

# Joint Request Relating to Fixing Rate of Return and Capital Structures: Énergir s.e.c., Gazifère Inc., Intragaz LP

RÉGIE DE L'ÉNERGIE DU QUÉBEC - R-4156-2021

RETURN ON EQUITY AND CAPITAL STRUCTURE

PRESENTED BY

Dr. Bente Villadsen

JUNE 14, 2022



# Agenda

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- Background and Information
- Key Concepts
- Summary of recommendations
- Five Key Issues:
  - Interest Rates
  - Market Risk Premium
  - Systematic Risk
  - Growth Rates
  - Capital Structure
- Review of ROE estimates and capital structure recommendations

# Background

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## **Bente Villadsen:**

- Ph.D. from Yale University
- 22 years of experience in cost of capital and regulatory finance
- Focus on regulatory finance (e.g. cost of capital), regulatory accounting and utility M&A
- Canadian CoC experience: Consultant to BCUC, expert for OEB, expert for utilities in Alberta, expert in pipeline arbitration, consulting re. Canadian pipelines, electric utilities, and gas utilities in BC, AB, SK, QC, NL
- Cost of capital experience in Canada, U.S., Mexico, Barbados, Australia, the Netherlands, and Italy

## **Mandate:**

Provide recommendation for cost of equity and equity percentage for Quebec regulated activities of Énergir and Gazifère until new case, and for a 10-year period for Intragaz; jointly “Utilities”

# Information Relied Upon

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## **From Utilities:**

- Financial data for credit metric analysis
- Credit ratings reports
- List of prior cost of capital proceedings

## **Data Providers**

- Bloomberg data, Capital IQ data, Value Line data, Thomson Reuters data, Consensus Forecasts, Blue Chip Economic Forecasts, S&P Global Market Intelligence, Duff & Phelps
- Academic articles

## **Public Data**

- Régie de l'énergie and other regulators, Bank of Canada, Federal Reserve, TD Economics, public domain news article, credit rating agency reports

## **Testimony of Dr. Toby Brown**

# ROE and Capital Structure Recommendations

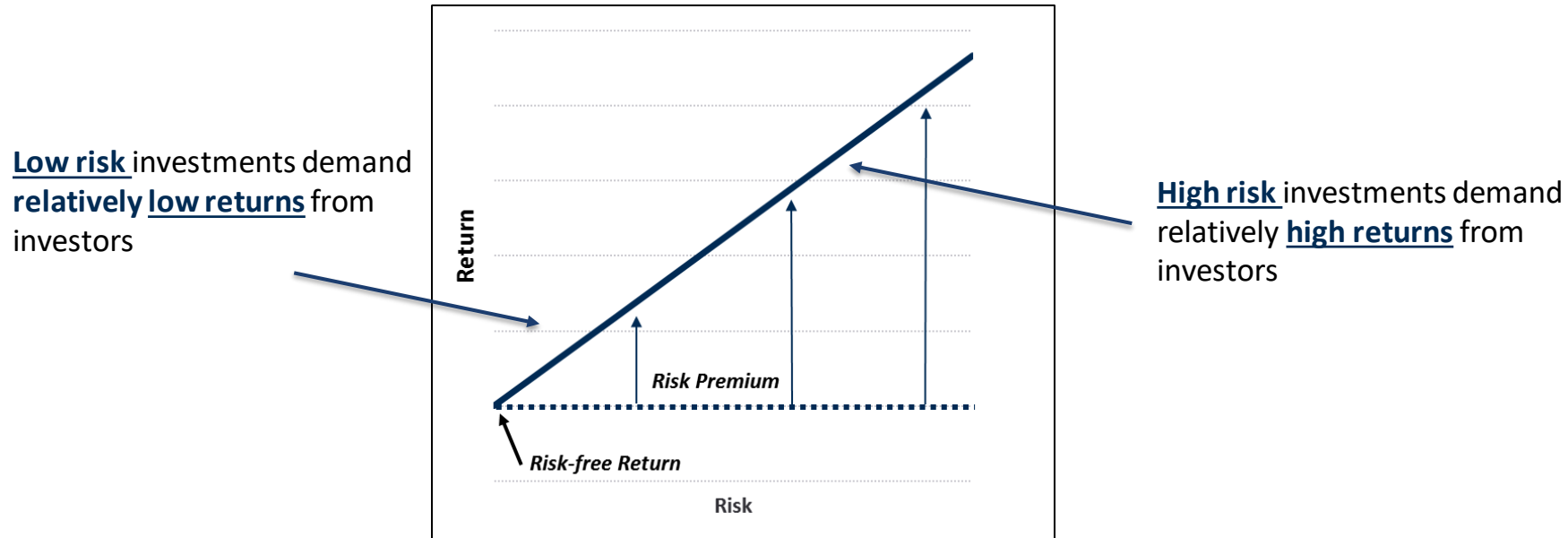
## Return on Equity and Capital Structure Recommendations<sup>1</sup>

	Return on Equity	Common Equity	Preferred Equity	Debt
<b>Énergir</b>	10.0%	43.0%	0.0%	57.0%
<b>Intragaz</b>	10.0% Base + 0.50% Adder	43.0%	0.0%	57.0%
<b>Gazifère</b>	10.0%	45.0%	0.0%	55.0%

1: Villadsen Direct Testimony, p. 6.

# Key Concepts

# Key Concept: Risk-Return Tradeoff



- Cost of Capital: The expected return on alternative investments of equivalent risk
- Systematic or Non-Diversifiable Risk: The risk that investors cannot avoid by holding a diversified portfolio of assets

# Key Concepts: Approach to Determine the Cost of Equity

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*The Cost of Equity cannot be observed – it represents the expected rate of return in capital markets for alternative investments of corresponding risk (i.e., an opportunity cost)*

*It is common to calculate the cost of equity using financial models that use available financial market data*

- Commonly use a sample of publicly traded companies with comparable business risk
  - Publicly traded companies have market data available
  - Comparable business risk enables comparison with target utility
- Estimate the cost of equity using financial models
  - Using multiple models is preferred
    - Capital Asset Pricing Model (“CAPM”)
    - Discounted Cash Flow (“DCF”) model



# Key Concept: Capital Asset Pricing Model

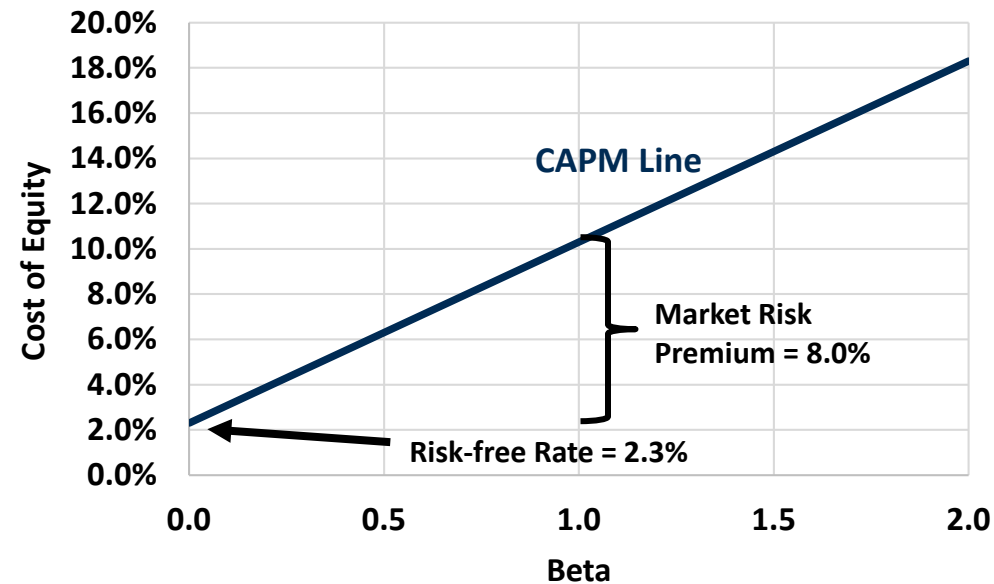
The Capital Asset Pricing Model is defined:

$$\text{Cost of Equity} = \text{Risk-free Rate} + \beta \times \text{Market Risk Premium}$$

↓  
Systematic Risk

All else equal:

- Higher Risk-free Rate increases the Cost of Equity
- Larger systematic / non-diversifiable risk increases Cost of Equity
- Higher Market Risk Premium increases Cost of Equity



Hypothetical example

# Key Concept: Discounted Cash Flow Model

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The value (current price) of a stock is often the present value of the expected stream of cash flows that accrue to stockholders, discounted at the cost of equity

Therefore the cost of equity can be inferred from the stock price and, if only dividends are distributed to shareholders, expected dividends and the growth in dividends

**Single-Stage DCF calculates the Cost of Equity as:**

$$\text{Cost of Equity} = \frac{D_0 * (1+g)}{P_0} + g$$

- $D_0$  is the most recent dividend (observable)
- $P_0$  is the current stock price (observable)
- $g$  is the company growth rate (based on analysts' forecasts)

# Key Concept: Capital Structure

To compare the fair returns of two otherwise identical firms on a risk-adjusted basis, the capital structure must be taken into account.

The amount of debt in a company's capital structure affects the cost of equity ("financial risks")

- Debt investors have a higher priority of claim on a company's cash flows, which creates higher risks to equity investors
- Higher amounts of debt reduce the amount of cash flow available to equity investors and increases risk of default

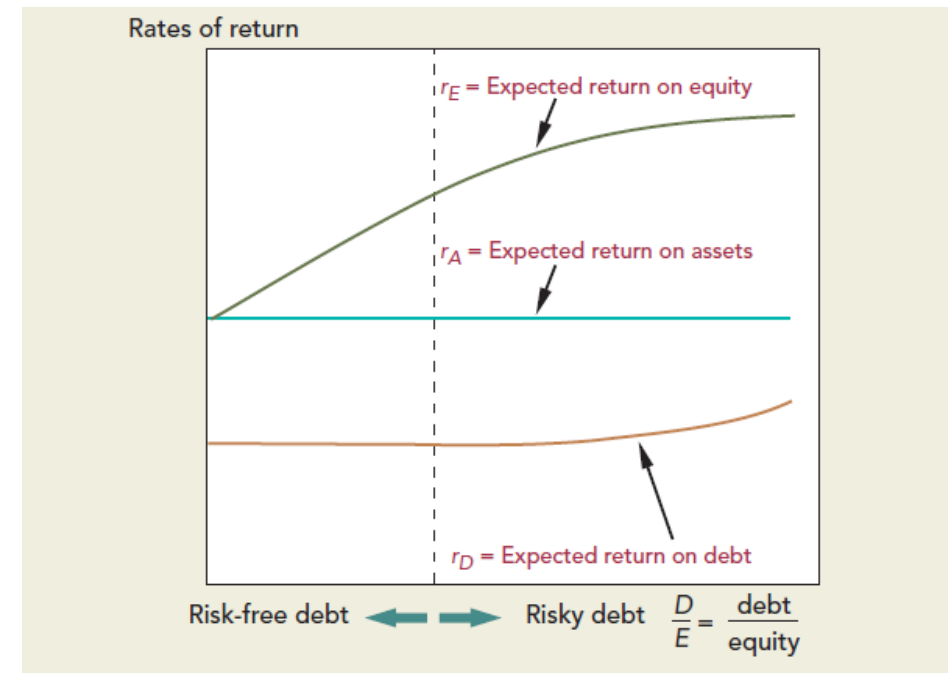
Two methodologies to account for capitals structure:

- Hamada technique (CAPM)
  - I ensure that the results are supported by Hamada<sup>1</sup>
- After-Tax Weighted Average Cost of Capital (ATWACC)

Capital structure also impact credit rating

1: Villadsen Direct Testimony, p. 70.

## Illustration of the Impact of Capital Structure on ROE



Source: Brealey, Meyers, Allen, Principles of Corporate Finance, 10<sup>th</sup> Edition, p. 429.

# Summary of Cost of Equity Methodology

**Multiple Methods:** Capital Asset Pricing Model (CAPM) and Empirical CAPM (ECAPM)<sup>1</sup>

Return on Equity = Risk-free Rate + Beta \* Market Risk Premium

- rely on Canadian benchmarks for Risk-free Rate and Market Risk Premium
- forward-looking Risk-free Rate (2.3% -> 2.47%)
- three-year weekly Betas (company specific)
- estimates for Canadian historical (5.68%, Duff & Phelps) and forward-looking (8.05%, Bloomberg) MRPs

Discounted Cash Flow<sup>2</sup> (Single Stage and Multi-Stage)

- rely on company-specific dividend yields and growth rates
- the multi-stage DCF also uses the forecasted GDP growth rate (3.7% Canada; 4.0% U.S.)

Canadian Utility Sample and U.S. Gas Sample key; supported by Water Utility Sample

**Leverage and Capital Structure:**

Need to consider the financial risk inherent in the capital structure of samples and that of Énergir, Intragaz, Gazifère

Less equity means a higher return on equity is required

Models evaluated at 40%, 43% and 46% equity capital structure; recommended benchmark capital structure is 43%.<sup>3</sup>

1: Villadsen Direct Testimony, pp. 60-66. Note: Empirical CAPM is also implemented.

2: *Id.*, pp. 72-73.

3: *Id.*, p. 6 and BV-10

# Bank of Canada: Economic and Financial risks



According to the Bank of Canada's June 1<sup>st</sup> press release, Canada is facing the following growing risks:

- Rising inflation – Canada CPI inflation surpasses the Bank's forecast, reaching 6.8% in April, and is expected to continue to rise
  - Inflation range has been increasing , “almost 70% of CPI categories now show inflation above 3%”
- Slowing global economy, due to:
  - Growing inflation;
  - Russian invasion of Ukraine;
  - China's COVID-related lockdowns;
  - Supply disruptions
- Increased global market volatility

Bank of Canada: “With the **economy in excess demand, and inflation persisting well above target** and expected to move higher in the near term, the Governing Council continues to judge that interest rates will need to rise further.”

# Five Key Issues

# Five Key Issues

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1. Interest Rate

2. Market Risk Premium

3. Systematic Risk (Beta)

4. Growth Rate

5. Capital Structure



Inputs to the Capital Asset Pricing Model (“CAPM”)



Key input to the Discounted Cash Flow (“DCF”) model



Affects the return that investors require to invest in debt and equity

- Credit rating agencies often have benchmarks
- Lower equity means equity investors require higher Return on Equity

# Key Issue: Interest Rate

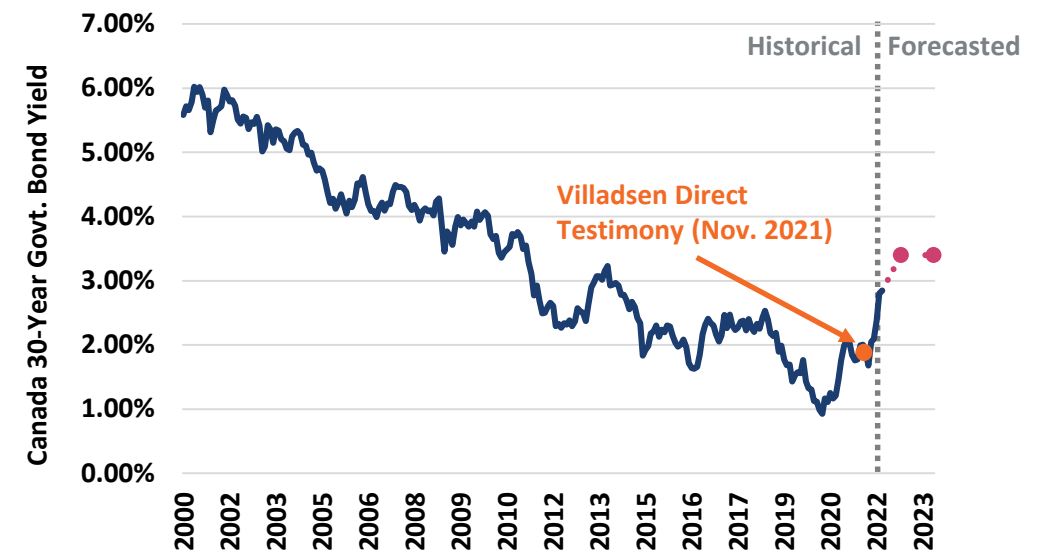
Interest rate in the form of Risk-free Rate is key input to the model

- Commonly use yields on long-term government bonds
  - Forecasts for the period that rates will be in effect is preferred
  - Dr. Booth uses “normalized” Risk-free Rate<sup>1</sup>
- Interest Rates have increased dramatically
- Bank of Canada increased its overnight rate to 1.5% (second consecutive 50 bps increase) and is considering a quantitative tightening program to help control inflation.<sup>2</sup>
- Important to recognize the interaction of interest rates and the Market Risk Premium

1: Booth Testimony, p. 85.

2: Bank of Canada, “Bank of Canada increases policy interest rate by 50 basis points, continues quantitative tightening”, June 1, 2022.

## Canadian Government Bond Yields (30Y) Historical & Forecasted



Bloomberg, as of May 31, 2022.

May 2022 Consensus Forecasts (p. 17): 10-Yr Canadian Govt. bond yield (Aug '22 and May '23) plus long-term historic maturity premium of 40 basis points.



# Key Issue: Market Risk Premium

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The Market Risk Premium represents the premium earned by investors when they invest in the stock market (S&P/TSX, S&P 500) over the Risk-free Rate

$$\text{Cost of Equity} = RFR + \beta \times \text{MRP}$$

MRP is the return equity investors expect over and above the Risk-free Rate (RFR)

Villadsen looks to the past and future:<sup>1</sup> The MRP is calculated using long-term historical averages of realized stock returns over government debt

- Longer estimation periods improve the statistical quality of the estimate and are recommended by textbooks<sup>2</sup>

Forward-looking MRP estimates are based on market return expectations and the current Risk-free Rate

- Bloomberg uses multi-stage DCF models (based on cash flows) to estimate the MRP

1: Villadsen Direct Testimony, p. 62.

2: Ross, Westerfield and Jaffe, 10<sup>th</sup> edition, 325-326.

## Key Issue: Market Risk Premium (Cont'd)

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Historical MRP for Canada:<sup>1</sup> 1935 – 2020: 5.68% as of filing

1935 – 2021: 5.91% as of May 2022

Bloomberg MRP for Canada:<sup>2</sup> 8.1% as of filing

5.9% as of May 2022

There is a relationship between the Risk-free Rate and the MRP: higher Risk-free Rates lead to lower MRPs (MRP is the premium over and above the Risk-free Rate)

**Dr. Booth:** Looks only to history for a historical range of 5.50% - 6.0% => 5.75%<sup>3</sup>

- Not clear exactly how Dr. Booth arrives at the number
- Below today's historical MRP from Duff & Phelps
- Fails to consider forecasted MRPs, yet rates will be in effect over the next few years

1: Villadsen Direct Testimony, p. 62. and Duff & Phelps Cost of Capital Navigator, 2021.

2: Villadsen Direct Testimony, p. 61 and Bloomberg as of May 31, 2022.

3: Booth Testimony, p. 85.

# Key Issue: Systematic Risk (Beta)

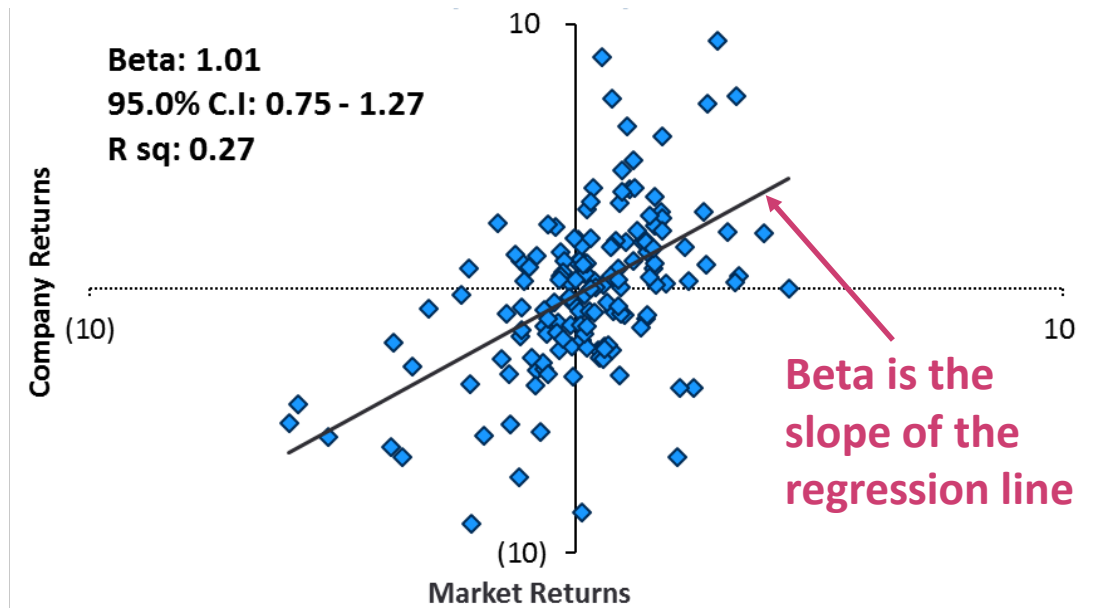
Systematic risk (**Beta**) is the portion of the total risk of an asset that cannot be eliminated by diversification and thus affects the cost of capital.

- Examples: Inflation, changes in interest rates, political risks, etc.

Beta is estimated by regressing utilities' stock returns on market returns (S&P/TSX, S&P 500)

- Three to five years of weekly data are preferred
  - Too short periods provide less data and hence the statistical quality of the estimate declines
  - Too long periods lead to dated data and thus fail to recognize changes in the utility industry or market
- Blume adjustments move Betas towards a value that (statistically) provides a better forecasted Beta<sup>1</sup>

## Beta Regression – 3 Year Weekly Data



# Sample Selection

## Canadian Regulated Utilities:

Mixed group of electric, gas, and pipeline companies

Canadian (and U.S.) regulation

All companies except Canadian Utilities and Hydro One have greater than 50% concentration in the U.S. (revenues and assets)<sup>1</sup>

## U.S. Natural Gas Distribution Utilities

Comparable business model

U.S. regulation

Comparable business risk

Contrary to Hopkins statements, these have a highly regulated assets mix<sup>2</sup>

■ Companies would be removed today due to recent significant M&A / transaction activity.

1: Villadsen Direct Testimony, p. 54.

2: Hopkins Testimony Q/A 32.

3: Villadsen, BV-6; Spire excludes effects of eliminations (111%).

## Canadian Sample<sup>3</sup>

Company	Company Category	Percent Regulated Assets
■ Algonquin Power & Utilities Corp.	MR	64.5%
AltaGas Ltd.	MR	63.5%
Canadian Utilities Limited	R	90.2%
Emera Incorporated	R	99.5%
Enbridge Inc.	R	94.8%
Fortis Inc.	R	98.4%
Hydro One Limited	R	96.2%
TC Energy Corporation	R	89.8%

## U.S. Natural Gas Sample<sup>3</sup>

Company	Company Category	Percent Regulated Assets
Atmos Energy	R	100.0%
Chesapeake Utilities	R	80.4%
New Jersey Resources	MR	78.6%
NiSource Inc.	R	89.4%
Northwest Natural	R	95.5%
ONE Gas Inc.	R	100.0%
■ South Jersey Inds.	R	91.6%
■ Southwest Gas	R	83.2%
Spire Inc.	R	98.0%

# Key Issue: Systematic Risk (Beta) (Cont'd)

3 year weekly betas provide a compromise between having sufficient data and being overly historical – statistical properties support this

Dr. Booth chooses a beta of 0.50 – 0.55; yet estimates an average beta of 0.74 for Canadian sample<sup>1</sup>

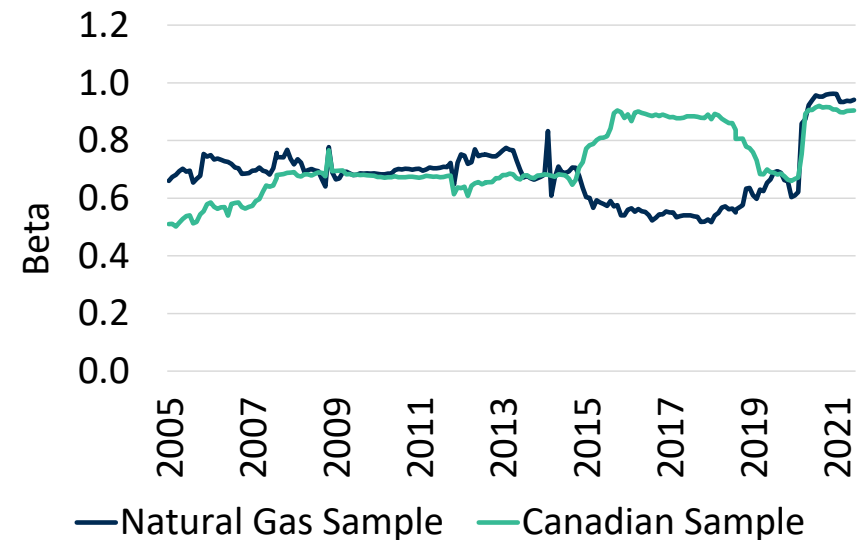
- Long-term trends are not appropriate for today's cost of equity estimation
- Adjusted vs. Unadjusted Betas
  - Adjustments are not towards 1 but towards a value that better reflects the future Beta
  - With the level of Beta currently estimated, the Blume adjustment has little impact on results (less than 0.05 change)

Raw Beta	Adjusted	Difference
0.525	0.683	0.158
0.850	0.900	0.050

$$\text{Adjusted} = \frac{2}{3} \times \text{Raw} + \frac{1}{3} \times 1$$

1: Booth Appendix C, p. 11.

Three Year Weekly Betas<sup>2</sup>



Betas change through time as the risk of the underlying asset or portfolio changes (Booth Textbook, p. 339)

Canadian Utility Beta has been higher than U.S. Gas LDC Betas since 2015

2: EGI-12 (B-0080)

# Key Issue: Systematic Risk (Beta) (Cont'd)

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Villadsen considers 3 and 5 year Betas<sup>1</sup>

Dr. Booth looks back up to 20 years

The gas utility industry is changing fast, so it becomes important to reflect today's environment

Canadian Utility Sample today has higher Betas than U.S. Gas LDCs, as seen on the previous slide

Of note: Today's higher Betas mean that a discussion of the ECAPM or adjusted Betas become much less relevant, as there is little impact from the approaches

Periodicity of Betas: The use of a higher frequency analyses (e.g., weekly instead of monthly) has become more common and many data providers have shifted (e.g., Bloomberg, Value Line, S&P Global Intelligence)

<sup>1</sup>: Villadsen Direct Testimony, p. 65-66.

# Key Issue: Growth Rates (DCF)

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The Growth rates for the DCF model represent the expected compound annual growth rate (CAGR) in a company's earnings over the next 3-5 years

Consensus growth rate estimates from equity analysts (sourced from Thomson Reuters or Value Line)<sup>1</sup>

In multi-stage DCFs, analysts' growth rate forecasts are tapered (up or down) to the long-term nominal GDP growth rate.<sup>2</sup>

$$ROE = \frac{D_0 * (1 + g)}{P_0} + g$$

1: Villadsen Direct Testimony, pp. 72-73.

2: *Ibid.*

# Key Issue: Growth Rates (DCF) (Cont'd)

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Dr. Booth critiques analysts' forecasted growth as being upward biased<sup>1</sup> and critiques the use of earnings growth

- Relies on generic research – does not rely on his utility specific data<sup>2</sup>
- Looks to GDP growth<sup>2</sup>
- Outdated data for industry (2015 / 2018) and not specific analysis<sup>3</sup>

Utilities are substantially more stable, have longer histories, and more assets to revenues than other companies making growth estimates more reliable<sup>4</sup>

GDP growth does not reflect utility growth over the next several years – there is much better data available from analysts (or annual reports)

Dividends and earnings both accrue to shareholders – the timing may differ, but (i) ultimately earnings belong to shareholders and (ii) cash may be paid early to shareholders through share buybacks

1: Booth Appendix D, p. 12.

3: *Id.*, p. 18

2: *Id.*, p. 19

4: See Villadsen Direct, BV-1 Appendix B – Technical Appendix at III.C.2



# Key Issue: Capital Structure

The levered equity return equals the unlevered equity return, plus an extra “kick” due to leverage...The amount of additional risk depends on the amount of leverage, measured by the firm’s market value debt-equity ratio,  $D/E$ ...<sup>1</sup>

In short: Capital structure matters and the lower the equity percentage, the higher the cost of equity – risk and return tradeoff.

Cost of equity is measured using capital markets’ data, so the relevant capital structure is based on market.

Multiple ways to account for differences:

- I. Hamada approaches developed by Professor Hamada was the key method used here
- II. Holding the After-Tax Weighted-Average Cost of Capital (ATWACC) constant – due to the Régie’s prior decision, the method was not relied upon for the CAPM in this proceeding<sup>2</sup>

1: Berk & Peter DeMarzo 2013, p. 489

2: Villadsen Direct Testimony, p. 70.

# Key Issue: Capital Structure (Cont'd) - Market to Book Values

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A market to book value greater than one cannot be simply interpreted that the company is earning above the allowed return on its regulated subsidiaries.

- Market value of the company reflects the value of assets of the traded entity, including unregulated business activities, goodwill and growth opportunities
- Market to book ratio greater than one does not mean that a utility company is at risk of having its allowed ROE cut or that its stock price drops to book value

## Key Issue: Capital Structure (Cont'd)

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Dr. Booth critiques the reliance on the ATWACC method,<sup>1</sup> but barely mentions the Hamada approach in his testimony, which was key in my analysis

The Régie has not previously addressed the Hamada approach

Note that one of the Hamada approaches does consider the impact of taxes on debt, which all else equal, lowers the estimated cost of equity

My recommendation is fully supported by the Hamada approach<sup>2</sup>

1: Booth Appendix E

2: Villadsen Direct Testimony, p. 70.

# ROE and Capital Structure Recommendations

- **Recommendation**
- Benchmark ROE of 10.0% combined with 43% equity and 57% debt.
- Intragaz: Recommend a 0.5% maturity premium<sup>1</sup> to account for the financial risk associated with a 10-year rate period.
- Gazifère: Previously the Régie recognized Gazifère as a higher risk utility and I find it challenging to meet A- credit metrics at 43% equity, so I recommend 45% equity and 55% debt.

## Return on Equity and Capital Structure Recommendations<sup>2</sup>

	Return on Equity	Common Equity	Preferred Equity	Debt
<b>Énergir</b>	10.0%	43.0%	0.0%	57.0%
<b>Intragaz</b>	10.0% Base + 0.50% Adder	43.0%	0.0%	57.0%
<b>Gazifère</b>	10.0%	45.0%	0.0%	55.0%

1: Based on a portion of the yield spread on 10-year and 2-year Government of Canada and Canadian utility bonds as of June 30, 2021. See Villadsen Direct Testimony pp. 87-89

2: *Id.*, p. 6.

# Dr. Booth's ROE Recommendation

Dr. Booth's recommended ROE of 7.5% (7.0% base plus a 0.50% flotation cost adjustment)<sup>1</sup> is arbitrary and not based on utilities that face similar business or financial risks to Énergir, Intragaz, and Gazifère.

Dr. Booth relies on data as of January 2022 and since then economic and financial conditions have significantly changed (rising interest rates, inflation, global geopolitical tensions, etc.).<sup>2</sup>

Dr. Booth anchors his estimate to a recent ROE decision by the New Brunswick Energy and Utilities Board (NBEUB), but does not explain how new Brunswick utilities relate to the Quebec utilities.<sup>3</sup>

Dr. Booth ignores his own data and instead selects ROE inputs that support his recommended ROE.

- His bond buying adjustment to the Risk-free Rate is not clear and Dr. Booth ignores observable current and forecasted Risk-free Rates
- It is not clear how he arrives at his MRP estimate of 5.5% to 6.0%,<sup>4</sup> which is below today's historic MRP estimates
- He estimates the average Beta of his Canadian sample to be 0.74,<sup>5</sup> but instead recommends an average Beta of 0.5 to 0.55<sup>6</sup>

1: Booth Testimony, p. 4

2: For example, *Id.*, 22, 46, 76, Booth Appendix C p. 5, 11. For discussion on recent economic and financial changes see, Villadsen response to Régie DDR3, Request 10.1

3: Booth Testimony, p. 7

4: *Id.*, p. 75

5: Booth Appendix C, p. 11

6: Booth Testimony, p. 3

# Dr. Booth's Corrected CAPM Estimates 1

Using Dr. Booth's estimated Beta for his Canadian Sample increases his ROE estimate by 95 to 151 basis points to 8.56%.

## Dr. Booth CAPM Corrections – Canadian UHC Sample

		Low	High	Corrected
Risk-Free Rate	[1]	3.37%	3.37%	<b>3.37%</b>
Adjustment for Bond Buying	[2]	0.43%	0.43%	<b>0.43%</b>
Beta	[3]	0.50	0.55	<b>0.74</b>
Market Risk Premium	[4]	5.50%	6.00%	<b>5.75%</b>
Flotation Costs	[5]	0.50%	0.50%	<b>0.50%</b>
CAPM	[6]	7.05%	7.60%	<b>8.56%</b>

Dr. Booth estimated average Canadian Sample Beta

Booth App. C, p. 11

### Sources & Notes

[1]-[2], [5]: Booth Testimony, p. 85

[3]: Midpoint of Dr. Booth MRP Estimates

[4]: Booth Testimony, p. 2

[6]:  $([1] + [2]) + [3] \times [4] + [5]$

# Dr. Booth's Corrected CAPM Estimates 2

Applying the Blume adjustment to Dr. Booth's estimated Beta for his Canadian Sample results in an ROE estimate of 9.05%.

## Dr. Booth CAPM Corrections – Canadian UHC Sample

		Low	High	Corrected
Risk-Free Rate	[1]	3.37%	3.37%	<b>3.37%</b>
Adjustment for Bond Buying	[2]	0.43%	0.43%	<b>0.43%</b>
Beta	[3]	0.50	0.55	<b>0.83</b>
Market Risk Premium	[4]	5.50%	6.00%	<b>5.75%</b>
Flotation Costs	[5]	0.50%	0.50%	<b>0.50%</b>
CAPM	[6]	7.05%	7.60%	<b>9.05%</b>

Dr. Booth's estimated Beta for Canadian Sample (0.74), Blume Adjusted

Booth App. C, p. 11

### Sources & Notes

[1]-[2], [5]: Booth Testimony, p. 85

[3]: Midpoint of Dr. Booth MRP Estimates

[4]: Booth Testimony, p. 2

[6]:  $([1] + [2]) + [3] \times [4] + [5]$

# Dr. Booth's Corrected CAPM Estimates 3

Adjusting and relevering the average Canadian proxy company Betas presented by Dr. Booth increases the ROE to 9.17%.

## Dr. Booth CAPM Corrections – Canadian UHC Sample

		Low	High	Corrected
Risk-Free Rate	[1]	3.37%	3.37%	<b>3.37%</b>
Adjustment for Bond Buying	[2]	0.43%	0.43%	<b>0.43%</b>
Beta	[3]	0.50	0.55	<b>0.85</b>
Market Risk Premium	[4]	5.50%	6.00%	<b>5.75%</b>
Flotation Costs	[5]	0.50%	0.50%	<b>0.50%</b>
CAPM	[6]	7.05%	7.60%	<b>9.17%</b>

Average Beta for Dr. Booth's Canadian Sample companies, adjusted and relevered to 43%.

Booth App. C, p. 11, Bloomberg, CapIQ

### Sources & Notes

[1]-[2], [5]: Booth Testimony, p. 85

[3]: Midpoint of Dr. Booth MRP Estimates

[4]: Booth Testimony, p. 2

[6]:  $([1] + [2]) + [3] \times [4] + [5]$



# Dr. Booth's Corrected CAPM Estimates 4

Adjusting and relevering the average proxy company Betas presented by Dr. Booth increases the ROE to 9.50%.

## Dr. Booth CAPM Corrections – U.S. Gas Companies

		Low	High	Corrected
Risk-Free Rate	[1]	3.37%	3.37%	<b>3.37%</b>
Adjustment for Bond Buying	[2]	0.43%	0.43%	<b>0.43%</b>
Beta	[3]	0.50	0.55	<b>0.90</b>
Market Risk Premium	[4]	5.50%	6.00%	<b>5.75%</b>
Flotation Costs	[5]	0.50%	0.50%	<b>0.50%</b>
CAPM	[6]	7.05%	7.60%	<b>9.50%</b>

Average Beta for Dr. Booth's U.S. Gas Sample companies, adjusted and relevered to 43%.

Booth App. C, p. 12

### Sources & Notes

[1]-[2], [5]: Booth Testimony, p. 85

[3]: Midpoint of Dr. Booth MRP Estimates

[4]: Booth Testimony, p. 2

[6]:  $([1] + [2]) + [3] \times [4] + [5]$

# **Review of Cost of Equity Estimates and Capital Structure Recommendations**

# ROE Estimates: Results at 43% Equity

## Canadian Sample<sup>1</sup>

Estimated Return on Equity	Scenario 1 [1]	Scenario 2 [2]
<b>Canadian Sample</b>		
<i>Financial Risk Adjusted Method</i>		
CAPM	8.4%	10.6%
ECAPM ( $\alpha = 1.5\%$ )	8.6%	10.8%
<i>Hamada Adjustment Without Taxes</i>		
CAPM	8.4%	10.7%
ECAPM ( $\alpha = 1.5\%$ )	8.3%	10.6%
<i>Hamada Adjustment With Taxes</i>		
CAPM	8.1%	10.3%
ECAPM ( $\alpha = 1.5\%$ )	8.1%	10.3%

### DCF Results

	Simple	Multi-Stage
Canadian Sample	11.4%	9.9%

## Natural Gas Sample

Estimated Return on Equity	Scenario 1 [1]	Scenario 2 [2]
<b>Gas Sample</b>		
<i>Financial Risk Adjusted Method</i>		
CAPM	10.0%	12.9%
ECAPM ( $\alpha = 1.5\%$ )	10.1%	13.1%
<i>Hamada Adjustment Without Taxes</i>		
CAPM	9.7%	12.6%
ECAPM ( $\alpha = 1.5\%$ )	9.3%	12.1%
<i>Hamada Adjustment With Taxes</i>		
CAPM	9.4%	12.1%
ECAPM ( $\alpha = 1.5\%$ )	9.0%	11.7%

### DCF Results

	Simple	Multi-Stage
U.S. Natural Gas	11.6%	9.3%

Results using data of June 30, 2021 – See Errata BV-4 and BV-5.

Scenario 1: Risk free rate = 2.47%; MRP = 5.68%

Scenario 2: Risk free rate = 2.30%; MRP = 8.05%

1: Canadian Sample CAPM/ECAPM results reflect Errata filed in Régie DDR 1 Request 6.5.

# Reasonable Ranges of ROE Estimates at 43% Equity

My reasonable range of ROEs<sup>1</sup> (prior to any business risk consideration) at 43% equity is 9.25% to 10.75%.<sup>3</sup>

## Reasonable Ranges at 43% Equity

	Canadian Sample <sup>2</sup>	Natural Gas Sample
CAPM/ ECAPM	8.25% - 10.5%	9.25% - 12%
DCF	10.0% - 11.5%	9.25% - 11.5%

Recommended ROE of 10.0% is based on Dr. Brown’s determination that Énergir, Intragaz, and Gazifère have above average business risk, relative to the natural gas sample.<sup>4</sup>

Results using data of June 30, 2021

1: Villadsen Direct Testimony, p. 76. In all cases, the lower and upper bound are determined as the average of the results from the CAPM/ECAPM and DCF rounded to the nearest ¼ percent.

2: Canadian Sample CAPM/ECAPM reasonable ranges reflect Errata filed in Régie DDR 1 Request 6.5.

3: Villadsen Direct Testimony, p. 76.

4: Brown Direct Testimony, pp. 2-3.

# May 2022 Model Update



CAPM/ ECAPM and DCF (Single and Multi-Stage) models were updated to reflect changes in economic and financial conditions that have occurred since June 2021.

- Forecasted interest rates for long-term Canadian Government bonds increased by approximately 110 basis points to 3.40% (2.30% previously)
- Inflation rose to 6.8% year-over-year in April 2022<sup>1</sup> which creates elevated systematic risk (*i.e.*, beta) for utilities and could impact growth rate estimates, to the extent inflation persists.
- Historical market equity risk premium increased from 5.68% to 5.91%; Bloomberg MRP for Canada declined from 8.05% to 5.86%
- Betas for the Canadian and Natural Gas samples remain about the same at 0.92 and 0.89, respectively.
- Growth rates for the Canadian sample declined from 5.30% to 5.10%<sup>2</sup> but increased for the Natural Gas sample from 6.30% to 7.10% (with some changes in samples due to M&A).

1: Statistics Canada, Consumer Price Index, April 2022, Released May 18, 2022 <https://www150.statcan.gc.ca/n1/daily-quotidien/220518/dq220518a-eng.htm>

2: Excluding AltaGas Ltd., which has a negative growth rate following its announced sale of ENSTAR Alaska on May 26, 2022.

# Reasonable Ranges of ROE Estimates

The reasonable range of ROEs<sup>1</sup> estimates from the Canadian and US Natural Gas Samples still support my recommended benchmark ROE of 10.0%.

## MODEL UPDATE (May 31, 2022)

### Reasonable Ranges at 43% Equity

	Canadian Sample <sup>2</sup>	Natural Gas Sample
CAPM/ ECAPM	9.0% - 9.5%	9.75% - 10.25%
DCF	10.25% - 11.5%	8.25% - 11.5%

## DIRECT TESTIMONY (June 30, 2021)

### Reasonable Ranges at 43% Equity

	Canadian Sample <sup>2</sup>	Natural Gas Sample
CAPM/ ECAPM	8.25% - 10.5%	9.25% - 12%
DCF	10.0% - 11.5%	9.25% - 11.5%

1: Villadsen Direct Testimony, p. 76. In all cases, the lower and upper bound are determined as the average of the results from the CAPM/ECAPM and DCF rounded to the nearest ¼ percent.

2: Canadian Sample CAPM/ECAPM reasonable ranges reflect Errata filed in Régie DDR 1 Request 6.5.

# Capital Structure

Key Issues: Minimum Credit Metrics must be met

Capital structure should be comparable to that of risk companies or the ROE needs to increase

## Summary of Credit Ratio Benchmarks for A-Ratings<sup>1</sup>

	EBIT Coverage	FFO Coverage	FFO to Debt
DBRS	1.8 – 2.8	N/A	12.5% - 17.5%
Moody's	N/A	4.5 – 6.0	17.0% - 25.0%
S&P	N/A	N/A	13.0% - 23.0%

## Credit Ratios of A-Rated Canadian and U.S. Utilities<sup>2</sup>

	EBIT Interest Coverage	FFO Coverage	FFO to Debt
Canadian Utilities (DBRS Average)	2.43	n/a	14.5%
Canadian Utilities (DBRS Median)	2.52	n/a	14.3%
U.S. Gas Utilities (S&P Average)	4.43	7.4	21.4%
U.S. Electric Utilities (S&P Average)	3.22	6.2	19.2%

1: Villadsen Direct Testimony, p. 79.

2: Source: BV-9 Credit Metric Benchmarks adjusted based on Régie DDR 2, Request 5.1.

# Capital Structure Results

Results using a 10% ROE:<sup>1</sup>

## Énergir

<i>Equity % of Cap Structure</i>	35.0%	37.5%	40.0%	42.5%	45.0%	47.5%	50.0%	52.5%	55.0%
EBIT Coverage Ratio [1]	2.53	2.70	2.88	3.08	3.30	3.54	3.80	4.08	4.39
FFO Interest Coverage [2]	3.82	4.01	4.21	4.43	4.67	4.94	5.22	5.54	5.89
FFO to Debt [3]	12.8%	13.7%	14.6%	15.7%	16.7%	17.9%	19.3%	20.7%	22.3%

## Intragaz

<i>Equity % of Cap Structure</i>	35.0%	37.5%	40.0%	42.5%	45.0%	47.5%	50.0%	52.5%	55.0%
EBIT Coverage Ratio [1]	2.17	2.30	2.43	2.58	2.73	2.90	3.08	3.27	3.48
FFO Interest Coverage [2]	2.51	2.62	2.74	2.87	3.01	3.16	3.33	3.50	3.69
FFO to Debt [3]	7.9%	8.4%	9.1%	9.8%	10.5%	11.3%	12.1%	13.0%	14.0%

## Gazifère

<i>Equity % of Cap Structure</i>	35.0%	37.5%	40.0%	42.5%	45.0%	47.5%	50.0%	52.5%	55.0%
EBIT Coverage Ratio [1]	2.81	3.01	3.22	3.45	3.70	3.97	4.26	4.58	4.93
FFO Interest Coverage [2]	3.48	3.66	3.87	4.08	4.32	4.57	4.85	5.15	5.48
FFO to Debt [3]	9.0%	9.7%	10.4%	11.2%	12.1%	13.0%	14.0%	15.1%	16.3%

Footnote:

[1] EBIT Interest Coverage = EBIT / Interest

[2] FFO Interest Coverage = (FFO + Interest)/Interest

[3] FFO to Debt = FFO / Debt



**Questions?**

# Clarity in the face of complexity

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