COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

The Application of Kentucky Utilities Company	)	
For a Certificate of Public Convenience and	)	
Necessity to Construct Flue Gas Desulfurization	)	CASE NO. 2004-00426
Systems and Approval of its 2004 Compliance	)	
Plan for Recovery by Environmental Surcharge	)	

Testimony of Carl G. K. Weaver
Appearing on behalf of the Office of
The Attorney General for the Commonwealth of Kentucky
Office of Rate Intervention

March 2005

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Vita – Carl G. K. Weaver

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The Application of Kentucky Utilities Company
For a Certificate of Public Convenience and Necessity
To Construct Flue Gas Desulfurization Systems and
For Approval of its 2004 Compliance Plan for
Recovery by Environmental Surcharge

Case No. 2004-00426

Q. Please state your name, address and occupation.

A. My name is Carl Weaver. My address is 4713 Wengers Mill Road, Linville, Virginia 22834. I am an emeritus professor of finance at James Madison University.

Q. What is the purpose of your testimony in this proceeding?

A. My testimony has three purposes. First, I will present the results of a study that I performed regarding the cost of equity for use in Kentucky Utilities Company's (KU's) 2004 Compliance Plan for Recovery by Environmental Surcharge. Second, I will explain why the lower end of the cost of capital range, using that cost of equity, should be used for determining the Monthly Environmental Surcharge Factor. Third, I will explain why the cost of pollution control bonds should be used as the cost of long-term debt in the capital structure that is used to determine the rate of return.

Q. Have you provided a description of your qualifications to perform this study?

A. Yes, it is included as Appendix I of this testimony.

Q. Have you prepared an exhibit to support your testimony?

A. Yes, it was prepared by me, and it is included as part of this testimony.

I. Economic Principles for Determining the Cost of Equity

Q. What economic principles are mandated for determining the cost of capital for regulated utilities?

A. The economic principles for determining the cost of capital for regulated utilities have been set forth in the Bluefield Water Works & Improvement Co. v. P.S.C. of West Virginia, 262 U.S. 679 (1923), and F.P.C. v. Hope Natural Gas Co., 302 U.S. 591 (1944), Supreme Court decisions.

The Court, in the *Bluefield* case stated:

> The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.

From a financial perspective, there are three distinct points in the above quotation that apply to the rate of return. First, the target return on equity must be adequate, under efficient operating conditions, to assure the financial integrity of the business and enable the utility to attract capital. Second, it should be competitive with other opportunities for investment, and third, the target equity rate should be changed as the level of interest rates and equity cost rates in the capital market change.

Q. What additional criteria did the *Hope* case provide?

A. Again, from a financial perspective, the *Hope* case more precisely defines what is meant by "financial integrity" and "capital attraction." In the *Hope* case the Court stated:

> ... It is important that there be enough revenue not only for operating expenses, but also for the capital costs of the business. These include service on the debt and dividends on the stock... By that standard, the return to the equity owner should be commensurate with the return on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

These principles have been confirmed in the Permian Basin Area Rate Cases, 390 U.S. 747 (1968) and the Federal Power Comm. V. Memphis Light Gas & Water Division, 411 U.S. 458 (1973).

Q. How do your findings assure compliance with your interpretation of those economic principles?

A. The evaluation models that I have selected for determining the cost of equity capital rely on the opportunity cost principle. This reliance on the opportunity cost principle assures compliance with the requirements of *Bluefield* and *Hope*.

Q. What is the opportunity cost principle?

A. The opportunity cost principle is discussed in Appendix II to this testimony.

Q. What cost of equity evaluation models do you use in your analysis?

A. I use two versions of the discounted cash flow (DCF) technique, the constant-growth DCF model and the multi-stage DCF model; the Capital Asset Pricing Model (CAPM); and the bond-yield-plus-risk premium approach (bond-

risk-premium or BYRP). These methods are also discussed in Appendix II of this testimony.

Q. What type of information do the costs of equity evaluation models require?

A. The costs of equity evaluation models require data obtained from the stock market, from stock market analysts, and from the underlying companies.

Q. How did you get the stock market data for this study?

A. I selected a group of electric companies that have common stock traded in the capital market. I had to use a proxy group of companies to determine the cost of equity for use in the environmental surcharge because KU does not have outstanding common stock that is traded in the capital market.

Q. Dr. Weaver, what steps did you take to determine the cost of equity in your analysis?

A. My analysis was done in four distinct steps. First, I examined economic data to gain information about investor expectations regarding capital costs rates.

Second, I tested the group of nine companies that I selected for obtaining data in Case No. 2003-00434 to determine if they still meet the selection criteria. Three did not, and two additional companies did. I eliminated the three companies and added the two companies to form a new group of eight companies that in my opinion have, as close as possible, similar risks to KU.

Third, I examined data that provides information about the risk differences between the group of selected companies and KU.

Last, I used evaluation models to estimate the cost of equity for the revised group of eight companies and for the original group of nine companies used in Case No. 2003-00434.

Q. What is the range that contains the cost of equity for KU?

A. The range that contains the cost of equity for KU is from 9.75% to 10.25%.

Q. Do you have a Schedule in your Exhibit that summarized these results?

A. Yes. Schedule 1 of my Exhibit shows those results. The top half of that Schedule shows the cost of equity for the two groups of companies – the original group of nine companies from Case No. 2003-00434 and the revised group of eight companies.

The first column shows the recommendations that were made in Case No. 2003-00434. These findings had used data from the original nine companies that were found suitable for use in that Case. The average of those results was 9.49% prior to any adjustments being made.

The second column of that Schedule shows the results using the same nine companies with updated or current data. The average of these results was 9.30%. This is 19 basis points lower than the results found using data at the time of testimony preparation for the previous Case.

The third column shows the results using current data for the revised group of eight companies. These results average 9.21%. Its results are 28 basis points lower on average that the results found in Case No. 2003-00434.

The lower half of Schedule 1 shows the two adjustments that I made in Case No. 2003-00434. The first adjustment was to the two DCF results. This was made because the forecasts for ten-year government bond interest rates indicated that they were expected to be 95 basis points higher in the near term future. At the time of that Case, constant maturity 10-year government bond rates were close to

4.05%. The CBO projection for 10-year Treasury Notes for 2004-2005 was expected to average 5.00%.

Currently, these ten-year government bond interest rates are expected to be 100 basis points higher. The February 15, 2005 constant maturity 10-year government bond rate was 4.10% and the CBO 2005-2006 forecast averages 5.10%. The adjustment itself is 50 basis points because the adjustment is applied to only the two DCF model's results. The other two methods already use the forecasted rates in their implementation.

In Case No. 2003-00434, I made a second adjustment of 25 basis points because of the ESM elimination. I made a similar adjustment to my results in this proceeding. The Order from Case No. 2003-00434 in which the ESM was eliminated was dated June 20, 2004. Confirmed knowledge of its elimination is less than one year old. The data used for this study originated, for the most part, in the second half of 2004 or in early 2005. The 25 basis point adjustment was made in this Case because the effect of the elimination may not fully be assimilated into the data.

II. Economic Analysis

Q. Dr. Weaver, what economic measures did you consider in your review of present and prospective economic conditions?

A. I considered current and forecasted data about the business cycle as measured by the real rate of change in the Gross Domestic Product (GDP), the index of Leading Economic Indicators, the inflation rate as measured by the Consumer Price Index (CPI), and interest rates.

Q. What does the real rate of change in GDP indicate and why is it important?

A. The real rate of change in GDP provides the inflation-adjusted rate at which finished goods and services are produced in our domestic economy. Positive values indicate a growing economy and negative values indicate a declining economy.

The rate of economic growth provides a mixed message for investors. Too high a growth rate could be inflationary. This inflation would be caused by the demand for goods and services outstripping the supply. A too low or negative growth rate indicates a recession. In fact, a "rule of thumb" definition for a recession is two consecutive quarters of declining GDP.

Q. What do you mean by "too high" or "too low" a growth rate in GDP?

A. I believe that an ideal growth rate should normally be in a range from 2% to 5%. An annual growth rate that is less than 2% indicates that economic output is increasing too slowly and the economy might be headed toward a recession. An annual growth rate that is above 5% tends to indicate that the economy is over-heating and could become inflationary, particularly when the economy is near full employment. However, when the economy is in the early stages of a recovery, such as occurred in the third quarter of 2003 and has less than full employment, the rate may exceed 5% without being inflationary.

Q. What are the recent changes in GDP?

A. Between 1994 and 2004, the economy grew at an average annual rate of 3.4%.

A recession occurred in 2001. The growth in GDP was 0.8% that year. The National Bureau of Economic Research assigned March 2001 as the beginning of the recession and November 2001 as its ending date.

Q. Dr. Weaver, Schedule 2 also shows information about the consumer price index. What information does this convey and why is it important?

A. The consumer price index provides a measure of inflation. Capital market equity cost rates and interest rates contain a premium for expected inflation so that investors can maintain the purchasing power of the dollars that they have invested. When inflation rates are expected to increase, equity cost rates and interest rates will also increase. When inflation is expected to remain low, longer-termed capital market cost rates will also remain at a lower level, given the prevailing level of risk-free interest rates.

Q. What has recent inflation been?

A. In the 1994 to 2004 period, inflation averaged 2.5%.

Q. What is the expected GDP real rate of growth for the near-term future?

A. Forecasts for GDP are shown in Schedule 3. For the four-year period 2005 through 2008, the GDP growth rate is expected to be between 3.2% and 3.8%. These forecasts are somewhat lower than earlier forecast for this period. However, this growth rate is within what I consider to be an ideal range for investment growth -- neither too high nor too low.

Q. What are the near-term expectations about inflation?

A. Four-year forecasts for inflation are also shown in Schedule 3. Both the Value Line and the Congressional Budget Office forecasts indicate that inflation

is expected to remain within a range that is between 1.9% and 2.5% over the next four years.

Q. Do you have other information that confirms the reasonableness of these growth forecasts?

A. Yes. I examined the Index of Leading Economic Indicators (LEI) to obtain information about the GDP growth forecasts. These data are shown in Schedule 4. As shown in the second column, the percentage change in the monthly LEI Index was positive from May 2003 through May 2004. It has been negative from June 2004 through October 2004. It was positive for November and December and in January 2005, it was negative again.

The LEI provides information about likely changes in GDP but it does not indicate when the changes in GDP will occur or the magnitude of those changes. It generally leads changes in GDP by one to three quarters. The negative LEI measures in late 2004 help explain why the forecasts for real growth in GDP for the period 2005 through 2008 are lower than ones previously published. Both Value Line and the CBO forecasted the real GDP growth rate to be lower in 2005 than it was in 2004. The 2004 real rate of change in GDP was 4.4% and the two forecasts indicate it will be either 3.4% or 3.8%.

Q. What interest rate data did you examine?

A. I looked at recent and forecasted short and long-term government bond rates.

Q. What do these forecasts for interest rates indicate?

A. The forecasts for 3-month Treasury Bills and 10-year Treasury Bonds are shown in Schedule 5. According to the forecasts, both short-term rates and long-term rates are expected to slowly increase from 2005 through 2008.

The Value Line short-term 3-month rates are forecasted to increase from 2.6% in 2005 to 3.5% in 2008. The CBO forecast these 3-month rates to increase from 2.8% in 2005 to 4.6% in 2008.

The CBO and Value Line forecasts for 10-year treasury notes are close to one another. These are expected to increase from 4.7% or 4.8% in 2005 to between 5.5% and 5.8% in 2008. This represents an 80 to 100 basis points increase.

Q. Dr. Weaver, what do recent changes in interest rates indicate?

A. Changes in interest rates over the two month period from December 15, 2004 to February 15, 2005 are shown in Schedule 6. During this period, the Federal Funds rate and the 3-month T-bill rate have increased 24 basis points. One to three year constant maturity rates are between 15 and 19 basis points higher in February than they were in December.

Ten and twenty year government bond constant maturity rates decreased over this same period. The rates on these long-term securities increased in the first month but decreased in the second month. On February 15, they were close to the same level that they were on December 15. The possibility of a looming economic slowdown could be one reason why interest rates on long-term bonds have not had a net increase over the December 15 to February 15 period.

Q. How do you expect the growth in economic activity and change in interest rates to affect the cost of equity for electric utilities?

A. The cost of equity for electric utilities should slowly increase over the near-term future. This will be caused by the gradual increase in interest rates.

III. Company Verification and Selection

Q. What was the next step in your cost of equity study?

A. I applied the same criteria that I used to select the companies for obtaining data in Case No. 2003-00434 to determine if, when current information is used, the nine companies still met those same criteria.

Q. What were those criteria?

A. The criteria that I examined included Value Line's financial strength rating, Value Line's recommendation about whether an investor should purchase that company's stock, whether or not the company had recently sold or purchased major assets, whether it was involved in merger activities, whether it had a contiguous operating system, the company's fuel mix used for electrical generation, its electric revenues as a percent of total revenues and its equity as a percent of total capital.

Q. Using those criteria, would you have selected those same nine companies to obtain data for your cost of equity analysis in this proceeding?

A. No. Three of those companies no longer met the selection criteria when current data was used. Two other companies that were rejected from the sample in the study for Case No. 2003-00434 were now eligible for inclusion in the sample.

Q. What are the names of those companies?

A. The companies that do not currently meet the criteria are Ameren, Empire District, and PNM Resources. The ones that now meet the criteria and should be

added are Alliant Energy, and WPS Resources. Eight companies now meet those selection criteria.

Q. What criteria do the companies that were eliminated no longer meet?

A. Ameren and PNM had major asset acquisitions. Ameren acquired Illinois Power Company and PNM acquired TNP Enterprises. These acquisitions amount to 19% and 10% of each respective company's total capital. Empire District's common stock was not recommended by Value Line.

Q. Dr. Weaver, why didn't you include companies that recently had major asset purchases or recently had major asset divestitures?

A. Major asset acquisitions or divestitures change the earnings expectations of a company. In addition it changes the risk associated with the company's earnings expectations. Time is required for a company's earnings data to gain the reliability it previously had prior to the acquisition or divestiture.

Q. How did you define whether an asset acquisition or divestiture was "major" or not?

A. I used the Value Line estimate of the dollar value of the acquisition or divestiture and took it as a percent of the Value Line estimate of the company's 2004 total capital. If the acquisition or divestiture was 10% or greater than the estimated total capital, I considered it major.

Q. Why weren't the companies that you added included in the cost of equity study you performed for Case No. 2003-00434?

A. Alliant Energy had been eliminated for use in the previous study because it was divesting some of its assets. This divestiture has now been completed. WPS

Resources had been eliminated from the previous study because it had a ratio of electrical revenues as a percent of total revenues that was below 60%.

Q. Why did you use those same nine companies in this case along with the revised group of eight companies?

A. I used them because it increases the information that is available for estimating the cost of equity. It provides information from two groups of companies – the original group and a revised group.

Q. Do you expect to find much difference between the two groups of companies?

A. No. Six of the companies in each group are the same. Because of this large overlap of companies, the average of the data obtained from each group should be close to one another.

Q. What difference in the cost of equity determined from the two different groups of companies should be expected?

A. The cost of equity found by updating the data for the group of nine companies should be somewhat higher than the cost of equity found using data from the revised group of eight companies.

Q. Why would that difference be expected?

A. The overall risk is higher for the nine companies used in Case No. 2003-00434 than for the revised group. The reason for the higher risk is that one of the company's common stock was not recommended by Value Line and two of the companies had major asset acquisitions. Less certainty is associated with their expected earnings and a higher return will be required.

Q. Dr. Weaver, do you have supporting Schedules that show how the selection criteria were applied to choose the revised group of eight companies?

A. Yes, Schedules 7 through 12 in my Exhibit show how the selection criteria were applied.

Q. Would you describe these Schedules?

A. Yes. Schedule 7 shows the 61 companies that are in the current edition of Value Line. The current Value Line Financial Strength Rating for each company and their previous Financial Strength Rating at the time of Case No. 2003-00434 is also shown in that Schedule. Eight companies had their Financial Strength Rating increased and none were decreased.

Q. What is the Financial Strength Rating?

A. The Financial Strength Rating is an assessment of financial leverage, business risk, company size, and other factors made by Value Line analysts for each of the companies that they follow. A "B" rating is considered average. A Financial Strength Rating of "C" is below average.

Q. What information does Schedule 8 provide?

A. Schedule 8 provides the names of the companies that were eliminated and the reasons for their elimination. The remaining eight companies that were not eliminated are shown in the last category on page 2 of Schedule 8.

Q. What do the remaining Schedules show?

A. Schedules 9 through 12 provide the data for the various groups of companies that are shown on Schedule 8. For example, Schedule 9 provides the fuel used for generation for the twenty-eight companies that remained at that step of the analysis. Schedule 10 shows the product mix as a percent of revenues for the fifteen remaining companies at that step. The capitalization amounts and

capital structures for the ten remaining companies are shown in Schedules 11 and 12.

Q. Dr. Weaver, after applying the selection criteria, how many companies remained?

A. Eight.

Q. What were names of the eight companies that remained?

A. The eight companies that remained were: Alliant Energy, Corp.; Cinergy Corp.; DTE Energy; FPL Group, Inc.; MGE Energy; Progress Energy; Southern Company; and WPS Resources, Corp.

IV. Risk Analysis

Q. How did you use the information provided by the risk analysis?

A. I used the information from the risk analysis to determine if an adjustment to the results of the cost of capital analysis is needed. The use of capital market price data from these companies, after being adjusted for any risk difference between the selected companies and KU, cause the results to be in compliance with the *Bluefield* and *Hope* mandates.

Q. How did you proceed with your risk analysis?

A. I first examined cash flow measures of the eight companies and compared them with the same cash flow measures for KU. I then compared the capital structures of the selected companies with KU. This was followed by a comparison of debt measures, and accounting measures. Lastly, I examined Value Line's measures and Standard & Poor's measures of the group of companies to determine the homogeneity of the selected group.

Q. Dr. Weaver, would you explain your cash flow analysis?

A. I evaluated cash flow ratios for the years 2002 and 2003 for each of the eight companies. I then compared the average of the ratios for the eight companies with the same ratio for KU. The ratios examined were the cash flow coverage of interest, total dividends, investing activities, and net income.

Q. How do the cash flow ratios indicate the similarity of the companies?

A. Companies that are similar to one another with respect to risk generally have similar cash flow coverage of interest, dividends, investments, and quality of earnings.

Q. What source document do you use to construct the cash flow ratios?

A. The cash flow measures are taken from the Cash Flow Statement that is compiled by each company and accompanies its Balance Sheet and Income Statement as one of its principal financial statements.

Q. What accounting standard governs the Cash Flow Statement?

A. FASB 95 provides the methods for preparing the Cash Flow Statement.

Q. Did you use the same interest coverage measures that are used by Standard & Poor's?

A. No. Standard & Poor's excludes changes in working capital in its calculation of the amount of cash available from operating activities. The coverage ratios that I use are calculated from "cash flow from operating activities" that is defined by FASB 95. It includes changes in working capital.

The exclusion of working capital may be inconsequential when only minor changes occur in the current asset or current liability accounts. However, when large changes occur, the amount of cash available for coverage would be either

over- or under-stated unless the changes in working capital are recognized in the cash flow statement. For this reason, the coverage calculated according the FASB 95 provides better information for the analysis.

Q. What Schedules show the cash flow coverage ratios for the revised group of eight selected companies?

A. Data for each of the eight selected companies and for KU are shown on Schedules 14 through 23. A summary of the cash flow coverage is shown in Schedule 13.

Q. What does the cash flow coverage of interest indicate?

A. The cash flow coverage of interest expense indicates how many times cash flow from operating activities before interest is paid covers the interest expense that was incurred in the year of measurement. It is calculated as cash flow from operating activities plus interest expense and this quantity is divided by interest expense. A low ratio would indicate a greater risk because the firm might have difficulty making its contractual interest payments. A higher ratio would indicate less risk.

Q. What is the cash flow coverage of interest for the revised group of eight companies?

The average for the eight-company group is 4.84 times coverage. This compares with a 9.11 times coverage for KU. The magnitude of this coverage indicates that all of the companies have ample coverage to make interest payments and there is little risk of default on outstanding debt. KU has nearly two times more coverage than the average for the eight companies and is less risky.

Q. Please describe the cash flow coverage of total dividends.

A. The cash flow coverage of dividends shows the number of times that cash flow from operating activities covers the common and preferred dividend payments. Companies that have a low coverage might have the risk of having to reduce or even eliminate a dividend payment.

Q. What is the cash flow coverage of dividends for KU relative to the eight companies?

A. The eight-companies cover their total dividend payments an average of 3.23 times. KU covers its dividend payments 91.48 times. The extremely high ratio for KU is the result of not making a common dividend payment in either 2002 or 2003. It did make preferred dividend payments in those years.

Q. Does the 91.48 cash flow times dividend coverage indicate that KU is less risky than the eight-company group?

A. No. KU is more risky because it has already skipped its common dividend payments in both 2002 and 2003 and its risk is 100%. The risk is not as great as it would be if KU's common stock was publicly held. The parent companies, LG&E and indirectly E.ON. were probably aware of the need to forego the dividend and may have participated in the decision. However, the parent companies that own KU are not receiving a return on their investment through the dividend mechanism so there is some risk associated with the non-payment of dividends.

Q. What does the cash flow coverage of investing activities represent?

A. The cash flow coverage of investing activities indicates how many times cash flow from operating activities covers long-term investments in plant and other assets. A ratio greater than 1.0 indicates that internally generated funds are sufficient to cover investments provided that there were no dividend payments or

payments to cover maturing financial assets. When the coverage after dividends and maturities exceed the proportion of equity in the capital structure, the company can meet its external financing with debt and not have its capital structure equity ratio decline.

The higher the coverage, the less likely the company will be forced to seek substantial external financing for plant construction or other asset acquisitions. Therefore, a high ratio indicates greater protection from the vagaries of the capital market and shows a lower amount of risk.

Q. What was the cash flow coverage of investing activities for the eight-companies and for KU?

A. The eight companies' cash flow coverage of investing activities averaged 0.87 times and KU's average was 0.71 times.

Q. What does this indicate?

A. It indicates that KU has slightly greater risk than the eight companies.

Q. What does the cash flow coverage of net income indicate?

A. The cash flow coverage of net income is a measure of the quality of earnings. It represents the number of dollars of cash flow from operating activities per dollar of net income reported on the income statement. It is calculated as the cash flow from operating activities from the cash flow statement divided by net income from the income statement.

Q. What did you find about this coverage measure for the eight companies and KU?

A. The eight companies' average coverage was 2.45 times while the coverage for KU it was 2.24 times.

Q. How do you interpret this quality of income measure?

A. All of the companies have a good quality of reported net income. The eight companies have $2.45 in cash flow from operating activities for each $1.00 in reported net income. KU has $2.24 in cash flow from operations for each $1.00 of its reported net income. Both KU and the eight companies' magnitude of coverage indicate that they have nearly equal risk.

Q. Dr. Weaver, you indicated that you examined the capital structures next. What did you conclude from this examination?

A. The capital structures are shown in Schedule 25. Schedule 24 provides the capitalization data from which the capital structures were constructed. Each company's capital structure was measured as the percentage of long-term debt, short-term debt, preferred stock, and common equity to total capital.

Q. What measure for the capital structure of KU did you use?

A. The capital structure for KU was the book value capital structure as of December 31, 2004 provided in response to question 10 of the Request for Information Posed by the Attorney General dated January 26, 2005.

Q. What capital structure did you use for the eight companies?

A. I used the December 31, 2003 capital structures.

Q. Isn't this mismatching 2004 data with 2003 data?

A. Yes, but it is consistent with the usage of the cost of equity study. The data for determining the cost of equity is based upon stock market data and a portion of those data are the result of investors evaluating the annual financial information that is available to them, which was the year-end 2003 accounting information. Much of the data used for the cost of equity determination originated in 2004 and

early 2005 some of which is based on that accounting information. It is important to select companies that appear as similar to KU as possible when the latest available KU data was used.

Q. How does the average capital structure for the eight companies that you selected compare to the capital structure for KU?

A. The average capital structure for the eight companies indicates that they have somewhat more financial leverage than KU. KU has 55.1% equity and the average for the eight companies is 49.7%. KU has 44.9% leverage items and the eight companies average 50.3% leverage items.

Q. What is the implication of having the same percentage of leverage?

A. Leverage is an indicator of financial risk. The eight companies have more financial risk than KU.

Q. What debt measures did you consider?

A. I examined Moody's Bond Ratings and the 2001-2003 average number of times interest earned ratios.

Q. What were the bond ratings of KU and the eight companies that you selected?

A. The bond ratings are shown in Schedule 26 of my Exhibit. KU has an "A1" bond rating. In the eight-company group, three companies have a higher bond rating at "Aa1," "Aa2," and "Aa3." The other five companies have lower bond ratings. Of the five companies, three have an "A3" rating, one a "Baa1" and one a "Baa2." The ratings indicate that the eight companies, as a group, have more financial risk than KU.

Q. What do the times interest earned ratios show?

A. KU has a 3-year average times interest earned ratio of 6.35 times. The average for the eight companies is 3.22 times. The greater coverage that KU has indicates that it has less financial risk.

Q. What accounting and financial measures did you examine?

A. I compared the average of the 2001 through 2003 dollar value of the total assets of the companies, the sales to plant and equipment ratio, and the sales to total assets ratio. The results of these comparisons are shown in Schedule 27.

Q. Dr. Weaver, how does the dollar value of the total assets of the eight companies compare with KU?

A. KU is smaller than the average of the eight companies. The average dollar value of assets for the eight-company group is 7.1 times greater than KU. Smaller companies are considered to be more risky than larger companies because larger companies have more economical access to the capital markets and have greater diversity with regard to generation capability and customer base.

The risk factor, access to capital markets, does not adversely affect KU as much as it would if was a stand-alone company. It has economical access to the capital market through E.ON North America and Fidelia. Its generation diversity is increased by having a subsidiary relationship with LG&E. This causes this risk factor to be somewhat mitigated.

Q. What do you conclude with regard to the total asset size measure?

A. KU is a little more risky than the eight-company group.

Q. What does the sales to plant and equipment ratio show?

A. The sales to plant and equipment ratio indicates the number of dollars of sales from each dollar invested in plant and equipment. It is a measure of the asset

utilization intensity. The more dollars worth of sales per dollar invested in assets, given a similar profit margin, the greater the utilization and the more profitable the investment in assets. Companies that have larger sales to plant and equipment ratios are less risky. This ratio must be considered in conjunction with other ratios because a lower ratio could be the result of a newer, less depreciated plant, or by higher quality, more expensive equipment.

Q. What is the sales to plant and equipment ratio for KU?

A. The sales to plant and equipment ratio for KU is 0.45 as compared to 0.70 for the eight-company group. This indicates that KU is more risky.

Q. What does the sales to total assets ratio show?

A. The sales to total assets ratio is calculated as sales divided by total assets. It is similar to the sales to plant and equipment ratio. It represents the number of dollars of sales for each dollar invested in total assets. It is a measure of the intensity of use of the company's assets to produce sales.

Q. How does it measure the intensity of use of the company's assets?

A. Companies that have more sales revenues per dollar of total assets would either have higher prices for the electricity that they sell, have more fully depreciated assets, or sell more energy per dollar invested in net assets. Price differences for the electricity that is sold are mitigated because the companies are regulated. The value of comparable assets would be mitigated when the companies have a mixture of generating plants with respect to age. Consequently, differences in the sales to total assets ratio would be caused primarily by differences in the intensity of use of the assets to produce electricity. Companies

that have flatter peak loads would be able to have greater intensity of use of assets than companies that have greater load variability over the course of a day

Q. What were your findings from your examination of the sales to total assets turnover?

A. The sales to total assets turnover, also in Schedule 27 of my Exhibit, shows that KU achieves $0.39 in sales for each $1.00 invested in assets as compared to $0.41 for the eight companies. KU's asset utilization is nearly equal to the eight-company group. This mitigates the difference in the sales to plant and equipment ratio. KU has a little more risk than the eight companies.

Q. Dr. Weaver, would you summarize your risk measures?

A. Yes. A summary or the measures is as follows:

Risk Summary

Measure	KU	Selected Companies	Result
CF x Int. Cov.	9.11x	4.84x	< risk
CF x Div. Cov.	nr	3.23x	> risk
CF x Inv. Act.	0.71x	0.87x	~= risk
Qual. of Earnings	2.24x	2.45x	~= risk
Cap. St. Lev.	44.9%	50.3%	< risk
Moody's Bond Rat.	A1		< risk
Times Int. Earned	6.35x	3.22x	< risk
Total Asset Size	$2.2B	$15.5B	> risk
Sales to P&E	0.45	0.70	> risk
Sales to Tot. Assets	0.39	0.41	~= risk

Key: ~= risk (approximately equal risk)
< risk (KU has less risk)
> risk (KU has greater risk)
nr - non representative

Q. What do you conclude from this summary?

A. KU has nearly the same risk than the eight-company group. KU has less risk in four categories, greater risk in three categories and nearly equal risk in three categories.

Q. How will this effect the cost of equity?

A. No adjustment will be required to the results of the eight-company group for the risk difference. KU's cost of equity is close to the same as the cost of equity for the eight company group.

Q. What other risk measures did you evaluate?

A. I examined published risk measures from Value Line and Standard and Poor's.

Q. Why do you examine published risk measures?

A. Many investors rely on published risk measures to make their stock purchase and sell decisions. Value Line and Standard & Poor's are two widely recognized investment data and advisory services. These publications provide information for evaluating the risks of the selected companies and indicate the degree of similarity of these companies.

Q. What Value Line measures did you consider?

A. I considered Value Line's Stock Price Stability Index, Safety Rating, and Beta. These measures are shown in Schedule 30 of my Exhibit.

Q. What does Value Line's Stock Price Stability index measure and what does it indicate?

A. The Stock Price Stability Index is based upon a ranking of the standard deviation of weekly percent changes in the price of a stock over the last five

years. The top 5% have the least amount of percentage price changes and are assigned an index value of 100; the next 5% an index value of 95, and so forth.

Q. What is the Stock Price Stability Index for the eight companies in the revised company list that was selected for obtaining data for the cost of equity determination for KU?

The Stock Price Stability Index is shown in the first column in Schedule 28. The stock price stability ratings for the group of eight companies range from 100 to 90. This indicates that these companies are in the top 15% of the most stable companies based on stock price fluctuations that Value Line follows. The closeness of the index values indicates that these eight companies are very similar to one another with respect to earning expectations relative to their risk. The average for the eight companies is 96. This would be in the top 10% of the Value Line Stock Price Stability Index.

Q. What is the Value Line Safety Rank?

A. The Value Line Safety Rank is a combination of Value Line's Financial Strength rating and the Stock Price Stability index. A rating of "1" is in the safest 20% of the companies that Value Line follows; a rating of "2" is the second safest 20% and so forth.

Q. What does this measure indicate for eight electric companies?

A. The Safety Rank for the eight companies averages 2. The average of 2 indicates that Value Line analysts believe that these companies have above average safety.

Q. What is Beta?

A. Beta is an estimate of systematic risk—risk that is common in all companies. Systematic risk could be caused by something like a change in the rate of inflation, a political event, a war, or a change in social-economic conditions. Systematic risk cannot be eliminated through diversification. Obviously, some companies have greater exposure to the occurrence of any single event than other companies and therefore have more systematic risk.

Beta is estimated from the company's stock sensitivity to general changes in stock market prices. A Beta that equals 1 represents an average company whose stock price changes are nearly identical to the market. Companies that are less risky have Betas less than one. Companies that are more risky have Betas greater than one.

Q. What were the Value Line Betas for the eight companies?

A. The Value Line Betas for the eight companies chosen to obtain data for the cost of equity analysis averages 0.73.

Q. How do you interpret these Betas?

A. The selected electric companies have low systematic risk relative to an average company that has shares of common stock traded in the equity market. An average company would have a Beta of 1 as compared to the eight companies' average Beta of 0.73.

Q. What Standard & Poor's measures did you include in this analysis?

A. I included Standard & Poor's Fair Value Rank, Relative Strength Rank, and Beta. These are shown in Schedule 29 of my Exhibit.

Q. Please describe Standard & Poor's Fair Value Rank measure.

A. Standard &Poor's Fair Value Rank is a proprietary quantitative model that ranks the stocks according to being the most overvalued, group 1, to the most undervalued, group 5. This measure used to be called the Standard & Poor's Outlook.

Q. What was the Fair Value Rank for the eight-company group?

A. The eight-company group is neither over- nor under-valued. The average for the group is 2.6. A ranking of 3 would be neither over-valued nor under-valued. The ranking of 2.6 indicates that, according to the Standard & Poor's model, the eight-company group is slightly over valued.

Q. What is the Standard & Poor's Relative Strength rank and what does it show?

A. The Standard & Poor's Relative Strength Rank reports, on a scale of 1 to 99, how the stock has performed relative to the other companies that Standard & Poor's follows. Companies that have a "1" have the lowest Relative Strength and companies that have a "99" have the highest Relative Strength.

The Relative Strength Rank for the eight companies selected for obtaining data averaged 41. A 50 would represent the Relative Strength Rank for an average company. This indicates that these companies' earnings growth has not performed as quite well as the average company followed by Standard & Poor's.

Q. What was Standard & Poor's Beta?

A. Standard & Poor's Beta for the eight companies averaged 0.08. This is shown in the right hand column of Schedule 29. According to this measure, these companies have low systematic risk.

Q. Why are the Value Line and the Standard & Poor's Betas different?

A. Both investment services use regression analysis to calculate Beta. Value Line regresses the past five-years of week-ending stock price data on the New York Stock Exchange Index. Standard & Poor's calculates its Beta by regressing the past five-years of month-ending stock prices on the S&P 500 Index. Value Line makes a statistical adjustment to its Beta estimate. The Standard and Poor's results are not adjusted. The adjustment or lack thereof accounts for the large difference.

Q. What do you conclude from your analysis of the published risk measures?

A. The published risk measures indicate that the eight companies are similar to one another with respect to risk. Furthermore, these companies have low risk relative to other companies that have stock available on the major exchanges and are followed by the investment advisory services.

IV. The Cost of Equity

Q. Dr. Weaver, you stated earlier that you use the constant-growth DCF model, the multi-stage growth DCF model, the CAPM, and the Bond-Yield-Risk Premium methods. How do you combine the information from your economic analysis, risk analysis, and from these methods to make your recommendation?

A. Once I obtain the information from the use of each of the equity valuation models, I consider the implications from the risk and economic analysis on the results, and use judgment to make a final recommendation.

Q. Do you weigh all of the models equally or do you value the output of some models more than others?

A. I place the greatest emphases on the DCF constant growth model. I believe that this method has greater use by participants in the capital market than the other methods. I believe that the CAPM is used by a fairly large number of investors. These two models, the constant growth DCF model and the CAPM receive the most emphases in college finance courses. The DCF model has been in existence in college finance courses for nearly 50 years and the CAPM has been is existence for 40 years. Also, investor advisory services provide estimates of earnings growth and betas.

The multistage DCF model and the Bond-Yield-Risk Premium models are not used as much. These are occasionally mentioned in finance text books but I am not aware of any where these latter two models are emphasized. The bond-yield-risk premium method is an *ex post* rather than an *ex ante* method. It provides guidance as to what an average risk premium might be over a longer period of time, but is less valuable for estimating the cost of equity for the immediate future. For this reason, I also place a smaller weight on these methods than on the DCF analysis.

Q. In what order will you present your cost of equity analysis?

A. First, I will present the constant-growth DCF model results. Next, I will discuss and present the results of the multi-stage DCF model. After this, the CAPM and Bond-Yield-Risk Premium results are discussed and presented.

Q. What is required to implement the constant growth DCF model?

A. The constant-growth DCF method requires an estimate for growth and a dividend yield.

Q. How did you determine the growth estimate for use in the DCF model?

A. I use historical data from Value Line and forecast data from analysts' estimates of earnings growth from Zacks, Reuters Investor Services (formally Multex), Thomson Investor Network (formally I/B/E/S) and Value Line. The use of the historical data and analysts' forecasts are discussed in Appendix II.

Q. What is the purpose of using historical growth rates?

A. The objective of using historical data to formulate a growth estimate is to emulate those investors who use the DCF model with a historical growth rate when making their buy and sell investment decisions. The historical data that I use is the compound growth rate that occurred over a recent period. When this is implemented in the DCF model, the analyst implicitly assumes that the growth that occurred in that past period will continue. For this reason, I believe that the results obtained using forecasts data are more valuable. Analysts' forecasts are future oriented. However, the results obtained using historical data provide a good starting place for the analysis.

Q. What historical growth rates did you use?

A. I used the annual compound growth rate for earnings per share (EPS) and cash flow per share (CFS) for the period 1994 to 2005. The 2005 estimates for EPS and CFS were estimated by Value Line.

Q. Why did you use 1994 through 2005 as the span of time for determining the historical growth?

A. The economic analysis indicates that a period of economic growth is expected in the near-term future. This period encompasses a full economic cycle and includes the recession that occurred in 2001. By ending the observations in 2005, the data represents the latest that is available.

Q. What were the rates of economic growth that occurred in the period from 1994 to 2005?

A. During that period, economic growth, as measured by the change in real GDP, was in a range between 0.8% and 4.4%. Data for each year is shown in Schedule 2.

Q. What method did you use to measure the historical growth?

A. I measured the historical growth rates using the geometric mean. The geometric mean provides the measure of the compound rate of growth that occurred over the period being used, 1994 to 2005. I calculated the compound rate of growth for each of the eight companies and then I used the arithmetic mean to determine the average growth rate. I used the same method for the updated nine companies.

Q. What were the companies' compound growth rates for EPS and CFS from 1994 through 2005?

A. The growth rates in EPS and CFS are shown in Schedules 30 and 31. Each Schedule has two pages – one using updated data for the original nine companies used in Case No. 2003-00434 and the other using current data for the revised group of eight companies.

Over the 1994 to 2005 period, EPS for the original nine-companies chosen for obtaining data in Case No. 2003-00434 grew at the average of the compound growth rates at 2.84%. EPS for the revised set of eight companies grew at the average of the compound growth rates at 3.23%.

CFS grew at the average of the compound growth rates at 2.46% for the nine companies. CFS for the revised set of eight companies grew at the average of the companies' compound growth rates at 2.86%.

Q. Which growth rate do you believe is most important, the growth in EPS or the growth in CFS?

A. I think that, from a historical perspective, both provide measures of the ability to pay dividends because dividends are a cash outflow. When projected data is used, I think that growth in EPS is a better indicator.

Q. What analysts' forecast did you use for making your DCF estimates using projected data?

A. I used four sources that I previously mentioned for obtaining data for the growth forecasts. These were: Zacks, Reuters Investor Services, Thomson Investor Network, and Value Line.

Q. How are these forecasts compiled?

A. Zacks, Reuters, and Thomson survey security analysts on a monthly basis and they publish the average of the individual estimates. Value Line employs in-house analysts who make three to five-year forecasts for EPS and CFS.

Q. What were the projected growth rates?

A. The growth forecasts for the original nine companies, for which the data was updated, averaged 4.49%. The average forecast for the revised group of eight companies is 4.51%. These forecasts of the EPS growth rates are shown in Schedule 32, pages 1 and 2.

Q. How did you implement these data in the constant growth DCF model?

A. I combine the growth rate measures with the average expected dividend yields for each group of companies – the nine company group and the eight company group.

Q. How did you calculate the expected dividend yield and what are the results?

A. A current dividend yield was calculated by dividing the annual dividend rate by the average week ending stock price for the weeks beginning September 16, 2004 through February 14, 2005. The annual dividend rate was determined by multiplying the most recent quarterly dividend amount by four. Schedule 33, pages 1 and 2, shows these calculations. The average current dividend yield for the nine companies was 4.62%. The average dividend yield for the revised eight-company group was 4.49%.

Q. Why did you select the weeks from September 16 through February 14 to determine the average week ending stock prices?

A. September 16 through February 14 represents a full four months of data. These data are current and, therefore, reflect investor's current expectations. Four months encompasses a sufficient period to wash out any abnormalities in the data. Furthermore, the stability of these stock's prices can be noted by examining the prices.

Q. Why did you use the dividend rate rather than the actual amount of dividends paid in the previous year to calculate the dividend yield?

A. Dividends are paid quarterly. The rate, based on the latest quarterly dividend amount multiplied by four, is generally higher than the sum of the latest four quarterly dividend payments. This compensates for not compounding the quarterly dividend payments.

Q. How did you apply the dividend yield to the DCF model?

A. The DCF model requires an expected dividend yield rather than a current or most recent yield. The expected yield is determined by multiplying the current yield by one plus the growth rate. The growth-adjusted dividend yields are added to the growth rates and provide an estimate for the cost of equity.

Q. What are the DCF results?

A. The DCF results are shown in Schedule 34, pages 1 and 2. The results for the original set of nine companies averaged 8.57% when both projected and historical growth rates are used. When only projected growth rates are used, the result was 9.16%.

Page 2 of Schedule 34 shows the DCF results for the revised set of eight companies. The result was 8.58% when both projected and historical growth rates were used and 9.04% when only projected growth rates were used.

Q. Did you use both average and historical growth rates when you made your final recommendation?

A. No. I only used projected growth rates. In my opinion, these are more representative of expected economic conditions for the immediate future.

Q. Did you make a flotation cost adjustment to these results?

A. No

Q. What did the multi-stage DCF model indicate that the cost of equity should be?

A. The multi-stage DCF model, as shown in Schedule 35, pages 1 and 2, indicates that the cost of equity should be 8.71% for the nine-company group and 8.65% for the eight company group..

Q. How did you implement the multi-stage DCF model?

A. The multi-stage DCF model is a technique where a change in a growth rate converges on a forecasted growth rate incrementally over time. In this implementation, I assume that the growth rate converges from the actual 2003-2004 rate to the analysts' forecasts in four years. Once a forecasted rate is achieved, it is maintained into perpetuity.

Q. Why are the multi-stage DCF model's results lower than the DCF constant growth model using analysts' forecasts?

A. The DCF constant growth model assumes that analysts' forecasts are instantly achieved as soon as the forecast is made and then it continues into perpetuity. The multi-stage DCF model assumes that the analysts' forecasts are gradually achieved and then maintained in perpetuity. I believe that the multi-stage model, with respect to the achievement of the forecasted growth rate, is more realistic.

Q. Were there any other steps required for the implementation of the multi-stage model?

A. Yes, I determined the perpetuity value for the dividends in the terminal year of the analysis. The terminal year's dividend amount was divided by the calculated rate of return minus each company's long-term growth rate (k-g). This is the formula for determining the present value for a perpetual data series. Since the rate of return is the rate being calculated and it is the same as the variable "k" that is needed for the perpetuity calculation, an iteration technique must be used.

Q. Why did you use the internal rate of return to determine the cost of equity for the multi-stage DCF model?

A. The DCF model is an internal rate of return model.

Q. Do you have another example where the perpetuity model is used in financial models?

A. The constant growth DCF model is a perpetuity model when it is used in the form to estimate a stock's price. This model is $P = D_1/ (k - g)$.

Q. You indicated that you also used the CAPM. What do these results show?

A. The average CAPM return for both sets of companies 9.57%. Pages 1 and 2 of Schedule 36 show the various combinations of data and the calculations of these results. Schedule 39 also provides notes that provide the sources for the data items. The reason that both Schedules show the same result is that the average beta for the nine company group is the same as the average beta for the eight company group.

Q. Dr. Weaver, how did you determine the bond-yield-equity-risk-premium?

A. I performed a study of the equity-risk-premiums for both the nine companies and the eight companies. To determine the risk premiums, I subtracted the realized annual holding period returns (HPR) on equity for the period 1993-2004 from the composite one-year constant maturity interest rates on Treasury securities. (1992 prices and dividends were needed to determine the 1993 HPR.) In this determination, I examined every possible combination of annual holding periods during the years 1993-2004.

Pages 1 through 4 of Schedule 37 show the calculations for each step in the risk premium study for the original nine companies. The average equity-risk-premium for the nine companies was 4.61%. The calculation of the equity-risk-

premium for the revised eight-company group is shown in Schedule 38, pages 1 through 4. The average risk premium for the eight company group was 4.45%.

Q. How did you use this risk premium?

A. I added the risk premium to the average of the forecasted long-term rates used in the CAPM study. Schedule 36 provides the sources for these rates. The forecasted rates were:

CBO-3 year forecast	4.83%
CBO-9 year projection	5.50%
Value Line-5 year projection	5.10%
Average	5.14%

Q. What do you find the bond-yield-risk-premium result to be?

A. The risk premium for the nine companies, 4.61%, was added to the 5.14% forecasted ten-year bond interest rate to provide a cost of equity estimate of 9.75%. The risk premium for the eight companies at 4.45% when added to the forecasted ten-year interest rate provides an estimate of 9.59%.

Q. Dr. Weaver, you stated that you determined the risk premiums using annual holding period returns and then added this risk premium to forecasted long-term rates. Aren't you miss-matching one-year risk premiums and long-term bond rates?

A. No. Long-term bond rates already contain an inflation premium and a marketability premium. Therefore, the only risk that needs to be accounted for is the equity risk premium.

Q. Dr. Weaver, would you please summarize your findings for the electric companies?

A. The outcomes of the models for the electric companies are summarized below:

	Nine Companies Updated Data	Eight Companies Revised
Constant-growth DCF*	9.16%	9.04%
Multi-stage DCF	8.71%	8.65%
CAPM	9.57%	9.57%
Bond-yield-equity-risk premium	9.75%	9.59%
Average	9.30%	9.21%

* Projected growth rates only.

Q. Did you make adjustments as a result of the risk or economic analysis?

A. I found that the risk difference between KU and the eight companies was small and no adjustment is necessary. I concluded from my economic analysis that capital market cost rates will be slowly increasing over the next two to four years. These increasing rates are already reflected in the outcomes of CAPM and Bond-Yield-Equity-Risk-Premium models because forecasted 10-year interest rates were used to implement those models. This is why the results for the CAPM and Bond-Yield-Equity-Risk Premium models are somewhat higher than the results of the two DCF models. I did adjust the two DCF results.

Q. How did you determine the amount of adjustment to make to the DCF results?

A. On February 15, 2005, 10-year constant maturity bond rates were 4.10%. (February 14 was the last stock price observation date used for computing the dividend yield.) The CBO projected the 10-year Treasury Note rate for 2004-2005 to average 5.10%. These projections indicate that these rates are expected, over the next two years, to be 100 basis points higher than the February 15th rate.

The two sets of DCF results should be adjusted and be 100 basis points higher. The CAPM and BYRP models where implemented with the higher forecasted rates. This will cause the average of the four models to increase by 50 basis points (2 X 100 / 4). The 9.30% average, when adjusted becomes 9.80%. The 9.21% average, when adjusted becomes 9.71%. These adjustments are shown in Schedule 1.

Q. Did you make any other adjustments?

A. Yes. I also made a 25 basis point adjustment to compensate for any risk increase associated with the elimination of the ESM.

Q. Why did you make that adjustment?

A. The Order from Case No. 2003-00434 in which the ESM was eliminated was dated June 20, 2004. Confirmed knowledge of its elimination is less than one year old. The data used for this study originated, for the most part, in the second half of 2004. The adjustment was made because the effect of the elimination may not fully be assimilated into those data. The adjustment will not be needed in future KU costs of equity studies because the effects of the elimination will have had time to be fully assimilated into the data.

Q. Do you determine your final recommendation solely on the basis of these average values?

A. I consider the average values but, as I have previously discussed, place a greater weight on the DCF constant-growth results. These were close to 9.00%. The combination of the 50 and 25 basis point adjustments cause the 9.00% to become 9.75%. This becomes the low-end of the range. The eight-company adjusted average was 9.96% and the nine company adjusted average was 10.05%.

The mid-point is close to 10.00% so the range for the cost of equity should be between 9.75% and 10.25%.

VI. The Surcharge Should Be Determined Using the Lower-end of the Cost of Equity Range

Q. You have found that the range that contains the cost of equity is between 9.75% and 10.25%. What return within that range do you recommend?

A. I recommend that the cost of equity that is used to determine the Environmental Cost Recovery Surcharge be set between 9.75% and 10.00%, at the lower-end of that range.

Q. Why do you believe that the lower-end of the range that contains the cost of equity should be used to determine the Environmental Cost Recovery Surcharge?

A. There are three reasons why the lower-end of the cost of equity range should be used. First, the Environmental Compliance operation is a somewhat self-contained operation within KU. Second, there is little risk associated with the environmental compliance revenues and expenses. Third, financial theory about risk and return indicates that there is a risk/return trade-off and lower risk securities have a lower required rate of return.

Q. Dr. Weaver, will you please explain why you say that the Environmental Compliance operation is a somewhat self-contained operation within KU?

A. Environmental compliance is a self-contained operation because it has its own revenue source, the surcharge factor; its own assets, the environmental plant and equipment; and its own costs and expenses; its own rate base, the "Total

Environmental Compliance Rate Base;" and for purposes of setting the surcharge, its own rate of return.

Q. Why do you say that the Environmental Compliance Operation is only somewhat self-contained?

A. The environmental compliance operation is not totally independent from KU's electric operations.

Q. Why do you say that the environmental compliance operation is not totally independent of KU's electric operations?

A. The environmental compliance operations and the electric operations are mutually dependent upon one-another. The electric operations could not operate if they did not meet environmental regulations. The revenues of the environmental compliance operations are collected as a surcharge on the jurisdictional customer bills so they could not be collected if there were no electric sales and billing.

Q. Why did you say that there is little risk associated with the environmental revenues and expenses?

A. There is little risk associated with the amount of revenue that is collected under the Environmental Surcharge Tariff because the amounts to be collected are known and measurable. The billing month lags the current expense month by two months. The Net Jurisdictional environmental compliance plan revenue requirement is set as a percent of the average of the twelve months of actual revenues collected, net of the environmental surcharge revenues. The current expense month precedes the billing month by two months and there is a true-up adjustment to account for any over/under recovery.

Q. Dr. Weaver, you say that there is "little risk" rather than no risk. Why do you say that there is even "little risk" associated with the revenues?

A. There is the risk in a given billing month where the monthly retail revenue may differ from the twelve-month average revenue. The True-up Adjustment corrects for over- or under-collections since:

> ...over collections reduce the Current Period Jurisdictional Environmental Surcharge Factor ("CESF") and under collections increase the CESF. Thus, ECR over- and under-collections are regularly and continuously adjusted each month by the True-up mechanism in the ECR Tariff. (Response of Company Witness Conroy to Supplemental Request for Information Posed by the Attorney General Dated February 23, 2005, question 1.)

The True-up Adjustment assures that the total amount of revenues that are associated with the Commission approved Compliance Plan for Recovery by Environmental Surcharge is collected. The revenue risk is in the timing difference because the True-up Adjustment creates an additional month's lag. Since the time value of money has a cost there is minor amount of risk from that source. Other risk sources would be from "acts of God," war, terrorism, or something of that nature.

Q. The third reason you gave for using the lower-end of the range that contains the cost of equity is that financial theory indicates that there is a risk and return trade-off and where there is lower risk, there is a lower required rate of return. Would you comment on this?

A. I explain the concept of risk and how it relates to the risk and return trade-off in Appendix II, beginning on page 3, line 14 and continuing through page 6. This provides the reasons why, in this situation where there is little risk, a lower

return is required and the cost of equity should be set near the lower end of its range.

VII. CAPITAL STRUCTURE AND OTHER CAPITAL COST RATES

Q. What capital structure should be used for determining the overall rate of return for the ECR surcharge?

A. The rate of return should be a weighted average cost of capital so that the revenues that occur when the return is applied to the Total Environmental Compliance Rate Base will provide a reasonable return on the compliance-related capital expenditures. The revenues must be sufficient to pay the short-term interest costs that are incurred during the construction of the pollution control assets; pay the interest cost on the pollution control bonds that were sold to raise capital to pay off the short-term debt; provide an amount to pay preferred stock dividends; and leave an amount remaining to provide a return to the common stockholders for the equity used to pay for the pollution control assets.

Q. What capital structure should be used to determine the rate of return?

A. The capital structure should be the same as the capital structure of the overall company.

Q. Why is the overall company's capital structure the one that should be used to determine the mix of debt, preferred stock and common equity financing of the pollution control assets?

A. Investors in the capital market, through their stock buy and sell decisions, indirectly dictate the capital structure that a company should have. The amount of financial risks that a company has is estimated by the individual investors who are

constantly making stock purchase and sale decisions by comparing their investment alternatives. If a capital structure seems to have too high a proportion of debt, investors will assign greater financial risks to that company's outstanding financial instruments. When the risks relative to the return are too high, investors will not desire to purchase that company's stock and its stock price will fall.

If the capital structure seems to have too low a proportion of debt, equity investors would be penalized because a greater amount of equity is required to finance the firm's assets. Its earnings per share are unnecessarily diluted and again the stock's price will fall.

Since a firm's optimal capital structure is determined by investor actions in the capital market, the company's overall capital structure, which management deems appropriate, should be used for determining its weighted average cost of capital.

This doesn't mean that each time external financing is done, the company issues capital in the proportions of its capital structure and that structure is always maintained. It means that, in the long-run, a company issues debt, preferred stock, or common equity based on management's perception of its optimal capital structure and the capital market's acceptance of that type of financing. The capital structure is always converging on the structure that is considered to be optimal.

Q. Should the capital structure be adjusted to reflect only electric operations, or to reflect only environmental compliance operations?

A. Technically it should be adjusted if there are different capitalizations for the electric operations or the environmental compliance operations. However, KU uses the same allocation adjustment to each capital component to separate its

jurisdictional capitalization from its adjusted total company capitalization for all adjustments except Undistributed Subsidiary Earnings and Minimum Pension Liability. These adjustments are to the common equity amount. These two adjustments make a minor change in the capital structure proportions. In Appendix E to the Commission Order in Case No. 2003-00434, the adjustments change the equity proportion from 51.54% to 51.58% and the long-term debt from 43.69% to 43.65%. These are nearly the same as the capital structure of the total company.

Q. What capital structure do you recommend be used.

A. I recommend that the December 31, 2004 structure be used. This structure was provided by Ms. Scott in response to question 10 of the Attorney General's January 26, 2005 request for information. This structure may be adjusted if the Commission deems it appropriate to do so.

Q. What capital cost rates for debt and preferred stock do you recommend?

A. The cost rates for short-term debt and for preferred stock should be 2.22% and 5.679%. These rates were provided by Company Witness Scott in response to question 10 of the Attorney General's January 26, 2005 request for information. Work papers for the cost rates were provided in response to question 11. I have examined them and accept the cost rates used for short-term debt and preferred stock. I do not agree with the cost rate used for long-term debt.

Q. Why do you disagree with the total company cost of long-term debt?

A. The cost of pollution control bonds should be used as the cost of long-term debt for the environmental compliance assets. Company management would be

imprudent if it uses any other form of higher cost long-term debt when it has access to the lower costs pollution control financing.

Q. Why should only lower cost pollution control financing be used for long-term debt?

A. The total cost of total long-term debt is higher than the cost of pollution control bonds. The total cost of long-term debt includes pollution control bonds, long-term notes payable to Fidelia Corp., and redeemable preferred stock. There are also long-term/short-term interest swaps which add to the cost of the outstanding debt. Since the overall cost of debt is higher than the cost of pollution control bonds, the Environmental Recovery Surcharge rate of return would be higher from use of the total cost of long-term debt. This would result in the surcharge being higher than the actual capital costs that are required on the environmental assets.

Q. What is the cost of the pollution control bonds?

A. The cost of pollution control bonds is 2.301%. This calculation was done in the same manner as done by the Company in response to question 11 in the Response to Request for Information Posed by the Attorney General Dated January 26, 2005. The Commission has found this method acceptable in past proceedings. This calculation is shown in Schedule 39 of my Exhibit.

Q. Do you believe that the capital cost rates should be updated as conditions in the capital market change?

A. Yes. All of the pollution control bonds used to calculate the cost of long-term debt are variable rate bonds except for Series 9. If interest rates change, the

`new pollution control bond interest rates should be used for the cost of long-term debt in the determination of the rate of return.

Q. Do you believe that the capital structure ratios may be updated beyond the test-year and before a final decision is made on the case?

A. Yes, provided that the changes are minor so that there is only a small change in the company's financial risk. If the company's financial risk changes too much, the cost of equity determination could be wrong and no longer valid. I believe that minor changes, which are approved by the Commission as being prudent and that do not change the financial risk of the company, can be included in the rate of return determination. Changes that effect the financial risk of the company beyond the test-year should not allowed.

Q. What is KU's overall cost of capital?

A. KU's overall cost of capital is in a range from 6.342% to 6.618%. This calculation is shown in Statement 40 of my Exhibit. As I previously stated, the lower part of this range should be used to for the rate of return used in the Environmental Cost Recovery Surcharge tariff.

Q. Dr. Weaver, does this complete your testimony?

A. Yes.

AFFIDAVIT

The affiant, Carl G. K. Weaver, being duly sworn, deposes and states that the prepared testimony, attached hereto and made a part hereof, constitutes the prepared direct testimony of this affiant in Case No. 2004-00426 An Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity to Construct Flue Gas Desulfurization Systems and Approval of its 2004 Compliance Plan for Recovery by Environmental Surcharge, and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared direct testimony.

Affiant further states that he will be present and available for cross-examination and for such additional direct examination as may be appropriate at the hearing in these cases when scheduled by the Public Service Commission, at which time affiant will further affirm the attached prepared testimony as his direct testimony in such case.

Carl G. K. Weaver

Commonwealth of Virginia
City of Harrisonburg

Subscribed and sworn to before me by Carl G. K. Weaver on this 15 the day of March, 2005.

My commission expires: August 31 2005

Notary Public