APPENDIX C
RELATIVE RISK ASSESSMENT FOR A BENCHMARK UTILITY

Introduction

In risk premium models the relative risk coefficient adjusts the overall market risk premium up or down depending on whether the individual security (company) is more or less risky than the market as a whole. More risky stocks have a relative risk coefficient greater than 1.0 and less risky stocks a relative risk coefficient less than 1.0. Averaging over all securities in the market gives a relative risk coefficient by definition of 1.0. All risk premium models have this same risk assessment relative to the market, whether they are the capital asset pricing model (CAPM)[1] where the only source of risk is the market risk, or models that introduce other sources of risk. However, even within a two factor model, where the long Canada bond is regarded as risky due to interest rate risk,[2] or the Fama-French three factor model[3] where size and the market to book ratio (in their model termed the book to market ratio) are additional sources of risk, the coefficient on the market is still the main measure of risk. Estrada,[4] for example, shows that for the DOW 30 US stocks the simple CAPM expected return at 9.70% is only 0.20% more than the estimate from the three factor Fama-French Model and that the market risk premium is much larger than either the size or book to market premiums.

Since the overall market return is the benchmark, the relative risk assessment is with respect to this benchmark. Statistically this relative risk coefficient is the *expected* or forecast covariance[5] between the security's return and that on the market scaled by the variance of the return on the market. This is called the security's beta coefficient (β) and measures the contribution of the security to the risk of a diversified portfolio. We normally estimate actual historic beta estimates

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[1] William Sharpe, "Capital asset prices: a theory of market equilibrium under conditions of risk," Journal of Finance 19, 1964.

[2] Fisher Black, "Capital market equilibrium with restricted borrowing", Journal of Business, July 1972.

[3] Eugene Fama and Ken French, "The cross section of expected stocks returns," Journal of Finance 59, 1992.

[4] "The three-factor model: a practitioners guide," Journal of Applied Corporate Finance, Spring 2011.

[5] The covariance measures the degree to which two securities move together.

by a simple ordinary least squares (OLS) regression of the security's return on that of the market. In any OLS regression the intercept is called alpha and the slope coefficient is called beta, which is why these terms are used pervasively in finance. However, estimating actual beta coefficients entails the exact same estimation problems as estimating the market risk premium, since *both* use actual or historic returns. This is, that any estimate is very sensitive to what happened during the estimation period. For example, if something like a major stock market crash happens once every 20 years then beta coefficients estimated over the last five years will only capture this 25% of the time. The other 75% of the time the betas will be estimated over a period that does not include a major stock market crash.

To overcome this problem, in estimating the market risk premium we go back over very long periods of time. This is because the basic risk return trade-off in the capital market is regarded as relatively constant. However, for estimating beta coefficients this is more doubtful since the risk of a firm or industry changes much more than the overall risk of the market. Instead, we tend to use estimates from similar firms and industries as well as more judgment in understanding the economic and financial factors underlying beta estimates. In this way we get a better understanding of the *expected* beta coefficient, which is what is required.

Historic Beta Estimates for Canadian utilities

In 2002 the Toronto Stock Exchange outsourced its market indexes to Standard and Poors (S&P) and changed the composition of our sub-indexes. These changes roughly coincided with the loss of many traditional Canadian utilities. It was also controversial in transferring Enbridge and TransCanada from pipelines, where they were regarded as similar to utilities, into energy services.

Regardless of these changes the great advantage of the sub-indexes is that they include more companies than possible with individual company estimates since companies are constantly being reorganised as business strategy changes. This is particularly important due to the fact that a large number of Canadian regulated firms, like Consumers Gas, Maritime Electric, Bell Canada, Union Gas, Pacific Northern Gas, Fort Chicago Energy Partners (Veresen now Pembina), BC Gas, Maritime T&T etc., have all disappeared through corporate reorganisation.

Although this means that their individual company betas disappeared, it does not mean that their economic impact has also disappeared. Consumers Gas now shows up as part of Enbridge, BC Gas as Fortis etc., so their economic impact continues to show up in the sub index betas. However, there is a disadvantage, which is that these are not simple averages but *market value weighted* averages, since this is the way that stock market indexes are normally calculated. As a result, large market value companies have a disproportionate impact on the indexes.

In Schedule 1 is a graph of rolling betas on the Canadian utility sub index since 1988. Betas are normally estimated over the prior five years of data since the basic data sources historically used monthly data,[6] so the first observation is from January 1988 until December 1992 and then each month as a new return is available the five-year estimation window moves forward a year. This process is repeated using two estimation techniques; the first Beta is the simple beta against the Canadian market index, whereas the second Beta 2 also includes the impact of interest rate changes by adding the monthly return on the long Canada bond as a second risk factor. However, to all intents and purposes the beta estimates are almost the same, but it does allow an estimate of the sensitivity of utility shares to interest rates, which I discuss later, and refer to as "gamma."

Using this procedure using well over 33 years of data (1988-2020) I can pick up the impact of unique events. For example, the utility betas were both in a range of 0.40-0.60 until 1997. The betas then dropped to negative values during 2001-2004 before reverting to more "normal" levels. Did this mean that utility shares had no risk during this period and deserved a negative market risk premium? The answer is no, since a special event, the behaviour of Nortel and the Internet Bubble, drove the estimates. During the late 1990s, the technology and internet boom were driving North American markets up as the prices of Nortel and JDS Uniphase[7] increased and came to represent 1/3 of the value of the Canadian stock market. When this boom turned into a crash and Nortel declined from $1,240 to zero with its bankruptcy, Nortel took the Canadian market down with it.

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[6] In Canada this is the TSX/Western data base and in the US the Center for Research in Security Prices (CRSP) data base at the University of Chicago.

[7] JDS Uniphase resulted from a merger of the Canadian fibre optic company JDS Fitel in 1999.

It is important to understand that historic beta estimates measure the risk of a security relative to the risk of a diversified portfolio, in this case the TSX Composite. Utility betas were pulled down as Nortel and the tech boom affected the Canadian market while utility shares were not. As the effect of the internet bubble and crash passed through the estimation window utility betas reverted to a more normal pattern. By 2008 the beta estimates covering the period 2004-2008 were largely devoid of the effects of the Internet Bubble. The message was that during this period utility shares added very little risk to a diversified portfolio, since that portfolio was dominated by the effect of Nortel and JDS Uniphase. However, as this bubble and crash period receded utility shares added their normal amount of risk to a diversified portfolio, not because their risk had changed but their risk *relative* to the overall market changed.

Finally, utilities are clearly interest sensitive stocks as the consistent positive ***gamma*** coefficients indicate. This indicates that like the long Canada bond, utility prices tend to go up with interest rate decreases and down with decreases. It is also clear that this interest rate sensitivity exhibits a negative correlation with the beta estimates, that is, beta coefficients tend to fall as gamma coefficients increase. This is because interest rates tend to increase during good times as the stock market booms and then fall in recessions. As a result, utilities are classic defensive stocks where interest rate declines during a recession cushions their share prices.

This statistical result echoes the comment of former RBC utility analyst Maureen Howe who commented that Canadian utilities are[8]

> "like convertible bonds. When interest rates are low, as they currently are, the companies trade on their bond value and are supported by tax-efficient dividend yields. When the 10-year GOC yield rises above 6%-6.5%, the Canadian companies trade on the basis of their underlying earnings and P/E."

I would agree with Howe's comments with the qualification that we have not had Government of Canada (GOC) yields above 6% since 2000. Consequently, the search for yield has led utility shares to trade on their interest sensitivity or "income" support.

In Schedule 2 are the results of two multiple regression estimates of utility risk. The first panel has the estimates for the entire period from 1988 where the utility beta against the Toronto Stock

[8] October 3, 2001 RBC Morning Comment.

Exchange (TSX) return is 0.30 and the gamma or interest sensitivity against the long Canada bond return (Canret) is 0.45. This means that over the whole period utilities had 30% of the exposure of an average stock to the market and 45% of the exposure of the long Canada bond to interest rates. However as noted previously this period reflects the Internet Bubble and crash which biases the results.[9] In the second panel are the estimates for the last five-year period ending in 2020. For this period the beta estimate is 0.53 closer to traditional levels and the gamma 0.60. Note that in all cases both the beta and gamma coefficients are highly significant.

If the Nortel/JDS Uniphase effect distorts Canadian beta estimates we can look at the returns against the US market index. This might reduce the impact due to the "greater diversity" of the US market. To examine this, the graph in Schedule 3 uses the hedged US market index instead of the TSX composite. However, it is clear that the Internet Bubble effect is just as dramatic, since regardless of whether we view the TSX or the US stock market as the correct market portfolio utility betas turned negative at that time. Moreover, the most recent beta estimates are lower against the US market index, whether estimated from a single or two factor model (0.26-0.33), than against the Canadian market index (0.51-0.52) regardless of whether or not their interest sensitivity is included. This is possibly due to the current FAANG dominated US market.[10]

We can see the same effects in the average beta estimates in Schedule 3, where I have split the few remaining Canadian utility-like stocks into pipeline and utility holding company (UHC) samples. The individual values estimated, since the 1996-2000 period, are in Schedule 4.The low risk UHC sample consists of Canadian Utilities (CU), Fortis (FTS), Emera (EMA) and Gaz Metro (GMI) through Valener (VNR).[11] The Pipeline sample consists of TransCanada Corporation (TRP), Enbridge Inc. (ENB), and Pembina (PPL), which almost doubled its size by purchasing Fort Chicago Energy Partners (Veresen) in 2017.[12] During the internet bubble period and crash both samples show very low and negative betas, but once these events passed out of the estimation window they recovered to more normal levels. For the UHCs recent average betas

[9] A median regression puts a higher coefficient of 0.4 on the beta.

[10] FAANG stands for Facebook, Amazon, Apple, Netflix and Google.

[11] As of November 29, 2017 GMI is now known as Energir.

[12] Pembina purchased Veresen October 2, 2017.

have been around 0.30, whereas the betas of the pipeline sample have recently been much higher and average over 1.0, reflecting all the uncertainties surrounding pipeline expansions in both the US and Canada.

Consistent with the data in Schedules 1-5, I judge the interest sensitivity of these companies has caused them to trade based on their defensive or income characteristics during this recent period of very low interest rates. This is evident from the fact that their betas vary inversely with their interest sensitivity. As interest rates increase back to normal levels, I would expect their betas to increase as they trade less on their bond values and more as regular equities. I would therefore expect some tendency for their betas to revert back to their long run average level: for the market as a whole this is 1.0, but for regulated firms I have normally judged this to be about 0.50.

US utility stocks as a comparison

Given the diminishing number of Canadian utility stocks I have been forced to look at samples of US utility holding companies. In doing this I have traditionally used the intersection of two samples used previously by Ms. McShane and Dr. Vilbert both of whom have appeared before Canadian boards on behalf of utilities. The intent here has been to avoid cross examination on the risks of these particular companies as the intersection of theser two "samples" might be regarded as a smaller and unambiguously purer set of low risk US utilities. However, the US has not been immune from the M&A activity that has reduced the number of Canadian UHCs. For example, the sample of US gas UHCs that I used as recently as 2016 has been reduced by the purchase by AltaGas of WGL on July 6, 2018, the purchase of Piedmont Natural Gas by Duke Energy on October 31, 2016 and the merger between Vectren and Centre Point Energy on April 23, 2018. Marginally off-setting the loss of those three companies is the creation of One Gas (OGS) in March 2014.

In the same way in 2016 I used a sample of 7 US electric companies used by Mr. Coyne of Concentric Energy. These companies were: Duke Energy (DUK), Allete Inc.,(ALE) Eversource (ES), Great Plains Energy Inc., (GXP) OGE Energy Corp (OGE), Pinnacle West Capital (PWN) and Westar Energy Inc.(WR), However, Westar and Great Plains merged to create Evergy (EVRG) on May 24, 2018 which reduced the sample to 6 firms. Mr. Coyne has now added

Alliant Energy, American Electric Power, Entergy, Excelon, and Portland General Electric. For consistency I will continue with my 2016 sample but also add beta estimates for these additional companies.[13]

Schedule 6 provides a graph of the median and average beta estimates for the US gas companies back to 1990 with the most recent betas in Schedule 7. The graph includes the three "legacy" gas companies which have recently merged or been acquired. The betas are estimated in the same way as for the Canadian betas from monthly holding period returns over a five year time period updated monthly. The estimates from these US gas utilities behave in a similar manner as for the Canadian utility holding companies. This is clear from the observation that they also exhibit an "internet bubble" effect, although not quite as severe as for the Canadian utility holding companies. However, the most recent average level of the betas from these companies is very similar to those of the Canadian utility holding companies at 0.30.

Schedule 8 provides a graph of the average beta estimates for the US electric companies in my sample with the individual values in Schedule 9. Again, we see the Internet bubble effect, where prior to 1998 average betas were about 0.55 and after 2005 they increased to about 0.80 before trending down to end 2020 at an average of 0.37, although the median beta is slightly less at 0.32. Again, it is clear from the graph that US electric company betas are higher than for the regulated UHCs in Canada.

Finally in Schedule 10 is a graph of the average beta value for the firms in my sample versus those in Mr. Coyne's sample. The clear implication is that the sample averages are very similar, which should not be too surprising since at times all of the firms in my sample have been used by Mr. Coyne and each beta estimates is estimated from the prior five years of data. However, it points to the limited value of changing samples when investors perceive a lot of the "unique" factors that cause samples to change are in fact common to most utilities as investment risk.

[13] Note I have severe reservations about changing samples since investors view the acts that force a firm in and out of a sample as normal investment risk. Consequently, I tend to view the screens used by some witnesses as unnecessary as I have seen a variety of US firms used by different witnesses from the US, but the results tend to be the same.

Adjusted betas

It is always necessary to adjust betas since they are only estimates of what actually happened over a particular time period, whereas what is needed is an estimate of what is likely to happen in the future. Such a process is justified by the seminal work of Marshall Blume[14] who showed that if there is measurement error when we estimate a very low beta the chances are the "true" beta is underestimated and vice versa. By looking at betas estimated at time T he estimated the following regression equation, where the dependent variable is the beta estimated over a previous period: such as five years earlier (T-5).

$$\beta_T = \alpha_1 + \alpha_2 \beta_{T-5}$$

The coefficients he estimated were approximately

$$\alpha_1 = 0.33$$
$$\alpha_2 = 0.67$$

With these values the "true" beta is when the two betas are the same, so with these parameter estimates (.33/(1-.67)) the true beta is equal to 1. Blume actually estimated his equation over all stocks so the equation verges on being a tautology since the average value of beats estimated over all stocks should be equal to 1.0.

The result is that as a *general* adjustment equation for *all* stocks without knowing anything about them, Blume recommended that we adjust betas by taking 2/3 of the estimated beta and adding 0.33, which essentially means weighting them 1/3 with the average market beta of 1.0 and 2/3 with the actual beta. This procedure means that low betas are *always* increased and high betas reduced regardless of whether the true beta is actually the observed low or high beta!

However, low beta estimates for utilities do not mean they are under-estimated and need adjusting, since utility betas are perennially low due to their low risk. Instead, as Gombola and

[14] Marshall Blume, Betas and their regression tendencies, Journal of Finance, June 1975.

Kahl[15] demonstrated utility betas are better mechanically adjusted by weighting with their grand mean. If I were to do this with recent betas in a range 0.30-0.53 and a long run beta of 0.50, I would get an adjusted beta as follows:

Adjusted beta = 0.67 * 0.53 +0.33 * 0.5 = 0.52 for the utility sub index

Adjusted beta = 0.67 * 0.30 + 0.33 * 0.5 = 0.37 for the individual large companies

This type of adjustment is consistent with the more recent work of Michelfielder and Theodossiou[16] who looked specifically at whether the Blume adjustment mechanism worked for US utility betas. They looked at betas estimated for utility holding companies over 5, 7, 8 and 9-year periods of non-overlapping data. That is, rather than my rolling betas they looked at periods where no monthly return was used twice. They then estimated a Blume type regression model of the estimated beta against the previous period's beta and concluded

> "The diagnostic statistics strongly refute the validity of the Blume equation for public utility stocks. Most of the R^2s are equal or very close to 0.00 and the largest is 0.09. Only one F statistic is significant and all but two slopes are insignificant….None of the 51 beta distributions display any tendency for the betas to drift toward one"

All the significance in these regressions came from the constant; the prior period beta estimate had no predictive power for the future beta regardless of whether the betas were estimated over 5, 7, 8 or 9 years of data.

The work of Michelfielder and Theodossiou is similar to work that myself and my late colleague Professor Michael Berkowitz and I entered into evidence in a TransCanada hearing in 2001. At that time we had 16 holding companies of utilities, pipelines and telephone companies (Telcos) in Canada that were regulated on a rate of return basis. We first estimated their betas in the normal way with the reported values in Schedule 11; then we regressed the 2000 betas estimated for the period 1995-2000 against their 1995 betas estimated over the period 1991-1995.This gave the following results.

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[15] This is also accepted in the literature. Gombola and Kahl, "Time series properties of utility betas," Financial Management, 1990, come to the same conclusion. .

[16] Michelfielder and Theodossiou, Public Utility beta adjustment and biased costs of capital in public utility rate proceedings," The Electricity Journal, 2013, pp 60-68.

$$\beta_T = 0.947 - 0.822\beta_{T-5}$$

Setting the two betas equal implied that their equilibrium beta was 0.52 (0.947/(1+.822)).

Unfortunately a quick look at the companies in Schedule 11 reveals that the sample is much reduced: the Telcos are no longer rate of return regulated, while most of the pipelines and utilities have disappeared or substantially changed. However, I have long judged the equilibrium utility beta to be about 0.50, partly based on this early work and partly on the estimates in Schedule 1 adjusted for the impact of interest rate risk.[17]

With the disappearance of many of the Canadian proxies I have been forced to look at US evidence which is why I estimated the betas for the electric utility holding companies in Schedule 9. In Schedule 12 I reproduce these beta estimates since 1975 and remove the values where the underlying data points overlap. So there are 9 separate estimates from 5 year estimation windows that include unique, non-overlapping data. I then estimate the following Blume regression equation for these US utility holding companies.

$$\beta_T = 0.465 - 0.110\beta_{T-5}$$

Setting the betas equal, the equilibrium beta for these US electric utilities is 0.42. However, the coefficient on the prior beta is not significant similar to the work of Michelfielder and Theodossiou. As a result, the most that can be said is that the intercept value of 0.465 is probably a bit too high, but there is clearly no tendency of these betas to adjust towards 1.0.

The work of Gombola and Kahl and Michelfielder and Theodossiou is the only published research that I am aware of that specifically looks at the adjustment tendency of utility betas. It is almost a truism that across all stocks they should have a tendency to revert to 1.0, since this is the average of all stocks. However, this does not mean that this process holds for subsets of stocks that are perennially either low or high risk. A utility with an actual beta of say 0.80 in one period is much more likely to have a beta closer to 0.50 next period than a Blume adjusted beta

[17] A regression of the estimated beta against the estimated gamma coefficient for the utility index indicates a beta estimate with a neutral interest rate forecast of approximately 0.46.

of 0.87. However, rather than any mechanical weighting I generally prefer to use judgment constrained by the actual historic evidence of the low risk nature of utility holding companies and their long run value of about 0.50.

Frequency of beta estimation

Another issue is the frequency with which betas are estimated. The standard in academic work is to estimate them over 5 years of *monthly* data. For example, the standard data base used by US academics (Centre for Research in Security prices or CRSP) traditionally only had monthly data. More recently, it has added daily data which is used for certain types of analysis such as an "event study" where we look at the impact of, for example, a dividend announcement. However, it is well known that betas are biased when estimated over high frequencies such as using weekly data. The reason for this is that many stocks do not trade that actively, so their prices are a bit "stale" and do not reflect recent events. Consequently, their betas are downward biased since the prices do not "move". There are "thin trading" adjustments for this, but since the average of all betas is 1.0, thickly traded betas in comparison are biased high. In other words, as the estimation frequency becomes shorter the betas for larger firms get larger while those for smaller firms get lower.

Hawawini[18] looked at this problem and concluded

> "This suggests that betas measured over return intervals of arbitrary length will tend to be biased. In particular, securities with relatively small market values may appear to be less risky than they truly are, whereas securities with relatively large market values may appear to be more risky than they truly are."

Why this is important is that Mr. Coyne uses adjusted betas estimated over weekly time periods from Value Line and Bank of America Merrill Lynch. I regard these betas as doubly biased once

[18] Gabriel Hawawini, "why beta shifts as the return interval changes," Financial Analysts Journal, (May-June 1983).

because they are adjusted toward 1.0 and second because they are estimated over weekly time horizons for utilities with relatively large market capitalisations.[19]

Public market beta estimates

From the prior discussion, betas can be estimated over a variety of time horizons; 5 years of monthly data is the norm, but Michelfielder and Theodossiou, for example, used 5, 7, 8, and 9 years of monthly data. We would therefore not expect all beta estimates from different sources to be the same; this requires that everyone use the same estimation window which is highly unlikely. To look at the range of estimates I collected the following beta estimates as reported by independent research organisations CFRA and RT (the Research Team) on August 4 2021 as well estimates by Yahoo and the Royal Bank of Canada and my own estimates up until December 2020.

The following represents the estimates for the Canadian firms.

			Canadian Betas				
		CFRA	**RT**	**RBC**	**Yahoo**	**Average**	**Booth**
TransCanada (TRP)		**N/A**	**0.76**	**0.76**	**0.76**	**0.76**	**0.72**
Enbridge (ENB)		**N/A**	**0.95**	**0.95**	**0.93**	**0.94**	**0.95**
Pembina (PPL)		**1.74**	**1.78**	**1.78**	**1.74**	**1.76**	**1.76**
Average						**1.15**	**1.14**
Canadian Utilities (CU)		**0.06**	**0.54**	**0.53**	**0.53**	**0.42**	**0.55**
Fortis (FTS)		**N/A**	**0.06**	**0.06**	**0.06**	**0.06**	**0.07**
Emera (EMA)		**0.22**	**0.23**	**0.23**	**0.22**	**0.23**	**0.24**
Average						**0.23**	**0.29**

For the pipeline sample my average beta estimate is 1.14 using data up until the end of 2020, whereas the average for these independent services is 1.15. The differences across services are relatively minor and I suspect they are largely due to the time-period over which the betas are estimated and whether or not they capture good or bad news on approvals for pipeline

[19] Value Line is a private subscription service while Bloomberg is a data and analytics provider. In particular while Bloomberg provides the data, it was Mr. Coyne's decision to estimate weekly betas and then upwardly adjust them. He could have chosen to use conventional unadjusted betas estimated over 5 years of monthly data as is normally done.

expansions. For the three Canadian UHCs my average beta is 0.29 whereas the average from the four services is 0.23. This indicates the continued low risk nature of Canadian UHCs, since the highest beta is the 0.42 for CU.[20] It also indicates that these services do not adjust their beta estimates using the Blume methodology, since with an actual beta of 0 the Blume adjustment would give a beta of 0.33 and the average beta for these UHCs is actually less than that.

For the U.S. gas companies their beta estimates are below. The average from the four services is 0.37 whereas my own estimate is marginally lower at 0.30. Interestingly, the highest beta estimate is from RBC for New Jersey Resources but these seem to be the same estimates, or at least very similar ones, across all four services.

	US Gas Companies					
	CFRA	RT	RBC	Yahoo	Average	Booth
Spire (SR)	**0.30**	**0.30**	**0.30**	**0.27**	**0.29**	**0.18**
One Gas (OGS)	**0.41**	**0.43**	**0.43**	**0.39**	**0.42**	**0.32**
NorthWest (NWN)	**0.46**	**0.45**	**0.45**	**0.45**	**0.45**	**0.44**
New Jersey (NJR)	**0.54**	**0.53**	**0.54**	**0.54**	**0.54**	**0.41**
Atmos (ATO)	**0.40**	**0.40**	**0.40**	**0.36**	**0.39**	**0.30**
SouthWest (SWX)	**0.16**	**0.16**	**0.16**	**0.15**	**0.16**	**0.13**
Average	**0.38**	**0.38**	**0.38**	**0.36**	**0.37**	**0.30**

Finally the beta estimates for the U.S. electric utility companies are below.

US Electrics

	RT	CFRA	RBC	Yahoo	Average	Booth
Duke	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.23**
Allette	**0.47**	**0.47**	**0.47**	**0.47**	**0.47**	**0.67**
Eversource	**0.23**	**0.28**	**0.32**	**0.32**	**0.29**	**0.28**
OGE	**0.65**	**0.65**	**0.65**	**0.65**	**0.65**	**0.36**
Pinnacle West	**0.30**	**0.30**	**0.31**	**0.30**	**0.30**	**0.19**
Evergy	**0.37**	**0.36**	**0.37**	**0.36**	**0.37**	**0.41**
Average					**0.39**	**0.36**

[20] The Yahoo beta estimates with pertinent financial data for the Canadian UHCs are in Appendix A.

The average beta estimate is marginally higher than for the U.S. gas companies from the four services but exactly the same for my own estimates. Of interest is that only one of the U.S. electric companies has a beta over 0.50 from any service.

It is also of importance that the way these estimates are derived appears to be consistent with conventional practise. One of the biggest data providers in Canada is the Financial Post, where their Corporate Analyzer data base includes ten year financial data for larger publicly listed Canadian companies. Their definition of beta is:

Beta (Corporate Profiles)

Beta factors are derived from a historical regression of percentage share price changes for the selected company on percentage changes in the TSE 300 price index. The unadjusted slope coefficient from this regression is the beta factor. Beta factors may be computed on a variety of weekly or monthly data. Betas shown in FP Analyzer are for 52 weeks, 36 months, 60 months and 120 months.

Again there is no discussion of "adjusting" betas using the Blume procedure, in fact they very specifically state the "unadjusted slope coefficient" which is what the beta estimate is. However, the Financial Post does note that different time horizons can be used other than my conventional use of five years of data.

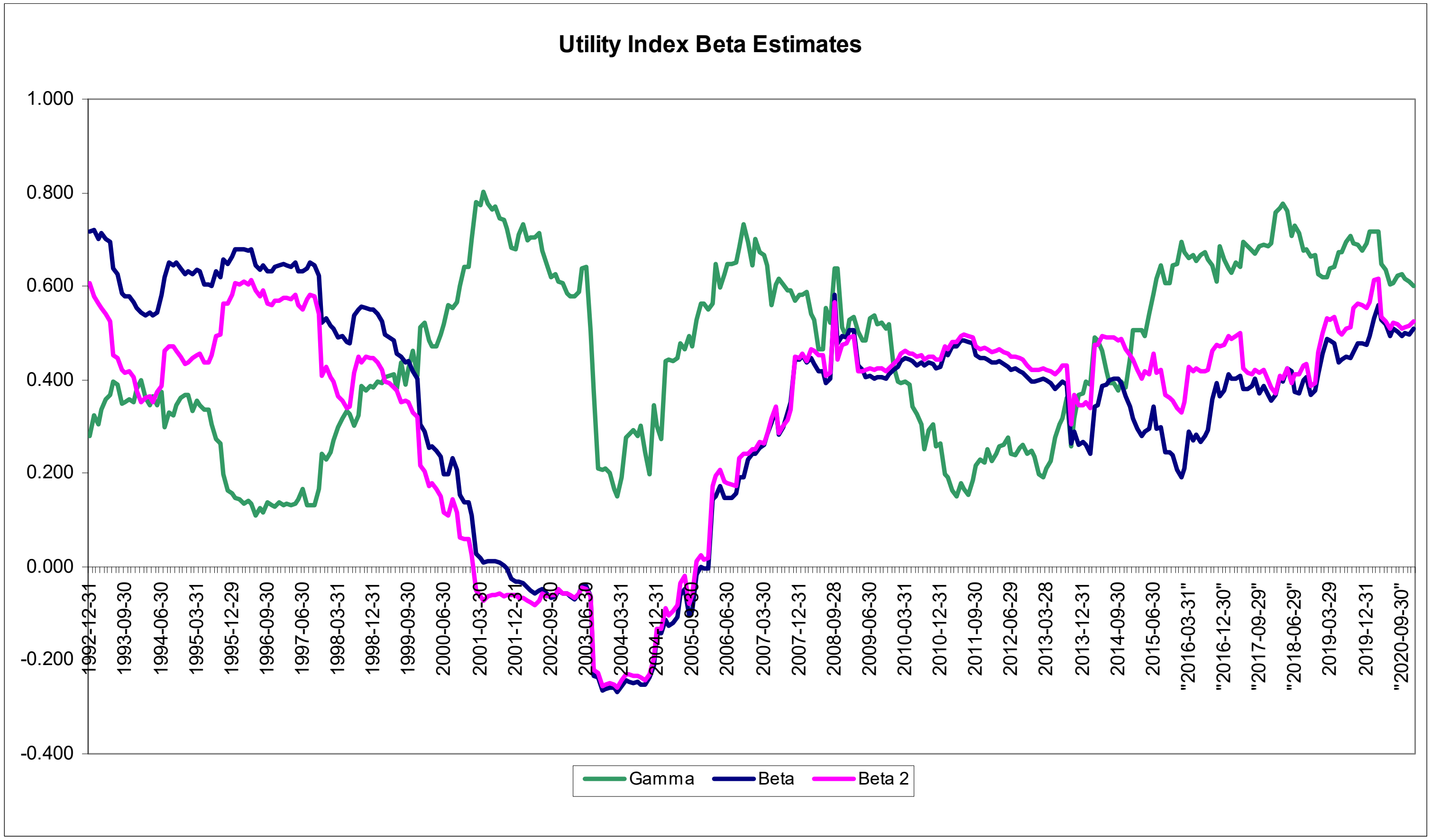
Conclusion

What is clear from the above analysis is that the market recognises that Canadian utilities are significantly lower than average risk. This comes through after:

- I recognise that the low values during the internet bubble period were an anomaly
- I analyse the utility sub index versus individual Canadian firms
- I check the Canadian estimates against a sample of U.S. gas and electric utility holding companies.
- I check the estimates against those that are publicly available from Yahoo Finance as well as those from Canada's largest bank and two independent, research services.
- I recognise that beta coefficients tend to vary inversely with interest rate risk and the return to the long Canada bond.

From this analysis, I can see no reason that would cause me to deviate from my normal generic risk assessment for a Canadian utility of a beta range of 0.45-0.55. The high end of this range is approximately the recent beta for the last five-year period for the TSX utility index and the low end a generous estimate based on the regression tendency of the US electric companies and the impact of the return on the long Canada bond on beta estimates for the TSX utility index.

SCHEDULE 1



Utility Index Beta Estimates
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
1992-12-31
1993-09-30
1994-06-30
1995-03-31
1995-12-29
1996-09-30
1997-06-30
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2019-03-29
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"2020-09-30"
Gamma
Beta
Beta 2

SCHEDULE 2

Time period: 1988-2020

OVERALL FIT	
Multiple R	0.46
R Square	0.22
Adjusted R Square	0.21
Standard Error	3.23
Observations	396

ANOVA — Alpha 0.05

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	2	1130.42	565.211	54.1553	1.7E-21	yes
Residual	393	4101.68	10.4369			
Total	395	5232.11				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*
Intercept	0.32	0.17	1.84	0.07	-0.02	0.65
TSX	0.30	0.04	7.32	0.00	0.22	0.37
CANRET	0.45	0.07	6.54	0.00	0.31	0.58

Time period: 2016-2020

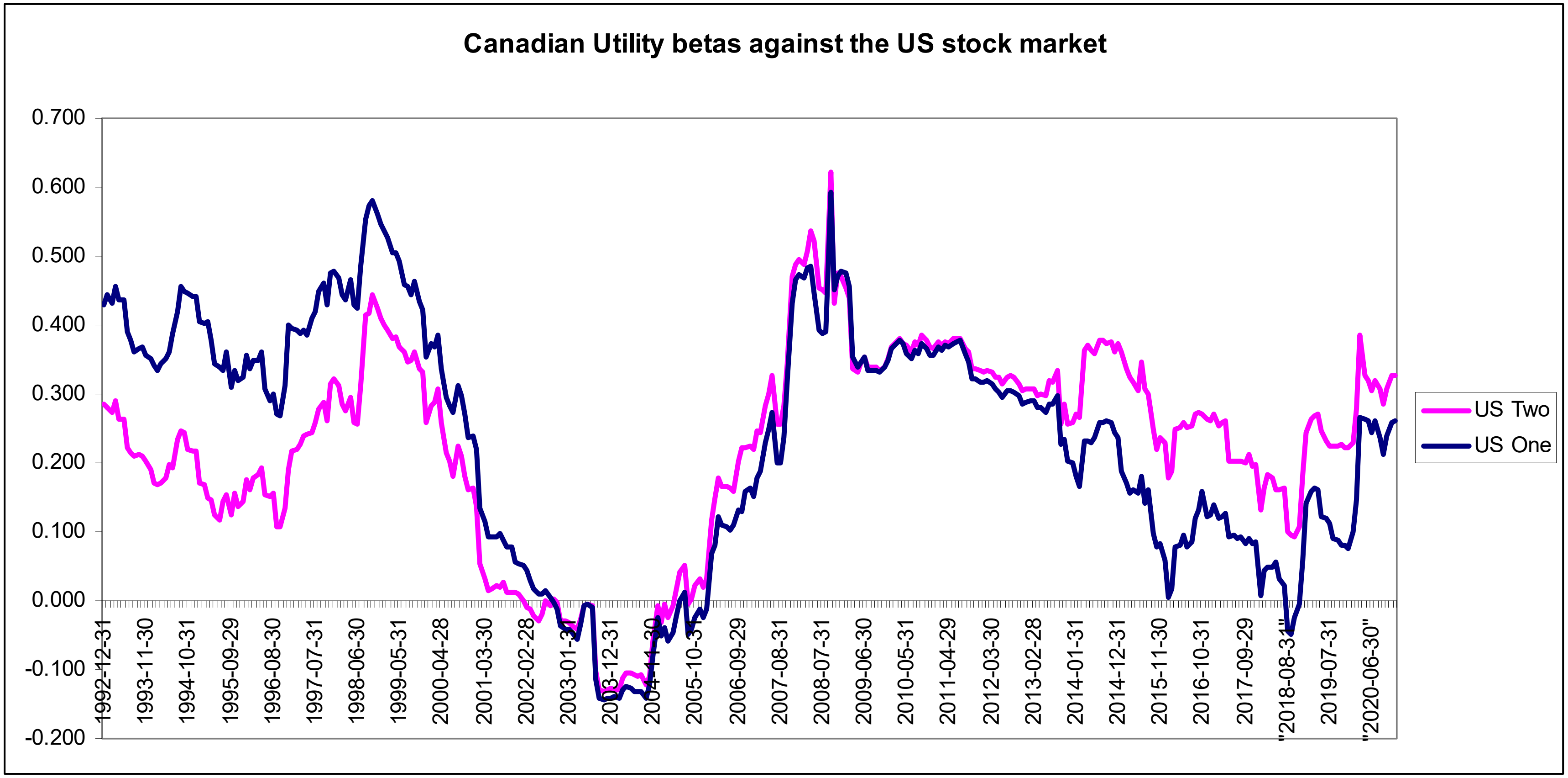
OVERALL FIT	
Multiple R	0.69
R Square	0.47
Adjusted R Square	0.45
Standard Error	2.57
Observations	60

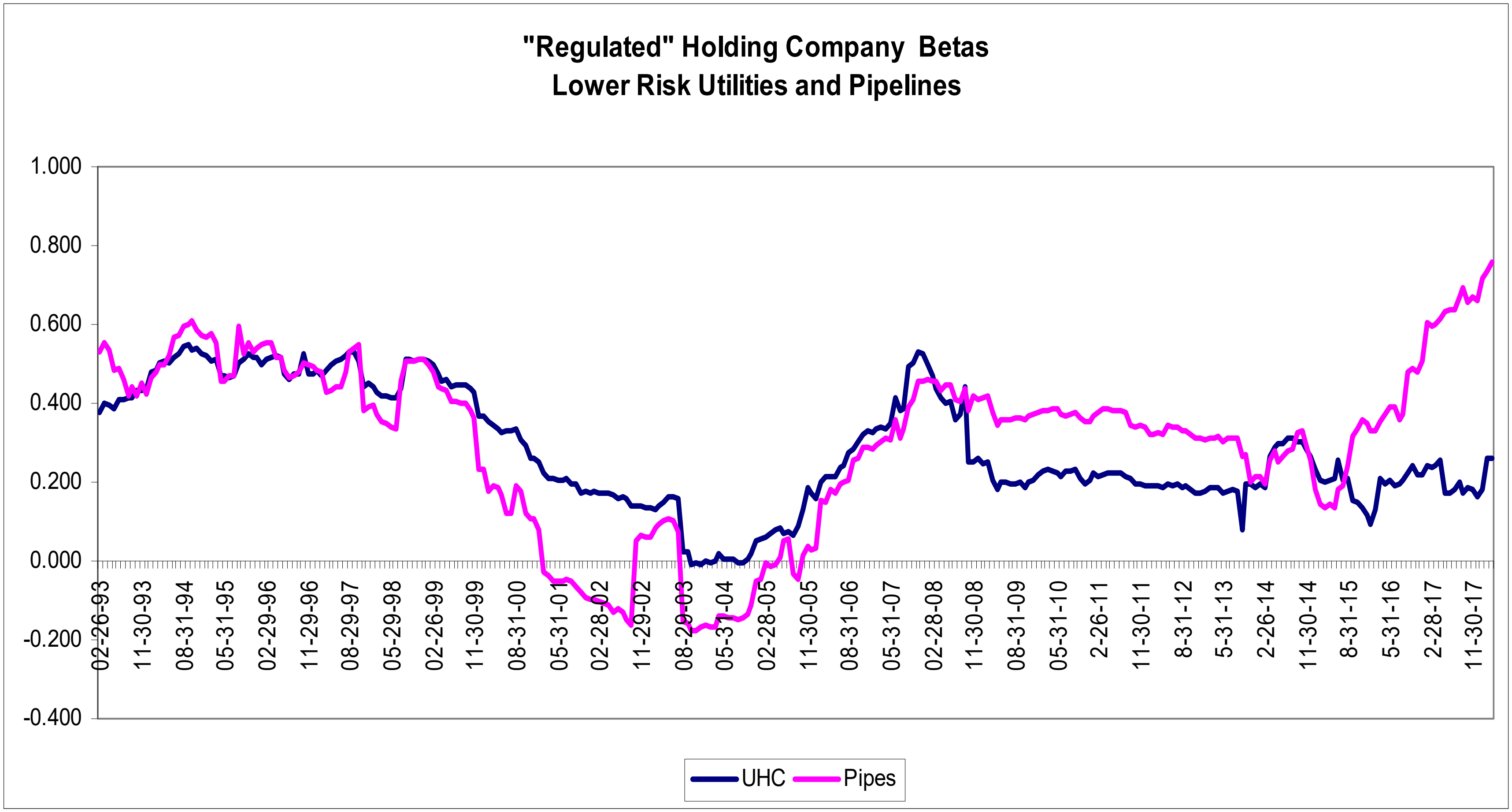
ANOVA — Alpha 0.05

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	2	335.313	167.656	25.391	1.3E-08	yes
Residual	57	376.371	6.603			
Total	59	711.684				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*
Intercept	0.45	0.35	1.30	0.20	-0.24	1.14
TSX	0.53	0.09	6.15	0.00	0.35	0.70
CANRET	0.60	0.15	3.96	0.00	0.30	0.90

SCHEDULE 3


Canadian Utility betas against the US stock market
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
-0.100
-0.200
1992-12-31
1993-11-30
1994-10-31
1995-09-29
1996-08-30
1997-07-31
1998-06-30
1999-05-31
2000-04-28
2001-03-30
2002-02-28
2003-01-31
2003-12-31
2004-11-30
2005-10-31
2006-09-29
2007-08-31
2008-07-31
2009-06-30
2010-05-31
2011-04-29
2012-03-30
2013-02-28
2014-01-31
2014-12-31
2015-11-30
2016-10-31
2017-09-29
"2018-08-31"
2019-07-31
"2020-06-30"
US Two
US One


"Regulated" Holding Company Betas
Lower Risk Utilities and Pipelines
1.000
0.800
0.600
0.400
0.200
0.000
-0.200
-0.400
02-26-93
11-30-93
08-31-94
05-31-95
02-29-96
11-29-96
08-29-97
05-29-98
02-26-99
11-30-99
08-31-00
05-31-01
02-28-02
11-29-02
08-29-03
05-31-04
02-28-05
11-30-05
08-31-06
05-31-07
02-28-08
11-30-08
08-31-09
05-31-10
2-26-11
11-30-11
8-31-12
5-31-13
2-26-14
11-30-14
8-31-15
5-31-16
2-28-17
11-30-17
UHC
Pipes

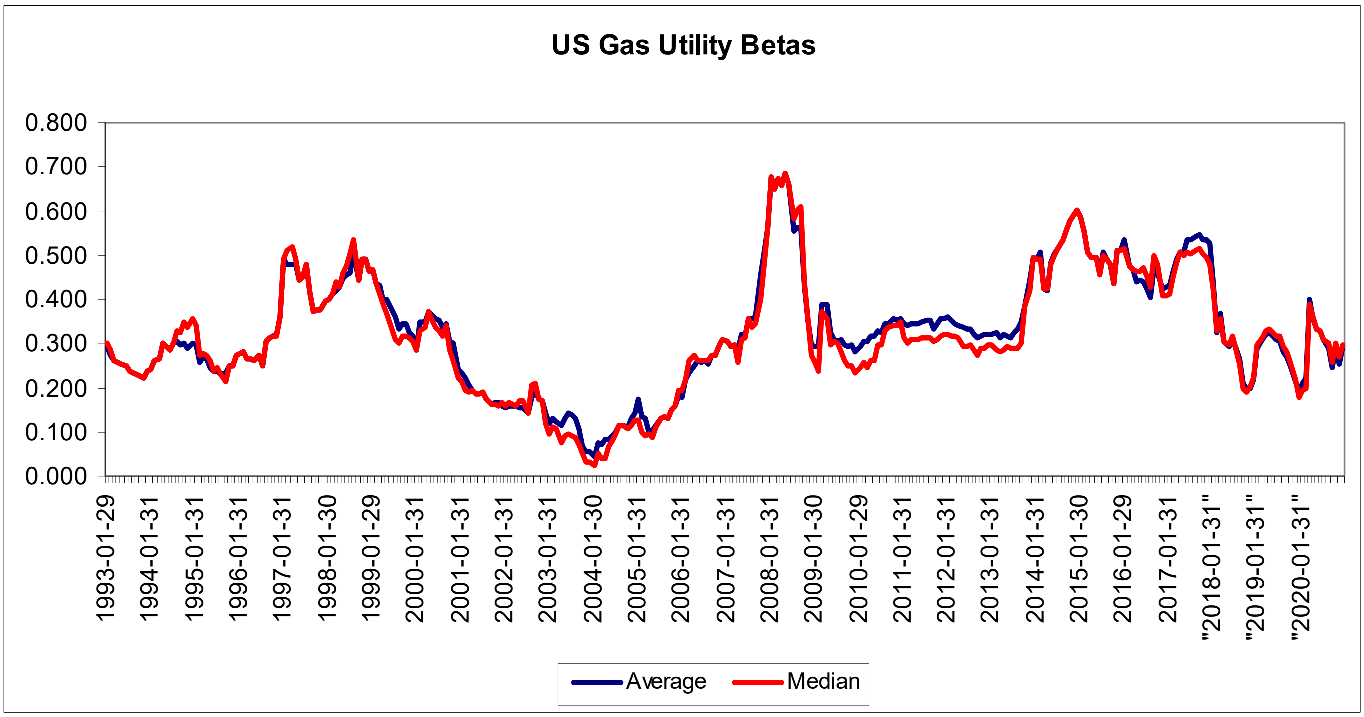
SCHEDULE 5

Canadian Utility Holding Companies (UHCs) and Pipelines

	CUL	Emera	Fortis	GMI	UHCs	Enbridge	TRP	VERESEN	PPL	Pipelines
12-29-00	0.36	0.28	0.22	0.18	0.26	0.05	0.17			0.11
12-31-01	0.25	0.21	0.13	0.10	0.17	-0.13	-0.07			-0.10
12-31-02	0.18	0.16	0.13	0.07	0.14	-0.20	-0.08		0.46	0.06
12-31-03	0.05	-0.05	-0.05	0.02	-0.01	-0.40	-0.40	0.02	0.11	-0.17
12-31-04	0.03	-0.02	0.03	0.16	0.05	-0.32	-0.19	0.10	0.21	-0.05
12-30-05	0.21	0.05	0.23	0.19	0.17	-0.18	-0.19	0.19	0.29	0.03
12-29-06	0.33	0.09	0.48	0.42	0.33	0.22	0.30	0.33	0.30	0.29
12-31-07	0.53	0.21	0.61	0.75	0.53	0.52	0.48	0.33	0.50	0.46
12-31-08	0.18	0.14	0.20	0.51	0.26	0.32	0.37	0.51	0.45	0.41
12-31-09	0.09	0.16	0.20	0.38	0.21	0.32	0.40	0.44	0.33	0.37
12-31-10	0.09	0.22	0.16	0.35	0.20	0.34	0.40	0.37	0.30	0.35
12-31-11	0.06	0.21	0.15	0.36	0.19	0.32	0.37	0.35	0.32	0.34
12-31-12	0.01	0.23	0.13	0.32	0.17	0.22	0.33	0.40	0.29	0.31
12-31-13	0.03	0.25	0.28	0.18	0.18	0.19	0.33	0.22	0.12	0.21
12-31-14	0.20	0.32	0.26	0.27	0.26	0.11	0.28	0.34	0.29	0.25
12-31-15	0.10	0.08	0.06	0.23	0.12	0.26	0.33		0.46	0.35
12-31-16	0.47	0.09	0.00	0.25	0.20	0.41	0.47		0.64	0.51
12-31-17	0.49	0.00	0.01	0.15	0.16	0.62	0.57		0.79	0.66
12-31-18	0.40	0.14	0.05	0.34	0.23	0.79	0.86		1.11	0.92
12-31-19	0.46	0.29	0.07		0.28	0.97	1.02		1.11	1.03
12-31-20	0.55	0.24	0.07		0.29	0.95	0.72		1.76	1.14

Pembina Pipeline (PPL) doubled its market value by buying Versen in 2017 for $9.7 billion

Since September 27 2019 Valener (GMI) is a 10% owned private subsidary of Noverco


US Gas Utility Betas
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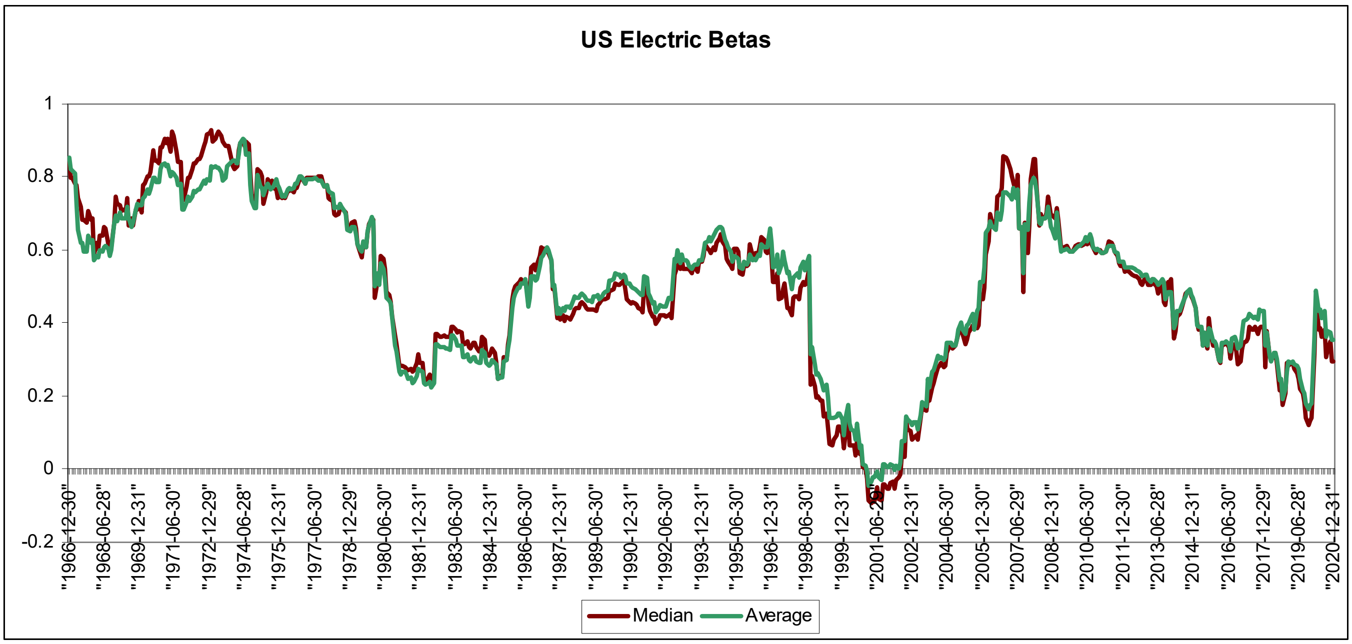
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
1993-01-29
1994-01-31
1995-01-31
1996-01-31
1997-01-31
1998-01-30
1999-01-29
2000-01-31
2001-01-31
2002-01-31
2003-01-31
2004-01-30
2005-01-31
2006-01-31
2007-01-31
2008-01-31
2009-01-30
2010-01-29
2011-01-31
2012-01-31
2013-01-31
2014-01-31
2015-01-30
2016-01-29
2017-01-31
"2018-01-31"
"2019-01-31"
"2020-01-31"
Average
Median

US Gas Company Betas

	NWN	NJR	SR	ATO	SWX	OGS	Average	Median
2000-12-29	0.12	0.36	0.21	-0.02	0.61		0.25	0.21
2001-12-31	0.08	0.24	0.05	-0.18	0.54		0.14	0.08
2002-10-31	0.01	0.16	0.04	-0.01	0.57		0.15	0.04
2003-12-31	-0.21	0.03	0.01	-0.01	0.19		0.00	0.01
2004-12-31	-0.04	0.09	0.13	0.01	0.28		0.09	0.09
2005-12-30	0.06	-0.04	0.15	0.19	0.26		0.12	0.15
2006-12-29	0.14	0.03	0.49	0.45	0.23		0.27	0.23
2007-12-31	0.60	0.44	0.79	0.72	0.42		0.59	0.60
2008-12-31	0.36	0.14	0.10	0.50	0.63		0.35	0.36
2009-12-31	0.24	0.12	0.01	0.49	0.70		0.31	0.24
2010-12-31	0.35	0.22	0.08	0.51	0.73		0.38	0.35
2011-12-30	0.32	0.25	0.06	0.50	0.72		0.37	0.32
2012-12-31	0.26	0.23	0.07	0.44	0.69		0.34	0.26
2013-12-31	0.39	0.44	0.32	0.54	0.73		0.49	0.44
2014-12-31	0.57	0.62	0.45	0.57	0.73		0.59	0.57
2015-12-31	0.31	0.53	0.37	0.43	0.59		0.45	0.43
2016-12-30	0.31	0.39	0.35	0.27	0.47		0.36	0.35
2017-12-29	0.40	0.43	0.31	0.41	0.62		0.44	0.41
2018-12-31	0.29	0.23	0.05	0.12	0.41		0.22	0.23
2019-12-31	0.23	0.31	0.11	0.14	0.17	0.24	0.20	0.17
2020-12-31	0.44	0.41	0.18	0.30	0.13	0.32	0.30	0.30


US Electric Betas
1
0.8
0.6
0.4
0.2
0
-0.2
"1966-12-30"
"1968-06-28"
"1969-12-31"
"1971-06-30"
"1972-12-29"
"1974-06-28"
"1975-12-31"
"1977-06-30"
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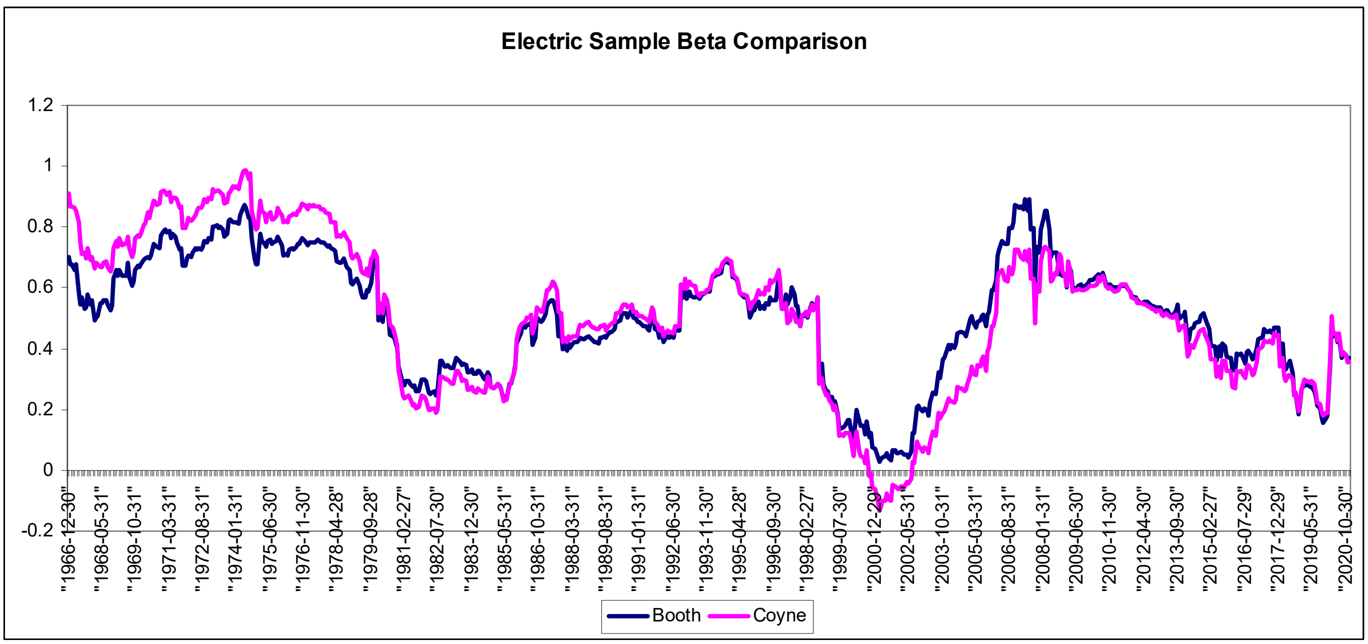
"2013-06-28"
"2014-12-31"
"2016-06-30"
"2017-12-29"
"2019-06-28"
"2020-12-31"
Median
Average

SCHEDULE 9

US Electric Company Betas

	DUK	OGE	ALE	GXP	PNW	WR	ES	EVRG	Average	Median
30-Dec-94	0.45	0.43	0.62	0.57	1.16	0.71	0.43		0.62	0.57
29-Dec-95	0.54	0.48	0.59	0.52	0.47	0.65	0.49		0.54	0.52
31-Dec-96	0.47	0.53	0.46	0.61	0.59	0.73	0.70		0.58	0.59
31-Dec-97	0.48	0.40	0.43	0.37	0.47	0.56	0.72		0.49	0.47
31-Dec-98	0.18	0.19	0.14	0.29	0.28	0.19	0.57		0.26	0.19
31-Dec-99	0.05	0.01	0.07	0.18	0.16	0.13	0.41		0.14	0.13
29-Dec-00	-0.04	0.05	0.00	0.31	-0.13	0.14	0.40		0.10	0.05
31-Dec-01	-0.08	0.02	-0.14	0.22	-0.06	0.17	0.45		0.08	0.02
31-Dec-02	0.18	0.07	0.01	0.37	0.15	0.39	0.36		0.22	0.18
31-Dec-03	0.51	0.18	0.25	0.50	0.25	0.72	0.41		0.40	0.41
31-Dec-04	0.64	0.34	0.39	0.64	0.33	0.85	0.43		0.52	0.43
30-Dec-05	0.75	0.35	0.47	0.56	0.65	0.88	0.46		0.59	0.56
29-Dec-06	1.26	0.55	0.95	0.87	0.90	1.10	0.45		0.87	0.90
31-Dec-07	1.00	0.60	1.19	0.81	0.64	0.61	0.70		0.79	0.70
31-Dec-08	0.44	0.73	0.82	0.67	0.56	0.60	0.69		0.64	0.67
31-Dec-09	0.44	0.77	0.66	0.80	0.66	0.64	0.53		0.64	0.66
31-Dec-10	0.44	0.78	0.65	0.75	0.58	0.65	0.51		0.62	0.65
30-Dec-11	0.37	0.79	0.66	0.72	0.54	0.59	0.47		0.59	0.59
31-Dec-12	0.32	0.72	0.63	0.69	0.52	0.55	0.47		0.56	0.55
31-Dec-13	0.28	0.72	0.62	0.76	0.51	0.53	0.38		0.54	0.53
31-Dec-14	0.19	0.68	0.71	0.61	0.42	0.46	0.48		0.51	0.48
31-Dec-15	0.04	0.61	0.61	0.43	0.34	0.26	0.35		0.38	0.35
30-Dec-16	0.12	0.65	0.49	0.37	0.28	0.37	0.29		0.37	0.37
29-Dec-17	0.27	0.92	0.48	0.48	0.39	0.43	0.32		0.47	0.43
29-Dec-18	0.04	0.54	0.30		0.25		0.24	0.27	0.28	0.26
30-Dec-19	0.06	0.48	0.13		0.18		0.12	0.18	0.19	0.15
31-Dec-20	0.23	0.67	0.43		0.28		0.26	0.35	0.37	0.32

Schedule 10


Electric Sample Beta Comparison
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
"1966-12-30"
"1968-05-31"
"1969-10-31"
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"1972-08-31"
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"2015-02-27"
"2016-07-29"
"2017-12-29"
"2019-05-31"
"2020-10-30"
Booth
Coyne

ROLLING BETAS

FIRM	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
BCE INC	0.368	0.370	0.357	0.480	0.432	0.520	0.477	0.608	0.630	0.989	1.240	1.002
BCT TEL	0.29	0.328	0.349	0.548	0.642	0.812	0.739	0.731	0.757	0.975	0.900	1.013
QUEBEC TEL	0.351	0.269	0.250	0.296	0.211	0.552	0.421	0.616	0.572	0.88	0.721	0.892
NEWTEL	0.417	0.375	0.405	0.559	0.470	0.569	0.568	0.585	0.348	0.539	0.438	0.474
BRUNCOR	0.38	0.400	0.412	0.545	0.432	0.577	0.336	0.377	0.427	0.775	0.758	0.781
MARITIME TT	0.367	0.402	0.332	0.359	0.263	0.376	0.274	0.357	0.603	0.785	0.780	0.818
ISLAND TEL	0.26	0.250	0.249	0.189	0.216	0.534	0.441	0.591	0.524	0.71	0.603	0.606
MEAN TELCOS	**0.348**	**0.342**	**0.336**	**0.425**	**0.381**	**0.563**	**0.465**	**0.552**	**0.552**	**0.808**	**0.777**	**0.798**
MARITIME ELEC	0.383	0.405	0.396	0.536	0.672	0.321	n/a	n/a	N/a	n/a	n/a	n/a
TRANSALTA	0.233	0.284	0.271	0.377	0.451	0.491	0.588	0.585	0.462	0.536	0.285	0.259
FORTIS	0.280	0.230	0.271	0.402	0.377	0.563	0.537	0.390	0.310	0.484	0.320	0.216
CDN UTIL	0.418	0.413	0.382	0.456	0.475	0.466	0.501	0.561	0.634	0.616	0.530	0.361
BC GAS	0.528	0.522	0.493	0.425	0.444	0.570	0.627	0.562	0.474	0.479	0.338	0.231
MEAN GAS/ELEC	**0.368**	**0.371**	**0.363**	**0.439**	**0.484**	**0.482**	**0.563**	**0.525**	**0.470**	**0.529**	**0.368**	**0.267**
PAC N GAS	0.362	0.449	0.478	0.404	0.543	0.305	0.492	0.286	0.443	0.573	0.492	0.453
TRANSCDA P	0.657	0.616	0.550	0.492	0.385	0.549	0.538	0.489	0.338	0.544	0.238	0.182
TRANS MNT	0.757	0.662	0.665	0.796	0.588	0.525	n/a	n/a	N/a	n/a	n/a	n/a
WESTCOAST	0.723	0.683	0.667	0.522	0.550	0.562	0.557	0.611	0.531	0.453	0.261	0.134
MEAN PIPELINES	**0.625**	**0.603**	**0.590**	**0.554**	**0.517**	**0.485**	**0.529**	**0.462**	**0.437**	**0.523**	**0.330**	**0.256**
MEAN OVERALL	**0.424**	**0.416**	**0.408**	**0.462**	**0.447**	**0.518**	**0.507**	**0.525**	**0.504**	**0.667**	**0.565**	**0.530**

Taken from Schedule B2 of L. Booth and M. Berkowitz before the National Energy Board
December 2001

	1980	1985	1990	1995	2000	2005	2010	2015	2020
DUKE	0.090	0.390	0.348	0.542	-0.038	0.748	0.445	0.040	0.228
OGE	0.386	0.380	0.301	0.476	0.052	0.348	0.781	0.613	0.670
ALE	0.252	0.570	0.537	0.594	0.003	0.473	0.647	0.614	0.425
PNW	0.338	0.487	0.861	0.472	-0.133	0.646	0.582	0.336	0.254
ES	0.347	0.488	0.450	0.493	0.399	0.457	0.505	0.350	0.282
EVRG	0.513	0.323	0.439	0.651	0.137	0.882	0.647	0.258	0.349
LNT	0.213	0.323	0.275	0.648	0.048	0.425	0.532	0.437	0.295
AEP	0.386	0.508	0.516	0.577	-0.144	0.637	0.572	0.196	0.220
ETR	0.305	0.668	0.814	0.704	-0.002	0.155	0.614	0.339	0.495
EXL	0.392	0.544	0.459	0.536	-0.205	0.364	0.617	0.192	0.413

Appendix A Yahoo Beta estimates and financial data for Canadian UHCs

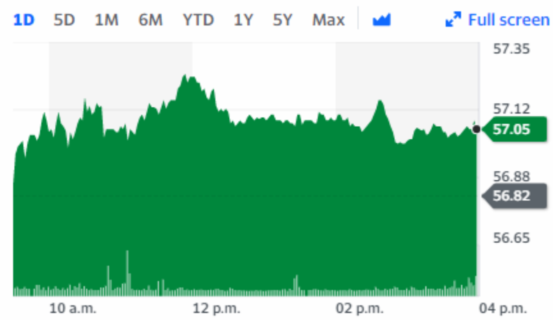
Fortis Inc. (FTS.TO)
Toronto - Toronto Real Time Price. Currency in CAD

Add to watchlist

57.05 +0.23 (+0.40%)
At close: 3:59PM EDT

Summary | Chart | Conversations | Statistics | Historical Data | Profile | Financials | Analysis | Options | Holders | Sustainabilit

Previous Close	56.82	Market Cap	26.882B
Open	56.83	Beta (5Y Monthly)	0.06
Bid	57.06 x 0	PE Ratio (TTM)	21.65
Ask	57.07 x 0	EPS (TTM)	2.63
Day's Range	56.76 - 57.24	Earnings Date	Oct. 28, 2021 - Nov. 01, 2021
52 Week Range	48.97 - 57.32	Forward Dividend & Yield	2.02 (3.56%)
Volume	1,166,648	Ex-Dividend Date	Aug. 18, 2021
Avg. Volume	1,209,204	1y Target Est	58.96



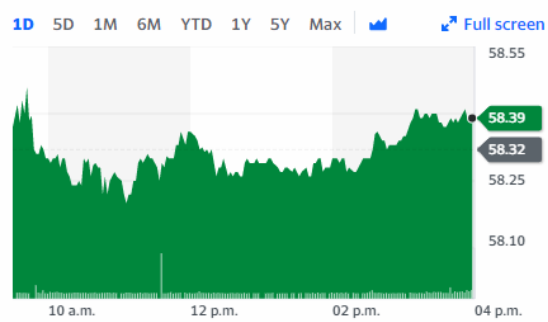
Emera Incorporated (EMA.TO)
Toronto - Toronto Real Time Price. Currency in CAD

Add to watchlist

58.43 +0.11 (+0.19%)
At close: 4:00PM EDT

Summary | Chart | Conversations | Statistics | Historical Data | Profile | Financials | Analysis | Options | Holders | Sustainabili

Previous Close	58.32	Market Cap	14.824B
Open	58.47	Beta (5Y Monthly)	0.22
Bid	58.40 x 0	PE Ratio (TTM)	21.24
Ask	58.41 x 0	EPS (TTM)	2.75
Day's Range	58.18 - 58.47	Earnings Date	Aug. 11, 2021
52 Week Range	49.66 - 58.83	Forward Dividend & Yield	2.55 (4.37%)
Volume	573,672	Ex-Dividend Date	Jul. 30, 2021
Avg. Volume	763,306	1y Target Est	59.82



Canadian Utilities Limited (CU.TO)

Add to watchlist

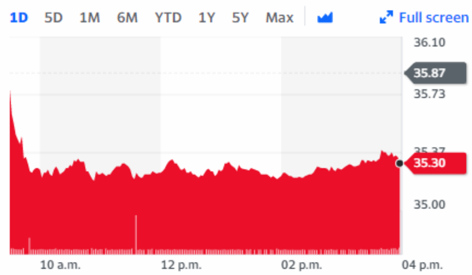
Toronto - Toronto Real Time Price. Currency in CAD

35.35 -0.52 (-1.45%)

At close: 4:00PM EDT

Summary | Chart | Conversations | Statistics | Historical Data | Profile | Financials | Analysis | Options | Holders | Sustainabil

Previous Close	35.87	Market Cap	9.491B
Open	35.95	Beta (5Y Monthly)	0.53
Bid	35.31 x 0	PE Ratio (TTM)	35.07
Ask	35.33 x 0	EPS (TTM)	1.01
Day's Range	35.18 - 35.98	Earnings Date	Oct. 27, 2021 - Nov. 01, 2021
52 Week Range	29.96 - 37.00	Forward Dividend & Yield	1.76 (4.81%)
Volume	719,316	Ex-Dividend Date	Aug. 04, 2021
Avg. Volume	495,468	1y Target Est	36.08



Appendix B. Yahoo Beta estimates and financial data for US Electric companies

Duke Energy Corporation (DUK) Add to watchlist

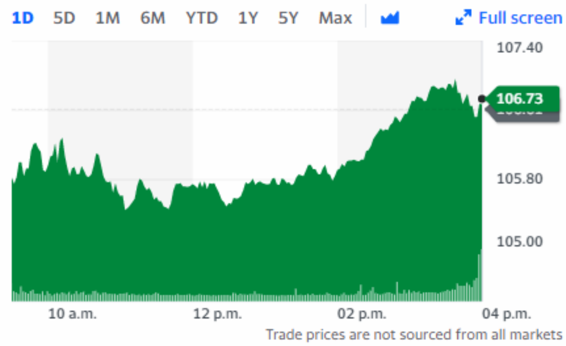
NYSE - Nasdaq Real Time Price. Currency in USD

106.73 +0.12 (+0.11%) **106.70** -0.03 (-0.03%)

At close: 4:02PM EDT After hours: 06:42PM EDT

Summary Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Previous Close	106.61	Market Cap	82.099B
Open	106.29	Beta (5Y Monthly)	0.25
Bid	105.00 x 1400	PE Ratio (TTM)	60.44
Ask	108.00 x 900	EPS (TTM)	1.77
Day's Range	105.37 - 107.00	Earnings Date	Aug. 05, 2021
52 Week Range	78.95 - 108.00	Forward Dividend & Yield	3.94 (3.70%)
Volume	1,709,410	Ex-Dividend Date	Aug. 12, 2021
Avg. Volume	3,092,184	1y Target Est	105.72



Evergy, Inc. (EVRG) Add to watchlist

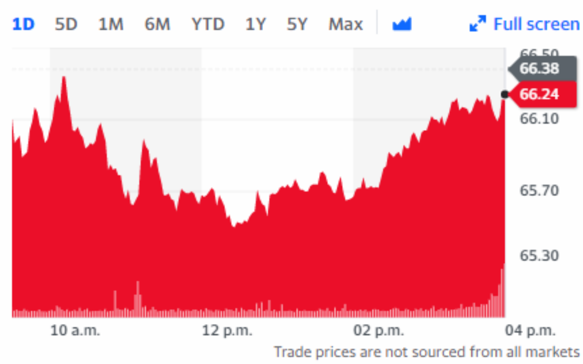
NYSE - NYSE Delayed Price. Currency in USD

66.24 -0.14 (-0.21%) **65.96** -0.28 (-0.42%)

At close: 4:02PM EDT After hours: 04:51PM EDT

Summary Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Previous Close	66.38	Market Cap	15.187B
Open	66.08	Beta (5Y Monthly)	0.36
Bid	66.18 x 800	PE Ratio (TTM)	20.38
Ask	66.97 x 900	EPS (TTM)	3.25
Day's Range	65.50 - 66.34	Earnings Date	Aug. 05, 2021
52 Week Range	48.61 - 66.53	Forward Dividend & Yield	2.14 (3.22%)
Volume	1,233,353	Ex-Dividend Date	May 20, 2021
Avg. Volume	1,236,292	1y Target Est	68.88



OGE Energy Corp. (OGE)

NYSE - NYSE Delayed Price. Currency in USD

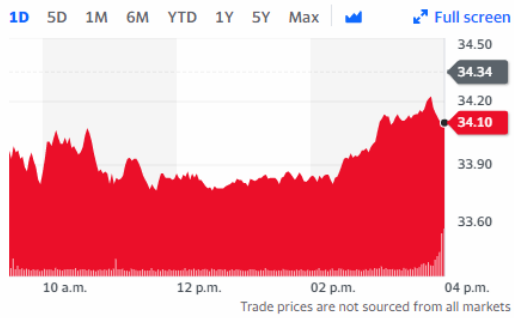
Add to watchlist

34.10 -0.24 (-0.70%) **34.00** -0.10 (-0.30%)

At close: 4:00PM EDT After hours: 04:23PM EDT

Summary Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Previous Close	34.34	Market Cap	6.826B
Open	34.16	Beta (5Y Monthly)	0.65
Bid	33.50 x 900	PE Ratio (TTM)	18.42
Ask	34.50 x 1000	EPS (TTM)	1.85
Day's Range	33.76 - 34.24	Earnings Date	Aug. 05, 2021
52 Week Range	28.25 - 35.46	Forward Dividend & Yield	1.61 (4.69%)
Volume	968,650	Ex-Dividend Date	Jul. 09, 2021
Avg. Volume	1,990,065	1y Target Est	36.56



Pinnacle West Capital Corporation (PNW)

NYSE - NYSE Delayed Price. Currency in USD

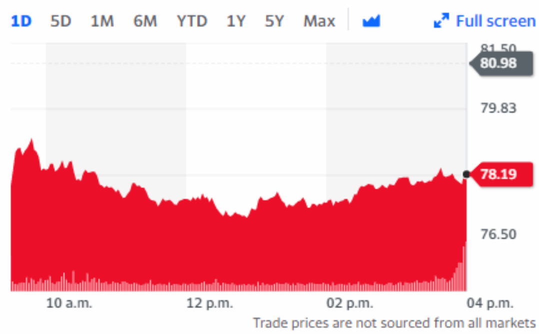
Add to watchlist

78.19 -2.79 (-3.45%) **78.39** +0.20 (0.26%)

At close: 4:03PM EDT After hours: 06:42PM EDT

Summary Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Previous Close	80.98	Market Cap	8.816B
Open	78.81	Beta (5Y Monthly)	0.30
Bid	77.66 x 1200	PE Ratio (TTM)	15.90
Ask	78.55 x 1100	EPS (TTM)	4.92
Day's Range	77.07 - 79.70	Earnings Date	Aug. 05, 2021
52 Week Range	69.29 - 91.88	Forward Dividend & Yield	3.32 (4.10%)
Volume	1,791,129	Ex-Dividend Date	Jul. 30, 2021
Avg. Volume	871,464	1y Target Est	87.31



ALLETE, Inc. (ALE)
NYSE - Nasdaq Real Time Price. Currency in USD

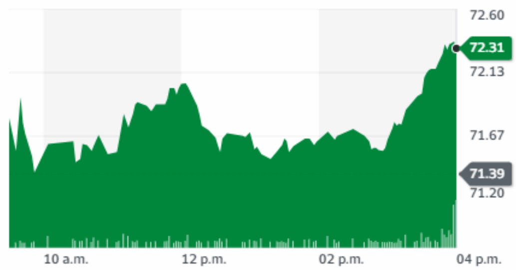
Add to watchlist

72.31 +0.92 (+1.29%) **72.31** 0.00 (0.00%)
At close: 4:00PM EDT After hours: 04:04PM EDT

Summary Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Previous Close	71.39	Market Cap	3.774B
Open	71.80	Beta (5Y Monthly)	0.47
Bid	72.10 x 800	PE Ratio (TTM)	22.55
Ask	74.00 x 900	EPS (TTM)	3.21
Day's Range	71.40 - 72.38	Earnings Date	Aug. 04, 2021
52 Week Range	49.91 - 72.60	Forward Dividend & Yield	2.52 (3.52%)
Volume	127,503	Ex-Dividend Date	Aug. 13, 2021
Avg. Volume	204,148	1y Target Est	71.20

1D 5D 1M 6M YTD 1Y 5Y Max Full screen



Trade prices are not sourced from all markets

Eversource Energy (ES)
NYSE - Nasdaq Real Time Price. Currency in USD

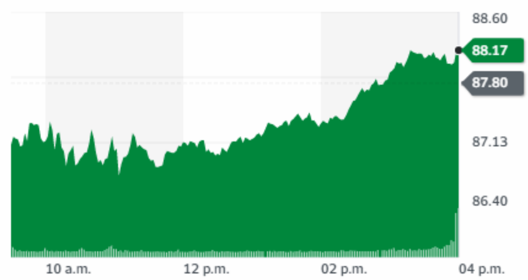
Add to watchlist

88.17 +0.37 (+0.42%) **88.17** 0.00 (0.00%)
At close: 4:00PM EDT After hours: 04:41PM EDT

Summary Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Previous Close	87.80	Market Cap	30.33B
Open	87.31	Beta (5Y Monthly)	0.32
Bid	88.06 x 900	PE Ratio (TTM)	24.30
Ask	88.19 x 1100	EPS (TTM)	3.63
Day's Range	86.71 - 88.21	Earnings Date	Nov. 01, 2021 - Nov. 05, 2021
52 Week Range	76.64 - 96.66	Forward Dividend & Yield	2.41 (2.74%)
Volume	1,209,599	Ex-Dividend Date	May 19, 2021
Avg. Volume	1,622,798	1y Target Est	91.06

1D 5D 1M 6M YTD 1Y 5Y Max Full screen



Trade prices are not sourced from all markets