta estimates for the proxy groups. In Section 5.2.3, the Panel concludes it can place little weight on the two-stage forward-looking MRP model derived by Mr. Coyne based on his interpretation of Dr. Lesser's preferred approach. Accordingly, this section reviews Mr. Coyne's October 2022 proposed CAPM ROE and intervener submissions regarding these results.

Consistent with the Panel's earlier determination to use the most current data, the table below summarizes Mr. Coyne's CAPM results based on the October 2022 data.

Table 16: CAPM ROE Results (excluding floatation costs)[469]

October 2022	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
Mr. Coyne	9.62%	9.46%	9.80%	10.01%	9.74%

Mr. Coyne's results reflect his approach of using a forecast bond yield for the risk-free rate, Blume-adjusted betas, and an MRP which consists of the average of Canadian and US historical and forward-looking MRPs with the latter derived using a constant DCF model. His results do not include a Hamada adjustment to account for the difference in leverage between the utilities under review and the proxy group companies.

FortisBC submits that the anomalous CAPM results produced by Mr. Coyne using his interpretation of Dr. Lesser's preferred inputs serve as a reminder of the importance of the BCUC considering models holistically, rather than making discrete decisions on model elements or inputs in a vacuum. FortisBC emphasizes that for every modelling decision that Mr. Coyne made that participants have challenged because it directionally produced higher ROE results, there are examples where Mr. Coyne made decisions that had the opposite effect:

[468] FortisBC Reply Argument, p. 47.
[469] Exhibit B1-50, Table 3, Scenario A.2, p. 4.

- Did not add a Hamada adjustment to his CAPM modelling to account for the fact that FBC and FEI are both more highly leveraged than the proxy group companies. This was predicated on the common equity ratio proposal that would reduce the disparity between the allowed equity ratio for FEI with the proxy groups and retaining FBC's existing equity ratio;
- Did not add a 105-bps size premium to his CAPM results for FBC, despite both experts believing a ROE size premium is appropriate;
- Recommended forecast bond yields rather than actual bond yields, even though the former produces lower CAPM results based on October 2022 data; and
- Averaged the forward-looking MRP with the lower historical MRP to moderate the results, despite it also being theoretically valid to only use a forward-looking MRP (as does FERC).[470]

FortisBC cautions that "assessing each of Mr. Coyne's methodological decisions in isolation risks "cherry picking", producing a result that poorly reflects current market conditions and the forward-looking expectations of investors.[471]

Positions of Parties

ICG

ICG's final argument is submitted on behalf of FBC's industrial customers and therefore, it is focused on issues of relevance to FBC only.[472] ICG submits that the BCUC should give no weight to Mr. Coyne's CAPM results and that the BCUC should reject FortisBC's submission to not place any weight on the Lesser CAPM results.[473] Despite Mr. Coyne's testimony that the model inputs recommended by Dr. Lesser somehow affected the Concentric model to the point of affecting the functionality of the model, ICG submits that the BCUC should dismiss this notion and can rely on the model results once it has determined the appropriate inputs to the model.[474]

Regarding the recommended ROE for FBC, ICG submits:[475]

> Dr. Lesser's Average CAPM and Multi-Stage [sic] DCF results for the North American Utilities – Electric with the October 2022 Update (30-day average stock prices and interest rates) is 8.3% ROE.[36]
>
> Footnote 36: Exhibit B1-50, p. 9, Figure 10

Based on ICG's overall ROE recommendation above, it is possible to separately identify ICG's recommended CAPM ROE. In the main body of ICG's submission, ICG references, "Dr. Lesser's […] CAPM results for the North American Utilities – Electric with the October 2022 Update (30-day average stock prices and interest rates)". This specific scenario results in an ROE of 7.60 percent.[476] However, the text in footnote 36 references a different

[470] FortisBC Final Argument, para. 265, pp. 133–134.
[471] FortisBC Final Argument, para. 266, p. 134.
[472] ICG Final Argument, p. 3.
[473] Ibid.
[474] Ibid., p. 10.
[475] Ibid., para. 33, p. 15.
[476] Exhibit B1-50, Scenario B.6, Figure 12, p. 10.

scenario, that of Dr. Lesser's December 2021 data (90-day average stock prices and interest rates). This scenario results in an ROE of 7.50 percent.[477]

Therefore, before the flotation allowance adder, ICG recommends a CAPM ROE of 7.00 or 7.10 percent for FBC, depending on the scenario one looks at (October 2022 – 30 days versus December 2021 – 90 days) based on the North American proxy group.

BCOAPO

As previously explained in Section 3.2, BCOAPO modifies the composition of the North American proxy group. BCOAPO recalculates revised CAPM ROE estimates by removing Enbridge Inc. and Canadian Utilities Limited from the North American gas proxy group and Canadian Utilities Limited from the North American electric proxy group, as these utilities would not pass Mr. Coyne's screening criteria.[478] BCOAPO then averages its own recalculated Coyne – CAPM and Lesser – CAPM to derive its CAPM ROE results, shown in Table 17 below.

Table 17: BCOAPO - Summary of CAPM ROE – October 2022 (90 Trading Days)[479]

Average CAPM Results (*i.e.* average of historic and forward-looking MRP) * Results include the 50-bps flotation costs			
BCOAPO-Revised Proxy Group	Coyne-Average CAPM as revised by BCOAPO	Lesser-Average CAPM *as revised by BCOAPO*	BCOAPO recommended CAPM
North American Gas Utilities	10.40%	8.86%	**9.63%**
North American Electric Utilities	10.27%	8.75%	**9.01%**

Since the above figures already include a 50-bps adder for flotation costs and financial flexibility, Table 18 shows the results without the adder.

Table 18: BCOAPO - Summary of CAPM ROE – October 2022 (90 Trading Days)[480]

Average CAPM Results (*i.e.* average of historic and forward-looking MRP) * Results exclude the 50-bps flotation costs			
BCOAPO-Revised Proxy Group	Coyne-Average CAPM as revised by BCOAPO	Lesser-Average CAPM *as revised by BCOAPO*	BCOAPO recommended CAPM
North American Gas Utilities	9.90%	8.36%	**9.13%**
North American Electric Utilities	9.77%	8.25%	**8.51%**

The CEC

The CEC submits that the BCUC should give significant weight to Mr. Coyne's CAPM and not use the CAPM results based on Mr. Coyne's interpretation of Dr. Lesser's approach in its determinations. The CEC states there

[477] Exhibit B1-50, Scenario B.6, Figure 10, p. 9.
[478] BCOAPO Final Argument, pp. 52–53.
[479] Ibid.
[480] Table created from Table 17 figures with 50 bps subtracted.

are questionable assumptions, and the results are too far away from a reasonable level as noted even by Dr. Lesser. Additionally, the CEC is satisfied that the differences between the two CAPM models have been explained and that they do not arise from model flaws but from differences in input data used and/or the specific selected treatment of the input data.[481]

The CEC uses Mr. Coyne's CAPM results (October 2022, 90 days) to derive its own ROE recommendation. The CEC recommends that the BCUC use the simple average of proxy groups to determine the appropriate ROE for FEI and FBC. Before adjustments, the CEC calculates an ROE of 10.127 percent for FEI and 10.29 percent for FBC as shown in Table 19.

Table 19: CEC's Recommended ROE from the CAPM (including flotation costs)[482]

	Canadian Regulated Utilities	U.S. Utilities	North American Utilities	Average of Proxy Groups
Gas	10.12%	9.96%	10.30%	10.127%
Electric	10.12%	10.51%	10.24%	10.29%

Since the above figures already include a 50-bps adder for flotation costs and financial flexibility, Table 20 shows the results without the adder.

Table 20: CEC's Recommended ROE from the CAPM (excluding flotation costs)[483]

	Canadian Regulated Utilities	U.S. Utilities	North American Utilities	Average of Proxy Groups
Gas	9.62%	9.46%	9.80%	9.627%
Electric	9.62%	10.01%	9.74%	9.79%

In conclusion, the CEC recommends that the BCUC acknowledge Mr. Coyne's decisions to adopt reasonably conservative positions on several issues and recommends that the BCUC also adopt a conservative approach.[484]

RCIA

RCIA remarks that Mr. Coyne's CAPM ROE estimates are higher than those obtained from Dr. Lesser's assumptions. As noted above, RCIA is particularly concerned with the parameters proposed in relation to the risk-free rate and the MRP.[485] Considering its specific submissions on those two inputs, RCIA recommends adjusting Mr. Coyne's CAPM. Using the mid-point of these adjustments, the result is an overall decrease of about 2.42 percent in the ROE as shown in Table 21. RCIA submits that the CAPM ROE should be 8.26 percent, not 10.68 percent, as suggested by Concentric.[486]

[481] The CEC Final Argument, pp. 37–38.
[482] Information in the table has been compiled from the CEC Final Argument, p. 43.
[483] Table created from Table 19 figures with 50 bps subtracted.
[484] The CEC Final Argument, p. 42.
[485] RCIA Final Argument, pp. 10–11.
[486] Ibid., p. 20.

Table 21: RCIA - Adjustment to Recommended ROE using CAPM

Correction	Impact on ROE	Mid-Point
Using actual bond yields for risk-free rate	-0.68% to -1.04%	-0.86%
Using only Canadian MRP data	-0.77%	-0.77%
Using 75:25 blend of historical & forecast MRP	-0.79%	-0.79%
Total	**-2.24 to -2.60%**	**-2.42 %**

FortisBC Reply Argument

Regarding ICG's recommendation to use the CAPM results using Dr. Lesser's approach, FortisBC submits:

- This CAPM result that ICG is using in its calculation is 7.10 percent (or 7.60 percent after inclusion of flotation cost), which is a number well below what even Dr. Lesser considers reasonable and not far removed from the cost of debt; and
- ICG did not account for any size premium for FBC, even though the experts agree that the CAPM understates ROE results for firms like FBC that are smaller than the proxy companies.[487]

FortisBC also points out the straightforward mathematical error that BCOAPO made in averaging the results of its CAPM calculations for its adjusted North American proxy group.

FortisBC submits that RCIA introduces unsupported CAPM adjustments, uses stale data, and omits Hamada and size adjustments. For illustration purposes only, FortisBC proceeds to apply RCIA's above downward adjustments to the October 2022 data, since both experts note the appropriateness of using the most recent data and RCIA did not say why it disregarded that data. Mr. Coyne's October 2022 CAPM results for the Canadian proxy group is 10.12= percent. [488] Using actual bond yields will increase CAPM results by 6 to 42 bps with a mid-point of 24 bps while using 75:25 Canadian-only historical and forward-looking MRP will decrease the October 2022 CAPM results by 93 bps. Overall, the downward adjustment would be 69 bps on 10.12 percent (=9.43%[489]), instead of the -2.42 percent on 10.68 percent (=8.26%).[490] FortisBC submits that RCIA's own calculations, properly updated for October 2022 data reinforce Mr. Coyne's recommendations, which is a full answer to RCIA's argument that Mr. Coyne's analysis is biased.[491]

Panel Determination

With respect to the CAPM results, previously in this Decision, the Panel determined that:

- Using the most up-to-date data (i.e. October 2022 data) is appropriate;

[487] FortisBC Reply Argument, pp. 55–56.
[488] Including a 50-bps adder for flotation cost and financial flexibility.
[489] Including a 50-bps adder for flotation cost and financial flexibility.
[490] FortisBC Reply Argument, p. 50.
[491] Ibid., p. 53.

- Mr. Coyne's October 2022 estimated risk-free rate based on forecast long-term government bond yields for his CAPM estimate is reasonable;
- Mr. Coyne's sources and averaging of adjusted data to estimate betas for the proxy groups are acceptable;
- Mr. Coyne's approach to addressing the differences in financial leverage in the proxy group companies through adjustments to the capital structure is acceptable and consistent with how the BCUC typically accounts for relative risk;
- Mr. Coyne's 50:50 weighting of historic and forward MRPs is an appropriate and sufficient balance between the assumption that higher analyst expectations over the next five years are expected to continue into the future and the actual achieved MRPs over a long history; and
- We place no reliance on the two-stage MRP estimate prepared by Mr. Coyne based on his interpretation of Dr. Lesser's preferred approach.

Since we are not relying on the CAPM results based on Mr. Coyne's interpretation of Dr. Lesser's approach, we agree with FortisBC that we should not be adjusting the CAPM results in the manner suggested by BCOAPO. For the same reason, we also disregard ICG's CAPM submissions. Given the Panel determines that it should be using the October 2022 data to inform the establishment of an appropriate ROE, we agree with FortisBC's comments related to RCIA's use of "stale data". Regarding RCIA's suggestion to use a 75:25 blend of historic and forecast MRP, we note our determination that a 50:50 weighting strikes an appropriate balance. However, for reasons previously expressed, we disagree with FortisBC's characterization that the use of historical data as being conservative. As previously noted, the Panel will consider the implications of the lack of a size adjustment in the CAPM results in determining the specific weight to be accorded the various ROE models in Section 6.3 (Overall Capital Structure and ROE).

In Section 3.2 above, the Panel determines that the appropriate proxy groups to use for FEI and FBC are the North American gas and electric proxy groups, which should be revised in accordance with BCOAPO's proposal to remove Enbridge Inc. and Canadian Utilities Limited which are unlikely to have passed Mr. Coyne's screening criteria if applied strictly.

Table 22 shows the detail of Mr. Coyne's North American gas proxy groups CAPM results. Removing Enbridge Inc. and Canadian Utilities Limited from the North American gas proxy group yields a revised calculated average ROE of 9.90 percent compared to the 9.80 percent proposed by Mr. Coyne,[492] excluding an adder for flotation costs and financial flexibility.

[492] Calculated by the BCUC using the Average function in Excel = Average (11.69%,10.03%,9.05%,9.39%,9.35%) = 9.90%.

Table 22: CAPM - North American Gas Utilities[493]

North American Proxy Group	Ticker	Bloomberg	Value Line	Average Beta	Risk Free Rate	Average Market Risk Premium	Basic CAPM Calculation	Flotation Cost	Total CAPM
AltaGas Inc.	ALA	1.16	n/a	1.16	3.21%	7.29%	11.69%	0.50%	12.19%
Canadian Utilities Limited	CU	0.84	n/a	0.84	3.21%	7.29%	9.37%	0.50%	9.87%
Enbridge Inc.	ENB	0.93	0.85	0.89	3.21%	7.29%	9.72%	0.50%	10.22%
New Jersey Natural Resources	NJR	0.84	0.95	0.90	3.50%	7.29%	10.03%	0.50%	10.53%
Northwest Natural Gas Company	NWN	0.72	0.80	0.76	3.50%	7.29%	9.05%	0.50%	9.55%
ONE Gas, Inc.	OGS	0.82	0.80	0.81	3.50%	7.29%	9.39%	0.50%	9.89%
Spire, Inc.	SR	0.81	0.80	0.80	3.50%	7.29%	9.35%	0.50%	9.85%
MEAN		0.88	0.84	0.88			9.80%		10.30%

Table 23 shows the detail of Mr. Coyne's North American electric proxy groups CAPM results. Removing Canadian Utilities Limited from the North American electric proxy group yields a revised calculated average ROE of 9.77 percent compared to the 9.74 percent proposed by Mr. Coyne,[494] excluding any adjustment for a size premium and an adder for flotation costs and financial flexibility.

Table 23: CAPM - North American Electric Utilities[495]

North American Proxy Group	Ticker	Bloomberg	Value Line	Average Beta	Risk Free Rate	Average Market Risk Premium	Basic CAPM Calculation	Flotation Cost	Total CAPM
Algonquin Power and Utilities	AQN	0.99	n/a	0.99	3.21%	7.29%	10.46%	0.50%	10.96%
Canadian Utilities Limited	CU	0.84	n/a	0.84	3.21%	7.29%	9.37%	0.50%	9.87%
Emera Inc.	EMA	0.69	0.75	0.72	3.21%	7.29%	8.45%	0.50%	8.95%
Hydro One, Ltd.	H	0.66	n/a	0.66	3.21%	7.29%	8.03%	0.50%	8.53%
Alliant Energy Corporation	LNT	0.86	0.85	0.85	3.50%	7.29%	9.72%	0.50%	10.22%
American Electric Power Company, Inc.	AEP	0.82	0.75	0.79	3.50%	7.29%	9.23%	0.50%	9.73%
Duke Energy Corporation	DUK	0.80	0.85	0.82	3.50%	7.29%	9.50%	0.50%	10.00%
Entergy Corporation	ETR	0.94	0.95	0.94	3.50%	7.29%	10.39%	0.50%	10.89%
Exelon Corporation	EXC	0.95	NMF	0.95	3.50%	7.29%	10.42%	0.50%	10.92%
Evergy Inc	EVRG	0.87	0.90	0.89	3.50%	7.29%	9.96%	0.50%	10.46%
NextEra Energy Inc.	NEE	0.89	0.95	0.92	3.50%	7.29%	10.19%	0.50%	10.69%
OGE Energy Corporation	OGE	0.99	1.05	1.02	3.50%	7.29%	10.94%	0.50%	11.44%
Pinnacle West Capital Corporation	PNW	0.90	0.90	0.90	3.50%	7.29%	10.07%	0.50%	10.57%
Portland General Electric Company	POR	0.84	0.85	0.84	3.50%	7.29%	9.65%	0.50%	10.15%
MEAN		0.86	0.88	0.87			9.74%		10.24%

Therefore, the Panel will consider a CAPM ROE, exclusive of an adder for flotation costs and financial flexibility of 9.90 percent for FEI and 9.77 percent for FBC as it weights the different ROE models (see Section 6.3).

5.3 Discounted Cash Flow Approach

The premise underlying the DCF model is that investors value a given investment according to the present value of its expected cash flows over time. The standard DCF model is shown in Equation (3):[496]

$$P = \frac{D_0(1+g)^1}{(1+r)^1} + \frac{D_1(1+g)^2}{(1+r)^2} + \cdots + \frac{D_{n-1}(1+g)^n}{(1+r)^n} \qquad (3)$$

Where:

P = the current stock price

g = the dividend growth rate

Dn = the dividend in year n

r = the cost of common equity

[493] Exhibit B1-50, Attachment A.2 FEI – Gas (Oct 2022 update 90 day), Tab JMC-FEI-6.1 Avg CAPM.

[494] Calculated by the BCUC by averaging the following figures: 10.46%, 8.45%, 8.03%, 9.72%, 9.23%, 9.50%, 10.39%, 10.42%, 9.96%, 10.19%, 10.94%, 10.07% and 9.65%.

[495] Exhibit B1-50, Attachment A.2 FBC – Electric (Oct 2022 update 90 day), Tab JMC-FBC-8.1 Avg CAPM.

[496] Exhibit B1-8-1, Appendix C, p. 48.

Applying the DCF methodology to solve Equation (3) for the cost of equity, *r*, one can determine the discount rate that equates the discounted present value of those future dividend payments to the stock's price today. Thus, the DCF methodology can be thought of as a stock valuation exercise in reverse. Assuming a constant growth rate in dividends, the equation can be rearranged to compute the ROE as shown in Equation (4):[497]

$$r = \frac{D}{P} + g \qquad (4)$$

Stated otherwise, the cost of equity is equal to the dividend yield (D/P) plus the expected dividend growth rate.[498] This DCF model, known as the Constant Growth DCF Model, requires several assumptions: (1) a constant average growth rate for dividends; (2) a stable dividend payout ratio; (3) a constant price-to-earnings multiple; and (4) a discount rate greater than the expected growth rate.

Dr. Lesser states that the advantage of the Constant Growth DCF model is its simplicity; however, this simplicity is also a disadvantage of the model because it assumes that short-term growth rates continue forever.[499] An alternative to the Constant Growth DCF model is the Multi-Stage DCF model, which tempers the assumption of constant dividend growth in perpetuity with a multi-stage dividend growth rate. Dr. Lesser states that "the rationale for using a multi-stage DCF model is that high short-term growth rates cannot persist forever. As firms increase in size, their markets become saturated, and thus their growth slows."[500] The Multi-Stage DCF model was the BCUC's preferred DCF model in the last two cost of capital proceedings.[501] Even though Mr. Coyne presents the results of the Constant Growth DCF model, he recommends the use of a multi-stage DCF model that employs three stages for dividend growth; near-term, transitional, and long-term growth rates (see Section 5.3.2). Dr. Lesser also confirms his preference for a Multi-Stage DCF model over Constant Growth DCF because long-term earnings growth reverts to that of the economy as a whole.[502] Dr. Lesser discusses the merits of both a two-stage and a three-stage dividend growth rate model, without stating a preference.

Dr. Lesser explains that, like the CAPM, the DCF model will mis-estimate the cost of capital for a utility when there is a mismatch between the common equity ratio of the subject utility and the common equity ratios of the peer group used:[503]

> When setting an allowed ROE value for a regulated utility, the resulting WACC [weighted average cost of capital] value may not reflect risk comparability if the capital structure of the regulated utility under review differs from those of the proxy group. For example, if the average capital structure of the proxy group is 50% equity and 50% debt, while the subject utility has a capital structure of 25% equity and 75% debt, then because the subject utility has more financial risk, equity investors will require a higher expected return.

FortisBC points out that Mr. Coyne "[d]id not perform a WACC adjustment to the Multi-Stage DCF results […] to account for the fact that FBC and FEI are both more highly leveraged than the proxy group companies. This was

[497] Exhibit B1-8-1, Appendix C, p. 48.
[498] Ibid.
[499] Exhibit A2-3, p. 30.
[500] Ibid., p. 29.
[501] Exhibit B1-8-1, Appendix C, pp. 52–53.
[502] Exhibit A2-5, BCOAPO IR 3.1.
[503] FEI Final Argument, p. 174.

predicated on the common equity ratio proposal that would reduce the disparity between the allowed equity ratio for FEI with the proxy groups and retaining FBC's existing equity ratio."[504]

The following sub-sections discuss the determination of the dividend yield and the dividend growth rate.

5.3.1 Dividend Yield

The first term in Equation (4) is the dividend yield, which has two key drivers. The first driver is the selection of the proxy group, and the second is the historic time period used to gather stock prices data for the respective companies in the proxy group. Mr. Coyne calculates the dividend yields for each company in his five proxy groups[505] by dividing the current annualized dividend by the average stock price for each company. Those dividend yields are multiplied by one-half the dividend growth rate to account for increases in quarterly dividends at different times throughout the year as shown in Equation (5).[506] Dr. Lesser also supports adjusting the current dividend yield by 0.5 times the growth rate.[507]

$$Y = \frac{D}{P} = \frac{D_0(1 + 0.5g)}{P_0} \qquad (5)$$

Mr. Coyne uses a 90-trading day average for stock prices to calculate the dividend yield for proxy group firms in both his December 2021 evidence and his September 2022 Update. The latter resulted in lower Multi-Stage DCF results across the board relative to the former.[508] Reflecting on these results, Concentric states:

> Under normal market circumstances, Mr. Coyne would accept these results as determinative, but substantially higher interest rates and sustained higher inflation levels do not indicate a reduction in the cost of equity -- this is not an intuitive result. Markets have been anything but normal in 2022. […] Contributing to this capital market turmoil, inflation in both the US and Canada is running at levels not seen since the early 1980s. In previous periods of market disruption, utilities have served as a safe haven for investors, but as explained in a *Wall Street Journal* article this week, that has not been the case recently.[509] [*Emphasis added*]

The *Wall Street Journal* article explains that, while utility stocks were among the best-performing segment of the market in the early part of 2022, they became the worst-performing sector of the S&P 500 in the period mid-September 2022 to mid-October 2022, as the sizable dividends of utility stocks (among the highest payout percentages in the index at 3.3 percent) were no match for climbing bond yields reaching four percent in mid-October 2022.[510]

Mr. Coyne explains that these market circumstances require an examination of the models and inputs used for estimating the cost of capital and the application of informed judgment. With respect to the DCF model, Mr. Coyne expresses the following concern:

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[504] FEI Final Argument, p. 134.
[505] Canadian utilities, US gas utilities, US electric utilities, North American gas utilities, and North American electric utilities.
[506] Exhibit B1-8-1, Appendix C, p. 49.
[507] Exhibit A2-3, p. 27.
[508] Exhibit B1-8-1, Appendix C, p. 49, Exhibit B1-8-1-2, Footnote 1, p. 2, FortisBC Final Argument, para. 303, pp. 150–151.
[509] Exhibit B1-8-1-2, p. 4.
[510] Ibid., pp. 4–5.

> Utility stock prices, as indicated in the above article, have responded slowly to the down market in 2022, so the 90-day historic stock price averages used in the DCF model are not reflective of current market conditions.[511] [*Emphasis added*]

To test this hypothesis, Mr. Coyne replaced the 90-trading day average stock prices with the current stock prices (Spot Price) in his September 2022 Update and when doing so, the Multi-Stage DCF Model results shift back to those estimated in December 2021.[512]

While both experts agree with the use of recent average stock prices in calculating the dividend yield in the DCF Model[513], an area of debate emerged at the oral hearing regarding the appropriate period to use for this exercise in the current economic context. At the oral hearing, Dr. Lesser acknowledged that he may use shorter periods depending on "what's happened in the market", though not shorter than 30 days.[514] FortisBC states that this is consistent with what Dr. Lesser had done in two proceedings from 2002 (he used 30 days in one and 60 days in the other) in circumstances that he had characterized as being influenced by the threat of war, emerging from challenging economic circumstances and unprecedented monetary policy intervention. FortisBC argues that the extraordinary conditions earlier in 2022 are not dissimilar to the conditions highlighted by Dr. Lesser in 2002 and they, too, give rise to concerns that older data are not reflective of investors' forward-looking expectations.[515]

5.3.2 Dividend Growth Rates

The second term (*g*) of Equation (4)[516] is the dividend growth rate, which has two key attributes. The first attribute is the number and duration of the stages of growth, and the second is the basis of the dividend growth for each stage.

5.3.2.1 Number and Duration of the Stages of Growth

Mr. Coyne adopts a three-stage DCF model that employs the following values for the duration and the basis of the dividend growth for each stage:

a) First stage (Years 1 to 5): Near-term growth as measured by analysts' EPS growth projections used in the Constant Growth DCF Model;

b) Second (transitional) stage (Years 6 to 10): Connects near-term with long-term growth by changing the growth rate each year on a pro rata basis; and

c) Third (perpetuity) stage (Years 11 and beyond): Long-term forecast of nominal GDP growth, which is estimated based on estimates of real GDP growth rate and inflation by *Consensus Economics*.[517]

[511] Exhibit B1-8-1-2, p. 5.
[512] Ibid., p. 6.
[513] Transcript Volume 3, p. 161, Lines 2–4.
[514] Transcript Volume 4, p. 440, Lines 20–24.
[515] FortisBC Final Argument, para 305, p. 151.
[516] Equation (4) is a simplified equation where the dividend growth rate is constant. In a Multi-Stage DCF, the dividend growth rate takes different values for the different stages used in the model.
[517] Exhibit B1-8-1, Appendix C, p. 53.

Dr. Lesser supports Mr. Coyne's approach: "[f]or a multi-stage DCF model, I agree with Mr. Coyne that the most typical approach is to assume an initial stage lasting five years. […] Mr. Coyne's three-stage model is certainly one approach that is sometimes used, and a five-year middle stage is not unreasonable."[518]

5.3.2.2 Basis of the Dividend Growth for Each Stage

Analysts' forecasts in First Stage

In considering the appropriate basis for the growth rate for the first stage in the Multi-Stage DCF model, the most relied upon indicator of investors' expectations is analysts' estimates of future earnings growth. Mr. Coyne explains that investors rely on projected earnings growth rate rather than dividend growth rates because 1) a company's dividend growth is derived and can only be sustained by earnings growth; 2) earnings growth rates are less influenced by dividend decisions; and 3) analysts' forecast of earnings growth are more widely available than dividend forecasts.[519]

Echoing point 1 above, Dr. Lesser states that "because earnings are the ultimate source of dividends – a firm cannot continue to pay dividends if it has no earnings – the growth rate term *g* used in [Equation (4)] is almost always the forecast growth in earnings."[520] Thus, the two experts agree that dividend growth rates should be estimated using earnings growth rates.

Mr. Coyne and Dr. Lesser also agree that analysts' estimates are the appropriate source for forecast earnings growth rates but disagree on which data sources to use for the first stage. Earnings growth rates are forecast by stock analysts typically for periods of three to five years but how those analysts develop their forecasts is not publicly known.[521] Mr. Coyne relies on earnings growth estimates from four data sources: SNL Financial, Value Line, Zacks and Thomson First Call for the companies in the proxy groups.[522] In contrast, Dr. Lesser supports the use of a single source of earnings growth rate forecasts using the Institutional Brokers' Estimate System (IBES) earnings growth rates published by Yahoo!Finance.

Mr. Coyne explains that Yahoo!Finance, Zacks, and SNL Financial are all consensus forecasts, which means these sources gather consensus of the equity analysts that cover these companies, and then they report out the consensus view from those individual analysts.[523] Mr. Coyne states that "[o]ne benefit of averaging four sources is that you get to mitigate the impact of anyone that will differ from another. And there can be some substantial differences, and I would be very concerned with just using one source."[524] Mr. Coyne further states that the EPS growth rates reported by Yahoo!Finance are not always updated on a regular basis such that they may become stale at times, and Yahoo!Finance does not provide EPS growth rates for every Canadian utility company, so it is necessary to also consider other sources such as Zacks Investment Research, Value Line, and SNL Financial to

[518] Exhibit A2-20, BCUC IR 5.4.
[519] Exhibit B1-8-1, Appendix C, pp. 49–50.
[520] Exhibit A2-3, p. 27.
[521] Ibid., p. 31.
[522] Exhibit B1-8-1, Appendix C, p. 49.
[523] Transcript Volume 3, p. 314.
[524] Ibid., pp. 314–315.

develop a more robust DCF analysis for a Canadian proxy group.[525] However, Mr. Coyne confirms that there is coverage by Yahoo!Finance on the Canadian proxy group and submits that it is not an issue at this time.[526]

Dr. Lesser supports the use of a single source of earnings growth rate forecasts,[527] stating, "I do not consider averaging different earnings growth rates to be reasonable because they do not necessarily reflect the same time periods and forecast duration. Also, I prefer, as does FERC, to rely on the IBES earnings growth rates published by Yahoo!Finance because they are available publicly."[528] Dr. Lesser further states that FERC has expressed concerns about mixing and matching earnings growth rates because 1) the analysts are using different methodologies and different time periods and 2) the analysts are using proprietary growth rates to which no one else can have access to.[529] Dr. Lesser also notes that "simply taking an average as Mr. Coyne suggests, that may be reasonable. But if you're taking an average of say someone's result that's unreasonable, […] you may just be baking in an unreasonable value."[530]

The difference between using a single or multiple data sources for the earnings growth rate forecasts was shown to be immaterial, early in the proceeding, when Mr. Coyne re-ran his Multi-Stage DCF model by replacing his earnings growth rate forecast with Dr. Lesser's recommended earnings growth rate forecast based on the IBES earnings growth rates published by Yahoo!Finance based on December 2021 data. For the US gas proxy group, the Multi-Stage DCF ROE decreased from 9.53 percent[531] to 9.44 percent[532] and for the US electric proxy group, the Multi-Stage DCF ROE increased from 8.82 percent[533] to 8.91 percent[534].

GDP growth rate in Second Stage

As noted above, the second stage is a transitional stage that connects near-term with long-term growth by changing the growth rate each year on a pro rata basis. Thus, the GDP growth rates in this stage are derived mathematically and no parties raised issues with this calculation during the hearing.

GDP growth rate in Third Stage

The experts also disagree on the method to calculate the perpetuity GDP growth rate in Stage 3 of the Multi-Stage DCF model. Mr. Coyne calculates the perpetuity GDP growth rate based on GDP and the Consumer Price Index (CPI). Dr. Lesser disagrees with this calculation method and suggests the proper way to convert real GDP growth rate forecast to a nominal one is to use the GDP implicit price deflator. The difference between the CPI and the GDP implicit price deflator is that the CPI is the consumer price index, so it measures inflation for a market basket of consumer goods, whereas the GDP implicit price deflator measures the overall inflation rate of the entire economy.[535] Dr. Lesser further states that using the CPI will overestimate the ROE but admits that "in

[525] Exhibit B1-21, Part 2, p. 11.
[526] Transcript Volume 3, p. 323.
[527] Exhibit A2-3, p. 32.
[528] Exhibit A2-24, BCOAPO IR 17.2.
[529] Transcript Volume 3, p. 318.
[530] Transcript Volume 3, p. 318.
[531] Exhibit B1-8-1, Appendix C, Figure 1, p. 4 (inclusive of a 50-bps adder).
[532] Exhibit B1-25, BCUC IR 3.1.2, Revised Figure 1 (inclusive of a 50-bps adder).
[533] Exhibit B1-8-1, Appendix C, Figure 2, p. 5 (inclusive of a 50-bps adder).
[534] Exhibit B1-25, BCUC IR 3.1.2, Revised Figure 2 (inclusive of a 50-bps adder).
[535] Transcript Volume 3, pp. 261–262.

terms of all the other inputs to the analyses, that whether it's the CPI or the GDP deflator is probably not going to be the determining factor in setting an allowed ROE".[536]

In response, Mr. Coyne notes that he doesn't disagree with Dr. Lesser and if he was looking at historic data on GDP growth rate, he would use the same method as Dr. Lesser. However, since the GDP growth rate is a forecast, Mr. Coyne submits that he prefers to use forecast inflation data and that he is constrained by the available data, as *Consensus Economics* does not forecast the implicit price deflator.[537]

The evidence on record in this proceeding only includes Multi-Stage DCF ROE results where the perpetuity GDP growth rate is based on the GDP and CPI.

5.3.3 Overall Multi-Stage DCF Model Results

The next two sub-sections will present Mr. Coyne's DCF results based on the most recent October 2022 results, consistent with our determination above in Section 3.3 to use the most recent data.

5.3.3.1 Constant Growth DCF Model

Even though Mr. Coyne uses the results of the Multi-Stage DCF model in his ROE recommendation for FEI and FBC, he also presents the results of the Constant Growth DCF Model. Mr. Coyne's results have been revised to exclude the 50-bps adder for flotation costs and financial flexibility as shown in Table 24 below.

Table 24: Mr. Coyne's Constant Growth DCF ROE Results[538]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
October 2022 – 90 trading days[539]	11.48%	9.31%	10.45%	9.17%	9.59%
October 2022 – 30 trading days[540]	11.85%	9.57%	10.72%	9.48%	9.94%

5.3.3.2 Multi-Stage DCF Model

Table 25 below presents Mr. Coyne's Multi-Stage DCF results based on the October 2022 data, using different historic time periods for stock prices to calculate the dividend yields. Those results reflect Mr. Coyne's approach of using four data sources for the earnings growth rates and a perpetuity GDP growth rate based on GDP and CPI. The results have been modified to exclude the 50-bps adder for flotation costs and financial flexibility that Mr. Coyne included in his results.

[536] Transcript Volume 3, p. 264.
[537] Ibid., p. 262.
[538] Information in the table is taken from the referenced footnotes within the table.
[539] Exhibit B1-50, Figures 3 and 4, Scenario A.2, p. 6.
[540] Ibid., Figures 5 and 6, Scenario A.3, p. 7.

Table 25: Mr. Coyne's Multi-Stage DCF ROE Results[541]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
October 2022 – 90 trading days[542]	9.96%	8.44%	9.22%	8.24%	8.61%
October 2022 – 30 trading days[543]	10.43%	8.74%	9.53%	8.60%	9.02%

FortisBC points out that both experts agree on the merits of using the Multi-Stage DCF model.[544] FortisBC also states that it is aligned on the key aspects of the Multi-Stage DCF analysis and that Dr. Lesser's Multi-Stage DCF results are identical to Mr. Coyne's results.[545]

FortisBC also notes that Mr. Coyne presented the results of the Constant Growth DCF model, as it "was developed to estimate the cost of equity for dividend-paying companies in mature industries with steady and predictable growth rates, such as public utilities." FortisBC states that the results of this model tend to exceed the multi-stage DCF results because the EPS growth rates of the proxy companies are not constrained to equal GDP growth after 10 years. FortisBC explains that the experts debate whether a company's EPS can exceed GDP growth forever; however, the data demonstrates that EPS for the proxy utilities have grown faster than GDP for the 2005 to 2019 period. In FortisBC's view, the implication of this evidence for the BCUC is that these two models – the multi-stage DCF and the Constant Growth DCF – are both useful, but imperfect indicators of an estimated range of investors' expected returns. FortisBC submits that Mr. Coyne is being conservative in basing his ultimate recommendations on his Multi-Stage DCF model results, rather than a blend of the two DFC models.[546]

FortisBC remarks that Dr. Lesser had, in past testimony, given equal weight to the two DCF models, despite having the same theoretical reservation about the ability of a company's EPS to grow faster than GDP forever. While he has since changed his approach, FortisBC submits that the logic he had applied still has merit. His stated rationale had related to the benefits of having additional data points in the prevailing conditions, characterized by economic uncertainty, unprecedented actions by central banks and the threat of war abroad, all of which are present today.[547]

Regarding the preferred proxy groups, as noted earlier, FortisBC states that, even though Mr. Coyne developed his initial recommendation based on the results of his US proxy groups, the evidence on the record indicates that it would be appropriate for the BCUC to give primary weight to results based on Mr. Coyne's North American gas and electric proxy groups.

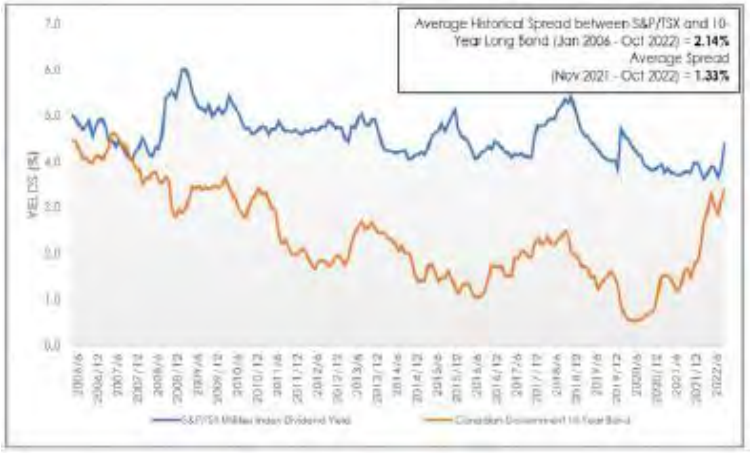
[541] Information in the table is taken from the referenced footnotes within the table.
[542] Exhibit B1-50, Table 2, Scenario A.2, p. 3.
[543] Ibid.
[544] FortisBC Final Argument, p. 136.
[545] Ibid., p. 122.
[546] FortisBC Final Argument, pp. 136–137.
[547] Ibid., p. 137.

Dividend Yield

With respect to using 30-day versus 90-day dividend yield data,[548] FortisBC submits that, while using 90-day data is normally reasonable, it may still be skewing the DCF results downwards. While the Efficient Market Hypothesis would suggest current prices are a better indicator of investors' expectations than past data, FortisBC recognizes that both experts agree that it is reasonable to use longer periods as a pragmatic means of moderating daily volatility in stock prices and dividend yields. Nonetheless, FortisBC submits that when interpreting the October 2022 results, the BCUC should consider the 90-day results but also recognize the tendency of a longer period like 90 days to understate investors' expectations due to the lingering effects of extraordinary events earlier in 2022.[549]

To support its position, FortisBC recalls that the six Bank of Canada interest rates increases between January 2022 and the oral hearing, with one more in December 2022, for a total increase of four percent in 2022. As a result, investors' expectations of dividend yields at the end of 2022 would bear little resemblance to what they were prior to the unprecedented increase in interest rates. FortisBC notes that, intuitively, dividend yields on utility stock must be higher than government bond yields to attract investment because utility stocks are higher risk. FortisBC presents a graph showing the statistically significant correlation over time between dividend yields and government bond yields, as shown below, with the notable exception of the summer 2022 when the spread had narrowed. In FortisBC's view, the narrowing spread is evidence that the market took some time to respond to the dramatic change in interest rates and government bond yields.[550]

Figure 2: S&P/TSX Utilities Index Dividend Yield versus Canadian Government 10-Year Bond Yields[551]



FortisBC states that the timing of the September 2022 Update, in conjunction with the use of a 90-trading day period, coincided with the transitory period of suppressed dividend yields and produced much lower results than Mr. Coyne's original analysis based on December 2021 data. FortisBC also notes that Mr. Coyne's October

[548] FortisBC notes that Mr. Coyne refers to "trading days" in his analysis such that "90-day" means 90 trading days and would be slightly more than 4 calendar months.
[549] FortisBC Final Argument, p. 150.
[550] FortisBC Final Argument, pp. 151–153.
[551] Exhibit B1-43; FortisBC Final Argument, p. 153.

2022 Update shows higher results compared to the September 2022 Update.[552] FortisBC cites Mr. Coyne at the oral hearing who noted that "the DCF model is producing results that look more like they did back in December" and that "as you have seen over the course of the last month or so, we've seen them come back into closer alignment. So, it's beginning to correct."[553]

FortisBC references Mr. Coyne's sensitivity analysis to the time horizon used (30-trading days vs. 90-trading days), which shows that a shorter period consistently increases the Multi-Stage DCF results because the lagging data inherent in using a 90-trading day period is still suppressing the DCF results in October 2022. Comparing the 90-day and 30-day scenarios gives an indication that dividend yields were lower in August and September 2022 compared to October 2022 (see Table 25).[554]

FortisBC states that Mr. Coyne confirms that, while the BCUC should have regard to the outputs from December 2021, September 2022, and October 2022, "… at the end of the day I do think that the most current information is what you should probably place the greatest weigh on." However, FortisBC remarks that Mr. Coyne also encourages the BCUC to put the model outputs in context: "So it's been a year of adaptations and disruptions in capital markets. But I think that the point I was making is that you need to understand what's happening to capital markets in 2022 in order to be able to interpret the results we're getting from the models." FortisBC concludes that the BCUC should find that the October 2022 results are potentially understating the investor-required return.[555]

Dividend Growth Rates

Regarding the data sources for EPS growth rates, FortisBC submits that using multiple data sources is a sensible approach and there is a sound logic to relying on multiple data sources, as Mr. Coyne has done, rather than relying on a single source as advocated by Dr. Lesser. Mr. Coyne uses four sources, three of which are consensus forecasts[556] whereas Value Line is an independent analyst forecast. Citing Mr. Coyne, FortisBC states that the purpose of using EPS growth rates in the DCF analysis is to reflect investors' expectations, and investors have access to all these data sources when formulating those expectations. Using multiple forecasts also reduces the potential for anomalous data to influence the results. Finally, Mr. Coyne notes that IBES Yahoo, which Dr. Lesser prefers, had some coverage shortcomings for Canadian companies in the past, as well as times where updates lagged other sources. All these concerns are mitigated by using multiple sources.[557]

Furthermore, FortisBC argues that Dr. Lesser's rationale for sole reliance on IBES does not withstand scrutiny for several reasons. Amongst those, his stance is difficult to reconcile with his support of the Efficient Market Hypothesis, which contemplates that investors will make use of all available information. Also, FortisBC states that Dr. Lesser's concern about different forecast horizons is overstated. Three of the forecasts use a five-year horizon. While Value Line uses three to five years, Mr. Coyne explains that this is not materially different from

[552] FortisBC Final Argument, p. 153.
[553] Ibid., pp. 154.
[554] Ibid., pp. 154–155.
[555] FortisBC Final Argument, p. 155.
[556] Zacks, SNL Financial and Thompson First Call, which is synonymous with IBES and Yahoo.
[557] FortisBC Final Argument, pp. 147–148.

the others in practice and that, in any event, the Value Line estimates "are generally within the range of those other sources".[558]

Positions of Parties

ICG

Regarding the DCF model, ICG only comments on the use of a single versus four sources of information for EPS growth rates. ICG agrees that investors use all sources of information. For practical reasons, ICG submits that using either a single or four sources for such information is not material and both are consistent with the Efficient Market Hypothesis.[559]

Regarding the recommended ROE for FBC, ICG submits:[560]

> Dr. Lesser's Average CAPM and Multi-Stage [sic] DCF results for the North American Utilities – Electric with the October 2022 Update (30-day average stock prices and interest rates) is [sic] 8.3% ROE.[36]
>
> Footnote 36: Exhibit B1-50, p. 9, Figure 10

Based on ICG's above overall ROE recommendation, it is possible to separately identify ICG's recommended Multi-Stage DCF's ROE. In the main body of ICG's submission, ICG references "Dr. Lesser's […] Multi-Stage DCF results for the North American Utilities – Electric with the October 2022 Update (30-day average stock prices and interest rates)". This specific scenario results in an ROE of 9.52 percent.[561] However, the text in footnote 36 references a different scenario, that of Dr. Lesser's December 2021 data (90-day average stock prices and interest rates). This scenario results in an ROE of 9.14 percent.[562]

Therefore, before the flotation allowance adder, ICG recommends a Multi-Stage DCF ROE of 8.64 or 9.02 percent for FBC, depending on the scenario one looks at (October 2022 – 30 days versus December 2021 – 90 days) based on the North American proxy group.

BCOAPO

BCOAPO notes that both experts conclude that the Multi-Stage DCF model should be used for purposes of estimating the ROE.[563]

BCOAPO notes the two experts' general agreement on the appropriate average period to calculate the dividend yield: Mr. Coyne uses a 90-trading day period in both his evidence and the September 2022 Update, and Dr. Lesser advocates for a three- to six-month period with a preference for three months, noting that one month should be the absolute minimum. BCOAPO notes that Mr. Coyne presents results using stock prices determined

[558] FortisBC Final Argument , pp. 148–149.
[559] ICG Final Argument, p. 9.
[560] Ibid., para. 33, p. 15.
[561] Exhibit B1-50, Scenario B.6, Figure 12, p. 10.
[562] Ibid., Scenario B.5, Figure 10, p. 9.
[563] BCOAPO Final Argument, p. 42.

over both 30-trading days and 90-trading days for purposes of an undertaking filed after the oral hearing. BCOAPO remarks that the only difference in the inputs used for the DCF calculations based on a 30- versus 90-day trading basis is the stock prices used in each, which are on average lower in the 30-day calculation in all relevant proxy groups. BCOAPO notes that the annual dividend values growth rates are the same for both periods.[564] BCOAPO agrees with Mr. Coyne's assessment that "[w]e're in an environment where there's a lot of uncertainty about the future of the economy at this point in time in the near term," and with this in mind, BCOAPO submits that DCF calculations based on 90 trading days should be the primary focus of the BCUC's deliberations. BCOAPO adds that this view is further reinforced by the fact that analysts' estimates of earning growth used in the DCF calculation are not necessarily updated every 30 trading days.[565]

With respect to the sources that should be used for the earnings growth rate forecasts, BCOAPO finds the rationale provided by Mr. Coyne in his rebuttal evidence and oral testimony for using multiple earnings growth sources to be compelling and agrees with his approach on this issue.[566]

As explained in more detail in Section 3.2, BCOAPO revises Mr. Coyne's Multi-Stage DCF ROE results by removing the two Canadian utilities that would, in Mr. Coyne's view, not pass the same screening criteria that he used to screen the US firms. BCOAPO's results, from those revisions, are 8.63 percent and 8.57 percent (excluding a 50-bps adder for flotation costs and financial flexibility) for the North American gas and electric proxy groups, respectively. BCOAPO submits that the BCUC should use these revised DCF ROE results when determining FEI and FBC's ROEs.[567]

The CEC

The CEC submits that the BCUC should give significant weight to the Multi-Stage DCF model while not weighting the Constant DCF model into its decision-making but using it only qualitatively in forming its final ROE determinations for FEI and FBC.[568] Regarding the use of 30-day or 90-day data, the CEC notes that both experts agree that a longer period is more appropriate to moderate daily volatility in stock prices and dividend yields. Mr. Coyne has used 90 days (trading days) and Dr. Lesser said he has no objection to the 90 days but would prefer data from one to three months. The CEC submits that the 90-day period for the data is appropriate in the circumstances and the shorter 30-day perspectives can be used as judgement information should the BCUC find it relevant for a particular concern.[569]

Regarding the basis of the dividend growth in the first stage, the CEC notes that both experts agree that projected earning is appropriate for the DCF modelling rather than DPS or sustainable growth, but they disagree on the source of the earnings information, with Mr. Coyne preferring multiple sources and Dr. Lesser preferring a single source. The CEC submits that both Dr. Lesser's approach and Mr. Coyne's approach have merit and the BCUC could make use of them by weighting each of these approaches into the BCUC's judgment as opposed to trying to pick one over the other.[570]

[564] BCOAPO Final Argument, pp. 39–40.
[565] Ibid., p. 40.
[566] Ibid., p.41.
[567] BCOAPO Final Argument, pp. 43–44.
[568] The CEC Final Argument, p. 39.
[569] Ibid., paras. 313–314, p. 45.
[570] Ibid., paras. 311–312, pp. 44–45.

Overall, the CEC recommends that the BCUC gives substantial weight to the multi-stage DCF modelling from Dr. Lesser[571] but proceeds to only highlight key results from Mr. Coyne's updated summary analysis for his October 2022, 90 days average stock prices and interest rates. Before adjustments, the CEC calculates an ROE of 9.71 percent for FEI and 9.81 percent for FBC as shown in Table 26, which is derived based on a simple average of the three proxy groups' results.[572]

Table 26: CEC's Recommended ROE from the Multi-Stage DCF Model[573]

Multi-Stage DCF Model Results for:	Canadian Regulated Utilities	U.S. Utilities	North American Utilities	Average of Proxy Groups
Gas	10.46%	8.94%	9.72%	9.707%
Electric	10.46%	8.74%	9.11%	9.813%

Since the above figures already include a 50-bps adder for flotation costs and financial flexibility, Table 27 shows the results without the adder.

Table 27: CEC's Recommended ROE from the Multi-Stage DCF Model[574]

Multi-Stage DCF Model Results for:	Canadian Regulated Utilities	U.S. Utilities	North American Utilities	Average of Proxy Groups
Gas	9.96%	8.44%	9.22%	9.207%
Electric	9.96%	8.24%	8.61%	9.313%

FortisBC Reply Argument

As BCOAPO, the CEC and ICG all rely on the Multi-Stage DCF model, FortisBC limits its reply to addressing discrete issues about the model's application: a) the averaging period for calculating the dividend yield and b) the number of data sources for the dividend growth rate.[575]

On the first issue, FortisBC reiterates that using 90-trading day dividend yields is reasonable but skews the results downwards. In response to BCOAPO's submission that 90 trading days "should be the primary focus" because of the market uncertainty, FortisBC agrees that 90 days should be the primary focus under normal market conditions, but the BCUC should recognize that a period that long is skewing the DCF results downwards in the current circumstances. FortisBC notes that it is a fact that interest rates increased by 2.25 percent during the 90-day period used for Mr. Coyne's September 2022 Update, plus another 1.25 percent in September and October 2022. Referring to data that FortisBC includes in its final argument (see Figure 2), FortisBC states that statistical data shows that dividend yields on utility stocks are generally higher than government bond yields, which is intuitive, as higher returns are necessary to attract investment with a higher risk profile. As Mr. Coyne explains in his September 22 Update, utility stock prices lagged the sharp interest rate increases and down

[571] The CEC Final Argument, para. 296, p. 42.
[572] Ibid., paras. 299–300, p. 43.
[573] Ibid.
[574] Table created from Table 26 figures with 50 bps subtracted.
[575] FortisBC Reply Argument, p. 59.

market in 2022, meaning that "90-day historic stock price averages used in the DCF model are not reflective of current market conditions."[576]

On the second issue, FortisBC states that only BCOAPO and the CEC address the source of analyst estimates in the DCF model and points to BCOAPO's agreement to using multiple sources. In response to the CEC's suggestion to give weight to both Mr. Coyne and Dr. Lesser's approaches, FortisBC points out that Dr. Lesser's preferred source (IBES or Yahoo!Finance) is already included as one of Mr. Coyne's sources (i.e. Thompson First Call). Thus, the CEC's approach would give double weight to IBES without a clear reason as to why.[577]

FortisBC also points out that RCIA did not discuss or rely on the Multi-Stage DCF model at all, which FortisBC considers a notable omission and a key reason why its overall recommended ROE is so low. FortisBC submits that RCIA's choice to disregard the Multi-Stage DCF model is untenable because: a) both experts embrace that model, which is based on sound financial theory; b) the DCF methodology is the most commonly used by US regulators; c) the BCUC has generally given significant weight to the Multi-Stage DCF model results; and d) both experts agree on almost all data inputs so that the BCUC can have a particularly high confidence in the results.[578]

Panel Determination

Consistent with the BCUC's preferred approach in the last two cost of capital proceedings, the Panel finds that a Multi-Stage DCF model is preferable to a Constant Growth DCF model. The Multi-Stage DCF model allows for recognition that the proxy utility companies' dividend growth rates may not perform the same in different time horizons.

The Panel accepts that the results from the Multi-Stage DCF model may be more conservative than those from the Constant DCF model, and notes that no interveners favoured the Constant DCF model. Thus, the Panel finds that considerable weight should be given to the use of a Multi-Stage DCF model the purposes of determining the appropriate ROE for FEI and FBC. The specific weight to be accorded the Multi-Stage DCF model in the respective ROEs will be discussed in Section 6.3. (Overall Capital Structure and ROE).

In its final submission, FortisBC states that both Mr. Coyne and Dr. Lesser are aligned on the key aspects of the Multi-Stage DCF analysis, and that the Lesser Multi-Stage DCF results are identical to Mr. Coyne's results. As part of an undertaking after the oral hearing, Mr. Coyne provides four Multi-Stage DCF model runs that he entitles "B.4 to B.7 – Lesser".[579] However, Mr. Coyne was not asked to change any of his Multi-Stage DCF model inputs to replace them with Dr. Lesser's preferred inputs.[580] Thus, three of the four "Lesser" model runs are merely duplicates of Mr. Coyne's model runs for December 2021, October 2022 (90-day) and October 2022 (30-day) and as a result, the model outputs are identical. Therefore, one cannot conclude that Dr. Lesser's Multi-Stage DCF model supports Mr. Coyne's Multi-Stage DCF ROE results, as there are effectively no "Lesser Multi-Stage DCF Results".

[576] FortisBC Reply Argument, pp. 59–60.
[577] Ibid., p. 61.
[578] Ibid., pp. 48–49.
[579] Exhibit B1-50, Table 2, p. 3.
[580] Ibid., p. 1 – see list of requested scenarios.

Having only Mr. Coyne's October 2022 Multi-Stage DCF model results, the Panel must then decide which input to use for the dividend yield (i.e. the number of days for the historic stock price average). With respect to the dividend growth rates, the Panel must first determine the appropriate number and duration of the stages of growth, and then the basis of the dividend growth for each stage.

The Panel previously stated it would rely on the most recent October 2022 data to estimate the cost of equity for FEI and FBC. For the Multi-Stage DCF model, Mr. Coyne presents two sets of October 2022 results: 30-trading days versus 90-trading days. FortisBC submits that using 90-day data may still be skewing the DCF results downwards. Both experts agreed that it is reasonable to use longer periods to moderate daily volatility in stock prices and dividend yields. Accordingly, the Panel considers that, under normal market conditions, using 90-day trading data would be both reasonable and preferable to using 30-day trading data.

However, due to the behavior of utility stocks, which went from amongst the best performing to the worst performing segment of the market at about the same time as the latest October 2022 Update, using a 90-trading-day period, which is equivalent to just over four calendar months, risks skewing the October 2022 Multi-Stage DCF results downwards because it would capture the still elevated utility stock prices from July and August 2022 before they became amongst the worst performing around September/October 2022.

Therefore, considering the extraordinary market conditions of 2022, the Panel is willing to accept the use of a shorter 30-trading-day period for utility stock prices and dividend yields. The Panel is further comforted by Dr. Lesser's acknowledgment that he too may use shorter periods depending on "what's happened in the market," though not shorter than 30 days, an approach he did use in 2002 in circumstances that were described as not dissimilar to today's.

Regarding multi-stage DCF models, there are typically two types of such models: a two-stage and a three-stage DCF model. Mr. Coyne only presents the results of a three-stage multi-stage DCF model, with the first two stages lasting five years each and the third stage being the perpetuity stage. Dr. Lesser appears supportive of this approach when he agreed with Mr. Coyne that "the most typical approach is to assume an initial stage lasting five years" and noted that "Mr. Coyne's three-stage model is certainly one approach that is sometimes used, and a five-year middle stage is not unreasonable."

Due to the structure of the model, a three-stage multi-stage DCF model will yield directionally higher ROE results than a two-stage DCF model because the EPS growth rates are only constrained to equal the lower GDP growth rates in Year 11 as opposed to in Year 6. Recognizing that no interveners commented on the pros and cons of using a two-stage versus a three-stage DCF model and that a majority of them supported the three-stage DCF model presented by Mr. Coyne, the Panel finds it reasonable to use a three-stage DCF model to estimate the ROE for FEI and FBC, with the first two stages lasting five years each.

Next, the Panel must evaluate the reasonableness of the data sources for the dividend growth rates in the first and third stage, where the experts disagree. In the first stage, the Panel considers the use of earnings to be reasonable given that dividends are paid out of earnings. The Panel notes that both experts agree that analysts' estimates are the appropriate source for forecast earnings growth rates but disagree on how many data sources to use for the first stage. Recognizing that these are only analysts' estimates, the Panel finds that using multiple sources for these forecasts is better than using a single source because averaging can mitigate the impact of any one forecast that differs from the others. In any case, a sensitivity analysis performed on the December 2021

data shows that using one or four data sources has less than a 10-bps impact on the Multi-Stage DCF model results.

In the third stage, the Panel finds that using the GDP price deflator would be better than using CPI to derive nominal GDP growth rates because CPI only measures inflation related to a subset of all the goods and services produced in the economy, therefore the GDP price deflator is more representative of the market as a whole. However, the Panel accepts that forecasts of the GDP price deflator are not readily available, whereas forecasts of CPI are readily available. Reluctantly, the Panel accepts the use of CPI as a reasonable forecast to be used in the determination of long-term growth rates. The Panel points out that the use of CPI may result in an ROE that is overestimated, but the Panel accepts Dr. Lesser's submission that this difference will not be determinative in the calculation of the overall ROE.

As for the second (transition) stage, the Panel accepts the methodology employed by Mr. Coyne to transition between the first stage and the third stage growth rates.

Based on the above determinations, the Panel finds that Mr. Coyne's choice of inputs for his Multi-Stage DCF model are reasonable to estimate the cost of equity for FEI and FBC. Specifically, the Panel will rely on the October 2022 results using the 30-day average stock prices, modified to exclude the 50-bps adder for flotation costs and financial flexibility, as shown below:

Table 28: Mr. Coyne's Multi-Stage DCF Model results – October 2022 (30-days)[581]

	Canadian Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
October 2022 – 30 trading days[582]	10.43%	8.74%	9.53%	8.60%	9.02%

As discussed in Section 3.2 above, the Panel previously determined that the appropriate proxy groups to use for FEI and FBC are the North American gas and electric proxy groups, albeit revised in accordance with BCOAPO's proposal to remove Enbridge Inc. and Canadian Utilities Limited which are unlikely to have passed Mr. Coyne's screening criteria if applied strictly.

Table 29 below shows the detail of Mr. Coyne's North American gas proxy groups. Removing Enbridge Inc. and Canadian Utilities Limited from the North American gas proxy group yields a revised calculated average ROE of 8.93 percent,[583] excluding an adder for flotation costs and financial flexibility.

[581] Information in the table is compiled from the referenced footnotes within the table.

[582] Exhibit B1-50, Table 2, Scenario A.3, p. 3.

[583] Calculated by the BCUC using the Average function in Excel = Average (9.67%,8.71%,8.99%,8.12%,9.15%) = 8.93%.

Table 29: 30-Day Multi-Stage DCF - North America Gas Utilities[584]

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Growth Rate, Years 1-5	[4] Year 6	[5] Year 7	[6] Year 8	[7] Year 9	[8] Year 10	[9] GDP Growth (perpetuity)	[10] ROE
AltaGas Inc.	ALA	$1.06	$26.30	8.63%	7.83%	7.03%	6.23%	5.43%	4.64%	3.84%	9.67%
Canadian Utilities Limited	CU	$1.78	$36.30	4.96%	4.77%	4.58%	4.40%	4.21%	4.02%	3.84%	9.52%
Enbridge Inc.	ENB	$3.44	$51.97	7.08%	6.54%	6.00%	5.46%	4.92%	4.38%	3.84%	12.57%
New Jersery Resources Corporation	NJR	$1.56	$41.51	5.96%	5.66%	5.36%	5.05%	4.75%	4.45%	4.14%	8.71%
Northwest Natural Gas Company	NWN	$1.94	$45.67	4.95%	4.82%	4.68%	4.55%	4.41%	4.28%	4.14%	8.99%
ONE Gas, Inc.	OGS	$2.48	$74.01	5.63%	5.38%	5.13%	4.88%	4.64%	4.39%	4.14%	8.12%
Spire, Inc.	SR	$2.74	$65.69	5.77%	5.50%	5.23%	4.95%	4.68%	4.41%	4.14%	9.15%
MEAN				6.14%	5.78%	5.43%	5.07%	4.72%	4.37%	4.01%	9.53%
Flotation Costs [11]											0.50%
											10.03%

Table 30 below shows the detail of Mr. Coyne's North American electric proxy groups. Removing Canadian Utilities Limited from the North American electric proxy group yields a revised calculated average ROE of 8.99 percent,[585] excluding an adder for flotation costs and financial flexibility.

Table 30: 30-Day Multi-Stage DCF - North American Electric Utilities[586]

Company	Ticker	[1] Annualized Dividend	[2] Stock Price	[3] Growth Rate, Years 1-5	[4] Year 6	[5] Year 7	[6] Year 8	[7] Year 9	[8] Year 10	[9] GDP Growth (perpetuity)	[10] ROE
Algonquin Power and Utilities	AQN	$0.72	$11.13	8.69%	7.88%	7.07%	6.26%	5.45%	4.64%	3.84%	13.19%
Canadian Utilities Limited	CU	$1.78	$36.30	4.96%	4.77%	4.58%	4.40%	4.21%	4.02%	3.84%	9.52%
Emera Inc.	EMA	$2.76	$54.78	6.05%	5.68%	5.31%	4.94%	4.57%	4.21%	3.84%	10.09%
Hydro One, Ltd.	H	$1.12	$33.26	4.23%	4.16%	4.10%	4.03%	3.97%	3.90%	3.84%	7.54%
Alliant Energy Corporation	LNT	$1.71	$52.89	5.93%	5.63%	5.34%	5.04%	4.74%	4.44%	4.14%	8.06%
American Electric Power Company, Inc.	AEP	$3.12	$88.61	6.30%	5.94%	5.58%	5.22%	4.86%	4.50%	4.14%	8.51%
Duke Energy Corporation	DUK	$4.02	$93.46	5.53%	5.30%	5.07%	4.83%	4.60%	4.37%	4.14%	9.23%
Entergy Corporation	ETR	$4.04	$104.62	5.78%	5.51%	5.23%	4.96%	4.69%	4.41%	4.14%	8.78%
Exelon Corporation	EXC	$1.35	$38.40	7.70%	7.11%	6.52%	5.92%	5.33%	4.74%	4.14%	8.90%
Evergy Inc	EVRG	$2.29	$60.14	5.67%	5.41%	5.16%	4.90%	4.65%	4.40%	4.14%	8.68%
NextEra Energy Inc.	NEE	$1.70	$77.73	9.73%	8.80%	7.87%	6.94%	6.01%	5.07%	4.14%	7.51%
OGE Energy Corporation	OGE	$1.66	$36.59	3.35%	3.48%	3.61%	3.75%	3.88%	4.01%	4.14%	8.82%
Pinnacle West Capital Corporation	PNW	$3.46	$65.75	2.20%	2.52%	2.85%	3.17%	3.49%	3.82%	4.14%	9.22%
Portland General Electric Company	POR	$1.81	$45.06	3.38%	3.51%	3.63%	3.76%	3.89%	4.01%	4.14%	8.28%
MEAN				5.68%	5.41%	5.14%	4.87%	4.60%	4.32%	4.05%	9.02%
Flotation Costs [11]											0.50%
											9.52%

Therefore, the Panel will use a multi-stage DCF ROE, exclusive of an adder for flotation costs and financial flexibility, of 8.93 percent for FEI and 8.99 percent for FBC as it weights the results of the different ROE models.

5.4 Risk Premium Model

The Risk Premium Model is based on the premise that, from an investor's perspective, common equity capital is riskier than debt, because debt has a senior claim over a firm's assets. Consequently, equity investors require a greater return (i.e. an equity risk premium or ERP) than would bondholders. Thus, the Risk Premium model estimates the cost of equity as the sum of the ERP and the yield on a particular class of bonds and can be represented by Equation (6):[587]

$$ROE = ERP + Y \qquad (6)$$

Where:
ROE = return on equity
Y = applicable bond yield
ERP = the equity risk premium (*i.e.*, difference between allowed ROE and the 30-year Treasury Yield)

Dr. Lesser notes that although the Risk Premium Model is similar to the CAPM, it is a distinct methodology. Whereas the CAPM addresses systematic (i.e. non-diversifiable) market risk, the Risk Premium Model directly

[584] Exhibit B1-50, Attachment A.3 FEI – Gas (Oct 2022 update 30 day), Tab JMC-FEI-3 Multi-Stage DCF.
[585] Calculated by the BCUC by averaging the following figures: 13.19%, 10.09%, 7.54%, 8.06%, 8.51%, 9.23%, 8.78%, 8.90%, 8.68%, 7.51%, 8.82%, 9.22% and 8.28%.
[586] Exhibit B1-50, Attachment A.3 FBC – Electric (Oct 2022 update 30 day), Tab JMC-FBC-5 Multi-Stage DCF.
[587] Exhibit B1-8-1, Appendix C, pp. 62–63, Exhibit A2-3, p. 60.

incorporates both systematic and unsystematic (diversifiable) risk. Also, the ERP in this model is not the same as the MRP in the CAPM, which is calculated as the difference between the expected future market return and the risk-free rate. Rather than adding a premium on top of the risk-free rate, the Risk Premium Model adds an ERP to the rate on long-term bonds, where the ERP represents the additional expected return by equity investors to compensate them for the additional risk they face relative to bondholders.[588]

Dr. Lesser notes two implementation issues in the application of the Risk Premium Model to a regulated utility:

1. How is the ERP estimated? In Dr. Lesser's view, this is the most crucial implementation issue because the ERP cannot be observed directly. Like the MRP in the CAPM, the ERP can be based on the historical difference between ROEs and bond yields or based on a forward-looking estimate; and
2. What is the appropriate bond yield to use (Current versus forecast? Same yield as for bonds with the same rating as the regulated utility under review?). As discussed in Section 5.2.1, Dr. Lesser is of the view that investor expectations are fully reflected in the current bond yields, under the Efficient Market Hypothesis.[589]

5.4.1 How is the Equity Risk Premium Estimated?

To estimate the relationship between the ERP and interest rates, Mr. Coyne first conducts a regression analysis using Equation (7) below to estimate the intercept and slope terms and relies on historical authorized returns from a large sample of US gas and electric distribution companies,[590] an approach similar to FERC's.[591] Mr. Coyne also explains that the regression analysis is performed on US data only since there aren't enough Canadian ROE decisions to develop a statistically meaningful regression analysis.

$$ERP = a + (b \times Y) \qquad (7)$$

Where:
ERP = the equity risk premium (*i.e.*, difference between allowed ROE and the 30-year Treasury Yield)
Y = 30-year Treasury Yield
a = intercept term
b = slope term

The regression results, based on the October 2022 data, are shown in Figure 3 and Figure 4 for US gas and electric distribution companies.[592] The relationship between the ERP and the 30-Year Treasury Yields can therefore be written as follows:

U.S. Gas: $ERP = 0.0851 - 0.5775 \times Y$
U.S. Electric: $ERP = 0.0843 - 0.5432 \times Y$

[588] Exhibit A2-3, p. 60.
[589] Ibid., pp. 61–62.
[590] 700 gas utility company rate cases and 859 electric utility company rate cases in the U.S. from 1992 to 2022.
[591] Exhibit B1-8-1, Appendix C, pp. 63–64.
[592] Exhibit B1-50, Scenario A.2, Gas and Electric Excel spreadsheets, Tab "JMC-FEI 7 Risk Premium".

Figure **3**: Risk Premium Results - U.S. Gas[593]

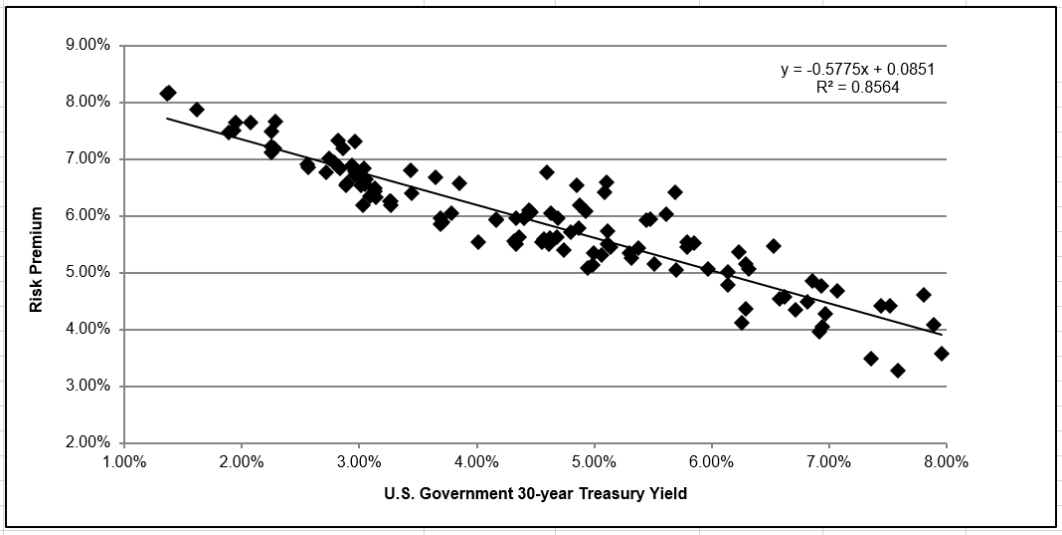
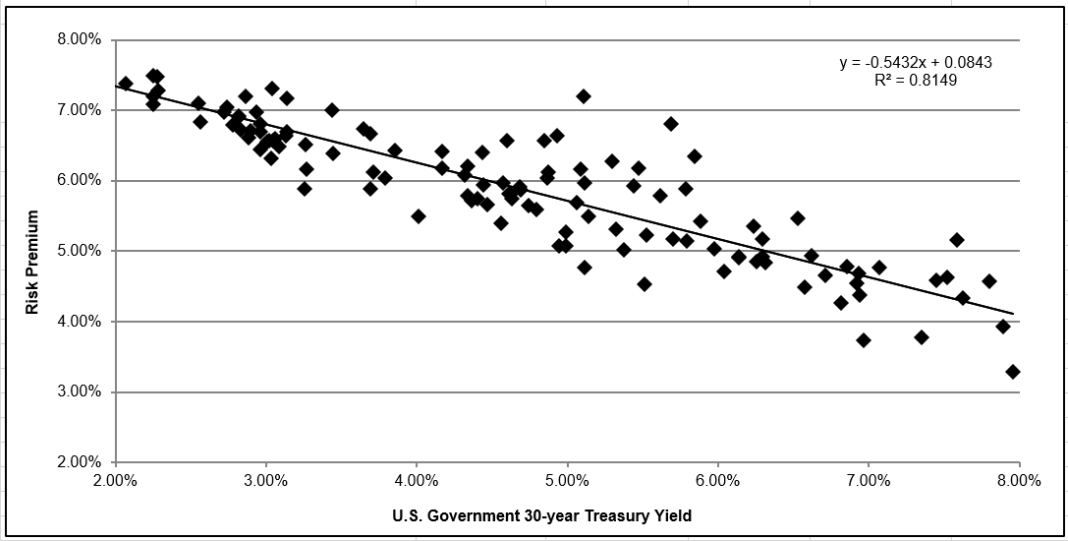


Figure **4**: Risk Premium Results - U.S. Electric[594]



At the oral hearing, Mr. Coyne explained the significance of the high correlation between ERP and bond yields as shown by the high R2 values of 0.86 and 0.82 for gas and electric utilities respectively:[595]

> So what this is trying to get at is how did utility commissions interpret everything that they looked at in these 1500 some odd cases and make a decision regarding allowed return in the investment environment they were in characterized by the bond yield in that period of time? And you can see the -- that's a very strong linear relationship as you can see the trendline.
>
> […] And I'm estimating that relationship because what I want to do is ask myself, given today's bond yields or projected bond yields, and everything we know about these 1500 decisions, what

[593] Exhibit B1-8-1, Appendix C, p. 65. Based on Mr. Coyne's Excel spreadsheet, Mr. Coyne seems to have averaged ROEs by quarter from Q1 1992 to Q4 2021 or Q42021. Thus, there are not 700 or 859 data points in Figure 1 or Figure 2, respectively.

[594] Exhibit B1-8-1, Appendix C, p. 65.

[595] Transcript Volume 4, p. 654, Lines 18–26 to p. 655, Lines 1–16.

would a regulator say about the allowed return, with no other information available to them but just based on bond yields. And it says that […] you can explain 86 or 82 percent of those decision just based by on knowing that bond yield in that period of time. It's a pretty strong association.

5.4.2 What is the Appropriate Bond Yield to Use?

Having estimated the parameters *a* and *b* in Equation (7) from historical data, the second step is to apply the regression's results (*a* and *b*) to long-term bond yields (Y) to estimate the ERP in Table 31 from Equation (7). To do so, Mr. Coyne uses both the current (30-day average) and forecast bond yields of the 30-year Treasury Yield. For the forecast bond yields, Mr. Coyne uses a near-term and a five-year forecast (see Table 31). In Mr. Coyne's view, the five-year forecast is the most applicable because investors are expecting increases in government bond yields and investors typically have a multi-year view of their required returns on equity.[596] For instance, the ERP of 6.32 percent for the US gas proxy group in the 4th column is estimated as follows:

U.S. Gas: $ERP = 0.0851 - 0.5775 \times Y$

$ERP = \ 0.0851 - 0.5775 \times Y$
$ERP = 0.0851 - 0.5775 \times 0.038$

$ERP = 0.0632 \ or \ 6.32\%$

Then, the resulting ROE is computed using Equation (6):

$ROE = ERP + Y$
$ROE = 6.32\% + 3.80\% = 10.12\%$

Table 31: Risk Premium Results for FEI and FBC – October 2022[597]

	U.S. Gas Proxy Group			U.S. Electric Proxy Group		
	30-Day average yield on 30-year treasury bond	Q2 2023-Q2 2024 forecast for yield on 30-year treasury bond	**2024-2028 forecast for yield on 30-year treasury bond**	30-Day average yield on 30-year treasury bond	Q2 2023-Q2 2024 forecast for yield on 30-year treasury bond	**2024-2028 forecast for yield on 30-year treasury bond**
Yield	3.92%	4.00%	**3.80%**	3.92%	4.00%	**3.80%**
ERP	6.25%	6.20%	**6.32%**	6.30%	6.26%	**6.36%**
Resulting ROE[598]	10.17%	10.20%	**10.12%**	10.22%	10.26%	**10.16%**

5.4.3 Overall Risk Premium Model Results

While the Risk Premium Model is simple and easily replicable, Dr. Lesser points to a commonly cited weakness of the model: circularity, due to its reliance on prior regulatory decisions. He also highlights other potential flaws in

[596] Exhibit B1-8-1, Appendix C, pp. 65–67.
[597] Exhibit B1-50, Scenario A.2, Gas and Electric Excel spreadsheets, Tab "JMC-FEI 7 Risk Premium".
[598] Exhibit B1-50, p. 6: per Footnotes 3 and 4, the risk premium results do not include 50 bps for flotation costs and financial flexibility.

its implementation. For instance, the regression specification (with only one explanatory variable) assumes that no other factors can influence investors' expected return requirements (e.g. business risk, financial risk, capital structure, degree of regulated versus unregulated activities). So, unless this is true, the model specification suffers from "omitted variable bias" and the slope coefficient "*b*" is likely to be biased. Additionally, Dr. Lesser states that this approach fails to consider differences in risk associated with those previously established allowed returns, such that it will not capture the fundamental relationship between risk and return. Thus, the resulting ERP value may not reflect a risk-comparable ROE and thus may not meet the Fair Return Standard. Another problem is to select a historical period where the relationship between the ERP and bond yields is constant and representative of current capital market conditions.[599]

In summary, Dr. Lesser cautions regulators when using a regression model to calculate the relationship between historical ERPs and bond yields, as they must evaluate the model itself, the time period selected, and the validity of the implicit assumptions that the estimated relationship will be valid on a going-forward basis. In Dr. Lesser's view, simple linear models relating ERPs to bond yields are fraught with empirical estimation issues that can lead to biased parameter values.[600] Additionally, Dr Lesser states that models that use historical allowed returns to estimate ERP values suffer from unavoidable circularity.[601] Dr. Lesser also states that, based on his experience over the last 20 years, he does not recommend use of the Risk Premium methodology.[602]

In response to these critiques, Mr. Coyne remarks that, after hearing these and other arguments in the context of setting ROEs for electric transmission companies, FERC ultimately concluded:[603]

> The Risk Premium model has a strong theoretical basis. We continue to find that the defects of the Risk Premium model do not outweigh the benefits of model diversity and reduced volatility resulting from the averaging of more models. […] While the Commission in Opinion No. 569 noted its concerns with the Risk Premium model as proposed by the Briefing Order, the Commission found in Opinion No. 569-A that these concerns are mitigated by modifications that the Commission made to the Risk Premium model as well as the fact that the Commission will average the results of the Risk Premium with the DCF and CAPM. We reaffirm this finding here.

Mr. Coyne states that he agrees with FERC that the benefits of the Risk Premium Model outweigh its weaknesses and the model provides a stabilizing influence when averaged with the CAPM and DCF model, which can be especially attractive in the presence of volatile market and economic conditions.[604] At the oral hearing, Mr. Coyne explained that he likes to use multiple models, including the risk premium, as "they give you a little bit more resilience from the pure market-based models, the DCF and the CAPM, that tend to get whip-sawed by [fluid and dynamic market] circumstances". [605]

This stabilizing influence and resilience can be seen in the table below, which presents Mr. Coyne's ROEs from the Risk Premium Model at different points in time throughout the proceeding. Those results reflect Mr. Coyne's

[599] Exhibit A-3, pp. 65–66.
[600] Exhibit A-3, p. 67.
[601] Exhibit A2-3, p. 67.
[602] Exhibit A2-8, Dr. Lesser Response to FortisBC IR 17.1.
[603] Exhibit B1-8-1, Appendix C, p. 63.
[604] Ibid.
[605] Transcript Volume 3, p. 171, Lines 16–26 to p. 172, Lines 1–9.

preferred approach of using the five-year forecast bond yield as the basis to compute the ROE. For clarity, these results do not include an adder for financial flexibility and flotation costs.

Table 32: Mr. Coyne's Risk Premium Model's ROE Results[606]

	Canadian Regulated Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
December 2021[607]	n.a.	9.97%	9.97%	10.01%	10.01%
September 2022[608]	n.a.	10.12%	10.12%	10.17%	10.17%
October 2022[609]	n.a.	10.12%	10.12%	10.16%	10.16%

FortisBC submits that the Risk Premium Model produces results that are supportive of Mr. Coyne's recommendations and merits the BCUC's consideration due to its theoretical validity and stability. FortisBC states that Dr. Lesser accurately characterizes the Risk Premium Model as "in effect, a simpler version of the CAPM", simpler because it focuses on bond yields as one driver of the cost of capital. While the Risk Premium Model is simpler, FortisBC notes that FERC recognizes its theoretical validity and value, as it has adopted the Risk Premium Model as one of its three methods (which it weights equally) for determining the cost of capital for regulated electric transmission companies.[610]

FortisBC notes that Mr. Coyne's Risk Premium Model involved examining the allowed ROEs from a large sample of US gas and electric distribution companies from 1992 to 2021 to determine the existence of a high correlation between allowed ROEs and government bond yields. Mr. Coyne then applies the regression results to current and forecast bond yields, with the latter resulting in a ROE of 10.12 percent and 10.16 percent for the US gas and electric proxy groups, respectively, based on October 2022 data. FortisBC notes that the results based on *current* bond yields (Dr. Lesser's preference) would be slightly higher because forecast government bond yields are lower than current government bond yields in October 2022.[611]

FortisBC concludes that the Risk Premium Model results are consistent with Mr. Coyne's recommended ROEs for FEI and FBC, both in terms of direction and magnitude. FortisBC stresses that these results are based on US utilities that have, on average, much thicker common equity ratios than FEI and FBC. Other things being equal, FortisBC submits that one would expect the ROE values to be higher when applied to a utility with thinner equity.[612]

[606] Information in the table is compiled from the referenced footnotes within the table.
[607] Exhibit B1-8-1, Appendix C, Figures 1, p. 4 and Figure 2, p. 5.
[608] Exhibit B1-8-1-2, Figure 1, p. 2 and Figure 3, p. 3.
[609] Exhibit B1-50, Figures 3 and 4, p. 6.
[610] FortisBC Final Argument, p. 138.
[611] Ibid., pp. 138–139.
[612] Ibid., p. 139.

Positions of Parties

The CEC

The CEC notes that the Risk Premium Model is simpler to understand and its use as a check for reasonableness of results is appropriate.[613]

RCIA

RCIA is the only intervener that made detailed final submissions in relation to the Risk Premium Model. In RCIA's view, this model is simple and provides accurate and reliable estimations of ROE, as well as an intuitive framework to understand other FortisBC ROEs and how the selection of assumptions impact ROE estimates.[614] RCIA submits that, even though Mr. Coyne's ROE recommendations are only based on the CAPM and Multi-Stage DCF and that Mr. Coyne's Risk Premium Model is not directly applicable to Canadian utilities, important insights can be gained from the Risk Premium Model, namely that:

1) Approved ROEs can be modelled using a simple regression analysis, using the bond yield as the independent variable; and
2) A statistically significant multi-year linear relationship exists between interest rates (bond yields) and risk premiums derived from US utilities' approved ROEs.[615]

RCIA notes that, while the model shows an inverse correlation between bond yields and risk premiums, as bond yields rise, the risk premium decreases, but by less than the nominal value of the bond yield increase. As shown in the regression results of Figure 3 and Figure 4, when bond yields increase by 100 bps, the risk premium decreases by 58.32 bps and 55.08 bps for US gas and electric utilities, respectively.[616] Thus, as shown in Table 31 above, RCIA notes that higher interest rate assumptions result in higher ROEs. RCIA submits that, in Table 31, "the interest rates were boosted by the forecast to be 0.65% and 1.53% higher, resulting in 0.27% and 0.64% higher ROE for U.S. Gas estimate and 0.29% and 0.69% higher ROE for U.S. Electric estimate."[617]

In RCIA's view, the problem with inclusion of forecast data is that the implied results are only appropriate if the actual data (i.e. bond yield) equal the forecast. RCIA notes that the inclusion of forecast values is also a point of disagreement between Mr. Coyne and Dr. Lesser, the latter of whom states that actual market prices inherently reflect expectations while forecasts are unreliable. RCIA is also concerned with using the average of multiple years and time periods to generate the (forecast) bond yield assumption. In RCIA's view, this approach introduces randomness and error akin to Dr. Lesser's dartboard analogy ("If markets are not efficient, then no methodology is accurate. You might as well throw darts at a dartboard.")[618]

RCIA submits that Mr. Coyne applies judgement to bolster the results derived from the modelling to benefit his client. In RCIA's submission, the recommended ROE is higher than would be the case had actual bond yields

[613] The CEC Final Argument, p. 40.
[614] RCIA Final Argument, p. 4.
[615] RCIA Final Argument, pp. 5–6.
[616] Ibid., p. 6.
[617] Ibid., p. 8.
[618] Ibid., p. 9.

(which is the basis of the construction of the regression analysis) been used. The result is a bias that produces a higher than required result. At a minimum, RCIA submits that to be considered, the Risk Premium Model should be based on non-biased assumptions and results.[619]

FortisBC Reply Argument

FortisBC remarks that RCIA favours using the Risk Premium Model as a primary model and characterizes it as "simple and provid[ing] accurate and reliable estimations of ROE". FortisBC has two points in response to RCIA's submissions:[620]

1) RCIA's proposed ROEs are far below what the Risk Premium Model suggests; and
2) The Risk Premium Model output reinforces the CAPM and Multi-Stage DCF results.

On the first point, FortisBC states that it is impossible to reconcile RCIA's endorsement of the Risk Premium Model with the ROE values that RCIA is advocating. RCIA's proposed ROE values of between 8.0 percent and 8.75 percent are far below the Risk Premium Model output based on October 2022 *forecast* bond yields (10.12 percent and 10.16 percent for US gas and electric proxy groups, respectively) and *actual* bond yields (10.17 percent and 10.22 percent for US gas and electric proxy groups, respectively[621]). The results based on actual bond yields (RCIA's preference) are higher in October 2022 because forecast government bond yields were lower than actual government bond yields. FortisBC reiterates that the October 2022 outputs are relatively constant with Mr. Coyne's recommended ROEs for FEI and FBC, both in terms of direction and magnitude.[622]

On the second point, FortisBC notes that RCIA argues that the Risk Premium Model reveals a potential weakness in Mr. Coyne's other models. Specifically, RCIA observes that the Risk Premium Model suggests that the ROE should increase as interest rates increase, and notes that Mr. Coyne's CAPM and DCF results have decreased slightly in September 2022 relative to December 2021 despite increasing interest rates.[623] FortisBC agrees and emphasizes that Mr. Coyne explains the transitory nature of the September 2022 results and that the October 2022 results have increased markedly and shift back to approximate those from December 2021. FortisBC submits that "RCIA's notion that the transitory results in September 2022 calls the model itself into question is predicated on the fallacy that all models should produce the same results at all times".[624] The reason why Mr. Coyne and Dr. Lesser both favour the use of multiple models is because the models have their own strengths and weaknesses and respond differently in different conditions. Mr. Coyne considers various models to check the reasonableness of his model and any model may, at specific times and due to events such as market disruptions, result in estimates that would require adjustments or judgement. FortisBC notes that Dr. Lesser's practice is no different.[625]

[619] RCIA Final Argument, p. 10.
[620] FortisBC Reply Argument, pp. 73–74.
[621] Exhibit B1-50, Scenario A.2, Gas and Electric Excel spreadsheets, Tab "JMC-FEI 7 Risk Premium".
[622] FortisBC Reply Argument, p. 73.
[623] Ibid.
[624] Ibid., p. 74.
[625] Ibid., pp. 73–74.

Panel Determination

The Panel considers that using multiple models recognizes that each of the models has its own strengths and weaknesses and responds differently in different conditions. Relying on more models is especially important at times when the pure market-based models like the DCF and CAPM tend to get whipsawed by volatility in the market. As a case in point, the Risk Premium Model yields ROE results that remain within a very narrow range of about 15 bps throughout the proceeding, whereas up and down movements in the CAPM and multi-stage DCF models have been a lot more pronounced at times.

Therefore, the Panel finds that considerable weight should be given to the use of a Risk Premium Model for the purposes of determining the appropriate ROE for FEI and FBC given the volatility in the market and economic conditions. The specific weight to be accorded the Risk Premium Model in the respective ROEs will be discussed in Section 6.3 (Overall Capital Structure and ROE).

The strengths of the Risk Premium Model outweigh its shortcomings. The Panel finds that a strength of the Risk Premium Model is its theoretical validity and stability. We also find that this model is easy to understand. A weakness of the Risk Premium Model is the circularity of the model, due to its reliance on prior regulatory decisions. However, the Risk Premium Model is not the only model that can be prone to similar circularity risks. For instance, in the DCF model, prior regulatory decisions on the proxy companies' authorized ROEs are likely to influence the inputs to the model such as utility stock prices. Consequently, the Panel considers that circularity concerns alone do not justify eliminating reliance on the Risk Premium Model, or any particular model, for determining the appropriate ROE for FEI and FBC. Instead, it is a factor in the overall consideration of model results.

Mr. Coyne states that he agrees with FERC that the benefits of the Risk Premium Model outweigh its weaknesses and the Risk Premium Model provides a stabilizing influence when averaged with the CAPM and DCF model, which can be especially attractive in the presence of volatile market and economic conditions. Although FERC's determinations are not binding on the BCUC, the Panel notes that FERC has recognized the theoretical validity and value of the Risk Premium Model, as it has adopted that model along with the CAPM and DCF model, which it weights equally for determining the cost of capital for regulated electric transmission companies in the US.

Having determined to give weight to the Risk Premium Model, the Panel must now decide what is the appropriate bond yield to use, whether current or forecast. To be consistent with its previous determination on the risk-free rate used in the CAPM (see Section 5.2.1), the Panel will also rely on the forecast for the yield on 30-year treasury bond, specifically the results using the five-year forecast:

Table 33: Mr. Coyne's Risk Premium Results - October 2022[626]

	Canadian Utilities	U.S. Gas Utilities	North American Gas Utilities	U.S. Electric Utilities	North American Electric Utilities
October 2022[627]	n.a.	10.12%	10.12%	10.16%	10.16%

[626] Information in the table is compiled from the referenced footnotes within the table.

[627] Exhibit B1-50, Figures 3 and 4, p. 6

Mr. Coyne did not adjust the Risk Premium Model ROE results by adding 50 bps to account for flotation costs or financial flexibility. The Panel understands that the Risk Premium Model relies on past regulatory decisions on authorized ROE to calculate the risk premium such that the underlying data points used in the equation are already inclusive of any adder regulators would have deemed appropriate.

Since there are not enough Canadian ROE decisions, Mr. Coyne has performed the regression analysis on US data only, and therefore, the Risk Premium Model results are applicable to US utilities. In the revised North American proxy groups from which Enbridge Inc. and Canadian Utilities Limited are removed, a majority of the proxy companies are from the US. As a result, the Panel finds that the Risk Premium Model ROE results are applicable to the revised North American proxy groups. Therefore, the Panel will use a Risk Premium Model ROE of 10.12 percent for FEI and 10.16 percent for FBC as it weights the different ROE models.

6.0 OVERALL PANEL DETERMINATION ON CAPITAL STRUCTURE AND ROE

Section 4 previously discussed the evidence and interveners' respective submissions on credit ratings and business risks as they relate to capital structure. In Section 5, the Panel reviews the various financial models used to calculate the ROE. In Section 6.1 below, the Panel considers FortisBC's and the interveners' recommended ROE, based largely on the results of these financial models before any flotation costs and financial flexibility adder and other adjustments. Section 6.2 focuses on the topic of flotation costs and financial flexibility. Finally, Section 6.3 considers FortisBC, the two experts (Mr. Coyne and Dr. Lesser), and the interveners' recommended capital structure and overall ROE, inclusive of all adders and other adjustments. Parties presented a range of reasonable possibilities in both the deemed equity component and allowed ROE in Stage 1. In the overall determination section, we give appropriate weight that reflects our findings above and make final determinations on the deemed equity component and allowed ROE for FEI and FBC, respectively.

6.1 ROE Before Adders and Other Considerations

FortisBC submits that the evidence in this proceeding supports a finding that the required cost of equity for FEI and FBC is, respectively, 10.1 percent (on 45 percent common equity) and 10.0 percent (on 40 percent common equity).[628] These figures are based on the US proxy groups and December 2021 data and consist of a simple average of Mr. Coyne's CAPM and Multi-Stage DCF model results. They are also inclusive of a 50-bps adder for flotation costs and financial flexibility.[629] FortisBC states that these proposed ROEs are based on the recommendations of Mr. Coyne, who is the only expert in this proceeding who conducted a full cost of capital analysis.[630]

In its final argument, FortisBC notes the experts' alignment on key aspects of the ROE analysis, including the use of multiple models, using Mr. Coyne's proxy groups with more reliance on North American proxy groups, and the reasonableness of relying primarily on the most recent October 2022 data.[631] FortisBC states that Mr. Coyne's model results based on October 2022 data align with current economic and market conditions[632] and

[628] FortisBC Final Argument, p. 121.
[629] Exhibit B1-8-1, Appendix C, Figure 1, p. 4, Figure 2, p. 5.
[630] FortisBC Final Argument, p. 121.
[631] Ibid., para. 244(b), p. 121.
[632] Ibid., para. 249, p. 124.

notes that there is a reasonable alignment between results based on the October 2022 data and the December 2021 data.[633]

BCOAPO points out that Mr. Coyne's original evidence, based on the December 2021 data, recommends ROEs for FEI and FBC of 10.1 percent and 10.0 percent, respectively but the updated information Mr. Coyne provided using October 2022 data results in ROEs of 9.5 percent and 9.63 percent for FEI and FBC, respectively[634]. Despite this, BCOAPO notes that FortisBC's position in its final argument remains the same as it was prior to the oral hearing. BCOAPO questions why FortisBC still pursues the higher ROEs in the face of more current data. BCOAPO submits that the evidence is clear that FortisBC's position is not based on the best evidence available and as such, FortisBC's applied-for ROE levels should not be approved.[635]

As this section focuses on the ROE before any adders for flotation costs, financial flexibility, or other considerations, subtracting 50 bps from the aforementioned FortisBC's requested ROEs yields ROEs of 9.51 percent for FEI and 9.50 percent for FBC, respectively.

Like FortisBC, the interveners have based their respective ROE recommendations on either a simple average of their CAPM and Multi-Stage DCF model ROEs (ICG, BCOAPO and the CEC) or on the CAPM ROE, only (RCIA), but have not incorporated the ROE derived from the Risk Premium Model into their ROE recommendations. Reflecting our cumulative determinations on the various inputs to the CAPM (such as a preference to use forecast bond yields to estimate the risk-free rate and a constant DCF model to estimate the forward-looking MRP, as well as giving equal weight to the historical and forward-looking MRP, and not including a Hamada adjustment or a size premium), we do not propose to further review the CAPM ROE recommendations made by ICG, BCOAPO and RCIA because they all favour different inputs into the CAPM. Similarly, our earlier acceptance of a 30-trading-day period to calculate utility stock prices and dividend yields in the Multi-Stage DCF model also means that we will not consider the Multi-Stage DCF ROE recommendations made by BCOAPO and the CEC that favour a 90-trading-day average. Consequently, we do not propose to review in detail the interveners' ROE recommendations before any flotation costs and financial flexibility adder and other adjustments.

6.2 Flotation Cost and Financial Flexibility

6.2.1 Flotation Cost

Flotation costs are associated with issuing new equity, which include legal fees, out-of-pocket expenditures for the preparation, filing, underwriting, and other costs associated with the issuance of common equity.[636] Both Mr. Coyne and Dr. Lesser note that regulators often include an allowance for flotation costs.[637] However, the experts have a difference in opinion on how flotation costs should be recovered and the size of the adjustment for flotation costs.

[633] FortisBC Final Argument, para. 295, p. 146.
[634] These figures are based on 90-day average stock prices and interest rates.
[635] BCOAPO Final Argument, p. 54.
[636] Exhibit A2-3, p. 82, Exhibit B1-8-1, Appendix C, p. 69.
[637] Ibid., Executive Summary, p. 2, Exhibit B1-8-1, Appendix C, p. 69.

Recovery Mechanism

Mr. Coyne submits that because the purpose of the allowed rate of return in a regulatory proceeding is to estimate the cost of capital the regulated company would incur to raise money in the "primary" markets, an estimate of the returns required by investors in the "secondary" markets must be adjusted for flotation costs in order to provide an estimate of the cost of capital that the regulated company requires.[638] Mr. Coyne explains that if FEI and FBC were standalone utilities and issued their own equities, the associated flotation costs could have been recovered in cost of service. In the absence of this possibility given the utilities are not publicly traded, the addition of flotation cost to the ROE is the only feasible approach.[639]

Furthermore, Mr. Coyne explains that flotation costs are part of the invested costs of the utility, which are reflected on the balance sheet under "paid in capital." They are not current expenses, and therefore, are not reflected on the income statement. Like investments in rate base or the issuance costs of long-term debt, flotation costs are incurred over time, remain part of the cost structure and as such, should be recovered through ROE.[640] The effect of the ROE adder for flotation costs is to treat issuance costs as if they are a rate base item on which FEI and FBC earn a return that flows back to Fortis Inc. as compensation for incurring the costs.[641]

Mr. Coyne submits that flotation cost is compensated each and every year rather than only on the incremental amount of capital as a result of a change in capital structure. Mr. Coyne further explains that the equity is permanent capital, and flotation cost is a charge for having the equity infused into the company.[642] In other words, as Mr. Coyne notes, "unlike debt, equity has an indefinite life and does not mature. Therefore, costs associated with the equity issuance are recovered over the life of the equity."[643]

In contrast, Dr. Lesser states that he favours compensating utilities for the actual flotation costs incurred, and states it may be more reasonable to include actual flotation costs (or an estimate of those costs) as an expense to be recovered in the regulated utility's cost of service.[644] In particular, if the utility is not traded publicly, but is a subsidiary of a publicly traded parent, and the parent company issues new equity to finance investment by the utility subsidiary, then the most equitable way to compensate the utility is by allowing it to recover all of the known and measurable costs of the stock issuance, rather than through an arbitrary increase in allowed ROE that is unlikely to reflect those actual issuance costs.[645] Dr. Lesser elaborates that an adjustment for flotation costs to allowed ROE will compensate the utility based on its rate base, not on the actual flotation costs incurred, and that an arbitrary percentage is likely to overcompensate the utility for flotation costs.[646] Hence, Dr. Lesser points out that "FERC does not grant a flotation cost adjustment to allowed ROE unless the firm under review can demonstrate it issued stock and incurred flotation costs."[647]

[638] Exhibit B1-8-1, Appendix C, p. 69.
[639] Exhibit B1-9, BCUC IR 43.4.
[640] Exhibit B1-21, Part 2, p. 22.
[641] Transcript Volume 3, p. 346.
[642] Ibid., pp. 342–343.
[643] Exhibit B1-13, RCIA IR1 31.3.
[644] Exhibit A2-3, p. 85.
[645] Exhibit A2-20, BCUC IR 6.3.
[646] Exhibit A2-3, p. 85.
[647] Ibid.

Size of an ROE adder for Flotation Cost

Regarding the appropriate size of flotation costs, Mr. Coyne makes adjustments to the DCF and CAPM results by 50 bps for flotation costs and financing flexibility.[648] However, while Mr. Coyne does not provide a breakdown of the 50-bps adjustment separating flotation costs from financing flexibility, Mr. Coyne notes that for an electric proxy group in the US, flotation costs are typically in the range of 10 to 15 bps and the remainder would be for financing flexibility (i.e. 35 to 40 bps).[649]

Dr. Lesser provides his view on issuance costs as a percentage of equity issued and notes that flotation costs typically have ranged between two percent and five percent of issuance costs[650] to which Mr. Coyne assesses, "doesn't sound unreasonable."[651] Using an assumed flotation cost equal to five percent of total issuance cost and Dr. Lesser's methodology to calculate flotation cost, Mr. Coyne converts Dr. Lesser's data into basis points of ROE, indicating that issuance costs of that magnitude represent approximately 21 to 25 bps of ROE for the gas proxy groups and 19 to 25 bps for the electric proxy groups.[652] Mr. Coyne notes that his estimate of 10 to 15 bps and Dr. Lesser's estimates of 25 bps are "within the range of what we would expect to see for issuance costs."[653]

Table 34: Flotation Cost Adder: Dr. Lesser's Methodology

Flotation Cost Adder: Dr. Lesser's Methodology (basis points)

Proxy Group	FEI	FBC
Canadian Regulated	25	25
US Gas	21	
North American Gas	24	
US Electric		19
North American Electric		20

6.2.2 Financial Flexibility

Financial flexibility refers to a margin, or cushion, for unanticipated capital market conditions,[654] or also as spare borrowing capacity[655] and ability to continue to raise equity in challenging capital market conditions.[656]
Dr. Lesser and Mr. Coyne disagree on inclusion of costs for financial flexibility to compensate for raising capital. Also, if financial flexibility is accounted for, there are varying opinions as to whether the financial flexibility adder should form part of the allowed ROE or deemed equity component of the capital structure.

Dr. Lesser

Dr. Lesser notes that in the academic literature, financial flexibility appears to be defined as having spare borrowing capacity and additional cash-on-hand, and thus, appears to be more related to the optimal capital

[648] Exhibit B1-8-1, Appendix C, p. 72.
[649] Exhibit B1-9, BCUC IR 43.2; 50-bps adjustment less flotation costs range of 10-15 bps equals to 35–40 bps for financial flexibility costs as the residual.
[650] Exhibit A2-3, p. 82.
[651] Transcript Volume 4, p. 624, ll. 5-17 and p. 625, ll. 6-23.
[652] Exhibit B1-25, BCUC IR1 6.1.
[653] Transcript Volume 3, p. 354.
[654] Exhibit A2-20, BCUC IR 6.6; 2013 Decision, p. 79.
[655] Exhibit A2-20, BCUC IR 6.6.
[656] Exhibit B1-8-1, Appendix C, p. 69.

structure and less one of the allowed ROE.[657] Therefore, because financial flexibility is related to capital structure, it is Dr. Lesser's opinion that, if the BCUC wishes to increase the allowed returns earned by FEI and FBC to account for financial flexibility, such flexibility is best incorporated into the capital structure the BCUC sets for FEI and FBC by adjusting each utility's deemed equity ratios.[658] He does not consider an adder for financial flexibility to be just and reasonable.[659] Dr. Lesser also explains that given the efficiency of capital markets, it is unclear why a regulated utility requires an allowance above its allowed ROE as a financial cushion to enable it to raise funds "under a variety of economic and market conditions," nor whether this "variety" of conditions is limited solely to financial crises, which are themselves undefined.[660] He questions whether the benefits to ratepayers of this financial cushion exceed the costs.[661]

Mr. Coyne

Mr. Coyne submits that financial flexibility is necessary so that utilities such as FEI and FBC have the ability to raise capital under a variety of economic and market conditions, including periods such as the financial crisis of 2008/2009 and the COVID pandemic of 2020 to 2022.[662]

Additionally, Mr. Coyne submits that the optimal approach would be to establish financial parity with the US peer group, so that from an investor perspective, they are receiving equivalent returns and the utility would have comparable financial strength during all market conditions.[663] Mr. Coyne submits that if a Canadian regulator was looking to establish financial parity with US peers, then establishing comparable equity ratios (in the 50 percent to 52 percent range) and comparable allowed ROEs (9.5 percent to 10.0 percent range) would accomplish that objective,[664] and in doing so, would obviate the need for a "financial flexibility" adder to the ROE, as the Canadian utility would now have financial comparability to its US peers which do not have an equivalent adder.[665]

In response to undertakings to the oral hearing, Mr. Coyne performed a WACC analysis to calculate how the proposed 50-bps flotation cost and financial flexibility ROE adder can be reflected in the capital structure. Mr. Coyne determined that FEI's deemed equity ratio would need to increase by 2.0 percent to 2.3 percent for FEI and by 2.1 percent for FBC to account for recovery of flotation costs and financial flexibility through each utility's deemed capital structure. The results are summarized in the following table:

[657] Exhibit A2-20, BCUC IR 6.6.
[658] Ibid.
[659] Ibid.
[660] Ibid.
[661] Ibid.
[662] Exhibit B1-9, BCUC IR 43.1.
[663] Exhibit B1-51, BCUC IR 1.3.
[664] Ibid., BCUC IR 1.1.
[665] Ibid.

Table 35: Adjustment to Equity Ratio[666]

Adjustment to Equity Ratio for Flotation Costs and Financial Flexibility		
	Equity Ratio	Adjusted for Flotation and Financial Flexibility
FEI – current	38.5%	40.51%
FEI – proposed	45.0%	47.34%
FBC – current/proposed	40.0%	42.10%

As noted above, Mr. Coyne does not provide a breakdown of the 50-bps adjustment separating flotation costs from financing flexibility but Concentric explains that for an electric proxy group in the US, flotation costs are typically in the range of 10 to 15 bps and the remainder would be for financing flexibility (i.e. 35 to 40 bps).[667]

FortisBC

FortisBC submits that an adjustment for financial flexibility is required to compensate FortisBC for the additional margin of equity above approved equity ratio that it must maintain to remain compliant with the ring-fencing provision. FortisBC explains that ring-fencing occurs when a regulated public utility business financially separates itself from a parent company that engages in non-regulated business in order to mitigate possible risks arising from the financial status of the parent companies and non-regulated affiliates. A common concern cited in support of ring-fencing is the potential for a parent company to leverage the utility beyond the allowed equity thickness so as to earn an equity return on what is, in reality, debt financing.[668] Therefore, in order to consistently comply with this condition and to manage market volatilities, FortisBC explains that FEI maintains a cushion in its equity structure since its actual capital structure is not constant and will inevitably fluctuate depending on its financing needs.[669]

FortisBC argues that most Canadian regulators apply a premium to the approved ROE to account for the needed financial flexibility. In contrast, the majority of US regulators do not "deem" the equity thickness and rely upon the utility's actual stand-alone capital structure at the end of the test year.[670] FortisBC further states that the financial flexibility adder to the allowed ROE recognizes this fact and provides some compensation to the equity investor for the added layer of equity it provides above the regulated common equity ratio. In the absence of the financial flexibility adder, FEI would not be compensated for the additional margin of equity above approved equity ratio that it must maintain to remain compliant with this provision.[671]

In the oral hearing, FortisBC explained to the Panel that it tries to be in a position where it is "not slipping below the level of equity in the deemed [capital] structure."[672] FortisBC confirms its strategy to include financial flexibility in order to manage a capitalization that is "conservative and takes into account market disruptions so

[666] Exhibit B1-50, Undertaking No. 2, Attachment U.2.
[667] Exhibit B1-9, BCUC IR 43.2; 50-bps adjustment less flotation costs range of 10–15 bps equals to 35-40bps for financial flexibility costs as the residual.
[668] Exhibit B1-51, BCUC IR 2.1.1.
[669] Exhibit B1-51, BCUC IR 2.1.1.
[670] Exhibit B1-50, Undertaking #2, p. 1.
[671] Exhibit B1-51, BCUC IR 2.1.1.
[672] Transcript Volume 5B, p. 858.

that we [FortisBC] are never in a position where we're [FortisBC] over levered", regardless of whether it has an actual equity thickness of 38.5 percent or 45 percent or a different equity thickness.[673] An excerpt from the Transcript for the oral hearing is provided below:[674]

> COMMISSIONER LOSKI: I have a follow-up question, Mr. Lorimer. That strategy you just described, do you anticipate that would be the same if you have an equity thickness of 38 and a half percent or 45 percent or something else?
>
> MR. LORIMER: A: You know, to me it's a good strategy in either case. You know, I think that, you know, provides that level of comfort that we're not straying too far over and always on the proper side of the allowed return -- or the allowed equity fitness. I think to the extent you got, you know, less and less levered and you got a view from our rating agencies that they were comfortable, I guess, with the amount of leverage that we had. You know, there's probably more of an opportunity that more -- a bit less conservative on how that's done. But, you know, generally, like I'd like to be in a position where I can say that we're not slipping below the level of equity in the deemed structure. And especially for FEI, I guess, where the ring-fencing provisions are in and, you know, the requirements to keep at that level are a little bit more firm. You know, try to make sure that we're always cognizant of those provisions as well.

In addition, FortisBC submits that the existing 50-bps adder is helping to sustain FEI and FBC's existing credit ratings. The removal of the adder could be viewed as credit negative, particularly if the adjustment becomes "lost in broader business and financial risk considerations if evaluated with equity ratios."[675]

Positions of Parties

FortisBC submits that the BCUC should find that issuance costs[676] for FEI and FBC are reasonably estimated as being at least 25 bps.[677] With regards to financing flexibility, FortisBC submits that firstly, it compensates the utility for maintaining a buffer of equity above the deemed equity ratio, which is key to financial integrity. Second, from the perspective of comparable earnings and capital attraction, it addresses the lower overall returns in Canada relative to US companies with which Canadian utilities compete for capital.[678] In addition, FortisBC submits that the "existing 50 bps adder is helping to sustain FEI's and FBC's existing credit ratings."[679]

The CEC, ICG and BCOAPO support FEI's proposed adders for flotation costs and financial flexibility to varying degrees.

The CEC and ICG support a 50-bps adder for flotation costs and financial flexibility.[680]

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[673] Transcript Volume 5B, p. 857.
[674] Ibid., pp. 857– 859.
[675] Exhibit B1-51, BCUC Undertaking IR 1.3.
[676] The terms "floatation costs" and "issuance costs" are used interchangeably.
[677] FEI and FBC Final Argument, p. 184.
[678] Ibid.
[679] FortisBC Final Argument, pp. 191–192.
[680] The CEC Final Argument, p. 57, ICG Final Argument, p. 17. It is noted that the CEC and ICG have double-counted the 50-bps adder, as they both added 50 bps to ROE figures that were already inclusive of a 50-bps adder for flotation costs and financial flexibility.

The CEC submits that the continuation of a 50-bps adder for flotation costs and financial flexibility is warranted and reasonable.[681] In addition, the CEC submits that a company may raise more capital than explicitly needed and carry a buffer amount of equity above its deemed equity ratio thus supporting its financial flexibility and integrity which "also goes some distance to compensate for lower overall returns in Canada relative to US companies."[682] The CEC submits that US utilities do not have an adder for flotation costs and financial flexibility, and that US utilities have in fact been provided considerable flexibility.[683] The CEC suggests that the BCUC may want to enable utilities in BC to have some of the flexibilities US utilities use to avoid the need for an explicit adder. Furthermore, the CEC recommends that in the processes triggered out of this proceeding, it would be useful to ask FEI, as the Benchmark Utility, to recommend to the BCUC flexible processes that US utilities have which could make the cost of capital processes simpler and operational without the need for adders.[684] BCOAPO does not disagree that issuance costs are valid but, in BCOAPO's submission, there is not sufficient evidence on the record to establish any specific ROE adjustment. "At best, BCOAPO submits that it can confidently opine that it is likely no more than 25 basis points and could be materially less."[685]

BCOAPO also argues that access to capital under reasonable terms and conditions is already one of the considerations involved in determining the appropriate capital structure for each of FEI and FBC. As a result, BCOAPO submits that the inclusion of any market accessibility considerations in the determination of the appropriate ROE and the equity ratio is unjustifiable, as it results in "double-counting" and skews the results higher.[686] BCOAPO acknowledges that, in its final argument, FortisBC adopts Mr. Coyne's position that the flotation adjustment also serves to recognize that authorized equity ratios in Canada are less than those in the US.[687]

Overall, BCOAPO submits that the flotation cost adjustment of 50 bps is reasonable provided the BCUC recognizes that a portion of adjustment is to account for differences in the authorized equity ratios in Canada versus the US and this is recognized when setting the equity ratios for FEI and FBC.[688]

In its reply argument, FortisBC notes that interveners acknowledge that a fair return must account for flotation costs and financial flexibility.[689]

Panel Determination

Financial Flexibility

For the reasons set out below, the Panel finds that the appropriate way to account for required financial flexibility is to adjust the utility's capital structure.

[681] The CEC Final Argument, p. 57.
[682] Ibid.
[683] Ibid., p. 58.
[684] Ibid.
[685] BCOAPO Final Argument, p. 56.
[686] Ibid., pp. 56–57.
[687] BCOAPO Final Argument, p. 57.
[688] Ibid.
[689] FortisBC Reply Argument, p. 75.

The Panel accepts Dr. Lesser's statement that financial flexibility appears to be defined as having spare borrowing capacity and additional cash-on-hand, and thus, appears to be more related to the optimal capital structure and less one of the allowed ROE.[690]

However, Dr. Lesser concludes from this position that flexibility is best incorporated into the capital structure the BCUC sets for FEI and FBC by adjusting each utility's deemed equity ratios. He therefore does not consider an adder for financial flexibility to be just and reasonable.

Mr. Coyne does not appear to disagree. He submits that "if a Canadian regulator was looking to establish financial parity with US peers, then establishing comparable equity ratios (in the 50 percent to 52 percent range) and comparable allowed ROEs (9.5 percent to -10.0 percent range) would accomplish that objective[691] – and in doing so, would obviate the need for a 'financial flexibility' adder to the ROE, as the Canadian utility would now have financial comparability to its U.S. peers which do not have an equivalent adder".
Having found Dr. Lesser's approach to dealing with financial flexibility to be reasonable, the Panel will consider the issue of financial flexibility when it determines the approved capital structure for the two FortisBC public utilities.

Flotation Costs

The Panel accepts that any reasonable and prudently incurred flotation costs incurred by a public utility are recoverable from ratepayers, over and above the approved costs of capital. However, there is no evidence before the Panel that FEI or FBC incurs any flotation costs and therefore there are no costs to recover. Instead, FEI and FBC argue that because their parent incurs flotation costs on their behalf, FEI and FBC should be entitled to a Flotation Cost "adder".

The Panel disagrees. Generally speaking, costs incurred by an unregulated parent are not recoverable from a regulated subsidiary, unless those costs are directly allocated and billed to the subsidiary for services legitimately performed by the parent. This can include approved allocations of costs forecast or incurred by the parent on behalf of its regulated subsidiaries. However, there is no direct link evident to the Panel between the proposed flotation cost adder and actual costs incurred or expected to be incurred by the parent. For example, the adder will be the same if there is an annual equity injection by the parent or if such equity injection only occurs every five years or never occurs.

The Panel finds that the proposed flotation cost adder is too vague to be a just and reasonable expense recoverable from ratepayers. It is a very rough estimate of the actual flotation costs of shares issued by the parent when it issues its own shares to obtain the funds used to purchase the shares of its subsidiaries. Therefore, we reject the proposal to use the flotation cost adder.

FEI and FBC can request recovery of actual costs incurred by the parent by providing applicable invoices or other supporting documentation from the parent when FEI and FBC issue additional equity. That supporting documentation should provide enough detail to enable the BCUC to review it to determine that is a just and reasonable expenditure. Those expenditures, if and as incurred, can be recovered from the ratepayers of FEI, or

[690] Exhibit A2-20, BCUC IR 6.6.
[691] Exhibit B1-51, BCUC IR 1.1.

FBC as the case may be, following review and approval as part of each utility's Revenue Requirement process in the normal course.

6.3 Overall Capital Structure and ROE

Since experts, and the interveners' respective submissions on capital structure, financial model ROE results, adders and other adjustments, have already been reviewed in previous sections, this section will narrowly focus on jointly presenting the interveners' recommended capital structure and overall ROE figures, inclusive of all adders for flotation costs, financial flexibility and other considerations.

FortisBC submits that the BCUC should approve, in accordance with the Fair Return Standard, FEI's proposed common equity ratio of 45 percent with an ROE of 10.1 percent, and FBC's proposed common equity ratio of 40 percent with an ROE of 10.0 percent.[692] These figures are based on the US proxy groups and December 2021 data and consist of a simple average of Mr. Coyne's CAPM and Multi-Stage DCF model results. They are also inclusive of a 50-bps adder for flotation costs and financial flexibility.[693]

Mr. Coyne's recommended increase of FEI's equity ratio from 38.5 percent to 45.0 percent is due primarily to higher business risks as compared to 2016, which include accounting for "elevated Energy Transition risk in BC".[694] Further, Mr. Coyne submits that his recommended 45.0 percent equity ratio for FEI is the "approximate midpoint between average deemed equity ratio for Canadian investor-owned gas distribution companies and the authorized equity ratio for U.S. gas distribution companies since January 2020."[695]

Mr. Coyne explains that capital structure and the cost of common equity are closely linked in determining the fair return for regulated utilities. Other factors being equal, firms with lower common equity ratios require higher rates of return to compensate for the additional financial risks in the form of financial leverage to which their shareholders are exposed. Accordingly, regulators must consider capital structure and cost of common equity together to determine whether the Fair Return Standard has been met.[696]

In its 2013 Decision, the BCUC stated:

> The Commission Panel confirms that the approval of rates to meet the FRS [Fair Return Standard] is not optional for the Commission. In other words, the Commission has a duty to approve rates that will provide a reasonable opportunity to earn a fair return on invested capital, which is consistent with the previous ROE decisions and the Regulatory Compact. In determining the fair return, this Commission Panel examines the overall return, i.e., the ROE and the common equity component, allowed to the utility.[697]

Because capital structure and ROE are inextricably linked, Mr. Coyne compares the weighted ROEs (authorized equity return multiplied by deemed equity ratio) for FEI and other large Canadian investor-owned gas distribution companies in Table 36.

[692] FortisBC Final Argument, p. 3.
[693] Exhibit B1-8-1, Figure 1 and Footnote 1, p. 4, Figure 2 and Footnote 2, p. 5.
[694] Exhibit B1-20, BCUC IR 76.1.1.1.
[695] Ibid., BCUC IR 71.8.
[696] Exhibit B1-8-1, Appendix C, p. 147.
[697] 2013 Decision, p. 12.

Table 36: Comparison of Authorized Equity Returns for FEI[698]

Operating Utility	Equity Return	Equity Ratio	Weighted ROE
FortisBC Energy Inc. (existing)	8.75%	38.50%	3.37%
FortisBC Energy Inc. (proposed)	10.1%	45.00%	4.55%
ATCO Gas	8.50%	37.00%	3.15%
Enbridge Gas[224]	8.66%	36.00%	3.12%
Energir[225]	8.90%	38.50%	3.43%
Canadian Gas Average	8.69%	37.17%	3.23%
Canadian Gas Median	8.66%	37.00%	3.15%
U.S Gas LDC Average	9.48%	52.0%	4.93%
U.S. Gas Proxy Group Average	9.45%	53.4%	5.05%

As shown in the above table, FEI's current weighted equity return of 3.37 percent is within the range of other large gas distributors in Canada, with Energir having the highest weighed ROE. Mr. Coyne states that the proposed weighted ROE for FEI, at 4.55 percent, while higher than its Canadian peers, is justified by both the shift in overall industry risk due to the Energy Transition and updated market return data, as well as by averages for the US gas proxy group.[699]

Table 37 presents a comparison of authorized ROE, deemed equity ratios, and weighted ROEs for other Canadian investor-owned electric distribution companies. As shown in that table, FBC's weighted equity return, at 3.66 percent, is within the range of weighted equity returns in Canada, with Newfoundland Power at 3.83 percent having the highest weighted ROE. Mr. Coyne states that the proposed weighted ROE for FBC, at 4.00 percent, is more in line with FBC's current risk profile and current market data and moves the company closer to, but not within the range of, its US peers.[700]

Table 37: Comparison of Authorized Equity Returns for FBC[701]

Operating Utility	Equity Return	Equity Ratio	Weighted ROE
FortisBC Inc. (existing)	9.15%	40.00%	3.66%
FortisBC Inc. (proposed)	10.0%	40.00%	4.00%
ATCO Electric	8.50%	37.00%	3.15%
Nova Scotia Power	9.00%	37.50%	3.38%
Hydro One Ltd.	8.66%	40.00%	3.34%
Newfoundland Power	8.50%	45.00%	3.83%
FortisAlberta	8.50%	37.00%	3.15%
Maritime Electric	9.35%	40.00%	3.74%
Canadian Electric Average	8.75%	39.42%	3.45%
Canadian Electric Median	8.50%	38.75%	3.36%
U.S. Electric Average	9.50%	49.64%	4.72%
U.S. Electric Proxy Group Average	9.59%	49.76%	4.77%

[698] Exhibit B1-8-1, Appendix C, Figure 64, p. 149.
[699] Ibid., Appendix C, pp. 149–150.
[700] Exhibit B1-8-1, Appendix C, p. 151.
[701] Ibid., Figure 65, p. 151.

Mr. Coyne differentiates business and financial risk in the following manner: business risk is inherent in a company's operations whereas financial risk relates to fixed obligations, but both are taken together to establish return requirements. Mr. Coyne states, "[b]usiness risk is the risk inherent in the company's operations, irrespective of how the company is financed. Business risk for a regulated utility results from variability in cash flows and earnings that impact the ability of the utility to recover its costs including the fair return on, and of, its capital in a timely manner." [702] Mr. Coyne notes that the BCUC has typically found the level of business risk to be an important factor in determining the allowed capital structure, and bases his capital structure recommendations on this risk analysis. For financial risk, Mr. Coyne explains financial risk exists to the extent a company incurs fixed obligations in financing its operations as evidenced by the relative percentages of debt and equity in the capital structure.[703]

In comparison, Dr. Lesser describes business risks as generally reflected in the determination of the allowed ROE whereas financial risks are most directly related to a firm's capital structure, credit rating, and cost of debt.[704] Dr. Lesser notes that business risk can encompass multiple dimensions and regulators would likely have to make subjective determinations of these differences, their significance, and appropriate ways to compensate for the differences. That might entail adjustments to allowed ROE or it might entail other mechanisms, such as creating or modifying balance account mechanisms.[705] Dr. Lesser states, one may have to adjust the equity return to account for certain business risks and adjust the capital structure to account for financial risk.[706] In contrast, Mr. Coyne describes the return to the equity investor as a function of both the equity ratio and the authorized ROE.[707]

Positions of Parties

The views of the Interveners on the appropriate capital structure for FEI and FBC are summarized in Table 38 and Table 39 below. For each of BCOAPO, the CEC and ICG, their recommended overall ROE figures in those two tables are inclusive of a 50-bps adder for financial flexibility and flotation cost. The BCUC calculates the interveners' resulting recommended weighted ROEs to facilitate the comparison with FortisBC's requests on capital structure and ROE.

Table 38: Capital Structure and ROE for FEI[708]

	Recommended Equity Component	Recommended Overall ROE	Recommended Weighted ROE
BCOAPO	40.00-42.00%	9.50%	3.80-3.99%
The CEC	40.00%	9.62%	3.85%
RCIA	40.00%	8.00-8.75%	3.20-3.50%

[702] Exhibit B1-8-1, Appendix C, p. 73.
[703] Ibid.
[704] Exhibit A2-24, BCOAPO IR 14.1.
[705] Exhibit A2-5, BCOAPO IR 10.
[706] Oral Hearing Transcript, Volume 4, p. 631.
[707] Exhibit B1-9, BCUC IR 60.2.
[708] BCOAPO Final Argument, pp. 65, 58, The CEC Final Argument, pp. 47, 43, RCIA Final Argument, pp. 31, 35, Recommended weighted ROE calculated by the BCUC.

Table 39: Capital Structure and ROE for FBC[709]

	Recommended Equity Component	Recommended ROE	Recommended Weighted ROE
ICG	38.50%	8.80%	3.39%
BCOAPO	40.00%	9.50%	3.80%
The CEC	40.00%	9.56%	3.82%
RCIA	40.00%	8.00-8.75%	3.20-3.50%

The following summarizes FortisBC's reply as it relates to interveners' submissions on the utilities' recommended capital structure, overall ROEs and/or the interplay between those two concepts.

ICG

With respect to ICG's submission, FortisBC highlights ICG's internal inconsistent reasoning to reach its low result:

i) On the one hand, ICG agrees that the BCUC should give the greatest weight to the North American proxy group when determining the ROE, which is, "no doubt, influenced by the fact that this tends to reduce FBC's ROE significantly relative to using the Canadian proxy group"; and

ii) On the other hand, ICG does the opposite to determine the common equity ratio as it advocates using the simple Canadian utilities median of 38.75 percent equity, rounded down without explanation to 38.5 percent, and giving "no weight" to the same U.S. proxy group companies that ICG advocates using for the ROE calculation. As the North American electric proxy group has an average equity ratio well above FBC's proposed equity ratio, ICG's approach tends to suppress the common equity ratio as well. FortisBC stresses that ICG's differing approaches are internally inconsistent because the common equity ratio and ROE and intertwined; ROE determinations are affected by the common equity ratio, and *vice versa*. FortisBC remarks that all the October 2022 ROE calculations based on the North American proxy group, which ICG wants to use, assume that the BCUC has accepted FBC's proposed common equity ratio of 40 percent. Even then, the U.S. electric proxy companies still have about 10 percent thicker equity on average (49.7 percent), such that the differential with the North American electric proxy group is substantial. FortisBC submits that FBC's ROE would be even more understated if the BCUC were to accept ICG's position of 38.5 percent equity. Applying a Hamada adjustment to the Lesser CAPM Results (30-day average stock prices and interest rates) for the North American proxy group at 38.5 percent equity increases the estimated ROE by 35 bps to 7.95 percent.[710]

Finally, FortisBC points out that ICG has not accounted for any size premium for FBC and offers no explanation for it. FortisBC stresses that both experts agree that the CAPM will understate ROE results for companies like FBC that are smaller than the proxy companies and reiterates that the size premium calculated by Mr. Coyne based on the Duff & Phelps approach is 105 bps.[711]

[709] ICG Final Argument, pp. 16,15, BCOAPO Final Argument, pp. 70, 58, The CEC Final Argument, pp. 51, 43, RCIA Final Argument, pp. 31, 35. Recommended weighted ROE calculated by the BCUC.
[710] FortisBC Reply Argument, pp. 55–56.
[711] Ibid., p. 55.

BCOAPO

With respect to BCOAPO's submission, FortisBC notes that BCOAPO endorses an ROE of 9.5 percent for both FEI and FBC, on 40 to 42 percent and 40 percent equity, respectively, inclusive of a 50-bps adjustment for flotation and financial flexibility, an adjustment for FEI and FBC's lower equity thickness, and a size premium for FBC. FortisBC states that BCOAPO's recommendations acknowledge that the cost of capital has increased since the BCUC last set FEI and FBC's respective ROEs but that BCOAPO's calculations still understate the required ROE due to its reliance on an implausibly low Lesser CAPM result and mathematical errors.[712] FortisBC states that the latter error skews BCOAPO's results downward significantly.[713]

Based on BCOAPO's methodology, FortisBC demonstrates how BCOAPO's recommended CAPM ROE should have been calculated as 9.51 percent instead of 9.01 percent, an error which carries forward when BCOAPO averages the CAPM and Multi-Stage DCF model results. The correction of BCOAPO's mathematical error in the overall average of BCOAPO's proposed CAPM and multi-stage DCF model for the BCOAPO-revised North American electric proxy group increases BCOAPO's ROE result from 9.04 percent to 9.29 percent.[714]

Furthermore, as noted in Section 5.2.2, FortisBC submits that the 12-bps upward adjustment for FEI that BCOAPO adds to account for its thinner proposed equity than the 45 percent basis for all the ROE model calculations is clearly insufficient. Applying a Hamada adjustment to Mr. Coyne's CAPM results for the BCOAPO-revised North American proxy group at 42 percent equity increases BCOAPO's estimated ROE by 45 bps. FortisBC submits that the ROE increase would be even larger at 40 percent (i.e. the lower end of the BCOAPO's recommended range for FEI's equity thickness).[715] Finally, FortisBC submits that BCOAPO miscalculates FBC's size premium and correcting that error alone yields an ROE of more than 10 percent. Indeed, FortisBC submits that the proper 105-bps size adjustment alone would increase BCOAPO's calculated ROE for FBC to approximately 10.09 percent, assuming 40 percent equity.[716]

The CEC

With respect to the CEC's submission, FortisBC stresses that the CEC's significant concessions, in terms of increased equity thickness and ROE for FEI and increased ROE for FBC, are indicative of the overwhelming body of evidence demonstrating that the cost of equity has increased since the BCUC last considered FEI and FBC's respective ROEs. However, FortisBC views the CEC's recommended ROEs as being understated in two respects.

The first relates to the 80-bps deduction which accounts for most of the difference between the CEC's and Mr. Coyne's respective recommendations. The second relates to the interplay between equity thickness and ROE. FortisBC points out that the modelling underlying the CEC's recommendations for FEI is premised on a 45 percent common equity ratio, but the CEC is recommending a 40 percent ratio. FortisBC states that both experts confirm that increasing the disparity between FEI's equity ratio and that of the proxy group will increase the required ROE. FortisBC points out that Mr. Coyne chooses not to include a Hamada adjustment to his CAPM results only because he also recommends to increase FEI's equity ratio to 45 percent, thus significantly

[712] FortisBC Reply Argument, p. 44.
[713] Ibid., p. 45.
[714] Ibid., p. 46.
[715] FortisBC Reply Argument, p. 46.
[716] Ibid., p. 47.

narrowing the equity disparity with the gas proxy groups. But FortisBC states that this logic will no longer hold at the CEC's recommended 40 percent equity for FEI and applying a Hamada adjustment to Mr. Coyne's CAPM results for the North American gas proxy group at 40 percent equity would increase the estimated ROE for FEI by 48 bps to 10.78 percent.[717]

RCIA

With respect to RCIA's submission, FortisBC points out that RCIA arrives at its proposed ROEs of 8.00 percent to 8.75 percent for both FEI and FBC by ignoring the Multi-Stage DCF model (and the higher results[718]) altogether, by applying unsupported downward adjustments to Mr. Coyne's CAPM results, by ignoring the most current data, and by failing to account for differentials in financial risk and size premium. FortisBC submits that updating RCIA's own calculations to reflect October 2022 data alone significantly closes the gap with Mr. Coyne's recommendations, and rectifying other shortcomings brings them further into alignment.[719]

As explained in Section 5.2.5, with the first adjustment, RCIA's CAPM-based ROE would increase to 9.43 percent, which is significantly higher than its proposed 8.00 percent to 8.75 percent. Averaging this 9.43 percent with the Multi-Stage DCF model results for the Canadian proxy group of 10.46 percent based on October 2022 data would result in an ROE of 9.94 percent for both FEI and FBC. FortisBC submits that these values support Mr. Coyne's recommendations of 10.1 percent on 45 percent common equity for FEI and 10.0 percent on 40 percent common equity for FBC.[720] Then, applying a Hamada adjustment to RCIA's own CAPM calculations, updated to October 2022 data for the Canadian proxy group at 40 percent equity, would increase the estimated ROE for FEI and FBC by 47 bps to 9.90 percent.[721] And adding a size premium for FBC, which Mr. Coyne calculates at 105 bps based on Duff & Phelps data, would further increase the CAPM ROE for FBC.[722]

Overall Panel Determination on Capital Structure and ROE

Deemed Equity Component

FortisBC proposes an equity thickness of 45.0 percent for FEI and 40.0 percent for FBC, while interveners recommend 40.0 percent to 42.0 percent for FEI and 38.5 percent to 40.0 percent for FBC. Mr. Coyne observes that his recommended 45.0 percent equity ratio for FEI is the approximate midpoint between the average equity ratio of Canadian investor-owned gas distribution companies and US gas distribution companies.

While the Panel views the 37.0 percent to 53.4 percent equity thickness of comparable Canadian and US gas utilities (see Table 36 above) as a possible range of equity thickness for FEI, this does not imply that any point within the range will meet the Fair Return Standard. The Panel is not convinced that determining a deemed equity component can be done in a precise manner such as taking an average between certain numbers. A capital structure that is optimal for FEI or FBC may not be optimal for other utilities. The Panel must assess the business risk, financial risk, and other items such as accounting for differences in leverage in the proxy group

[717] FortisBC Reply Argument, pp. 43–44.
[718] The Multi-Stage DCF model results are higher than the CAPM results based on October 2022 data, not December 2021 data.
[719] FortisBC Reply Argument, p. 47.
[720] FortisBC Reply Argument, pp. 50–51.
[721] 9.43% + 0.47% = 9.90%.
[722] FortisBC Reply Argument, p. 51.

companies used in the modelling (e.g. a Hamada adjustment in the CAPM results) and allowing for financial flexibility, all of which may be difficult to quantify when estimating the required equity component.

Further, Mr. Coyne's "midpoint" observation does not align with his recommendation for FBC's deemed equity ratio of 40.0 percent, where the Canadian electric average is 39.42 percent and the US electric proxy group average is 49.76 percent as shown in Table 37 above.

Throughout this decision, the Panel notes that certain factors should be considered as part of the capital structure determination, namely:

- Compensation to the shareholder for the business and financial risks of FEI and FBC (Sections 4.2 and 4.3).
- The approach to addressing the discrepancy in financial risk through an adjustment to the capital structure (Section 5.2.2).
- Consideration of financial flexibility to the extent that it is required for FEI and FBC to have spare borrowing capacity. However, Mr. Coyne submits that financial flexibility is not necessary if the regulator establishes comparable equity ratios in the 50 percent to 52 percent range and comparable ROEs in the 9.5 percent to 10.0 percent range (Section 6.2.2).
- Benefits of maintaining the current credit ratings of FEI and FBC (Section 4.1).

In Section 4 of this decision, we assess how business risk has changed since 2016 for FEI and 2013 for FBC from the perspective of their shareholder and investors. We discuss that Energy Transition risk for FEI is a real shareholder risk in Section 4.2, while other increased risk categories are largely borne by ratepayers. Overall, an increase in FEI's equity component is warranted to compensate for the increased risks faced by FEI's shareholder and investors.

The Panel recognizes that Dr. Lesser describes business risks to be generally reflected in the determination of the allowed ROE because financial risks are most directly related to a firm's capital structure, credit rating, and cost of debt. However, there is no supporting evidence for his view. In contrast, Mr. Coyne's view is that there is a need to adjust either the capital structure or the ROE. Therefore, it follows that regulators must consider capital structure and cost of common equity together to determine whether the Fair Return Standard has been met.

For practical reasons, given the inter-relationship of all these factors, the Panel will continue the approach of reflecting changes in business risks as adjustments to the capital structure, recognizing that it will also impact the ROE. This approach is consistent with past BCUC decisions and provides room for the exercise of informed judgment.

In determining the optimal capital structure for FEI, the only expert evidence is Mr. Coyne's recommendation of 45.0 percent and his cost of capital analysis is largely built around this 45.0 percent equity thickness. Further, Mr. Coyne chooses not to make Hamada adjustments to his own CAPM results because his recommended common equity ratio of 45.0 percent for FEI would "significantly narrow the equity disparity with the gas proxy

group."[723] The Panel agrees that any deviation from a 45.0 percent equity thickness, for example, setting FEI's equity thickness at the 40.0 percent to 42.0 percent range, may warrant a corresponding impact on the allowed ROE.

In the absence of contrary expert evidence and recognizing that FEI shareholder's real business risks, such as the impacts from the Energy Transition risk have increased since 2016, we accept Mr. Coyne's recommended 45.0 percent equity thickness for FEI. The Panel finds that the 45.0 percent equity thickness meets the comparable investment and capital attraction requirements in the Fair Return Standard because 45.0 percent is premised on FEI's proxy group and supported by our assessment of FEI's business risk. Further, as compared to FEI's current 38.5 percent equity thickness, an increase to 45.0 percent will maintain FEI's financial integrity.

The Panel now turns to financial leverage and financial flexibility. The Hamada adjustment and financial flexibility are partially related. The objective is to harmonize FEI and FBC's financial leverage to be comparable with peer proxy companies. For FEI, we acknowledge that 45.0 percent meets the Fair Return Standard and is supported by business risk assessment, comparable investments, and expert recommendation. In our view, a 45.0 percent equity component forms an optimal capital structure based on the evidence in Stage 1.

Further, since FortisBC's own expert acknowledges that 45.0 percent would "significantly narrow" the equity disparity and bring FEI's equity thickness towards the 50.0 percent to 52.0 percent range applicable to its proxy group, the Panel is not persuaded that increasing FEI's equity thickness beyond 45.0 percent to incorporate a further adjustment for financial flexibility or ring-fencing is required in order to meet the Fair Return Standard. Therefore, **the Panel determines that the deemed equity component for FEI is 45.0 percent.**

For FBC, we note that FortisBC's proposed 40.0 percent equity thickness and interveners' positions are mostly aligned. Mr. Coyne also recommends 40.0 percent equity thickness for FBC. However, ICG submits that the BCUC should set FBC's equity thickness at 38.5 percent, which is based on the Canadian Electric median of 38.75 percent and submits that FBC's business risks are lower since 2013.[724] The Panel agrees with FortisBC that ICG's final arguments are unclear because on one hand, ICG submits that "the BCUC should place the greatest weight on the North American proxy group results"[725] but on the other hand, "the US proxy group should be no weight when determining FBC's equity ratio."[726] Therefore, we place no weight on ICG's recommendation to set FBC's deemed equity thickness at 38.5 percent.

As discussed in Section 4.3, the Panel finds that FBC's business risk overall has not changed materially since 2013. The Panel views that business risk assessment of FBC should be the primary factor to the determination of a fair capital structure. This is because we see that financial impacts, in part, result from our decision on the deemed capital structure. FBC has managed to maintain its current credit rating since 2013 at 40.0 percent equity thickness. Therefore, we find that no change in FBC's equity component within its current capital structure is warranted to reflect no material changes in its business risk.

Notwithstanding these findings, the Panel now needs to consider financial leverage and financial flexibility for FBC to determine whether any upward adjustment to its 40.0 percent equity thickness is warranted. FortisBC

[723] FortisBC Reply Argument, p. 43.
[724] ICG Final Argument, pp. 3–4.
[725] Ibid., p. 10.
[726] Ibid., p. 16.

and Mr. Coyne are not recommending any capital structure changes for FBC and have not explicitly recommended a size premium in the CAPM analysis for FBC.

While 40.0 percent equity thickness is in line with the Canadian electric utility average of 39.42 percent, it is much lower than the US electric proxy group average of 49.76 percent. We accept Mr. Coyne's observation that his FBC recommendation is in line with FBC's current risk profile, but not within the range of its US peers. In light of our decision to consider financial leverage and financial flexibility in the capital structure, we find that a modest upward adjustment in equity thickness of 1.0 percent for FBC is warranted to conform with the Fair Return Standard. Therefore, **the Panel determines that the deemed equity component for FBC is 41.0 percent.**

Return on Equity

The Panel is persuaded by Dr. Lesser's view that, in addition to being anchored in financial theory and being transparent, models used by regulators to set the cost of capital for regulated utilities should ideally minimize reliance on subjective factors. Dr. Lesser states that 'subjective' adjustments to model results are those made without any underlying basis in financial theory and no empirical support, and he advises against these types of adjustments, as they can undermine confidence that the resulting allowed ROE values are 1) just and reasonable and 2) consistent with reasonable decision-making.

Previously in this decision, the Panel made certain determinations that are departures from, namely the 2013 and 2016 BCUC cost of capital decisions. One change worth highlighting is the Panel's determination to use North American proxy groups, based on a finding that using North American data, consisting of a reasonable mix of both Canadian and US comparators, is superior to using either Canadian proxy groups or US proxy groups alone.

Furthermore, the Panel accepts Mr. Coyne's beta estimates, which are Blume-adjusted, noting that both experts in this proceeding favour the use of Blume-adjusted betas and that none of the parties object to their use. The Panel is also reassured to see that empirical evidence exists to show that the Blume adjustment is applicable to all betas, ranging from a low of 0.50 to a high of 1.53. The Panel recognizes that the use of Blume-adjusted betas is a departure from the previous two BCUC cost of capital decisions and has the effect of increasing the CAPM ROE as the Blume-adjusted betas for Mr. Coyne's North American proxy group average 0.86, compared to a BCUC-accepted beta of 0.60 in the 2013 and 2016 Decisions.

Also, the Panel finds that it is appropriate to consider forward-looking estimates in determining the MRP and to base that forward-looking MRP on the Constant DCF model, which has been given equal weighting to the historical MRP. These determinations are also departures from previous BCUC decisions. In particular, the 2016 Decision placed more weight on historical MRP estimates than on the forward-looking ones and no weight on the DCF estimates of the forward-looking MRP (constant growth or Multi-Stage DCF). The Panel acknowledges that these determinations also increase the CAPM ROE relative to placing more weight on historical MRP or to using the Multi-Stage DCF model to estimate the forward-looking MRP.

Beyond these findings, the Panel takes the approach of making determinations that have a sound basis in financial theory, that are transparent and easily replicated, with minimal 'subjective' adjustments. The Panel agrees with Dr. Lesser and finds it preferable to get the allowed ROE value right based on the models rather than

adjusting the allowed ROE after the fact, such as adding adders for financial flexibility and flotation costs or considering other adjustments as suggested by some interveners.

To balance the fact that pure market-based models like the DCF model and CAPM tend to get whipsawed by volatile conditions in the market, which characterized much of the period during which evidence was filed in this proceeding, the Panel finds that relying on more models than just the CAPM and Multi-Stage DCF is especially important. Accordingly, the Panel determined earlier in this decision that considerable weight should also be given to the use of the Risk Premium Model, instead of simply using it as a reasonableness check as Mr. Coyne advocates.

Ultimately, the Panel finds that assigning an equal weighting to each of the three models is appropriate for the following reasons: 1) the Panel sees merit in all three models, recognizing their respective strengths and weaknesses, and behaviour under different market conditions; 2) the Panel would be hard pressed to say that one model is fundamentally superior to the others; and 3) the Panel sees no compelling reason to give anything other than equal weighting to each of the three models.

The following table summarizes the Panel's previous individual determinations related to the ROE estimates based on the CAPM, Multi-Stage DCF model, Risk Premium Model, and the flotation costs and financial flexibility adders to arrive at its ROE determination for FEI and FBC, respectively.

Table 40: Allowed ROE for FEI and FBC

Models	Revised North American Gas Proxy Group	Revised North American Electric Proxy Group
CAPM – excluding flotation costs and financial flexibility adder (see Section 5.2.5)	9.90%	9.77%
Multi-Stage DCF model – excluding flotation costs and financial flexibility adder (see Section 5.3.3)	8.93%	8.99%
Flotation costs and financial flexibility adders for the CAPM and Multi-Stage DCF models only (see Section 6.2)	0.00%	0.00%
Risk Premium Model (see Section 5.4.3)	10.12%	10.16%
Average of all three models	**9.65%**	**9.64%**

From a purely mathematical standpoint, FEI would have an allowed ROE that is 1 bps higher than FBC. However, the Panel does not view that such differentiation in allowed ROE is warranted. The difference in utility characteristics is already reflected in the deemed capital structure for FEI and FBC. **The Panel finds that an allowed ROE of 9.65 percent for each of FEI and FBC will meet the Fair Return Standard based on the evidence examined and submissions received in Stage 1.**

For the reasons stated above, the Panel determines the following:

- **For FEI, a deemed equity component of 45.0 percent and an allowed ROE of 9.65 percent; and**
- **For FBC, a deemed equity component of 41.0 percent and an allowed ROE of 9.65 percent.**

Although the allowed ROEs for both utilities are determined to be the same for FEI and FBC, the Panel notes that the reasoning behind the utilities' overall cost of capital determinations are fundamentally different. As a natural gas distribution utility, FEI's shareholder and investors are faced with higher business risk driven primarily by the Energy Transition. Hence, FEI's deemed equity component is higher than that of FBC. In contrast, while the Panel finds that FBC's business risks are similar since it was last reviewed, FBC is a relatively small utility with weaker financial metrics. Lastly, the financial models using the most recent October 2022 data and the appropriate proxy groups yielded very similar ROE results for both FEI and FBC.

FortisBC and Mr. Coyne introduce the weighted ROE concept, and the table below is a compilation of weighted ROEs presented by the parties compared to the Panel's decision.

Table 41: Comparison of Weighted ROEs for FEI and FBC

	FEI	FBC
Existing	3.37%	3.66%
Proposed	4.55%	4.00%
Canadian Average	3.23%	3.45%
U.S. Average	4.93%	4.72%
Proposed by interveners	3.20-3.99%	3.20-3.82%
Decision	9.65% * 45.0% = 4.34%	9.65% * 41.0% = 3.96%

Our decision falls within the range between the Canadian and US averages, as well as almost exactly halfway between the high-end of the interveners' recommendations and FortisBC's proposal. As explained in the reasons above, we find that the deemed equity thickness and allowed ROEs for each of FEI and FBC meet the Fair Return Standard. The Panel expects that our decision will fairly compensate investors' opportunity cost, maintain financial integrity of the utilities, and enable each utility to continue to attract new capital upon reasonable terms.

7.0 EFFECTIVE DATES AND STAGE 2 OF THE GCOC PROCEEDING

Having made our determinations on FEI and FBC's respective cost of capital, we now examine the appropriate timeline for the changes to come into effect. FEI and FBC currently have interim rates in place, effective January 1, 2023.[727] The BCUC invited parties to address the following:[728]

1. The effective dates for which FEI and FBC's cost of capital will take effect and the rationale; and
2. The timing and process to commence Stage 2.

The BCUC also invited further submissions on the effective date for all other utilities that use the Benchmark Utility to set their own cost of capital.[729]

[727] FEI Annual Review for 2023 Delivery Rates, Decision and Order G-352-22 dated December 5, 2022; FBC Application for Reconsideration and Variance of Order G-382-22, Decision and Order G-87-23 dated April 19, 2023.
[728] Exhibit A-26.
[729] Exhibit A-31.

FEI is the current benchmark (Benchmark Utility) for other utilities in BC that use a Benchmark Utility to set rates. In the April 2022 procedural conference, PNG, Corix, and RDE submitted that the choice of a Benchmark Utility is better addressed in Stage 2, after the BCUC determines FEI and FBC's cost of capital in Stage 1.[730]

As previously determined, in Stage 2, the Panel will consider, amongst other matters, whether FEI remains the appropriate default Benchmark Utility for some or all other utilities in BC, whether FBC is a more appropriate benchmark, or whether each utility's allowed ROE and deemed capital structure should be individually determined.

We summarize the parties' submissions below on the two issues identified above.

Positions of the Parties

Effective Dates for FEI and FBC

For FEI and FBC's cost of capital effective date, most parties support an effective date of January 1, 2023. FortisBC submits that January 1, 2023, reflects the evidence based on mid-2021 and December 2022 data of when the cost of capital analysis took place. Further, January 1, 2023, reflects current investor expectations based on recent data and would not delay the implementation on the utilities' right to earn a fair return.[731] Similarly, the CEC submits that January 1, 2023, would provide "equitable relief for FEI and other utilities as soon as possible" and "implementation can be factored into customer bills… to avoid having a larger catch-up."[732] ICG and RCIA also support the January 1, 2023 effective date.[733]

Nelson Hydro strongly disagrees with an effective date of January 1, 2023, and is "opposed to any retroactive rate increase for FBC,"[734] but does not propose a specific date other than "subsequent to a decision being made by the Panel."[735]

In response to Nelson Hydro, FortisBC states that the "January 1, 2023 implementation date is not "retroactive" in the legal sense, as FBC's rates are currently interim."[736] FortisBC argues that Nelson Hydro's approach "would contravene the Fair Return Standard"[737] and that the "legally permissible solution" is for Nelson Hydro to request approval for a deferral account (to capture the impacts of the change to FBC's cost of capital for 2023 on energy costs for recovery).[738]

[730] Order G-106-22, Reasons for Decision, p. 4.
[731] FortisBC Final Argument, p. 199.
[732] The CEC Final Argument, p. 60.
[733] ICG Final Argument, p. 18; RCIA Final Argument, p. 33.
[734] Nelson Hydro Final Argument, p. 1.
[735] Ibid., p. 2.
[736] FortisBC Reply Argument, p. 84.
[737] Ibid.
[738] Ibid.

Timing and Process to Commence Stage 2

FAES suggests commencing Stage 2 at a minimum of 60 days following the BCUC's issuance of this GCOC Stage 1 Decision. [739] At the time of its January 2023 final arguments, Nelson Hydro submits that the appropriate commencement of Stage 2 is summer of 2023 when it has more capacity available to participate. [740]
The CEC recommends scheduling Stage 2 "as quickly as possible so that implementations [sic] for all utilities can be done this year with smooth implementations [sic]."[741]

Effective Dates for Utilities that Use the Benchmark Utility to Set Rates

Stage 2 is expected to examine the cost of capital for all other utilities such as PNG, Corix, Creative Energy, Nelson Hydro, RDE, FAES, and others, with the exception of BC Hydro. The Panel discusses AMPC's submissions with respect to the latter in Section 8.3 of our decision.

Utilities and interveners submit that the BCUC should avoid retroactive ratemaking as a matter of regulatory principle.[742] Submissions regarding the mechanisms to implement any rate changes varied, ranging between the use of interim rates, deferral accounts, compliance filing for updates, or aligning all utilities' effective dates to be the same. For instance, Corix submits that if the BCUC sets the Benchmark Utility's cost of capital, effective January 1, 2023, then the effective date for other utilities that uses the Benchmark Utility should be:[743]

1. January 1, 2023 for utilities that have interim rates in place, effective January 1, 2023;
2. The first day of the month following GCOC Stage 1 Decision's issuance for utilities that do not have interim rates but have an existing deferral account that can be used to absorb the impact of the change in ROE or capital structure; or January 1, 2024.

Corix also submits that regardless of the FEI effective date, each utility can submit compliance filings to the BCUC seeking approval or acceptance depending on their specific circumstances to update their tariffs and implement rate changes as required.[744] RDE is of a similar view, advocating for the opportunity to submit a compliance filing.[745]

FAES notes that the use of the Benchmark Utility for rate setting is "inherently designed to facilitate automatic changing of the rates of return for those utilities if the BCUC approves a change in the Benchmark Utility."[746] The CEC submits that to the extent that the BCUC issues a decision for FEI or FBC, effective either January 1, 2023 or January 1, 2024, prior to the completion of Stage 2, then the utilities relying on the existing Benchmark should be similarly adjusted on January 1, 2023 or January 1, 2024, respectively.[747] Creative Energy submits that the appropriate effective date to make changes for utilities using the Benchmark Utility should be consistent with

[739] FAES Final Argument, p. 1.
[740] Nelson Hydro Final Argument, p. 2.
[741] The CEC Final Argument, p. 60; the CEC Submission dated May 31, 2023.
[742] RCIA Submission dated May 31, 2023, p. 1, BCOAPO Submission dated May 31, 2023, p. 1, Corix Submission dated May 31, 2023, p. 2.
[743] Corix Submission dated May 31, 2023, pp. 1–2.
[744] Corix Submission dated May 31, 2023, p. 3.
[745] RDE Submission dated May 31, 2023, p. 2.
[746] FAES Submission dated May 31, 2023, p. 3.
[747] The CEC Submission dated May 31, 2023, p. 1.

the date approved for FEI. The changes to rates should be made as soon as reasonably practical.[748] Nelson Hydro reiterates that FBC should not be permitted to utilize an effective date of January 1, 2023, for any changes to its cost of capital and that no changes should are warranted until the completion of the Stage 2. It submits that the fair and efficient implementation of rates for all utilities and their ratepayers should take place on a prospective basis only.[749]

With the implementation options available, utilities and interveners consider ratepayer impacts and the practicality of implementing rate changes. RCIA submits that implementing changes, effective January 1, 2024, allows for a more reasonable transition period and provides utilities and ratepayers more time to adapt to any changes.[750] PNG submits that implementing rate changes, effective January 1, 2024, will allow the other utilities to establish permanent rates for 2023. This provides rate stability and certainty for 2023 and will minimize rate impacts and amounts to be recovered from/refunded to ratepayers in the future.[751] PNG also argues that first applying other utilities' existing risk adjustments to FEI's new capital structure and ROE, and then applying the other utilities' new risk adjustment to the identified Benchmark Utility (or Utilities) will be administratively cumbersome and may cause unnecessary rate volatility for customers.[752] Similarly, RDE views that establishing new customer rates upon conclusion of Stage 1 will add significant regulatory burden and introduce inefficiency to the rate-setting process.[753] In contrast, Corix submits that delaying the implementation of changes until the completion of Stage 2 has a compounding effect and could result in a larger rate increase for customers as opposed to two smaller rate increases.[754]

FAES notes that the utilities and interveners propose a wide variety of opinions which reflect the unique characteristics of each utility. FAES submits that rate changes for each affected utility should occur independently according to their specific circumstances.[755]

Panel Determination

Effective Dates for FEI and FBC

The Panel agrees with FortisBC that the effective date for FEI and FBC's cost of capital should reflect the evidence examined throughout Stage 1. We note that the evidentiary record closed in December 2022. FEI and FBC already have interim rates as of January 1, 2023, in place awaiting the results of Stage 1. Thus, the earliest possible date to implement FEI and FBC's new cost of capital is January 1, 2023. We find that the effective date to implement changes should align with the period in which the evidence was examined to allow FortisBC to earn a fair return, and the date that best reflects the currency of that evidence is January 1, 2023.

The Panel acknowledges Nelson Hydro's opposition to implementing rate changes for FBC's cost of capital, effective January 1, 2023, on the basis that all utilities should implement rate changes on a prospective basis

[748] Creative Energy Submission dated May 31, 2023, p. 1.
[749] Nelson Hydro Submission dated May 31, 2023, pp. 1–2.
[750] RCIA Submission dated May 23, 2023, p. 1.
[751] PNG Submission dated May 31, 2023, p. 2.
[752] Ibid., p. 3.
[753] RDE Submission dated May 31, 2023, p. 2.
[754] Corix Submission dated May 31, 2023, p. 4.
[755] FAES Response dated June 14, 2023, pp. 1–2.

only. The BCUC sets rates prospectively subject to certain exceptions[756] as acknowledged by the courts such as in the *ATCO Gas & Pipelines Ltd. V. v Alberta (Energy & Utilities Board)* Decision.[757] However, we note that the BCUC had previously contemplated the possibility of a January 1, 2023 effective date, pending the results of Stage 1 and had approved interim rates for the FortisBC utilities for 2023 in the event that the BCUC determined that such effective date is appropriate. Therefore, we are not persuaded that FortisBC's cost of capital implementation should be delayed to 2024.

The Panel determines that the deemed capital structure and allowed ROE for FEI and FBC as set out in Section 6.3 of this decision be implemented, effective January 1, 2023. **Each of FEI and FBC is directed to file, within 30 days of the date of this decision, a compliance filing for January 1, 2023 permanent rates, and if applicable, an evidentiary update for each utility's 2024 Annual Review proceedings to reflect and implement the deemed capital structure and allowed ROE as approved**.

Effective Dates for Utilities that Use the Benchmark Utility to Set Rates

As for other utilities that uses the Benchmark Utility to set their rates, the Panel concurs with FAES that there is a wide variety of opinions presented. We understand that each utility has its own preferences, and some utilities are undergoing their own rate proceedings and are at different stages. We also knowledge that absent specific exceptions, retroactive ratemaking is not permissible as a matter of regulatory principle. Furthermore, it would be unfair for utilities to retrospectively collect or refund customer monies without an appropriate mechanism for doing so or without adequate notice to ratepayers. However, while each utility's situation may be unique, some balance must be factored in to ensure consistency and fair treatment amongst all utilities.

In terms of the specific mechanism, the Panel considers that the benefits of establishing interim rates for all other utilities that use a Benchmark Utility to set their capital structure and equity return outweigh other mechanisms. Setting interim rates for all other utilities, effective January 1, 2024, allows the BCUC to make any adjustments at the conclusion of Stage 2. Ratepayers will be provided adequate notice that the rates they pay in 2024 will be subject to any changes resulting from Stage 2.

In the absence of notice to affected ratepayers of potential rate changes in 2023 arising from the BCUC's determinations in Stage 1, we are not persuaded that some utilities that already have interim rates in 2023 should be allowed to make rate adjustments in 2023, simply because they were granted interim rates, pending a final decision on permanent rates for each utility's respective rate proceedings. The same applies to some utilities that may already have regulatory deferral accounts that can capture timing differences in the allowed return.

Further, the establishment of any new deferral accounts can only capture differences on a prospective basis. In either case of using previously approved interim rates or deferral accounts, the Panel finds that customers are not given proper notice that the existing rates they are currently paying may change due to a pending GCOC decision. This is in direct contrast to FBC and FEI, which have flagged the issue of the effective date of the cost of capital throughout Stage 1 as a matter that required determination, and sought and received BCUC approval for interim 2023 rates during the utilities' Annual Review proceedings specifically for that purpose.

[756] For example, through interim rates or deferral accounts.

[757] Supreme Court of Canada, ATCO Gas & Pipelines Ltd. v. Alberta (Energy & Utilities Board), [2006] 1 S.C.R. 140, 2006 SCC 4 dated February 9, 2006, p. 179.

As for any automatic adjustments prior to and during Stage 2 due to changes to the Benchmark Utility's deemed capital structure and allowed ROE, the Panel agrees with RCIA, PNG and RDE that predictable rates and regulatory efficiency are important factors. Establishing interim rates, effective January 1, 2024, for all utilities that use the Benchmark Utility is just and reasonable. No adjustments are warranted to backdate a utility's earned return to January 1, 2023, or between the date of this GCOC Stage 1 Decision and January 1, 2024.

We also find that it would be inappropriate to increase other utilities' allowed ROE automatically based on their existing ROE premium in isolation, but without any consideration of their deemed capital structure. Further, we note PNG, Corix and RDE at the April 2022 procedural conference requested that the Benchmark Utility be determined after the outcome of Stage 1. Since then, no utilities have notified or requested of the BCUC in this proceeding that their rates be made interim in order to address the potential impacts of the BCUC's determinations on their rates in the various stages of the GCOC proceeding.

Therefore, the Panel directs that interim rates, effective January 1, 2024, be established on a refundable or recoverable basis for all other utilities that currently use the Benchmark Utility to set their capital structure and equity return, pending the BCUC's final decision on Stage 2. The BCUC will determine the manner by which any variance between approved interim rates and permanent rates, including interest if any, will be refunded or recovered at the time the BCUC renders its final decision on Stage 2.

For greater clarity, the interim rates to be established for utilities, effective January 1, 2024, do not apply to FBC, as its deemed capital structure and allowed ROE have been determined in Stage 1 and are effective January 1, 2023.

Timing and Process to Commence Stage 2

We agree with the CEC that Stage 2 should commence as soon as possible. FAES suggests that a minimum of 60 days following this GCOC Stage 1 Decision. Previous procedural orders established the scope of Stage 2.[758] Upon further review, the Panel amends item 1 by adding "neither" to reflect that no benchmark is also a plausible scenario.

PROCEEDING SCOPE – Stage 2

1. Whether the Benchmark Utility should be FEI, FBC, both, or neither. The groupings of public utilities for cost of capital determinations.

2. The establishment of the cost of capital for public utilities, or groups of public utilities, except for BC Hydro.

3. Whether any range or default in the equity component and equity risk premium is warranted for public utilities, or groups of public utilities.

4. Whether the determination of a deemed interest rate is warranted. If warranted, then:

    a) The circumstances where a deemed interest rate is required.

[758] Order G-106-22, Appendix C.

b) The determination of the deemed interest rate where required.

c) Whether an interest rate AAM is warranted.

d) The effective date for which the deemed interest rate or interest rate AAM will take effect.

5. Any items that may be identified during the proceeding to be considered in Stage 2. The Panel will communicate any additional items to participants.

The Panel remains of the view that the first step in Stage 2 is to address whether FEI should continue as the appropriate default Benchmark Utility for some or all other utilities in BC, whether FBC is a more appropriate benchmark, or whether each utility's allowed ROE and deemed capital structure should be individually determined. The BCUC has previously invited a round of submissions in June 2021.[759]

We acknowledge that utilities and interveners may wish to provide updated submissions given this GCOC Stage 1 Decision. However, recognizing that parties already have some background on the matter, we consider that an expedited regulatory timetable will help progress Stage 2 to examine and set the cost of capital for all other utilities in BC. Given this GCOC Stage 1 Decision, the Panel also invites parties to file submissions with respect to any appropriate modifications to the scope of Stage 2 that the BCUC previously established.

Therefore, the Panel confirms Stage 2 will commence 60 days after the date of this decision.

8.0 OTHER ISSUES

8.1 Automatic Adjustment Mechanism

The scope for GCOC Stage 1 as established by Order G-281-21 includes consideration of the potential reinstatement of an AAM formula as part of the ROE. [760] If the re-establishment of the ROE AAM formula is warranted, then the Panel must determine: (a) the specifications of the ROE AAM formula; (b) the frequency with which the ROE AAM formula will apply (i.e. annually or some other frequency) and the entities to which the AAM will apply; and (c) the date for which the ROE AAM formula will take effect.[761]
An AAM represents a formulaic approach to setting the ROE of the Benchmark Utility annually between ROE proceedings.[762]

In 1994, the BCUC first implemented an AAM based on changes to long-term Canada bond rates,[763] which underwent various changes and iterations[764] until 2009 when it was eliminated. That elimination was based on the BCUC's determination at that time that the AAM would not have provided an ROE that met the Fair Return Standard.[765]

[759] Order G-183-21.
[760] Exhibit A-8, Appendix B to BCUC Order G-281-21, p. 1 of 2.
[761] Ibid.
[762] BCUC 2013 GCOC Stage 1, Letter L-53-13, Appendix A, p. 1.
[763] In the Matter of Return on Common Equity – BC Gas Utility Ltd., Pacific Northern Gas Ltd., West Kootenay Power Ltd. -- Decision and Order G-35-94, June 10, 1994.
[764] Exhibit B1-8, Table 9-1, p. 57.
[765] Terasen Gas Inc., Terasen Gas (Vancouver Island) Inc., and Terasen Gas (Whistler) Inc., and Return on Equity and Capital Structure (2009 TGI ROE), Decision to Order G-158-09, p. 72.

In 2013, the AAM was re-instituted on the basis that it offered the potential for regulatory efficiency and would better meet the Fair Return Standard than giving no consideration to market changes over the period between ROE proceedings.[766] The BCUC established a two-variable model taking into account utility bond spreads, as well as long-term Canada Bond yields.[767] However, in recognition of the effect of monetary policy on bond rates, the BCUC directed any implementation of the AAM be subject to an actual long-term Canada bond yield of 3.8 percent being met or exceeded (estimate of 3.8 percent was deemed reasonable by the BCUC and was within the relatively narrow range of estimates presented by all experts).[768] Therefore, the AAM formula would only apply if the long Canada bond yield was above 3.8 percent.[769]

In 2016, the BCUC suspended further use of an AAM as a mechanism to adjust ROE on an annual basis, as the BCUC was not persuaded that the AAM was appropriate given "uncertain" economic conditions, nor would it necessarily result in an ROE that would meet the Fair Return Standard given it does not reflect all items that affect a utility's ROE.[770] Nonetheless, BCUC indicated that it continued to hold the view that an effective AAM can be a useful tool in providing an updating mechanism for ROE, as this would eliminate some of the need for lengthy and expensive formal reviews. The BCUC suggested that once there is a return to more certain economic conditions with more normal interest rates, re-implementation of an AAM would be worthy of further consideration.[771]

In the current proceeding, FortisBC notes various drawbacks of the AAM: (i) it is not guaranteed to result in regulatory efficiency; (ii) it does not capture all factors that affect a utility's cost of capital such as an individual company's financial and business risk, proxy companies' earnings growth, and beta values; and (iii) the AAM formula is based on historical relationships that are not guaranteed to hold in future years, especially in uncertain capital markets.[772] Consistent with previous proceedings, FortisBC believes that an AAM formula cannot capture all of the changes facing a utility's cost of capital and it can yield a return that does not meet the Fair Return Standard.[773] FortisBC notes this is particularly true in the current economy where monetary and fiscal policies in response to the COVID-19 pandemic have resulted in significant uncertainty in capital markets that do not reflect the historical relationship between interest rates and equity returns.[774]

Mr. Coyne submits that the two-variable AAM formula from the 2013 GCOC proceeding is limited to changes in government bond yields and utility credit spreads, which are not the only relevant factors in determining the cost of equity for regulated utilities.[775] He further notes that the two-variable AAM formula from the 2013 GCOC proceeding would not reflect changes in other factors such as company size, fuel source, scope and business risk profile.[776] Mr. Coyne notes that he is not aware of an ROE formula that considers or adjusts for changes in capital structure; the capital structure remains fixed until the next full rate case.[777] Mr. Coyne performed a

[766] 2013 Decision, p. 88.
[767] Ibid., p. 90.
[768] Ibid., p. 91.
[769] Ibid.
[770] 2016 Decision, p. 89.
[771] 2016 Decision, p. 89.
[772] Exhibit B1-8, Section 9.2, pp. 58–61.
[773] Ibid., p. 60.
[774] Exhibit B1-8, Section 9.2, pp. 60–61, Exhibit B1-9, BCUC IR 61.2.
[775] Exhibit B1-9, BCUC IR 61.1.
[776] Ibid.
[777] Exhibit B1-9, BCUC IR 61.4.

jurisdictional review which indicates that AAMs are no longer a common approach in Canada.[778] Mr. Coyne concludes that periodic rate hearings remain the only reliable method for determination of utility ROEs given that all formulaic approaches run the risk of deviation from a fair return.[779] Mr. Coyne does note that if the BCUC were to determine that an AAM is appropriate, he would recommend that the BCUC establish an additional process to determine the correct formula given that developing an adjustment formula is a very detailed process that is better accomplished through input from regulated utilities and stakeholders.[780]

Dr. Lesser notes the greatest strength of the AAM is its simplicity. Dr. Lesser also notes certain weaknesses of the AAM, including (i) this same simplicity may not meet the Fair Return Standard and does not reflect other changes that affect cost of capital; and (ii) the degree of subjectivity required in determining the functional form of the AAM.[781]

FortisBC notes that bond spreads are still below the 3.8 percent trigger point in the previous AAM, which was implemented by the BCUC to recognize the potential for downward bias in ROE results when bond spreads are low.[782] FortisBC submits that there is little benefit in approving an AAM in the current proceeding due to the uncertainty of its applicability.[783] FortisBC concludes that the BCUC should continue to use periodic regulatory proceedings to set ROE, rather than implementing an AAM.[784]

Positions of the Parties

Interveners offer differing views. RCIA supports the introduction of an AAM in the current proceeding, the CEC supports the introduction of an AAM in the current proceeding but in the second stage, BCOAPO supports the concept of an AAM but not the introduction of one in the current proceeding, and ICG does not support an AAM.[785]

RCIA supports the use of an AAM, disagreeing with FortisBC.[786] RCIA states that the AAM developed by the BCUC in 2013 is akin to the basic CAPM and incorporates changes in the underlying risk-free rate to calculate the premium above the risk-free rate a utility would need to meet the Fair Return Standard.[787] RCIA cites Mr. Coyne's statements that based upon the bond yield alone, the regression model predicts 86 percent and 82 percent of the variance in approved ROE in Canada and the US, respectively.[788] RCIA states that the CAPM is a relatively simple model with only three input parameters (risk-free rate, market risk premium, and beta) producing highly reliable results.[789] Therefore, RCIA submits it is viable to re-establish a CAPM-type AAM that reliably and efficiently meets the Fair Return Standard within the next two to four years, and supports using the

[778] Exhibit B1-8-1, Appendix C, Concentric Report, pp. 153–154, Exhibit 1-9, BCUC IR 61.6–61.10.
[779] Exhibit B1-8-1, Appendix C, Concentric Report, p. 154.
[780] Exhibit B1-9, BCUC IR 61.6–61.10.
[781] Exhibit A2-3, Lesser Report, p. 92.
[782] FortisBC Final Argument, p. 198.
[783] FortisBC Final Argument, p. 198.
[784] Ibid., p. 197.
[785] RCIA Final Argument, pp. 32–33, The CEC Final Argument, pp. 59–60, BCOAPO Final Argument, pp. 71–72, ICG Final Argument, pp. 17–18.
[786] RCIA Final Argument, p. 33.
[787] Ibid.
[788] Ibid.
[789] Ibid.

previously approved 2013 formula for any interim period prior to the next GCOC hearing.[790] Furthermore, RCIA recommends that the benchmark ROE calculated by the AAM, with annual updates, apply to all utilities, with differences in utility risk profiles being addressed through bespoke equity thicknesses for each utility.[791] RCIA also submits that the reintroduction of the AAM in BC is appropriate to facilitate regulatory efficiency.[792]

The CEC states that the Risk Premium Model demonstrates a high degree of correlation between the changes in government bond rates and the appropriate ROE for utilities.[793] The CEC submits that it would be appropriate for the BCUC to direct a move toward establishing an AAM for the ROE estimates for FEI, which can then enable adjustments to all BC utilities[794] and provide regulatory efficiency, simplicity, and understandability. [795] The CEC submits that a simple straight-line formula through the historical data will establish a reasonable basis for adjusting components of the basis for establishing the ROEs for utilities.[796] The CEC recommends that where it had previously established economic and financial conditions with respect to bond prices that would not work as well with a straight-line formula, the BCUC should solicit further input with respect to a formula at the tail which could suitably accommodate a very low bond rate with a bend in the straight-line curve.[797] The CEC recommends setting a trigger amount for implementing a change if the risk premium falls outside of the straight-line formula by more than a fixed number of basis points (say 20 bps) to avoid minor changes that would not be material for FEI's financial standing in the capital markets. [798]

The CEC also recommends that the BCUC task FEI with reporting requirements and makes suggestions on the review process. The CEC recommends that the BCUC task FEI with establishing the formulas for review as a compliance requirement[799] and also task FEI to review the AAM with its credit rating agencies so that the BCUC can consider both the formula and the credit rating agency view.[800] With respect to process, the CEC submits that the BCUC could use a simple annual streamlined review process to review the implementation with the utilities and interveners before finalizing the implementation through FEI.[801] The CEC recommends an annual review process so that the need to implement a change is not too frequent. [802]

BCOAPO continues to support the use of an AAM but it does acknowledge the previous BCUC concerns about the difficulty establishing such a mechanism when economic conditions are uncertain and the evidence in this proceeding is clear: current economic and capital market conditions are both uncertain and volatile.[803] As result, BCOAPO accepts that now is not likely the appropriate time to attempt to design and implement an AAM.[804]

[790] RCIA Final Argument, p. 33.
[791] Ibid., pp. 32–33.
[792] Ibid., p. 32.
[793] The CEC Final Argument, p. 59.
[794] Ibid.
[795] Ibid.
[796] Ibid.
[797] The CEC Final Argument, p. 60.
[798] Ibid.
[799] Ibid., p. 59.
[800] Ibid.
[801] Ibid.
[802] Ibid., p. 60.
[803] BCOAPO Final Argument, pp. 71–72.
[804] Ibid.

ICG does not support an AAM.[805] ICG cites Dr. Lesser's statements that if an AAM is used to adjust the allowed ROE for the benchmark, then the risk adjustments for the other utilities may need to be adjusted.[806]

In response to RCIA, FortisBC notes that RCIA's suggestion to update the 2013 AAM as soon as reasonably possible is inconsistent with the 2016 Decision that suspended further use of an AAM in part due to economic uncertainty.[807] FortisBC notes that the conditions of economic uncertainty noted in 2016 continue to be a relevant consideration in the current proceeding that RCIA did not address in its final argument.[808]

FortisBC also states that the RCIA is incorrect in stating that the 2013 AAM is no less sophisticated than the models presented by FortisBC.[809] FortisBC asserts that Mr. Coyne's analysis contains multiple models and is in no way akin to the output of the 2013 AAM which is a two-variable model, based on long Canada bond yields and the spread between long Canada bonds and A-rated utility corporate bonds.[810]

In response to the CEC, FortisBC notes that there is little utility in examining an AAM in the current period of high inflation and economic uncertainty.[811] FortisBC submits that attempts to mechanize the cost of capital may lead to ROE values that do not meet the Fair Return Standard, particularly in uncertain market conditions.[812] However, FortisBC notes that should the BCUC determine that the reintroduction of an AAM warrants consideration at this time, FortisBC agrees with the CEC that it would be more appropriately considered in a further stage.[813]

Panel Discussion

The Panel supports the BCUC's determination in the 2016 Decision that suspended further use of an AAM in part due to economic uncertainty.[814] As noted by FortisBC, the conditions of economic uncertainty observed in 2016 continue to be a relevant consideration in the current proceeding. The Panel shares the BCUC's concerns about the appropriateness of using AAM in "uncertain" economic conditions. When coupled with the current high inflationary environment, there is a real potential for an AAM to fail to meet the Fair Return Standard since it does not reflect all items that could potentially affect a utility's ROE.

As observed historically, the use of an AAM in an ultra-low interest rate environment is complex. While the current interest-rate environment may not be characterized as ultra-low, the reinstatement of an AAM would nonetheless entail a review and potential resetting of the previously BCUC-approved 3.8 percent interest rate threshold. As no party has offered any evidence with respect to the latter issue in this proceeding, we would have to reopen the evidentiary record in order to obtain evidence and submissions on this, which would result in a delay which we consider unwarranted in view of the length of this proceeding to date.

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[805] ICG Final Argument, p. 17.
[806] Ibid., pp. 17–18.
[807] FortisBC Reply Argument, pp. 80–81.
[808] Ibid.
[809] Ibid., p. 81.
[810] Ibid., p. 81.
[811] FortisBC Reply Argument, p. 80.
[812] Ibid.
[813] Ibid.
[814] Ibid., pp. 80–81.

We also note that while the previous AAM was based on changes in interest rates, ROE can be impacted by many other factors beyond interest rates. As Dr. Lesser cautions, the simplicity of an AAM fails to address other changes that affect cost of capital, depends on the subjectivity in establishing an appropriate formula, and risks not achieving the Fair Return Standard. Overall, we find that any regulatory efficiency that can be gained from the application of an AAM formula to avoid another full scale review of ROE is offset by these weaknesses. Furthermore, the latter has the benefit of providing parties with the opportunity to engage in a more transparent and thorough review of ROE whenever changes are required to reflect new circumstances.

Accordingly, we decline to reinstate the application of an AAM formula in favour of periodic regulatory reviews to set ROE, which we consider to be a better forum for ensuring that a utility's ROE meets the Fair Return Standard than reliance on a formula which may not accurately reflect all relevant factors. Having so determined, we see no need to deal with the specifics of any potential AAM formula and its application in this proceeding.

8.2 Off-Ramp / Trigger for Future Applications

The scope of Stage 1 includes consideration of "[t]he criteria, off-ramps, or other triggers to warrant a future cost of capital proceeding."[815]
FortisBC submits that the BCUC should not establish a trigger in advance.[816] FortisBC is unaware of any regulator that considers pre-defined triggers or criteria for future applications.[817] There are various factors that can impact investors' opportunity cost. Mr. Coyne submits that periodic cost of capital proceedings every three to five years is the best approach to ensure that the authorized return remains appropriate for regulated utilities, including those in BC.[818]

Positions of the Parties

FortisBC submits that a periodic review is appropriate and that there should be no establishment of a trigger, as there is no basis to rely on the variance between realized and allowed ROEs to initiate a cost of capital proceeding.[819]

In contrast, the CEC recommends a trigger for another GCOC proceeding in the event that any utility notifies the BCUC of "conditions that would impact its credit ratings" and establishes evidence that it is "seriously compromised in efforts to obtain needed capital."[820] Furthermore, the CEC recommends that triggering another GCOC proceeding may become "unnecessary for an indefinite time into the future provided the Commission enables processes for modifications to the AAM process that may be considered annually as improvements to the initially defined AAM," which it submits to be "a direct solution."[821] In reply, FortisBC agrees with CEC's recommendation that it should be open at all times for a Benchmark Utility to approach the BCUC with a justified request for a new GCOC and complete overhaul of the cost of capital regime, including the need to discard an AAM that cannot be suitably adjusted to deliver a fair return.[822]

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[815] Order G-106-22 dated April 21, 2022.
[816] Exhibit B1-8, p. 62.
[817] Ibid., p. 7.
[818] Exhibit B1-8, p. 62, Exhibit B1-8-1, Appendix C, p. 156.
[819] FortisBC Final Argument, pp. 198–199.
[820] The CEC Final Argument, p. 60.
[821] Ibid.
[822] FortisBC Reply Argument, p. 82.

BCOAPO submits that if appropriate triggers cannot be established then another cost of capital proceeding should be scheduled no later than in three years' time or the BCUC should, on a similar timeline, establish a regulatory process to determine whether economic and market conditions have changed sufficiently to warrant a full review.[823]

In response to BCOAPO, FortisBC argues that "the BCUC should not establish a trigger for future cost of capital proceedings in advance."[824] FortisBC emphasizes that maintaining flexibility over the timing of the next review allows for a more appropriate response to business and capital market factors affecting the cost of capital for utilities that are inherently dynamic.[825] Furthermore, FortisBC explains that "the three-year timeline that BCOAPO suggests is too short; the BCUC has generally considered FEI's cost of capital every five years."[826]

RCIA submits that the next GCOC proceeding should be deferred to 2025 or later, noting that the underlying assumptions and method approved in this proceeding are "unlikely to change in the short term."[827] In response to RCIA, FortisBC agrees "to the extent that it implies that another proceeding should not be currently scheduled for the immediate future." However, it emphasizes that "2025 would be too early for a further periodic review."[828] Similar to its response to BCOAPO, FortisBC also notes that the BCUC has generally considered FEI's cost of capital every five years.[829]

Panel Determination

Nothing in the UCA prescribes a statutory timeframe for reviewing a utility's cost of capital. The BCUC has the power to initiate a cost of capital review at any time within its discretion, as it did in this instance. Similarly, a utility can apply to the BCUC for review of its cost of capital at any time.

While the BCUC in the 2013 GCOC proceeding indicated that it would review FEI's cost of capital in three years, we do not see the need to be prescriptive in this instance about the timing of the next review. We note that in any event, both FEI and FBC are currently under a multi-year rate plan which includes an off-ramp which is designed as a safeguard to protect the utility and ratepayers against potential unintended consequences (such as windfall surplus or losses) and is triggered if earnings in any one year vary from the approved ROE by +/- 150 bps. That plan expires at the end of 2024 and if there are material changes to markets or economic conditions after that affecting the utilities' ROE, we anticipate that either the BCUC or the utility will initiate a review of any changes at that time.

That said, we view that periodic reviews of utilities' cost of capital are desirable in ensuring that utilities continue to have the opportunity to earn a fair return based on their ROE and cost of capital despite changes in circumstances. At the same time, we recognize that such reviews entail significant investments of time and effort on the part of participants and should not be undertaken except where warranted.

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[823] BCOAPO Final Argument, p. 72.
[824] FortisBC Reply Argument, p. 82.
[825] Ibid., p. 83.
[826] Ibid.
[827] RCIA Final Argument, p. 34.
[828] FortisBC Reply Argument, p. 82.
[829] Ibid., p. 83.

As for determining specific triggers that would prompt a cost of capital review, we see no merit to doing so in the absence of any evidence or submissions from parties as to what may be appropriate objective triggers. We agree with FortisBC that maintaining overall flexibility over the timing of the next cost of capital review is desirable as a more appropriate response to dynamic market and business factors that are not always foreseeable. For the same reason, we do not consider it particularly helpful to limit the triggers for review to specific occurrences which are only at best speculative.

8.3 AMPC Request Regarding BC Hydro

AMPC represents members of BC Hydro's industrial customers and submits that shareholder return is one of the most important issues impacting electricity competitiveness in BC. When the BCUC invited submissions from parties regarding the effective date for all other utilities that use the Benchmark Utility to set their own cost of capital, AMPC took the opportunity to request the BCUC to determine that "if BC Hydro's forthcoming rate of return application is based on the benchmark utility it will be deemed incomplete and rejected pending evidence that considers BC Hydro's full context as an instrument of government policy."[830]

In reply, BC Hydro submits that it is procedurally unfair for AMPC to request the BCUC to decide on BC Hydro's forthcoming cost of capital application before it is even filed. BC Hydro's cost of capital application should be considered by the panel appointed to that proceeding.[831]

Panel Discussion

We decline AMPC's request to make any determination on BC Hydro's future cost of capital application. The evidence presented before us in Stage 1 relates to setting FEI and FBC's respective capital structure and equity return, not BC Hydro or any other utility. The BCUC in its BC Hydro Fiscal 2023 to Fiscal 2025 Revenue Requirements Decision directed BC Hydro to file a cost of capital application, effective April 1, 2025, by no later than April 1, 2024.[832] AMPC is encouraged to participate and share its views in that future proceeding.

9.0 SUMMARY OF DIRECTIVES

This summary is provided for the convenience of readers. In the event of any difference between the Directives in this Summary and those in the body of the Decision, the wording in the Decision shall prevail.

	Directive	**Page No.**
1.	The Panel finds that FEI's overall business risk has increased since 2016.	50

[830] AMPC Submission dated May 31, 2023, pp. 1–2.
[831] BC Hydro Response dated June 14, 2023, p. 2.
[832] BC Hydro Fiscal 2023 to Fiscal 2025 Revenue Requirements Application, Decision and Order G-91-23 dated April 21, 2023, p. 10.

	Directive	Page No.
2.	The Panel finds that FBC's business risk overall has not changed materially since 2013.	63
3.	The Panel finds that an allowed ROE of 9.65 percent for each of FEI and FBC will meet the Fair Return Standard based on the evidence examined and submissions received in Stage 1.	136
4.	The Panel determines the following: • For FEI, a deemed equity component of 45.0 percent and an allowed ROE of 9.65 percent; and • For FBC, a deemed equity component of 41.0 percent and an allowed ROE of 9.65 percent.	136
5.	Each of FEI and FBC is directed to file, within 30 days of the date of this decision, a compliance filing for January 1, 2023 permanent rates, and if applicable, an evidentiary update for each utility's 2024 Annual Review proceedings to reflect and implement the deemed capital structure and allowed ROE as approved.	141

DATED at the City of Vancouver, in the Province of British Columbia, this 5th day of September 2023.

Original signed by:

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D. M. Morton
Panel Chair / Commissioner

Original signed by:

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A. K. Fung, KC
Commissioner

Original signed by:

_____

K. A. Keilty
Commissioner

Original signed by:

_____

T. A. Loski
Commissioner

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ORDER NUMBER
G-236-23

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

British Columbia Utilities Commission
Generic Cost of Capital Proceeding

BEFORE:
D. M. Morton, Panel Chair
A. K. Fung, KC, Commissioner
K. A. Keilty, Commissioner
T. A. Loski, Commissioner

on September 5, 2023

ORDER

WHEREAS:

A. By Order G-66-21 dated March 8, 2021, pursuant to section 82 of the *Utilities Commission Act* (UCA), the British Columbia Utilities Commission (BCUC) established a Generic Cost of Capital (GCOC) proceeding;

B. By Orders G-66-21, G-156-21, G-183-21, G-205-21, G-231-21, G-281-21, G-288-21, G-106-22, G-217-22A, and G-327-22A, the BCUC established a regulatory timetable and scope for the GCOC proceeding;

C. The GCOC proceeding is being conducted in two stages. Stage 1 of the GCOC proceeding will determine the deemed capital structure and allowed return on equity (ROE) of FortisBC Energy Inc. (FEI) and FortisBC Inc. (FBC) (collectively, FortisBC). Stage 2 will determine matters related to the Benchmark Utility and establish the cost of capital for other utilities in British Columbia;

D. The following parties participated in Stage 1 of the GCOC proceeding: FEI, FBC, Corix Multi Utility Services Inc. (Corix), Pacific Northern Gas Ltd. (PNG), River District Energy (RDE), British Columbia Hydro and Power Authority (BC Hydro), Boralex Ocean Falls Limited Partnership (Boralex), FortisBC Alternative Energy Service Inc. (FAES), Nelson Hydro, Kyuquot Power Ltd. (KPL), Creative Energy Vancouver Platforms Inc. (Creative Energy) Residential Consumer Intervener Association (RCIA), Movement of United Professionals (MoveUP), Clean Energy Association of BC (CEABC), Association of Major Power Customers of BC (AMPC), Industrial Customers Group (ICG), Commercial Energy Consumers Association of British Columbia (the CEC), and British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, Tenants Resource and Advisory Centre, and Together Against Poverty Society (BCOAPO);

E. The BCUC retained Dr. Jonathan A. Lesser of Continental Economics Inc. (Dr. Lesser) as an independent cost of capital technical expert in the GCOC proceeding. FortisBC retained Mr. James Coyne of Concentric Energy Advisors Inc. (Mr. Coyne) to provide an estimate of the cost of capital for FEI and FBC;

F. In its evidence dated January 31, 2022, pursuant to sections 59 to 61 of the UCA, FortisBC sought BCUC approval of the following:

   i. For FEI, approval of a capital structure consisting of 45 percent common equity and 55 percent debt, and a return on common equity of 10.1 percent.

   ii. For FBC, approval of a capital structure consisting of 40 percent common equity and 60 percent debt, and a return on common equity of 10.0 percent.

G. The regulatory review process for Stage 1 of the GCOC proceeding included two rounds of information requests (IRs) to FortisBC, one round of IRs to Dr. Lesser on Mr. Coyne's evidence, FortisBC rebuttal evidence on Dr. Lesser's IR responses, an oral hearing, final arguments, and further submissions regarding the implementation of utilities' rates; and

H. The BCUC has reviewed the submissions, evidence and arguments filed in Stage 1 of the GCOC proceeding and makes the following determinations.

NOW THEREFORE pursuant to sections 58 to 61 of the UCA, the BCUC orders as follows:

1. For FEI, the deemed equity component is 45.0 percent and the allowed ROE is 9.65 percent, effective January 1, 2023.

2. For FBC, the deemed equity component is 41.0 percent and the allowed ROE is 9.65 percent, effective January 1, 2023.

3. FEI and FBC are directed to file, within 30 days of the date of this order, a compliance filing for January 1, 2023 permanent rates, and if applicable, an evidentiary update for each utility's 2024 Annual Review proceedings to reflect and implement the deemed capital structure and allowed ROE as approved.

4. Interim rates are established, effective January 1, 2024, on a refundable or recoverable basis, for all other utilities, except FBC, that currently use the Benchmark Utility to set their capital structure and equity return pending the BCUC's final decision on Stage 2 of the GCOC proceeding.

5. Stage 2 of the GCOC proceeding is to commence 60 days after the date of this order.

DATED at the City of Vancouver, in the Province of British Columbia, this 5th day of September 2023.

BY ORDER

Original signed by:

D.M. Morton
Commissioner

APPENDIX A

British Columbia Utilities Commission
Generic Cost of Capital Proceeding

GLOSSARY AND ARCRONYMS

2013 Decision	BCUC 2013 Generic Cost of Capital Stage 1, Order G-75-13 and Decision dated May 10, 2013
2014 Decision	BCUC 2013 Generic Cost of Capital, Order G-47-14 and Decision dated March 25, 2014
2016 Decision	FEI Application for its Common Equity Component and Return on Equity for 2016, Order G-129-16 and Decision dated August 10, 2016
AAM	Automatic Adjustment Mechanism
AMPC	Association of Major Power Customers of BC
AUC	Alberta Utilities Commission
BC	British Columbia
BC Hydro	British Columbia Hydro and Power Authority
BCOAPO	British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, Tenants Resource and Advisory Centre, and Together Against Poverty Society
BCUC	British Columbia Utilities Commission
BCUC 2013 GCOC proceeding	Collectively, Stage 1 and Stage 2 of the BCUC 2013 Generic Cost of Capital proceeding
Benchmark Utility	FortisBC Energy Inc. is the current benchmark for other utilities in BC that use a Benchmark Utility to set their rates
Boralex	Boralex Ocean Falls Limited Partnership
bps	Basis points
CAPM	Capital Asset Pricing Model
CEABC	Clean Energy Association of BC
COC	Cost of Capital
Concentric	Concentric Energy Advisors Inc.
Continental Economics	Continental Economics, Inc.
Corix	Corix Multi Utility Services Inc.
CPI	Consumer Price Index
Creative Energy	Creative Energy Vancouver Platforms Inc.
CRSP	Center for Research in Security Prices
DBRS	DBRS Morningstar, credit rating agency
DCF	Discounted cash flow
DPS	Dividend per share
Dr. Lesser	Dr. Jonathan A. Lesser of Continental Economics, Inc.
Dr. Lesser's Report	Regulated Utility Cost of Capital: Theory and Canadian Practice Report dated August 4, 2021, by Dr. Jonathan A. Lesser of Continental Economics, Inc.
EPS	Earnings per share
ESG	Environmental, social and governance
EV	Electric vehicle
FAES	FortisBC Alternative Energy Service Inc.
FBC	FortisBC Inc.
FEI	FortisBC Energy Inc.

APPENDIX A

FEI 2016 COC proceeding	FEI Application for its Common Equity Component and Return on Equity for 2016
FERC	Federal Energy Regulatory Commission
FortisBC	collectively, FEI and FBC
FortisBC's Evidence	Filing of evidence by FBC and FEI, including Evidence of Mr. James Coyne of Concentric Energy Advisors Inc.
FPIC	Free, prior and informed consent
GCOC	Generic Cost of Capital
GDP	Gross domestic product
IBES	Institutional Brokers' Estimate System
ICG	Industrial Customers Group
IR	Information Request
KPL	Kyuquot Power Ltd.
LNG	Liquefied natural gas
LTGRP	Long Term Gas Resource Plan
Moody's	Moody's Investors Service
MoveUP	Movement of United Professionals
Mr. Coyne	Mr. James Coyne of Concentric Energy Advisors Inc.
MRP	Market Risk Premium
MRS	Mandatory Reliability Standards
O&M	Operations and maintenance
PNG	Pacific Northern Gas Ltd.
RCIA	Residential Consumer Intervener Association
RDE	River District Energy
rf	the risk-free rate of return
rm	the required return for the market as a whole
Roadmap	CleanBC Roadmap to 2030
ROE	Return on Equity
S&P	Standard &Poor's Global Ratings
Stage 1	First stage of this GCOC proceeding
Stage 2	Second stage of this GCOC proceeding
The CEC	Commercial Energy Consumers Association of British Columbia
TSX	Toronto Stock Exchange
UCA	*Utilities Commission Act*
UPC	Use per customer
US	United States

APPENDIX B

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

British Columbia Utilities Commission
Generic Cost of Capital

EXHIBIT LIST

Exhibit No.	Description
COMMISSION DOCUMENTS	
A-1	Letter dated January 18, 2021 – British Columbia Utilities Commission (BCUC) issuing Notice of Initiating a Generic Cost of Capital proceeding
A-2	Letter dated March 3, 2021 – BCUC appointing the panel for review of the BCUC's Generic Cost of Capital proceeding
A-3	Letter dated March 8, 2021 – BCUC Order G-66-21 establishing a regulatory timetable and public notice
A-4	Letter dated May 21, 2021 – BCUC Order G-156-21 with Reasons for Decision and establishing the proceeding's scope and a further regulatory timetable
A-5	Letter dated June 11, 2021 – BCUC Order G-183-21 with reasons for decision and a further regulatory timetable
A-6	Letter dated July 7, 2021 – BCUC Order G-205-21 with reasons for decision and amended scope.
A-7	Letter dated July 30, 2021 – BCUC Order G-231-21 with amended regulatory timetable
A-8	Letter dated September 24, 2021 – BCUC Order G-281-21 with Reasons for Decision amending the scope and regulatory timetable
A-9	Letter dated October 6, 2021 – BCUC Order G-288-21 amending regulatory timetable
A-10	Letter dated October 27, 2021 – BCUC response to Dr. Lesser extension request
A-11	Letter dated February 28, 2022 – BCUC Information Request No. 1 to FEI and FBC

APPENDIX B

Exhibit No.	Description
A-12	Letter dated March 31, 2022 – BCUC submitting procedural conference information
A-13	Letter dated April 21, 2022 – BCUC Order G-106-22 with Reasons for Decision amending the scope and regulatory timetable
A-14	Letter dated May 16, 2022 – BCUC Information Request No. 2 to FEI and FBC
A-15	Letter dated May 16, 2022 – BCUC Information Request No. 2 to Dr. Lesser regarding Mr. Coyne's evidence
A-16	Letter dated May 20, 2022 – BCUC Order G-140-22 addressing FortisBC's objections to interveners' Information Request No. 2 to Dr. Lesser regarding Mr. Coyne's evidence
A-17	Letter dated May 31, 2022 – BCUC response to FortisBC's objection to interveners' revised Information Request No. 2 to Dr. Lesser regarding Mr. Coyne's evidence
A-18	Letter dated June 20, 2022 – BCUC providing information for Procedural Conference No. 2
A-19	Letter dated July 8, 2022 – BCUC request for submissions regarding expert opinions and further process and scope
A-20	Letter dated August 8, 2022 – BCUC Order G-217-22 with Reasons for Decision amending the regulatory timetable and establishing the format and scope of the oral hearing
A-20-1	Letter dated August 10, 2022 – BCUC issuing Order G-217-22A with Reasons for Decision and amended regulatory timetable and Oral Hearing Scope
A-21	Letter dated August 12, 2022 – BCUC response to FortisBC request for further clarification on Oral Hearing Scope
A-22	Letter dated August 31, 2022 – BCUC Information Request No. 1 to FEI and FBC on FortisBC's Rebuttal Evidence Part 2 – Rebuttal Evidence of Concentric Energy Advisors Inc.
A-23	Letter dated October 13, 2022 – BCUC issuing Oral Hearing Information
A-24	Letter dated November 14, 2022 – BCUC Order G-327-22 with amended regulatory timetable
A-24-1	Letter dated November 14, 2022 – BCUC Order G-327-22A with amended regulatory timetable
A-25	Letter dated November 30, 2022 – BCUC Information Request No. 1 on Undertakings to FortisBC

APPENDIX B

Exhibit No.	Description
A-26	Letter dated December 9, 2022 – BCUC invitation to registered utilities and interveners to provide additional information in Final Arguments
A-27	Letter dated December 13, 2022 – BCUC request to FortisBC to file credit rating report for FBC
A-28	Letter dated January 26, 2023 – BCUC response to the CEC extension request
A-29	Letter dated January 27, 2023 – BCUC response to BCOAPO extension request
A-30	Letter dated February 17, 2023 – BCUC response to FortisBC extension request
A-31	Letter dated May 8, 2023 – BCUC request for submissions regarding the implementation of rates for utilities that use the FEI Benchmark Utility

COMMISSION STAFF DOCUMENTS

A2-1	Letter dated March 23, 2021 – BCUC Staff submission on scope
A2-2	Letter dated June 18, 2021 – BCUC Staff submit Consultant Report by the Continental Economics, Inc., Dr. Jonathan A. Lesser: Report on Using a Benchmark Utility to Set the Cost of Capital – June 2021
A2-3	Letter dated August 4, 2021 – BCUC Staff submit Consultant Report by the Continental Economics, Inc., Dr. Jonathan A. Lesser: Regulated Utility Cost of Capital: Theory and Canadian Practice – August 2021
A2-3-1	Letter dated November 7, 2022 – BCUC Staff submission: Errata to Consultant Report in Exhibit A2-3
A2-4	Letter dated October 20, 2021 – BCUC Staff submit Consultant Report by the Continental Economics, Inc., Dr. Jonathan A. Lesser: Extension Request dated October 19, 2021
A2-5	Letter dated November 30, 2021 – BCUC Staff submit Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the BCOAPO Information Request No. 1 on Exhibit A2-3

APPENDIX B

Exhibit No.	Description
A2-6	Letter dated November 30, 2021 – BCUC Staff submit Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the CEC Information Request No. 1 on Exhibit A2-3
A2-7	Letter dated November 30, 2021 – BCUC Staff submit Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to Creative Energy Information Request No. 1 on Exhibit A2-3
A2-8	Letter dated November 30, 2021 – BCUC Staff submit Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to FortisBC Inc. Information Request No. 1 on Exhibit A2-3
A2-9	Letter dated November 30, 2021 – BCUC Staff submit Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the ICG Information Request No. 1 on Exhibit A2-3
A2-10	Letter dated November 30, 2021 – BCUC Staff submit Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to MoveUP Information Request No. 1 on Exhibit A2-3
A2-11	Letter dated November 30, 2021 – BCUC Staff submit Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the RCIA Information Request No. 1 on Exhibit A2-3
A2-12	Letter dated February 28, 2022 – BCUC Staff submit excerpts from Government of Canada Department of Finance Federal Budget 2021, Annex 6: Tax Measures - Supplementary Information, International Tax Measures - Interest Deductibility Limits
A2-13	Letter dated February 28, 2022 – BCUC Staff submitting: A Review of International Approaches to Regulated Rates of Return Prepared for the Australian Energy Regulator by The Brattle Group – June 2020
A2-14	Letter dated February 28, 2022 – BCUC Staff submission: Electric ROE Authorizations Drift Lower In H1'20 As Virus Worries Continue by S&P Global Market Intelligence – August 4, 2020
A2-15	Letter dated February 28, 2022 – BCUC Staff submission: RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance by Ofgem– March 11, 2021

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Exhibit No.	Description
A2-16	Letter dated February 28, 2022 – BCUC Staff submission: Public Utility Beta Adjustment and Biased Costs of Capital in Public Utility Rate Proceedings by Richard A. Michelfelder and Panayiotis Theodossiou, The Electricity Journal, Volume 26, Issue 9 – November 2013
A2-17	Letter dated April 12, 2022 – BCUC Staff submission: BCUC Staff Draft Regulatory Timetable and Options
A2-18	Letter dated May 16, 2022 – BCUC Staff submission: Betas and Their Regression Tendencies by Marshall E. Blume, The Journal of Finance, Volume 30, Number 3 – June 1975
A2-19	Letter dated May 19, 2022 – BCUC Staff submission: Dr. Lesser Confidentiality Declaration and Undertaking
A2-20	Letter dated June 14, 2022 – BCUC Staff submission: Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the BCUC Information Request No. 2 to Dr. Lesser on Coyne Evidence
A2-20-1	Letter dated November 7, 2022 – BCUC Staff submission: Revised Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the BCUC Information Request No. 9.3.1 at the Oral Hearing
A2-21	Letter dated June 14, 2022 – BCUC Staff submission: Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the RCIA Information Request No. 2
A2-22	Letter dated June 14, 2022 – BCUC Staff submission: Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to ICG Information Request No. 2
A2-23	Letter dated June 14, 2022 – BCUC Staff submission: Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the CEC Information Request No. 2
A2-23-1	Letter dated June 21, 2022 – BCUC Staff submission: Consultant amended response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to the CEC Information Request 2 Question 23.1
A2-24	Letter dated June 14, 2022 – BCUC Staff submission: Consultant response by the Continental Economics, Inc., Dr. Jonathan A. Lesser to BCOAPO Information Request No 2
A2-25	Letter dated June 14, 2022 – BCUC Staff submission: Response attachment to BCUC Information Request No. 1.3

APPENDIX B

Exhibit No.	Description
A2-26	Letter dated June 14, 2022 – BCUC Staff submission: Panhandle Eastern Pipe Line Company, LP – Initial Decision – Public Version – March 26, 2021
A2-27	Letter dated June 14, 2022 – BCUC Staff submission: New Regulatory Finance, pp. 190, 303 – 307, 324, by Roger A. Morin, PhD
A2-28	Letter dated June 14, 2022 – BCUC Staff submission: Financial Flexibility, Corporate Investment and Performance: Evidence from Financial Crises – By Ozgur Arslan-Ayaydin, Chris Florackis, Aydin Ozkan
A2-29	Letter dated June 14, 2022 – BCUC Staff submission: On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital – The Journal of Finance – Volume XXXV, No. 2, pp. 369 – 383, May 1980 – By Robert Litzenerger, Krishna Ramaswamy, and Howard Sosin
A2-30	Letter dated June 14, 2022 – BCUC Staff submission: Public Utility Beta Adjustment and Biased Costs of Capital in Public Utility Rate Proceedings – The Electricity Journal – Volume 29, Issue 9, November 2013 – By Richard A. Michelfelder and Panayiotis Theodossiou
A2-31	Letter dated July 14, 2022 – BCUC Staff submission regarding expert opinions and further process and scope
A2-32	Letter dated October 28, 2022 – BCUC Staff filing Continental Economics, Inc. Dr. Jonathan Lesser CV
A2-33	Letter dated November 7, 2022 – BCUC Staff submission: Witness Aid Part 1 Diverging Opinions of Experts at the Oral Hearing
A2-34	Letter dated November 7, 2022 – BCUC Staff submission: ROE Results Based on Multi-Stage vs Single-Stage DCF to Calculate Forward Looking MRP Experts at the Oral Hearing
A2-35	Letter dated November 7, 2022 – BCUC Staff submission: Return on Equity Calculations Using Different Methodologies and Assumptions (Summary of Exhibit B1-25) at the Oral Hearing
A2-35-1	Letter dated November 9, 2022 – BCUC Staff submission: Amendment to Exhibit A2-35 at the Oral Hearing

APPENDIX B

Exhibit No.	Description
A2-36	Letter dated November 9, 2022 – BCUC Staff submission: Part 2 of the BCUC Witness Aid at the Oral Hearing
A2-37	Letter dated November 9, 2022 – BCUC Staff submission: Section of FortisBC website relating to Sustainability at the Oral Hearing
A2-38	Letter dated November 9, 2022 – BCUC Staff submission: FortisBC Application for Approval of a Multi-Year Rate Plan for 2020 through 2024 at the Oral Hearing
A2-39	Letter dated November 9, 2022 – BCUC Staff submission: FortisBC 2021 Green Bond Impact Report at the Oral Hearing
A2-40	Letter dated November 9, 2022 – BCUC Staff submission: Canadian 2022 Federal Budget page 106 at the Oral Hearing
A2-41	Letter dated November 9, 2022 – BCUC Staff submission: FortisBC Application for Approval of Large Commercial Interruptible Rate page 3 at the Oral Hearing

APPLICANT DOCUMENTS

B1-1	**FORTISBC ENERGY INC. (FEI) –** Letter dated March 16, 2021 submitting registration by Diane Roy
B1-2	Letter dated March 29, 2021 – FEI submission on Preliminary Scope Document
B1-3	Letter dated June 4, 2021 – FEI submission on proceeding Scope and Deferral Account
B1-4	Letter dated July 21, 2021 – FEI submission on Use of a Benchmark Utility
B1-5	Letter dated August 13, 2021 – FEI submission on cost eligibility of PACA
B1-6	Letter dated September 30, 2021 – FEI submitting request for amendment to Regulatory Timetable
B1-7	Letter dated October 15, 2021 – FEI submitting Information Request No. 1 on Exhibit A2-3
B1-8	Letter dated January 31, 2022 – FEI and FBC submitting evidence for Stage 1 of proceeding

APPENDIX B

Exhibit No.	Description
B1-8-1	Letter dated January 31, 2022 – FEI and FBC submitting evidence for Stage 1 of proceeding – Appendices
B1-8-1-1	Letter dated October 20, 2022 – FortisBC submitting errata to Appendix A – FEI Business Risk Assessment
B1-8-1-2	Letter dated October 20, 2022 – FortisBC submitting September Update to Concentric Financial Models
B1-9	Letter dated April 6, 2022 – FEI and FBC submitting responses to BCUC Information Request No. 1 on FortisBC Evidence
B1-9-1	**CONFIDENTIAL** - Letter dated April 6, 2022 – FEI and FBC submitting responses to BCUC Information Request No. 1 on FortisBC Evidence Confidential Attachments
B1-10	Letter dated April 6, 2022 – FEI and FBC submitting responses to BCOAPO Information Request No. 1 on FortisBC Evidence
B1-10-1	**CONFIDENTIAL** - Letter dated April 6, 2022 – FEI and FBC submitting responses to BCOAPO Information Request No. 1 on FortisBC Evidence Confidential Attachments
B1-11	Letter dated April 6, 2022 – FEI and FBC submitting responses to CEC Information Request No. 1 on FortisBC Evidence
B1-11-1	**CONFIDENTIAL** - Letter dated April 6, 2022 – FEI and FBC submitting confidential response to CEC Information Request No. 1 on FortisBC Evidence and Confidential Attachments
B1-12	Letter dated April 6, 2022 – FEI and FBC submitting responses to ICG Information Request No. 1 on FortisBC Evidence
B1-12-1	**CONFIDENTIAL** - Letter dated April 6, 2022 – FEI and FBC submitting confidential response to ICG Information Request No. 1 Question 5.1 on FortisBC Evidence
B1-13	Letter dated April 6, 2022 – FEI and FBC submitting responses to RCIA Information Request No. 1 on FortisBC Evidence
B1-14	Letter dated May 19, 2022 – FEI and FBC submitting Information Requests Out of Scope

APPENDIX B

Exhibit No.	Description
B1-15	Letter dated May 26, 2022 – FEI and FBC further submission on Information Requests out of scope
B1-16	Letter dated May 30, 2022 – FEI and FBC submitting response to ICG Information Request No. 2 regarding Dr. Lesser
B1-17	Letter dated June 14, 2022 – FortisBC submitting response to RCIA Information Request No. 2 on FortisBC Evidence
B1-18	Letter dated June 14, 2022 – FortisBC submitting response to CEC Information Request No. 2 on FortisBC Evidence
B1-19	Letter dated June 14, 2022 – FortisBC submitting response to BCOAPO Information Request No. 2 on FortisBC Evidence
B1-19-1	**CONFIDENTIAL** - Letter dated June 14, 2022 – FortisBC submitting confidential responses to BCOAPO Information Request No. 2 on FortisBC Evidence
B1-20	Letter dated June 14, 2022 – FortisBC submitting response to BCUC Information Request No. 2 on FortisBC Evidence
B1-21	Letter dated June 28, 2022 – FortisBC submitting Rebuttal Evidence
B1-22	Letter dated July 14, 2022 – FortisBC submission regarding expert opinions and further process and scope
B1-23	Letter dated July 20, 2022 – FortisBC reply submission regarding expert opinions and further process and scope
B1-24	Letter dated August 11, 2022 – FortisBC request further clarification on Oral Hearing Scope
B1-25	Letter dated October 20, 2022 – FortisBC submitting responses to BCUC Information Request No. 1 on Rebuttal Evidence
B1-25-1	Letter dated November 4, 2022 – FortisBC submitting errata to responses to BCUC Information Request No. 1 Question 6.2 on Rebuttal Evidence
B1-26	Letter dated October 20, 2022 – FortisBC submitting responses to BCOAPO Information Request No. 1 on Rebuttal Evidence

APPENDIX B

Exhibit No.	Description
B1-27	Letter dated October 20, 2022 – FortisBC submitting responses to CEC Information Request No. 1 on Rebuttal Evidence
B1-28	Letter dated October 20, 2022 – FortisBC submitting responses to RCIA Information Request No. 1 on Rebuttal Evidence
B1-29	Letter dated October 31, 2022 – FortisBC submitting Witness Panel, Direct Testimony and Notice of Cross-Examination
B1-30	Letter dated November 3, 2022 – FortisBC submitting Opening Statements
B1-31	Letter dated November 7, 2022 – FortisBC submitting Concentric Energy Advisor Multi-Stage DCF and CAPM Results at the Oral Hearing
B1-32	Letter dated November 7, 2022 – FortisBC submitting U.S. Court of Appeals Emera Maine No. 15-1118 at the Oral Hearing
B1-33	Letter dated November 7, 2022 – FortisBC submitting U.S. Court of Appeals MISO ROE Opinion No. 16-1325 at the Oral Hearing
B1-34	Letter dated November 7, 2022 – FortisBC submitting PPL Corporation sell of U.K. Utility Business at the Oral Hearing
B1-35	Letter dated November 7, 2022 – FortisBC submitting PNM Resources Investor News Releases at the Oral Hearing
B1-36	Letter dated November 8, 2022 – FortisBC submitting US Securities and Exchange Commission Quarterly Report at the Oral Hearing
B1-37	Letter dated November 8, 2022 – FortisBC submitting Consolidated Edison Quarterly Earnings Presentation at the Oral Hearing
B1-38	Letter dated November 8, 2022 – FortisBC submitting Exelon Fall 2022 Investor Meetings at the Oral Hearing
B1-39	Letter dated November 8, 2022 – FortisBC submitting US Federal Energy Regulatory Commission Hearing at the Oral Hearing
B1-40	Letter dated November 8, 2022 – FortisBC submitting Testimony of Dr Lesser before the Arkansas Public Service Commission at the Oral Hearing

APPENDIX B

Exhibit No.	Description
B1-41	Letter dated November 8, 2022 – FortisBC submitting Testimony of Dr Lesser before the Illinois Commerce Commission at the Oral Hearing
B1-42	Letter dated November 8, 2022 – FortisBC submitting Bank of Canada Interest Rates at the Oral Hearing
B1-43	Letter dated November 8, 2022 – FortisBC submitting S&P TSX Utilities Index Dividend Yield at the Oral Hearing
B1-44	Letter dated November 8, 2022 – FortisBC submitting excerpt Capital Pricing Model from Exhibit B1-8-1-1 at the Oral Hearing
B1-45	Letter dated November 8, 2022 – FortisBC submitting 169 FERC Docket Nos. EL14-12-003 and EL15-45-000 at the Oral Hearing
B1-46	Letter dated November 8, 2022 – FortisBC submitting Wilshire 5000 Total Market Full Cap Index/Gross Domestic Product at the Oral Hearing
B1-47	Letter dated November 8, 2022 – FortisBC submitting Stock Market Capitalization to GDP for Canada at the Oral Hearing
B1-48	Letter dated November 8, 2022 – FortisBC submitting charts showing 10-year Actual vs Consensus Forecasts in Canada and the US at the Oral Hearing
B1-49	Letter dated November 9, 2022 – FortisBC submitting FEI 2022 Long Term Gas Resource Plan excerpt at the Oral Hearing
B1-50	Letter dated November 23, 2022 – FortisBC submitting response to Undertakings
B1-50-1	Letter dated December 12, 2022 – FortisBC providing Moody Credit Rating Report regarding response to Undertaking No. 3
B1-51	Letter dated December 9, 2022 – FortisBC submitting response to BCUC Information Request No. 1 Undertakings
B1-52	Letter dated December 9, 2022 – FortisBC submitting response to CEC Information Request No. 1 Undertakings
B1-53	Letter dated December 9, 2022 – FortisBC submitting response to RCIA Information Request No. 1 Undertakings

APPENDIX B

Exhibit No.	Description
B1-54	Letter dated February 17, 2023 – FortisBC submitting extension request to file Reply Argument
B2-1	**FORTISBC INC. (FBC) –** Letter dated March 16, 2021 submitting registration by Diane Roy
B2-2	Letter dated March 29, 2021 – FBC submission on Preliminary Scope Document
B2-3	Letter dated June 4, 2021 – FBC submission on proceeding Scope and Deferral Account
B2-4	Letter dated July 21, 2021 – FBC submission on Use of a Benchmark Utility
B2-5	Letter dated August 13, 2021 – FBC submission on cost eligibility of PACA
B2-6	Letter dated September 30, 2021 – FBC submitting request for amendment to Regulatory Timetable
B2-7	Letter dated October 15, 2021 – FBC submitting Information Request No. 1 on Exhibit A2-3
B2-8	Letter dated December 14, 2022 – FBC submitting Moody Credit Rating Report regarding response to Undertaking
B3-1	**FORTISBC ALTERNATIVE ENERGY SERVICE INC. (FAES) –** Letter dated March 16, 2021 submitting registration by Grant Bierlmeier
B3-2	Letter dated March 31, 2021 – FAES submission on Preliminary Scope Document
B3-3	Letter dated June 4, 2021 – FAES submission on proceeding Scope and Deferral Account
B3-4	Letter dated July 21, 2021 – FAES submission on Use of a Benchmark Utility
B4-1	**Nelson Hydro** – Letter dated March 19, 2021 submitting registration by Gabriel Bouvet-Boisclair
B4-2	Letter dated March 30, 2021 – Nelson Hydro submission on Preliminary Scope Document
B4-3	Letter dated July 21, 2021 – Nelson Hydro submission on Use of a Benchmark Utility
B4-4	Letter dated August 13, 2021 – Nelson Hydro submission on cost eligibility of PACA

APPENDIX B

Exhibit No.	Description
B5-1	**Kyuquot Power Ltd. (KPL)** – Letter dated March 22, 2021 submitting registration by Taya DeAngelis
B5-2	Letter dated March 31, 2021 – KPL submission on Preliminary Scope Document
B6-1	**Corx Multi-Utility Services Inc. (Corix)** – Letter dated March 22, 2021 submitting registration by Errol South
B6-2	Letter dated March 31, 2021 – Corix submission on Preliminary Scope Document
B6-3	Letter dated June 4, 2021 – Corix submission on proceeding Scope and Deferral Account
B6-4	Letter dated July 21, 2021 – Corix Brattle Report submission on Use of a Benchmark Utility
B6-5	Letter dated July 21, 2021 – Corix submission on Use of a Benchmark Utility
B6-6	Letter dated August 12, 2021 – Corix submission on cost eligibility of PACA
B7-1	**Creative Energy Vancouver platforms Inc. (Creative Energy)** – Letter dated March 22, 2021 submitting registration by Rob Gorter
B7-2	Letter dated March 31, 2021 – Creative Energy submission on Preliminary Scope Document
B7-3	Letter dated June 4, 2021 – Creative Energy submission on proceeding Scope and Deferral Account
B7-4	Letter dated July 21, 2021 – Creative Energy submission on Use of a Benchmark Utility
B7-5	Letter dated August 13, 2021 – Creative Energy submission on cost eligibility of PACA
B7-6	Letter dated October 15, 2021 – Creative Energy submitting Information Request No. 1 on Exhibit A2-3
B8-1	**River District Energy (RDE)** – Letter dated March 18, 2021 submitting registration by Ross Hanson
B8-2	Letter dated March 31, 2021 – RDE submission on Preliminary Scope Document

APPENDIX B

Exhibit No.	Description
B9-1	**Pacific Northern Gas Ltd. (PNG) and Pacific Northern Gas (N.E.) Ltd. (PNGNE) (collectively PNG)** – Letter dated March 24, 2021 submitting registration by Gordon Doyle
B9-2	Letter dated March 31, 2021 – PNG submission on Preliminary Scope Document
B9-3	Letter dated June 4, 2021 – PNG submission on proceeding Scope and Deferral Account
B9-4	Letter dated July 21, 2021 – PNG submitting notice of Additional Contact
B9-5	Letter dated July 21, 2021 – PNG Brattle Report submission on Use of a Benchmark Utility
B9-6	Letter dated July 21, 2021 – PNG submission on Use of a Benchmark Utility
B9-7	Letter dated August 13, 2021 – PNG submission on cost eligibility of PACA

INTERVENER DOCUMENTS

C1-1	**RESIDENTIAL CONSUMER INTERVENER ASSOCIATION (RCIA) –** Letter dated March 12, 2021 submitting request to intervene by Fredrik Ambrosson
C1-2	Letter dated March 31, 2021 – RCIA submission on Preliminary Scope Document
C1-3	Letter dated June 4, 2021 – RCIA submission on proceeding Scope and Deferral Account
C1-4	Letter dated July 21, 2021 – RCIA submission on Use of a Benchmark Utility
C1-5	Letter dated August 13, 2021 – RCIA submission on cost eligibility of PACA
C1-6	Letter dated October 12, 2021 – RCIA submitting Information Request No. 1 on Exhibit A2-3
C1-7	Letter dated March 7, 2022 – RCIA submitting Information Request No. 1 on FortisBC Evidence
C1-8	Letter dated May 16, 2022 – RCIA submitting Information Requests No. 2 to FortisBC and Dr. Lesser regarding Mr. Coyne's evidence

APPENDIX B

Exhibit No.	Description
C1-8-1	Letter dated May 25, 2022 – RCIA submitting revised Information Requests No. 2 to FortisBC and Dr. Lesser regarding Mr. Coyne's evidence
C1-9	Letter dated July 14, 2022 – RCIA submission regarding expert opinions and further process and scope
C1-10	Letter dated September 12, 2022 – RCIA submitting Information Request No. 1 to FortisBC on Rebuttal Evidence Part 2-Concentric Rebuttal Evidence
C1-11	Letter dated November 8, 2022 – RCIA submitting Witness Aid Part 1 at the Oral Hearing
C1-12	Letter dated November 8, 2022 – RCIA submitting Witness Aid Part 2 at the Oral Hearing
C1-13	Letter dated November 29, 2022 – RCIA submitting Information Request No. 1 on FortisBC response to Undertakings
C2-1	**Movement of United Professionals (MoveUP)** – Letter dated March 14, 2021 submitting request to intervene by Jim Quail
C2-2	Letter dated March 31, 2021 – MoveUP submission on Preliminary Scope Document
C2-3	Letter dated July 16, 2021 – MoveUP submission on Order G-183-21 Appendix A
C2-4	Letter dated August 13, 2021 – MoveUP submission on cost eligibility of PACA
C2-5	Letter dated October 12, 2021 – MoveUP submitting Information Request No. 1 on Exhibit A2-3
C3-1	**BORALEX OCEAN FALLS LIMITED PARTNERSHIP (BORALEX LP) –** Letter dated March 22, 2021 submitting request to intervene by Maxime Tremblay
C4-1	**ASSOCIATION OF MAJOR POWER CUSTOMERS OF BC (AMPC) –** Letter dated March 22, 2021 submitting request to intervene by Matthew Keen
C4-2	Letter dated April 1, 2021 – AMPC submission on Preliminary Scope Document
C5-1	**INDUSTRIAL CUSTOMERS GROUP (ICG)** – Letter dated March 22, 2021 submitting request to intervene by Robert Hobbs
C5-2	Letter dated March 31, 2021 – ICG submission on Preliminary Scope Document
C5-3	Letter dated June 4, 2021 – ICG submission on proceeding Scope and Deferral Account

APPENDIX B

Exhibit No.	Description
C5-4	Letter dated July 21, 2021 – ICG submission on Use of a Benchmark Utility
C5-5	Letter dated August 13, 2021 – ICG submission on cost eligibility of PACA
C5-6	Letter dated October 15, 2021 – ICG submitting Information Request No. 1 on Exhibit A2-3
C5-7	Letter dated March 7, 2022 – ICG submitting Information Request No. 1 on FortisBC Evidence
C5-8	Letter dated May 16, 2022 – ICG submitting Information Request No. 2 to Dr. Lesser regarding Mr. Coyne's evidence
C5-8-1	Letter dated May 25, 2022 – ICG submitting revised Information Request No. 2 to Dr. Lesser regarding Mr. Coyne's evidence
C5-9	Letter dated May 27, 2022 – ICG submission regarding revised Information Request No. 2
C5-10	Letter dated July 14, 2022 – ICG submission regarding expert opinions and further process and scope
C5-11	Letter dated November 7, 2022 – ICG submitting Confidential Declaration and Undertaking
C6-1	**Commercial Energy Consumers Association of British Columbia (CEC)** – Letter dated March 22, 2021 submitting request to intervene by Christopher Weafer
C6-2	Letter dated March 31, 2021 – CEC submission on Preliminary Scope Document
C6-3	Letter dated June 4, 2021 – CEC submission on proceeding Scope and Deferral Account
C6-4	Letter dated July 21, 2021 – CEC submission on Use of a Benchmark Utility
C6-5	Letter dated August 13, 2021 – CEC submission on cost eligibility of PACA
C6-6	Letter dated October 8, 2021, CEC submitting extension request to file Information Requests on Exhibit A2-3
C6-7	Letter dated October 15, 2021 – CEC submitting Information Request No. 1 on Exhibit A2-3
C6-8	Letter dated March 7, 2022 – CEC submitting Information Request No. 1 on FortisBC Evidence

APPENDIX B

Exhibit No.	Description
C6-9	Letter dated May 16, 2022 – CEC submitting Information Request No. 2 on FortisBC Evidence
C6-10	Letter dated May 16, 2022 – CEC submitting Information Request No. 2 to Dr. Lesser regarding Mr. Coyne's evidence
C6-11	Letter dated July 14, 2022 – CEC submission regarding expert opinions and further process and scope
C6-12	Letter dated September 12, 2022 – CEC submitting Information Request No. 1 to FortisBC on Rebuttal Evidence Part 2-Concentric Rebuttal Evidence
C6-13	Letter dated November 8, 2022 – CEC submitting Fortis Inc. Releases Second Quarter 2022 Results and 2022 Sustainability Report at the Oral Hearing
C6-14	Letter dated November 9, 2022 – CEC submitting Fortis Inc. Investor Presentation Q4 2022 at the Oral Hearing
C6-15	Letter dated November 9, 2022 – CEC submitting Witness Aid for Excerpts from Long Term Gas Resource Plan at the Oral Hearing
C6-16	Letter dated November 30, 2022 – CEC submitting Information Request No. 1 on Undertakings
C6-17	Letter dated January 24, 2023 – CEC submitting extension request to file Final Argument
C7-1	**BRITISH COLUMBIA OLD AGE PENSIONERS' ORGANIZATION, ACTIVE SUPPORT AGAINST POVERTY, DISABILITY ALLIANCE BC, COUNCIL OF SENIOR CITIZENS' ORGANIZATIONS OF BC, TENANTS RESOURCE AND ADVISORY CENTRE, AND TOGETHER AGAINST POVERTY SOCIETY (BCOAPO et al.) –** Letter dated March 22, 2021 submitting request to intervene by Leigha Worth and Irina Mis
C7-2	Letter dated March 31, 2021 – BCOAPO submission on Preliminary Scope Document
C7-3	Letter dated July 21, 2021 – BCOAPO submission on Use of a Benchmark Utility
C7-4	Letter dated August 13, 2021 – BCOAPO submission on cost eligibility of PACA
C7-5	Letter dated October 15, 2021 – BCOAPO submitting Information Request No. 1 on Exhibit A2-3
C7-6	Letter dated March 7, 2022 – BCOAPO submitting Information Request No. 1 on FortisBC Evidence

APPENDIX B

Exhibit No.	Description
C7-7	Letter dated May 16, 2022 – BCOAPO submitting Information Request No. 2 to FortisBC
C7-8	Letter dated May 16, 2022 – BCOAPO submitting Information Request No. 2 to Dr. Lesser regarding Mr. Coyne's evidence
C7-9	Letter dated July 14, 2022 – BCOAPO submission regarding expert opinions and further process and scope
C7-10	Letter dated September 12, 2022 – BCOAPO submitting Information Request No. 1 to FortisBC on Rebuttal Evidence Part 2-Concentric Rebuttal Evidence
C7-11	Letter dated January 26, 2022 – BCOAPO submitting extension request to file Final Argument
C8-1	**BRITISH COLUMBIA HYDRO AND POWER AUTHORITY (BC HYDRO) –** Letter dated March 22, 2021 submitting request to intervene by Fred James
C8-2	Letter dated June 4, 2021 – BC Hydro submission on proceeding Scope and Deferral Account
C9-1	**CLEAN ENERGY ASSOCIATION OF BC (CEABC) –** Letter dated March 22, 2021 submitting request to intervene by Laureen Whyte
C9-2	Letter dated June 1, 2021 – CEABC submission on proceeding Scope and Deferral Account
C9-3	Letter dated April 12, 2021 – CEABC withdrawing intervener status
	INTERESTED PARTY DOCUMENTS
D-1	**ONNI GROUP (ONNI)** - Submission dated March 23, 2021 request for Interested Party Status by Michelle McLarty
D-2	**CHOY, MAURICE (CHOY)** - Submission dated July 13, 2021 request for Interested Party Status
D-3	**JARVI, MARK (JARVI)** – Submission dated July 28, 2021 request for Interested Party Status
	LETTERS OF COMMENT
E-1	**DE LA GARZA, S. (DELAGARZA)** – Letter of Comment dated February 15, 2022

ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Business Case Summary

Line No.	Project Name	Business Case #	Year Placed Into Rate Base	Approved/Applied Forecast Costs ($000)	Actual Costs ($000)	Variance Explanation
	Business Cases for Years 2016-2017					
1	McIntyre Subdivision Rebuild	Business Case #01	2015	725	1,453	The first stage of the project, which took place from 2013-2015, had a significant change in scope. The original scope was to install a new 25 kV underground electrical system in close proximity to the existing 35 kV system. Refer to Business Case #01, Paragraph 4-6
2			2017	1,926	1,783	The 2017 scope included removing the overhead line on Hanna and McCandless. All the planned civil work was completed but the electrical installation and overhead powerline salvage was delayed to Q1 2018, which resulted in underspending in 2017. Refer to Business Case #01 Table 1 and Paragraph 8
3			2022	717	2,108	For the project scope in 2018-2020, the design and estimates were changed from what was submitted in the 2016/17 GRA. This was a result of the hands-on experience of completing project work in 2016 and 2017, adjusting to contractor availability and the pandemic of 2020. In 2020, the project was put on hold due to resource constraints as a result of COVID-19. In 2021, construction continued on McIntyre Drive with both civil and electrical contractors working on the project. Digging conditions continued to be challenging with sloughing during excavation and the close proximity of underground infrastructure. Refer to Business Case #01 Table 2 and Paragraphs 9-14
4			2025	1,970	N/A	Refer to Business Case #01 Table 3
5	Replace Ditch No. 1 Spillway	Business Case #02	2016	-	262	The Ditch #1 Spillway, west of Fish Lake Road, Whitehorse, was damaged by ice loading and soil erosion resulting in the water flows bypassing the spillway at an uncontrolled rate. This as an unanticipated event that required immediate remediation. Refer to Business Case #02
6	400 Amp Regulators in Logan Substation	Business Case #03	2017	122	174	The variance is due mainly to the higher than estimated material costs of the reglators required at Logan Substation.
7	**Business Cases for Years 2018-2022**					
8	S17 HLC Breaker Replacement	Business Case #04	2020	136	136	
9	Extend Three Phase on Hotsprings Road	Business Case #05	2019	394	394	
10	Partial Reconductor on Mayo Road	Business Case #06	2020	126	126	
11			2021	138	138	
12			2022	162	162	
13	Replace Watson Lake Generating Units	Business Case #07	2020	1,890	1,890	
14			2021	1,896	1,896	
15			2022	1,826	1,826	
16	Watson Lake Unit 4 – Installation of Remote Electronic Modular Control Panel	Business Case #08	2021	151	151	
17	Upgrade Regulators at Laberge Substation	Business Case #09	2020	129	129	
18	Service Complex Boiler Replacement	Business Case #10	2020	107	107	
19	McIntyre Subdivision Contingency Loop	Business Case #11	2019	295	295	
20	Annual Right-of-Way (ROW) Widening	Business Case #12	2018	292	292	
21			2019	489	489	
22			2020	434	434	
23			2021	481	481	

ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Business Case Summary

Line	Project Name	Business Case #	Year Placed Into Rate Base	Approved/Applied Forecast Costs ($000)	Actual Costs ($000)	Variance Explanation
24			2022	555	555	
25	Fleet Replacement	Business Case #13	2019	294	294	
26			2020	129	129	
27			2021	493	493	
28			2022	264	264	
29	Satellite Radios	Business Case #14	2020	157	157	
30	Line Moves in Highway ROW	Business Case #15	2020	121	121	
31			2021	302	302	
32	Dual Rated Transformer Upgrade	Business Case #16	Multiple	293	293	
33	Install 35 kV Regulators on Carcross Road	Business Case #17	2020	196	196	
34	New Services Overhead and Underground (Projects Exceeding the Net $100K Threshold)	Business Case #18 & Reference Document 3	2019	145	145	
35			2021	126	126	
36	My Account for Online Customer Access	Business Case #19	2019	266	266	
37	Streetlights Hart Crescent	Business Case #20	2021	180	180	
38	Swift River Unit 2 Replacement	Business Case #21	2022	227	227	
39	Watson Lake Fuel Tank Access	Reference Document 1	2019	145	145	
40	Teslin PLC Replacement - Design	Reference Document 2	2018	386	386	
41	AEY CCC Rd Rebuild	Reference Document 4	2018	183	183	
42	AEY Old Crow Volt Issues-Loop	Reference Document 5	2018	362	362	
43	AEY Cowley Rd Rebuild SKH	Reference Document 6	2020	110	110	
44	AEY Aerial Trespass Lot 9 Blk 16 Adela Trail Watson Lake	Reference Document 7	2022	155	155	
45	Watson Lake Substation Feeder & Feeder Protection Replacement	Reference Document 8	2023	212	212	
46	**Business Cases for Test Period Projects 2023-2024**					
47	ATCO CIS Replacement	Business Case #22	2021	680	N/A	
48			2022	3,712	N/A	
49			2023	3,666	N/A	
50			2024	345	N/A	
51	Genset Major Overhauls	Business Case #23	2023	375	N/A	
52			2024	515	N/A	
53	Asset Management Program	Business Case #24	2023	305	N/A	
54			2024	901	N/A	
55	Mayo Road and Whistle Bend	Business Case #25	2022	400	N/A	
56			2023	2,554	N/A	
57			2024	2,781	N/A	
58	Annual Right-of-Way (ROW) Widening	Business Case #26	2023	520	N/A	
59			2024	528	N/A	
60	2023 Fleet Replacement	Business Case #27	2023	697	N/A	
61	2024 Fleet Replacement	Business Case #28	2024	766	N/A	
62	Old Crow Voltage Improvement	Business Case #29	2023	710	N/A	
63			2024	464	N/A	
64	6L19 Voltage Improvement	Business Case #30	2024	949	N/A	
65	Whistle Bend Subdivision	Business Case #31	2019	3,242	N/A	
66			2020	1,447	N/A	
67			2022	243	N/A	
68			2023	1,967	N/A	

ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Business Case Summary

Line	Project Name	Business Case #	Year Placed Into Rate Base	Approved/Applied Forecast Costs ($000)	Actual Costs ($000)	Variance Explanation
69			2024	869	N/A	
70			2025	605	N/A	
71	Fish Lake 1 Roof Replacement	Business Case #32	2023	511	N/A	
72	Louise Lake Auxiliary Structure Replacement	Business Case #33	2024	826	N/A	
73	Yukon Government Robert Campbell Streetlights	Business Case #34	2023	67	N/A	
74	ArcticPharm IPP	Business Case #35	2023	543	N/A	
75	Haeckel Hill Customer Connection	Business Case #36	2023	1,454	N/A	
76	Kluane Wind Turbine	Business Case #37	2024	4,204	N/A	
77	Beaver Creek PV	Business Case #38	2024	8,017	N/A	
78	AMI Project New Meters	AEY-YUB-065(a) Attachment 1	2024	436	N/A	
79	Sales force	AEY-YUB-066(b) Attachment 1	2024	327	N/A	

ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Business Case Summary

Line	Project Name	Business Case #	Year Placed Into Rate Base	Approved/Applied Forecast Costs ($000)	Actual Costs ($000)	Variance Explanation
80	**Business Cases with Significant Capital Expenditures Outside of 2023-2024 Test Period**					
81	Fish Lake 2 Power Station Design	Business Case #39	TBD	912	N/A	
82	Condition Assessment and Option Analysis for Generating Plants	Business Case #40	TBD	627	N/A	
83	Old Crow Plant Design	Business Case #41	2026	10,959	N/A	

ATCO Electric
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2023-2024 General Rate Application (GRA)

Watson Lake Fuel Tank Access

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 1

Executive Summary

1. Install additional walkways to allow workers access to the top of the fuel tanks without the need for a harness.

Background

2. The current tank installation has partial walkways that, based on height, would require workers to wear a harness when performing work on the tanks. Furthermore, the installation does not provide sufficient rated anchor points for harness and lanyard attachment. This poses a significant risk to AEY staff and fuel delivery drivers who are required to dip tanks to confirm levels prior to delivery.

Project Description

3. Drain tanks and conduct Lower Explosive Limit (LEL) monitoring. Welding of additional walkway structure to tanks. Inspect and refill tanks.

Project Schedule and Cost

Table 1: Project Schedule and Cost
($000)

Date		Cost
2019	Fuel Tank Access	$145

Business Drivers and Benefits

4. The main driver behind the walkway addition was for AEY employee and fuel delivery contractor safety. The additional walkway allows for access to the top of the tanks without the need for a harness.

Evaluation of Viable Alternatives

Alternative 1

5. Drain tanks and conduct Lower Explosive Limit (LEL) monitoring. Welding of additional walkway structure to tanks. Inspect and refill tanks.

Alternative 2

6. Welding additional anchor points for harnesses was considered but this would also require emptying and monitoring of the tanks, which is a significant portion of the cost. Since the walkway is functionally far more useful and operationally efficient for AEY staff and outside contractors than anchor points, this option was not selected.

Recommendation

7. It is recommended to proceed with Alternative 1 and the walkway structure be added.

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2023-2024 General Rate Application (GRA)

Teslin PLC Replacement - Design

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 2

Executive Summary

1. Replace the current programmable logic controller (PLC) with a commercially available and manufacturer supported PLC.

Background

2. The current PLC is obsolete and no longer supported by the manufacturer. Failure of the PLC will lead to long downtimes and reduced availability of the Teslin plant. A modern PLC will allow for increased visibility and enhanced data collection. Migrating the existing separate engine and fuel system controllers to the new PLC will simplify plant operations.

Project Description

3. Design and procure parts in 2017 and installation and commissioning in 2018. Construction will be completed in the summer and is expected to take 3 months.

Project Schedule and Cost

Table 1: Project Schedule and Cost
($000)

Date		Cost
2018	Construction and commissioning	$386

Business Drivers and Benefits

4. The main driver behind the PLC replacement is to avoid long downtimes (unavailability of plant) due to lack of viable replacement parts.

Evaluation of Viable Alternatives

Alternative 1

5. Replace the PCL, as the current PLC is obsolete and no longer supported by the manufacturer.

Alternative 2

6. Operate as is. Source out and keep stock of obsolete components. Not recommended due to lack of technical support and delay of inevitable replacement.

Alternative 3

7. Remove PLC and activate plant when required manually. Not practical to send qualified utility worker from Whitehorse to Teslin to active the plant when it is required. Additionally, a PLC or other control system for practical manual operation would still be required.

Recommendation

8. It is recommended to proceed with Alternative 1 and replace the current PCL.

ATCO Electric
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2023-2024 General Rate Application (GRA)

New Services Overhead and Underground

2018-2022 Business Case #18 - Updated

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 3

AEY has added two projects which were incorrectly bucketed on Schedule 9.2 that are over $100,000. The details are provided below in red.

Executive Summary

1. New Services: Overhead and Underground is a significant component of new extensions. Most of these projects are either fully contributed or the net capitalization falls below the $100,000 and $500,000 thresholds to require a Business Case. From 2018 through 2022, there were two exceptions to this, and these exceptions are explained below.

Background

2. New Services: Overhead and Underground projects are customer driven connections to the existing grid.

Project Description

3. Interconnections to the existing grid.

Project Schedule and Cost

Table 1: New Services Overhead and Underground ($000)

	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Actuals							Test Period	
New Services Overhead and Underground	1,908	1,703	2,555	2,701	2,483	3,665	2,777	4,219	4,324

Business Drivers and Benefits

4. Customer driven services that are undertaken to meet customer needs. Most of these projects are fully funded. Further explanation is provided below for projects that are not fully funded where the net amount capitalized exceeds $100,000.

Table 2: Projects Exceeding the Net $100,000 Threshold ($000)

Description	Completion Date	Actuals
Boreal Common Lot 118 Tarahne Way	2021	126
Raven's Inn Lot 41 Motorways	2019	145
Whistle Bend New Services	2016	161
Whistle Bend New Services	2017	102

5. The Boreal Common Lot 118 Tarahne Way connection consists of installing two pedestals, a 750 kVA 120/208 V transformer, five bollards, 3x42 m of primary wire and 4x63 m of secondary wire.

6. The Raven's Inn Lot 41 Motorways connection was installing a large pedestal and trenching 85 m of 4x4 500 mcm secondary wire. The actual cost came in lower than the estimate mainly due to easier than anticipated digging.

7. Whistle Bend New Services are the costs to connect residential and commercial customers in the Whistle Bend subdivision, where the investment level covers the cost of connection. As a result, no contribution is required from the customer to complete the installation, and therefore, no individual project is opened. The costs include conduit, wire, engineering, and installation labour.

Evaluation of Viable Alternatives

8. None.

Recommendation

9. Proceed with customer connections as part of AEY's obligation to provide safe and reliable service.

ATCO Electric
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2023-2024 General Rate Application (GRA)

AEY CCC Rd. Rebuild

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 4

Executive Summary

1. To rebuild and reconduct 912 m with new 1/0 wire and re-span distance between poles to 80 m spans to improve reliability and reduce maintenance costs.

Background

2. This section of line has had significant issues with wire sagging from heavy frost and snow loading, leading to 14 outages in the last two years as well as power bumps to the system.

Project Description

3. Rebuild and reconductor 912 m of existing #4ACSR wire to #1/0ASCRS wire and re-span distances between poles to 80m. Add three new fuses for taps. Lower neutral and Northwestel communication lines to 2000mm and change out two running angles. Add two poles in line to reduce span length in two locations.

Project Schedule and Cost

Table 1: Project Schedule and Cost
($000)

Date		Cost
2018	CCC road rebuild and reconduct	$183

Business Drivers and Benefits

4. The main driver behind the rebuild and reconductor is to improve the reliability of the system. The rebuild would also eliminate the need to knock snow and ice off the main line, reducing the required man hours and thereby saving on maintenance costs.

Evaluation of Viable Alternatives

Alternative 1

5. Rebuild and reconductor 912 m of existing #4ACSR wire to #1/0ASCRS wire and re-span distances between poles to 80m. Add three new fuses for taps. Lower neutral and Northwestel communication lines to 2000mm and change out two running angles. Add two poles in line to reduce span length in two locations.

Alternative 2

6. Operate as is. This would not address the reliability issues, resulting in higher maintenance costs.

Recommendation

7. It is recommended to proceed with Alternative 1, that a rebuild and reconduct be performed.

ATCO Electric
YUKON

2023-2024 General Rate Application (GRA)

AEY Old Crow Volt Issues - Loop

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 5

Executive Summary

1. Install underground line to create a loop in Old Crow to improve voltage for customers.

Background

2. Both the model and actual measurements indicate that the voltage in Old Crow is below acceptable limits. Voltages outside the “No Interruption in Function Region” on the CBEMA Curve (i.e., <0.9 pu) have been measured at customer outlets at non-peak times, indicating that interruptions to service can reasonably be expected due to low voltage during winter months.

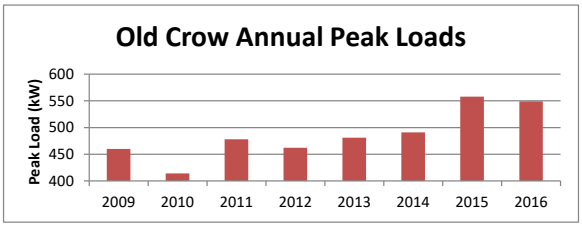
3. Since the load continues to grow at a high rate in Old Crow, this is already a significant problem that is expected to get worse if it is not addressed.

Table 1: Old Crow Voltage Profile

4. Load continues to grow in Old Crow with new community buildings and housing added every year. The annual peak load can be seen below:

Table 2: Old Crow Annual Peak Loads

Year	Peak Load (kW)
2009	460
2010	414
2011	478
2012	462
2013	481
2014	491
2015	558
2016	549



Project Description

5. Install 325 m of new underground line in conduit.

6. Install two riser poles.

7. Upgrade 200 m of overhead line from #4 ACSR to 1/0 ACSR.

8. Reconfigure two locations of existing long secondary runs.

Project Schedule and Cost

Table 1: Project Schedule and Cost ($000)

Date		Cost
2018	Old Crow Volt Issues - Loop	$362

Business Drivers and Benefits

9. The main driver behind the loop is to improve the voltage to be within specifications. Additionally, the loop will add contingency and flexibility to the Old Crow system.

Evaluation of Viable Alternatives

Alternative 1

10. Install underground line to create a loop in Old Crow to improve voltage for customers.

- Install 325 m of new underground line in conduit.
- Install two riser poles.

- Upgrade 200 m of overhead line from #4 ACSR to 1/0 ACSR.
- Reconfigure two locations of existing long secondary runs.

Alternative 2

11. Build overhead tie line. This alternative was rejected because of several technical challenges.

1) The alignment for the overhead option would be over a wet area and standing water. This would require a long span with tall poles that could not be shipped via Hercules aircraft.
2) Proper foundations for a long span would be difficult in permafrost areas.
3) The alignment is next to the airport with height restrictions for the taller poles.
4) Construction methods available in the community may not be suitable for setting and stringing the long span.

Alternative 3

12. Install voltage regulators. This alternative brings the voltage within specification but does not allow for continued load growth. Equipment with moving parts in an exposed, extreme environment will bring higher maintenance costs and replacement costs than underground equipment.

Alternative 4

13. Reconductor Feeder #2 primary from plant to riser S8326. This alternative resolves the primary voltage issues. The construction would require long, sustained outages and be expensive and complicated. This alternative does not add contingency.

Alternative 5

14. Add a shunt capacitor. This alternative does not address the voltage problem as load is not very inductive. Adding a capacitor would introduce significant operational complexity.

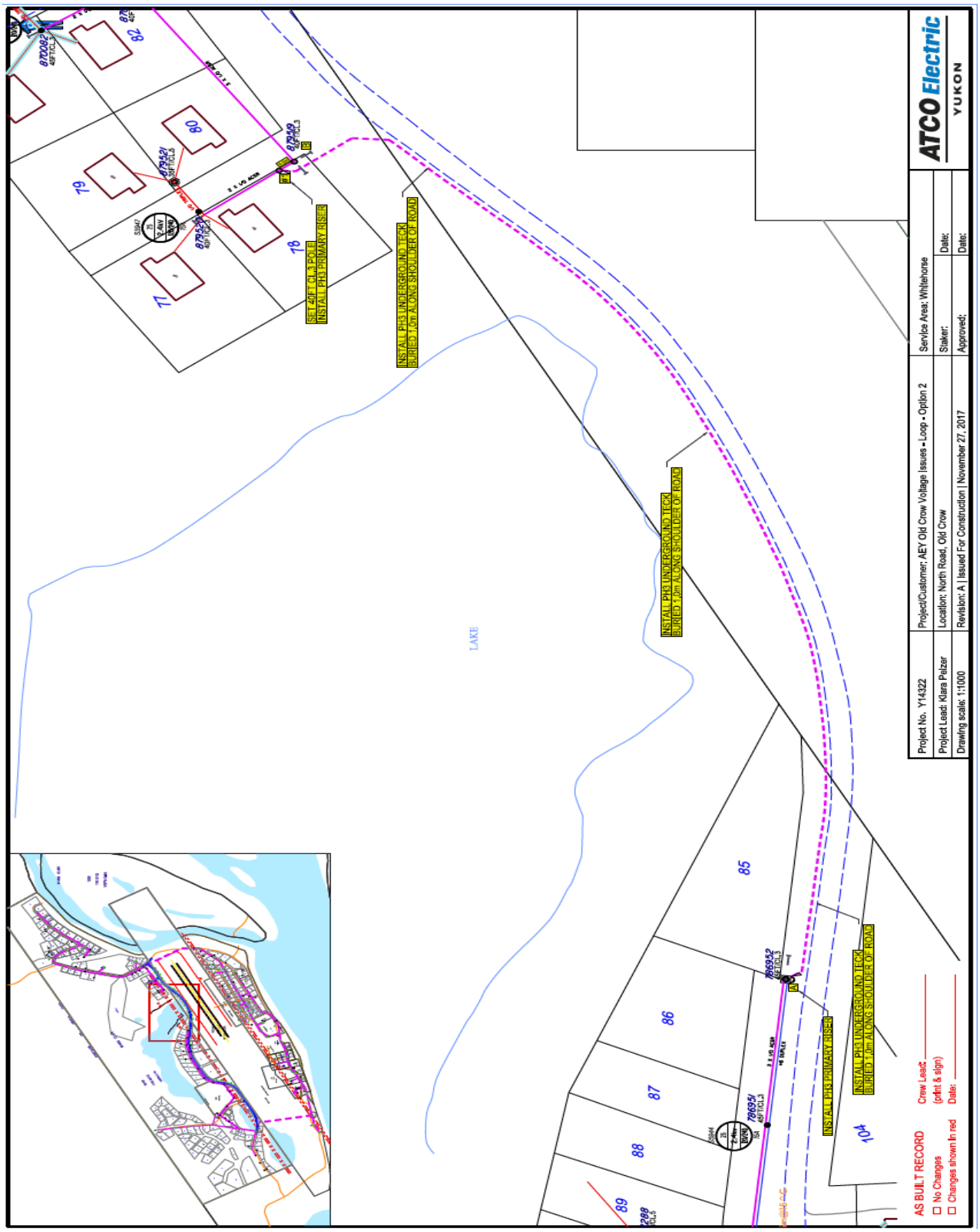
Alternative 6

15. Voltage conversion. Not a viable solution at this time. Requires nearly the complete reconstruction of the distribution infrastructure in the community as none of the spacings, insulation levels, or transformers are designed with the intention of being converted. The benefits of voltage conversion are increased capacity, lower line losses, better voltage to customers, and standardized equipment.

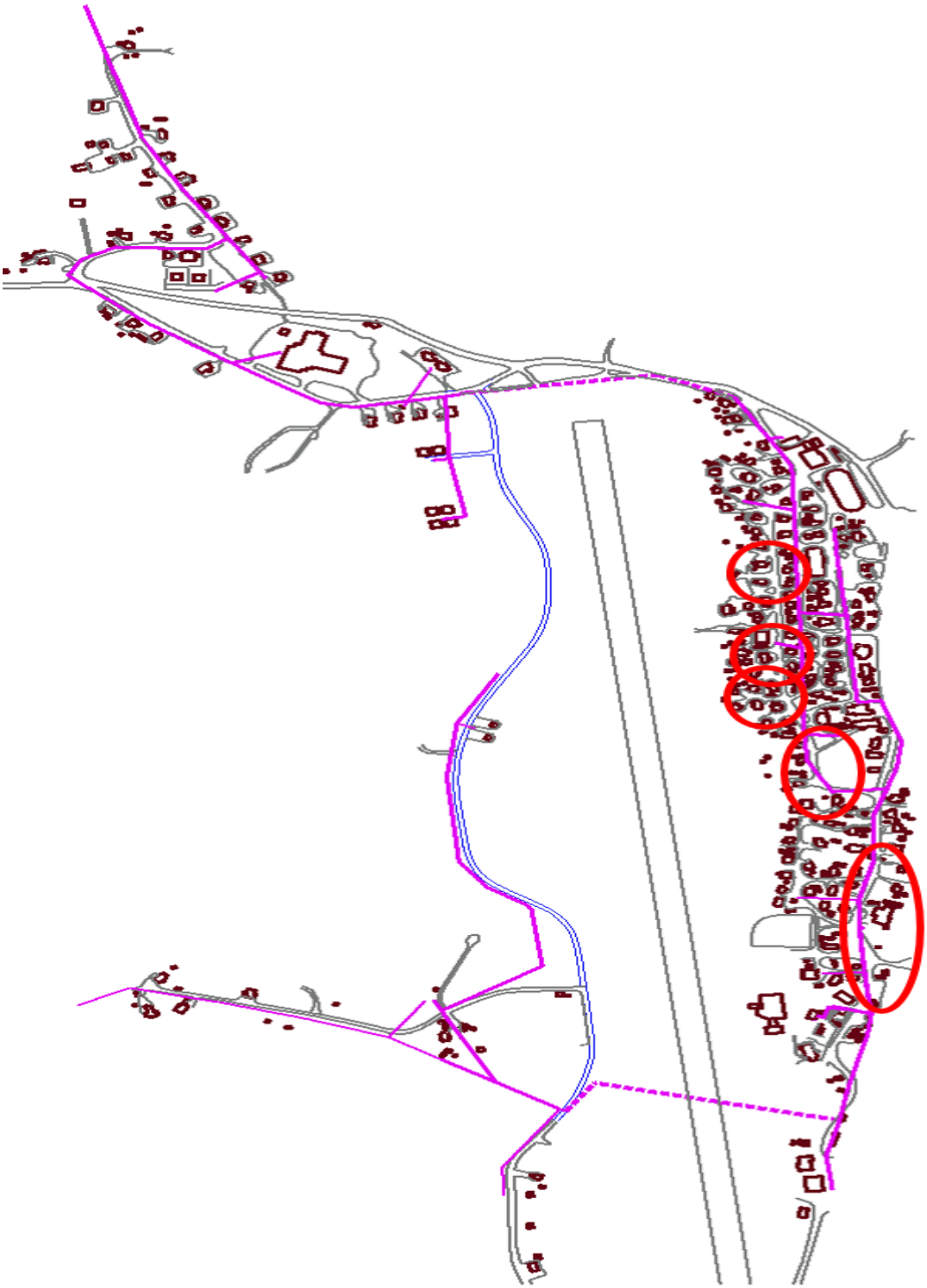
Recommendation

16. It is recommended to proceed with Alternative 1 install a new underground loop in Old Crow.

Appendix A – Project Map – New Underground Tie



Appendix B – Project Map – Long Secondary Locations



ATCO Electric
YUKON

2023-2024 General Rate Application (GRA)

AEY Cowley Rd. Rebuild

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 6

Executive Summary

1. To upgrade the wire size on Cowley Lake Road to withstand frost build up and reduce outages.

Background

2. There were nine outages due to ice loading and frost on this line between 2011 and 2016.

Project Description

3. Upgrading approximately 2.4 km of distribution line to new 1/0 ACSR wire and rebuilding structures as required to modern clearance and separation standards.

Project Schedule and Cost

Table 1: Project Schedule and Cost
($000)

Date		Cost
2018	Cowley Road Rebuild	$110

Business Drivers and Benefits

4. The main driver behind the rebuild and reconductor is to improve reliability on the system. The rebuild would also eliminate the need to knock snow and ice off the main line reducing man hours required to do so, thereby saving on maintenance costs.

Evaluation of Viable Alternatives

Alternative 1

5. Upgrading approximately 2.4 km of distribution line to new 1/0 ACSR wire and rebuilding structures as required to modern clearance and separation standards.

Alternative 2

6. Operate as is. This would not address the reliability issues and would result in higher maintenance costs.

Alternative 3

7. Rebuild entire line to new standards. Cost would be an additional estimated $60,000 for the remaining 1.5 km of line and only impact three customers. This was deemed to be too costly for the expected benefit.

Recommendation

8. It is recommended to proceed with Alternative 1 a rebuild be performed on the selected portion of the line.

ATCO Electric
YUKON

2023-2024 General Rate Application (GRA)

AEY Aerial Trespass Lot 9 Blk 16

Adela Trail Watson Lake

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 7

Executive Summary

1. The owner of 270 Adela Trail requested AEY remove AEY's facilities serving 271 Wye Drive from 270 Adela Trail. The proposed project removes addresses the trespass and maintains service to customers.

Background

2. Service to 271 Wye Drive in Watson Lake was fed through 270 Adela Trail. The owner of 270 Adela Trail requested AEY remove AEY's facilities serving 271 Wye Drive from their property.

Project Description

3. Build approximately 455 m of new powerline from Stubenburg Blvd to 271 Wye Drive along Wye Drive. Refeed 271 Wye Drive from the new powerline, remove poles and wire in trespass. New powerline includes the installation of 11 poles, 4 anchors, 2 primary risers, 1 transformer, stringing of 310 m of primary overhead wire, 95 m of secondary overhead wire and 136 m of primary underground wire in conduit.

Project Schedule and Cost

Table 1: Project Schedule and Cost
($000)

Date		Cost
2020-22	Aerial trespass resolution	$155

Business Drivers and Benefits

4. The main driver behind the project is to address the existing trespass on private property. There are further potential trespass issues on Wye Drive and this project provides an alternate source to serve customers on Wye Drive. This alternative was the most acceptable to the community.

Evaluation of Viable Alternatives

Alternative 1

5. Build approximately 455 m of new powerline from Stubenburg Blvd to 271 Wye Drive along Wye Drive. Refeed 271 Wye Drive from the new powerline, remove poles and wire in trespass. New powerline includes the installation of 11 poles, 4 anchors, 2 primary risers, 1 transformer, stringing of 310 m of primary overhead wire, 95 m of secondary overhead wire and 136 m of primary underground wire in conduit.

Alternative 2

6. Come to an agreement with the landowner and obtain an easement. This alternative was pursued as a first choice, but AEY could not reach an agreement with the landowner.

Alternative 3

7. Feed 271 Wye Drive from the west. This alternative was pursued, and a design completed. This alternative was rejected due to resistance from the community and the cost to feed only one customer with no potential for additional services.

Alternative 4

8. Feed 271 Wye Drive from the northeast via 246 Wye Drive. This alternative was rejected because of the timeline and uncertainty of getting easement and approval for the new alignment. This option would be lower cost (4 poles and approximately 180 m of new line). However as this needs to be a primary line, it will require increased brushing clearing in both length and width and result in increased encumbrance of the property.

Recommendation

9. It is recommended to proceed with Alternative 1 and construct a new powerline along Wye Drive as proposed.

ATCO Electric
YUKON

2023-2024 General Rate Application (GRA)

Watson Lake Substation Feeder &

Feeder Protection Replacement

YUB Board Order 2023-24
Directions 5 to 7: Reference Document 8

Executive Summary

1. To replace obsolete feeder protection and oil filled reclosers per AEY recloser replacement strategy.

Background

2. Feeder protection is obsolete and needs to be replaced. AEY's recloser replacement strategy is to replace all oil filled reclosers with modern vacuum reclosers.

Project Description

3. Replace obsolete feeder protection and oil filled reclosers with low maintenance vacuum reclosers equipped with SEL-651R controls, for the three feeders in Watson Lake. Due to the contingency and equipment testing requirements, it will be essential to schedule work for the summer period.

Project Schedule and Cost

Table 1: Project Schedule and Cost
($000)

Date		Cost
2022	Design and procurement	$146
2023	Installation and commissioning	$66
Total		**$212**

Business Drivers and Benefits

4. The main driver behind the project is to replace obsolete equipment to maintain safe and reliable operation of the Watson Lake generating facility.

Evaluation of Viable Alternatives

Alternative 1

5. Replace obsolete feeder protection and oil filled reclosers with low maintenance vacuum reclosers equipped with SEL-651R controls, for the three feeders in Watson Lake

Alternative 2

6. Replace the existing relays (feeder protection) with new relays. The new relays are deeper than the current ones, therefore, a spacer plate will be required. Additionally, this does not address the oil filled reclosers.

Recommendation

7. It is recommended to proceed with Alternative 1 and replace the feeder protection and reclosers.

1 Variance of the actual to 2016-17 approved expenditures is less than 100 percent and $100,000.
2 2018-2022 expenditures are under $100,000.
3 2023-2024 expenditures are under $500,000
4 No individual project over $100,000 in any year
5 Contributed project, expenditures net of contributions lower than thresholds

ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Continuity of Capital Expenditures - Blackline
($000)

Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
1	**Generation**												
2	Fish Lake Unit 2 - Replace Power Station - Detailed Design	Business Case No. 39	-	-	-	-	-	-	-	-	527	-	-
3	Fish Lake 1 Roof Replacement	Business Case No. 32	-	-	-	-	-	-	-	452	-	-	-
4	Fish Lake 2 Replace Power Station FEED	Business Case No. 39	-	-	-	-	-	-	-	385	-	-	-
5	Fish Lake 2 Head pond Intake Building Replacement	3	-	-	-	-	-	-	-	153	-	-	-
6	Fish Lake 2 Head Pond Spillway Replacement	1	286	166	540	(17)	-	-	-	-	-	20	589
7	Fish Lake Ditch 1 Failure	Business Case No. 02	412	(150)	-	-	-	-	-	-	-	-	-
8	Fish Lake Ditch 1 Intake Building - Design	1	2	1	115	(26)	11	-	-	-	-	-	30
9	Fish Lake Unit 1 Spillway Diversion Structure	1	-	30	0	220	527	(5)	-	-	-	-	411
10	Fish Lake Unit 2 Assessment	1	98	11	(112)	-	-	-	-	35	-	100	-
11	Fish Lake Unit 2 Condition Assessment and Options Analysis	2	-	-	-	-	-	-	66	-	-	-	-
12	Fish Lake 2 TIV actuator and wicket gates	3	-	-	-	-	-	-	-	37	-	-	-
13	Fish Lake Unit 1 Roof Design	Business Case No. 32	-	-	-	-	-	43	16	-	-	-	-
14	Fish Lake Unit 2 Bearing and Shaft Repair	2	-	-	-	48	6	-	-	-	-	-	-
15	Fish Lake Unit 2 TIV Replace	2	-	-	48	(1)	-	-	-	-	-	-	-
16	Fish Lake 1 Add TIV Actuator	3	-	-	-	-	-	-	-	-	53	-	-
17	Fish Lake 1 TIV replacement	2&3	-	-	-	-	-	-	24	89	-	-	-
18	Fish Lake 2 Add bypass valve actuator and automation	3	-	-	-	-	-	-	-	35	-	-	-
19	Fish Lake 2 PLC Replacement	3	-	-	-	-	-	-	-	-	39	-	-
20	Fish Lake Unit 2 DC TIV Actuator & Wicket Gate Replacement	AEY-YUB-046(b) Attachment 2	-	-	-	-	-	-	138	-	-	-	-
21	Fish Lake Water Monitoring Upgrades	1,2&3	10	106	1	24	(0)	(0)	-	26	81	25	25
22	Fish Lake Unit 1 Turbine and Building Replacement	2	20	16	16	3	4	3	(71)	-	-	-	-
23	Fish Lake Ditch 3 Diversion Replacement	1	2,601	168	30	0	-	29	(27)	-	-	2,908	-
24	Louise Lake Containment Dyke Seismic Analysis	1	-	-	-	-	-	-	-	-	-	40	-
25													
26	Watson Lake - Replace Air Start Piping	3	-	-	-	-	-	-	-	103	-	-	-
27	Watson Lake Add Building Concrete Apron	3	-	-	-	-	-	-	-	25	-	-	-
28	Watson Lake block heater pumps	3	-	-	-	-	-	-	-	50	-	-	-
29	Watson Lake Expansion Tank and Access Replacement Design	2&3	-	-	-	-	-	-	25	152	-	-	-
30	Watson Lake Fuel Piping Upgrade	3	-	-	-	-	-	-	-	231	-	-	-
31	Watson Lake Fuel System Control Replacement	3	-	-	-	-	-	-	-	136	-	-	-
32	Watson Lake Install Diverter Actuator, with limit switches, for #1/6 boilers	3	-	-	-	-	-	-	-	25	-	-	-
33	Watson Lake Replace HRS pumps/motors	3	-	-	-	-	-	-	-	100	-	-	-
34	Watson Lake Replace Non-Code Exchangers for #2/4	3	-	-	-	-	-	-	-	100	-	-	-
35	Watson Lake Unit 1 Replacement	Business Case No. 07	-	-	-	418	1,278	130	-	-	-	-	-
36	Watson Lake Unit 2 - Major Overhaul	Business Case No. 23	-	-	-	-	-	-	-	375	-	-	-
37	Watson Lake Unit 3 Replacement	Business Case No. 07	-	-	436	1,213	241	-	-	-	-	-	-
38	Watson Lake Unit 4 - Major Overhaul	Business Case No. 23	-	-	371	(2)	-	-	-	-	515	-	-
39	Watson Lake Unit 4 EMCP Replacement	Business Case No. 08	-	-	-	-	-	177	(26)	-	-	-	-
40	Watson Lake Unit 5 Major Overhaul	Business Case No. 23	-	-	-	-	-	-	438	41	-	-	-
41	Watson Lake Unit 6 Replacement	Business Case No. 07	-	-	-	-	828	901	140	-	-	-	-
42	Watson Lake Waste Heat Cathodic Protection	3	-	-	-	-	-	-	-	150	-	-	-
43	Watson Lake 125VDC Battery and Charger Replacement	2	-	-	-	23	-	-	-	-	-	-	-
44	Watson Lake Fuel Tank Access	Reference Document 1	-	-	17	128	-	-	-	-	-	-	-
45	Watson Lake Inverter Replacement	2	-	-	-	51	-	-	-	-	-	-	-
46	Watson Lake Plant Fire Alarm System - Design	1	-	-	-	-	-	-	-	-	-	-	
47	Watson Lake Plant Fire Alarm System	1	-	62	106	(2)	-	-	-	-	-	-	102
48	Watson Lake Plant Fuel Sys Control Replace	1	-	-	-	-	-	1	147	-	-	-	99
49	Watson Lake Plant Overhead Door Replacement	2	-	-	-	-	-	-	24	-	-	-	-
50	Watson Lake Plant Phone System Replacement	2	-	-	-	34	(1)	-	-	-	-	-	-
51	Watson Lake Plant PLC	2	-	28	1	-	-	-	-	-	-	-	-
52	Watson Lake Unit 5 PLC	2	-	22	1	-	-	-	-	-	-	-	-
53	Watson Lake Utilidor Split/Fuel Sys	2	-	-	42	6	4	2	3	-	-	-	-
54	Watson Lake Unit 2 Replacement	1	1,054	270	-	-	-	-	-	-	-	1,387	-
55													
56	Old Crow Add Day Tank and Fuel Transfer Pump	3	-	-	-	-	-	-	-	25	103	-	-
57	Old Crow Boiler Metering and Control	3	-	-	-	-	-	-	-	25	-	-	-
58	Old Crow Plant Tank Access	3	-	-	-	-	-	-	-	-	232	-	-
59	Old Crow Unit 1 Major Overhaul YTCU414	Business Case No. 23	-	-	-	-	475	(10)	-	-	-	-	-
60	Old Crow Unit 2 Replacement	AEY-YUB-046(b) Attachment 1	-	-	-	192	(17)	-	-	-	-	-	-
61	Old Crow Unit 3 Failure - Major Overhaul	2	-	-	-	-	-	270	(190)	-	-	-	-
62	Old Crow Unit 4 Major Overhaul	Business Case No. 23	-	-	-	-	-	-	252	-	-	-	-
63	Old Crow # 2 Long Block Replacement	Business Case No. 23	-	-	-	-	-	-	71	-	-	-	-
64	Old Crow Unit 2 Generator Refurbishment	1	39	-	-	-	-	-	-	-	-	75	-
65	Old Crow Old Plant Gantry Accessories	2	-	-	-	-	23	(2)	-	-	-	-	-
66	Old Crow Plant (old) Gantry Crane	2	-	-	-	-	22	-	-	-	-	-	-
67	Old Crow Original Plant Rebuild	Business Case No. 41	369	50	(118)	2	6	489	(85)	150	-	-	249
68	Old Crow Unit 3 Replacement	1	1,085	8	-	-	-	-	-	-	-	1,046	-
69	Old Crow Unit 2 - External Equipment	1	-	-	-	-	-	-	-	-	-	-	51
70													

1 Variance of the actual to 2016-17 approved expenditures is less than 100 percent and $100,000.
2 2018-2022 expenditures are under $100,000.
3 2023-2024 expenditures are under $500,000
4 No individual project over $100,000 in any year
5 Contributed project, expenditures net of contributions lower than thresholds

ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Continuity of Capital Expenditures - Blackline
($000)

Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
71	Beaver Creek Unit 3 Major Overhaul	Business Case No. 23	-	-	-	-	-	323	(6)	-	-	-	-
72	Beaver Creek Replace JW and CAC cooler	3	-	-	-	-	-	-	-	100	-	-	-
73	Beaver Creek Station Service Transformer	3	-	-	-	-	-	-	-	100	-	-	-
74	Beaver Creek Unit 1 Major Overhaul	Business Case No. 23	-	-	-	-	-	307	(132)	-	-	-	-
75	Beaver Creek Unit 2 Major	Business Case No. 23	-	-	127	(1)	-	-	-	-	-	-	-
76	Beaver Creek Utilidor Upgrades	3	-	-	-	-	-	-	-	20	-	-	-
77	Destruction Bay/ Stewart/ Beaver Creek Plant Condition Assessment	Business Case No. 40	-	-	-	-	-	-	-	318	-	-	-
78													
79	Destruction Bay Unit 2 Major Overhaul	Business Case No. 23		-	-	-	-	181	(7)	-	-	-	-
80	Destruction Bay Unit 1 Major Overhaul	Business Case No. 23	133	7	-	-	-	-	-	-	-	-	-
81	Destruction Bay Unit 3 Replacement	1	5	28	-	-	-	-	-	-	-	-	-
82	Destruction Bay Programmable Logic Controller Upgrade	1	15	252	13	-	-	-	-	-	-	-	305
83	Destruction Bay Unit 2 Replacement	1	538	9	-	-	-	-	-	-	-	620	-
84	Destruction Bay Fuel Line Upgrade	1	55	-	-	-	-	-	-	-	-	106	-
85	Destruction Bay Unit 3 Major Overhaul	Business Case No. 23	-	-	-	-	-	112	(16)	-	-	-	-
86	Destruction Bay Replace POW	Business Case No. 40		-	-	-	-	-	-	-	309	-	-
87													
88	Pelly Crossing Fuel System Upgrade	1	-	143	119	(4)	-	-	-	-	-	-	152
89	Pelly Crossing Ventilation System Upgrade	1	-	-	-	-	-	-	-	-	-	-	25
90	Pelly Crossing Unit 2 Silencer	1	-	-	-	-	-	-	-	-	-	-	20
91													
92	Ross River Replace ABB 5HK Breakers	1	71	-	-	-	-	-	-	-	-	95	-
93	Ross River Electrical Service Panel Upgrade	1	-	-	-	-	-	-	-	-	-	25	-
94													
95	Swift River Unit 2 Replacement	Business Case No. 21	-	-	-	-	-	-	225	2	-	-	-
96	Swift River Unit 1 Replacement	1	36	82	4	-	-	-	-	-	-	80	61
97	Swift River Fuel System Upgrade	2	-	-	-	38	-	-	-	-	-	-	-
98	Swift River Unit 1 PLC Replacement	2	-	-	-	23	-	-	-	-	-	-	-
99	Swift River Unit 2 Replace	2	-	-	-	-	52	8	-	-	-	-	-
100													
101	Teslin Plant Assessment		-	54	(14)	1	-	-	-	-	-	-	102
102	Teslin PLC Replacement - Design	Reference Document 2	-	-	387	(1)	-	-	-	-	-	-	105
103	Teslin Plant Platform Replacement	2	-	-	-	34	(0)	-	-	-	-	-	-
104	Teslin Rad Core Replacement	2	-	-	-	-	22	-	-	-	-	-	-
105													
106	Haines Junction Fuel Containment Upgrade	1	-	-	-	-	-	-	-	-	-	-	30
107	Haines Junction Plant Positive Air Shutoff for YTCU416	1	-	-	-	-	-	20	3	-	-	-	-
108	Haines Junction Regulator Pad Replacement	1	-	-	-	-	-	4	36	-	-	-	-
109													
110	Louise Lake Auxiliary Structure Replacement	Business Case No. 33	-	-	-	11	31	8	2	1	773	-	-
111													
112	IPP Remote monitoring	3	-	-	-	-	-	-	-	100	-	-	-
113	Carmacks Plant Foundation Repair	2	-	-	-	14	16	-	-	-	-	-	-
114	Mobile CUL-341 PLC replacement	3	-	-	-	-	-	-	-	-	94	-	-
115	Pelly Unit 3 Block Replacement	Business Case No. 23	-	-	-	111	(1)	-	-	-	-	-	-
116	PLC Replacement Stage 1	1	-	76	(3)	(1)	-	-	-	-	-	-	103
117	Replace fuel ESD valve within utilidor (x10)	3	-	-	-	-	-	-	-	-	52	-	-
118	2017 Gen Failed Hardware Contingency	2	-	27	(1)	(2)	-	-	-	-	-	-	-
119	Mobile Generator 250kW Voltage and Frequency Protection	1	7	0	-	-	-	-	-	-	-	35	-
120	Mobile Generator 225 kW Refurbishment	1	6	10	-	-	-	-	-	-	-	20	-
121	Mobile Generator 350 kW Refurbish Enclosure	1	-	38	2	-	-	-	-	-	-	-	19
122	Standby plant equipment and building heat	3	-	-	-	-	-	-	-	-	52	-	-
123	Add transfer trip scheme	3	-	-	-	-	-	-	-	100	-	-	-
124	Fish Creek Diversion	3	-	-	-	-	-	-	-	-	317	-	-
125	General Plant Improvements	3	-	-	-	-	-	-	-	-	155	-	-
126	Fuel System Assessment	1										-	
127	IRC Chargers	1										-	22
128													
129	Generation < $20,000	4	102	(553)	19	96	70	59	127	82	52	20	29
130													
131	**Generation Total**		**6,944**	**963**	**2,147**	**2,635**	**3,597**	**3,050**	**1,178**	**3,723**	**3,352**	**6,602**	**2,529**
132													
133	Kluane First Nation Wind Turbine Upgrades	Business Case No. 37	-	-	-	-	12	17	1,210	2,215	750	-	-
134	Renewables - Old Crow	5	-	-	-	1,034	1,147	1,406	34	-	-	-	-
135	Watson Lk IPP - Integration to Plant	2&3	-	-	-	-	-	18	6	75	-	-	-
136	Beaver Creek PV Generation	Business Case No. 38	-	-	-	-	-	64	2,500	3,767	1,686	-	-
137	Study Costs	1,2&3		208	80	(27)	(72)	(175)	(1)	(13)			
138	**Renewables Total**		**-**	**208**	**80**	**1,007**	**1,087**	**1,330**	**3,749**	**6,044**	**2,436**	**-**	**-**
139													
140													

1 Variance of the actual to 2016-17 approved expenditures is less than 100 percent and $100,000.
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ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Continuity of Capital Expenditures - Blackline
($000)

Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
141	**New Extensions**												
142	New Services Overhead and Underground	Reference Document 3 & Business Case No. 18	1,908	1,703	2,555	2,701	2,446	3,665	2,777	4,219	4,324	1,995	2,032
143	Annual Land Rights	1,3&4	116	84	66	89	81	69	67	102	82	120	122
144	General Drafting and Mapping	1,3&4	37	35	53	42	52	49	45	46	41	40	41
145													
146	Whistle Bend Stage 3	Business Case No. 31	215	690	545	479	(20)	-	-	-	-	-	1,521
147	Whistle Bend Stage 4	Business Case No. 31	-	476	729	717	(12)	-	-	-	-	-	-
148	Whistle Bend Stage 5	Business Case No. 31	-	-	(17)	745	216	-	-	-	-	-	-
149	Whistle Bend Stage 6	Business Case No. 31	-	-	-	-	433	-	-	285	-	-	-
150	Whistle Bend Stage 7	Business Case No. 31	-	-	-	-	9	0	351	460	-	-	-
151	Whistle Bend Stage 8	Business Case No. 31	-	-	-	-	-	-	140	18	-	-	-
152	Whistle Bend Stage 9	Business Case No. 31	-	-	-	-	-	-	-	683	458	-	-
153	Whistle Bend future stages - place holder	Business Case No. 31	-	-	-	-	-	-	-	-	309	-	-
154	Whistle Bend New Services		-	-	-	-	136	-	234	-	-	-	-
155													
156	Mt Sima Pumphouse	5	-	-	-	-	123	141	-	-	-	-	-
157	Brookside Phase 2B	5	-	112	59	25	-	-	-	-	-	-	-
158	Challenge Development 704 Main Street	5	-	-	-	-	135	0	-	-	-	-	-
159	Hammerstone Lots off Tlingit Street	5	-	-	-	-	37	27	125	-	-	-	-
160	Loft 2240 2nd Avenue	5	-	-	-	-	-	133	-	-	-	-	-
161	Mt Sima Hill Service	5	-	-	-	-	-	-	413	-	-	-	-
162	Schmidt, Harold & Savanah	5	-	-	-	119	(0)	-	-	-	-	-	-
163	TSL/Ketza Old Crow Health & Housing	5	-	-	-	-	-	163	-	-	-	-	-
164	VGFN Houses on North Rd	5	250	-	-	-	-	-	-	-	-	-	-
165	VoT Connector Road Subdivision	5	-	-	-	145	(1)	-	-	-	-	-	-
166													
167	YG Airport Hangar	5	-	-	-	-	-	-	562	(30)	-	-	-
168	Yukon Lot 503	5	-	-	-	113	-	-	-	-	-	-	-
169													
170	New Extension < $20,000		-	-	-	-	-	-	-	102	-	-	(1)
171	**New Extensions Total**		**2,527**	**3,099**	**3,990**	**5,176**	**3,636**	**4,247**	**4,714**	**5,885**	**5,215**	**2,155**	**3,715**
172													
173													
174	**New Extensions-IPP**												
175	Arctic Pharm IPP	Business Case No. 35	-	-	-	-	-	-	-	543	-	-	-
176	Sunergy YEC HJ IPP	3	-	-	-	-	-	-	-	343	-	-	-
177	Haeckel Hill	Business Case No. 36	-	-	-	-	-	-	1,219	235	-	-	-
178	NOMAD IPP	5	-	-	-	-	-	144	-	-	-	-	-
179	SOLVEST IPP	5	-	-	-	-	-	37	-	-	-	-	-
180	THELP	5	-	-	-	-	-	185	175	(7)	-	-	-
181	**New Extensions - IPP Total**		**-**	**-**	**-**	**-**	**-**	**366**	**1,394**	**1,115**	**-**	**-**	**-**
182													
183	**Distribution Improvements**												
184	Annual Right of Way Widening	Business Case No. 12&26	494	581	292	489	434	481	555	520	528	439	447
185	General Pole Replacements	1,3&4	40	35	39	29	112	97	98	254	211	297	284
186	PCB Identification and Transformer Change Outs	1	137	14	-	-	-	-	-	-	-	150	51
187	Vault Replacements	1	27	44	0	117	(15)	(4)	10	51	-	40	102
188	General Clearance Upgrades/Fixes	1,3&4	11	-	5	3	9	33	37	84	108	50	51
189	Test and Treat Pole Program	3&4	-	-	-	45	25	70	117	21	22	-	-
190	Gang Switch Replacement	1,3&4	53	29	11	36	19	1	20	-	-	-	-
191	T&B Switch Change Out	1,3&4	17	2	20	36	32	34	16	119	64	-	-
192													
193	McIntyre Subdivision Rebuild	Business Case No. 01	748	1,035	405	141	(91)	1,368	285	109	1,244	564	924
194	Downtown Whitehorse Capacity Upgrade	1	1,299	507	-	-	-	-	-	-	-	1,451	366
195	Hillcrest Subdivision Conversion	1	(5)	41	-	-	-	-	-	-	-	-	152
196													
197	Upgrade Underground Line Into Services and Shipyard Sub	1	-	-	-	-	-	-	-	-	-	-	-
198	McCrae Substation Second Feeder Breaker	1	308	133	-	-	-	-	-	-	-	414	-
199	McCrae Substation Transformer Upgrade to 10 MVA	1	300	-	-	-	-	-	-	-	-	297	-
200	Whistle Bend Way Underground Crossing	1	69	(8)	-	-	-	-	-	-	-	60	-
201	Upper Liard – Replace Liard River Crossing	1	27	-	-	-	-	-	-	-	-	-	-
202	AEY 34.5kV Cable Replacement	1	152	0	-	-	-	-	-	-	-	102	-
203	Fault Indicators in Padmount Equipment	1	49	1	-	-	-	-	-	-	-	50	-
204	AEY Maintenance Work Request 241-2016 HJ Reg	1	23	-	-	-	-	-	-	-	-	-	-
205	AEY 2016 Safety Audit F	1	22	-	-	-	-	-	-	-	-	-	-
206	AEY Cable Testing 2016	1	20	-	-	-	-	-	-	-	-	-	-
207	AEY Maintenance Work Request M97-2013 Pole Change	1	2	26	0	-	-	-	-	-	-	-	-
208	AEY 102 Lambert Encroachment	1	2	3	2	18	1	2	1	-	-	-	-
209	AEY 102 Lambert Encroachment	1	1	67	-	-	-	-	-	-	-	-	-
210	5L622 - Lewes River Bridge Crossing Replacement	1	1	87	-	-	-	-	-	-	-	140	-
211	Paint Mountain Conductor Replacement	1	(4)	144	72	306	37	177	(34)	-	-	-	559
212	Range Road Rebuild	1	108	-	-	-	-	-	-	-	-	110	-
213	Carcross Nares Bridge Relocation	1	-	-	-	-	-	-	-	-	-	90	-

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ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Continuity of Capital Expenditures - Blackline
($000)

Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
214										-	-	-	-
215	Replace Watson Lake Substation Transformer T2	1	-	175	67	(7)	0	-	-	-	-	-	356
216	400 Amp Regulators in Logan Substation	Business Case No. 03	-	168	6	-	-	-	-	-	-	-	122
217	AEY Carcross Corner Pol	1	-	41	1	-	-	-	-	-	-	-	-
218	AEY Maintenance Work Order M255-2016 3rd a	1	-	28	-	-	-	-	-	-	-	-	-
219	AEY CCC Rd Rebuild	Reference Document 4	-	9	174	0	-	-	-	-	-	-	-
220	3 Phase Hotsprings Rd	Business Case No. 05	-	-	-	386	11	(4)	-	-	-	-	-
221	Haines Junction OSS Replacement	1	-	47	21	(16)	-	-	-	-	-	-	51
222	Single Regulator 5L631	1	-	25	-	-	-	-	-	-	-	-	30
223	Steward Crossing Ferry Hill Line Rebuild - Design	1	0	16	2	1	1	(21)	-	-	-	-	30
224	McRae Substation Regulator Upgrade	1	-	-	-	-	-	-	-	-	-	-	20
225	Rebuild Line Behind City Municipal Services Building	1	-	-	-	-	-	-	-	-	-	-	81
226													
227													
228	**Distribution Improvements Continued**												
229	AEY Old Crow Volt Issues-Loop	Reference Document 5	-	-	356	6	-	-	-	-	-	-	-
230	AEY 25kV A.Hwy Hamilton Tie	Business Case No. 11	-	-	218	(12)	(14)	-	-	-	-	-	-
231	McIntyre Subdivision Contingency Loop	Business Case No. 11	-	-	116	189	(0)	(10)	-	-	-	-	-
232	Teslin Substn Metering	2	-	-	61	(1)	-	-	-	-	-	-	-
233	Teslin OSS Replacement	2	-	-	47	(0)	-	-	-	-	-	-	-
234	AEY 3rd Ave Burial Dwntwn	2	-	-	42	3	6	2	2	-	-	-	-
235	AEY Wtsn Lk Vertical Strcts	2	-	-	28	0	-	-	-	-	-	-	-
236	AEY Teslin Sub Gnd Grid	2	-	-	18	7	6	0	-	-	-	-	-
237	AEY Lower Post Fire 2018	2	-	-	16	24	-	-	-	-	-	-	-
238	AEY Cowley Rd Rebuild SKH	Reference Document 6	-	-	7	85	18	-	-	-	-	-	-
239	AEY 2nd Ave Trespass	2	-	-	3	2	18	-	-	-	-	-	-
240	AEY SCADA Swtch at Pinerdg	2	-	-	1	42	2	25	6	-	-	-	-
241	YG Toyota Access, Intersection & Frontage Road Upgrades	5	-	-	0	341	2	-	-	-	-	-	-
242	AEY YG Nares River Bridge	2	4	82	(13)	(7)	-	-	-	-	-	-	-
243	Whitehorse Airport Hanger D Area Rebuild	2	0	12	1	160	(9)	-	-	-	-	-	142
244													
245	AEY Reroute Mountain View	2	-	-	-	53	0	-	-	-	-	-	-
246	AEY Aerial Trespass Lot 9 Blk 16 Adela Trail Watson Lake	Reference Document 7	-	-	-	0	1	116	37	-	-	-	-
247	Rogers Street 25kV Conversion	2	-	-	-	24	16	-	-	-	-	-	-
248	AEY Trespass Primary Line Reroute, Lot 1499 Hotsprings Road	2	-	-	-	1	21	24	-	-	-	-	-
249	Install 35kV Regulators on Carcross Road	Business Case No. 17	-	-	-	-	199	(3)	-	-	-	-	-
250	HLC Breaker Replacement	Business Case No. 04	-	-	-	-	136	-	-	-	-	-	-
251	Upgrade Regulators at Laberge Substation	Business Case No. 09	-	-	-	-	129	-	-	-	-	-	-
252	Powerline Relocation Hillcrest YG Highway Realignment	Business Case No. 15	-	-	-	-	119	5	(3)	-	-	-	-
253	Reconductor Mayo Rd Mainline	Business Case No. 06	-	-	-	-	111	-	-	-	-	-	-
254	Shipyards Sub Replace Relays	2	-	-	-	-	94	-	-	-	-	-	-
255	266 ACSR Upgrade Sumanik Drive	2	-	-	-	-	73	-	-	-	-	-	-
256	AEY Aerial Trespass Lots 14A & 14B Pilot Mtn Sub'd	2	-	-	-	-	37	-	-	-	-	-	-
257	AEY D/C Powerline Reroute Cousins to Mayo Cutoff	2	-	-	-	-	35	(7)	-	-	-	-	-
258	Riverdale Load Sectionalizing	2	-	-	-	-	25	-	-	-	-	-	-
259	DWCI -Downtown South Voltage Conversion- prep	2	-	-	-	-	17	18	2	-	-	-	-
260	AEY Reconductor Mayo Road Mainline - Stage 2	Business Case No. 06	-	-	-	-	15	138	-	-	-	-	-
261	AEY Powerline Relocation YG Alaska Hwy Crestview Phase 1 of 2	Business Case No. 15	-	-	-	-	0	225	(41)	-	-	-	-
262													
263	Powerline Relocation Burns Road to Range Road Intersection	Business Case No. 15	-	-	-	-	-	136	(18)	-	-	-	-
264	AEY Hamilton to Alaska Highway 25kV Tie	2	-	-	-	-	-	73	(4)	-	-	-	-
265	AEY Powerline Relocation Lot 2 Salvation Army	2	-	-	-	-	-	62	2	-	-	-	-
266	Upgrade Recloser at Carx Substn	2	-	-	-	-	-	44	-	-	-	-	-
267	AIS 9 Switch Cube Replacement - S2350 Hamilton Blvd	2	-	-	-	-	-	37	0	-	-	-	-
268	AEY New Subst Mayo Rd	2	-	-	-	-	-	29	-	-	-	-	-
269	AEY Voltage Issues Gold Road	2	-	-	-	-	-	3	28	-	-	-	-
270													
271	AEY Aerial Trespass Lot 23, Blk 25 or 102 Teslin Crescent, (Thomas Slager), Watsor	2	-	-	-	-	-	-	47	-	-	-	-
272	Ross River Substn Voltage Regulator Control	2	-	-	-	-	-	-	36	-	-	-	-
273	Upgrade Recloser Mountainview Substn	2	-	-	-	-	-	-	54	-	-	-	-
274	New Substation Mayo Road	Business Case No. 25	-	-	-	-	-	-	400	2,400	-	-	-
275	Reconductor Mayo Rd Mainline - Stage 3	Business Case No. 06	-	-	-	-	-	0	162	-	-	-	-
276	Watson Lake Substation Feeder & Feeder Protection Replacement	Reference Document 8	-	-	-	-	-	-	146	66	-	-	-
277													

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ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Continuity of Capital Expenditures - Blackline
($000)

Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
278	Downtown south voltage conversion		-	-	-	-	-	-	-	-	-	-	-
279	AEY Choutla Long Span Rebuild	3	-	-	-	-	-	-	-	40	-	-	-
280	AEY Dogwood voltage improvement	3	-	-	-	-	-	-	-	40	-	-	-
281	AEY DWCI - New 12.5kV substation	Note 1	-	-	-	-	-	-	-	25	792	-	-
282	AEY Haines Junction Regulator Stand Replacement	3	-	-	-	-	-	-	-	20	-	-	-
283	AEY New Substation Whistle Bend - Leota	Business Case No. 25	-	-	-	-	-	-	-	154	2,781	-	-
284	AEY Nisultlin Bridge Pole Relocation	Note 2	-	-	-	-	-	-	-	380	165	-	-
285	AEY SCADA Pineridge Switch	3	-	-	-	-	-	-	-	47	-	-	-
286	AEY Upgrade 6L11 conductor S150 to Carcross Corner	3	-	-	-	-	-	-	-	50	52	-	-
287	AEY Upgrade recloser	3	-	-	-	-	-	-	-	87	90	-	-
288	AEY Voltage Improvement Destruction Bay	3	-	-	-	-	-	-	-	225	-	-	-
289	AEY Whitehorse Escarpment line reroutes - Hoge	3	-	-	-	-	-	-	-	110	-	-	-
290	Robinson sub capacity	3	-	-	-	-	-	-	-	-	165	-	-
291	AEY Hillcrest Voltage Improvement	3	-	-	-	-	-	-	-	100	-	-	-
292	AEY Pelly Crossing Voltage Improvement	3	-	-	-	-	-	-	-	-	361	-	-
293	Watson Lake 5L621 Upgrade	3	-	-	-	-	-	-	-	-	103	-	-
294	Power System Assessment - YEC and AEY	3	-	-	-	-	-	-	-	150	206	-	-
295	Whitehorse CKES UG conversion	3	-	-	-	-	-	-	-	-	155	-	-
296	Encroachment 3rd and Black Encroachment	3	-	-	-	-	-	-	-	-	124	-	-
297													
298	AEY 6L19 voltage improvement	Business Case No. 30	-	-	-	-	-	-	-	-	593	-	-
299	Relocate 100 A Carcross Cutoff Regulator	Business Case No. 30									178		
300	Relocate 100 A Lewes River Regulator	Business Case No. 30									178		
301	AEY Carcross PQ monitoring	3	-	-	-	-	-	-	-	-	77	-	-
302	AEY Whitehorse Escarpment line reroutes - 5th avenue	3	-	-	-	-	-	-	-	-	412	-	-
303	Old Crow voltage improvement - reconductor	Business Case No. 29	-	-	-	-	-	-	-	-	464	-	-
304													
305	400 Amp Regulators in Arkell Substation	1	-	161	5	-	-	-	-	-	-	-	122
306	Shipyards Spare 25kV Breaker	1	-	55	146	2	-	-	-	-	-	-	102
307	Replace Underground Cables at Whitehorse Airport	1	0	1	1	0	(0)	0	(1)	-	-	-	84
308	Distribution Improvements < $20,000		197	260	146	130	27	28	66	143	10	81	77
309	**Distribution Improvements Total**		**4,103**	**3,819**	**2,318**	**2,634**	**1,658**	**3,180**	**2,028**	**5,195**	**9,081**	**4,335**	**4,153**
310													
311	**Street and Sentinel Lighting**												
312	General Streetlight Replacements	4	237	211	85	166	48	105	121	342	186	199	254
313	New Customer Streetlight Installations	Business Case No. 34	170	112	230	84	850	555	180	1,060	448	199	203
314	Whistle Bend Streetlights	1	-	-	-	-	-	-	-	-	-	-	-
315	Watson Lake Street Light Replacement		-	-	-	-	-	-	-	-	-	-	41
316	St Lt Replacements Hart Cr.	Business Case No. 20	-	-	-	-	-	180	-	-	-	-	-
317	Car Cross Streetlights	5	-	429	(24)	111	(0)	-	-	-	-	-	-
318													
319	Alaska Highway North Klondike Highway Intersection	5	-	-	-	-	359	0	-	-	-	-	-
320	Street Lights Burns Road to Range Road Intersection	5	-	-	-	-	-	184	-	-	-	-	-
321	Street Lights Lodestar to Philmars Phase 1	5	-	-	-	-	-	-	509	-	-	-	-
322	Pelly Crossing Community Lights	5	-	-	-	-	-	-	145	-	-	-	-
323												-	-
324	McIntyre Subdivision Streetlight Rebuild	Business Case No. 01	-	-	-	-	-	-	-	412	155	175	254
325	YG Nisutlin Bridge Streetlights	3	-	-	-	-	-	-	-	110	106	-	-
326													
327	Whistle Bend 3C Street Lights	5	-	185	-	-	-	-	-	-	-	-	-
328	Whistle Bend Lights 4D	Business Case No. 31	-	-	-	-	159	-	-	-	-	-	-
329	Whistle Bend Street Lights - Stage 4	Business Case No. 31	-	0	261	291	-	-	-	-	-	-	-
330	Whistle Bend Street Lights - Stage 5	Business Case No. 31	-	-	-	133	211	-	-	-	-	-	-
331	Whistle Bend Street Lights - Stage 6	Business Case No. 31	-	-	-	-	-	-	-	50	-	-	-
332	Whistle Bend Street Lights - Stage 7	Business Case No. 31	-	-	-	-	-	31	55	301	-	-	-
333	Whistle Bend Street Lights - Stage 8	Business Case No. 31	-	-	-	-	-	-	-	103	-	-	-
334	Whistle Bend Street Lights - Stage 9A	Business Case No. 31	-	-	-	-	-	-	-	186	-	-	-
335	Whistle Bend Street Lights - Stage 9B	Business Case No. 31	-	-	-	-	-	-	-	-	147	-	-
336													
337	Street and Sentinel Lighting < $20,000	1	-	-	-	-	-	-	-	-	-	11	25
338	**Street and Sentinel Lighting Total**		**407**	**936**	**553**	**785**	**1,627**	**1,055**	**1,009**	**2,563**	**1,042**	**584**	**777**
339													
340	**Meters**												
341	AMI Project New Meters	AEY-YUB-065(a) Attachment 1	-	-	-	-	-	-	-	132	304	-	-
342	Replacement of Meters and New Installations	1,2,3&4	105	88	32	67	127	75	98	103	106	199	203
343	**Meters Total**		**105**	**88**	**32**	**67**	**127**	**75**	**98**	**235**	**410**	**199**	**203**
344													

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ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Continuity of Capital Expenditures - Blackline
($000)

Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
345	**Transformers & Regulators**												
346	General Capitalizable Transformers	Business Case No. 16	-	-	-	-	268	49	(19)	218	275	90	91
347	Spare 10 MVA Transformer	1	251	-	-	-	-	-	-	-	-	219	-
348	Spare Padmount Regulator for Shipyards Substation	1	-	-	-	-	-	-	-	-	-	58	-
349	Transformers and Regulators	4	73	213	70	262	118	173	10	-	-	-	-
350	AEY Old Crow Regulators	Business Case No. 29	-	-	-	-	-	-	-	710	-	-	-
351	**Transformers & Regulators Total**		**324**	**213**	**70**	**262**	**385**	**222**	**(8)**	**928**	**275**	**367**	**91**
352													
353	**GP&E**												
354	**Computer**												
355	My Account- Technology Project	Business Case No. 19	-	-	22	247	(4)	-	-	-	-	-	-
356	**Computer Total**		**-**	**-**	**22**	**247**	**(4)**	**-**	**-**	**-**	**-**	**-**	**-**
357													
358	**Land & Building**												
359	Service Complex Heating System	1	4	17	6	-	-	-	-	-	-	40	25
360	Annual Building Upgrades	3	-	-	-	-	-	-	-	75	73	-	-
361	Downtown Office Interior Renovations	3	-	-	-	-	-	-	-	51	-	-	-
362	Whitehorse Service Complex RTU'S Construction	3	-	-	-	-	-	-	-	100	-	-	-
363	Whitehorse Service Complex Rooftop Unit Design	3	-	-	-	-	-	-	-	5	-	-	-
364	Service Complex Boiler Replacement	Business Case No. 10	-	-	-	-	132	(27)	-	-	-	-	71
365	Kilowatt - Misc. Imp	1	24	-	-	-	-	-	-	-	-	-	-
366	102 Kilowatt Ln Refurbish	1&2	-	14	32	-	-	-	-	-	-	-	-
367	101 Kilowatt Ln Refurbish	1&2	-	19	32	-	-	-	-	-	-	-	-
368	Warehouse Mezzanine Upg	1	-	22	-	-	-	-	-	-	-	-	-
369	DT Office Renos & Improvements	2	-	-	-	27	-	-	-	-	-	-	-
370	Service Complex Yard Extension	2	-	-	-	36	0	-	-	-	-	-	-
371	Fencing for Marwell Yard	2	-	-	-	-	-	-	45	-	-	-	-
372	Old Crow Bunkhouse replacement	Business Case No. 41	-	-	-	-	-	-	-	-	515	-	-
373	Fish Lake 1 Storage building roof replacements	3	-	-	-	-	-	-	-	-	77	-	-
374	Downtown Office Security and Fire Suppression	3	-	-	-	-	-	-	-	-	103	-	-
375	Warehousing Seacan	3	-	-	-	-	-	-	-	-	26	-	-
376	Furnace Replacements - Watson Lake	3	-	-	-	-	-	-	-	-	-	25	-
377	Watson Lake Septic Upgrade	1	-	-	-	-	-	-	-	-	-	-	51
378	Watson Lake Storage Solutions	1	-	-	-	-	-	-	-	-	-	-	92
379	Land & Buildings - Corporate < $20,000	4	61	32	21	9	15	5	50	-	-	-	-
380	**Total Land & Buildings**		**89**	**105**	**91**	**72**	**147**	**(22)**	**95**	**232**	**794**	**65**	**239**
381													
382													

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ATCO Electric Yukon (AEY)
2023 - 2024 General Rate Application (GRA)

Continuity of Capital Expenditures - Blackline
($000)

Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
383	**Communication Equipment**												
384	Communication Equipment	1,2,3&4	36	23	2	(0)	19	48	(46)	-	-	18	13
385	AEY SCADA Upgrades	4	26	116	30	20	10	5	20	47	141	49	66
386	Satellite Radios	Business Case No. 14	-	-	-	-	-	-	157	-	-	-	-
387	Windows XP Conversion for Operations Dispatch	1	-	-	-	-	-	-	-	-	-	30	-
388	Form 6 Substation Controls	1	-	-	-	-	-	-	-	-	-	20	-
389	Whitehorse SCADA Dispatch UHF Repeater	1	-	-	-	-	-	-	-	-	-	-	36
390													
391	**Total Communication Equipment**		**63**	**138**	**32**	**20**	**29**	**53**	**131**	**47**	**141**	**117**	**115**
392													
393	**Tools, Instruments & Equip.**												
394	FRC Replacement	1,2,3&4	19	24	9	18	13	10	8	22	25	-	-
395	Power Quality Meter	1	-	-	-	-	-	-	14	20	-	-	-
396	Primary current monitors	3	-	-	-	-	-	-	-	26	27	-	-
397	Miscellaneous Tools and Instruments	4	132	138	64	180	95	150	65	242	76	149	165
398	**Total Tools, Instruments & Equip.**		**151**	**162**	**73**	**197**	**108**	**160**	**87**	**310**	**128**	**149**	**165**
399													
400	**Office Computer Equipment**												
401	Office Furniture & Equipment	1,2,3&4	20	11	2	5	5	12	14	62	20	20	20
402	2021 Surface Pro Purchases	2	-	-	-	-	-	21	-	-	-	-	-
403	Replace XP Operating Systems - iFix PCs	1	31	0	-	-	-	-	-	-	-	-	46
404													
405	**GP&E Continued**												
406	CIS Replacement	Business Case No. 22	-	-	-	-	-	680	3,712	3,666	345	-	-
407	Asset Management - Evaluation & Program Roadmap	2&3	-	-	-	-	-	-	59	13	-	-	-
408	Asset Management - Phase 1	Business Case No. 24	-	-	-	-	-	-	-	305	901	-	-
409	Sales force	AEY-YUB-066(b) Attachment 1	-	-	-	-	-	-	-	172	155	-	-
410	My Account Enhancements - AEY	2	-	-	-	-	-	37	16	-	-	-	-
411	Enterprise Batch Printing	2	-	-	-	-	-	-	49	-	-	-	-
412	Fleet Maximo - AEY	2	-	-	24	29	7	-	-	-	-	-	-
413	Oracle R12 Replacement	Note 3	-	51	51	-	-	-	-	-	-	-	-
414													
415	Office Computer Equipment < $20,000	4	2	16	3	10	21	4	(71)	43	13	-	-
416	**Total Office Computer Equipment**		**54**	**79**	**79**	**44**	**32**	**755**	**3,780**	**4,261**	**1,434**	**20**	**66**
417													
418	**Transportation Equipment**												
419	Transportation Equipment	Business Case No. 27&28	18	294	6	88	117	507	397	697	766	369	315
420	Purchase New Unit YT169 - Small Bucket Truck	Business Case No. 13							264				
421	Unit 136 to Replace Unit 643 Bucket Truck	AEY-YUB-041(a)(viii) Attachment 1.		371									
422	Unit YT144 New Mechanic's Truck	Business Case No. 13	-	-	-	145	-	-	-	-	-	-	-
423	Purchase Unit YT145 to Replace Unit 091	Business Case No. 13	-	-	-	149	-	-	-	-	-	-	-
424	Unit 151 Digger to Replace Unit 429 - WLk Bucket	Business Case No. 13	-	-	-	-	324	11	-	-	-	-	-
425	Purchase Unit YT148 - Replace Unit 092 - Ram 5500 CC 4x4 - Flat Deck	Business Case No. 13	-	-	-	-	129	-	-	-	-	-	-
426	Purchase YT159 - Replace Unit 886 - 1 Ton Service Body	Business Case No. 13	-	-	-	-	-	158	-	-	-	-	-
427	**Total Transpiration Equipment**		**18**	**665**	**6**	**382**	**570**	**675**	**661**	**697**	**766**	**369**	**315**
428			-	-	-	-	-	-	-	-	-	-	-
429	Other Projects Less Than $20,000											37	102
430	**GP&E Total**		**374**	**1,150**	**303**	**962**	**883**	**1,621**	**4,753**	**5,547**	**3,263**	**757**	**1,002**
431	**Grand Total**		**14,784**	**10,476**	**9,491**	**13,529**	**13,001**	**15,147**	**18,914**	**31,234**	**25,073**	**14,999**	**12,470**
432													

433 Note 1: The project is not going into service in test period and therefore will not impact rate base or revenue requirement. A business case will be completed upon completion of the engineering study.
434 Note 2: This was a government directed pole movement, AEY is mandated to abide by these requests, no business case was completed as a result.
435 Note 3: This project has since been retired and no longer in ratebase no ratebase or revenue requirment impact.

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Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
1	**Generation**												
2	Fish Lake Unit 2 - Replace Power Station - Detailed Design	Business Case No. 39	-	-	-	-	-	-	-	-	527	-	-
3	Fish Lake 1 Roof Replacement	Business Case No. 32	-	-	-	-	-	-	-	452	-	-	-
4	Fish Lake 2 Replace Power Station FEED	Business Case No. 39	-	-	-	-	-	-	-	385	-	-	-
5	Fish Lake 2 Head pond Intake Building Replacement	3	-	-	-	-	-	-	-	153	-	-	-
6	Fish Lake 2 Head Pond Spillway Replacement	1	286	166	540	(17)	-	-	-	-	-	20	589
7	Fish Lake Ditch 1 Failure	Business Case No. 02	412	(150)	-	-	-	-	-	-	-	-	-
8	Fish Lake Ditch 1 Intake Building - Design	1	2	1	115	(26)	11	-	-	-	-	-	30
9	Fish Lake Unit 1 Spillway Diversion Structure	1	-	30	0	220	527	(5)	-	-	-	-	411
10	Fish Lake Unit 2 Assessment	1	98	11	(112)	-	-	-	-	35	-	100	-
11	Fish Lake Unit 2 Condition Assessment and Options Analysis	2	-	-	-	-	-	-	66	-	-	-	-
12	Fish Lake 2 TIV actuator and wicket gates	3	-	-	-	-	-	-	-	37	-	-	-
13	Fish Lake Unit 1 Roof Design	Business Case No. 32	-	-	-	-	-	43	16	-	-	-	-
14	Fish Lake Unit 2 Bearing and Shaft Repair	2	-	-	-	48	6	-	-	-	-	-	-
15	Fish Lake Unit 2 TIV Replace	2	-	-	48	(1)	-	-	-	-	-	-	-
16	Fish Lake 1 Add TIV Actuator	3	-	-	-	-	-	-	-	-	53	-	-
17	Fish Lake 1 TIV replacement	2&3	-	-	-	-	-	-	24	89	-	-	-
18	Fish Lake 2 Add bypass valve actuator and automation	3	-	-	-	-	-	-	-	35	-	-	-
19	Fish Lake 2 PLC Replacement	3	-	-	-	-	-	-	-	-	39	-	-
20	Fish Lake Unit 2 DC TIV Actuator & Wicket Gate Replacement	AEY-YUB-046(b) Attachment 2	-	-	-	-	-	-	138	-	-	-	-
21	Fish Lake Water Monitoring Upgrades	1,2&3	10	106	1	24	(0)	(0)	-	26	81	25	25
22	Fish Lake Unit 1 Turbine and Building Replacement	2	20	16	16	3	4	3	(71)	-	-	-	-
23	Fish Lake Ditch 3 Diversion Replacement	1	2,601	168	30	0	-	29	(27)	-	-	2,908	-
24	Louise Lake Containment Dyke Seismic Analysis	1	-	-	-	-	-	-	-	-	-	40	-
25													
26	Watson Lake - Replace Air Start Piping	3	-	-	-	-	-	-	-	103	-	-	-
27	Watson Lake Add Building Concrete Apron	3	-	-	-	-	-	-	-	25	-	-	-
28	Watson Lake block heater pumps	3	-	-	-	-	-	-	-	50	-	-	-
29	Watson Lake Expansion Tank and Access Replacement Design	2&3	-	-	-	-	-	-	25	152	-	-	-
30	Watson Lake Fuel Piping Upgrade	3	-	-	-	-	-	-	-	231	-	-	-
31	Watson Lake Fuel System Control Replacement	3	-	-	-	-	-	-	-	136	-	-	-
32	Watson Lake Install Diverter Actuator, with limit switches, for #1/6 boilers	3	-	-	-	-	-	-	-	25	-	-	-
33	Watson Lake Replace HRS pumps/motors	3	-	-	-	-	-	-	-	100	-	-	-
34	Watson Lake Replace Non-Code Exchangers for #2/4	3	-	-	-	-	-	-	-	100	-	-	-
35	Watson Lake Unit 1 Replacement	Business Case No. 07	-	-	-	418	1,278	130	-	-	-	-	-
36	Watson Lake Unit 2 - Major Overhaul	Business Case No. 23	-	-	-	-	-	-	-	375	-	-	-
37	Watson Lake Unit 3 Replacement	Business Case No. 07	-	-	436	1,213	241	-	-	-	-	-	-
38	Watson Lake Unit 4 - Major Overhaul	Business Case No. 23	-	-	371	(2)	-	-	-	-	515	-	-
39	Watson Lake Unit 4 EMCP Replacement	Business Case No. 08	-	-	-	-	-	177	(26)	-	-	-	-
40	Watson Lake Unit 5 Major Overhaul	Business Case No. 23	-	-	-	-	-	-	438	41	-	-	-
41	Watson Lake Unit 6 Replacement	Business Case No. 07	-	-	-	-	828	901	140	-	-	-	-
42	Watson Lake Waste Heat Cathodic Protection	3	-	-	-	-	-	-	-	150	-	-	-
43	Watson Lake 125VDC Battery and Charger Replacement	2	-	-	-	23	-	-	-	-	-	-	-
44	Watson Lake Fuel Tank Access	Reference Document 1	-	-	17	128	-	-	-	-	-	-	-
45	Watson Lake Inverter Replacement	2	-	-	-	51	-	-	-	-	-	-	-
46	Watson Lake Plant Fire Alarm System - Design	1	-	-	-	-	-	-	-	-	-	-	
47	Watson Lake Plant Fire Alarm System	1	-	62	106	(2)	-	-	-	-	-	-	102
48	Watson Lake Plant Fuel Sys Control Replace	1	-	-	-	-	-	1	147	-	-	-	99
49	Watson Lake Plant Overhead Door Replacement	2	-	-	-	-	-	-	24	-	-	-	-
50	Watson Lake Plant Phone System Replacement	2	-	-	-	34	(1)	-	-	-	-	-	-
51	Watson Lake Plant PLC	2	-	28	1	-	-	-	-	-	-	-	-
52	Watson Lake Unit 5 PLC	2	-	22	1	-	-	-	-	-	-	-	-
53	Watson Lake Utilidor Split/Fuel Sys	2	-	-	42	6	4	2	3	-	-	-	-
54	Watson Lake Unit 2 Replacement	1	1,054	270	-	-	-	-	-	-	-	1,387	-
55													
56	Old Crow Add Day Tank and Fuel Transfer Pump	3	-	-	-	-	-	-	-	25	103	-	-
57	Old Crow Boiler Metering and Control	3	-	-	-	-	-	-	-	25	-	-	-
58	Old Crow Plant Tank Access	3	-	-	-	-	-	-	-	-	232	-	-
59	Old Crow Unit 1 Major Overhaul YTCU414	Business Case No. 23	-	-	-	-	475	(10)	-	-	-	-	-
60	Old Crow Unit 2 Replacement	AEY-YUB-046(b) Attachment 1	-	-	-	192	(17)	-	-	-	-	-	-
61	Old Crow Unit 3 Failure - Major Overhaul	2	-	-	-	-	-	270	(190)	-	-	-	-
62	Old Crow Unit 4 Major Overhaul	Business Case No. 23	-	-	-	-	-	-	252	-	-	-	-
63	Old Crow # 2 Long Block Replacement	Business Case No. 23	-	-	-	-	-	-	71	-	-	-	-
64	Old Crow Unit 2 Generator Refurbishment	1	39	-	-	-	-	-	-	-	-	75	-
65	Old Crow Old Plant Gantry Accessories	2	-	-	-	-	23	(2)	-	-	-	-	-
66	Old Crow Plant (old) Gantry Crane	2	-	-	-	-	22	-	-	-	-	-	-
67	Old Crow Original Plant Rebuild	Business Case No. 41	369	50	(118)	2	6	489	(85)	150	-	-	249
68	Old Crow Unit 3 Replacement	1	1,085	8	-	-	-	-	-	-	-	1,046	-
69	Old Crow Unit 2 - External Equipment	1	-	-	-	-	-	-	-	-	-	-	51
70													

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Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
71	Beaver Creek Unit 3 Major Overhaul	Business Case No. 23	-	-	-	-	-	323	(6)	-	-	-	-
72	Beaver Creek Replace JW and CAC cooler	3	-	-	-	-	-	-	-	100	-	-	-
73	Beaver Creek Station Service Transformer	3	-	-	-	-	-	-	-	100	-	-	-
74	Beaver Creek Unit 1 Major Overhaul	Business Case No. 23	-	-	-	-	-	307	(132)	-	-	-	-
75	Beaver Creek Unit 2 Major	Business Case No. 23	-	-	127	(1)	-	-	-	-	-	-	-
76	Beaver Creek Utilidor Upgrades	3	-	-	-	-	-	-	-	20	-	-	-
77	Destruction Bay/ Stewart/ Beaver Creek Plant Condition Assessment	Business Case No. 40	-	-	-	-	-	-	-	318	-	-	-
78													
79	Destruction Bay Unit 2 Major Overhaul	Business Case No. 23		-	-	-	-	181	(7)	-	-	-	-
80	Destruction Bay Unit 1 Major Overhaul	Business Case No. 23	133	7	-	-	-	-	-	-	-	-	-
81	Destruction Bay Unit 3 Replacement	1	5	28	-	-	-	-	-	-	-	-	-
82	Destruction Bay Programmable Logic Controller Upgrade	1	15	252	13	-	-	-	-	-	-	-	305
83	Destruction Bay Unit 2 Replacement	1	538	9	-	-	-	-	-	-	-	620	-
84	Destruction Bay Fuel Line Upgrade	1	55	-	-	-	-	-	-	-	-	106	-
85	Destruction Bay Unit 3 Major Overhaul	Business Case No. 23	-	-	-	-	-	112	(16)	-	-	-	-
86	Destruction Bay Replace POW	Business Case No. 40		-	-	-	-	-	-	-	309	-	-
87													
88	Pelly Crossing Fuel System Upgrade	1	-	143	119	(4)	-	-	-	-	-	-	152
89	Pelly Crossing Ventilation System Upgrade	1	-	-	-	-	-	-	-	-	-	-	25
90	Pelly Crossing Unit 2 Silencer	1	-	-	-	-	-	-	-	-	-	-	20
91													
92	Ross River Replace ABB 5HK Breakers	1	71	-	-	-	-	-	-	-	-	95	-
93	Ross River Electrical Service Panel Upgrade	1	-	-	-	-	-	-	-	-	-	25	-
94													
95	Swift River Unit 2 Replacement	Business Case No. 21	-	-	-	-	-	-	225	2	-	-	-
96	Swift River Unit 1 Replacement	1	36	82	4	-	-	-	-	-	-	80	61
97	Swift River Fuel System Upgrade	2	-	-	-	38	-	-	-	-	-	-	-
98	Swift River Unit 1 PLC Replacement	2	-	-	-	23	-	-	-	-	-	-	-
99	Swift River Unit 2 Replace	2	-	-	-	-	52	8	-	-	-	-	-
100													
101	Teslin Plant Assessment		-	54	(14)	1	-	-	-	-	-	-	102
102	Teslin PLC Replacement - Design	Reference Document 2	-	-	387	(1)	-	-	-	-	-	-	105
103	Teslin Plant Platform Replacement	2	-	-	-	34	(0)	-	-	-	-	-	-
104	Teslin Rad Core Replacement	2	-	-	-	-	22	-	-	-	-	-	-
105													
106	Haines Junction Fuel Containment Upgrade	1	-	-	-	-	-	-	-	-	-	-	30
107	Haines Junction Plant Positive Air Shutoff for YTCU416	1	-	-	-	-	-	20	3	-	-	-	-
108	Haines Junction Regulator Pad Replacement	1	-	-	-	-	-	4	36	-	-	-	-
109													
110	Louise Lake Auxiliary Structure Replacement	Business Case No. 33	-	-	-	11	31	8	2	1	773	-	-
111													
112	IPP Remote monitoring	3	-	-	-	-	-	-	-	100	-	-	-
113	Carmacks Plant Foundation Repair	2	-	-	-	14	16	-	-	-	-	-	-
114	Mobile CUL-341 PLC replacement	3	-	-	-	-	-	-	-	-	94	-	-
115	Pelly Unit 3 Block Replacement	Business Case No. 23	-	-	-	111	(1)	-	-	-	-	-	-
116	PLC Replacement Stage 1	1	-	76	(3)	(1)	-	-	-	-	-	-	103
117	Replace fuel ESD valve within utilidor (x10)	3	-	-	-	-	-	-	-	-	52	-	-
118	2017 Gen Failed Hardware Contingency	2	-	27	(1)	(2)	-	-	-	-	-	-	-
119	Mobile Generator 250kW Voltage and Frequency Protection	1	7	0	-	-	-	-	-	-	-	35	-
120	Mobile Generator 225 kW Refurbishment	1	6	10	-	-	-	-	-	-	-	20	-
121	Mobile Generator 350 kW Refurbish Enclosure	1	-	38	2	-	-	-	-	-	-	-	19
122	Standby plant equipment and building heat	3	-	-	-	-	-	-	-	-	52	-	-
123	Add transfer trip scheme	3	-	-	-	-	-	-	-	100	-	-	-
124	Fish Creek Diversion	3	-	-	-	-	-	-	-	-	317	-	-
125	General Plant Improvements	3	-	-	-	-	-	-	-	-	155	-	-
126	Fuel System Assessment	1										-	
127	IRC Chargers	1										-	22
128													
129	Generation < $20,000	4	102	(553)	19	96	70	59	127	82	52	20	29
130													
131	**Generation Total**		**6,944**	**963**	**2,147**	**2,635**	**3,597**	**3,050**	**1,178**	**3,723**	**3,352**	**6,602**	**2,529**
132													
133	Kluane First Nation Wind Turbine Upgrades	Business Case No. 37	-	-	-	-	12	17	1,210	2,215	750	-	-
134	Renewables - Old Crow	5	-	-	-	1,034	1,147	1,406	34	-	-	-	-
135	Watson Lk IPP - Integration to Plant	2&3	-	-	-	-	-	18	6	75	-	-	-
136	Beaver Creek PV Generation	Business Case No. 38	-	-	-	-	-	64	2,500	3,767	1,686	-	-
137	Study Costs	1,2&3		208	80	(27)	(72)	(175)	(1)	(13)			
138	**Renewables Total**		**-**	**208**	**80**	**1,007**	**1,087**	**1,330**	**3,749**	**6,044**	**2,436**	**-**	**-**
139													
140													

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Line			Actuals							Test Period		Approved	
No.	Project Name	Business Case Reference	2016	2017	2018	2019	2020	2021	2022	2023	2024	2016	2017
141	**New Extensions**												
142	New Services Overhead and Underground	Reference Document 3 & Business Case No. 18	1,908	1,703	2,555	2,701	2,446	3,665	2,777	4,219	4,324	1,995	2,032
143	Annual Land Rights	1,3&4	116	84	66	89	81	69	67	102	82	120	122
144	General Drafting and Mapping	1,3&4	37	35	53	42	52	49	45	46	41	40	41
145													
146	Whistle Bend Stage 3	Business Case No. 31	215	690	545	479	(20)	-	-	-	-	-	1,521
147	Whistle Bend Stage 4	Business Case No. 31	-	476	729	717	(12)	-	-	-	-	-	-
148	Whistle Bend Stage 5	Business Case No. 31	-	-	(17)	745	216	-	-	-	-	-	-
149	Whistle Bend Stage 6	Business Case No. 31	-	-	-	-	433	-	-	285	-	-	-
150	Whistle Bend Stage 7	Business Case No. 31	-	-	-	-	9	0	351	460	-	-	-
151	Whistle Bend Stage 8	Business Case No. 31	-	-	-	-	-	-	140	18	-	-	-
152	Whistle Bend Stage 9	Business Case No. 31	-	-	-	-	-	-	-	683	458	-	-
153	Whistle Bend future stages - place holder	Business Case No. 31	-	-	-	-	-	-	-	-	309	-	-
154	Whistle Bend New Services		-	-	-	-	136	-	234	-	-	-	-
155													
156	Mt Sima Pumphouse	5	-	-	-	-	123	141	-	-	-	-	-
157	Brookside Phase 2B	5	-	112	59	25	-	-	-	-	-	-	-
158	Challenge Development 704 Main Street	5	-	-	-	-	135	0	-	-	-	-	-
159	Hammerstone Lots off Tlingit Street	5	-	-	-	-	37	27	125	-	-	-	-
160	Loft 2240 2nd Avenue	5	-	-	-	-	-	133	-	-	-	-	-
161	Mt Sima Hill Service	5	-	-	-	-	-	-	413	-	-	-	-
162	Schmidt, Harold & Savanah	5	-	-	-	119	(0)	-	-	-	-	-	-
163	TSL/Ketza Old Crow Health & Housing	5	-	-	-	-	-	163	-	-	-	-	-
164	VGFN Houses on North Rd	5	250	-	-	-	-	-	-	-	-	-	-
165	VoT Connector Road Subdivision	5	-	-	-	145	(1)	-	-	-	-	-	-
166													
167	YG Airport Hangar	5	-	-	-	-	-	-	562	(30)	-	-	-
168	Yukon Lot 503	5	-	-	-	113	-	-	-	-	-	-	-
169													
170	New Extension < $20,000		-	-	-	-	-	-	-	102	-	-	(1)
171	**New Extensions Total**		**2,527**	**3,099**	**3,990**	**5,176**	**3,636**	**4,247**	**4,714**	**5,885**	**5,215**	**2,155**	**3,715**
172													
173													
174	**New Extensions-IPP**												
175	Arctic Pharm IPP	Business Case No. 35	-	-	-	-	-	-	-	543	-	-	-
176	Sunergy YEC HJ IPP	3	-	-	-	-	-	-	-	343	-	-	-
177	Haeckel Hill	Business Case No. 36	-	-	-	-	-	-	1,219	235	-	-	-
178	NOMAD IPP	5	-	-	-	-	-	144	-	-	-	-	-
179	SOLVEST IPP	5	-	-	-	-	-	37	-	-	-	-	-
180	THELP	5	-	-	-	-	-	185	175	(7)	-	-	-
181	**New Extensions - IPP Total**		**-**	**-**	**-**	**-**	**-**	**366**	**1,394**	**1,115**	**-**	**-**	**-**
182													
183	**Distribution Improvements**												
184	Annual Right of Way Widening	Business Case No. 12&26	494	581	292	489	434	481	555	520	528	439	447
185	General Pole Replacements	1,3&4	40	35	39	29	112	97	98	254	211	297	284
186	PCB Identification and Transformer Change Outs	1	137	14	-	-	-	-	-	-	-	150	51
187	Vault Replacements	1	27	44	0	117	(15)	(4)	10	51	-	40	102
188	General Clearance Upgrades/Fixes	1,3&4	11	-	5	3	9	33	37	84	108	50	51
189	Test and Treat Pole Program	3&4	-	-	-	45	25	70	117	21	22	-	-
190	Gang Switch Replacement	1,3&4	53	29	11	36	19	1	20	-	-	-	-
191	T&B Switch Change Out	1,3&4	17	2	20	36	32	34	16	119	64	-	-
192													
193	McIntyre Subdivision Rebuild	Business Case No. 01	748	1,035	405	141	(91)	1,368	285	109	1,244	564	924
194	Downtown Whitehorse Capacity Upgrade	1	1,299	507	-	-	-	-	-	-	-	1,451	366
195	Hillcrest Subdivision Conversion	1	(5)	41	-	-	-	-	-	-	-	-	152
196													
197	Upgrade Underground Line Into Services and Shipyard Sub	1	-	-	-	-	-	-	-	-	-	-	-
198	McCrae Substation Second Feeder Breaker	1	308	133	-	-	-	-	-	-	-	414	-
199	McCrae Substation Transformer Upgrade to 10 MVA	1	300	-	-	-	-	-	-	-	-	297	-
200	Whistle Bend Way Underground Crossing	1	69	(8)	-	-	-	-	-	-	-	60	-
201	Upper Liard – Replace Liard River Crossing	1	27	-	-	-	-	-	-	-	-	-	-
202	AEY 34.5kV Cable Replacement	1	152	0	-	-	-	-	-	-	-	102	-
203	Fault Indicators in Padmount Equipment	1	49	1	-	-	-	-	-	-	-	50	-
204	AEY Maintenance Work Request 241-2016 HJ Reg	1	23	-	-	-	-	-	-	-	-	-	-
205	AEY 2016 Safety Audit F	1	22	-	-	-	-	-	-	-	-	-	-
206	AEY Cable Testing 2016	1	20	-	-	-	-	-	-	-	-	-	-
207	AEY Maintenance Work Request M97-2013 Pole Change	1	2	26	0	-	-	-	-	-	-	-	-
208	AEY 102 Lambert Encroachment	1	2	3	2	18	1	2	1	-	-	-	-
209	AEY 102 Lambert Encroachment	1	1	67	-	-	-	-	-	-	-	-	-
210	5L622 - Lewes River Bridge Crossing Replacement	1	1	87	-	-	-	-	-	-	-	140	-
211	Paint Mountain Conductor Replacement	1	(4)	144	72	306	37	177	(34)	-	-	-	559
212	Range Road Rebuild	1	108	-	-	-	-	-	-	-	-	110	-
213	Carcross Nares Bridge Relocation	1	-	-	-	-	-	-	-	-	-	90	-

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Continuity of Capital Expenditures - Clean
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Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
214										-	-	-	-
215	Replace Watson Lake Substation Transformer T2	1	-	175	67	(7)	0	-	-	-	-	-	356
216	400 Amp Regulators in Logan Substation	Business Case No. 03	-	168	6	-	-	-	-	-	-	-	122
217	AEY Carcross Corner Pol	1	-	41	1	-	-	-	-	-	-	-	-
218	AEY Maintenance Work Order M255-2016 3rd a	1	-	28	-	-	-	-	-	-	-	-	-
219	AEY CCC Rd Rebuild	Reference Document 4	-	9	174	0	-	-	-	-	-	-	-
220	3 Phase Hotsprings Rd	Business Case No. 05	-	-	-	386	11	(4)	-	-	-	-	-
221	Haines Junction OSS Replacement	1	-	47	21	(16)	-	-	-	-	-	-	51
222	Single Regulator 5L631	1	-	25	-	-	-	-	-	-	-	-	30
223	Steward Crossing Ferry Hill Line Rebuild - Design	1	0	16	2	1	1	(21)	-	-	-	-	30
224	McRae Substation Regulator Upgrade	1	-	-	-	-	-	-	-	-	-	-	20
225	Rebuild Line Behind City Municipal Services Building	1	-	-	-	-	-	-	-	-	-	-	81
226													
227													
228	**Distribution Improvements Continued**												
229	AEY Old Crow Volt Issues-Loop	Reference Document 5	-	-	356	6	-	-	-	-	-	-	-
230	AEY 25kV A.Hwy Hamilton Tie	Business Case No. 11	-	-	218	(12)	(14)	-	-	-	-	-	-
231	McIntyre Subdivision Contingency Loop	Business Case No. 11	-	-	116	189	(0)	(10)	-	-	-	-	-
232	Teslin Substn Metering	2	-	-	61	(1)	-	-	-	-	-	-	-
233	Teslin OSS Replacement	2	-	-	47	(0)	-	-	-	-	-	-	-
234	AEY 3rd Ave Burial Dwntwn	2	-	-	42	3	6	2	2	-	-	-	-
235	AEY Wtsn Lk Vertical Strcts	2	-	-	28	0	-	-	-	-	-	-	-
236	AEY Teslin Sub Gnd Grid	2	-	-	18	7	6	0	-	-	-	-	-
237	AEY Lower Post Fire 2018	2	-	-	16	24	-	-	-	-	-	-	-
238	AEY Cowley Rd Rebuild SKH	Reference Document 6	-	-	7	85	18	-	-	-	-	-	-
239	AEY 2nd Ave Trespass	2	-	-	3	2	18	-	-	-	-	-	-
240	AEY SCADA Swtch at Pinerdg	2	-	-	1	42	2	25	6	-	-	-	-
241	YG Toyota Access, Intersection & Frontage Road Upgrades	5	-	-	0	341	2	-	-	-	-	-	-
242	AEY YG Nares River Bridge	2	4	82	(13)	(7)	-	-	-	-	-	-	-
243	Whitehorse Airport Hanger D Area Rebuild	2	0	12	1	160	(9)	-	-	-	-	-	142
244													
245	AEY Reroute Mountain View	2	-	-	-	53	0	-	-	-	-	-	-
246	AEY Aerial Trespass Lot 9 Blk 16 Adela Trail Watson Lake	Reference Document 7	-	-	-	0	1	116	37	-	-	-	-
247	Rogers Street 25kV Conversion	2	-	-	-	24	16	-	-	-	-	-	-
248	AEY Trespass Primary Line Reroute, Lot 1499 Hotsprings Road	2	-	-	-	1	21	24	-	-	-	-	-
249	Install 35kV Regulators on Carcross Road	Business Case No. 17	-	-	-	-	199	(3)	-	-	-	-	-
250	HLC Breaker Replacement	Business Case No. 04	-	-	-	-	136	-	-	-	-	-	-
251	Upgrade Regulators at Laberge Substation	Business Case No. 09	-	-	-	-	129	-	-	-	-	-	-
252	Powerline Relocation Hillcrest YG Highway Realignment	Business Case No. 15	-	-	-	-	119	5	(3)	-	-	-	-
253	Reconductor Mayo Rd Mainline	Business Case No. 06	-	-	-	-	111	-	-	-	-	-	-
254	Shipyards Sub Replace Relays	2	-	-	-	-	94	-	-	-	-	-	-
255	266 ACSR Upgrade Sumanik Drive	2	-	-	-	-	73	-	-	-	-	-	-
256	AEY Aerial Trespass Lots 14A & 14B Pilot Mtn Sub'd	2	-	-	-	-	37	-	-	-	-	-	-
257	AEY D/C Powerline Reroute Cousins to Mayo Cutoff	2	-	-	-	-	35	(7)	-	-	-	-	-
258	Riverdale Load Sectionalizing	2	-	-	-	-	25	-	-	-	-	-	-
259	DWCI -Downtown South Voltage Conversion- prep	2	-	-	-	-	17	18	2	-	-	-	-
260	AEY Reconductor Mayo Road Mainline - Stage 2	Business Case No. 06	-	-	-	-	15	138	-	-	-	-	-
261	AEY Powerline Relocation YG Alaska Hwy Crestview Phase 1 of 2	Business Case No. 15	-	-	-	-	0	225	(41)	-	-	-	-
262													
263	Powerline Relocation Burns Road to Range Road Intersection	Business Case No. 15	-	-	-	-	-	136	(18)	-	-	-	-
264	AEY Hamilton to Alaska Highway 25kV Tie	2	-	-	-	-	-	73	(4)	-	-	-	-
265	AEY Powerline Relocation Lot 2 Salvation Army	2	-	-	-	-	-	62	2	-	-	-	-
266	Upgrade Recloser at Carx Substn	2	-	-	-	-	-	44	-	-	-	-	-
267	AIS 9 Switch Cube Replacement - S2350 Hamilton Blvd	2	-	-	-	-	-	37	0	-	-	-	-
268	AEY New Subst Mayo Rd	2	-	-	-	-	-	29	-	-	-	-	-
269	AEY Voltage Issues Gold Road	2	-	-	-	-	-	3	28	-	-	-	-
270													
271	AEY Aerial Trespass Lot 23, Blk 25 or 102 Teslin Crescent, (Thomas Slager), Watsor	2	-	-	-	-	-	-	47	-	-	-	-
272	Ross River Substn Voltage Regulator Control	2	-	-	-	-	-	-	36	-	-	-	-
273	Upgrade Recloser Mountainview Substn	2	-	-	-	-	-	-	54	-	-	-	-
274	New Substation Mayo Road	Business Case No. 25	-	-	-	-	-	-	400	2,400	-	-	-
275	Reconductor Mayo Rd Mainline - Stage 3	Business Case No. 06	-	-	-	-	-	0	162	-	-	-	-
276	Watson Lake Substation Feeder & Feeder Protection Replacement	Reference Document 8	-	-	-	-	-	-	146	66	-	-	-
277													

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Line No.	Project Name	Business Case Reference	Actuals 2016	2017	2018	2019	2020	2021	2022	Test Period 2023	2024	Approved 2016	2017
278	Downtown south voltage conversion		-	-	-	-	-	-	-	-	-	-	-
279	AEY Choutla Long Span Rebuild	3	-	-	-	-	-	-	-	40	-	-	-
280	AEY Dogwood voltage improvement	3	-	-	-	-	-	-	-	40	-	-	-
281	AEY DWCI - New 12.5kV substation	Note 1	-	-	-	-	-	-	-	25	792	-	-
282	AEY Haines Junction Regulator Stand Replacement	3	-	-	-	-	-	-	-	20	-	-	-
283	AEY New Substation Whistle Bend - Leota	Business Case No. 25	-	-	-	-	-	-	-	154	2,781	-	-
284	AEY Nisultlin Bridge Pole Relocation	Note 2	-	-	-	-	-	-	-	380	165	-	-
285	AEY SCADA Pineridge Switch	3	-	-	-	-	-	-	-	47	-	-	-
286	AEY Upgrade 6L11 conductor S150 to Carcross Corner	3	-	-	-	-	-	-	-	50	52	-	-
287	AEY Upgrade recloser	3	-	-	-	-	-	-	-	87	90	-	-
288	AEY Voltage Improvement Destruction Bay	3	-	-	-	-	-	-	-	225	-	-	-
289	AEY Whitehorse Escarpment line reroutes - Hoge	3	-	-	-	-	-	-	-	110	-	-	-
290	Robinson sub capacity	3	-	-	-	-	-	-	-	-	165	-	-
291	AEY Hillcrest Voltage Improvement	3	-	-	-	-	-	-	-	100	-	-	-
292	AEY Pelly Crossing Voltage Improvement	3	-	-	-	-	-	-	-	-	361	-	-
293	Watson Lake 5L621 Upgrade	3	-	-	-	-	-	-	-	-	103	-	-
294	Power System Assessment - YEC and AEY	3	-	-	-	-	-	-	-	150	206	-	-
295	Whitehorse CKES UG conversion	3	-	-	-	-	-	-	-	-	155	-	-
296	Encroachment 3rd and Black Encroachment	3	-	-	-	-	-	-	-	-	124	-	-
297													
298	AEY 6L19 voltage improvement	Business Case No. 30	-	-	-	-	-	-	-	-	593	-	-
299	Relocate 100 A Carcross Cutoff Regulator	Business Case No. 30									178		
300	Relocate 100 A Lewes River Regulator	Business Case No. 30									178		
301	AEY Carcross PQ monitoring	3	-	-	-	-	-	-	-	-	77	-	-
302	AEY Whitehorse Escarpment line reroutes - 5th avenue	3	-	-	-	-	-	-	-	-	412	-	-
303	Old Crow voltage improvement - reconductor	Business Case No. 29	-	-	-	-	-	-	-	-	464	-	-
304													
305	400 Amp Regulators in Arkell Substation	1	-	161	5	-	-	-	-	-	-	-	122
306	Shipyards Spare 25kV Breaker	1	-	55	146	2	-	-	-	-	-	-	102
307	Replace Underground Cables at Whitehorse Airport	1	0	1	1	0	(0)	0	(1)	-	-	-	84
308	Distribution Improvements < $20,000		197	260	146	130	27	28	66	143	10	81	77
309	**Distribution Improvements Total**		**4,103**	**3,819**	**2,318**	**2,634**	**1,658**	**3,180**	**2,028**	**5,195**	**9,081**	**4,335**	**4,153**
310													
311	**Street and Sentinel Lighting**												
312	General Streetlight Replacements	4	237	211	85	166	48	105	121	342	186	199	254
313	New Customer Streetlight Installations	Business Case No. 34	170	112	230	84	850	555	180	1,060	448	199	203
314	Whistle Bend Streetlights	1	-	-	-	-	-	-	-	-	-	-	-
315	Watson Lake Street Light Replacement		-	-	-	-	-	-	-	-	-	-	41
316	St Lt Replacements Hart Cr.	Business Case No. 20	-	-	-	-	-	180	-	-	-	-	-
317	Car Cross Streetlights	5	-	429	(24)	111	(0)	-	-	-	-	-	-
318													
319	Alaska Highway North Klondike Highway Intersection	5	-	-	-	-	359	0	-	-	-	-	-
320	Street Lights Burns Road to Range Road Intersection	5	-	-	-	-	-	184	-	-	-	-	-
321	Street Lights Lodestar to Philmars Phase 1	5	-	-	-	-	-	-	509	-	-	-	-
322	Pelly Crossing Community Lights	5	-	-	-	-	-	-	145	-	-	-	-
323												-	-
324	McIntyre Subdivision Streetlight Rebuild	Business Case No. 01	-	-	-	-	-	-	-	412	155	175	254
325	YG Nisutlin Bridge Streetlights	3	-	-	-	-	-	-	-	110	106	-	-
326													
327	Whistle Bend 3C Street Lights	5	-	185	-	-	-	-	-	-	-	-	-
328	Whistle Bend Lights 4D	Business Case No. 31	-	-	-	-	159	-	-	-	-	-	-
329	Whistle Bend Street Lights - Stage 4	Business Case No. 31	-	0	261	291	-	-	-	-	-	-	-
330	Whistle Bend Street Lights - Stage 5	Business Case No. 31	-	-	-	133	211	-	-	-	-	-	-
331	Whistle Bend Street Lights - Stage 6	Business Case No. 31	-	-	-	-	-	-	-	50	-	-	-
332	Whistle Bend Street Lights - Stage 7	Business Case No. 31	-	-	-	-	-	31	55	301	-	-	-
333	Whistle Bend Street Lights - Stage 8	Business Case No. 31	-	-	-	-	-	-	-	103	-	-	-
334	Whistle Bend Street Lights - Stage 9A	Business Case No. 31	-	-	-	-	-	-	-	186	-	-	-
335	Whistle Bend Street Lights - Stage 9B	Business Case No. 31	-	-	-	-	-	-	-	-	147	-	-
336													
337	Street and Sentinel Lighting < $20,000	1	-	-	-	-	-	-	-	-	-	11	25
338	**Street and Sentinel Lighting Total**		**407**	**936**	**553**	**785**	**1,627**	**1,055**	**1,009**	**2,563**	**1,042**	**584**	**777**
339													
340	**Meters**												
341	AMI Project New Meters	AEY-YUB-065(a) Attachment 1	-	-	-	-	-	-	-	132	304	-	-
342	Replacement of Meters and New Installations	1,2,3&4	105	88	32	67	127	75	98	103	106	199	203
343	**Meters Total**		**105**	**88**	**32**	**67**	**127**	**75**	**98**	**235**	**410**	**199**	**203**
344													

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Line			Actuals							Test Period		Approved	
No.	Project Name	Business Case Reference	2016	2017	2018	2019	2020	2021	2022	2023	2024	2016	2017
345	**Transformers & Regulators**												
346	General Capitalizable Transformers	Business Case No. 16	-	-	-	-	268	49	(19)	218	275	90	91
347	Spare 10 MVA Transformer	1	251	-	-	-	-	-	-	-	-	219	-
348	Spare Padmount Regulator for Shipyards Substation	1	-	-	-	-	-	-	-	-	-	58	-
349	Transformers and Regulators	4	73	213	70	262	118	173	10	-	-	-	-
350	AEY Old Crow Regulators	Business Case No. 29	-	-	-	-	-	-	-	710	-	-	-
351	**Transformers & Regulators Total**		**324**	**213**	**70**	**262**	**385**	**222**	**(8)**	**928**	**275**	**367**	**91**
352													
353	**GP&E**												
354	**Computer**												
355	My Account- Technology Project	Business Case No. 19	-	-	22	247	(4)	-	-	-	-	-	-
356	**Computer Total**		**-**	**-**	**22**	**247**	**(4)**	**-**	**-**	**-**	**-**	**-**	**-**
357													
358	**Land & Building**												
359	Service Complex Heating System	1	4	17	6	-	-	-	-	-	-	40	25
360	Annual Building Upgrades	3	-	-	-	-	-	-	-	75	73	-	-
361	Downtown Office Interior Renovations	3	-	-	-	-	-	-	-	51	-	-	-
362	Whitehorse Service Complex RTU'S Construction	3	-	-	-	-	-	-	-	100	-	-	-
363	Whitehorse Service Complex Rooftop Unit Design	3	-	-	-	-	-	-	-	5	-	-	-
364	Service Complex Boiler Replacement	Business Case No. 10	-	-	-	-	132	(27)	-	-	-	-	71
365	Kilowatt - Misc. Imp	1	24	-	-	-	-	-	-	-	-	-	-
366	102 Kilowatt Ln Refurbish	1&2	-	14	32	-	-	-	-	-	-	-	-
367	101 Kilowatt Ln Refurbish	1&2	-	19	32	-	-	-	-	-	-	-	-
368	Warehouse Mezzanine Upg	1	-	22	-	-	-	-	-	-	-	-	-
369	DT Office Renos & Improvements	2	-	-	-	27	-	-	-	-	-	-	-
370	Service Complex Yard Extension	2	-	-	-	36	0	-	-	-	-	-	-
371	Fencing for Marwell Yard	2	-	-	-	-	-	-	45	-	-	-	-
372	Old Crow Bunkhouse replacement	Business Case No. 41	-	-	-	-	-	-	-	-	515	-	-
373	Fish Lake 1 Storage building roof replacements	3	-	-	-	-	-	-	-	-	77	-	-
374	Downtown Office Security and Fire Suppression	3	-	-	-	-	-	-	-	-	103	-	-
375	Warehousing Seacan	3	-	-	-	-	-	-	-	-	26	-	-
376	Furnace Replacements - Watson Lake	3	-	-	-	-	-	-	-	-	-	25	-
377	Watson Lake Septic Upgrade	1	-	-	-	-	-	-	-	-	-	-	51
378	Watson Lake Storage Solutions	1	-	-	-	-	-	-	-	-	-	-	92
379	Land & Buildings - Corporate < $20,000	4	61	32	21	9	15	5	50	-	-	-	-
380	**Total Land & Buildings**		**89**	**105**	**91**	**72**	**147**	**(22)**	**95**	**232**	**794**	**65**	**239**
381													
382													

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No.	Project Name	Business Case Reference	2016	2017	2018	2019	2020	2021	2022	2023	2024	2016	2017
383	**Communication Equipment**												
384	Communication Equipment	1,2,3&4	36	23	2	(0)	19	48	(46)	-	-	18	13
385	AEY SCADA Upgrades	4	26	116	30	20	10	5	20	47	141	49	66
386	Satellite Radios	Business Case No. 14	-	-	-	-	-	-	157	-	-	-	-
387	Windows XP Conversion for Operations Dispatch	1	-	-	-	-	-	-	-	-	-	30	-
388	Form 6 Substation Controls	1	-	-	-	-	-	-	-	-	-	20	-
389	Whitehorse SCADA Dispatch UHF Repeater	1	-	-	-	-	-	-	-	-	-	-	36
390													
391	**Total Communication Equipment**		**63**	**138**	**32**	**20**	**29**	**53**	**131**	**47**	**141**	**117**	**115**
392													
393	**Tools, Instruments & Equip.**												
394	FRC Replacement	1,2,3&4	19	24	9	18	13	10	8	22	25	-	-
395	Power Quality Meter	1	-	-	-	-	-	-	14	20	-	-	-
396	Primary current monitors	3	-	-	-	-	-	-	-	26	27	-	-
397	Miscellaneous Tools and Instruments	4	132	138	64	180	95	150	65	242	76	149	165
398	**Total Tools, Instruments & Equip.**		**151**	**162**	**73**	**197**	**108**	**160**	**87**	**310**	**128**	**149**	**165**
399													
400	**Office Computer Equipment**												
401	Office Furniture & Equipment	1,2,3&4	20	11	2	5	5	12	14	62	20	20	20
402	2021 Surface Pro Purchases	2	-	-	-	-	-	21	-	-	-	-	-
403	Replace XP Operating Systems - iFix PCs	1	31	0	-	-	-	-	-	-	-	-	46
404													
405	**GP&E Continued**												
406	CIS Replacement	Business Case No. 22	-	-	-	-	-	680	3,712	3,666	345	-	-
407	Asset Management - Evaluation & Program Roadmap	2&3	-	-	-	-	-	-	59	13	-	-	-
408	Asset Management - Phase 1	Business Case No. 24	-	-	-	-	-	-	-	305	901	-	-
409	Sales force	AEY-YUB-066(b) Attachment 1	-	-	-	-	-	-	-	172	155	-	-
410	My Account Enhancements - AEY	2	-	-	-	-	-	37	16	-	-	-	-
411	Enterprise Batch Printing	2	-	-	-	-	-	-	49	-	-	-	-
412	Fleet Maximo - AEY	2	-	-	24	29	7	-	-	-	-	-	-
413	Oracle R12 Replacement	Note 3	-	51	51	-	-	-	-	-	-	-	-
414													
415	Office Computer Equipment < $20,000	4	2	16	3	10	21	4	(71)	43	13	-	-
416	**Total Office Computer Equipment**		**54**	**79**	**79**	**44**	**32**	**755**	**3,780**	**4,261**	**1,434**	**20**	**66**
417													
418	**Transportation Equipment**												
419	Transportation Equipment	Business Case No. 27&28	18	294	6	88	117	507	397	697	766	369	315
420	Purchase New Unit YT169 - Small Bucket Truck	Business Case No. 13							264				
421	Unit 136 to Replace Unit 643 Bucket Truck	AEY-YUB-041(a)(viii) Attachment 1.		371									
422	Unit YT144 New Mechanic's Truck	Business Case No. 13	-	-	-	145	-	-	-	-	-	-	-
423	Purchase Unit YT145 to Replace Unit 091	Business Case No. 13	-	-	-	149	-	-	-	-	-	-	-
424	Unit 151 Digger to Replace Unit 429 - WLk Bucket	Business Case No. 13	-	-	-	-	324	11	-	-	-	-	-
425	Purchase Unit YT148 - Replace Unit 092 - Ram 5500 CC 4x4 - Flat Deck	Business Case No. 13	-	-	-	-	129	-	-	-	-	-	-
426	Purchase YT159 - Replace Unit 886 - 1 Ton Service Body	Business Case No. 13	-	-	-	-	-	158	-	-	-	-	-
427	**Total Transpiration Equipment**		**18**	**665**	**6**	**382**	**570**	**675**	**661**	**697**	**766**	**369**	**315**
428			-	-	-	-	-	-	-	-	-	-	-
429	Other Projects Less Than $20,000											37	102
430	**GP&E Total**		**374**	**1,150**	**303**	**962**	**883**	**1,621**	**4,753**	**5,547**	**3,263**	**757**	**1,002**
431	**Grand Total**		**14,784**	**10,476**	**9,491**	**13,529**	**13,001**	**15,147**	**18,914**	**31,234**	**25,073**	**14,999**	**12,470**
432													

433 Note 1: The project is not going into service in test period and therefore will not impact rate base or revenue requirement. A business case will be completed upon completion of the engineering study.
434 Note 2: This was a government directed pole movement, AEY is mandated to abide by these requests, no business case was completed as a result.
435 Note 3: This project has since been retired and no longer in ratebase no ratebase or revenue requirment impact.