

APPENDIX C

RELATIVE RISK ASSESSMENT FOR A BENCHMARK UTILITY

1 **Introduction**

2 In risk premium models the relative risk coefficient adjusts the overall market risk premium up
3 or down depending on whether the individual security (company) is more or less risky than the
4 market as a whole. More risky stocks have a relative risk coefficient greater than 1.0 and less
5 risky stocks a relative risk coefficient less than 1.0. Averaging over all securities in the market
6 gives a relative risk coefficient by definition of 1.0. All risk premium models have this same risk
7 assessment relative to the market, whether they are the capital asset pricing model (CAPM)¹
8 where the only source of risk is the market risk, or models that introduce other sources of risk.
9 However, even within a two factor model, where the long Canada bond is regarded as risky due
10 to interest rate risk,² or the Fama-French three factor model³ where size and the market to book
11 ratio (in their model termed the book to market ratio) are additional sources of risk, the
12 coefficient on the market is still the main measure of risk. Estrada,⁴ for example, shows that for
13 the DOW 30 US stocks the simple CAPM expected return at 9.70% is only 0.20% more than the
14 estimate from the three factor Fama-French Model and that the market risk premium is much
15 larger than either the size or book to market premiums.

16 Since the overall market return is the benchmark, the relative risk assessment is with respect to
17 this benchmark. Statistically this relative risk coefficient is the *expected* or forecast covariance⁵
18 between the security's return and that on the market scaled by the variance of the return on the
19 market. This is called the security's beta coefficient (β) and measures the contribution of the
20 security to the risk of a diversified portfolio. We normally estimate actual historic beta estimates

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.

1 by a simple ordinary least squares (OLS) regression of the security's return on that of the market.
2 In any OLS regression the intercept is called alpha and the slope coefficient is called beta, which
3 is why these terms are used pervasively in finance. However, estimating actual beta coefficients
4 entails the exact same estimation problems as estimating the market risk premium, since *both* use
5 actual or historic returns. This is, that any estimate is very sensitive to what happened during the
6 estimation period. For example if something like a major stock market crash happens once every
7 20 years then beta coefficients estimated over the last five years will only capture this 25% of the
8 time. The other 75% of the time the betas will be estimated over a period that does not include a
9 major stock market crash.

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

17 **Historic Beta Estimates for Canadian utilities**

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

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

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

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

16 Using this procedure over 30 years of data (1988-2017) I can pick up the impact of unique
17 events. For example, the utility betas were both in a range of 0.40-0.60 until 1997. The betas
18 then dropped to negative values during 2001-2004 before reverting to more “normal” levels. Did
19 this mean that utility shares had no risk during this period and deserved a negative market risk
20 premium? The answer is no, since a special event, the behaviour of Nortel and the Internet
21 bubble, drove the estimates. During the late 1990s, the technology and internet boom were
22 driving North American markets up as the prices of Nortel and JDS Uniphase⁷ increased and
23 came to represent 1/3 of the value of the Canadian stock market. When this boom turned into a
24 crash and Nortel declined from \$1,240 to zero with its bankruptcy, Nortel took the Canadian
25 market down with it.

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.

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

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

18 This statistical result echoes the comment of former RBC utility analyst Maureen Howe who
19 commented that Canadian utilities are⁸

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

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

27 In Schedule 2 are the results of two multiple regression estimates of utility risk. The first panel
28 has the estimates for the entire period from 1988 where the utility beta is 0.26 and the gamma

8 October, 3,,2001 RBC Morning Comment.

1 0.43. This means that over the whole period utilities had 26% of the exposure of an average
2 stock to the market and 43% of the exposure of the long Canada bond to interest rates. However
3 as noted previously this period reflects the Internet bubble and crash. In the second panel are the
4 estimates for the last five year period ending in 2017. For this period the beta estimate is 0.401
5 closer to traditional levels and the gamma 0.776. Note that in all cases both the beta and gamma
6 coefficients are highly significant.

7 If the Nortel/JDS Uniphase effect distorts Canadian beta estimates we can look at the returns
8 against the US market index. This might reduce the impact due to the greater diversity of the US
9 market. To examine this, the graph in Schedule 2 uses the hedged US S&P500 index as the
10 market instead of the TSX composite. However, it is clear that the Nortel/JDS Uniphase effect is
11 just as dramatic since the internet bubble if anything was more dramatic in the US. Moreover, the
12 most recent beta estimates, whether single measured against the US market alone or two factor
13 with the effect of interest rates, are lower than with the Canadian market index. This is possibly
14 due to the current FAANG dominated US market that has no counterpart in Canada.⁹

15 We can see the same effects in the average beta estimates in Schedule 3, where I have split the
16 few remaining Canadian utility-like stocks into pipeline and utility holding company (UHC)
17 samples. The individual values estimated, since the 1996-2000 period, are in Schedule 4. The low
18 risk UHC sample consists of Canadian Utilities (CU), Fortis (FTS), Emera (EMA) and Gaz
19 Metro (GMI) through Valener (VNR).¹⁰ The Pipeline sample consists of TransCanada
20 Corporation (TRP), Enbridge Inc. (ENB), and Pembina (PPL), which almost doubled its size by
21 purchasing Fort Chicago Energy Partners (Veresen).¹¹ During the internet bubble and crash both
22 samples show very low and negative betas, but once these events passed out of the estimation
23 window they recovered to more normal levels. For the UHCs recent average betas have been
24 around 0.20, whereas the betas of the pipeline sample have recently been much higher reflecting
25 all the uncertainties surrounding pipeline expansions in both the US and Canada.

9 FAANG stands for Facebook, Amazon, Apple, Netflix and Google.

10 As of November 29, 2017 GMI is now known as Energir.

11 Pembina purchased Veresen October 2, 2017.

1 Consistent with the data in Schedules 1-5, I judge the interest sensitivity of these companies has
2 caused them to trade based on their defensive or income characteristics during this recent period
3 of very low interest rates. This is evident from the fact that their betas vary inversely with their
4 interest sensitivity. As interest rates increase back to normal levels, I would expect their betas to
5 increase as they trade less on their bond values and more as regular equities. I would therefore
6 expect some tendency for their betas to revert back to their long run average level: for the market
7 as a whole this is 1.0, but for regulated firms I have normally judged this to be about 0.45-0.55.

8 **US utility stocks as a comparison**

9 Given the diminishing number of Canadian utility stocks I have been forced to look at samples of
10 US utility holding companies. In doing this I have traditionally used the intersection of two
11 samples used previously by Ms. McShane and Dr. Vilbert both of whom have appeared before
12 Canadian boards on behalf of utilities. The intent here has been to avoid cross examination on
13 the risks of these particular companies as the intersection of these two “samples” might be
14 regarded as a smaller and unambiguously purer set of low risk US utilities. However, the US has
15 not been immune from the M&A activity that has reduced the number of Canadian UHCs. For
16 example, the sample of US gas UHCs that I used as recently as 2016 has been reduced by the
17 purchase by AltaGas of WGL on July 6, 2018 and the purchase of Piedmont Natural Gas by
18 Duke Energy on October 31, 2016.

19 In the same way as recently as 2016 I used a sample of 7 US electric companies used by Mr.
20 Coyne of Concentric Energy. These companies were: Duke Energy (DUK), Allele Inc.,(ALE)
21 Eversource (ES), Great Plains Energy Inc., (GXP) OGE Energy Corp (OGE), Pinnacle West
22 Capital (PWN) and Westar Energy Inc.(WR), However, Westar and Great Plains merged to
23 create Evergy (EVRG) on May 24, 2018 which reduces the sample to 6. Recently Mr. Coyne has
24 added Southern Company as well as several others, but for consistency I will continue with this
25 sample.¹²

12 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.

1 Schedule 6 provides a graph of the average beta estimates for the gas companies back to 1990
2 with the most recent betas in Schedule 7. The betas are estimated in the same way as for the
3 Canadian betas from monthly holding period returns over a five year time period updated
4 monthly. The estimates from these US gas utilities behave in a similar manner as for the
5 Canadian utility holding companies. This is clear from the observation that they also exhibit an
6 “internet bubble” effect, although not quite as severe as for the Canadian utility holding
7 companies. However, the most recent average level of the betas from these companies is
8 significantly higher than for the Canadian companies at 0.53, although, the median value is less
9 at 0.43.

10 Schedule 8 provides a graph of the average beta estimates for the US electric companies with the
11 individual values in Schedule 9. Again we see the Internet bubble effect, where prior to 1998
12 average betas were about 0.55 and after 2005 they increased to about 0.80 before trending down
13 to end 2017 at an average of 0.47, although the median beta is slightly less at 0.43. Again, it is
14 clear from the graph that US electric company betas are higher than for the regulated UHCs in
15 Canada.

16 Since the December 2007 estimates (post internet bubble, 2003-2007) the average beta for the
17 sample of lower risk Canadian UHCs has been 0.20. In contrast, the average for the US gas
18 companies has been 0.42 and that for the US electric companies 0.53. These differences imply an
19 average beta difference of 0.22 between Canadian UHCs and US gas companies and 0.33
20 between Canadian UHCs and US electric companies. The data indicate clear differences in the
21 risk perception of Canadian UHCs relative to both US electric and gas holding companies.

22 **Adjusted betas**

23 It is always necessary to adjust betas since they are only estimates of what actually happened
24 over a particular time period, whereas what is needed is an estimate of what is likely to happen in
25 the future. Utility witnesses frequently adjust utility betas toward the overall market average beta
26 of 1.0. As low risk businesses this *inevitably* increases utility betas to what are called “adjusted

1 beta.” Such a process is justified by the seminal work of Marshall Blume¹³ who showed that if
2 there is measurement error, when we estimate a very low beta the chances are that the “true” beta
3 is underestimated and vice versa. For the whole *universe* of stocks he recommended that we
4 adjust betas by taking 2/3 of the estimated beta and adding 0.33, which essentially means
5 weighting them 1/3 with the market average beta of 1.0 and 2/3 with the actual beta. This
6 procedure means that low betas are increased and high betas are reduced.

7 However, low estimates for utilities do not mean they are under-estimated and need adjusting,
8 since utility betas are perennially low due to their low risk. Instead, as Gombola and Kahl¹⁴
9 demonstrated utility betas are better mechanically adjusted by weighting with their grand mean.
10 If I were to do this with a long run beta of 0.50, I would get an adjusted beta as follows:

11 Adjusted beta = $0.67 * 0.40 + 0.33 * 0.5 = 0.43$ for the utility sub index

12 Adjusted beta = $0.67 * 0.2 + 0.33 * 0.5 = 0.30$ for the individual large companies

13 This type of adjustment is consistent with the recent work of Michelfelder and Theodossiou¹⁵
14 who looked specifically at whether the Blume adjustment mechanism worked for US utility
15 betas. They looked at betas estimated for utility holding companies over 5, 7, 8 and 9 year
16 periods of non-overlapping data. That is rather than my rolling betas they looked at periods
17 where no monthly return was used twice. They then estimated a Blume type regression model of
18 the estimated beta against the previous period’s beta and concluded

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

13 Marshall Blume, Betas and their regression tendencies, Journal of Finance, June 1975 .

14 This is also accepted in the literature. Gombola and Kahl, “Time series properties of utility betas,”
Financial Management, 1990, come to the same conclusion. .

15 Michelfelder and Theodossiou, Public Utility beta adjustment and biased costs of capital in public
utility rate proceedings,” The Electricity Journal, 2013, pp 60-68.

1 All the significance in these regressions came from the constant; the prior period beta estimate
2 had no predictive power for the future beta regardless of whether the betas were estimated over
3 5, 7, 8 or 9 years of data.

4 The work of Gombola and Kahl and Michelfelder and Theodossiou is the only research that I
5 am aware of that specifically looks at the adjustment tendency of utility betas. It is almost a
6 truism that across all stocks they should have a tendency to revert to 1.0, since that is the average
7 of all stocks. However, this does not mean that this process holds for subsets of stocks that are
8 perennially either low or high risk. A utility with an actual beta of say 0.80 in one period is much
9 more likely to have a beta closer to 0.50 next period than a Blume adjusted beta of 0.87.
10 However, rather than any mechanical weighting I generally prefer to use judgment constrained
11 by the actual historic evidence of the low risk nature of utility holding companies.

12 **Frequency of beta estimation**

13 Another issue is the frequency with which betas are estimated. The standard in academic work is
14 to estimate them over 5 years of monthly data. For example, the standard data base used by US
15 academics (Centre for Research in Security prices or CRSP) traditionally only had monthly data.
16 More recently, it has added daily data which is used for certain types of analysis such as an
17 “event study” where we look at the impact of, for example, a dividend announcement in the days
18 before or after it occurred. However, it is well known that betas are biased when estimated over
19 high frequencies such as using weekly data. The reason for this is that many stocks do not trade
20 that actively so their prices are stale and do not reflect recent events. As a result, their betas are
21 downward biased. There are “thin trading” adjustments for this, but since the average of all betas
22 is 1.0, thickly traded betas are biased high, that is, as the estimation frequency becomes shorter
23 and shorter the betas for larger firms gets bigger and bigger and that for smaller firms lower and
24 lower.

25 Hawawini¹⁶ looked at this problem and concluded

16 Gabriel Hawawini, “why beta shifts as the return interval changes,” *Financial Analysts Journal*, (May-June 1983).

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

5
6 Why this is important is that Mr. Troganoski uses adjusted betas estimated over weekly horizons
7 (page 33) from Value Line and Bloomberg. I regard these betas as doubly biased, once because
8 they are adjusted toward 1.0 and second because they are estimated over weekly time horizons
9 for utilities with relatively large market capitalisations.¹⁷

10 **Public market beta estimates**

11 From the prior discussion, betas can be estimated over a variety of time horizons; 5 years of
12 monthly data is the norm but Michelfelder and Theodossio, for example, used 5, 7, 8, and 9
13 years of monthly data. We would therefore not expect all beta estimates from different sources to
14 be the same; this requires that everyone use the same estimation window which is highly
15 unlikely. To look at the range of estimates I collected the following beta estimates as reported by
16 RBC, Yahoo, Value Engine (VE), and RT (the Research Team) on January 10, 2019 as well as
17 my own estimates up until December 2017.

18 The following represents the estimates for the Canadian firms.

	Canadian Betas					
	VE	RT	RBC	Yahoo	Average	Booth
TransCanada	0.42	0.78	0.92	0.49	0.65	0.57
Enbridge	0.18	0.56	0.8	1.3	0.71	0.62
Pembina	0.42	1.13	1.13	0.8	0.87	0.79
Average					0.74	0.66
Canadian Utilities	0.11	0.37	0.37	0.49	0.34	0.49
Fortis	-0.09	0.02	0.02	-0.03	-0.02	0.01
Emera	0.11	0.12	0.12	0.28	0.16	0.00
GMI (VNR)	0.17	0.39	0.39	0.4	0.34	0.15
Average					0.20	0.16

19

17 Value Line is a private subscription service while Bloomberg is a data and analytics provider. In particular, Bloomberg provides the data but Mr. Troganoski “clicked” for weekly betas over five years and adjusted them. He could have clicked for conventional unadjusted betas estimated over 5 years of monthly data.

1 For the pipeline sample my average beta estimate is 0.66 using data up until the end of 2017,
 2 whereas the average for these independent services is 0.74. However, there is a wide range
 3 across these services with TransCanada's beta, for example, ranging from 0.42 from Value
 4 Engine to 0.92 from RBC. Similarly, Enbridge's beta ranges from 0.18 from Value Engine to
 5 1.13 from both RBC and the research team. In both cases, I suspect these wide differences are
 6 largely due to the time period over which the betas are estimated and whether or not they capture
 7 good or bad news on approvals for pipeline expansions. For the four Canadian UHCs my average
 8 beta is 0.16 whereas the average from the four services is 0.20. This indicates the continued low
 9 risk nature of Canadian UHCs, since the highest beta is the 0.49 for CU.¹⁸ It also indicates that
 10 these services do not adjust their beta estimates using the Blume methodology, since with an
 11 actual beta of 0 the Blume adjustment would give a beta of 0.33 and the average beta for these
 12 UHCs is less than that.

13 For the US gas companies their beta estimates are below. The average from the independent
 14 services is 0.24 whereas my own estimate is higher at 0.50. Interestingly, the highest beta
 15 estimate is from RBC for both Vectren and Southwest Gas at 0.51 slightly higher than the 0.49
 16 from RBC for CU in Canada. However, just as my average beta estimate for these gas companies
 17 is 0.50 versus 0.20 for the Canadian UHCs, these services also have higher average betas for the
 18 US gas companies (0.24) versus the Canadian UHCs (0.20), although not quite as pronounced.

19

	US Gas Companies					
	VE	RT	RBC	Yahoo	Average	Booth
Spire	0.18	0.18	0.07	-0.26	0.04	0.31
Vectren	0.31	0.34	0.51	0.08	0.31	0.84
NorthWest	0.42	0.38	0.33	0.21	0.34	0.40
New Jersey	0.34	0.30	0.27	-0.01	0.23	0.40
Atmos	0.15	0.18	0.18	-0.03	0.12	0.41
SouthWest	0.37	0.35	0.51	0.33	0.39	0.62
Average	0.30	0.29	0.31	0.05	0.24	0.50

20

21 Finally the following table gives the beta estimates for the US Electric companies.

¹⁸ The Yahoo beta estimates with pertinent financial data for the four Canadian UHCs are in Appendix A.

	US Electrics					
	VE	RT	RBC	Yahoo	Average	Booth
Duke	0.01	0.02	0.02	-0.09	-0.01	0.25
Allette	0.29	0.26	0.26	0.11	0.23	0.48
Eversource	0.26	0.28	0.28	0.15	0.24	0.32
OGE	0.52	0.55	0.55	0.58	0.55	0.92
Pinnacle West	0.17	0.16	0.16	-0.08	0.10	0.39
Evergy	0.28	0.31	0.31	0.24	0.29	0.32
<u>Average</u>	0.26	0.26	0.26	0.15	0.23	0.45

1

2 Again my own average beta estimate at 0.45 is higher than the average of these sources of 0.23
 3 largely due to my estimate for OGE. However, again if the actual beta were zero a Blume
 4 adjustment would mean an adjusted beta of 0.33 whereas the average from these sources is less
 5 than that at 0.29.

6 Of importance is that the way these estimates are derived appears to be consistent with
 7 conventional practise. One of the biggest data providers in Canada is the Financial Post, where
 8 their Corporate Analyzer data base includes ten year financial data for larger publicly listed
 9 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.

10

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

Conclusion

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

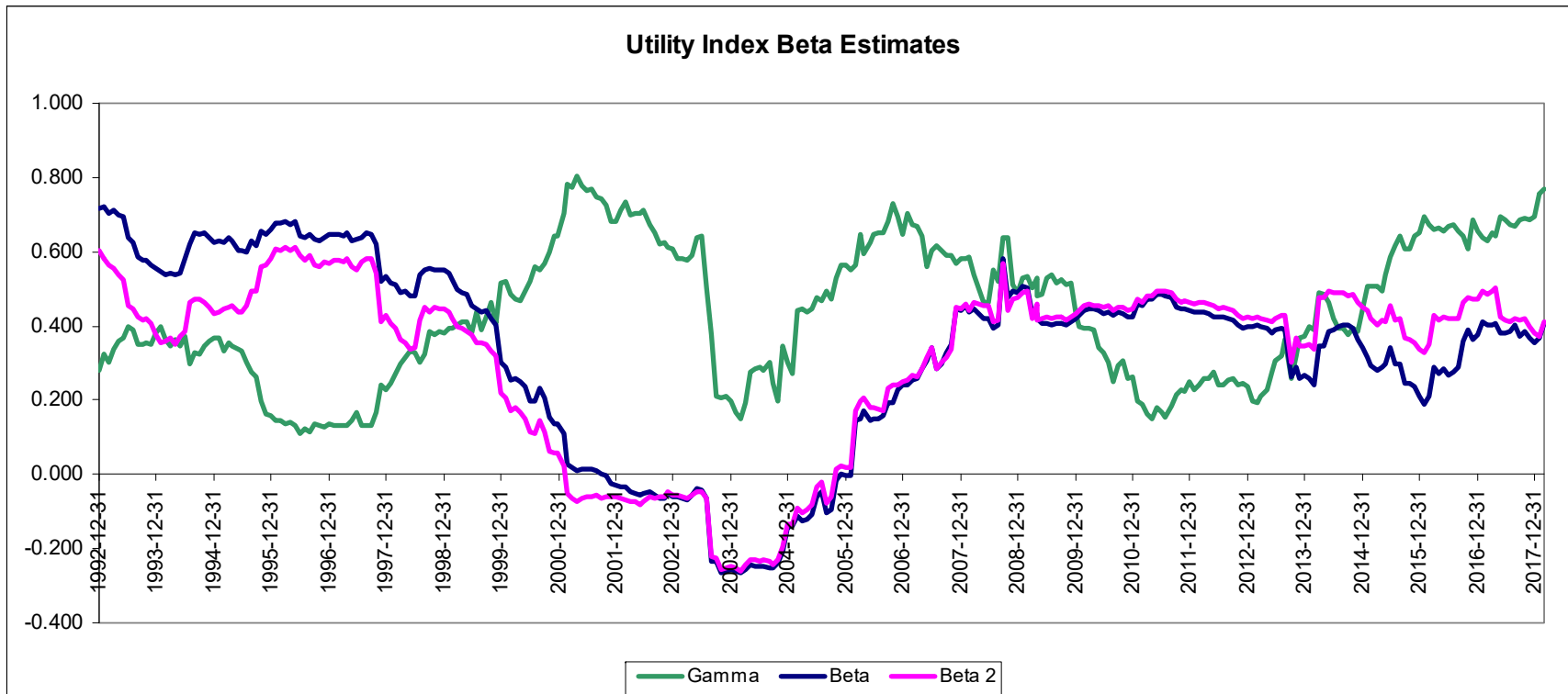
- I recognise that the low values during the internet bubble period were an anomaly

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- I analyse the utility sub index versus individual Canadian firms
- I check the Canadian estimates against those from two US samples of gas and electric 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.

10 I would also note that the betas from both US gas and electric utilities are marginally higher than
11 for the Canadian UHCs. However, the betas for the US companies have dropped significantly
12 from my estimates up until 2017. I suspect this is due to their performance during 2018, which
13 has been a bad year for the equity market. As the US stock market has corrected verging on a
14 crash, US utility stocks have not significantly dropped causing their betas to fall. This is the very
15 situation referred to by RBC security analyst Maureen Howe. When 2018 data is available for
16 these companies I expect my beta estimates to drop as well.

17 From this analysis, I can see no reason that would cause me to deviate from my normal generic
18 risk assessment for a Canadian utility of a beta range of 0.45-0.55. In fact, the persistent low beta
19 estimates suggest that an even lower risk assessment may now be appropriate.



<i>Regression Statistics</i>	
Multiple R	0.443
R Square	0.196
Adjusted R Square	0.192
Standard Error	3.283
Observations	363

Utilities Against the Stock Market and Bond Returns
1988-2018

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	947.6064767	473.8032	43.947025	8.37E-18
Residual	360	3881.244871	10.78124		
Total	362	4828.851348			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.189	0.175	1.079	0.281	-0.156	0.534	-0.156	0.534
TSX	0.269	0.044	6.135	0.000	0.183	0.355	0.183	0.355
CANRET	0.460	0.073	6.271	0.000	0.316	0.604	0.316	0.604

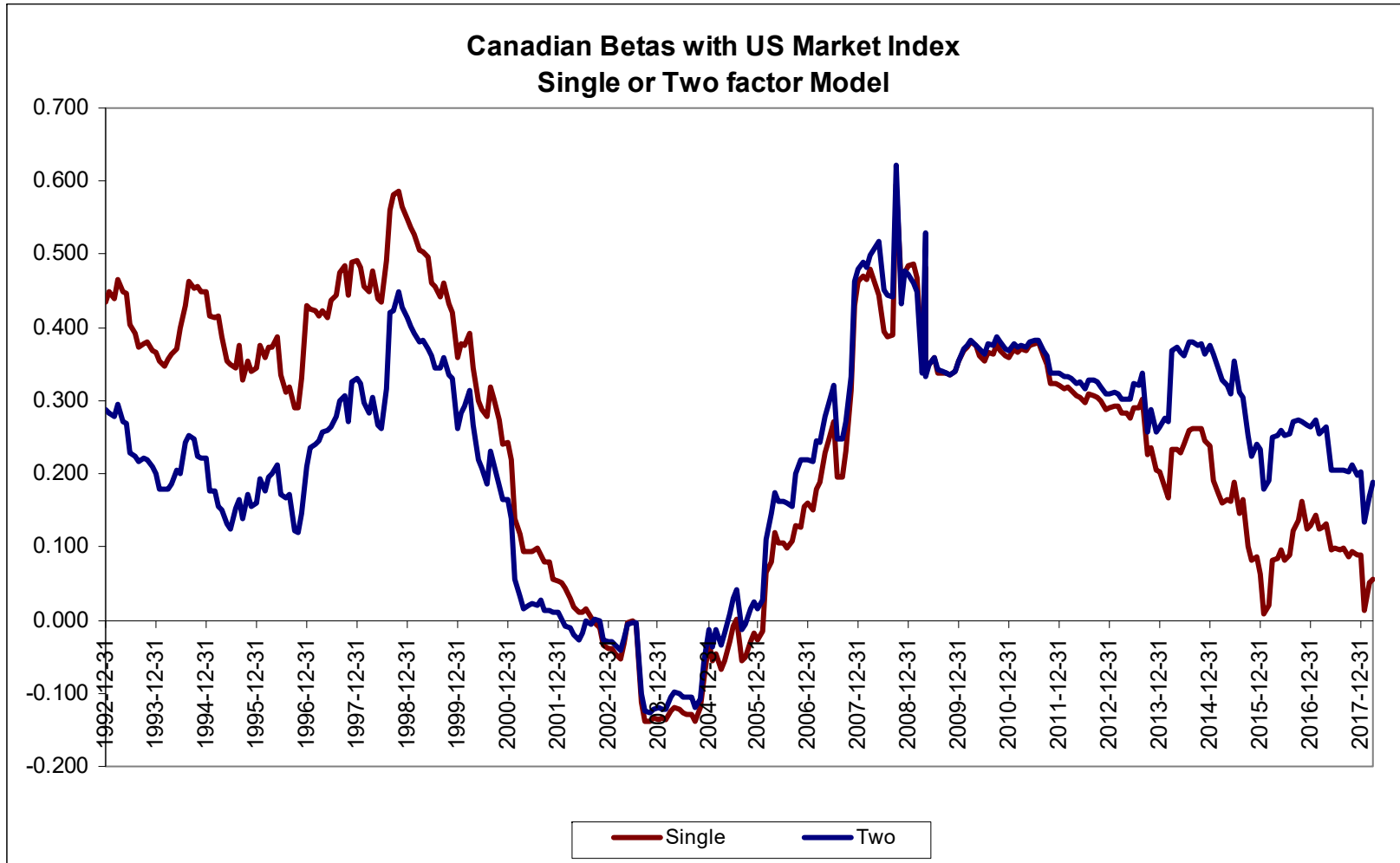
<i>Regression Statistics</i>	
Multiple R	0.626
R Square	0.391
Adjusted R Square	0.370
Standard Error	2.538
Observations	60

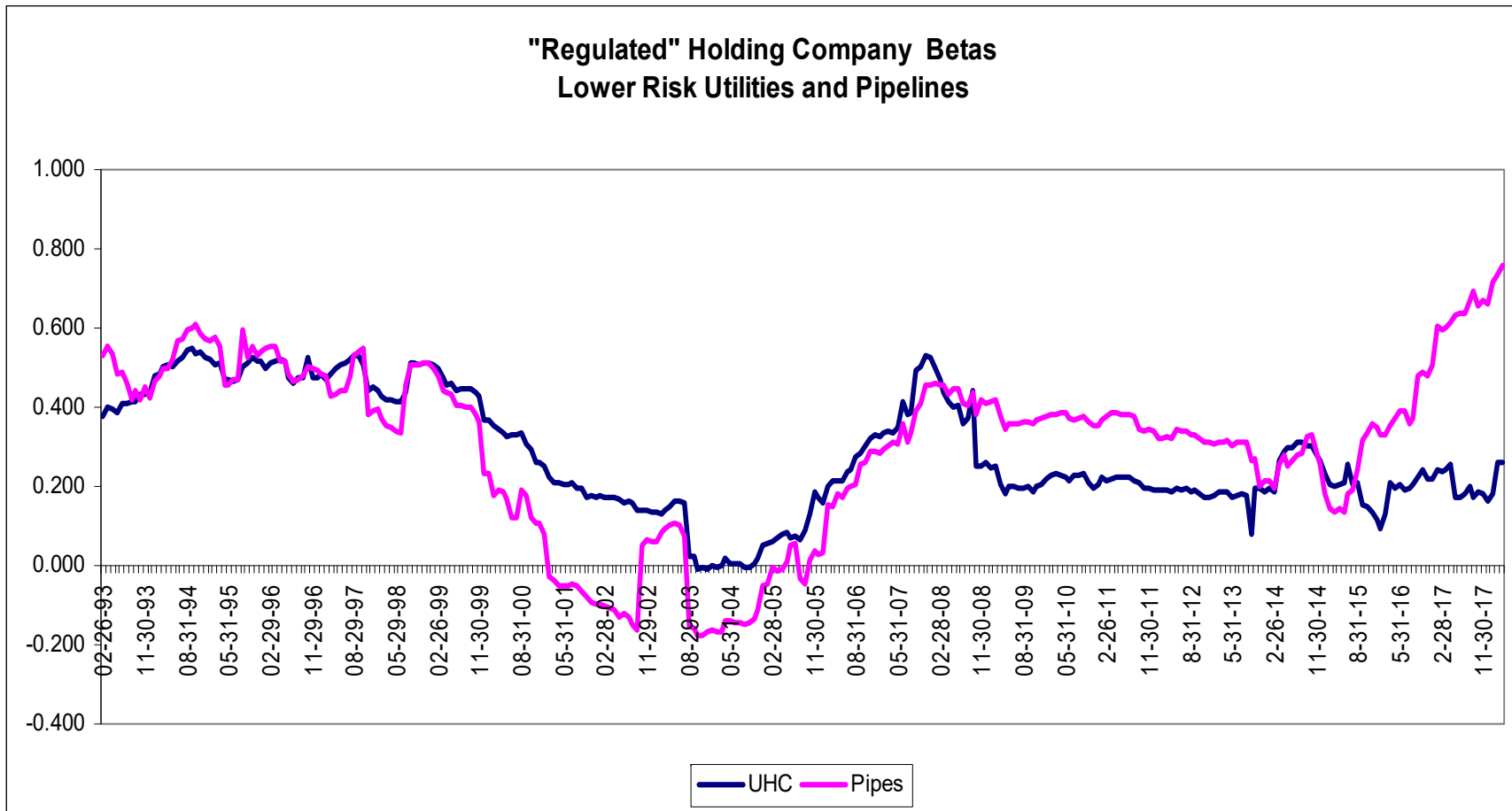
Utilities Against the Stock Market and Bond Returns
2013-2018

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	236.2506192	118.1253	18.334383	7.11E-07
Residual	57	367.2413023	6.44283		
Total	59	603.4919215			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	0.100	0.338	0.297	0.768	-0.576	0.777	-0.576	0.777
TSX	0.401	0.149	2.697	0.009	0.103	0.698	0.103	0.698
CANRET	0.776	0.143	5.440	0.000	0.490	1.062	0.490	1.062

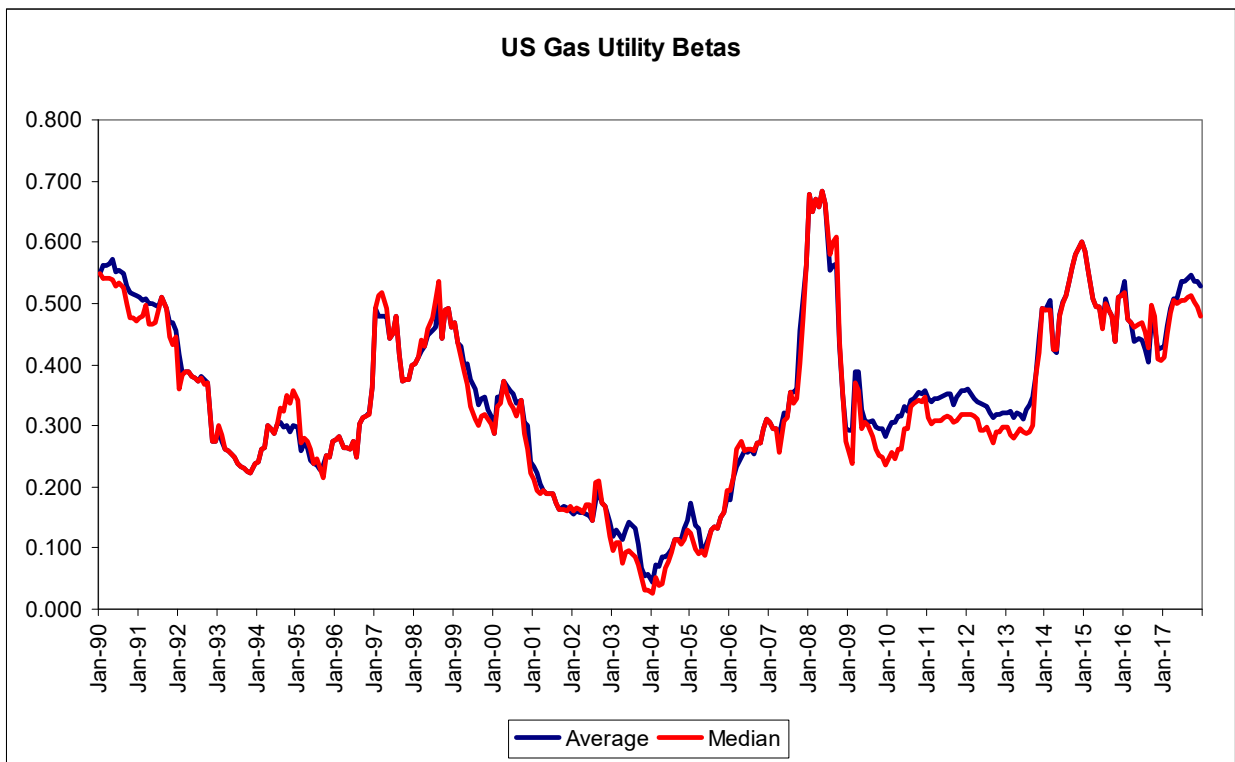




Canadian Utility Holding Companies (UHCs) and Pipelines

	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			-0.14
12-31-03	0.05	-0.05	-0.05	0.02	-0.01	-0.40	-0.40	0.02		-0.26
12-31-04	0.03	-0.02	0.03	0.16	0.05	-0.32	-0.19	0.10		-0.13
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

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

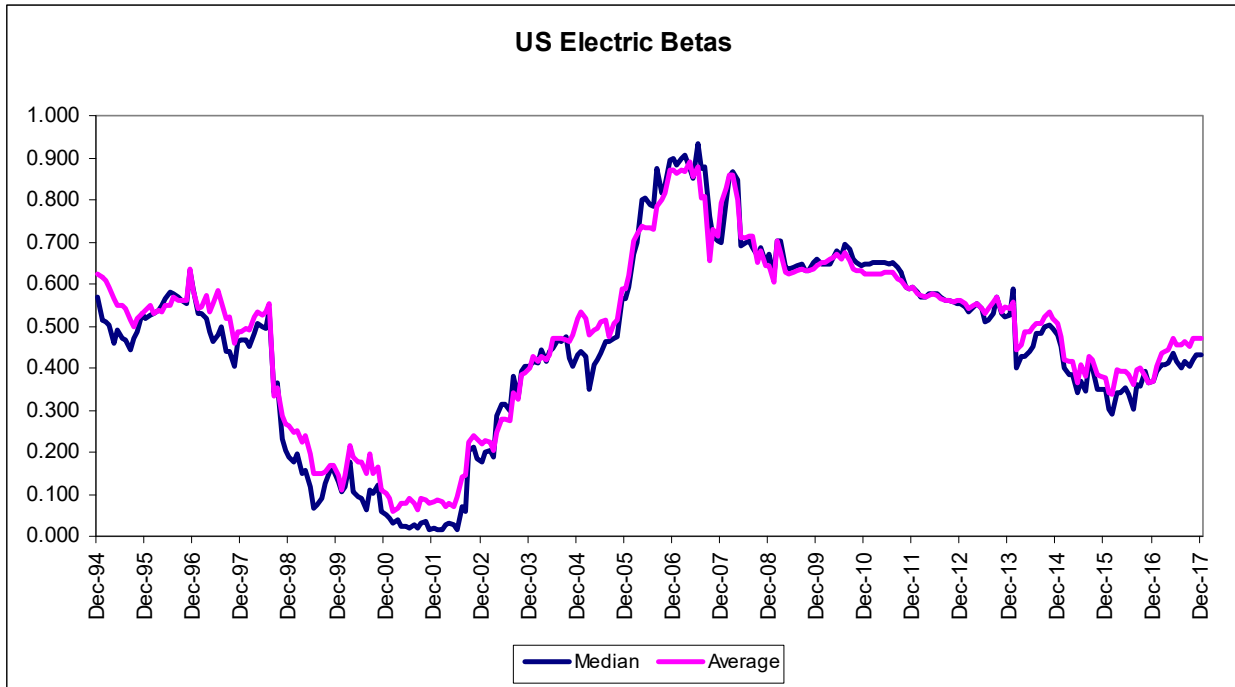


SCHEDULE 7

	US Gas Company Betas									Average	Median
	VVC	WGL	PNY	NWN	NJR	LG	ATO	SWX			
2000-12-29	0.22	0.26	0.17	0.12	0.36	0.21	-0.02	0.61	0.24	0.22	
2001-12-31	0.17	0.21	0.17	0.08	0.24	0.05	-0.18	0.54	0.16	0.17	
2002-10-31	0.22	0.21	0.20	0.01	0.16	0.04	-0.01	0.57	0.17	0.18	
2003-12-31	0.36	0.14	-0.05	-0.21	0.03	0.01	-0.01	0.19	0.06	0.02	
2004-12-31	0.40	0.21	0.10	-0.04	0.09	0.13	0.01	0.28	0.14	0.11	
2005-12-30	0.34	0.22	0.26	0.06	-0.04	0.15	0.19	0.26	0.18	0.21	
2006-12-29	0.52	0.27	0.34	0.14	0.03	0.49	0.45	0.23	0.31	0.31	
2007-12-31	0.49	0.57	0.46	0.60	0.44	0.79	0.72	0.42	0.56	0.53	
2008-12-31	0.27	0.26	0.10	0.36	0.14	0.10	0.50	0.63	0.30	0.27	
2009-12-31	0.37	0.16	0.18	0.24	0.12	0.01	0.49	0.70	0.28	0.21	
2010-12-31	0.43	0.27	0.27	0.35	0.22	0.08	0.51	0.73	0.36	0.31	
2011-12-30	0.39	0.29	0.31	0.32	0.25	0.06	0.50	0.72	0.36	0.32	
2012-12-31	0.35	0.22	0.30	0.26	0.23	0.07	0.44	0.69	0.32	0.28	
2013-12-31	0.53	0.43	0.56	0.39	0.44	0.32	0.54	0.73	0.49	0.48	
2014-12-31	0.53	0.71	0.63	0.57	0.62	0.45	0.57	0.73	0.60	0.59	
2015-12-31	0.46	0.55	0.85	0.31	0.53	0.37	0.43	0.59	0.51	0.50	
2016-12-30	0.63	0.56		0.31	0.39	0.35	0.27	0.47	0.43	0.39	
2017-12-29	0.84	0.68		0.40	0.43	0.31	0.41	0.62	0.53	0.43	

Notes:

- 1) WGL was purchased By AltaGas July 6, 2018
- 2) Laclede Group (LG) was renamed Spire (SR) May 4, 2016
- 3) Piedmont Natural Gas was purchased by Duke Energy October 31, 2016



	US Electric Company Betas							Average	Median
	DUK	OGE	ALE	GXP	PNW	WR	ES		
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

Appendix A Yahoo Beta estimates and financial data for Canadian UHCs

Valer Inc (VNR.TO)

Toronto - Toronto Delayed Price. Currency in CAD

[★ Add to watchlist](#)

20.53 +0.47 (+2.34 %)

At close: 4:21PM EST

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Previous Close	20.06	Market Cap	806.172M
Open	20.03	Beta (3Y Monthly)	0.40
Bid	20.19 x 0	PE Ratio (TTM)	17.27
Ask	20.55 x 0	EPS (TTM)	1.19
Day's Range	19.93 - 20.68	Earnings Date	08-Feb-2019
52 Week Range	18.10 - 22.59	Forward Dividend & Yield	1.20 (6.24%)
Volume	90,092	Ex-Dividend Date	2018-12-28
Avg. Volume	60,747	1y Target Est	21.67



Fortis Inc. (FTS.TO)

Toronto - Toronto Delayed Price. Currency in CAD

[★ Add to watchlist](#)

45.46 +0.51 (+1.13%)

At close: 4:00PM EST

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Previous Close	44.95	Market Cap	19.393B
Open	45.02	Beta (3Y Monthly)	-0.03
Bid	45.30 x 0	PE Ratio (TTM)	19.80
Ask	45.54 x 0	EPS (TTM)	2.30
Day's Range	44.83 - 45.50	Earnings Date	15-Feb-2019
52 Week Range	39.38 - 47.36	Forward Dividend & Yield	1.80 (3.99%)
Volume	838,367	Ex-Dividend Date	2019-02-14
Avg. Volume	1,469,976	1y Target Est	48.53



Emera Incorporated (EMA.TO)

Toronto - Toronto Delayed Price. Currency in CAD

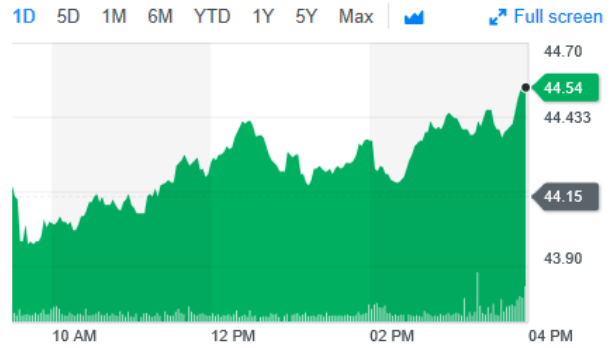
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44.54 +0.39 (+0.88%)

At close: 4:00PM EST

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Previous Close	44.15	Market Cap	10.376B
Open	44.18	Beta (3Y Monthly)	0.28
Bid	44.41 x 0	PE Ratio (TTM)	40.71
Ask	44.54 x 0	EPS (TTM)	1.09
Day's Range	43.96 - 44.56	Earnings Date	07-Feb-2019 - 11-Feb-2019
52 Week Range	38.09 - 46.74	Forward Dividend & Yield	2.35 (5.40%)
Volume	557,003	Ex-Dividend Date	2018-10-31
Avg. Volume	886,280	1y Target Est	47.57



Canadian Utilities Limited (CU.TO)

Toronto - Toronto Delayed Price. Currency in CAD

[Add to watchlist](#)

32.54 +0.34 (+1.06%)

At close: 4:00PM EST

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Previous Close	32.20	Market Cap	8.844B
Open	32.19	Beta (3Y Monthly)	0.49
Bid	32.50 x 0	PE Ratio (TTM)	23.08
Ask	32.55 x 0	EPS (TTM)	1.41
Day's Range	32.14 - 32.61	Earnings Date	20-Feb-2019 - 25-Feb-2019
52 Week Range	29.12 - 36.72	Forward Dividend & Yield	1.57 (5.14%)
Volume	251,772	Ex-Dividend Date	2018-11-08
Avg. Volume	359,011	1y Target Est	34.13



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

New Jersey Resources Corporation (NJR)

NYSE - NYSE Delayed Price. Currency in USD

[★ Add to watchlist](#)

45.18 +0.84 (+1.89%) **45.18** 0.00 (0.00%)

At close: 4:00PM EST

After hours: 4:46PM EST

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Previous Close	44.34	Market Cap	4.002B
Open	44.46	Beta (3Y Monthly)	-0.01
Bid	41.20 x 800	PE Ratio (TTM)	17.11
Ask	49.00 x 1100	EPS (TTM)	2.64
Day's Range	44.18 - 45.28	Earnings Date	06-Feb-2019 - 11-Feb-2019
52 Week Range	35.55 - 51.83	Forward Dividend & Yield	1.17 (2.58%)
Volume	397,211	Ex-Dividend Date	2018-12-13
Avg. Volume	478,896	1y Target Est	47.50



Trade prices are not sourced from all markets

Northwest Natural Holding Company (NWN)

NYSE - NYSE Delayed Price. Currency in USD

[★ Add to watchlist](#)

59.31 -0.23 (-0.39%) **59.31** 0.00 (0.00%)

At close: 4:02PM EST

After hours: 4:46PM EST

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Previous Close	59.54	Market Cap	1.711B
Open	59.45	Beta (3Y Monthly)	0.21
Bid	56.27 x 1300	PE Ratio (TTM)	N/A
Ask	62.37 x 1300	EPS (TTM)	-2.13
Day's Range	58.82 - 59.73	Earnings Date	01-Nov-2018 - 05-Nov-2018
52 Week Range	51.50 - 71.81	Forward Dividend & Yield	1.90 (3.15%)
Volume	141,631	Ex-Dividend Date	2018-10-30
Avg. Volume	140,569	1y Target Est	57.60



Trade prices are not sourced from all markets

Spire Inc. (SR)

NYSE - NYSE Delayed Price. Currency in USD

[☆ Add to watchlist](#)

74.69 **+1.04 (+1.41%)** **74.69** **0.00 (0.00%)**

At close: 4:02PM EST

After hours: 4:46PM EST

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Previous Close	73.65	Market Cap	3.787B
Open	73.89	Beta (3Y Monthly)	-0.26
Bid	0.00 x 900	PE Ratio (TTM)	17.25
Ask	0.00 x 1300	EPS (TTM)	4.33
Day's Range	73.34 - 74.75	Earnings Date	29-Jan-2019 - 04-Feb-2019
52 Week Range	60.09 - 81.13	Forward Dividend & Yield	2.37 (3.24%)
Volume	218,367	Ex-Dividend Date	2018-12-10
Avg. Volume	219,191	1y Target Est	75.75



Trade prices are not sourced from all markets

Vectren Corporation (VVC)

NYSE - NYSE Delayed Price. Currency in USD

[☆ Add to watchlist](#)

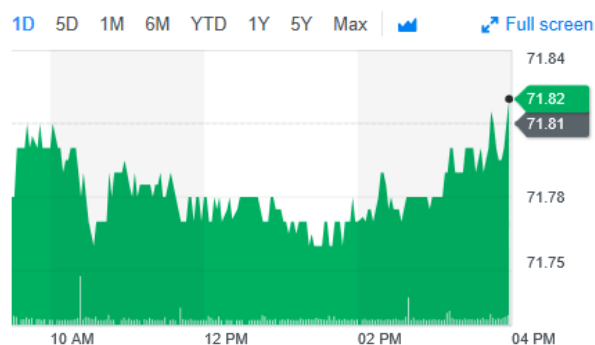
71.82 **+0.01 (+0.01%)** **71.82** **0.00 (0.00%)**

At close: 4:00PM EST

After hours: 4:15PM EST

[Summary](#) [Chart](#) [Conversations](#) [Statistics](#) [Historical Data](#) [Profile](#) [Financials](#) [Analysis](#) [Options](#) [Holders](#) [Sustainability](#)

Previous Close	71.81	Market Cap	5.967B
Open	71.78	Beta (3Y Monthly)	0.08
Bid	70.15 x 1000	PE Ratio (TTM)	30.27
Ask	72.24 x 900	EPS (TTM)	2.37
Day's Range	71.76 - 71.83	Earnings Date	18-Feb-2019 - 22-Feb-2019
52 Week Range	58.00 - 72.18	Forward Dividend & Yield	1.92 (2.67%)
Volume	1,025,163	Ex-Dividend Date	2018-11-14
Avg. Volume	814,459	1y Target Est	72.00



Trade prices are not sourced from all markets

Atmos Energy Corporation (ATO)

NYSE - NYSE Delayed Price. Currency in USD

[Add to watchlist](#)

92.42 **+1.72 (+1.90%)** **92.42** 0.00 (0.00%)

At close: 4:02PM EST

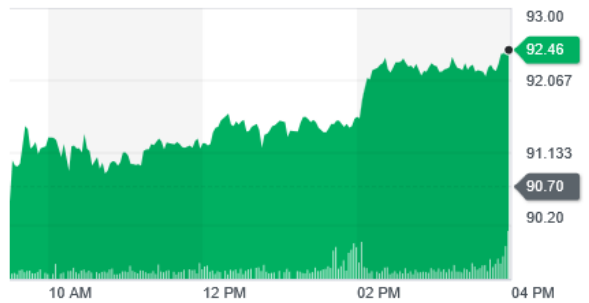
After hours: 4:37PM EST

[Summary](#) [Chart](#) [Conversations](#) [Statistics](#) [Historical Data](#) [Profile](#) [Financials](#) [Analysis](#) [Options](#) [Holders](#) [Sustainability](#)

Previous Close	90.70	Market Cap	10.803B
Open	90.71	Beta (3Y Monthly)	-0.03
Bid	24.95 x 1000	PE Ratio (TTM)	17.03
Ask	100.55 x 1000	EPS (TTM)	5.43
Day's Range	90.42 - 92.62	Earnings Date	05-Feb-2019
52 Week Range	76.46 - 100.76	Forward Dividend & Yield	2.10 (2.30%)
Volume	793,559	Ex-Dividend Date	2018-11-23
Avg. Volume	787,109	1y Target Est	102.14

Trade prices are not sourced from all markets

1D 5D 1M 6M YTD 1Y 5Y Max [Full screen](#)



Southwest Gas Holdings, Inc. (SWX)

NYSE - NYSE Delayed Price. Currency in USD

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77.73 **+1.73 (+2.28%)** **77.73** 0.00 (0.00%)

At close: 4:03PM EST

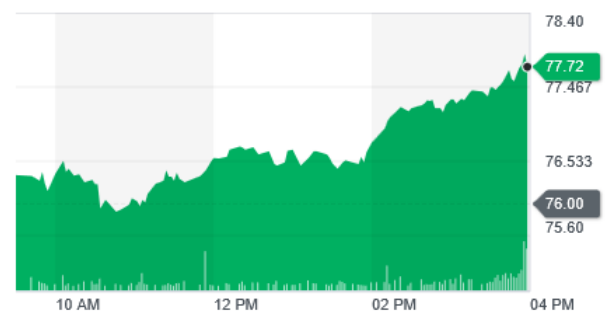
After hours: 4:46PM EST

[Summary](#) [Chart](#) [Conversations](#) [Statistics](#) [Historical Data](#) [Profile](#) [Financials](#) [Analysis](#) [Options](#) [Holders](#) [Sustainability](#)

Previous Close	76.00	Market Cap	4.12B
Open	75.78	Beta (3Y Monthly)	0.33
Bid	70.51 x 900	PE Ratio (TTM)	18.17
Ask	0.00 x 900	EPS (TTM)	4.28
Day's Range	75.78 - 77.97	Earnings Date	22-Feb-2017 - 27-Feb-2017
52 Week Range	62.54 - 85.97	Forward Dividend & Yield	2.08 (2.76%)
Volume	172,171	Ex-Dividend Date	2019-02-14
Avg. Volume	287,806	1y Target Est	80.20

Trade prices are not sourced from all markets

1D 5D 1M 6M YTD 1Y 5Y Max [Full screen](#)



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

Duke Energy Corporation (DUK)

NYSE - NYSE Delayed Price. Currency in USD

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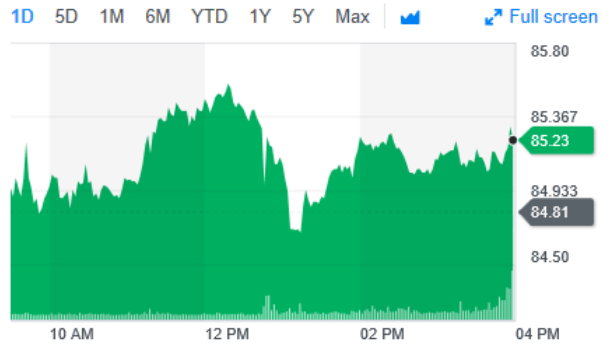
85.27 +0.46 (+0.54%) **85.27** 0.00 (0.00%)

At close: 4:06PM EST

After hours: 4:46PM EST

[Summary](#) [Chart](#) [Conversations](#) [Statistics](#) [Historical Data](#) [Profile](#) [Financials](#) [Analysis](#) [Options](#) [Holders](#) [Sustainability](#)

Previous Close	84.81	Market Cap	60.787B
Open	85.05	Beta (3Y Monthly)	-0.09
Bid	84.78 x 1300	PE Ratio (TTM)	20.77
Ask	85.49 x 800	EPS (TTM)	4.11
Day's Range	84.63 - 85.59	Earnings Date	14-Feb-2019
52 Week Range	71.96 - 91.35	Forward Dividend & Yield	3.71 (4.32%)
Volume	3,757,723	Ex-Dividend Date	2018-11-15
Avg. Volume	3,954,658	1y Target Est	87.65



Trade prices are not sourced from all markets

ALLETE, Inc. (ALE)

NYSE - NYSE Delayed Price. Currency in USD

[★ Add to watchlist](#)

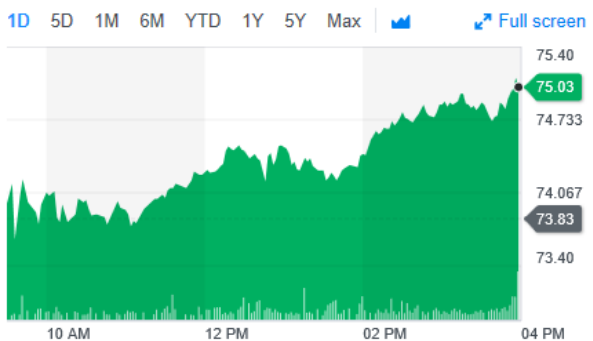
75.03 +1.20 (+1.63%) **75.03** 0.00 (0.00%)

At close: 4:02PM EST

After hours: 4:46PM EST

[Summary](#) [Chart](#) [Conversations](#) [Statistics](#) [Historical Data](#) [Profile](#) [Financials](#) [Analysis](#) [Options](#) [Holders](#) [Sustainability](#)

Previous Close	73.83	Market Cap	3.858B
Open	73.97	Beta (3Y Monthly)	0.11
Bid	68.00 x 1000	PE Ratio (TTM)	25.01
Ask	0.00 x 1400	EPS (TTM)	3.00
Day's Range	73.64 - 75.12	Earnings Date	13-Feb-2019 - 18-Feb-2019
52 Week Range	66.64 - 82.82	Forward Dividend & Yield	2.24 (2.97%)
Volume	205,638	Ex-Dividend Date	2018-11-14
Avg. Volume	256,311	1y Target Est	74.00



Trade prices are not sourced from all markets

Eversource Energy (ES)

NYSE - NYSE Delayed Price. Currency in USD

[Add to watchlist](#)

66.05 +1.30 (+2.01%) **66.05** 0.00 (0.00%)

At close: 4:02PM EST

After hours: 4:24PM EST

Summary

[Chart](#)

[Conversations](#)

[Statistics](#)

[Historical Data](#)

[Profile](#)

[Financials](#)

[Analysis](#)

[Options](#)

[Holders](#)

[Sustainability](#)

Previous Close	64.75	Market Cap	20.93B
Open	64.89	Beta (3Y Monthly)	0.15
Bid	58.49 x 900	PE Ratio (TTM)	20.20
Ask	67.05 x 1000	EPS (TTM)	3.27
Day's Range	64.64 - 66.15	Earnings Date	21-Feb-2019 - 25-Feb-2019
52 Week Range	52.76 - 70.53	Forward Dividend & Yield	2.02 (3.12%)
Volume	1,660,323	Ex-Dividend Date	2018-12-17
Avg. Volume	1,717,388	1y Target Est	67.41



Trade prices are not sourced from all markets

OGE Energy Corp. (OGE)

NYSE - NYSE Delayed Price. Currency in USD

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40.11 +0.64 (+1.62%) **40.11** 0.00 (0.00%)

At close: 4:04PM EST

After hours: 4:19PM EST

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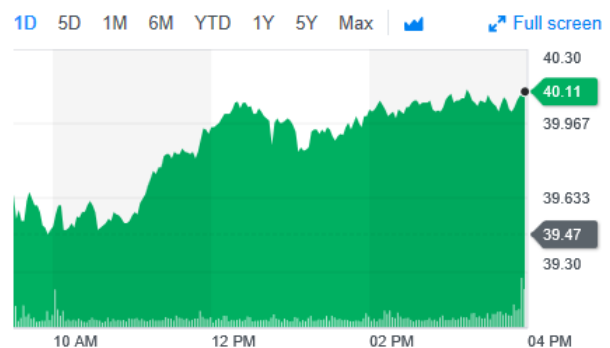
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Previous Close	39.47	Market Cap	8.011B
Open	39.50	Beta (3Y Monthly)	0.58
Bid	24.00 x 2900	PE Ratio (TTM)	12.05
Ask	40.40 x 1800	EPS (TTM)	3.33
Day's Range	39.47 - 40.13	Earnings Date	20-Feb-2019 - 25-Feb-2019
52 Week Range	29.59 - 41.80	Forward Dividend & Yield	1.46 (3.72%)
Volume	1,590,194	Ex-Dividend Date	2019-01-09
Avg. Volume	1,836,080	1y Target Est	38.71



Trade prices are not sourced from all markets

Pinnacle West Capital Corporation (PNW)

NYSE - NYSE Delayed Price. Currency in USD

[★ Add to watchlist](#)

86.07 +1.41 (+1.67%) **86.07** 0.00 (0.00%)

At close: 4:02PM EST

After hours: 4:37PM EST

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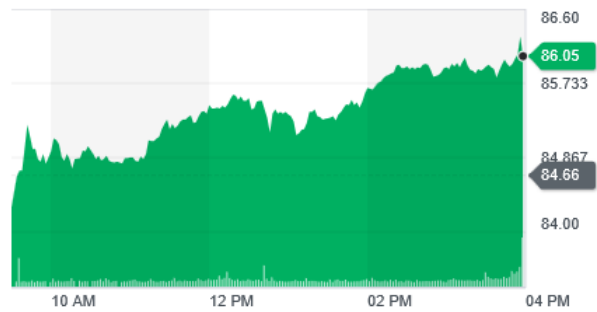
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Previous Close	84.66	Market Cap	9.647B
Open	84.93	Beta (3Y Monthly)	-0.08
Bid	0.00 x 1000	PE Ratio (TTM)	19.12
Ask	0.00 x 1100	EPS (TTM)	4.50
Day's Range	84.29 - 86.30	Earnings Date	21-Feb-2019 - 25-Feb-2019
52 Week Range	73.41 - 92.64	Forward Dividend & Yield	2.95 (3.44%)
Volume	1,072,955	Ex-Dividend Date	2019-01-31
Avg. Volume	1,155,569	1y Target Est	89.85

1D 5D 1M 6M YTD 1Y 5Y Max [Full screen](#)



Energy, Inc. (EVRG)

NYSE - NYSE Delayed Price. Currency in USD

[★ Add to watchlist](#)

56.86 +0.80 (+1.43%) **56.86** 0.00 (0.00%)

At close: 4:06PM EST

After hours: 4:29PM EST

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Previous Close	56.06	Market Cap	14.98B
Open	56.37	Beta (3Y Monthly)	0.24
Bid	40.00 x 800	PE Ratio (TTM)	19.00
Ask	61.50 x 900	EPS (TTM)	2.99
Day's Range	56.07 - 57.15	Earnings Date	N/A
52 Week Range	50.89 - 61.10	Forward Dividend & Yield	1.90 (3.35%)
Volume	1,334,321	Ex-Dividend Date	2018-11-28
Avg. Volume	1,660,844	1y Target Est	60.72

1D 5D 1M 6M YTD 1Y 5Y Max [Full screen](#)

