EXHIBIT NO. _____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

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| In the Matter of the Application of Ohio Power Company for Administration of the Significantly Excessive Earnings Test for 2012 Under Section 4928.143(F), Revised Code, and Rule 4901:1-35-10, Ohio Administrative Code. | ) ) ) ) ) | Case No. 13-2251-EL-UNC |

# DIRECT TESTIMONY
# OF
# DR. ANIL K. MAKHIJA
# ON BEHALF OF
# OHIO POWER COMPANY

Filed: November 22, 2013

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**PERSONAL DATA**

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Anil Kumar Makhija. My business address is 200A Fisher Hall, Fisher College of Business, The Ohio State University, Columbus, Ohio 43210.

**Q. WHAT IS YOUR OCCUPATION AND POSITION?**

A. My occupation is Professor of Finance. I am a tenured full Professor, and I hold the Dean's Distinguished Professorship at the Fisher College of Business, The Ohio State University. I am currently a Senior Associate Dean of the Fisher College. I am also the Academic Director of the National Center for the Middle Market. Previously, I have served as the Chairman of the Finance Department at the Fisher College of Business, and as an Associate Dean for the Fisher College.

**Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

A. I have a Bachelors Degree (B.Tech.) in Chemical Engineering from the Indian Institute of Technology, New Delhi, a Masters of Business Administration (MBA) with a Management Science major from Tulane University in New Orleans, and a Doctorate (PhD.) in Finance from the University of Wisconsin – Madison.

**Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.**

A. I was an Assistant Professor at the Katz Graduate School of Business, University of Pittsburgh, from 1981 to 1988, with a Visiting Assistant Professorship from 1984 to 1985 at the University of Wisconsin – Madison. For the period 1989 to 1998, I was an

Associate Professor and then a full Professor at the University of Pittsburgh. From 1999, I have been a full Professor at The Ohio State University. From 2002 to 2009, I served as the Chairman of the Finance Department at The Ohio State University, and have held the David A. Rismiller Professorship since 2005.

My primary research and teaching interests are in the field of Corporate Finance, in which I focus on issues relating to capital structure, investment policy, and corporate governance. My research has appeared in top academic journals, including *Journal of Finance*, *Journal of Financial Economics*, *Journal of Financial and Quantitative Analysis, Journal of Business*, *Journal of Corporate Finance*, *Financial Management Journal*, *Journal of Banking and Finance*, *Journal of Economic Behavior and Organization*, and many other reputable journals.

I currently serve as the co-editor of *Advances in Financial Economics*. I also serve on the editorial boards of other journals such as *Multinational Finance Journal*, and *The Pacific-Basin Finance Journal*. I have served as a reviewer for dozens of journals.

I have chaired ten doctoral dissertations, and my students have gone on to serve on the faculties of major universities in the U.S. and abroad. I am also the recipient of the *University Alumni Award for Distinguished Teaching,* the highest teaching award granted by The Ohio State University. For ten of the twelve past years, students in the Executive MBA program at Ohio State have chosen me for the *Outstanding Faculty Award*.

Besides presenting research at the major finance conferences, *American Finance Association Meetings*, *Western Finance Association Meetings*, *National Bureau of Economic Research*, University of Michigan's *Mitsui Conference*, *Financial*

*Management Association Meetings*, etc., I have been invited to present seminars at dozens of universities in the U.S. and abroad. My work has been featured on *Fox Business News*, *US News and World Report* blog, *Chicago Tribune*, *The Motley Fool*, *Columbus Dispatch*, *St. Louis Dispatch*, *Business First*, *CBS* podcast, etc. In the context of the National Center for the Middle Market, my work has also been featured in *The Economist, Bloomberg Business Week, Wall Street Journal, New York Times, Financial Times,* etc.

**Q. PLEASE DESCRIBE YOUR WORK ON ELECTRIC UTILITIES.**

A. My specialization is in applying Finance theory to Electric Utilities. I have examined and published on the following topics related to electric utilities:

- Comparison of alternative models for estimating the cost of equity capital for electric utilities,
- Determinants of earned rates of return on equity of electric utilities,
- The diversification policies of electric utilities,
- Executive compensation and corporate performance in electric and gas utilities,
- Nuclear power plant investment and plant cancellation decisions of electric utilities,
- The impact on ratepayers and consumers of alternative regulatory policies such as AFUDC for the treatment of construction expenditures,
- SEC regulation of public utility diversification, and
- The impact of regulation on the risk of electric utilities, etc.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO?**

A. Yes, I have provided Direct Testimony and Rebuttal Testimony on behalf of Columbus Southern Power Company (CSP) and Ohio Power Company (OPCo) (collectively, "AEP Ohio" or the "Companies") in their 2008 electric security plan (ESP) proceeding, Case Nos. 08-917-EL-SSO and 08-918-EL-SSO 2008 ESP). My testimony in that proceeding addressed issues regarding the implementation of the Significantly Excessive Earnings Test (SEET) of Section 4928.143(F), Ohio Revised Code. In addition, I participated on behalf of AEP Ohio in the April 1, 2010 oral presentation to the PUCO Commissioners in Case No. 09-786-EL-UNC, during which I provided answers to various questions from the Commissioners regarding SEET implementation issues. I also provided Direct Testimony and Rebuttal Testimony on behalf of the Companies in Case No. 10-1261-EL-UNC and Case Nos. 11-4571 and 11-4572-EL-UNC in which the Commission conducted the annual significantly excessive earnings reviews and applied the SEET to the Companies' earnings during 2009 and 2010. And, I have prepared testimony on behalf of the companies for the pending annual significantly excessive earnings review for 2011. I also have provided testimony regarding the risks that the Companies bear and costs that they incur as a result of their Provider of Last Resort (POLR) obligations in the remand phase of Case Nos. 08-917-EL-SSO and 08-918-EL-SSO and in their pending ESP proceeding, Case Nos. 11-346-EL-SSO and 11-348-EL-SSO.

## PURPOSE OF TESTIMONY

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

A. OPCo asked me to develop a methodology to implement the SEET for their earnings during 2012. I previously developed a methodology through which the Commission could conduct the annual earnings review of AEP Ohio in accordance with the statutory

SEET standard for 2009, 2010, and 2011. Pursuant to Section 4928.143(F), the SEET must be applied on an annual basis to the earned return on equity (ROE) of each electric utility which has an ESP. .

**SUMMARY OF TESTIMONY**

**Q. PLEASE PROVIDE A SUMMARY OF THE METHODOLOGY THAT YOU RECOMMEND USING TO DETERMINE SIGNIFICANTLY EXCESSIVE EARNINGS.**

A. As, I have done in connection with prior SEET reviews for AEP Ohio, I propose specific methodological steps to implement the SEET, and carry them out on OPCo for the year 2012.

I identify the group of firms with comparable business and financial risks, the Comparable Risk Peer Group, using well-established metrics. For business risk, I employ unlevered betas. For financial risk, I use the book equity ratio. From the universe of prominent firms, covered in the Value Line *Standard Edition* as of October 7, 2013, I employ a 5 x 5, or 25 cell, methodology to identify the Comparable Risk Peer Group of firms that match OPCo on unlevered betas and on book equity ratios. In particular, using quintiles to form portfolios, I divide firms into 5 different business risk groups (lowest to highest unlevered betas) and 5 different financial risk groups (lowest to highest book equity ratios). The firms in the same cell as OPCo, by design, form the Comparable Risk Peer Group. Measuring its earned rate of return (ROE) as normal earnings on average common equity, I obtain that group's mean ROE and the standard deviation of the group members' ROEs. I then define the Threshold ROE as the mean ROE for the Comparable Risk Peer Group plus 1.96 times the standard deviation of the

ROEs for the Comparable Risk Peer Group. It is against this Threshold ROE that the ROE for OPCo for 2012 should be compared. I conclude that the 1.96-standard deviation adder employed to construct the Threshold ROE, which corresponds to a 95% confidence level, is appropriate because (1) it is the established practice to use that confidence level, and (2) because it provides for a reasonably acceptable risk of false positives. As I later show through several examples, 1.96 standard deviations, corresponding to a 95% confidence level, are commonly used to determine if the difference between two figures is significant. This is the same methodology that I have applied in the past. It has several advantages. First, it best targets comparable firms that match OPCo in business and financial risk, which is what the SEET requires. Second, it delivers a reliably large sample of comparable risk firms (75 firms). Third, it is objective, relying upon market-based measures of risk. Fourth, because it is a methodology that may be readily replicated, it is predictable. Indeed, I applied the same procedure for the SEET for the years 2009, 2010, and 2011. Multiple years of application has shown that the methodology yields a Comparable Risk Peer Group which adheres well to the SEET. In the past I have also supplied several confirmatory tests to affirm the validity of this methodology.

I conclude that that my methodology offers an implementation of the requirements of the SEET that adheres to the language of the statute.

In addition, because the Commission also has considered favorably a Staff methodology based on the Utilities Sector Select SPDR (XLU) to form the Comparable Risk Peer Group, I replicate that methodology for 2012 as well.

**Q. PLEASE DESCRIBE YOUR FINDINGS AND CONCLUSIONS.**

A. I find that for 2012 the mean ROE of the Comparable Risk Peer Group is 12.47% and the standard deviation of the Comparable Risk Peer Group ROEs is 6.89%. Multiplying the 6.89% standard deviation by 1.96 produces an adder of 13.506%. Therefore, I conclude that the Threshold ROE for 2012 for OPCo, which is the sum of the mean ROE and the adder, is 25.98%.

Though there are several concerns regarding the use of the Utilities Select Sector SPDR (XLU), for comparison purposes, I also calculate the Threshold ROE using it. The mean ROE for 2012 for the 30 firms in XLU (excluding AEP) is 10.74%. The standard deviation of the 2012 ROEs for the firms in XLU is 3.12%. This produces an adder of 6.12%, and a Threshold ROE for 2012 of 16.86%, corresponding to a 95% Confidence Level (an adder of 1.96 times the standard deviation); or an adder of 5.17%, and Threshold ROE for 2012 of 15.86%, corresponding to a 90% Confidence Level (an adder of 1.64 times the standard deviation). This is the procedure the Commission adopted in arriving at its Threshold ROE for 2010. In doing so, the Commission commented favorably regarding both my Comparable Risk Peer Group for 2010 for purposes of determining the earned ROE for the Comparable Risk Peer Group and also regarding use of the 95% Confidence Level to develop the adder.

**Q. PLEASE EXPLAIN HOW YOUR TESTIMONY IS ORGANIZED.**

A. The remainder of my testimony is presented in the following order. To begin with, I present the relevant provision of S.B. 221, Section 4928.143(F), which contains the Significantly Excessive Earnings Test. I discuss the principles that Section 4928.143(F) provides and that I incorporate into my methodology for implementing that earnings test.

This is the fourth round of applications of the SEET for OPCo, and I believe that considerable experience has been gained from the debate during the prior application of the SEET to the 2009 and 2011 annual period, the dry run conducted as part of the 2008 ESP, and from the Commission's Finding and Order, issued June 30, 2010, and Entry on Rehearing, issued August 26, 2010, in Case No. 09-786-EL-UNC (also referred to collectively as the "SEET Workshop Orders").

Next, I describe the details of my methodology for implementing the Significantly Excessive Earnings Test. The basis of my methodology is the selection of a group of publicly traded companies, including utilities that face business and financial risks comparable to those that the Companies face (the Comparable Risk Peer Group). I then determine a significantly excessive earnings threshold for the Companies using data from that Comparable Risk Peer Group.

Finally, I present a summary of my findings and conclusions.

**SECTION 4928.143(F), OHIO REV. CODE**

**Q. WHAT ARE THE RELEVANT METHODOLOGICAL ISSUES IN THE IMPLEMENTATION OF THE SIGNIFICANTLY EXCESSIVE EARNINGS TEST OF SECTION 4928.143(F), OHIO REV. CODE?**

A. The following is the part of Section 4928.143(F) Ohio Rev. Code that contains the Significantly Excessive Earnings Test. I have highlighted relevant portions that provide direction on the development of a methodology for the implementation of the SEET:

"With regard to the provisions that are included in an electric security plan under this section, the commission shall consider, (1) following the end of each annual

period of the plan, if any such adjustments resulted in excessive earnings (2) as measured by whether the earned return on common equity of the electric distribution utility (3) is significantly in excess of the return on common equity that was earned during the same period by publicly traded companies**, (**4) including utilities, (5) that face comparable business and financial risk, with such (6) adjustments for capital structure as may be appropriate. Consideration also shall be given to the (7) capital requirements of future committed investments in this state. The burden of proof for demonstrating that (8) significantly excessive earnings did not occur shall be on the electric distribution utility. If the commission finds that such adjustments, in the aggregate, did result in significantly excessive earnings, it shall require the electric distribution utility (9) to return to consumers the amount of the excess by prospective adjustments; provided that, upon making such prospective adjustments, the electric distribution utility shall have the right to terminate the plan and immediately file an application pursuant to section 4928.142 of the Revised Code. Upon termination of a plan under this division, rates shall be set on the same basis as specified in division (C)(2)(b) of this section, and the commission shall permit the continued deferral and phase-in of any amounts that occurred prior to that termination and the recovery of those amounts as contemplated under that electric security plan. (10) In making its determination of significantly excessive earnings under this division, the commission shall not consider, directly or indirectly, the revenue, expenses, or earnings of any affiliate or parent company." (Underlining and numbering have been added).

Section 4928.143(F) lays out the principles by which "significantly excessive earnings" will be determined. Above, I have underlined and numbered portions of that statute that are the key components I have evaluated to develop a methodology for capturing and implementing these principles. The approach that I take is to address how best to capture comparability for both business risk and financial risk from the pool of publicly traded companies, including utilities, as required by the legislation. There are other important principles stated in the excerpt above, such as what may be the cause of any significantly excessive earnings, e.g., "if any such adjustments resulted in excessive earnings," that I do not address. I also do not examine what is the ROE for OPCo for 2012 *after* taking into account appropriate and permissible adjustments to their earnings. Nor do I address issues related to the manner and amounts to be returned to customers in the case of a determination of significantly excessive earnings. The primary focus of my work is the determination of that threshold earned rate of return on common equity (Threshold ROE) above which the ROE for OPCo in 2012 might be deemed to be significantly excessive.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF (1) "FOLLOWING THE END OF EACH ANNUAL PERIOD?"**

A. This implies that the excessive earnings test will be applied on an annual basis.

**Q.**

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF (2) "AS MEASURED BY THE EARNED RETURN ON COMMON EQUITY?"**

A. The Significantly Excessive Earnings Test looks at the actual earnings during the past year, and not the prospective forward-looking expected return (which would have

entailed a cost of capital estimation). This makes the exercise markedly different from the cost of capital discussions in traditional rate hearings. Moreover, since OPCo does not have traded equity, the accounting measure of earned rate of return on book common equity, ROE, as measured by net income divided by book equity, is applicable. I have therefore used this traditional measure in my analysis.

As a methodological issue, even if the stock is traded, use of stock rates of return is not consistent with the Significantly Excessive Earnings Test. Stock returns are the sum of dividend yield and capital gains or losses from the change in stock prices. The capital gains or losses component is based on end-of-year stock prices. However, year-end stock prices reflect investor expectations of future performance, which is not appropriate to include in the context of the Significantly Excessive Earnings Test, which is a retrospective review.

In calculating the book ROE, we need to decide on the earnings (numerator) and the equity (denominator) that belong to common shareholders for the test year. The intent of SEET has been interpreted to be directed at earnings derived from the normal functioning of the firm and not from one-time exceptional events (Finding and Order, Case No. 09-786-EL-UNC, June 30, 2010). Consequently, I use profit after deduction of all expenses including taxes, minority interests, and preferred dividends paid or accumulated, but before any non-recurring, special, and extraordinary items. In Value Line terms that is *Net Income Before Non-recurrings & Extras* minus *Preferred Dividends Paid Accumulated.* The Value Line definition of these earnings reads as follows: "Profit after deducting total income taxes, after-tax minority interest and discontinued items, but before preferred dividends paid and accumulated and non-

recurring and extraordinary items." There is an arguable case regarding what constitutes the normal course of business, and whether discontinued items should be treated like other one-time items. The question is: what are the normal ongoing earnings of a comparable firm? Are they before or after the adjustment of discontinued items? Consequently, I also employ a second measure, which is called *Net Income Before Discontinueds, Non-recurrings, and Extras* by Value Line. This is defined as "Profit after deduction of all expenses including taxes and minority interests, but before deduction of preferred dividends paid and accumulated and before non-recurring, special and extraordinary items." This is the primary measure of earnings on common equity that I use in my analysis. As a practical matter, I find that the results and conclusions are virtually unaffected by this choice between the two definitions of earnings. So, though I report findings with both measures, my remarks are limited to ROE based on *Net Income Before Discontinueds, Non-recurrings & Extras* minus *Preferred Dividends Paid Accumulated.* It should be noted that Preferred Dividends are removed in both measures, since we are interested in the earned rates to common shareholders.

Next, I turn to the denominator. It should also be noted that, for the purpose of complying with the new legislation, the traditional accounting measure, ROE, may overstate the actual earned rate experienced by the common equity outstanding at the start of a year if there are acquisitions that add to the net income during the year. Similarly, equity issuances and retirements during the year would imply that rates of return based on beginning of year equity again misstate the earned rates. Consequently, I employ the average of beginning-of-the-year and end-of-the-year book common equity for the denominator in calculating ROE. The Value Line variable used is *Common*

*Equity Reported*, which "represents the sum of the value of the common stock at par, the surplus of capital received (over par) plus retained earnings."

I believe that my above accounting definitions of the earned return on common equity, ROE, are consistent with those in the Commission's SEET Workshop Orders.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF (3) "SIGNIFICANTLY IN EXCESS OF THE RETURN ON COMMON EQUITY THAT WAS EARNED DURING THE SAME PERIOD BY PUBLICLY TRADED COMPANIES?"**

A. I address the methodological implication of "significantly excessive" returns later in my testimony. With regard to the comparison that this principle calls for, the statutory language recognizes that it is appropriate to compare the Companies' earned returns to a broader group than simply other electric utilities. Electric utilities are typically compared to a peer group comprised of other electric utilities. Yet, different electric utilities may face significantly different business and financial risks than other electric utilities even though they are in the same industry. For example, within Ohio there are differences based on whether a utility has all three businesses, generation, transmission, and distribution, or whether it provides service in only some segments of the electric business. Thus, even if a utility has a much higher (or lower) ROE in a given year compared to other electric utilities, one would have to take into account differences in risks between the subject utility and the other utilities before concluding that the ROE is indeed excessive (or inadequate).

**Q. WHY UNDERTAKE A BROAD REVIEW OF PUBLICLY TRADED COMPANIES?**

A. That is the basis by which significantly excessive earnings are to be judged. S.B. 221 presumes this approach, although it does not preclude a comparison with other utilities as well. Instead of the traditional approach of first calculating differences in ROE between an electric utility and its peer electric utilities, and then assessing whether the difference is remarkable in terms of differences in risks, the Significantly Excessive Earnings Test standard is to match risks across all publicly traded companies first. Thus, instead of simply using a traditional comparison with other utilities, the legislation directs that another peer group be defined based on "comparable" risk characteristics, irrespective of the industries from which these peer firms are drawn. ROEs can be compared after matching the subject electric utility on the basis of risk with the broadly drawn peer group.

The approach to implementing S. B. 221, which I have sponsored, invokes specific metrics to measure the business and financial risks of the subject utility, and then proceeds to identify a comparison group with matching business and financial risks. I believe that my approach, which does not prejudge what firms, or what types of firms, face comparable risks, is a comprehensive and, in the end, reliable approach. Although I am not a lawyer, as an expert in finance, I also believe that my approach respects the statutory directives.

**Q. HOW WAS THE ANALYSIS OF THE COMPARABLE RISK PEER GROUP COMPLETED?**

A. The procedure I have sponsored starts with the universe of all publicly traded U.S. firms, and then proceeds to identify those firms that face business and financial risks that match those of the subject electric utility. The challenge in this approach is to defend and apply

the metrics for business and financial risk reliably. Later, in my testimony, I show that my metrics are derived from well-grounded financial theory, and that additional metrics can be used to shore up the measurement of business and financial risks.

I start with all the U.S.-domiciled firms in the *Value Line Standard Edition* for 2012 which covers 1700 U.S. and foreign firms from about 100 industries. There are several reasons for focusing on this sample. *The Standard Edition* constitutes Value Line's flagship product because it provides comprehensive coverage for the more prominent firms, which are more likely candidates for comparison to our subject utilities than the many small firms included in the larger population. This is also the sample set used most commonly by others engaged in the SEET application.

Using the data in Value Line's *Standard Edition*, for every firm I first calculated the characteristics of interest – business risk and financial risk in 2012 (which are highlighted by S.B. 221 and are discussed later in my testimony). Using quintiles to form portfolios, I then divided firms into 5 different business risk groups (lowest to highest) and 5 different financial risk groups (lowest to highest). From these 25 cells (5 x 5 cells), I chose the cell that has AEP in it in terms of business risk. That cell, by design, captures firms that have comparable business risk to AEP. Since S. B. 221 requires us to focus on the business and financial risks of the subject utility, OPCo, and not the parent utility, I check that the chosen cell is well-suited for that purpose, and that using AEP's business risk is the appropriate starting points. Note that OPCo does not have traded stock, and its business risk is not directly observable. On the other hand, its financial risk (based on its use of leverage) is directly observable, and so we can choose the cells that contain OPCo based on its financial risks. This is how I form my Comparable Risk Peer Group for the

SEET. This is the same methodology that I used in the application of the SEET for 2009, 2010, and 2011.

**Q. DO YOU HAVE ANY METHODOLOGICAL CONCERNS REGARDING USE OF THE UTILITIES SECTOR SELECT SPDR (XLU) GROUP OF UTILITIES AS THE COMPARABLE RISK GROUP FOR PURPOSES OF THE SEET ANALYSIS?**

**A.** Yes. I have several concerns about using the Utilities Select Sector SPDR (XLU) group of firms to compose the comparable risk group for purposes of the SEET analysis. S. B. 221 requires that the business and financial risks are taken into account in identifying the group of comparable firms. Business risk is the risk arising from day-to-day business operations. For an electric utility the list of sources from which business risk can arise is extensive. These are risks that an all-equity firm's business operations face, which are separate from the additional risks that a firm with debt faces. Financial risks arise from the debt obligations of the firm. Since principal and interest payments take precedence over payments to common stockholders, debt leverage makes the financial returns to common stockholders riskier. There is no reason to believe that all electric utilities face the same business or financial risks. For example, not all electric utilities engage in all three businesses, generation, transmission, and distribution, altering the extent of business risks they face. Similarly, not all electric utilities have the same leverage or credit rating, altering the extent of financial risks they face.

The SPDR XLU methodology makes no attempt to determine the extent of business and financial risks faced by OPCo. Instead, it simply asserts that the component firms of the SPDR Sector Select Fund – Utilities (XLU) as a group represent the business

and financial risks faced by OPCo. There is no evidence of such a match. Indeed, by this logic the XLU firms would be a match for any utility, negating the mandate of S. B. 221 to compare a subject utility against firms that "face comparable business and financial risks."

In addition, there are reasons to think that the SPDR Select Sector Fund – Utilities (XLU) may not be a good match for business and financial risks for OPCo. Investment managers who form the fund are expected to be looking for best investments probably among large publicly-traded utilities that can accommodate substantial investor purchases, not necessarily firms with typical risks among electric utilities and certainly not risks faced by OPCo.

While the presence of non-electric utility firms among the component firms of XLU is not in itself a reason to fear a mismatch with OPCo, the inclusion of such firms without a check on their business and financial risk is a matter of concern. For example, AES, a firm in the Power industry according to Value Line, had a negative net income in 2010 even though this is income before discontinued, non-recurring, and extraordinary items. That is, the normal business of AES yielded negative net income in 2010, which makes AES an atypical firm to match with OPCo. By assuming that all SPDR firms as the matched sample, rather than analyzing whether they are a match, in my opinion the SPDR XLU methodology may include firms facing risks that are atypical of the risks faced by OPCo.

In addition, the SPDR XLU group of firms includes no non-utility firms. This seems to me to conflict with the statutory directive to consider all firms that face business and financial risks comparable to the risks that the subject electric utility faces.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF (4) "INCLUDING UTILITIES?"**

A. While S. B. 221 opens up the possibilities for the inclusion of non-utility firms in the Comparable Risk Peer Group, it does not exclude other utilities from entering the comparable group. In fact, given the similarity of the business, selected other utilities are naturally expected to have similar business and financial risks compared with the subject utilities. Consequently, I propose a "smell test," for the Comparable Risk Peer Group, according to which we expect a readily apparent representation of other utilities in the comparable group.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF THE REQUIREMENTS TO LOOK AT COMPANIES (5) "THAT FACE COMPARABLE BUSINESS AND FINANCIAL RISK?"**

A. The Significantly Excessive Earnings Test in S.B. 221 requires that business and financial risks be taken into account in identifying the sample of comparable firms.

Business risk is the risk arising from day-to-day business operations. For an electric utility, the list of sources from which business risk can arise is extensive. Business risk includes uncertainty associated with the revenue stream, the uncertainty associated with operating and maintenance expenses, regulatory risks, fluctuations in weather and demand, and many more. These are the risks that an all-equity firm's business operations face, which are separate from the additional risks that a firm with debt capital faces.

Business risks for electric utilities are higher in Ohio than in other states. For example, there is migration risk since customers have come-and-go-rights, while the

electric utility retains provider of last resort status at tariff rates. In another example, the Significantly Excessive Earnings Test is asymmetrical, since there is no provision to recover past under-recoveries of revenues if the earned rates turn out to be inadequate. There is also a requirement in Ohio to have transmission and distribution available for customer generation and distributed generation, a form of asset risk.

Financial risk arises from the debt obligations of the firm. Since principal repayments and interest take precedence over payments to common stockholders, debt leverage makes the financial return to common stockholders riskier. Principle No. 6 recognizes that different levels of financial risks result from different capital structures, and so it may be appropriate to make adjustments to a firm's capital structure when applying a comparable risk methodology.

**Q. HOW DO YOU MEASURE THE RISKS FACED BY COMMON STOCK INVESTORS?**

A. To examine the risks faced by common equity holders, I use the Capital Asset Pricing Model (CAPM). The CAPM has come to be the preeminent model for the measurement of risk. In fact, the development of the CAPM was cited in awarding the Nobel Prize to William Sharpe in 1990. Furthermore, according to the survey of CFOs undertaken by John Graham and Campbell R. Harvey ("The theory and practice of corporate finance: Evidence from the field," *Journal of Financial Economics* 61 (2001), 187-243), CAPM is by far the most widely used model for taking risk into account.

According to the CAPM, investors face diversifiable and non-diversifiable risks. By portfolio diversification, they are left with only market-related risks, captured by a beta coefficient, β. Beta coefficient measures by how many percent the value of a

security rises (falls) if the market – proxied, for example, by S&P 500 index – rises (falls) by one percent. That is, a stock with $\beta$=2 on average rises (falls) by two percent if the U.S. market rises (falls) by one percent. Naturally, the higher the security's beta, the more the security's value fluctuates as a consequence of market movements, and the riskier the security is. Consequently, this beta coefficient is my main measure of risk This beta coefficient can be estimated by a regression using the so-called market model:

$$R_{jt} = \alpha_j + \beta_j R_{Mt} + \varepsilon_{jt} \quad (1)$$

where $R_{jt}$ is the rate of return on stock j over the interval t, $R_{Mt}$ is the rate of return on a market portfolio over the same interval, $\alpha_j$ is the intercept of the regression line, $\beta_j$ is the slope of the regression line (also referred to as the risk measure, beta coefficient), and $\varepsilon_{jt}$ is the residual term in the regression. Since the regression can only be run with historical data, the resulting beta is usually adjusted to be applicable to the future.

I use Value Line, a highly reputable source of data used widely by investors, as my source for beta coefficients. The Value Line beta is calculated through regression analysis where the dependent variable is weekly percent changes in stock price ($R_{jt}$) and the independent variable is weekly percent changes in the New York Stock Exchange Composite Index ($R_{Mt}$) over a period of the past five years. The regression betas are then adjusted for their long-term tendency to converge toward a value of one. I have used Value Line betas ($\beta_{VL}$) as a measure of risk faced by common stock.

There are some known biases of the CAPM, though there are not as of yet standard adjustments for them, nor is it a frequent practice to make corrections for them.

One bias is that for high risk (high beta) stocks it overstates the risk, while for low risk (low beta) stocks it understates risk. To the extent that AEP betas are less than 1.0 (Value Line betas for AEP were 0.70 for each of the four quarters of 2012), the actual beta risk should be somewhat higher. CAPM also has a second bias. CAPM betas understate the risk of smaller firms' stock. (See Banz, R. W., The relationship between return and market value of common stocks, *Journal of Financial Economics*, Vol. 9 No. 1, 1981, 3-18.) Based on both of these biases, this means that for OPCo the actual beta would be higher than that attributed to it based on AEP's beta. Consequently, by using AEP's beta to impute the beta riskiness of OPCo, I offer a conservative test. Note also that I use the AEP beta to infer the riskiness of OPCo, and that it is not AEP on which the SEET test is being applied. OPCo is not traded, and its beta therefore can not be estimated directly.

CAPM betas, as measured by Value Line, only measure the risk faced by stockholders, and not the cause of the risk. Underlying this risk are its fundamental components which consist of business and financial risks. The Value Line betas reflect the cumulative effect of these business and financial risks.

**Q. WHAT IS AN UNLEVERED BETA AND WHY PROPOSE TO INCLUDE IT IN THE SIGNIFICANTLY EXCESSIVE EARNINGS TEST?**

A. To estimate business risk as viewed by the market, I take the total risk of the stock and "remove" the financial risk. The total risk of the stock is measured with CAPM betas (using the Value Line procedure), $\beta_E$. The business risk is measured by unlevering the CAPM betas to obtain the unlevered betas, $\beta_A$ (also called asset betas).

The procedure for unlevering betas is well established and goes back to Robert Hamada. (See Robert Hamada, The effect of a firm's capital structure on the systematic risk of common stock, *Journal of Finance* 27, 1972, 435-452.). If the market debt to equity ratio is denoted by D/E and the T is the corporate tax rate, then business risk, or unlevered beta, is given by:

$$\beta_A = \beta_E/[1 + (1 - T)(D/E)] \qquad (3)$$

In sum, there are several compelling reasons to recommend the use of unlevered betas:

1. The unlevered beta is derived from the Capital Asset Pricing Model for which William Sharpe received the 1990 Nobel Prize. It captures the risk that shareholders cannot diversify away.
2. The survey of CFOs by John Graham and Campbell R. Harvey ("The theory and practice of corporate finance: Evidence from the field," *Journal of Financial Economics* 61 (2001), 187-243) shows that by far the CAPM is the most widely used model for risk measurement.
3. Betas and the Capital Asset Pricing Model are regularly accepted by public utility commissions (PUCs) across the United States, including the Public Utility Commission of Ohio. In particular, since Value Line betas are routinely used before PUCs, shareholders may "count" their risk in terms of Value Line betas.

4. Specifically, the use of unlevered betas was accepted by the Public Utility Commission of Ohio as seen in the Testimony of Prof. Bradford Cornell (Case No. 96-922-TP-UNC). Indeed, I use exactly the same formula for unlevered betas as was employed by Prof. Cornell. Unlevered betas are not conceptually removed from betas, since they are the corresponding betas if the firm were to become an all-equity firm. That is, they are the betas left after the "subtraction" of financial risk.
5. The use and calculation of unlevered betas goes back decades to Robert Hamada ("The effect of a firm's capital structure on the systematic risk of common stock", *Journal of Finance* 27, 1972, 435-452).
6. There has been no specific concern raised about betas or unlevered betas as risk measures in any testimony filed on the SEET. In fact, Woolridge (on behalf of Ohio Consumers Counsel) in AEP Ohio's 2008 and 2009 ESP Proceeding has used betas for the measurement of risk.
7. Unlevered betas are a summative measure of total business risk, while other measures such as capital intensity (Revenues to Total Assets) capture only a specific aspect of business risk.

To be sure, betas, and thus unlevered betas, too have been challenged in the finance literature. However, as a practical matter, betas have greater acceptance than any alternative measure of risk (John Graham and Campbell R. Harvey, *Journal of Financial Economics* 61 (2001), 187-243).

A practical concern regarding betas may be that they can change over the year. That may well be the strength of betas, however, because they actively reflect changes in

risk. As to the point in time at which one should measure betas, I employ the average of the betas reported by Value Line during each of the four quarters of 2012. This is no different from forming the average book equity ratio as a measure of financial risk over the year, which is the type of averaging used by others who have participated in the SEET debate in the past. However, this may be a moot issue for the SEET for 2012 since Value Line reports the same beta, 0.70, for each of the four quarters of 2012.

Finally, there is also the practical issue that betas are only available for firms with traded stock. This is not usually an issue for the formation of the comparable sample since there are many traded firms (with Value Line betas available for them). So, we are looking for those firms that have comparable unlevered beta risks that match the subject utility, which itself need not be traded. In the case of Ohio electric utilities, these risks can confidently be imputed from the traded parent firm. Using the parent's publicly traded equity as a proxy for its utility subsidiaries' equity is standard practice in regulatory proceedings. The SEET does not preclude us from estimating risks of the subsidiary firm in the best way possible. Specifically, the SEET only says that "the commission shall not consider, directly or indirectly, the revenue, expenses, or earnings of any affiliate or parent company." Also, using AEP's betas for OPCo in the SEET gives us a more conservative test since, according to both known biases regarding estimated betas and actual risk, AEP's beta understates the risks for OPCo.

Besides the beta, formula (3) also requires on the right hand side, T, the tax rate, and D/E, the debt-to-equity ratio. For T, I use the reported tax rate provided by Value Line, *Reported Tax Rate* (taxes paid/pre-tax income). For D, I subtract from *Total Reported Assets* the figure *Reported Common Equity*. For E, it is feasible to estimate

market values at the end of 2011 and 2012, using average shares outstanding, *Common Shares Outstanding*, and the *Average Annual Price* of shares during 2012. The *Average Annual Price* is the average of the weekly (Wednesday) prices for the year.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF THE REQUIREMENTS TO MAKE (6) "ADJUSTMENTS FOR CAPITAL STRUCTURE AS MAY BE APPROPRIATE?"**

A. My procedure incorporates capital structure in two ways. First, in arriving at the unlevered beta, formula (3) takes the capital structure, (D/E), into account. Thus, the business risk is found by unlevering Value Line betas.

The second manner in which capital structure is taken into account in my methodology is in the formation of the cells. In dividing the cells into portfolios based on financial risk, I pointedly take the financial risks of the subject utility into account. As I discuss below, I use the book equity ratio for this purpose.

While the manner in which capital structure has been taken into account in the application of the SEET has differed, there is no apparent controversy that adjustments should be made on this account. After all, two firms with identical business risks may pose dramatically different risks to common shareholders depending on how differently the firms are financed. In part, the manner of taking leverage differences into account flows from how different participants in the SEET debate have chosen to draw firms for the comparable sample of publicly traded firms. If the comparison sample is somehow known *a priori*, when for example it is selected by asserting that firms in certain industries have the same business risks as the subject utility, then one can "undo" their capital structure and "re-leverage" to determine earned rates had they had the same

leverage as the subject utility. In the alternative approach, which I have adopted, comparison firms are identified taking capital structure, which reflects the financial risk, explicitly into account to begin with. Moreover, capital structure adjustments are made to overall risk (beta) to determine business risk (unlevered beta), which is also employed explicitly in the search for a comparable risk sample of publicly traded firms.

**Q. HOW DID YOU MEASURE FINANCIAL RISK?**

A. To measure financial risk, I used the book equity ratio, which is the (Average book value of equity beginning and end of 2012) / (Average of beginning and end of 2012 of total book assets). I chose this ratio because fixed income investors and credit rating agencies look at book equity to determine leverage and financial risk. Moreover, compared to a market-value based ratio, a book-based leverage ratio is more stable from year-to-year. (See Figure 14.2 in Chapter 14, page 344 of Richard A. Brealey, Stewart Myers, and Franklin Allen, *Principles of Corporate Finance*, McGraw-Hill Irwin, New York, NY, Tenth Edition, 2011.)

There is little controversy among proponents of different methodologies for the SEET regarding what constitutes financial risk and that some version of the book common equity ratio is an appropriate measure for it. While using the book equity ratio to illustrate the application of the SEET, I have also earlier made a case in my direct testimony in AEP Ohio's 2008 ESP Proceeding for the market equity ratio. Changing market conditions are better captured by the market equity ratio. However, credit agencies do pay attention to the book equity ratio, and the book equity ratio is more stable. Consequently, it is with the book equity ratio, as defined above, that I conduct the

SEET here. Specifically, I use the average of *Common Equity Reported,* beginning and end of 2012, divided by the average of *Total Reported Assets*, beginning and end of 2012.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF** (7) **"CAPITAL REQUIREMENTS OF FUTURE COMMITTED INVESTMENTS?"**

A. This provision allows electric utilities to "prepare" for future capital requirements, which will reduce free cash flow and could financially constrain the firms. Thus, what would otherwise appear to be significantly excessive earnings may be left without penalty if the extra earnings will help finance future investments. This mitigating factor is specifically included in S.B. 221.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF (8) "SIGNIFICANTLY EXCESSIVE EARNINGS?"**

A. It is natural for the ROE of OPCo to differ from the mean ROE for the Comparable Risk Peer Group in any given year. Normal business fluctuations (caused by any number of factors, such as weather for example) imply that such random deviations are expected even if there are no differences in business or financial risks. To determine whether the difference is merely a random deviation or not, I apply standard statistical theory, which is a reasonable method of looking at this data. There appears to be universal acceptance for using the mean return of the comparable group as a starting benchmark in the determination of the threshold for significantly excessive earnings. The mean return for a sample of returns, about which there appears to be no controversy, is of course itself a statistical construct. Moreover, the description of the returns to the comparable firms would be quite deficient if it was restricted to merely the mean without a sense of the variation around that mean. This is just what the standard deviation is capturing. In

other words, the issue at hand, determination of threshold earned rates (Threshold ROE), naturally lends itself to a statistical approach. This is not to say that there is no place for judgment and that the SEET is a mechanical exercise. It is one thing to determine the Threshold ROE rate from the comparable group of firms, and yet quite another as to what is the ROE of the subject utility to be used to compare against the Threshold ROE or what the appropriate remedies should be in case of significantly excessive earnings.

Next, like others setting aside any issues regarding how the standard deviation for a sample may differ from that of the underlying population, I discuss implications of determining Threshold ROEs at various numbers of standard deviations above the mean for the Comparable Risk Peer Group:

For a normal distribution, and two-tailed cutoffs,

(a) 1.96-standard: 1.96 standard deviations above the mean, implies a Threshold ROE
= Mean ROE for the Comparable Risk Peer Group
+ 1.96*Standard Deviation of ROEs for the Comparable Risk Peer Group.
Among the realistic set of positive earned rates, this is equivalent to a chance of 2.5 out of 50, or 5%, of being deemed significantly excessive even though it is the result of normal fluctuation. That is, the likelihood of a false positive is 5%.

(b) 1.64-standard: 1.64 standard deviations above the mean, implies a Threshold ROE
= Mean ROE for the Comparable Risk Peer Group
+ 1.64*Standard Deviation of ROEs for the Comparable Risk Peer Group.
Among the realistic set of positive earned rates, this is equivalent to a chance of 5.0 out of 50, or 10%, of being deemed significantly excessive even though it is the result of normal fluctuation. That is, the likelihood of a false positive is 10%.

(c) 1.28-standard: 1.28 standard deviations above the mean, implies a Threshold ROE = Mean ROE for the Comparable Risk Peer Group + 1.28*Standard Deviation of ROEs for the Comparable Risk Peer Group. Among the realistic set of positive earned rates, this is equivalent to a chance of 10.0 out of 50, or 20%, of being deemed significantly excessive even though it is the result of normal fluctuation. That is, the likelihood of a false positive is 20%.

Instead of focusing on the 5%, 10%, and 20% probabilities of false positives among the realistic set of positive returns, we can also examine the implications of 1, 2, or 3 standard deviation cutoffs, above and below the mean, in a normal distribution. So, yet another way to assess the 1.96-standard deviations (or approximately 2 standard deviations above and below the mean) adder is to compare it with a 1- or 3-standard deviations adder. In a normal distribution, a 1-standard deviation adder would allow a high proportion of ROEs, about one of three instances, to fall outside the 1 standard deviation range above or below the mean. Such a confidence level would categorize too many firms as earning significantly excessive returns. Contrast that with ROEs that fall beyond 3 standard deviations above or below the mean. These would have a likelihood of only 0.27%, 1 out of 370 instances, which would make ROEs falling beyond that range about the mean a rarity. That is, a very high proportion of firms with high ROEs would not appear to have significantly excessive earnings when using the 3-standard deviations rule. Finally, consider the middle ground, deviations that are greater than or less than about 2 standard deviations relative to the mean. This occurs about 5% of the time (or 95% level of confidence), or in 1 out of 20 instances, a reasonable frequency of cases with significantly excessive earnings.

In this testimony, I apply the 1.96-standard because it is the most commonly applied standard, and because it offers, in my opinion, a reasonably acceptable risk of false positives.

**Q. CAN YOU DESCRIBE OTHER CIRCUMSTANCES IN WHICH THE 95% CONFIDENCE LEVEL AND CORRESPONDING 1.96 STANDARD DEVIATIONS HAS BEEN USED TO DEFINE WHEN A DIFFERENCE IS SIGNFICANT?**

A. Yes. For example, the annual report of the U. S. Department of Education (U. S. DOE) titled *The Condition of Education* recommends that persons comparing sample estimates among the data in that report use the 95% confidence level, and corresponding 1.96 standard deviations, to determine whether the difference between two figures is a "real difference" and not "due to chance," i.e., whether the difference is significant (U. S. Department of Education, Institute of Education Sciences, *The Condition of Education*, User's Guide, Technical Guide, Data Analysis and Interpretation, http://nces.ed.gov/programs/coe/guide/g3c.asp). The user's guide for *The Condition of Education* report explains that "For all indicators in *The Condition of Education* that report estimates based on samples, differences between estimates (including increases or decreases) are stated only when they are statistically significant. To determine whether differences reported are statistically significant, two-tailed tests at the 0.05 level are typically used."

As another example, the Federal Energy Regulatory Commission's Staff's Final Report on Price Manipulation in Western Markets/Fact-Finding Investigation of Potential Manipulation of Electric and Natural Gas Prices, Docket No. PA02-2-000, at V-13

(March 2003), also provides support for the use of the 95% confidence level and related 1.96 standard deviations to measure significance:

> "Statistical significance is usually measured at the 90- or 95-percent confidence level. A coefficient is considered statistically significant at the 95-percent confidence level if the value of zero is not within a band around the coefficient value of 1.96 standard deviations."

*See id.* at V-13, http://www.ferc.gov/legal/maj-ord-reg/land-docs/part-2-03-26-03.pdf.

Yet another example comes from the United States Department of Justice Programs, Bureau of Justice Statistics (BJS), which puts out an annual report called the National Crime Victimization Survey. The publication describing the survey methodology explains that to determine whether the difference between two rates in the survey is statistically significant, the BJS uses a "z" score of 1.96, which "indicates that the difference is significant at the 95% confidence level (or greater)[.]" The publication goes on to say that, "In BJS reports, findings are normally significant at the 95% confidence level. If the finding is significant at the 90% confidence level, words such as 'some evidence' are used." (Please see page 9, http://bjs.ojp.usdoj.gov/content/pub/pdf/ncvs_methodology.pdf ).

Finally, a widely followed organization that has been conducting polls for over 75 years, Gallup, also uses a 95% confidence level. See, for example in the underlined phrase below, in the Survey Methods presented with the report on a recent poll by Gallup on President Obama's job approval ratings, "Obama Weekly Job Approval Average at

New Low of 43%," August 23, 2010, http://www.gallup.com/poll/142634/Obama-Weekly-Job-Approval-Average-New-Low.aspx:

> "Survey Methods
>
> Results are based on telephone interviews conducted as part of Gallup Daily tracking survey Aug. 16-22, 2010, with a random sample of 3,571 adults, aged 18 and older, living in all 50 U. S. states and the District of Columbia, selected using random-digit-dial sampling.
>
> For results based on the total sample of national adults, we can say with 95% confidence that the maximum margin of sampling error is ±2 percentage points.
>
> Interviews are conducted with respondents on landline telephones …."[Emphasis added.]

**Q. WHY NOT USE A 1.64X OR A 1.28X STANDARD DEVIATION AS THE ADDER TO CALCULATE THE THRESHOLD ROE?**

A. In my opinion, Threshold ROEs based on 1.64 or 1.28 standard deviations allow for too high a risk of false positives. Focusing only on the realistic set of positive earned rates, there are 5 out of 50 chances of naturally falling 1.64 standard deviations above the mean even though they are not truly excessive earnings. That is, the likelihood of a false positive conclusion – concluding that the earnings are significantly excessive when they really are not – is 10%. With a threshold set at 1.28 standard deviations, the probability of a mistaken determination of significantly excessive earnings is even greater, 20%. These are high probabilities of false positives. Given the asymmetric nature of the earnings test, a 1.64-standard or a 1.28-standard would create additional risk for Ohio utilities, which may ultimately adversely affect consumers for whose benefit S. B. 221 has been enacted.

**Q. WHAT ARE THE METHODOLOGICAL IMPLICATIONS OF (9) "TO RETURN TO CONSUMERS THE AMOUNT OF THE EXCESS?"**

A. Note that S.B. 221 proposes an asymmetric test, since significantly excessive earnings in a year may be returned, while shortfalls in prior years are left uncompensated. This in itself constitutes an additional business risk for common equity holders. Indeed, analysts have noted just this regarding the Significantly Excessive Earnings Test:

"The language is quite broad and allows the Public Utilities Commission of Ohio (PUCO) considerable discretion in determining the comparable companies (which are not limited to utilities) and what constitutes significant overearning….The earnings test may be something of a "stick" for the PUCO to moderate the rate impact over time, especially if market prices continue to rise." Elizabeth A. Parrella, Merrill Lynch's *Focus on Ohio*, April 25, 2008.

Besides highlighting this risk aspect, I do not address the manner and amount of returns to customers in case there is a determination that OPCo earned a significantly excessive rate of return to common equity.

**Q. HOW IS YOUR METHODOLOGY AFFECTED BY THE REQUIREMENT THAT (10) "IN MAKING ITS DETERMINATION OF SIGNIFICANTLY EXCESSIVE EARNINGS UNDER THIS DIVISION, THE COMMISSION SHALL NOT CONSIDER, DIRECTLY OR INDIRECTLY, THE REVENUE, EXPENSES, OR EARNINGS OF ANY AFFILIATE OR PARENT COMPANY?"**

A. My application of the SEET is based on the earned rate for OPCo in 2012, and not the earned rate for AEP. For financial risks, I use the book equity ratio that pertains to OPCo. Since it is not traded, I turn to AEP's unlevered beta to infer the business risks of

OPCo. Indeed, I believe that OPCo does not have the same unlevered beta risk as AEP. Rather, I argue that it is riskier and that if its equity was traded its directly estimated unlevered betas would be higher than AEP's and that needs to be taken into account.

**Q. SECTION 4928.143(F) STATES THAT "[W]ITH REGARDS TO THE PROVISIONS THAT ARE INCLUDED IN AN ELECTRIC SECURITY PLAN UNDER THIS SECTION, THE COMMISSION SHALL CONSIDER … IF ANY SUCH ADJUSTMENTS RESULTED IN EXCESS EARNINGS … ." DOES THIS LANGUAGE OF SECTION 4928.143(F) AFFECT YOUR METHODOLOGY FOR IMPLEMENTING THE SIGNIFICANTLY EXCESSIVE EARNINGS TEST?**

A. My testimony describes and supports a methodology to test whether an electric utility's earned return on equity may be significantly excessive. I do not address the extent to which, if at all, particular ESP provisions or adjustments implemented by such provisions might result in, or cause, excess earnings. Nor do I address how, in a specific case, the Commission should, after applying the Significantly Excessive Earnings Test, identify portions of the earned return that should be subject to a remedy, such as being returned to customers.

**DETERMINATION OF THE THRESHOLD ROE FOR OPCO FOR 2012**

**Q. HOW DID YOU DEVELOP YOUR COMPARABLE RISK PEER GROUP? AND WHAT SEET THRESHOLD ROE DOES THAT GROUP GENERATE?**

A. I now describe my analysis for determining the Threshold ROE in 2012 for OPCo. This is my preferred analysis because it best matches the business and financial risks of the subject utilities, and thus adheres best to S. B. 221. Since the Commission also has

considered calculating the Threshold ROE using the Utilities Sector Select SPDR (XLU), I later use that procedure too.

In forming the matched sample of firms I start with all 1700 firms in Value Line's *Standard Edition*. I utilize the October 7, 2013 version of the database, restricting myself to U.S. domiciled firms. In order to form matching portfolios of comparable firms, I make an initial check on data availability. I require that the firm has a Value Line beta and unlevered beta, as well as data on book equity, book equity ratio, and revenues. Since missing values can be mistakenly entered as zeros, I simply check if these data are greater than zero. I also confirm that its book equity ratio is less than one. I do not risk biasing my sample by using these checks on data quality since firms with negative or zero values, or equity greater than assets, are at any rate not appropriate matches with OPCo. The resulting sample consists of 1,339 firms.

I adopt the approach that develops a portfolio of matches, irrespective of their industry affiliation, but based on similarity of business (unlevered beta) and financial (book equity ratio) risks comparable to OPCo. I first divide all firms into 5 quintiles based on their unlevered betas, and into 5 quintiles based on their book equity ratios. From these 25 cells, I pick the cell which has OPCo in it. This is shown for 2012 in Panels A and B of Table 1. It happens to be the case that OPCo falls in the second quintile in which the book equity ratio ranges from 0.2572 to 0.3773 (Panel A). The book equity ratios of OPCo is 0.3443 in 2012.

For the unlevered beta, since OPCo is not traded, I use AEP's unlevered beta, which is 0.3043 for 2012. This falls in the first quintile in Panel B. I am interested in AEP's unlevered beta because it may be used as a proxy for the unlevered beta of OPCo,

consistent with standard utility practice. Since OPCo is a smaller firm and low betas are known to understate risk, its unlevered beta is expected to be higher than that of AEP. Thus, using AEP's unlevered beta as a proxy for OPCo's unlevered beta for the purpose of selecting the quintile makes for a conservative test. Also, the upper end of the first quintile is 0.4755, so that OPCo, though riskier than AEP's unlevered beta of 0.3043, should still fall comfortably within the quintile.

Out of the potential 25 cells, the cell matching on *both* book equity ratio and unlevered beta forms our Comparable Risk Peer Group. This group, from which AEP is now purposely excluded, consists of some 75 firms. This is a large enough number so that our results on the statistics (mean and standard deviations) of earned rates will not be dominated by a few outlier firms.

Panel C. 1. shows that the mean book equity ratio of the Comparable Risk Peer Group, 0.3103, is well matched with the book equity ratios for OPCo (0.3443). By design, I have narrowed the set of comparable firms to those with book equity ratios between 0.2572 to 0.3773 out of the full possible wide range of 0.0044 to 0.9428 for the 1,339 firms.

With respect to the unlevered betas, the comparable set is limited to the range 0.0770 to 0.4755 from a full possible wide range of 0.0770 to 1.8740. The mean for the unlevered beta for the Comparable Risk Peer Group is 0.3637. This is higher than that for AEP (0.3043), but then OPCo is expected to have a higher unlevered beta. Therefore, I conclude that the Comparable Risk Peer Group provides a good, likely conservative, match for business risk as well.

In Panel D, I present the composition of the Comparable Risk Peer Group. It naturally contains publicly-traded non-utility and utility firms, which conforms well with S. B. 221. Furthermore, it satisfies the "smell test," by which I propose that the representation by utilities should be quite apparent. Some 51 out of the 75 comparable group of firms (excluding AEP) or about 68% are utilities (Nat Gas Util, El Util, Oil/Gas Dist, Tele Service, etc.). If regulated industries are counted, the number of firms in the comparable group goes up to 59/75 or about 79%. Recall that I did not restrict my methodology to any particular industries. Some 16/75 or about 21% come from non-regulated firms. The presence of non-utility/non-regulated firms in the Comparable Risk Peer Group also meets the expectations of S. B. 221. It is also evidence that a procedure that eliminates such firms to begin with risks excluding viable matching firms of comparable business and financial risk from the SEET. Had we started with a pre-set group of industries, we would have hard-wired the procedure to exclude such non-utility firms from being potential candidates for the Comparable Risk Peer Group. It is also notable that three of the four major Ohio electric utilities, AEP by design and FirstEnergy and Duke, based on the similarity of their business and financial risks in 2012, appear in the same Comparable Risk Peer Group. However, there is no *a priori* reason that their risks and membership will remain the same in the future. In fact, First Energy was not in the comparable group for 2010, while Dayton Power and Light (subsequently acquired by AES Corp. through a merger with DP&L's parent, DPL Inc.) was in the comparable group in 2010. The stability of the sample is reflected in the repeats from the Comparable Risk Peer Group from the application of SEET to 2010. The 2012 Comparable Risk Peer Group contains 42 firms that were present in the 2010 Comparable

Risk Peer Group. That is, 42/75 or 56% of the sample is a repeat two years later. Again, this was not forced, and with changes in the economy and fortunes of firms this may not necessarily hold on an ongoing basis. While repeats are reassuring, it is also important to recognize that other firms enter the Comparable Risk Peer Group, as firms change and some become better matches.

In Panel E, I present the distribution of earned rates of return on common equity (ROE) using the primary definition of (*Net Income Before Discontinueds, Non-recurrings & Extras for 2012* minus *Preferred Dividends Paid Accumulated for 2012)/( Average of Common Equity Reported for end of 2011 and Common Equity Reported for end of 2012).* The mean ROE for the Comparable Risk Peer Group is 12.47% with a standard deviation of 6.89%. In Panel F, I reproduce the ROE, except that it is based on earnings before Non-recurring and Extra items. The mean and standard deviations are very close to those in Panel E.

In Panel G, I calculate the Threshold ROE above which the earnings may be considered significantly excessive under the SEET. The threshold earned rate is 25.98% corresponding to a threshold set at 1.96 standard deviations above the mean ROE for the Comparable Risk Peer Group.

**Q. HOW DO YOUR FINDINGS FOR 2012 COMPARE WITH YOUR APPLICATION OF SEET TO 2010?**

A. The mean ROE and its standard deviation for both Comparable Risk Peer Group are similar: Means are 11.4838% and 12.47% for 2010 and 2012, respectively. The standard deviations are 5.6809% and 6.89%, respectively. In this period, we see slightly more uncertainty and somewhat higher returns.

**Q. IS THE METHODOLOGY YOU ARE USING NOW THE SAME AS THE METHODOLOGY YOU PRESENTED IN CASE NOS. 11-4571 AND 114572-EL-UNC (FOR 2010 EARNINGS) PROCEEDING?**

A. Yes, the methodology has remained unchanged. I continue to use the unlevered beta to measure business risk, and the book equity ratio to determine financial risk. I still form cells after ranking all available firms, irrespective of their industry affiliations, according to their business and financial risks. The Comparable Peer Risk Group is the set of firms in the cell to which OPCo belongs based on its business and financial risk. The mean plus 1.96 standard deviations of the ROE of the Comparable Peer Risk Group firms defines the threshold beyond which returns are considered significantly excessive earnings, here and in my testimony in the SEET (for 2010 earnings) proceeding.

Once again, just as for calendar year 2010, consistent with others who implemented SEET, I use Value Line's *Standard Edition* of 1700 population of firms, and form my analysis with 5 x 5, or only 25 cells. Thus, my methodology has remained unchanged.

**Q. DID YOU ALSO APPLY THE METHODOLOGY APPLIED BY THE STAFF IN 2010 USING THE UTILITIES SECTOR SELECT SPDR (XLU)? IF SO, WHAT DID YOU FIND?**

A. For reasons enumerated earlier, the Staff's methodology using the XLU SPDR does not appear to meet the requirements of S. B. 221. Nevertheless, since the Commission has considered that methodology as well, I have applied it to the SEET for 2012.

In Table 2, Panel A, I list 31 firms that constitute the XLU SPDR. (Due to mergers and acquisitions XLU has seen some, though very slight, changes since 2010.)

In Panel B, I present the mean ROE and the standard deviation of ROEs for the 30 firms (AEP is excluded) in the XLU SPDR. The mean ROE for 2012 is 10.74%. The standard deviation is 3.12%.

In Panel C, I calculate the Threshold ROE, based on the procedure discussed by the Commission in its decision on OPCo's 2010 SEET. First the Threshold ROE is determined as follows: Mean ROE plus an adder, where the adder is based on a 95% confidence level (1.96*Standard Deviation of ROEs for the comparable group). The results are shown in Panel C.1 of Table 2. The Threshold ROE calculated in this manner is 10.74% + 1.96*3.12% = 16.86%.

Second, I calculate the Threshold ROE, also based on the procedure discussed by the Commission in its 2010 SEET, but using an adder of 1.64 standard deviations, determined as follows: Mean ROE plus 1.64*Standard Deviation of ROEs for the comparable group (which is an adder that corresponds to a 90% confidence level). The results are shown in Panel C.2 of Table 2. The Threshold ROE calculated in this manner is 10.74% + 1.64*3.12% = 15.86%.

## FINDINGS AND CONCLUSIONS

**Q. WHAT ARE YOUR FINDINGS AND CONCLUSIONS?**

A. I find that for 2012 the mean ROE of the Comparable Risk Peer Group is 12.47% and the standard deviation for the Comparable Risk Peer Group is 6.89%. Multiplying the 6.89% standard deviation by 1.96, corresponding to a 95% confidence level, produces an adder of 13.50%. Consequently, I conclude that the SEET Threshold ROE for 2012 for OPCo, for purposes of applying the SEET, is 25.98%.

For comparison purposes, the 2012 Threshold ROE would be 16.86% if the comparable risk group of firms is the set of firms that comprise the Utilities Sector Select SPDR (XLU), and the XLU group's mean ROE of 10.74% plus an adder corresponding to a 95% confidence level (1.96 times the standard deviation of 3.12%) for that group is used. Finally, and also for comparison purposes, the Threshold ROE would be 15.86% if the XLU group's mean ROE plus an adder of 1.64 times the standard deviation for that group, or 5.17%, is used (corresponding to a 90% confidence level).

**Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

A. Yes, it does.

**Table 1**
**Forming Comparable Risk Peer Group and Rate Earned on Common Equity (ROE)**
**Based on Financial Risk (Book Equity Ratio)**
**And Business Risk (Unlevered Betas)**
**For 2012**

**PANEL A: Ranges of Average Book Equity Ratios in full available data for 2012**

| | Values | percentile |
|---|---|---|
| | .0043794 | 0 |
| 1. | .2571795 | 20 |
| 2. | .3772961 | 40 |
| 3. | .4960164 | 60 |
| 4. | .6302102 | 80 |
| 5. | .9428343 | 100 |

AEP's average Book Equity Ratio for 2012 = 0.2804766

OPCo's average Book Equity Ratio for 2012 = 0.34432659

**Panel B: Ranges of Unlevered Beta in full available data for 2012**

| | **Values** | **percentiles** |
|---|---|---|
| | .0769647 | 0 |
| 1. | .4755328 | 20 |
| 2. | .6625295 | 40 |
| 3. | .812367 | 60 |
| 4. | .9648721 | 80 |
| 5. | 1.874008 | 100 |

AEP's Unlevered Beta for 2012 = 0.3042945

**PANEL C: Distributions of Financial and Business Risks of Comparable Risk Peer Group**

C.1: Distribution of average Book Equity Ratio for 2012

| Percentiles | | Smallest | | |
|---|---|---|---|---|
| 1% | .2577611 | .2577611 | | |
| 5% | .2638329 | .2600947 | | |
| 10% | .2712917 | .2607654 | Obs | 76 |
| 25% | .2865742 | .2638329 | Sum of Wgt. | 76 |
| 50% | .3006539 | | Mean | .3102694 |
| | | Largest | Std. Dev. | .0328956 |
| 75% | .3346455 | .3713124 | | |
| 90% | .3641645 | .3720267 | Variance | .0010821 |
| 95% | .3713124 | .3723932 | Skewness | .4689839 |
| 99% | .3744061 | .3744061 | Kurtosis | 2.138068 |

C.2: Distribution of Unlevered Betas for 2012

| Percentiles | | Smallest | | |
|---|---|---|---|---|
| 1% | .2530534 | .2530534 | | |
| 5% | .2782885 | .2597744 | | |
| 10% | .2948329 | .2692481 | Obs | 76 |
| 25% | .3182004 | .2782885 | Sum of Wgt. | 76 |
| 50% | .36057 | | Mean | .3637307 |
| | | Largest | Std. Dev. | .0549382 |
| 75% | .4016956 | .4592687 | | |
| 90% | .4377028 | .4623581 | Variance | .0030182 |
| 95% | .4592687 | .4631311 | Skewness | .0750218 |
| 99% | .467804 | .467804 | Kurtosis | 2.097702 |

**PANEL D: Comparable Risk Peer Group (75 firms) and AEP**

| | TICKER | Company Name | Industry Name | ROE |
|---|---|---|---|---|
| 34. | ACT | ACTAVIS PLC | Drug | .2081542 |
| 102. | ALE | ALLETE | El Util-Cent | .0851642 |
| 109. | LNT | ALLIANT ENERGY | El Util-Cent | .1052786 |
| 110. | ATK | ALLIANT TECHSYSTEMS | Aerospace/Df | .1984731 |
| 138. | AEP | AMER. ELEC. POWER | El Util-Cent | .0965347 |
| 147. | AWR | AMER. STATES WATER | Water Util | .1254359 |
| 151. | AWK | AMER. WATER WORKS | Water Util | .0862482 |
| 154. | AEE | AMEREN CORP. | El Util-Cent | .0802864 |
| 178. | AMGN | AMGEN | Biotech | .2670062 |
| 202. | AON | AON PLC | Fin'l Serv. | .1289141 |
| 222. | WTR | AQUA AMERICA | Water Util | .1161012 |
| 265. | T | AT&T INC. | Tele Service | .1380207 |
| 276. | ATO | ATMOS ENERGY | Nat Gas Util | .0832954 |
| 296. | AVA | AVISTA CORP. | El Util-West | .063971 |
| 386. | BKH | BLACK HILLS | El Util-West | .0711679 |
| 389. | BX | BLACKSTONE GROUP LP | Pub/Priv Eq | .2227505 |
| 558. | CTL | CENTURYLINK INC. | Tele Utility | .0387377 |
| 600. | CINF | CINCINNATI FINANCIAL | Ins Prop/Cas | .0801294 |
| 625. | CNL | CLECO CORP. | El Util-Cent | .112119 |
| 697. | CTWS | CONN. WATER SERVICES | Water Util | .0896958 |
| 701. | ED | CONSOL. EDISON | El Util-East | .0977201 |
| 901. | DTE | DTE ENERGY | El Util-Cent | .0926158 |
| 905. | DUK | DUKE ENERGY | El Util-East | .0670721 |
| 948. | EE | EL PASO ELECTRIC | El Util-West | .1146073 |
| 949. | EPB | EL PASO PIPELINE | Pipeline MLP | .2950318 |
| 972. | EDE | EMPIRE DIST. ELEC. | El Util-Cent | .0788797 |
| 1044. | EXC | EXELON CORP. | El Util-East | .0875953 |
| 1066. | FDO | FAMILY DOLLAR STORES | Retail Store | .3602565 |
| 1133. | FE | FIRSTENERGY CORP. | El Util-East | .0675922 |
| 1200. | GXP | G'T PLAINS ENERGY | El Util-Cent | .0629854 |
| 1204. | AJG | GALLAGHER (ARTHUR J. | Fin'l Serv. | .1343808 |
| 1223. | GIS | GEN'L MILLS | Food Process | .2670327 |
| 1452. | IDA | IDACORP, INC. | El Util-West | .0988936 |
| 1491. | IMKTA | INGLES MARKETS | Rtl/Whl Food | .0976893 |
| 1492. | IM | INGRAM MICRO 'A' | Cmptrs & Per | .0867803 |
| 1521. | TEG | INTEGRYS ENERGY | El Util-Cent | .0973416 |
| 1596. | JBLU | JETBLUE AIRWAYS | Air Transprt | .0702332 |
| 1625. | KMPR | KEMPER CORP. | Fin'l Serv. | .0419389 |
| 1638. | KMB | KIMBERLY-CLARK | House Prod | .3419973 |
| 1666. | LG | LACLEDE GROUP | Nat Gas Util | .1066267 |
| 1694. | LDOS | LEIDOS HLDGS. | Ind Services | .2250376 |
| 1865. | MGEE | MGE ENERGY | El Util-Cent | .1140158 |

| | | | | |
|---|---|---|---|---|
| 1883. | MSEX | MIDDLESEX WATER | Water Util | .0792273 |
| 1951. | NAFC | NASH FINCH CO. | Rtl/Whl Food | .0887874 |
| 2000. | NJR | NEW JERSEY RESOURCES | Nat Gas Util | .1413864 |
| 2035. | NU | NORTHEAST UTILITIES | El Util-East | .0794657 |
| 2042. | NWN | NORTHWEST NAT. GAS | Nat Gas Util | .0826937 |
| 2044. | NWE | NORTHWESTERN CORP. | El Util-West | .0933558 |
| 2062. | NVE | NV ENERGY INC. | El Util-West | .0924658 |
| 2079. | OGE | OGE ENERGY | El Util-Cent | .1331958 |
| 2130. | OTTR | OTTER TAIL CORP. | El Util-Cent | .0700604 |
| 2207. | POM | PEPCO HOLDINGS | El Util-East | .0649055 |
| 2208. | PEP | PEPSICO, INC. | Beverage | .2859126 |
| 2232. | PNY | PIEDMONT NATURAL GAS | Nat Gas Util | .1184236 |
| 2240. | PNW | PINNACLE WEST CAPITA | El Util-West | .0993913 |
| 2258. | PNM | PNM RESOURCES | El Util-West | .0665472 |
| 2269. | POR | PORTLAND GENERAL | El Util-West | .0831613 |
| 2312. | PEG | PUBLIC SERV. ENTERPR | El Util-East | .1177197 |
| 2356. | RTN | RAYTHEON CO. | Aerospace/Df | .2331091 |
| 2402. | RAI | REYNOLDS AMERICAN | Tobacco | .2210636 |
| 2477. | SCG | SCANA CORP. | El Util-East | .1044386 |
| 2510. | SRE | SEMPRA ENERGY | El Util-West | .1067343 |
| 2554. | SKYW | SKYWEST | Air Transprt | .0375905 |
| 2583. | SJI | SOUTH JERSEY INDS. | Nat Gas Util | .1371148 |
| 2586. | SO | SOUTHERN CO. | El Util-East | .1314869 |
| 2592. | SWX | SOUTHWEST GAS | Nat Gas Util | .1052528 |
| 2688. | SUSS | SUSSER HOLDINGS | Rtl/Whl Food | .1291268 |
| 2738. | TE | TECO ENERGY | El Util-East | .1079326 |
| 2962. | VVC | VECTREN CORP. | El Util-Cent | .1062976 |
| 3011. | WMT | WAL-MART STORES | Retail Store | .2302483 |
| 3021. | WM | WASTE MANAGEMENT | Environment | .1555055 |
| 3046. | WR | WESTAR ENERGY | El Util-Cent | .0966064 |
| 3058. | WGL | WGL HOLDINGS INC. | Nat Gas Util | .1109968 |
| 3083. | WEC | WISCONSIN ENERGY | El Util-Cent | .1349555 |
| 3096. | XEL | XCEL ENERGY INC. | El Util-West | .1043283 |
| 3107. | YORW | YORK WATER CO. (THE) | Water Util | .0953455 |

**PANEL E:ROE--- Rates Earned on Common Equity for 75 Comparable Risk Peer Group (excludes AEP)**

Using Net Income before Discontinued, Non-recurring, and Extras minus Preferred Paid and Accumulated

| Percentiles | | Smallest | | |
|---|---|---|---|---|
| 1% | .0375905 | .0375905 | | |
| 5% | .0629854 | .0387377 | | |
| 10% | .0670721 | .0419389 | Obs | 75 |
| 25% | .0831613 | .0629854 | Sum of Wgt. | 75 |
| 50% | .1044386 | | Mean | .1246948 |
| | | Largest | Std. Dev. | .0689316 |
| 75% | .1343808 | .2859126 | | |
| 90% | .2302483 | .2950318 | Variance | .0047516 |
| 95% | .2859126 | .3419973 | Skewness | 1.648038 |
| 99% | .3602565 | .3602565 | Kurtosis | 5.203004 |

**PANEL F: Earned Rates of Return on Common Equity for 75 Comparable Risk Peer Group (excluding AEP) Using Net Before Non-recurring, and Extra-ordinary items but After Preferred Dividends Paid and Accumulated (ROE before Non-recurring & Extras).**

| Percentiles | | Smallest | | |
|---|---|---|---|---|
| 1% | -.0109927 | -.0109927 | | |
| 5% | .0472383 | .0375905 | | |
| 10% | .0654591 | .0387377 | Obs | 75 |
| 25% | .0826937 | .0472383 | Sum of Wgt. | 75 |
| 50% | .1036107 | | Mean | .12335 |
| | | Largest | Std. Dev. | .0702035 |
| 75% | .1343808 | .2859126 | | |
| 90% | .2302483 | .2950318 | Variance | .0049285 |
| 95% | .2859126 | .3419973 | Skewness | 1.487349 |
| 99% | .3541257 | .3541257 | Kurtosis | 4.957197 |

**PANEL G: Threshold Earned Rates for Common Equity for OPCo in 2012**

PANEL G. 1. : Using 95% Confidence

| Mean of ROE of Comparables | Std. Dev. Of ROE of Comparables | Threshold with x1.96 Std. Deviations |
|---|---|---|
| 0.1246948 | 0.0689316 | 0.259801 |

PANEL G. 2: Using 90% Confidence

| Mean of ROE of Comparables | Std. Dev. Of ROE of Comparables | Threshold with x1.64 Std. Deviations |
|---|---|---|
| 0.1246948 | 0.0689316 | 0.237743 |

**Table 2**
**Mean of ROE and its Standard Deviation**
**for Utilities Select Sector SPDR (XLU)**
**to form Threshold for SEET**
**2012**

**PANEL A: Composition of Utilities Sector Select SPDR (XLU)in 2012 (31 firms)**

| | TICKER | Company Name | Industry Name | ROE |
|---|---|---|---|---|
| 67. | AES | AES CORP. | Power | .1781075 |
| 77. | GAS | AGL RESOURCES | Nat Gas Util | .080523 |
| 138. | AEP | AMER. ELEC. POWER | El Util-Cent | .0965347 |
| 154. | AEE | AMEREN CORP. | El Util-Cent | .0802864 |
| 550. | CNP | CENTERPOINT ENERGY | El Util-Cent | .136337 |
| 630. | CMS | CMS ENERGY CORP. | El Util-Cent | .1321968 |
| 701. | ED | CONSOL. EDISON | El Util-East | .0977201 |
| 880. | D | DOMINION RESOURCES | El Util-East | .1435785 |
| 901. | DTE | DTE ENERGY | El Util-Cent | .0926158 |
| 905. | DUK | DUKE ENERGY | El Util-East | .0670721 |
| 941. | EIX | EDISON INT'L | El Util-West | .1554533 |
| 1001. | ETR | ENTERGY CORP. | El Util-Cent | .1180826 |
| 1044. | EXC | EXELON CORP. | El Util-East | .0875953 |
| 1133. | FE | FIRSTENERGY CORP. | El Util-East | .0675922 |
| 1521. | TEG | INTEGRYS ENERGY | El Util-Cent | .0973416 |
| 2012. | NEE | NEXTERA ENERGY | El Util-East | .1232466 |
| 2020. | NI | NISOURCE INC. | Nat Gas Util | .0778271 |
| 2035. | NU | NORTHEAST UTILITIES | El Util-East | .0794657 |
| 2049. | NRG | NRG ENERGY | Power | .0621961 |
| 2104. | OKE | ONEOK INC. | Oil/Gas Dist | .1585744 |
| 2207. | POM | PEPCO HOLDINGS | El Util-East | .0649055 |
| 2223. | PCG | PG&E CORP. | El Util-West | .0699089 |
| 2240. | PNW | PINNACLE WEST CAPITA | El Util-West | .0993913 |
| 2276. | PPL | PPL CORP. | El Util-East | .1439309 |
| 2312. | PEG | PUBLIC SERV. ENTERPR | El Util-East | .1177197 |
| 2477. | SCG | SCANA CORP. | El Util-East | .1044386 |
| 2510. | SRE | SEMPRA ENERGY | El Util-West | .1067343 |
| 2586. | SO | SOUTHERN CO. | El Util-East | .1314869 |
| 2738. | TE | TECO ENERGY | El Util-East | .1079326 |
| 3083. | WEC | WISCONSIN ENERGY | El Util-Cent | .1349555 |
| 3096. | XEL | XCEL ENERGY INC. | El Util-West | .1043283 |

**PANEL B: Mean ROE for XLU firms (excluding AEP)**

Using Net Income before Discontinued, Non-recurring, and Extras minus Preferred Paid and Accumulated

| Percentiles | | Smallest | | |
|---|---|---|---|---|
| 1% | .0621961 | .0621961 | | |
| 5% | .0649055 | .0649055 | | |
| 10% | .0673321 | .0670721 | Obs | 30 |
| 25% | .0802864 | .0675922 | Sum of Wgt. | 30 |
| 50% | .1043834 | | Mean | .1073848 |
| | | Largest | Std. Dev. | .0312395 |
| 75% | .1321968 | .1439309 | | |
| 90% | .1496921 | .1554533 | Variance | .0009759 |
| 95% | .1585744 | .1585744 | Skewness | .3745461 |
| 99% | .1781075 | .1781075 | Kurtosis | 2.247619 |

**PANEL C: Threshold Earned Rates for Common Equity for OPCo 2012**

PANEL G. 1. : Using 95% Confidence

| Mean of ROE of Comparables | Std. Dev. Of ROE of Comparables | Threshold with x1.96 Std. Deviations |
|---|---|---|
| 0.1073848 | 0.0312395 | 0.16861422 |

PANEL G. 2: Using 90% Confidence

| Mean of ROE of Comparables | Std. Dev. Of ROE of Comparables | Threshold with x1.64 Std. Deviations |
|---|---|---|
| 0.1073848 | 0.0312395 | 0.15861758 |

Summary: Testimony Direct Testimony of Anil K. Makhija on behalf of Ohio Power Company electronically filed by Mr. Daniel R. Conway on behalf of Ohio Power Company and Nourse, Steven T. Mr.