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BEFORE THE ARIZONA CORPORATION COMMISSION

DOUG LITTLE	BOB STUMP	BOB BURNS
CHAIRMAN	COMMISSIONER	COMMISSIONER

TOM FORESE	ANDY TOBIN
COMMISSIONER	COMMISSIONER

IN THE MATTER OF THE APPLICATION OF UNS ELECTRIC, INC. FOR THE ESTABLISHMENT OF JUST AND REASONABLE RATES AND CHARGES DESIGNED TO REALIZE A REASONABLE RATE OF RETURN ON THE FAIR VALUE OF THE PROPERTIES OF UNS ELECTRIC, INC. DEVOTED TO ITS OPERATIONS THROUGHOUT THE STATE OF ARIZONA, AND FOR RELATED APPROVALS.

DOCKET NO. E-04204A-15-0142

THE ALLIANCE OF SOLAR CHOICE'S NOTICE OF FILING SURREBUTTAL TESTIMONY OF J. RANDALL WOOLRIDGE

The Alliance for Solar Choice hereby provides notice of filing the Surrebuttal Testimony of J. Randall Woolridge in the above-referenced matter.

Respectfully submitted this 23rd day of February, 2016.

Court S. Rich
Rose Law Group pc
Attorney for TASC

Original and 13 copies filed on this 11th day of February, 2016 with:

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IN THE MATTER OF THE APPLICATION OF UNS ELECTRIC, INC. FOR THE ESTABLISHMENT OF JUST AND REASONABLE RATES AND CHARGES DESIGNED TO REALIZE A REASONABLE RATE OF RETURN ON THE FAIR VALUE OF THE PROPERTIES OF UNS ELECTRIC, INC. DEVOTED TO ITS OPERATIONS THROUGHOUT THE STATE OF ARIZONA, AND FOR RELATED APPROVALS.	**DOCKET NO. E-04204A-15-0142** **THE ALLIANCE OF SOLAR CHOICE'S NOTICE OF FILING SURREBUTTAL TESTIMONY OF J. RANDALL WOOLRIDGE**

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Before the

Arizona Corporation Commission

In the Matter of the Application of	)	
UNS Electric, Inc. for the	)	
Establishment of Just and Reasonable	)	
Rates and Charges Designed to	)	
Realize a Reasonable Rate of Return	)	Docket No. E-04204A-15-0142
On the Fair Value of the Properties	)	
Of UNS Electric, Inc. Devoted to It's	)	
Operations Throughout the State of	)	
Arizona and for Related Approvals	)	

Testimony of

J. Randall Woolridge, Ph. D.
For The Alliance for Solar Choice

February 23, 2016

Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.

A. My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle, State College, PA 16801.

Q. HAVE YOU PREVIOUSLY PREPARED TESTIMONY IN THIS PROCEEDING?

A. Yes. I prepared testimony on behalf of The Alliance for Solar Choice ("TASC"). In that testimony I provided an opinion as to the overall fair rate of return or cost of capital for the regulated electric services of UNS Electric, Inc. ("UNSE" or "Company"). I also prepared an evaluation of UNSE's rate of return testimony.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. In my surrebuttal testimony, I am initially evaluating the testimony of Staff witness Mr. Elijah Abinah and the merits of his ROE recommendation of 9.50%. I will then evaluate UNSE witness Ms. Ann E. Bulkley apparent acceptance of Staff's recommended ROE, and then I will provide a response to the rebuttal testimony of UNSE witness Ms. Ann E. Bulkley.

Q. PLEASE OUTLINE THE ISSUES YOU ARE ADDRESSING IN YOUR SURREBUTTAL TESTIMONY?

A. I am covering the following issues in my surrebuttal testimony:

A. Staff Witness Abinah's ROE Recommendation

B. Capital Market Conditions

C. Equity Cost Rate Issues

1. Proxy Group

2. Constant Growth Discounted Cash Flow ("DCF") Analysis

3. Multi-Stage DCF Analysis

4. Capital Asset Pricing Model ("CAPM") Approach

5. Bond Yield Plus Risk Premium Approach

Q. PLEASE DISCUSS STAFF WITNESS ABINAH'S ROE RECOMMENDATION.

A. Staff witness Mr. Abinah has recommended a ROE of 9.50% for UNSE. However, he has not performed any equity cost rate studies in arriving at this recommendation. Instead, Mr. Abinah recommends that UNSE be awarded the same ROE as the Commission granted in the Company's last rate case. This was Commission Decision No. 74235, issued on December 31, 2013. The 9.50% was the result of a settlement between the Company, Staff, and RUCO. While Mr. Abinah indicated that the basis of his 9.50% recommendation in this case was previous Commission decisions, he acknowledged that each case stands on its own merit. Mr. Abinah also cites the equity cost rate results of staff witness Mr. David C. Parcell in UNSE's two most recent rate cases - Docket Nos. E-04204A-09-0206 and E-04204A-12-0504. The ranges of Mr. Parcell's ROE studies were 7.6% to 10.5% in Docket No. E-04204A-09-0206 and 6.5% to 10.0% in Docket No E-04204A-12-0504. Without performing any equity cost rate studies, Mr. Abinah concludes that a cost of capital analysis in the current docket "would produce a similar, if not identical, range of 8.5 percent to 10.5 percent regardless of the methodologies employed by the various parties."

Q. WHAT ISSUES DO YOU HAVE WITH STAFF WITNESS ABINAH'S TESTIMONY AND ROE RECOMMENDATION?

A. There are a number of issue with his testimony. In general, he has justified his 9.50% ROE recommendation based on equity cost rate studies that are three to six years old. These are way out of date. In my thirty years of testifying in utility rate cases, I have never seen a Commission rely on such dated capital market data in arriving at a ROE authorization. Furthermore, he has relied on these studies without any empirical studies to support the contention that capital market conditions and cost rates are the same today as they were three to six years ago.

Q. HAVE CAPITAL MARKET CONDITIONS AND COST RATES CHANGED OVER THE PAST THREE TO SIX YEARS?

A. Yes. First and foremost, the economy has improved and the Federal Reserve has unwound its quantitative easing programs and has recently made the first upward adjustment to the federal funds rate. As these events have unfolded, interest rates have continued to decrease. These are depicted in Figure 1. As discussed later in this testimony, interest rates have continued to decline despite continual forecasts of higher interest rates. Therefore, interest rates and capital costs have declined over the past three to six years.

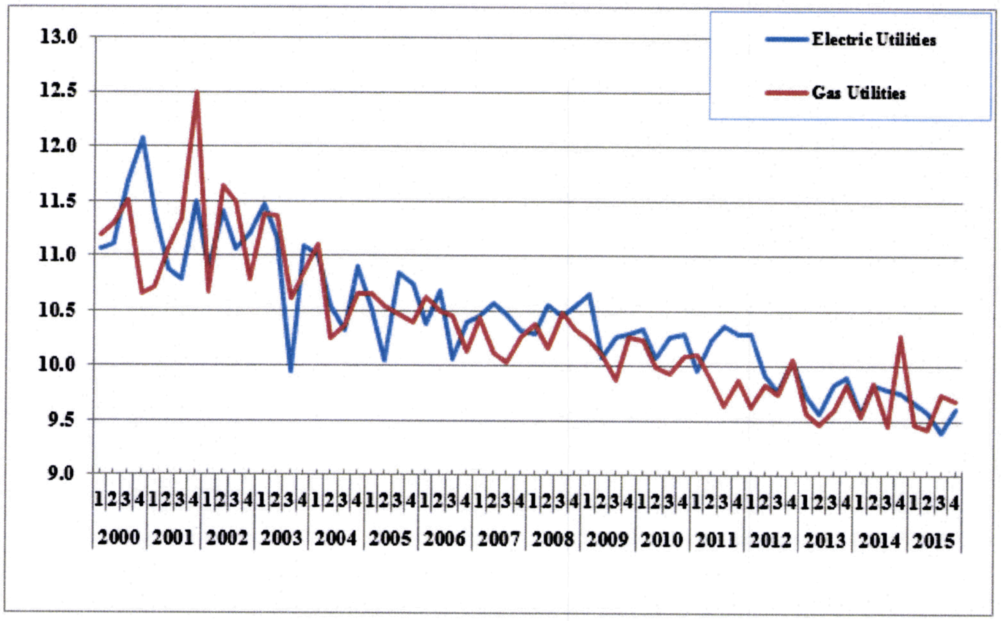
Figure 1
Thirty-Year U.S. Treasury Yields
2009-2016
Source: https://research.stlouisfed.org/fred2/series/DGS30

Q. HAVE THE LOWER INTEREST RATES AND CAPITAL COSTS IN THE PAST THREE TO SIX YEARS BEEN REFLECTED IN AUTHORIZED ROES FOR ELECTRIC UTILITIES AND GAS DISTRIBUTION COMPANIES?

A. Yes. The average quarterly authorized ROEs for electric utilities and gas distribution companies from 2000-2015 are shown in Figure 2. The downward trend is very apparent. The authorized ROEs for electric utilities have declined from 10.01% in 2012, to 9.8% in 2013, 9.76% in 2014, and 9.58% in 2015 according to Regulatory Research Associates.[1] Nonetheless, in recent years I do believe that these authorized ROEs have lagged behind capital market cost rates because some state commissions have been reluctant to authorize ROEs below 10%.

Figure 2
Authorized ROEs for Electric Utility and Gas Distribution Companies
2000-2015
Source: Regulatory Research Associates, 2016

[1] These figures exclude the Virginia cases that include ROE generation riders of up to 200 basis points.

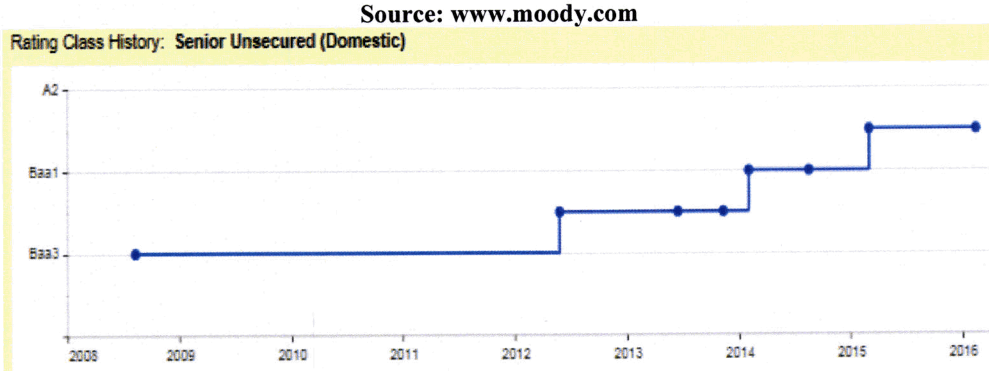


Q. ARE THESE ANY OTHER FACTORS THAT HAVE OCCURRED OVER THE PAST THREE TO SIX YEARS THAT STAFF WITNESS ABINAH IGNORED IN HIS TESTIMONY AND HIS RECOMMENDATION?

A. Yes. The investment risk of UNSE has declined. As shown in Figure 3, the Moody's issuer credit rating for UNSE has increased from Baa3 to A3 since 2012, an advance of three rating categories. This A3 rating is above the averages of the Electric and Bulkley Proxy Groups (See Exhibit JRW-4, page 1). The lower investment risk of UNSE as indicated by the Moody's ratings would indicate a lower ROE is warranted. Mr. Abinah has ignored the change in the investment risk of UNSE in his testimony and his ROE recommendation.

Figure 3
Moody's Issuer Ratings for UNSE
2000-2016

Source: www.moody.com



Q. DOES UNSE'S CREDIT RATINGS REFLECT THE RATE DESIGN PROVISIONS THAT THE COMPANY SEEKS IN THIS RATE CASE?

A. A. No. As noted above, UNSE's Moody's credit rating of A3 is better than the average credit ratings for the Electric and Moody's Proxy Groups. And, while the Company's Moody's credit report highlights its cost recovery mechanisms and indicates they are "credit supportive," the Company's credit ratings do not yet reflect its proposed mandatory demand charge for all residential customers. Such a charge, all else equal, would reduce the Company's risk by providing for higher level of fixed customer charges and mitigating risk associated with customers' ability to reduce energy usage to lower their utility bills. I am not aware of any other investor owned utility in the Country with such a mechanism.

Q. HOW DOES UNSE WITNESS MS. BULKLEY RESPOND TO MR. ABINAH'S ROE RECOMMENDATION OF 9.50%?

A. She indicates that UNSE would not oppose Staff REO recommendation as long as " … the overall revenue increase and rate design approved provides UNS Electric a reasonable opportunity to earn that ROE." She goes on to say that " … current capital market conditions fully support a ROE well in excess of 9.5% percent, and that 9.5% is, at best, the bottom of the range at this time." She goes on to disagree that 8.5% is the bottom of the range of previous staff testimony.

Q. PLEASE RESPOND TO UNSE WITNESS MS. BULKLEY'S OBSERVATIONS?

A. She is wrong on both the range and capital market conditions. With respect to the range, as I noted above, the bottom of the range for Mr. Parcell's equity cost rate studies of his two prior testimonies is actually 6.5%. The range for his CAPM results from the Docket No E-04204A-12-0504 case was 6.5% to 6.8%. Second, as discussed below in detail, Ms. Bulkley is wrong on what ROE is supported by current capital market conditions. In particular, the economists' forecasts used by Ms. Bulkley, that always point to higher future interest rates, has continually been wrong for almost a decade. In addition, she claims that the actions of the Federal Reserve and the prospect of higher future interest rates have resulted in the underperformance of utility stocks. As shown below, this is simply incorrect.

Q. MS. BULKLEY ATTEMPTS TO DEFEND MR. ABINAH'S 9.5% ROE RESOMMENDATION BY COMPARING CERTAIN ECONOMIC INDICATORS IN 2009 AND 2013 TO THE PRESENT. PLEASE RESPOND.

A. On pages 23-24 of her testimony, Ms. Bulkley cites certain economic indicators in 2009 and 2013 to support Mr. Abinah's claim that the 9.5% ROE provided in the 2013 settlement is reflective of the current economic environment. Among the indicators that she highlight are real GDP growth, unemployment, and inflation. In Figures 4, 5, and 6 I have provided graphs of these indicators over the past ten years.

Figure 4
Quarterly Real GDP Growth
2006-2015
Source: http://www.tradingeconomics.com/united-states/gdp-growth

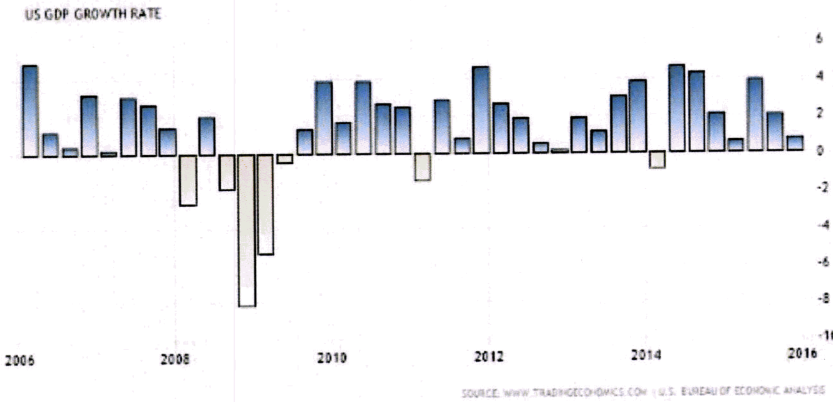


Figure 5
Unemployment Rate
2006-2015
Source: http://data.bls.gov/timeseries/LNS14000000

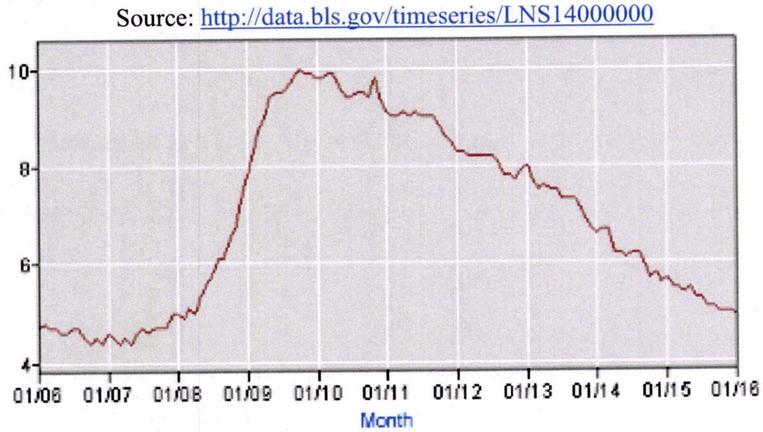
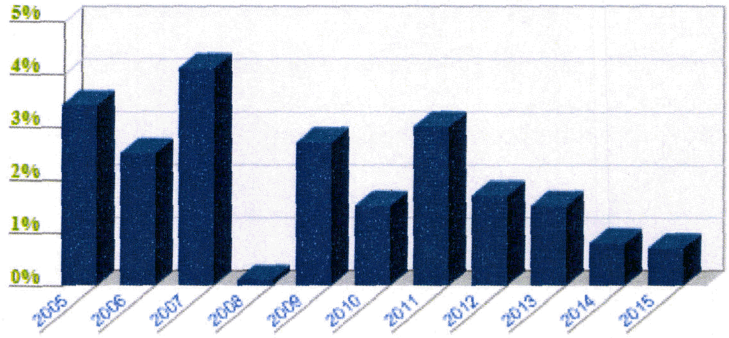


Figure 6
Annual Inflation Rate
2006-2015
Source: http://www.usinflationcalculator.com/inflation/current-inflation-rates/



Q. WHAT DO YOU BELIEVE THESE FIGURES SUGGEST ABOUT ECONOMIC CONDITIONS?

A. I believe that these figures show that the economy is continuing to grow, but at a slow pace, the labor market have improved significantly, and inflation reflects the slow economic growth and has declined over the past five years. Overall, these conditions, combined with the overall capital market conditions including lower interest rates, suggests that capital costs have declined. Furthermore, consistent with Mr. Abinah, Ms. Bulkley has ignored the fact the UNSE overall investment risk, as its credit ratings, is lower today as its Moody's rating has improved from Baa3 in 2012 to A3 currently.

A. Capital Market Conditions

Q. IN HER DIRECT AND REBUTTAL TESTIMONIES, MS. BULKLEY IMPLIES THAT INTEREST RATES AND CAPITAL COSTS ARE INCREASING IN MAGNITUDE. PLEASE RESPOND.

A. Between pages 15-21 of her rebuttal testimony, Ms. Bulkley argues that my 8.75% ROE recommendation is not justified by current and expected market conditions. In her discussion of capital market conditions, Ms. Bulkley implies that interest rates and capital costs are increasing. She cites economists' projections of interest rates and credit spreads to support the idea that the Company needs a higher ROE.

Q. PLEASE DISCUSS THE FORECASTS OF HIGHER INTEREST RATES AND CAPITAL COSTS.

A. Ms. Bulkley cites the interest rate forecasts provided by *Blue Chip Financial Forecasts*. In my direct testimony, I highlighted that the consensus forecasts of economists are that interest rates are going higher and these forecasts are continually wrong. I also noted that *Bloomberg* reported that the Federal Reserve Bank of New York has gone as far as stopping use of interest rate estimates of professional forecasters in its interest rate model.

Q. PLEASE PROVIDE ADDITIONAL INSIGHTS INTO THE INTEREST RATE FORECASTS OF ECONOMISTS.

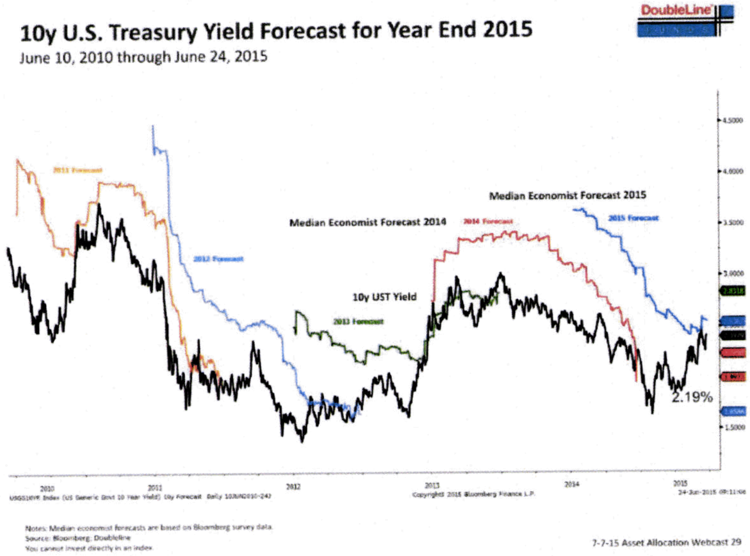
A. Recently, two other financial publications have produced studies on how economists consistently predict higher interest rates yet they have been wrong. The first publication, entitled "How Interest Rates Keep Making People on Wall Street Look Like Fools," evaluated economists' forecasts for the yield on ten-year Treasury bonds at the beginning of the year for the last ten years.[2] The results demonstrate that economists

[2] Joe Weisenthal, "How Interest Rates Keep Making People on Wall Street Look Like Fools," Bloomberg.com, March 16, 2015. http://www.bloomberg.com/news/articles/2015-03-16/how-interest-rates-keep-making-people-on-wall-street-look-like-fools.

consistently predict that interest rates will go higher, and interest rates do not fulfill the predictions.

The second study tracked economists' forecasts for the yield on ten-year Treasury bonds on an ongoing basis from 2010 until 2015.[3] The results of this study, which was entitled "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," are shown in Figure 7 and demonstrate how economists continually forecast that interest rates are going up, and they do not.

Figure 7
Economists' Forecasts of the Ten-Year Treasury Yield
2010-2015



Source: Akin Oyedele, "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time-2015-7.

[3]Akin Oyedele, "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time-2015-7.

Q. PLEASE REVIEW THE FEDERAL RESERVE'S DECISION TO RAISE THE FEDERAL FUNDS RATE IN DECEMBER OF 2015.

A. On December 16th, 2015, the Federal Open Market Committee ("FOMC")" decided to increase the target rate for federal funds to ¼ - ½ percent.[4] In the release, the FOMC included the following observations:[5]

> The Committee currently expects that, with gradual adjustments in the stance of monetary policy, economic activity will continue to expand at a moderate pace and labor market indicators will continue to strengthen. Overall, taking into account domestic and international developments, the Committee sees the risks to the outlook for both economic activity and the labor market as balanced. Inflation is expected to rise to 2 percent over the medium term as the transitory effects of declines in energy and import prices dissipate and the labor market strengthens further. The Committee continues to monitor inflation developments closely.

This highly anticipated increase came after the range was kept in the 0.0 to ¼ percent range for over five years in order to spur economic growth in the wake of the financial crisis.

Q. WHAT IS THE FEDERAL FUNDS RATE?

A. The federal funds rate is set by the Federal Reserve and is the borrowing rate applicable only to the most creditworthy financial institutions when they borrow and lend funds <u>overnight</u> to each other.[6] Therefore, these are not long-term interest rates. As I discuss below, there is no direct link between the federal funds rate and long-

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[4] It should be noted that this significant development occurred after Mr. McKenzie's testimony was filed on November 6, 2015. For example, although he quotes *former* Federal Reserve President Charles Plosser as observing that U.S. interest rates are "outside historical norms," Mr. Plosser was referring to the zero percent rate.

[5] Board of Governors of the Federal Reserve System, *FOMC Statement* (Dec. 16, 2015).

[6] http://www.investopedia.com/terms/f/federalfundsrate.asp

term interest rates.

Q. HOW DID LONG-TERM INTEREST RATES REACT TO THE FEDERAL RESERVE'S DECISION TO INCREASE THE FEDERAL FUND RATE?

A. The FOMC decision to increase the federal funds rate was highly anticipated in the markets. Nonetheless, as shown in the Figure 8, at the 2:00 PM announcement of the increase in the federal funds rate, the yield on 30-Year U.S. Treasury bonds actually decreased.

Figure 8
Intra-Day Thirty-Year Treasury Yields
December 16, 2015
Source: www.Yahoo.com

Q. WHAT HAS HAPPENED TO THE YIELD ON LONG-TERM TREASURY BONDS SINCE THAT DECEMBER 16TH DECISION?

A. They have continued to decline and are in the 2.70% range currently.

Q. WHY HAVE LONG-TERM INTEREST RATES DECLINED DESPITE THE FOMC'S DECISION TO INCREASE THE FEDERAL FUNDS RATE?

A. In my initial testimony, I referenced former Federal Reserve Chairman Ben Bernanke who stated that whereas the Federal Reserve can affect short-term rates, the Federal Reserve does not directly control long-term rates. Long-term rates are driven primarily by economic growth and inflation, which have both continued to decline.[7]

Q. FINALLY, MS BULKLEY NOTES THAT UTILITY STOCK PRICES HAVE "UNDERPERFORMED" BECAUSE INVESTORS EXPECT INTEREST RATES TO RISE. PLEASE RESPOND?

A. Once again, Ms. Bulkley is incorrect. As shown in Figure 9, since the Federal Reserve decided to increase the Federal Funds rate, the Dow Jones Utilities Index is up about 8.0%, and the S&P 500 is down about 4.0%.

Figure 9
Dow Jones Utilities versus the S&P 500
December 16, 2015 – February 16, 2016
Source: www.yahoo.com

[7] Ben S. Bernanke, "Why Are Interest Rates So Low?" Weekly Blog, Brookings, March 30, 2015. http://www.brookings.edu/blogs/ben-bernanke/posts/2015/03/30-why-interest-rates-so-low.

Q. WHAT DO YOU RECOMMEND THE COMMISSION DO REGARDING THE FORECASTS OF HIGHER INTEREST RATES AND CAPITAL COSTS?

A. I suggest that the Commission set an equity cost rate based on current market cost rate indicators and not speculate on the future direction of interest rates. As the above studies indicate, economists are always predicting that interest rates are going up, and yet they are almost always wrong. Obviously, investors are well aware of the consistently wrong forecasts of higher interest rates, and therefore place little weight on such forecasts. Investors would not be buying long-term Treasury bonds or utility stocks at their current yields if they expected interest rates to suddenly increase, thereby producing higher yields and negative returns. For example, consider a utility that pays a dividend of $2.00 with a stock price of $50.00. The current dividend yield is 4.0%. If, as Ms. Bulkley suggests, interest rates and required utility yields increase, the price of the utility stock would decline. In the example above, if higher return requirements led the dividend yield to increase from 4.0% to 5.0% in the next year, the stock price would have to decline to $40, which would be a -20% return on the stock. Obviously, investors would not buy the utility stock with an expected return of -20% due to higher dividend yield requirements.

In sum, forecasting prices and rates that are determined in the financial markets, such as interest rates, the stock market, and gold prices, appears to be impossible to accurately do. For interest rates, I have never seen a study that suggests one forecasting service is better than others or that interest rate forecasts are better than just assuming the current interest rate will be the rate in the future.

B. Equity Cost Rate Issues

Q. PLEASE ADDRESS THE ISSUES HIGHLIGHTED BY MS. BULKLEY WITH RESPECT TO YOUR EQUITY COST RATE STUDIES AND ANALYSES.

A. Ms. Bulkley offers critiques of a number of issues related to my equity cost rate studies and analyses. I am addressing the following: (1) the proxy groups; (2) constant-growth DCF analysis; (3) multi-stage DCF analysis; (4) the application of the CAPM; (5) her application of the bond yield risk premium method using authorized ROEs; (6) the flotation cost adjustment and (7).the adequacy of my 8.75% ROE recommendation.

1. Proxy Groups

Q. PLEASE DISCUSS MS. BULKLEY'S CONCERNS WITH YOUR PROXY GROUPS.

A. Between pages 46-49 of her testimony, Ms. Bulkley makes the claim that her proxy group provides is more similar to the Company because her group has "comparable investment risk." She claims that your group is larger with less stringent screening criteria.

Q. PLEASE RESPOND TO THESE CLAIMS.

A. They are totally unfounded. First, she never mentions that, in addition to developing my proxy group, I also used her proxy group. Second, she has performed no analysis comparing the risk of her group to the Company. In Exhibit JRW-4, I directly compare the risk of UNS Electric to the two proxy groups using Moody's credit ratings. These comparison show that UNS Electric, with an A3 issuer credit rating, is one notch above the average of both the Electric and Bulkley Proxy Groups (Baa1). Third, the screening criteria used by Ms. Bulkley in developing her group, including factors such as including generation, are factors used by credit rating agencies in rating companies, As such, these are considered in my risk analysis.

Q. WHAT IS YOUR CONCLUSION OF THE PROXY GROUP ISSUE?

A. It is a non-issue. I have used her group and do a risk analysis of the Company and the two proxy groups using credit ratings. The bottom line is that UNS Electric is a little less risky than other electric utilities. Ms. Bulkley does not perform a risk assessment of UNSE and her proxy group using credit ratings.

2. Constant Growth DCF Analysis

Q. MS. BULKLEY CLAIMS THAT YOUR DCF ANALYSIS IS "SUBJECTIVE." PLEASE RESPOND.

A. On page 51 of her testimony, Ms. Bulkley states that my DCF growth rates is subjectively set within a range of results. She is correct. Estimating the cost of equity capital requires a degree of subjectivity in the selection of models, the inputs for the models, and the measurement of the inputs for the model. I have used the DCF and CAPM models, which are the two most generally accepted models to estimate an equity cost rate. In using the DCF model, the biggest issue is the expected growth rate. Investors have many sources of financial information that go into developing their expectations of the future, and the vast majority of this information is historic data. In estimating an expected growth rate, I have given primary weight to analysts' Earnings Per Share ("EPS") growth rate forecasts. In arriving at the DCF growth rate figure, I recognized that: (1) most data provided to investors is historic; (2) analysts' growth rate forecasts have a significant impact on investors' expectations; and (3) it is well known that the long-term EPS growth rate forecasts of financial analysts are overly optimistic and upwardly biased. In contrast to this approach, Ms. Bulkley mechanically added four different measures of projected growth to her dividend yields.

Q. PLEASE RESPOND TO MS. BULKLEY'S DISCUSSION OF ANALYSTS' LONG TERM EPS GROWTH RATE FORECASTS AT PAGES 51-53 OF HER REBUTTAL TESTIMONY.

A. As I discussed at length in my initial testimony, there are a number of studies that have demonstrated that the long-term EPS growth rate forecasts of Wall Street analysts are overly optimistic and upwardly biased. At pages 51-53 of her rebuttal testimony, Ms. Bulkley attempts to refute this evidence in two ways: (1) she cites a study by Hovakimian and Saenyasiri that indicates the upward bias has declined since the signing of the 2002 Global Financial Settlement; [8] and (2) she makes general assertions that such a bias, if it existed, would be eliminated by changes in regulations and reporting requirements.

Q. PLEASE RESPOND TO MS. BULKLEY'S ASSERTIONS.

A. First, the decline in the upward bias since 2002 found by Hovakimian and Saenyasiri was for <u>annual</u> EPS estimates that only forecast out one year, not for the <u>long-term</u> EPS growth rates used by Ms. Bulkley and myself. And second, the studies that I cite demonstrate that the upward bias has continued beyond the changes in regulations and reporting requirements cited by Ms. Bulkley. This is highlighted by a McKinsey study entitled "Equity Analysts: Still Too Bullish" which involved a study of the accuracy on analysts long-term EPS growth rate forecasts. The authors conclude that

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[8] A. Hovakimian and E. Saenyasiri, "Conflicts of Interest and Analysts Behavior: Evidence from Recent Changes in Regulation," Financial *Analysts Journal*, Vol. 66, at 96-107 (2010) [emphasis added].

after a decade of stricter regulation, analysts' long-term earnings forecasts continue to be excessively optimistic. They made the following observation (emphasis added): [9]

> Alas, a recently completed update of our work only reinforces this view—despite a series of rules and regulations, dating to the last decade, that were intended to improve the quality of the analysts' long-term earnings forecasts, restore investor confidence in them, and prevent conflicts of interest. For executives, many of whom go to great lengths to satisfy Wall Street's expectations in their financial reporting and long-term strategic moves, this is a cautionary tale worth remembering. This pattern confirms our earlier findings that analysts typically lag behind events in revising their forecasts to reflect new economic conditions. When economic growth accelerates, the size of the forecast error declines; when economic growth slows, it increases. So as economic growth cycles up and down, the actual earnings S&P 500 companies report occasionally coincide with the analysts' forecasts, as they did, for example, in 1988, from 1994 to 1997, and from 2003 to 2006. <u>Moreover, analysts have been persistently overoptimistic for the past 25 years, with estimates ranging from 10 to 12 percent a year, compared with actual earnings growth of 6 percent. Over this time frame, actual earnings growth surpassed forecasts in only two instances, both during the earnings recovery following a recession. On average, analysts' forecasts have been almost 100 percent too high.</u>

This is the same observation made in a *Bloomberg Businessweek* article.[10] The author concluded:

> ***The bottom line:*** *Despite reforms intended to improve Wall Street research, stock analysts seem to be promoting an overly rosy view of profit prospects*

Q. HOW DOES THE UPWARD BIAS IMPACT THE ESTIMATION OF THE COMPANY'S COST OF EQUITY?

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[9] Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity Analysts, Still Too Bullish," *McKinsey on Finance*, pp. 14-17, (Spring 2010).

[10] Roben Farzad, "For Analysts, Things Are Always Looking Up," *BloombergBusinessweek* (June 10, 2010).

A. First, as discussed above, it is not appropriate to mechanically add analysts' EPS growth rates to a dividend yield to obtain a DCF equity cost rate. In addition, as discussed below, it has a large impact of Ms. Bulkley's calculation of a Market Risk Premium ("MRP").

3. Multi-Stage DCF Analysis

Q. PLEASE DISCUSS MS. BULKLEY'S MULTI-STAGE DCF ANALYSIS.

A. Between pages 56-58 of her rebuttal testimony, Ms. Bulkley responds to my criticism of the long-term Gross Domestic Product ("GDP") growth rate in her multi-stage DCF model. Her prospective GDP growth rate was based on real GDP growth rate which is calculated over the 1929-2014 time period; and (2) an expected inflation rate. In her rebuttal testimony, he uses a GDP growth rate of 540% in her initial testimony.

Q. WHAT ARE THE ERRORS WITH MS. BULKLEY'S MULTI-STAGE DCF ANALYSIS.

A. As I indicated in my initial testimony, there are two major errors in this analysis. First, Ms. Bulkley has not provided any theoretical or empirical support that long-term GDP growth is a reasonable proxy for the expected growth rate of the companies in her proxy group. Five-year and ten-year historic measures of growth for earnings and dividends for electric utility companies, as shown on page 3 of Exhibit JRW-10, suggest growth that is more than 100 basis points below Ms. Bulkley's GDP growth rate. In her rebuttal testimony, Ms. Bulkley provides no new empirical evidence to justify using GDP growth as a proxy for long-term earnings and dividend growth for electric and gas companies. On the second issue, I demonstrated in my initial testimony that the trends of GDP growth indicate prospective GDP growth of about 100 basis points below Ms. Bulkley's GDP growth rate. The lower trend in GDP growth is supported by the long-term GDP growth rate forecasts of government agencies and economists. These forecasts are also about 100 basis points below Ms. Bulkley's long-term historic GDP growth rate. The economists and government agencies that provide and use these forecasts are well aware of historic GDP growth and its trends over the decades that are referred to by Ms. Bulkley. Therefore, there is no reason to expect that these forecasts are under-stated. In addition, long-term GDP growth is a function of a number of factors, including population growth. As I reviewed in my direct testimony, the long-term trends in these factors all point to lower GDP growth in the future.

Q. WHAT GDP GROWTH RATE IS PROJECTED BY ECONOMISTS AND GOVERNMENT AGENCIES?

A. There are several forecasts of annual GDP growth that are available from economists and government agencies. These are listed on page 5 of Exhibit JRW-14 that is attached to my initial prefiled testimony. The mean 10-year nominal GDP growth forecast (as of February 2015) by economists in the recent *Survey of Professional Forecasters* is 4.7%. The Energy Information Administration ("EIA"), in its projections used in preparing the *Annual Energy Outlook,* forecasts long-term GDP growth of 4.2% for the period

2013-2040.[11] The Congressional Budget Office ("CBO"), in its forecasts for the period 2015 to 2040, projects a nominal GDP growth rate of 4.3%.[12] Finally, the Social Security Administration ("SSA"), in its Annual OASDI Report, provides a projection of nominal GDP from 2015-2090.[13] The projected nominal GDP growth rate over this period is 4.5%. Overall, these projections of nominal GDP growth over extended future time periods provide direct evidence that Ms. Bulkley's long-term GDP growth rate of 5.42% is overstated by almost 100 basis points.

Q. IN YOUR OPINION, WHAT IS WRONG WITH MS. BULKLEY'S REAL GDP FORECAST ON HISTORIC DATA AND IGNORING THE WELL-KNOWN LONG-TERM GDP FORECASTS OF THE CBO AND EIA?

A. In developing a DCF growth rate for his constant-growth DCF analysis, Ms. Bulkley has totally ignored historic EPS, DPS, and BVPS data and relied solely on the long-term EPS growth rate projections of Wall Street analysts and *Value Line*. However, in developing a terminal DCF growth rate for his multi-stage growth DCF analysis, Ms. Bulkley has also totally ignored the well-known long-term real GDP growth rate forecasts of the CBO and EIA and relied solely on historic data going back to 1929. Simply put, she is inconsistent with respect to 100% belief in the forecasts of Wall Street analysts and 0% belief in the forecasts of major U.S. government agencies.

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[11] Energy Information Administration, A*nnual Energy Outlook,* http://www.cbo.gov/publication/49973.
[12] Congressional Budget Office, The *2015 Long-term Budget Outlook,* July 2015. https://www.cbo.gov/publication/50250.
[13] Social Security Administration, 2015 Annual Report of the Board of Trustees of the Old-Age, Survivors, and Disability Insurance (OASDI) Program. http://www.ssa.gov/oact/tr/2015/X1_trLOT.html

4. CAPM Approach

Q. PLEASE RESPOND TO MS. BULKLEY'S DISCUSSION OF YOUR CAPM ANALYSIS.

A. As I indicated in my initial testimony, the estimation and the measurement of the MRP is one of the biggest mysteries in Finance. In my testimony, I highlighted there are three procedures for estimating an MRP, and I explained how I factored in all three approaches and employed the results of more than 30 studies to estimate my MRP of 5.5%. My MRP reflects the market risk premiums: (1) determined in recent academic studies by leading finance scholars; (2) employed by leading investment banks and management consulting firms; and (3) found in surveys of companies, financial forecasters, financial analysts, and corporate CFOs. Contrary to this approach, Ms. Bulkley conducts her own study using analysts' EPS growth rate projections to compute an expected market return and MRP. Her MRP 10.67% (based on the current risk-free rate) is larger than any MRPs discovered in any published academic or professional study or survey. As discussed below, this is because he "mechanically" computes an expected market return using the upwardly biased EPS growth rate forecasts of financial analysts.

Q. PLEASE DISCUSS THE MARKET RISK PREMIUM IN MS. BULKLEY'S CAPM APPROACH.

A. Ms. Bulkley has computed a MRP for her CAPM by applying the DCF model to the S&P 500. He has estimated an expected market return using Bloomberg and Value

Line projected five-year EPS growth rate estimates as the DCF growth rate. In both cases, she uses a projected long-term EPS growth rate of 11.06%

Q. WHAT ARE THE ERRORS WITH THIS MRP METHODOLOGY?

A. There are several errors to this methodology:

First, these "long-term growth" rates are indicated to be three-to-five year growth rates, yet Ms. Bulkley employs these to be for an infinite period of time. Second, as discussed above, there is ample empirical evidence that these forecasts are overly optimistic and upwardly biased measures of actual future three-to-five year actual earnings growth. The McKinsey article cited above indicates that, on average, the projected growth rates produce forecasted EPS that are 100% above actual EPS. And third, the projected EPS growth rates used by Ms. Bulkley of 11.06% is totally unrealistic since: (1) long-term EPS growth in the U.S. is directly related to GDP growth, with GDP growth providing an upward limit on EPS growth; [14] and (2) even Ms. Bulkley presumes that long-term GDP growth that he estimates for her multistage DCF analysis will be less than ½ of her 11.06% projected EPS growth.

Q. WHAT DO THESE ERRORS IMPLY ABOUT MS. BULKLEY'S CAPM RESULTS?

A. Ms. Bulkley's CAPM results should be ignored. Her CAPM results are based on expected market returns and MRPs that include unrealistic assumptions regarding future economic and earnings growth and stock returns.

[14] Bradford Cornell, "Economic Growth and Equity Investing," *Financial Analysts Journal* (January- February, 2010), p. 63.

5. Bond Yield Plus Risk Premium Approach

Q. PLEASE DISCUSS MS. BULKLEY'S BOND YIELD PLUS RISK PREMIUM ANALYSIS WHICH IS BASED ON THE AUTHORIZED ROES FOR ELECTRIC UTILITIES AND GAS DISTRIBUTION COMPANIES.

A. At pages 66-68 of her rebuttal testimony, Ms. Bulkley supports her risk premium analysis which is based on authorized ROEs for electric and gas companies. I critiqued her approach primarily because: (1) Ms. Bulkley added her risk premium to projected Treasury bond yields; and (2) her results do not reflect current authorized ROEs. On the first issue, Ms. Bulkley never really addresses the error I highlighted in my initial testimony. Specifically, it is incorrect to add a risk premium derived from historic Treasury yields and authorized ROEs to projected Treasury bond yields because, as I showed earlier in this testimony, Treasury yields are always projected to increase. A corrected study would have used projected Treasury yields and not historic Treasury yields. The second issue I addressed was the fact that her risk premium results does not reflect current authorized ROEs.

Q. PLEASE DISCUSS MR BULKLEY'S RISK PREMIUM RESULTS AND YOUR STUDY OF AUTHORIZED ROES FOR ELECTRIC UTILITIES.

A. In her rebuttal testimony, Ms. Bulkley updates her risk premium analysis and arrives at equity cost rates ranging from 9.87 to 10.67% for electric utility companies.

Q. HOW DO THESE AUTHORIZED ROES COMPARE TO CURRENT AUTHORIZED ROES FOR ELECTRIC UTILITIES?

A. They are above current authorized ROEs for both electric utility companies. As previously discussed, the authorized ROEs for electric utilities have declined from 10.01% in 2012, to 9.8% in 2013, 9.76% in 2014, and 9.58% in 2015 according to Regulatory Research Associates.[15] Flotation Costs

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

[15] These figures exclude the Virginia cases that include ROE generation riders of up to 200 basis points.