

1 **Q. Reference: Transcript, April 6, 2016**
2 **Page 36, Lines 17-32**

3
4 **Undertake to provide, copies of the risk free rate sections of these materials, plus the**
5 **accompanying associated exhibits that shows the risk free rates that you used for US**
6 **and Canadian utilities in these three instances.**

7
8 A. Please see excerpts from Mr. Coyne's testimony and exhibits for the following
9 companies:

10
11 Attachment A: ATCO 2008
12 Attachment B: Enbridge/Hydro One 2009
13 Attachment C: FortisBC 2015
14 Attachment D: Gaz Metro 2012
15 Attachment E: Hydro Quebec 2013
16 Attachment F: Maritime Electric 2015

ATCO 2008

ALBERTA UTILITIES COMMISSION
2009 GENERIC COST OF CAPITAL PROCEEDING
Application No. 1578571 / Proceeding ID. 85

DIRECT TESTIMONY
OF
JAMES M. COYNE

ON BEHALF OF
ATCO UTILITIES
(ATCO ELECTRIC LTD. AND ATCO GAS AND PIPELINES LTD.)

NOVEMBER 20, 2008

D. Capital Asset Pricing Model Analysis

Q: WHAT ASSUMPTIONS ARE NECESSARY TO CALCULATE THE CAPM?

A: In order to calculate the CAPM, one must make assumptions about the risk-free rate of return, the market risk premium and beta. Since the CAPM is forward looking, it is appropriate to use forward-looking assumptions for the variables, if possible.

Q: WHAT DO YOU ASSUME AS A RISK-FREE RATE IN YOUR CAPM CALCULATION?

A: In accordance with the convention applied in the Alberta 2004 Generic Proceedings, I have developed forecasts of U.S. and Canadian 30-year bond yields by taking the average of the 3-month-out and 12-month-out forecasts of the respective 10-year government bond yields, as reported in the most recent Consensus Forecasts in its October 2008 issue. To the forecast of the respective 10-year bond yield, I have added the daily average of the previous month's historical spread between 10-year and 30-year bonds. That convention resulted in the following 30-year bond yield forecasts for the U.S. and Canada in each country's native currency.

Table 4: Risk Free Rate

30-Year Risk Free Yield	US\$	CDN\$
10-year bond yield forecast – 3-mos-out	3.60%	3.50%
10-year bond yield forecast – 12-mos-out	4.10%	3.80%
Average of 10-year forecasts	3.85%	3.65%
Average Daily Spread between 10-year and 30-year government bonds (September 2008)	.59%	.48%
Average	4.44%	4.13%

Q: WHAT IS THE PURPOSE OF BETA IN THE CAPM?

A: Beta is a measure of risk and in this case it measures the volatility of a proxy group company's stock price relative to the aggregate market. It is typically calculated using a linear regression of the change in stock price vs. the change in a general market index. Beta is the slope of the regression line. High betas (greater than 1.0) indicate greater volatility compared to the market, and therefore relatively greater risk. Conversely, low betas (lower than 1.0) indicate lower volatility compared to the market, and therefore relatively lower risk.

CAPITAL ASSET PRICING MODEL - U.S. NATURAL GAS DISTRIBUTION UTILITIES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company		Adjusted Betas							
		Value Line	Bloomberg	Mean Beta	30-Yr. Treasury Yield Forecast	Market Risk Premium	Low CAPM	Mean CAPM	High CAPM
U.S. NATURAL GAS DISTRIBUTION UTILITIES									
AGL Resources	ATG	0.85	0.78	0.82	4.44%	6.25%	9.34%	9.55%	9.76%
New Jersey Resources	NJR	0.80	0.79	0.80	4.44%	6.25%	9.39%	9.42%	9.44%
Northwest Nat. Gas	NWN	0.75	0.71	0.73	4.44%	6.25%	8.88%	9.00%	9.13%
Piedmont Natural Gas	PNY	0.80	0.80	0.80	4.44%	6.25%	9.42%	9.43%	9.44%
Vectren Corp.	VVC	0.80	0.81	0.80	4.44%	6.25%	9.44%	9.47%	9.49%
WGL Holdings Inc.	WGL	0.85	0.88	0.86	4.44%	6.25%	9.76%	9.84%	9.93%
PROXY GROUP MEAN		0.81	0.79	0.80			9.37%	9.45%	9.53%
PROXY GROUP MEDIAN		0.80	0.79	0.80			9.41%	9.45%	9.47%
						Flotation Cost Adjustment	0.50%	0.50%	0.50%
						Adjusted Mean CAPM	9.87%	9.95%	10.03%
						Adjusted Median CAPM	9.91%	9.95%	9.97%

Notes:

[1] Source: Value Line

[2] Source: Bloomberg

[3] Equals mean of Cols. [1], [2]

[4] Equals average of 3- and 12-month out forecasts of 10-year government bond plus average spread between 10- and 30-year bond for September, 2008.

Source: Consensus Forecasts dated October 13, 2008 and Bloomberg

[5] Equals mean of U.S. MRP (7.10%) and Canadian MRP (5.40%) per Morningstar / Ibbotson Associates

[6] Equals Col. [4] + (Min (Cols. [1], [2]) x Col. [5])

[7] Equals Col. [4] + (Col. [3] x Col. [5])

[8] Equals Col. [4] + (Max (Cols. [1], [2]) x Col. [5])

CAPITAL ASSET PRICING MODEL - U.S. ELECTRIC DISTRIBUTION COMPANIES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company		Adjusted Betas			30-Yr. Treasury Yield				
		Value Line	Bloomberg	Mean Beta	Forecast	Market Risk Premium	Low CAPM	Mean CAPM	High CAPM
U.S. ELECTRIC DISTRIBUTION COMPANIES									
CH Energy Group	CHG	0.90	0.89	0.89	4.44%	6.25%	10.00%	10.04%	10.07%
Consolidated Edison	ED	0.75	0.72	0.73	4.44%	6.25%	8.91%	9.02%	9.13%
FPL Group, Inc.	FPL	0.80	1.02	0.91	4.44%	6.25%	9.44%	10.14%	10.84%
NSTAR	NST	0.80	0.80	0.80	4.44%	6.25%	9.44%	9.46%	9.47%
SCANA Corp.	SCG	0.80	0.85	0.83	4.44%	6.25%	9.44%	9.60%	9.76%
Southern Co.	SO	0.65	0.73	0.69	4.44%	6.25%	8.51%	8.76%	9.01%
PROXY GROUP MEAN		0.78	0.84	0.81			9.29%	9.50%	9.71%
PROXY GROUP MEDIAN		0.80	0.83	0.81			9.44%	9.53%	9.62%
Flotation Cost Adjustment							0.50%	0.50%	0.50%
Adjusted Mean CAPM							9.79%	10.00%	10.21%
Adjusted Median CAPM							9.94%	10.03%	10.12%

Notes:

[1] Source: Value Line

[2] Source: Bloomberg

[3] Equals mean of Cols. [1], [2]

[4] Equals average of 3- and 12-month out forecasts of 10-year government bond
plus average spread between 10- and 30-year bond for September, 2008.

Source: Consensus Forecasts dated October 13, 2008 and Bloomberg

[5] Equals mean of U.S. MRP (7.10%) and Canadian MRP (5.40%) per Morningstar / Ibbotson Associates

[6] Equals Col. [4] + (Min (Cols. [1], [2]) x Col. [5])

[7] Equals Col. [4] + (Col. [3] x Col. [5])

[8] Equals Col. [4] + (Max (Cols. [1], [2]) x Col. [5])

CAPITAL ASSET PRICING MODEL - GAS TRANSMISSION PIPELINES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company		Adjusted Betas			30-Yr. Treasury Yield Forecast	Market Risk Premium	Low CAPM	Mean CAPM	High CAPM
		Value Line	Bloomberg	Mean Beta					
GAS TRANSMISSION PIPELNES									
Enbridge	ENB	0.60	0.81	0.70	4.13%	6.25%	7.88%	8.53%	9.18%
National Fuel Gas	NFG	0.85	1.01	0.93	4.44%	6.25%	9.76%	10.26%	10.77%
Spectra Energy	SE	NMF	1.00	1.00	4.44%	6.25%	10.68%	10.68%	10.68%
Questar Corp.	STR	0.95	1.26	1.10	4.44%	6.25%	10.38%	11.34%	12.31%
TransCanada Corp.	TRP	0.80	0.77	0.78	4.13%	6.25%	8.92%	9.03%	9.13%
PROXY GROUP MEAN		0.80	0.97	0.90			9.52%	9.97%	10.41%
PROXY GROUP MEDIAN		0.83	1.00	0.93			9.76%	10.26%	10.68%
Flotation Cost Adjustment							0.50%	0.50%	0.50%
Adjusted Mean CAPM							10.02%	10.47%	10.91%
Adjusted Median CAPM							10.26%	10.76%	11.18%

Notes:

[1] Source: Value Line

[2] Source: Bloomberg

[3] Equals mean of Cols. [1], [2]

[4] Equals average of 3- and 12-month out forecasts of 10-year government bond
plus average spread between 10- and 30-year bond for September, 2008.
Source: Consensus Forecasts dated October 13, 2008 and Bloomberg

[5] Equals mean of U.S. MRP (7.10%) and Canadian MRP (5.40%) per Morningstar / Ibbotson Associates

[6] Equals Col. [4] + (Min (Cols. [1], [2]) x Col. [5])

[7] Equals Col. [4] + (Col. [3] x Col. [5])

[8] Equals Col. [4] + (Max (Cols. [1], [2]) x Col. [5])

CAPITAL ASSET PRICING MODEL - CANADIAN UTILITIES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Company		Adjusted Betas							
		Value Line	Bloomberg	Mean Beta	30-Yr. Treasury Yield Forecast	Market Risk Premium	Low CAPM	Mean CAPM	High CAPM
CANADIAN UTILITIES									
Canadian Utilities	CU	-	0.65	0.65	4.13%	6.25%	8.22%	8.22%	8.22%
Emera	EMA	-	0.70	0.70	4.13%	6.25%	8.50%	8.50%	8.50%
Enbridge	ENB	0.60	0.81	0.70	4.13%	6.25%	7.88%	8.53%	9.18%
Fortis Inc.	FTS	-	0.77	0.77	4.13%	6.25%	8.95%	8.95%	8.95%
TransCanada Corp.	TRP	0.80	0.77	0.78	4.13%	6.25%	8.92%	9.03%	9.13%
PROXY GROUP MEAN		0.70	0.74	0.72			8.49%	8.64%	8.80%
PROXY GROUP MEDIAN		0.70	0.77	0.70			8.50%	8.53%	8.95%
Flotation Cost Adjustment							0.50%	0.50%	0.50%
Adjusted Mean CAPM							8.99%	9.14%	9.30%
Adjusted Median CAPM							9.00%	9.03%	9.45%

Notes:

- [1] Source: Value Line
[2] Source: Bloomberg
[3] Equals mean of Cols. [1], [2]
[4] Equals average of 3- and 12-month out forecasts of 10-year government bond plus average spread between 10- and 30-year bond for September, 2008.
Source: Consensus Forecasts dated October 13, 2008 and Bloomberg
[5] Equals mean of U.S. MRP (7.10%) and Canadian MRP (5.40%) per Morningstar / Ibbotson Associates
[6] Equals Col. [4] + (Min (Cols. [1], [2]) x Col. [5])
[7] Equals Col. [4] + (Col. [3] x Col. [5])
[8] Equals Col. [4] + (Max (Cols. [1], [2]) x Col. [5])

Enbridge/Hydro One 2009

ONTARIO ENERGY BOARD
2009 CONSULTATIVE PROCESS ON COST OF CAPITAL REVIEW
EB-2009-0084

ON BEHALF OF:

ENBRIDGE GAS DISTRIBUTION, INC.

CONCENTRIC ENERGY ADVISORS, INC.

James M. Coyne, Dr. J. Stephen Gaske, and Julie F. Lieberman

SEPTEMBER 8, 2009

Capital Asset Pricing Model Analysis

CAPM is an extension of the simple Equity Risk Premium model, where common equity investors are deemed to measure their required return based on a risk free rate of return plus compensation for the relative risk of a specific stock in relation to the broader market. This model may be expressed as:

$$R_e = R_f + \beta (R_m - R_f)$$

where:

R_e = the required return on common equity for a specific stock

R_f = the risk free rate of return

R_m = the return required for the market as a whole

β = Beta, a measure of the covariance between the returns (dividends plus capital gains) of the market average and those of a specific stock.

In order to calculate the CAPM, one must make assumptions about the risk-free rate of return, the market risk premium and beta. Since the CAPM is forward looking, it is appropriate to use forward-looking assumptions for the variables, if possible.

Risk Free Rate

In accordance with the convention established in the Ontario 1997 Draft Guidelines, we have developed forecasts of U.S. and Canadian 30-year bond yields by taking the average of the 3-month and 12-month forecasts of the respective 10-year government bond yields, as reported in the most recent Consensus Forecast issue dated July 13, 2009. To the forecast of the respective 10-year government bond yield, we have added the daily average historical spread between 10-year and 30-year bonds for July 2009. That convention resulted in the following 30-year bond yield forecasts for the U.S. and Canada in each country's native currency.

Table 3: Risk-Free Rate

30-Year Risk Free Yield	US\$	CDN\$
10-year bond yield forecast – 3-mos-out	3.70%	3.50%
10-year bond yield forecast – 12-mos-out	4.10%	3.80%
Average of 10-year forecasts	3.90%	3.65%
Average Daily Spread between 10-year and 30-year government bonds (July 2009)	0.87%	0.53%
Average	4.77%	4.18%

Beta

Beta measures the covariance of a proxy group company's stock returns relative to those of the aggregate market. It is typically calculated using a linear regression of the change in stock price vs. the change in a general market index, where beta represents the slope of the regression line. High betas (greater than 1.0) indicate greater covariance with the market, and therefore relatively greater risk. Conversely, low betas (lower than 1.0) indicate lower covariance to the market, and therefore relatively lower risk. The risk represents only that which cannot be diversified, or risks inherent in the market itself.

Concentric used two reputable sources for beta: Value Line and Bloomberg. When both sources of beta were available, they were averaged. According to Value Line, the reported historical beta for each company is based on 5 years of weekly stock returns and uses the New York Stock Exchange as the market index.⁷⁰ The results have been rounded to the nearest five hundredths and no information is reported regarding the statistical significance of the underlying regression. Bloomberg, on the other hand, produces beta estimates based on parameters entered by the user. The default parameters compute betas based on three years of weekly stock returns and use the S&P 500 or the TSX as the market index. Bloomberg results are rounded to the nearest thousandth and include additional information regarding the statistical significance of the underlying regression. Both Value Line and Bloomberg betas are adjusted to compensate for the tendency of beta to revert towards the market over time. In order to capture this effect, adjusted betas reported by both Value Line and Bloomberg have been used.⁷¹

⁷⁰ http://www.valueline.com/sup_glossb.html

⁷¹ Value Line adjusted beta = $0.371 + 0.635 * (\text{raw beta})$. Source: Ibbotson Associates, *2006 Yearbook, Valuation Edition*, p. 116; Bloomberg adjusted beta = $0.33 + 0.67 * (\text{raw beta})$. Source: Bloomberg output.

CAPITAL ASSET PRICING MODEL - U.S. NATURAL GAS DISTRIBUTION UTILITIES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		Adjusted Betas			30-Yr. Treasury	Market Risk			
Company	Ticker	Bloomberg	Value Line	Mean Beta	Yield Forecast	Premium	Low CAPM	Mean CAPM	High CAPM
U.S. NATURAL GAS DISTRIBUTION UTILITIES									
AGL Resources Inc.	AGL	0.78	0.75	0.76	4.77%	5.86%	9.17%	9.24%	9.31%
Piedmont Natural Gas Company, Inc.	PNY	0.70	0.65	0.68	4.77%	5.86%	8.58%	8.73%	8.87%
Sempra Energy	SRE	0.85	0.90	0.87	4.77%	5.86%	9.75%	9.90%	10.05%
South Jersey Industries, Inc.	SJI	0.66	0.65	0.65	4.77%	5.86%	8.58%	8.60%	8.61%
Southwest Gas Corporation	SWX	0.88	0.75	0.81	4.77%	5.86%	9.17%	9.54%	9.92%
Vectren Corporation	VVC	0.73	0.75	0.74	4.77%	5.86%	9.04%	9.10%	9.17%
PROXY GROUP MEAN		0.76	0.74	0.75	4.77%	5.86%	9.05%	9.18%	9.32%
PROXY GROUP MEDIAN		0.75	0.75	0.75	4.77%	5.86%	9.10%	9.17%	9.24%

Flotation Cost Adjustment	0.50%	0.50%	0.50%
Adjusted Mean CAPM	9.55%	9.68%	9.82%
Adjusted Median CAPM	9.60%	9.67%	9.74%

Notes:

[1] Source: Bloomberg

[2] Source: Value Line

[3] Equals mean of Cols. [1], [2]

[4] Equals average of 3- and 12-month out forecasts of 10-year government bond
plus average spread between 10- and 30-year bond for July 2009.

Source: Consensus Forecasts and Bloomberg

[5] Equals mean of U.S. MRP (6.5%) and Canadian MRP (5.22%) per Morningstar / Ibbotson Associates

[6] Equals Col. [4] + (Min (Cols. [1], [2]) x Col. [5])

[7] Equals Col. [4] + (Col. [3] x Col. [5])

[8] Equals Col. [4] + (Max (Cols. [1], [2]) x Col. [5])

CAPITAL ASSET PRICING MODEL - U.S. ELECTRIC DISTRIBUTION COMPANIES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		Adjusted Betas			30-Yr. Treasury	Market Risk			
Company	Ticker	Bloomberg	Value Line	Mean Beta	Yield Forecast	Premium	Low CAPM	Mean CAPM	High CAPM
U.S. ELECTRIC DISTRIBUTION COMPANIES									
CH Energy Group, Inc.	CHG	0.73	0.65	0.69	4.77%	5.86%	8.58%	8.83%	9.07%
Consolidated Edison, Inc.	ED	0.65	0.65	0.65	4.77%	5.86%	8.58%	8.59%	8.60%
DPL Inc.	DPL	0.65	0.60	0.63	4.77%	5.86%	8.29%	8.45%	8.60%
Duke Energy Corporation	DUK	0.74	0.65	0.69	4.77%	5.86%	8.58%	8.83%	9.08%
FPL Group, Inc.	FPL	0.83	0.75	0.79	4.77%	5.86%	9.17%	9.40%	9.64%
MGE Energy, Inc.	MGEE	0.65	0.65	0.65	4.77%	5.86%	8.57%	8.57%	8.58%
NSTAR	NST	0.69	0.65	0.67	4.77%	5.86%	8.58%	8.69%	8.81%
Southern Company	SO	0.58	0.55	0.57	4.77%	5.86%	7.99%	8.08%	8.17%
PROXY GROUP MEAN		0.69	0.64	0.67	4.77%	5.86%	8.54%	8.68%	8.82%
PROXY GROUP MEDIAN		0.67	0.65	0.66	4.77%	5.86%	8.58%	8.64%	8.71%

Flotation Cost Adjustment	0.50%	0.50%	0.50%
Adjusted Mean CAPM	9.04%	9.18%	9.32%
Adjusted Median CAPM	9.08%	9.14%	9.21%

Notes:

[1] Source: Bloomberg

[2] Source: Value Line

[3] Equals mean of Cols. [1], [2]

[4] Equals average of 3- and 12-month out forecasts of 10-year government bond
plus average spread between 10- and 30-year bond for July 2009.

Source: Consensus Forecasts and Bloomberg

[5] Equals mean of U.S. MRP (6.5%) and Canadian MRP (5.22%) per Morningstar / Ibbotson Associates

[6] Equals Col. [4] + (Min (Cols. [1], [2]) x Col. [5])

[7] Equals Col. [4] + (Col. [3] x Col. [5])

[8] Equals Col. [4] + (Max (Cols. [1], [2]) x Col. [5])

CAPITAL ASSET PRICING MODEL - CANADIAN UTILITIES

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
		Adjusted Betas			30-Yr. Treasury	Market Risk			
Company	Ticker	Bloomberg	Value Line	Mean Beta	Yield Forecast	Premium	Low CAPM	Mean CAPM	High CAPM
CANADIAN UTILITIES									
Canadian Utilities	CU	0.58	--	0.58	4.18%	5.86%	7.59%	7.59%	7.59%
Emera	EMA	0.59	--	0.59	4.18%	5.86%	7.61%	7.61%	7.61%
Enbridge	ENB	0.68	0.65	0.66	4.18%	5.86%	7.99%	8.07%	8.15%
Fortis Inc.	FTS	0.65	--	0.65	4.18%	5.86%	7.98%	7.98%	7.98%
TransCanada Corp.	TRP	0.63	0.85	0.74	4.18%	5.86%	7.85%	8.51%	9.16%
PROXY GROUP MEAN		0.62	0.75	0.64	4.18%	5.86%	7.80%	7.95%	8.10%
PROXY GROUP MEDIAN		0.63	0.75	0.65	4.18%	5.86%	7.85%	7.98%	7.98%

Flotation Cost Adjustment	0.50%	0.50%	0.50%
Adjusted Mean CAPM	8.30%	8.45%	8.60%
Adjusted Median CAPM	8.35%	8.48%	8.48%

Notes:

[1] Source: Bloomberg

[2] Source: Value Line

[3] Equals mean of Cols. [1], [2]

[4] Equals average of 3- and 12-month out forecasts of 10-year government bond
plus average spread between 10- and 30-year bond for July 2009.

Source: Consensus Forecasts and Bloomberg

[5] Equals mean of U.S. MRP (6.5%) and Canadian MRP (5.22%) per Morningstar / Ibbotson Associates

[6] Equals Col. [4] + (Min (Cols. [1], [2]) x Col. [5])

[7] Equals Col. [4] + (Col. [3] x Col. [5])

[8] Equals Col. [4] + (Max (Cols. [1], [2]) x Col. [5])

FortisBC 2015

PREPARED DIRECT TESTIMONY:
JAMES M. COYNE

PREPARED FOR:
FORTISBC ENERGY INC.

BEFORE THE:
BRITISH COLUMBIA UTILITIES COMMISSION

OCTOBER 2, 2015



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**Table 4: Long Term Forecast for 10-Year Government Bond Yields
2016-2018⁶²**

	2016	2017	2018	Average
Canada	2.1	3.2	3.6	2.97
U.S.	2.8	3.9	4.1	3.60

With an average historical spread between 10-year and 30-year Government bond yields of 71 basis points in Canada and 69 basis points for the U.S.,⁶³ the corresponding yield on 30-year government bond yields over the period 2016 – 2018, are 3.68 percent for Canada and 4.29 percent for the U.S.

Table 5: Risk Free Rate

30-Year Risk Free Yield	CDN\$	U.S. \$
April 2015 Consensus Forecast Average 2016-2018 Forecasts 10-Year bond yield	2.97%	3.60%
Average Daily Spread between 10-year and 30-year government bonds (August 2015)	0.71%	0.69%
Average	3.68%	4.29%

Source: Consensus Economics Survey Date April 2015; and Bloomberg for daily bond yields.

Use of the 2016 through 2018 forecast, as opposed to the current risk free rate, reflects the current market reality that near-term bond yields remain near all-time lows, and that investors factor higher interest rate levels in their forward-looking return expectations. Otherwise, the results produced by the CAPM would not reflect forward-looking circumstances. The 30-year bond yield is appropriate to estimate the expected return on FEI's equity, as it best matches the lives of utility assets on which the return depends, with the term of the risk free instrument.

(May 10, 2013) at 59, noting that “all of the experts submit that the appropriate opportunity cost is better measured by the forecasted yield on a long-term risk free instrument and that in some cases even this estimate should be adjusted.”

⁶² Consensus Forecasts by Consensus Economics Inc., Survey Date April 13, 2015.

⁶³ Historical spreads were calculated using daily bond yields published in Bloomberg from August 1, 2015 through August 31, 2015. The resulting averages were 0.712 for Canada and 0.691 for the U.S.

Capital Asset Pricing Model
Betas Adjusted to Market Average of 1

US Proxy Group	Ticker	[1] Bloomberg	[2] Value Line	[3] Average Beta	[4] Risk Free Rate	[5] Average Market Risk Premium	[6] Straight CAPM Calculation	[7] Flotation Cost	[8] Total CAPM
Amos Energy Corporation	ATO	0.72	0.85	0.78	3.68%	7.60%	9.63%	0.50%	10.13%
New Jersey Resources Corp.	NJR	0.75	0.80	0.78	3.68%	7.60%	9.58%	0.50%	10.08%
Northwest Natural Gas Company	NWN	0.68	0.70	0.69	3.68%	7.60%	8.93%	0.50%	9.43%
Piedmont Natural Gas Company, Inc.	PNY	0.79	0.80	0.79	3.68%	7.60%	9.70%	0.50%	10.20%
South Jersey Industries, Inc.	SJI	0.78	0.85	0.81	3.68%	7.60%	9.86%	0.50%	10.36%
Southwest Gas Corporation	SWX	0.77	0.85	0.81	3.68%	7.60%	9.83%	0.50%	10.33%
WGL Holdings, Inc.	WGL	0.73	0.80	0.76	3.68%	7.60%	9.49%	0.50%	9.99%
MEAN		0.74	0.81	0.78	3.68%		9.58%		10.08%
Canadian Proxy Group									
Canadian Utilities Limited	CU	0.62		0.62	3.68%	7.60%	8.36%	0.50%	8.86%
Emera Inc.	EMA	0.71		0.71	3.68%	7.60%	9.07%	0.50%	9.57%
Enbridge Inc.	ENB	0.79		0.79	3.68%	7.60%	9.70%	0.50%	10.20%
Fortis Inc.	FTS	0.68		0.68	3.68%	7.60%	8.81%	0.50%	9.31%
Valeneer Inc.	VNR	0.43		0.43	3.68%	7.60%	6.97%	0.50%	7.47%
MEAN		0.65		0.65	3.68%		8.58%		9.08%

Notes:

[1] Source: Bloomberg Professional; beta computed on five years of weekly returns, as of August 31, 2015, against the S&P 500 and the S&P/TSX for the U.S. and Canadian proxy groups, respectively.

[2] Source: Value Line; beta computed on five years of weekly market-adjusted returns against the NYSE.

[3] Equals mean of [1] and [2]

[4] Source: Equals average long-term forecast of 10-year Canadian government bond yield for the period 2016-2018, published by Consensus Forecasts April 13, 2015 plus the 30-day average spread between 10- and 30-year Canadian bond ending June 30, 2015, per Bloomberg data

[5] Source: Average of the Duff & Phelps Canada historical risk premium (1919-2014) of 5.6%, Duff & Phelps US historical risk premium (1926-2012) of 7%, both in local currency. Duff and Phelps, 2015 International Valuation Handbook through December 2014 and March 2015; Data Exhibit 1-9 and 1-40, and the Canadian forward looking risk premium (JMC-4 Schedule 1) of 9.78%, and the U.S. forward looking risk premium of (JMC-4 Schedule 2) of 8.08%.

[6] Equals [4] + [3] x [5]

[7] Flotation Costs Allowed by the BCUC in GCOC Decision (Stage 1), May 10, 2013 at 80.

[8] Equals [6] + [7]

Capital Asset Pricing Model
Average of Betas Adjusted to Market Average of 1 and Industry Average

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
		Value	Average Beta Adjusted to Market	Raw Beta	Industry Index Beta	Adjusted to Industry Average	Average Beta	Risk Free Rate	Average Market Risk Premium	CAPM Calculation	Flotation Cost	Total CAPM
US Proxy Group	Ticker	Bloomberg	Line									
Atmos Energy Corporation	ATO	0.72	0.85	0.78	0.57	0.47	0.54	0.66	3.68%	8.71%	0.50%	9.21%
New Jersey Resources Corp.	NJR	0.75	0.80	0.78	0.63	0.47	0.58	0.68	3.68%	8.83%	0.50%	9.33%
Northwest Natural Gas Company	NWN	0.68	0.70	0.69	0.52	0.47	0.51	0.60	3.68%	8.22%	0.50%	8.72%
Piedmont Natural Gas Company, Inc.	PNY	0.79	0.80	0.79	0.68	0.47	0.61	0.70	3.68%	9.00%	0.50%	9.50%
South Jersey Industries, Inc.	SJI	0.78	0.85	0.81	0.66	0.47	0.60	0.71	3.68%	9.04%	0.50%	9.54%
Southwest Gas Corporation	SWX	0.77	0.85	0.81	0.65	0.47	0.59	0.70	3.68%	9.01%	0.50%	9.51%
WGL Holdings, Inc.	WGL	0.73	0.80	0.76	0.59	0.47	0.55	0.66	3.68%	8.68%	0.50%	9.18%
MEAN		0.74	0.81	0.78	0.62	0.47	0.57	0.67	3.68%	8.78%		9.28%
Canadian Proxy Group												
Canadian Utilities Limited	CU	0.62		0.62	0.42	0.54	0.46	0.54	3.68%	7.78%	0.50%	8.28%
Emera Inc.	EMA	0.71		0.71	0.56	0.54	0.56	0.63	3.68%	8.49%	0.50%	8.99%
Enbridge Inc.	ENB	0.79		0.79	0.69	0.54	0.64	0.72	3.68%	9.12%	0.50%	9.62%
Fortis Inc.	FTS	0.68		0.68	0.51	0.54	0.52	0.60	3.68%	8.23%	0.50%	8.73%
Valer Inc.	VNR	0.43		0.43	0.15	0.54	0.28	0.36	3.68%	6.39%	0.50%	6.89%
MEAN		0.65		0.65	0.47	0.54	0.49	0.57	3.68%	8.00%		8.50%

Notes:

- [1] Source: Bloomberg Professional; beta computed on five years of weekly returns, as of August 31, 2015, against the S&P 500 and the S&P/TSX for the U.S. and Canadian proxy groups, respectively.
- [2] Source: Value Line; beta computed on five years of weekly market-adjusted returns against the NYSE.
- [3] Equals mean of [1] and [2]
- [4] Source: Bloomberg Professional; beta computed on five years of weekly returns as of August 31, 2015
- [5] Source: Bloomberg Professional; beta computed on five years of weekly returns for U.S. S&P utilities index and S&P/TSX Utilities index for Canada, through August 31, 2015.
- [6] Equals $(2/3) \times [4] + (1/3) \times [5]$
- [7] Equals mean of [3] and [6]
- [8] Equals average long-term forecast of 10-year Canadian government bond yield for the period 2016-2018, published by Consensus Forecasts April 13, 2015 plus the 30-day average spread between 10- and 30-year Canadian bond ending June 30, 2015, per Bloomberg data
- [9] Equals average of the Duff & Phelps Canada historical risk premium (1919-2014) of 5.6%, Duff & Phelps US historical risk premium (1926-2012) of 7%, both in local currency. Duff and Phelps, 2015 International Valuation Handbook: Guide to Cost of Capital, Market Results through December 2014 and March 2015; Data Exhibit 1-9 and 1-40.
- [10] Canadian forward looking risk premium (JMC-4 Schedule 1) of 9.78%, and U.S. forward looking risk premium (JMC-4 Schedule 1) of 8.08%.
- [10] Equals $[8] + [7] \times 9]$
- [11] Flotation Costs Allowed by the BCUC in GCOC Decision (Stage 1), May 10, 2013 at 80.
- [12] Equals $[10] + [11]$

Gaz Metro 2012

Prepared Direct Testimony
of
James M. Coyne

On Behalf of Gaz Métro

December 14, 2012

1 a) Risk Free Rate

2 **Q: 77 What do you assume as a risk-free rate in your CAPM calculation?**

3 A: My CAPM analysis relies on the 2012 through 2017 *Consensus Economics* forecast of the
4 Canadian 10-year government bond and adds the current spread between 10-year and
5 30-year government debt. Use of the 2012 through 2017 forecast reflects the current
6 market reality that near-term bond yields are at all-time lows, and that investors factor
7 higher interest rate levels into their longer-term expectations. In general, those low bond
8 yields are currently outside of historical levels. Because those yields remain at historical
9 lows, the results produced by the CAPM may not properly reflect the historical
10 relationships upon which the theory of the CAPM was established. As such, the
11 determination of the market-required cost of equity must consider alternative measures
12 or adjustments to the standard CAPM formula, such as the adjustment I have made to
13 my CAPM analysis and the DCF method I have considered.

14 **Table 6: Risk Free Rate**

30-Year Risk Free Yield	CDN\$
October 2012 Consensus Forecast Average 2012-2017 Forecasts	3.17%
Average Daily Spread between 10- year and 30-year government bonds (November 2012)	0.58%
Average	3.75%

15
16 b) Beta

17 **Q: 78 What is the purpose of beta in the CAPM?**

18 A: Beta is a measure of risk and in this case it measures the volatility of a proxy group
19 company's stock price relative to the aggregate market. It is typically calculated using a

**Capital Asset Pricing Model
Reconciled Approach**

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
					Industry- Adjusted	Industry Index Beta	Mean Market- Adjusted Beta	Average Beta	Risk Free Rate	Average Market Risk Premium	Straight CAPM Calculation	Flotation Cost	"Simple" CAPM	Adjustment for Other Models	Total CAPM
US Proxy Group	Ticker	Raw Beta	Bloomberg	Value Line	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
AGL Resources Inc.	GAS	0,67	0,78	0,75	0,66	0,65	0,76	0,71	3,75%	6,94%	8,69%	0,30%	8,99%	0,75%	9,74%
Atmos Energy Corporation	ATO	0,63	0,75	0,70	0,63	0,65	0,73	0,68	3,75%	6,94%	8,47%	0,30%	8,77%	0,75%	9,52%
Laclede Group, Inc.	LG	0,50	0,67	0,60	0,55	0,65	0,63	0,59	3,75%	6,94%	7,85%	0,30%	8,15%	0,75%	8,90%
New Jersey Resources Corp.	NJR	0,56	0,71	0,65	0,59	0,65	0,68	0,64	3,75%	6,94%	8,16%	0,30%	8,46%	0,75%	9,21%
Northwest Natural Gas Company	NWN	0,50	0,67	0,55	0,55	0,65	0,61	0,58	3,75%	6,94%	7,76%	0,30%	8,06%	0,75%	8,81%
Piedmont Natural Gas Company, Ir	PNY	0,60	0,74	0,65	0,62	0,65	0,69	0,66	3,75%	6,94%	8,30%	0,30%	8,60%	0,75%	9,35%
South Jersey Industries, Inc.	SJI	0,54	0,69	0,65	0,57	0,65	0,67	0,62	3,75%	6,94%	8,07%	0,30%	8,37%	0,75%	9,12%
Southwest Gas Corporation	SWX	0,80	0,87	0,75	0,75	0,65	0,81	0,78	3,75%	6,94%	9,15%	0,30%	9,45%	0,75%	10,20%
WGL Holdings, Inc.	WGL	0,57	0,72	0,65	0,60	0,65	0,68	0,64	3,75%	6,94%	8,20%	0,30%	8,50%	0,75%	9,25%
MEAN		0,60	0,73	0,66	0,61	0,65	0,70	0,65			8,29%		8,59%		9,34%

Notes:

[1] Source: Bloomberg Professional; average of five years of weekly raw betas as of November 30, 2012

[2] Source: Bloomberg Professional; average of five years of weekly market-adjusted betas

[3] Source: Value Line; dated September 7, 2012

[4] Equals $(2/3) \times [1] + (1/3) \times [5]$

[5] Source: Bloomberg Professional; average of five years of weekly betas for S&P utilities index

[6] Equals mean of [2] and [3]

[7] Equals Average of [4],[6]

[8] Source: Equals average long-term forecast of 10-year Canadian government bond yield for the period 2012-2017 plus the 30-day average spread between 10- and 30-year Canadian bond ending November 30, 2012

[9] Source: Average of the Ibbotson Canada historcal risk premium (1936-2012),
Bloomberg; TSX total return less [8] as of December 5, 2012,
Ibbotson US historcal risk premium (1926-2012),
Bloomberg; S&P 500 total return less the U.S. Risk Free Rate (4.53%)

[10] Equals [8] + [7] x [9]

[11] Flotation Costs Allowed by the Regie in Past Rate Cases

[12] Equals [10] + [11]

[13] Adjustment for Results of Other Models as Noted by Regie in 2012 Rate Case

[14] Equals [12] + [13]

Hydro Quebec 2013



ROE and Risk Analysis

Prepared Direct Testimony of

James M. Coyne and

John P. Trogonoski

On behalf of Hydro-Québec Distribution

and Hydro-Québec TransÉnergie

Presented to the

Régie de l'énergie

April 19, 2013

1 alternative measures or adjustments to the standard CAPM formula, such as those
2 adjustments presented in this evidence.

3 **Table 3: Risk Free Rate**

30-Year Risk Free Yield	CDN\$
October 2012 Consensus Forecast Average 2013-2018 Forecasts	3.62%
Average Daily Spread between 10- year and 30-year government bonds (February 2013)	0.61%
Average	4.23%

4 **b. Beta**

5 **Q. What is the purpose of beta in the CAPM?**

6 A. Beta is a measure of risk and in this case it measures the volatility of a proxy group
7 company's stock price relative to the aggregate market. It is typically calculated using
8 a linear regression of the change in stock price as compared with the change in a
9 general market index. Beta is the slope of the regression line. High betas (greater
10 than 1.0) indicate greater volatility compared to the market, and therefore relatively
11 greater risk. Conversely, low betas (lower than 1.0) indicate lower volatility
12 compared to the market, and therefore relatively lower risk.

13 **Q. What measures of the Beta coefficient did you use in your CAPM analysis?**

14 A. Concentric considered two alternative sources for the Beta coefficient data, and three
15 alternative methods for computing Beta. According to Value Line, the reported
16 historical beta for each company is based on five years of weekly stock returns and
17 uses the New York Stock Exchange as the market index.⁶⁹ The results have been

⁶⁹ http://www.valueline.com/sup_glossb.html

**Capital Asset Pricing Model
Reconciled Approach**

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
					Industry- Adjusted Beta	Industry Index Beta	Mean Market- Adjusted Beta	Average Beta	Risk Free Rate	Average Market Risk Premium	Straight CAPM Calculation	Flotation Cost	"Simple" CAPM	Adjustment for Other Models	Total CAPM
US Proxy Group	Ticker	Raw Beta	Bloomberg	Value Line											
Consolidated Edison	ED	0.44	0.62	0.60	0.50	0.63	0.61	0.56	4.23%	6.67%	7.94%	0.30%	8.24%	0.75%	8.99%
NextEra Energy, Inc.	NEE	0.65	0.77	0.70	0.65	0.63	0.73	0.69	4.23%	6.67%	8.83%	0.30%	9.13%	0.75%	9.88%
Northeast Utilities	NU	0.59	0.73	0.70	0.61	0.63	0.71	0.66	4.23%	6.67%	8.62%	0.30%	8.92%	0.75%	9.67%
Southern Co.	SO	0.34	0.56	0.55	0.44	0.63	0.56	0.50	4.23%	6.67%	7.55%	0.30%	7.85%	0.75%	8.60%
Wisconsin Energy	WEC	0.47	0.65	0.60	0.52	0.63	0.62	0.57	4.23%	6.67%	8.05%	0.30%	8.35%	0.75%	9.10%
Xcel Energy, Inc.	XEL	0.47	0.64	0.60	0.52	0.63	0.62	0.57	4.23%	6.67%	8.05%	0.30%	8.35%	0.75%	9.10%
MEAN		0.49	0.66	0.63	0.54	0.63	0.64	0.59			8.17%		8.47%		9.22%

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
					Industry- Adjusted Beta	Industry Index Beta	Mean Market- Adjusted Beta	Average Beta	Risk Free Rate	Average Market Risk Premium	Straight CAPM Calculation	Flotation Cost	"Simple" CAPM	Adjustment for Other Models	Total CAPM
Canada Proxy Group	Ticker	Raw Beta	Bloomberg	Value Line											
Canadian Utilities Limited	CU	0.38	0.59		0.44	0.56	0.59	0.52	4.23%	6.67%	7.67%	0.30%	7.97%	0.75%	8.72%
Emera Inc.	EMA	0.44	0.63		0.48	0.56	0.63	0.56	4.23%	6.67%	7.93%	0.30%	8.23%	0.75%	8.98%
Enbridge Inc.	ENB	0.45	0.63	0.60	0.49	0.56	0.62	0.55	4.23%	6.67%	7.91%	0.30%	8.21%	0.75%	8.96%
Fortis Inc.	FTS	0.52	0.68	0.60	0.53	0.56	0.64	0.59	4.23%	6.67%	8.14%	0.30%	8.44%	0.75%	9.19%
TransCanada Corporation	TRP	0.41	0.60	0.85	0.46	0.56	0.73	0.59	4.23%	6.67%	8.18%	0.30%	8.48%	0.75%	9.23%
Valener Inc.	VNR	0.24	0.49		0.35	0.56	0.49	0.42	4.23%	6.67%	7.04%	0.30%	7.34%	0.75%	8.09%
MEAN		0.41	0.60	0.68	0.46	0.56	0.62	0.54			7.81%		8.11%		8.86%

Notes:

[1] Source: Bloomberg Professional; average of five years of weekly raw betas as of February 28, 2013

[2] Source: Bloomberg Professional; average of five years of weekly market-adjusted betas

[3] Source: Value Line as of February 28, 2013

[4] Equals $(2/3) \times [1] + (1/3) \times [5]$

[5] Source: Bloomberg Professional; average of five years of weekly betas for S&P utilities index

[6] Equals mean of [2] and [3]

[7] Equals Average of [4],[6]

[8] Source: Equals average long-term Consensus Forecast of 10-year Canadian government bond yield for the period 2013-2022 plus the 30-day average spread between 10- and 30-year bond ending February 28, 2013.

[9] Source: Average of the Ibbotson Canada historcal risk premium (1936-2012),

Ibbotson US historcal risk premium (1926-2012),

Bloomberg; TSX total return less [8] as of March 1, 2013,

Bloomberg; S&P 500 total return less [8] as of March 1, 2013

[10] Equals $[8] + [7] \times [9]$

[11] Flotation Costs Allowed by the Regie in Past Rate Cases

[12] Equals $[10] + [11]$

[13] Adjustment for Results of Other Models as Noted by Regie in 2012 Rate Case

[14] Equals $[12] + [13]$

Maritime Electric 2015

**REPORT:
COST OF CAPITAL**

**PREPARED FOR:
MARITIME ELECTRIC COMPANY, LIMITED**

**BEFORE THE:
ISLAND REGULATORY AND APPEALS COMMISSION**

OCTOBER 16, 2015



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www.ceadvisors.com



Figure 10: Long Term Forecast for 10-Year Government Bond Yields 2016-2018²⁵

	2016	2017	2018	Average
Canada	2.1	3.2	3.6	2.97
U.S.	2.8	3.9	4.1	3.60

With an average spread between 10-year and 30-year Government bond yields of 71 basis points in Canada and 69 basis points in the U.S.,²⁶ the corresponding longer-term yield on 30-year government bonds over the period 2016 – 2018 is shown in Figure 11.

Figure 11: Risk Free Rate

30-Year Risk Free Yield	Canada	U.S.
April 2015 Consensus Forecast Average 2016-2018 Forecasts	2.97%	3.60%
Average Daily Spread between 10-year and 30-year government bonds (August 2015)	0.71%	0.69%
Sum	3.68%	4.29%

b. Beta

I have employed several methods of measuring the Beta coefficient for the Canadian and U.S. proxy groups using estimates from both Value Line and Bloomberg.²⁷ 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.²⁸ Bloomberg produces Beta estimates based on parameters entered by the user. I have computed Bloomberg betas based on five years of weekly stock returns and use the S&P 500 or the S&P/TSX Composite as the market index. Both Value Line and Bloomberg report adjusted betas to compensate for the tendency of beta to revert towards the market average of 1.0 over time. The betas used in my CAPM analyses are shown in Figure 12.

²⁵ Consensus Forecasts by Consensus Economics Inc., Survey Date April 30, 2015, at 28 and 3.

²⁶ Historical spreads were calculated using daily bond yields from August 1, 2015 through August 31, 2015.

²⁷ I have used Bloomberg betas for the Canadian proxy group and both Value Line and Bloomberg betas for the U.S. proxy group.

²⁸ http://www.valueline.com/sup_glossb.html.

Capital Asset Pricing Model

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
			Value	Average	Risk Free	Average	Basic CAPM	Flotation	Total
US Proxy Group	Ticker	Bloomberg	Line	Beta	Rate	Market Risk Premium	Calculation	Cost	CAPM
ALLETE, Inc.	ALE	0.75	0.80	0.78	4.29%	7.62%	10.20%	0.50%	10.70%
Duke Energy	DUK	0.55	0.60	0.58	4.29%	7.62%	8.68%	0.50%	9.18%
Eversource Energy	ES	0.68	0.75	0.71	4.29%	7.62%	9.72%	0.50%	10.22%
Great Plains	GXP	0.76	0.85	0.80	4.29%	7.62%	10.41%	0.50%	10.91%
OG&E Corp	OGE	0.78	0.90	0.84	4.29%	7.62%	10.70%	0.50%	11.20%
Pinnacle West Capital	PNW	0.72	0.70	0.71	4.29%	7.62%	9.68%	0.50%	10.18%
Westar	WR	0.67	0.75	0.71	4.29%	7.62%	9.71%	0.50%	10.21%
MEAN		0.70	0.76	0.73			9.87%		10.37%

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
			Value	Average	Risk Free	Average	Basic CAPM	Flotation	Total
Canada Proxy Group	Ticker	Bloomberg	Line	Beta	Rate	Market Risk Premium	Calculation	Cost	CAPM
Canadian Utilities Limited	CU	0.62	N/A	0.62	3.68%	7.62%	8.37%	0.50%	8.87%
Emera Inc.	EMA	0.71	N/A	0.71	3.68%	7.62%	9.08%	0.50%	9.58%
Enbridge Inc.	ENB	0.79	N/A	0.79	3.68%	7.62%	9.71%	0.50%	10.21%
Valener Inc.	VNR	0.43	N/A	0.43	3.68%	7.62%	6.98%	0.50%	7.48%
MEAN		0.64	N/A	0.64			8.54%		9.04%

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
			Value	Average	Risk Free	Average	Basic CAPM	Flotation	Total
North American Electric Proxy Group	Ticker	Bloomberg	Line	Beta	Rate	Market Risk Premium	Calculation	Cost	CAPM
ALLETE, Inc.	ALE	0.75	0.80	0.78	4.29%	7.62%	10.20%	0.50%	10.70%
Canadian Utilities Limited	CU	0.62	N/A	0.62	3.68%	7.62%	8.37%	0.50%	8.87%
Duke Energy	DUK	0.55	0.60	0.58	4.29%	7.62%	8.68%	0.50%	9.18%
Emera Inc.	EMA	0.71	N/A	0.71	3.68%	7.62%	9.08%	0.50%	9.58%
Eversource Energy	ES	0.68	0.75	0.71	4.29%	7.62%	9.72%	0.50%	10.22%
Great Plains	GXP	0.76	0.85	0.80	4.29%	7.62%	10.41%	0.50%	10.91%
OG&E Corp	OGE	0.78	0.90	0.84	4.29%	7.62%	10.70%	0.50%	11.20%
Pinnacle West Capital	PNW	0.72	0.70	0.71	4.29%	7.62%	9.68%	0.50%	10.18%
Westar	WR	0.67	0.75	0.71	4.29%	7.62%	9.71%	0.50%	10.21%
MEAN		0.69	0.76	0.72			9.62%		10.12%

Notes:

- [1] Source: Bloomberg Professional; average of five years of weekly market-adjusted betas
- [2] Source: Value Line as of August 31, 2015
- [3] Equals mean of [1] and [2]
- [4] Source: Equals average long-term Consensus Forecast of 10-year government bond yields for the period 2016-2018 as of April 13, 2015. (Pg. plus the 30-day average spread between 10- and 30-year bond ending August 31, 2015.
- [5] Source: Average of the Duff and Phelps Canada historical risk premium (1936-2013),
Duff and Phelps US historical risk premium (1926-2013),
Bloomberg; TSX total return less [4] as of August 31, 2015
Bloomberg; S&P 500 total return less [4] as of August 31, 2015
- [6] Equals [4] + ([5] x [6])
- [7] Flotation Costs
- [8] Equals [6] + [7]