DIRECT TESTIMONY

OF

CHARLES W. KING

Submitted on Behalf of
the Office of the Public Counsel

THE EMPIRE DISTRICT ELECTRIC COMPANY

Case No. ER-2006-0315

June 23, 2006

In the Matter of the Empire District Electric	)
Company of Joplin, Missouri for Authority	)
to File Tariffs Increasing Rates for Electric	) <u>Case No. ER-2006-0315</u>
Service Provided to Customers in the	
Missouri Service Area of the Company	)
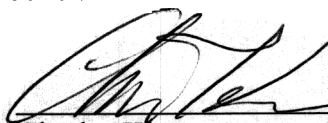
AFFIDAVIT OF CHARLES KING

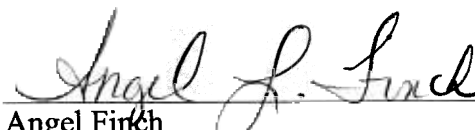|	
CITY OF WASHINGTON	)
	) ss
DISTRICT OF COLUMBIA	)

Charles King, of lawful age and being first duly sworn, deposes and states:

1.   My name is Charles King. I am a Public Utility Consultant for the Office of the Public Counsel.

2.   Attached hereto and made a part hereof for all purposes is my direct testimony consisting of pages 1 through 31; Attachments A and B; and Schedules CWK-1 through CWK-8.

3.   I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

Charles King
Public Utility Consultant

Subscribed and sworn to me this 16th day of June 2006.

Angel Finch
Notary Public

My commission expires March 14, 2011

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2   **DIRECT TESTIMONY OF**
3   **CHARLES W. KING**
4

5 **QUALIFICATIONS**

6

7 **Q.**   **PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

8

9 A.   My name is Charles W. King. I am President of the economic consulting firm of Snavely

10   King Majoros O'Connor & Lee, Inc. ("Snavely King"). My business address is 1111 14th

11   Street, N.W., Suite 300, Washington, D.C. 20005.

12

13 **Q.**   **PLEASE DESCRIBE SNAVELY KING.**

14

15 A.   Snavely King, formerly Snavely, King & Associates, Inc., was founded in 1970 to

16   conduct research on a consulting basis into the rates, revenues, costs and economic

17   performance of regulated firms and industries. The firm has a professional staff of 12

18   economists, accountants, engineers and cost analysts. Most of its work involves the

19   development, preparation and presentation of expert witness testimony before federal and

20   state regulatory agencies. Over the course of its 36-year history, members of the firm

21   have participated in over 1000 proceedings before almost all of the state commissions

22   and all Federal commissions that regulate utilities or transportation industries.

23

24 **Q.**   **HAVE YOU PREPARED A SUMMARY OF YOUR QUALIFICATIONS AND**
25   **EXPERIENCE?**

26

27 A.   Yes. Attachment A is a summary of my qualifications and experience.

28

29 **Q.**   **HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN REGULATORY**
30   **PROCEEDINGS?**

31

1   A.   Yes. Attachment B is a tabulation of my appearances as an expert witness before state
2   and federal regulatory agencies.

3

4   **Q.**   **FOR WHOM ARE YOU APPEARING IN THIS PROCEEDING?**

5

6   **A.**   I am appearing on behalf of the Office of the Public Counsel for the State of Missouri.

7

8   **Q.**   **WHAT IS THE OBJECTIVE OF YOUR TESTIMONY?**

9

10   A.   The objective of my testimony is to recommend the appropriate rate of return to capital
11   devoted to the retail electric utility services of the Empire District Electric Company
12   ("Empire" or "the Company").

13

14   **SUMMARY**

15

16   **Q.**   **PLEASE SUMMARIZE THE ANALYSES YOU PRESENT IN THIS**
17   **TESTIMONY.**

18
19   A.   I first consider Empire's capital structure, restating it to March 31, 2006. As part of this
20   restatement, I include net short-term debt in excess of construction work in progress. I use
21   the long-term debt cost presented by the company in its original filing, which may have to
22   be updated. I use the Company's stated cost of short-term debt cost for March 2006.
23   Finally, I use the cost of equity that I find in this testimony.

24

25   I estimate Empire's return on equity by applying the Discounted Cash Flow ("DCF")
26   procedure, which I consider the most credible test of market return, to two groups of
27   comparison electric companies. The first group, which I term the "narrow group,"
28   consists of 16 electric companies that derive over 75 percent of their revenue from
29   regulated utility services. I consider this group most comparable to Empire, which
30   generated 93.2 percent of its 2005 revenue from regulated electric service. The "broad
31   group" includes 26 electric companies, inclusive of the 16 narrow group firms, that derive

1   most of their revenue from electric service, although in 10 cases much of this revenue is

2   from unregulated merchant generation and marketing activities. As a check on my DCF

3   results, I present the results of my application of the Capital Asset Pricing Model

4   ("CAPM). Finally, I critique the two risk premium models offered by Empire's rate-of-

5   return witness, James VanderWeide.

6

7 **Q.   WHAT HAVE YOU FOUND TO BE THE APPROPRIATE RATE OF RETURN**

8 **   FOR EMPIRE?**

9

10   A.   Based on the analyses presented in this testimony, I find that the appropriate after-tax

11   return to the Empire's electric utility rate base is **8.19 percent.** This recommendation

12   reflects the application of a **9.65 percent** return on Empire's equity capital within the

13   Company's March 31, 2006 capital structure.

14

15 **Q.   DO YOU HAVE A SCHEDULE THAT DISPLAYS THE DEVELOPMENT OF**

16 **   THIS RECOMMENDED RATE OF RETURN?**

17

18   A.   Yes. Schedule CWK-1 of my exhibit presents the calculation of my recommended rate

19   of return. The schedule shows Empire's capital structure as of March 31, 2006 as

20   presented in the Company's Form 10-Q to the Securities and Exchange Commission

21   ("SEC"). It also shows the cost rate for each form of capital and the weighted return. The

22   bottom of the schedule shows my calculation of the amount of net short-term debt, which

23   I shall discuss in the next section of my testimony.

24

25 **CAPITAL STRUCTURE**

26

27 **Q.   WHAT IS MEANT BY "CAPITAL STRUCTURE?"**

28

29   A.   Capital structure refers to the mix of the various forms of investor-supplied capital,

30   including long-term debt, short-term debt, preference stock and common equity.

1

2 Q. **WHAT IS THE RELEVANCE OF CAPITAL STRUCTURE TO THE OVERALL**

3   **RATE OF RETURN?**

4

5 A   Capital structure is highly relevant to the overall rate of return because the cost of the

6   respective forms of capital varies considerably. In general, debt capital is much less

7   costly than equity capital, not only because it requires a lower return, but because interest

8   on debt is tax-deductible. Equity capital is more costly because it bears more risk. Since

9   the return on equity – dividends and retained earnings – is not tax deductible, equity

10   capital also affects ratemaking by requiring a gross-up for income taxes.

11

12   Standing alone, these considerations would suggest that debt capital is always preferable

13   to equity, but debt has limits. As the proportion of debt increases, the financial risk that

14   the Company might not be able to honor its debt instruments also increases. At some

15   point, that risk overwhelms the benefit of lower debt costs, and the capital structure

16   becomes too "leveraged," that is, it has too much debt for the earnings to sustain. In

17   theory, there is a balanced mix of debt and equity that minimizes the composite cost of

18   capital. Finding that balance is a major challenge to most companies, and particularly to

19   companies in capital-intensive industries such as electric utilities.

20

21 Q. **WHAT IS THE APPROPRIATE CAPITAL STRUCTURE TO USE IN**

22   **CALCULATING THE COST OF EMPIRE'S CAPITAL DEVOTED TO**

23   **ELECTRIC UTILITY SERVICE?**

24

25 A. The appropriate capital structure is a mix of debt and equity that would be employed by

26   prudent management in a company devoted exclusively electric utility service.

27

28 Q. **WHAT IS EMPIRE'S CAPITAL STRUCTURE?**

29

1   A.   Empire's capital structure is shown in the first two columns of Schedule CWK-1. The

2   amount of long-term debt and equity is taken directly from page 7 of Empire's Form 10-

3   Q to the SEC for the quarter ended March 31, 2006. I have included both the stated long-

4   term debt and the very small amount of long-term debt that will mature within a year,

5   classified in the balance sheet as a short-term liability.

6

7   Empire's Form 10-Q shows that short-term debt as of March 31, 2006 was $46 million.

8   This value is an overstatement of the short-term debt that should be included in the

9   capital structure for purposes of computing return on rate base. That is because some of

10   the short-term debt may support Construction Work in Progress (CWIP). Both the CWIP

11   and the carrying cost of that CWIP are capitalized and later recovered in depreciation on

12   the plant constructed. Accordingly, I have reduced the Company's March 31, 2006 short-

13   term debt by the amount of CWIP outstanding as of that date. The result is a net short-

14   term debt amount of $32,857,000. This figure may have to be updated to reflect the

15   Commission Staff's calculation of Empire's working capital.

16

17   Q.   **IS EMPIRE'S CAPITAL STRUCTURE APPROPRIATE UNDER THE**

18   **STANDARD YOU HAVE CITED?**

19

20   A.   Yes, I believe it is.

21

22   Q.   **HAVE YOU PERFORMED ANY ANALYSES TO CONFIRM THAT EMPIRE'S**

23   **CAPITAL STRUCTURE IS CONSISTENT WITH THAT OF WELL-MANAGED**

24   **ELECTRIC UTILTIES?**

25

26   A.   Yes. I have compared Empire's capital structure with the capital structures of two

27   comparison groups of electric utility companies.

28

29   Q.   **HOW DID YOU SELECT YOUR TWO COMPARISON GROUPS OF ELECTRIC**

30   **UTILITIES?**

1

2   A.   I began with the list of 34 companies that Empire's witness James VanderWeide used for

3   comparison purposes to Empire.   This list is found on the second page of Dr.

4   VanderWeide's Schedule JVW-1. According to Dr. VanderWeide, this list consists of

5   Value Line's electric utility companies that (1) paid dividends during every quarter of the

6   last two years; (2) did not decrease dividends during any quarter of the past two years; (3)

7   had at least three analysts included in the I/B/E/S mean growth forecast; (4) have an

8   investment grade bond rating and a Value Line Safety Rank of 1, 2, or 3; and (5) have not

9   announced a merger.

10

11   Based on Dr. VanderWeide's own criteria, it was necessary to exclude two of the

12   companies on his list. On December 18, 2005, Constellation Energy and the FPL Group

13   agreed to a plan of merger. This agreement renders these companies ineligible for

14   inclusion under the fifth of Dr. Vanderweide's criteria.

15

16   I then examined the 2005 10K reports of the 32 remaining companies to determine how

17   much of their revenue was derived from regulated electric utility service. The results of

18   this analysis are set forth on Schedule CWK-2 of my exhibit. I found that four

19   companies on Dr. VanderWeide's list are more heavily involved in gas distribution than

20   electric service and that one Company, MDU Resources, is most heavily involved in non-

21   utility activities, including construction, mining, and gas and oil production. Therefore I

22   have excluded them for all purposes of my analysis.

23

24   I also excluded TXU Corporation, which recently took some extraordinary equity write-

25   downs and now shows an equity percentage of approximately 3.5 percent. Because of

26   TXU's extremely leveraged condition, I have excluded it from the analyses presented in

27   this testimony.

28

29   I then examined the proportion of revenue of each company that is non-regulated relative

30   to that which is subject to regulation. I found that in 2005 Empire derived 93.2 percent of

6

1   its revenue from regulated electric service. Many of the companies listed as electric

2   utilities derive very significant proportions of their revenue from non-regulated merchant

3   power production and marketing. I therefore established a threshold of 75 percent

4   regulated electric utility revenue as the basis for establishing what I call the "narrow

5   group" of electric utilities whose revenues are primarily determined by regulation. The

6   result of this effort was two groups, a broad group of 26 companies and a narrow group

7   of 16 companies.

8

9   The final step in this analysis was to identify the capital structures of each of these

10   companies, again using their SEC Forms 10-K as the source. The results of this effort are

11   set forth in Schedules CWK-3 for the broad group and CWK-4 for the narrow group.

12   Exhibit CWK-3 reveals that the broad group has an average equity percentage of total

13   capital (inclusive of short-term debt) of 44.5 percent and of permanent capital (exclusive

14   of short-term debt) of 46.2 percent. These percentages are slightly lower than Empire's

15   equity percentages of 46.4 percent and 48.4 percent, respectively. Exhibit CWK-4,

16   which applies to the utilities most similar to Empire, shows a similar relationship. The

17   narrow group's equity percentage of total capital is 45.15 percent, as compared with

18   Empire's 46.43 percent. Its equity percentage of the narrow group's permanent capital is

19   46.74 percent compared with Empire's 48.36 percent.

20

21   Based on this analysis, I believe that Empire's capital structure is appropriate and

22   reasonable for determining its cost of capital and return on rate base, even though

23   Empire has a slightly greater equity proportion than the comparison groups, which

24   suggests a slightly lower level of financial risk.

25

26 **Q.   WHAT DEFINITION OF EQUITY HAVE YOU USED IN YOUR SCHEDULES,**

27   **BOOK VALUE OR MARKET VALUE?**

28

29 A.   I have used book value consistently.

30

7

1   **Q.**   **AT PAGES 9 AND 10 OF HIS TESTIMONY, DR. VANDERWEIDE ARGUES**

2   **THAT INVESTORS DO NOT LOOK AT BOOK EQUITY, BUT RATHER AT**

3   **MARKET EQUITY. HOWEVER, AT THE BOTTOM OF PAGE 10, HE**

4   **CONCEDES THAT REGULATORS HAVE TRADTIONALLY DEFINED THE**

5   **WEIGHTED COST OF CAPITAL USING BOOK VALUES OF BOTH DEBT**

6   **AND EQUITY. WHY DO REGULATORS USE BOOK VALUES, RATHER**

7   **THAN MARKET VALUES?**

8

9   A.   The reason is to avoid circularity. Market values depend on earnings, and the earnings of

10   a regulated enterprise depend on the rate of return set by the regulators. If that rate of

11   return is in turn affected by the level of market value, the whole process becomes

12   circular.

13

14   This issue was addressed by the Supreme Court when it reviewed the use of book value

15   versus "fair value," which may be measured as market value, in its landmark *Hope*

16   *Natural Gas* case.

17   … "fair value" is the end product of the process of rate-making not
18   the starting point as the Circuit Court of Appeals held. The heart
19   of the matter is that rates cannot be made to depend upon "fair
20   value" when the value of the going enterprise depends on earnings
21   under whatever rates may be anticipated.[1]

22

23   **COST OF DEBT**

24

25   **Q.**   **WHAT COSTS HAVE YOU ASSIGNED TO THE DEBT COMPONENTS OF**

26   **EMPIRE'S CAPITAL STRUCTURE?**

27

28   A.   I do not have a current calculation of the cost of Empire's long-term debt, so I have

29   adopted the cost rate of 7.04 percent shown in Empire's Schedule H-1, sponsored by W.

30   Scott Keith. According to Mr. Keith, the cost of long-term debt on September 30, 2005

---

[1] *Federal Power Commission et. al vs. Hope Natural Gas Company*, 320 U.S. 592, at 601 (1944)

1   was 7.04 percent. This value should be updated if there has been any significant change

2   since last September.

3

4   I have used 5.59 percent as the cost of short-term debt. This was the cost as of March

5   2006 as reported in Empire's response to my Data Request No. 4013.

6

7   **STANDARDS FOR FINDING EQUITY CAPITAL COST**

8

9   Q.   **WHAT IS THE BASIS FOR FINDING A RATE OF RETURN TO EMPIRE'S**

10   **COMMON EQUITY SHAREHOLDERS?**

11

12   A.   In its *Hope Natural Gas* decision, the United States Supreme Court established the

13   following standards for the return on equity that must be allowed a regulated public utility:

14   ..the return to the equity owner should be commensurate with the
15   returns on investments in other enterprises having corresponding
16   risks.   That return, moreover, should be sufficient to assure
17   confidence in the financial integrity of the enterprise, so as to
18   maintain its credit and to attract capital.[2]

19

20   It can be seen from this excerpt that there are essentially three standards for determining

21   an appropriate return on equity. The first is the "comparable earnings" standard, i.e., that

22   the earnings must be "commensurate with the returns on investments in other enterprises

23   having corresponding risks."   The second is that earnings must be sufficient to assure

24   "confidence in the financial integrity of the enterprise," and the third is that they must

25   allow the utility to attract capital.

26

27   Q.   **HOW CAN THE COMPARABLE EARNINGS STANDARD BE APPLIED IN**

28   **ESTIMATING THE RATE OF RETURN ON EQUITY CAPITAL?**

29

---

[2] Id. at 603

9

1   A.   There is a certain circularity to the comparable earnings standard because the competitive

2   nature of the capital markets virtually ensures that the returns to <u>all</u> enterprises having

3   corresponding risks are comparable with each other. Investors establish the price of each

4   traded stock based on that stock's present and prospective earnings in comparison with the

5   present and prospective earnings of all other stocks and other investments available to

6   them. If the earnings of a firm are depressed, then investors will pay only a low price for

7   that firm's stock. As a result, the return on the market value of that stock will be

8   comparable to the return on the market value of the stock of other companies that are

9   highly profitable but which, as a consequence of their profitability, have been bid up to a

10   very high price. Thus, if "return" is defined as the earnings of an equity investment

11   relative to its current market price, then the comparable earnings test becomes a cipher.

12   All returns are comparable with all other returns.

13

14   In public utility regulation the conventional procedure for resolving this circularity is to

15   identify the required equity return based on the market value of a utility's stock. That

16   return is combined with the cost of debt and preferred stock, using either the actual or a

17   hypothetical minimum-cost capital structure. The blended return to total capital is then

18   applied to a rate base reflective of the book value of the utility's investment. The book

19   value is the accountant's quantification of the original cost of the utility's assets adjusted

20   for ratepayer contributions such as deposits and deferred taxes. Under this procedure, the

21   market price of a stock is used only to determine the return that investors expect from that

22   stock. That expectation is then applied to the book value of the utility's investment to

23   identify the level of earnings that regulation will allow the utility's common shareholders

24   to recover.

25

26   **Q.**   **HOW CAN THE FINANCIAL INTEGRITY AND CAPITAL ATTRACTION**

27   **STANDARDS BE APPLIED IN ESTIMATING THE RATE OF RETURN ON**

28   **EQUITY CAPITAL?**

29

30   A.   If a utility can earn a return on its investment comparable to that required by enterprises of

31   comparable risk, then it should have no difficulty in attracting capital and maintaining

1   credit. Investors would have no reason to shun such a utility in favor of other investment

2   opportunities. Thus, if the comparable earnings test is met, then the financial integrity and

3   capital attraction standards are met as well.

4

5 **Q.   HOW DO YOU DEFINE "ENTERPRISES OF COMPARABLE RISK" AS**

6 **REQUIRED BY *HOPE NATURAL GAS?***

7

8 A.   I propose to use the two lists of companies in Schedules CWK-2 and CWK-3. The narrow

9   group has 16 companies, all of which derive at least 75 percent of their revenue from

10   regulated electric utility service. The broad group has 26 companies consisting of the

11   narrow group companies plus 10 additional companies that are heavily involved in

12   unregulated merchant electric generation and marketing.

13

14 **DISCOUNTED CASH FLOW PROCEDURE**

15
16
17 **Q.   PLEASE DESCRIBE THE DISCOUNTED CASH FLOW PROCEDURE.**
18
19 A.   The basic premise of the Discounted Cash Flow (" DCF") procedure is that the market

20   values each stock at the discounted present value of all expected future flows of cash to

21   the investor. The discount rate that equates those future cash flows with the market value

22   of the stock is the investor's required rate of return.

23
24   The DCF approach is usually represented by the following formula:
25
26         $k = {}^{d}\!/_{P} + g$
27
28   where   k = required rate of return
29   d = dividend in the immediate period
30   p = market price
31   g = expected growth rate in dividends
32
33   While the DCF method is usually presented in mathematical notation format (as above), it

34   can also be described in narrative fashion. The formula says that the return that any

35   investor expects from the purchase of a stock consists of two components. The first is the

1   immediate cash flow in the form of a dividend. The second is the prospect for future

2   growth in dividends. The sum of the rates of these two flows, present and future, equals

3   the return that investors require. Investors adjust the price they are willing to pay for the

4   stock until the sum of the dividend yield and the annual rate of expected future growth in

5   dividends equals the rate of return they expect from other investments of comparable risk.

6   The DCF test thus determines what the investing community requires from the Company

7   in terms of present and future dividends relative to the current market price.

8

9   **Q.**   **DON'T MOST INVESTORS REGARD CAPITAL APPRECIATION AS A**

10   **PORTION OF THEIR EXPECTED RETURN?**

11

12   **A.**   Yes. The expectation of capital appreciation is captured in the "g" or growth portion of

13   the DCF formula. If dividends grow, then it follows that the market price of the stock will

14   grow as well. It is this growth that most equity investors seek, at least in part, in

15   purchasing shares in a traded company.

16

17   **Q.**   **HOW IS THE FIRST TERM "d/p" DEVELOPED FOR PURPOSES OF THE DCF**

18   **PROCEDURE?**

19

20   **A.**   The "d" is the dividend in the next period, that is, the next year. There is a somewhat

21   mechanical procedure for predicting this value which applies a factor of .5 to the "g" or

22   growth factor, on the assumption that dividends will increase in lock step with earnings

23   growth. Alternatively, there are analysts' predictions of next year's dividends that

24   presumably reflect a fairly close scrutiny of the companies' cash flow requirements and

25   their stated desire (or lack thereof) to increase dividends to their stockholders. Because

26   the latter procedure takes into account company-specific considerations, I believe it is

27   more appropriate. For the "next period," I have assumed that the investment horizon at

28   this point is the year 2007 because that will be the next period by the time a decision is

29   rendered in this case. I have used Value Line's forecast of 2007 dividends.

30

1   The "p" or price denominator of the dividend yield fraction requires the exercise of some

2   judgment. Given the volatility of the stock market, it is inappropriate to use any one

3   day's price, but it is also necessary to reflect the market's current perception of each

4   stock's value. For purposes of this analysis, I have used the average of prices for the

5   most recent 90 calendar days preceding June 7, 2006 as reported by Yahoo finance.

6

7   Column C of Schedules CWK-5 and CWK-6 presents the dividend yields of each of the

8   electric companies in the narrow and broad comparison groups, respectively. The

9   average dividend yield for the narrow group is 4.36 percent, and for the broad group, it is

10   4.46 percent.

11

12   **Q.   IS THERE A CONVENTIONAL PROCEDURE FOR CALCULATING THE "g"**

13   **GROWTH COMPONENT OF THE DCF FORMULATION?**

14

15   A.   Yes. There is a conventional procedure for calculating equity return under the DCF

16   formula that is often referred to as the "classic" DCF calculation. The Federal

17   Communications Commission ("FCC") adopted this method in 1986 and concluded that

18   it should be given the greatest weight in determining the rate of return on equity.[3] I agree

19   with this conclusion. I should note also that the Surface Transportation Board[4] routinely

20   uses this method each year to determine the revenue adequacy of each of the nation's

21   Class I railroads.[5]

22

23   According to the DCF theory, the relevant measure of "g" should be the growth in

24   dividends. Dividends, however, are largely a function of management discretion, and they

25   do not necessarily reflect the underlying driver of earnings. In the long run, any rate of

---

[3] *Authorized Rates of Return for the Interstate Services of AT&T Communications and Exchange Telephone Carriers, Memorandum Opinion and Order on Reconsideration,* CC Docket No. 84-800, Phase II, 104 FCC 2d 1404, at 1407 (1986); *Resubscribing the Authorized Rate of Return for Interstate Services of Local Exchange Carriers, Order,* CC Docket No. 89-624, 5 FCC Rcd 7507, 7512 (1990); *Notice Initiating a Prescription Proceeding and Notice of Proposed Rulemaking,* CC Docket No. 98-166, October 5, 1998.

[4] Successor agency to the Interstate Commerce Commission.

[5] Comments of the Association of American Railroads and Its Member Railroads, Surface Transportation Board Ex Parte No. 558 (Sub-No.9), *Railroad Cost of Capital – 2005,* pp. 2-3.

1   dividend growth that differs significantly from earnings growth is likely to be

2   unsustainable. For this reason, it is generally accepted that the growth rate of earnings per

3   share ("EPS") is the most reliable indicator of the "g" factor.

4

5   The classic DCF calculation employs predictions of EPS growth, usually in the three to

6   five year time horizon. Investment analysts routinely attempt to forecast the future

7   earnings of traded companies. Value Line provides such forecasts based on the research

8   of its own and other organizations' analysts. Other sources are www.zacks.com and

9   I/B/E/S, which do not conduct independent research but survey investment analysts for

10   their predictions of future earnings growth. I have used the forecasts from these three

11   sources for my development of the electric utility industry's classic DCF return.

12

13   The long-term earnings growth forecasts for Empire and each comparison company are

14   presented in columns D, E and F of Schedules CWK-5 and CWK-6 of my exhibit.

15   Column G shows the average of these three forecasts for each company. Schedule CWK-

16   5 shows that the average forecast rate of earnings growth for the narrow comparison group

17   is 5.29 percent. Schedule CWK-6 shows that it is 5.62 percent for the broad comparison

18   group.

19

20 **Q.**   **WHAT ARE THE EQUITY RETURN INDICATIONS FROM YOUR**

21   **APPLICATION OF THE CLASSIC DCF PROCEDURE?**

22

23 A.   The final columns of Schedules CWK-5 and CWK-6 present the results of my classic

24   DCF analysis of the narrow and broad comparison groups, respectively. Schedule CWK-

25   5 reveals that when 5.29 percent average of the growth rates forecast by the three sources

26   for the narrow group is added to the 4.36 percent dividend yield, the result is an average

27   DCF return of 9.65 percent. Schedule CWK-6 shows that the average forecast growth

28   rate for the broad group is 5.62 percent and the dividend yield is 4.46 percent, for a DCF

29   indication of 10.09 percent.

30

1 **Q.** **IS IT TO BE EXPECTED THAT THE NARROW COMPARISON GROUP**
2 **WOULD HAVE A LOWER REQUIRED RATE OF RETURN THAN THE**
3 **BROAD GROUP?**

4

5 A. Yes. The broad group contains some companies that are heavily invested in merchant
6 power generation, which is intrinsically more risky than regulated utility service. For this
7 reason, this group can be expected to display a requirement for a higher rate of return
8 than the narrow group, which is composed of companies that principally provide
9 regulated monopoly utility service.

10

11 **Q.** **WHAT IS THE CLASSIC DCF RETURN INDICATION BASED ON EMPIRE**
12 **SPECIFIC DATA?**

13

14 A. The top line of Schedules CWK-5 and CWK-6 shows the classic DCF return calculation
15 for Empire. It is 10.57 percent.

16

17 **Q.** **WHAT CONSIDERATION SHOULD BE GIVEN TO EMPIRE'S DCF RETURN**
18 **ESTIMATE?**

19

20 A. Very little. First, in its order in Empire's last rate case, Case No. ER-2004-0570, the
21 Commission found that the *Hope Natural Gas* standard required that Empire's rate of
22 return be based on a comparative analysis with other companies of comparable risk. It
23 explicitly rejected analyses that were based on Empire's own DCF results.

24

25 But even if the Commission were to consider Empire's DCF results, those results are
26 somewhat less robust than the results for the other electric companies. Specifically,
27 Zacks did not have any earnings growth forecasts whatever for Empire, and the I/B/E/S
28 forecast is based on a survey of only three investment analysts.

29

1   Finally, there are factors specific to Empire that undoubtedly bias its DCF results upward.

2   I have already noted that Empire's has recently been issuing larger dividends than its

3   earnings per share. Investors cannot have failed to notice this unsustainable -- and

4   arguably unwise -- practice. Additionally, on September 21, 2005, Empire announced its

5   intention to purchase the Missouri natural gas distribution operations of Aquila, Inc.

6   Investors may believe that this venture into a new line of business increases Empire's

7   risk. Such a risk increase resulting from management's actions should not be borne by

8   ratepayers.

9

10   **Q.   BUT IF EMPIRE IS PERCEIVED AS MORE RISKY THAT OTHER ELECTRIC**

11   **UTILITIES, SHOULD IT NOT RECEIVE A HIGHER RETURN?**

12

13   A.   Not necessarily. The risk elements that I have noted should be short-lived. In particular,

14   Empire is the recipient of a New Regulatory Plan that is designed to ensure that it meets

15   the financial metrics that qualify it for investment grade bond ratings. Additionally, I

16   understand that the Missouri legislature has authorized a fuel adjustment clause. If

17   implemented, this will shift the risk of further fuel cost spikes from Empire shareholders

18   to ratepayers. Finally, the Aquila acquisition is also in a line of business that is generally

19   perceived as less risky than electric utility service. This observation is supported by

20   Empire Witness VanderWeide's finding that the DCF return to gas distribution

21   companies is lower than that to electric companies.

22

23   **Q.   DID EMPIRE WITNESS VANDERWEIDE ALSO IMPLEMENT THE CLASSIC**

24   **DCF PROCEDURE?**

25

26   A.   Yes, he did. His analysis showed a rate-of-return indication of 9.9 percent. He also

27   performed a classic analysis of 13 gas distribution companies which showed a rate-of-

28   return indication of 9.6 percent.

29

1 **Q. HOW DOES DR. VANDERWEIDE'S CLASSIC DCF ANALYSIS DIFFER FROM**
2   **YOURS?**

3

4 A. Our classic DCF analyses differs in the following respects:

5   • Dr. VanderWeide uses a larger group of comparison companies than I do,

6   • Dr. VanderWeide forecasts next year's dividend by applying the "g" factor to the
7   current year's dividend, while I use Value Line's forecast of each company's
8   2007 dividend,

9   • Dr. VanderWeide applies the quarterly compounding procedure to next year's
10   dividend,

11   • Dr. VanderWeide uses earnings forecasts only from I/B/E/S, while I also use
12   Value Line and Zacks.com.

13   With respect to each of these differences, I believe that my approach is superior.

14

15 **Q. WHY IS YOUR SELECTION OF COMPANIES SUPERIOR TO THAT OF DR.**
16   **VANDERWEIDE?**

17

18 A. As discussed earlier, Dr. VanderWeide's comparison electric group includes four
19   companies that are primarily engaged in gas distribution, one company that is principally
20   involved in non-utility, non-electric activities, and TXU, which is so heavily leveraged
21   that it cannot be considered a healthy company for comparison purposes.

22

23 **Q. WHY IS IT MORE APPROPRIATE TO USE VALUE LINE'S FORECAST OF**
24   **NEXT YEAR'S DIVIDEND THAN TO PROJECT THE "G" RATE OF**
25   **EARNINGS GROWTH TO THIS YEAR'S DIVIDEND?**

26

27 A. Dr. VanderWeide's approach of applying the "g" growth percentage to this year's
28   dividend makes the inappropriate assumption that all companies in his comparison group
29   will increase their dividend. Applied to Empire itself, for example, this assumption is
30   highly unlikely. For the past several years, Empire has been issuing dividends in excess of

1   its earnings per share. While it is altogether appropriate to assume that Empire's earnings

2   will increase in light of its historically low returns, it is clear that Empire must hold its

3   dividend at its present level until earnings rise to cover it, plus a margin for retained

4   earnings. For this reason, Value Line has quite appropriately assumed no increase in

5   Empire's dividend. Other companies may have similar cash flow constraints that prevent

6   their increasing dividends between now and 2007. Value Line recognizes these

7   conditions; Dr. VanderWeide does not.

8

9   **Q.**   **WHY IS IT BETTER TO USE VALUE LINE AND ZACKS FORECASTS OF**

10   **EARNINGS GROWTH IN ADDITION TO I/B/E/S?**

11

12   A.   Obviously, the greater the range of analyses, the more confidence one can put in the

13   average projections of earnings growth. A glance at columns D, E and F of Schedules

14   CWK-5 and CWK-6 demonstrates that there is considerable disagreement within the

15   securities analyst community as to earnings prospects of most of these companies.

16   Averaging a number of estimates ensures that these disagreements are captured in the

17   final DCF analysis.

18

19   **Q.**   **DID YOU USE THE QUARTERLY COMPOUNDING MODEL IN COMPUTING**

20   **THE DIVIDEND YIELD, AS DR. VANDERWEIDE HAS DONE?**

21

22   A.   No. The fundamental weakness of the quarterly compounding model is the assumption

23   that the dividend-issuing company must provide the earnings which an investor expects to

24   receive from the quarterly dividends up until the end of the coming year. This is flatly not

25   true. The investor receives those dividends and reinvests them – or consumes them --

26   independently of the dividend-issuing company. He then receives whatever income those

27   dividends generate from the source of that reinvestment. It is not the responsibility of the

28   dividend-issuing company to provide these earnings. For this reason it is not necessary to

29   inflate the rate of return to account for the compounding effect of quarterly dividends.

30

1   I should note also that the FCC has twice rejected the quarterly compounding model in

2   part because the model adds complexity that is not offset by increased accuracy and in part

3   because no one has established that investors actually use quarterly compounding

4   models.[6]

5

6 **Q.   WHAT IS YOUR ASSESSMENT OF THE QUALITY OF THE CLASSIC DCF**

7 **RETURN INDICATIONS?**

8

9 A.   As noted earlier, I agree with the FCC and the Surface Transportation Board that the

10   "classic" formulation of the DCF model is the most reliable basis for estimating returns to

11   equity. That is because it uses market data for the dividend yield portion of the formula,

12   and it relies on the informed judgment of market analysts for its projection of future

13   growth.

14

15   As between the classic DCF results that I have calculated, the results for the narrow

16   comparison group are significantly more relevant to Empire than those for the broad

17   group. The broad group includes a number of companies that are heavily engaged in

18   merchant generation and marketing, activities that are certainly perceived by investors as

19   more risky than regulated electric utility service. I performed a DCF analysis on the

20   broad group, as adjusted to exclude companies that were completely inappropriate,

21   primarily because it would provide the Commission with a comparable calculation to Mr.

22   VanderWeider's group.

23

24 **Q.   CAN YOU SUGGEST ANY WAY TO CHECK INDEPENDENTLY ON THE**

25 **PROPRIETY OF THE NARROW GROUP DCF RESULTS?**

26

27 A.   Yes. The Capital Asset Pricing Model represents a check on the DCF results.

28

---

[6] *Notice Initiating a Prescription Proceeding and Notice of Proposed Rulemaking,* CC Docket No. 98-166, October 5, 1998, ¶ 24.

1

2 **THE CAPITAL ASSET PRICING MODEL**

3

4 **Q. PLEASE DESCRIBE THE CAPITAL ASSET PRICING MODEL?**

5

6 A. The Capital Asset Pricing Model employs a measure called "beta," which tests the

7 covariance of the stock at issue with that of the overall market, to assess the relative risk

8 of the stock against the market. As conventionally used by rate-of-return analysts, the

9 beta is assumed to measure the cost of the company's equity on a continuum between the

10 average required return of the overall equity market and a risk-free return.

11

12 The CAPM formula is as follows:

13 $$k = R_f + \beta(R_m - R_f)$$

14 Where
15 k = the prospective market cost of common equity for a specific investment
16 R_f = the "risk-free" rate of return
17 β = the company-specific beta
18 R_m = the overall stock market return on stocks for the prospective period
19

20 **Q. WHAT IS YOUR ASSESSMENT OF THE CAPM?**

21

22 A. I believe that CAPM has value in assessing the relative risk of different stocks and

23 portfolios of stocks. It can therefore be useful in checking the results of other, more

24 reliable methods of measuring equity return, such as the DCF procedure. However,

25 because of the extensive requirement for judgment in selecting each of the inputs, I

26 question its value in directly estimating a return on equity.

27

28 **Q. WHAT JUDGMENT IS REQUIRED FOR THE FIRST INPUT, β, OR BETA?**

29

30 A. As noted, beta measures the degree of covariance of the stock with that of the market

31 overall. But neither the fluctuations of the stock nor those of the market are constant, or

32 even consistent with each other over any extended period of time. As a result, there are

1   as many estimates of beta for a given company as there are analysts making the

2   measurement.

3

4   Schedule CWK-7 in my exhibit presents the betas for the narrow comparison group of

5   electric companies most similar to Empire as derived from three difference sources,

6   Thomson Financial (publishers of the I/B/E/S survey), Value Line and Zacks.com. All

7   three of these sources purport to be reliable and respected. As can be seen from the

8   exhibit, there is little or no consistency among the beta values for the respective

9   companies.

10

11 **Q.   WHAT JUDGMENT IS REQUIRED IN SELECTING THE INPUT R_f, THE RISK-**

12 **FREE RATE OF RETURN?**

13

14 A.   There is general consensus that yields to U.S. government securities are risk-free in the

15   sense that they are free from the risk of default. The difficulty is that there are quite a

16   number of U.S. government securities of differing maturities that have very different

17   yields. Most utility-sponsored rate-of-return witnesses assert that because stocks exist in

18   perpetuity, the yield of long-term government bonds is the appropriate risk-free rate. The

19   rationale is that because stocks are held in perpetuity, the corresponding risk-free rate

20   should be that of very long-term government bonds.

21

22   There are two difficulties with this rationale. The first is that stocks are not held in

23   perpetuity. To the contrary, the New York Stock Exchange has a turnover rate of about

24   100 percent annually, suggesting that the average share of stock is held only about a year.

25   The second difficulty is that long-term bonds are not free from risk. To the contrary, they

26   carry a substantial risk that inflation will erode their eventual value at maturity. Stocks

27   do not bear this inflation risk because generally the stock market rises when inflation

28   rises.

29

1 **Q.** **WHAT JUDGMENT IS REQUIRED IN SELECTING THE INPUT R_m, THE**

2   **RETURN TO THE OVERAL MARKET?**

3

4 **A.** The complexities and uncertainties associated with measuring the return on equity of an

5   individual company are not reduced when the object of the analysis is expanded to the

6   entire market for equities. Generally, CAPM analysts use one of two procedures. Either

7   they perform simplistic DCFs for a wide variety of stocks, in which case why not use the

8   same DCF for the stock under study? Or they use the historical return to market equities,

9   which assumes, totally unrealistically, that the investors in the equity markets during the

10   period under study actually realized the return that they were expecting. This approach

11   tells us nothing about future expectations from the market.

12

13 **Q.** **HAS ANY COMMISSION EXPRESSED SIMILAR RESERVATIONS**

14   **WITH REGARD TO THE CAPM PROCEDURE?**

15

16 **A.** Yes. When the Interstate Commerce Commission selected the DCF method in its 1981

17   Cost of Capital proceeding, it made the following comment:

18   …CAPM requires the use of many assumptions. These include the
19   selection of a risk-free return series, the time period used in calculating the
20   risk period, the selection of the market portfolio to derive the risk
21   premium, the firms included in the industry, and the assessment of the
22   variability of railroad equity value relative to a broad group of securities.
23   Each of these can have a significant effect on the result obtained and each
24   necessitates judgments on how best to define and measure it.[7]
25
26

27 **Q.** **HAVE YOU DEVELOPED A CAPM APPLICATION?**

28

29 **A.** Yes. My presentation of the CAPM is presented in Schedule CWK-8 of my exhibit. As

30   shown on lines 1 through 4, I have applied a DCF approach to derive the required return

31   of the overall stock market, using Value Line's forecasts of the median dividend yield for

32   the coming year and the potential for appreciation for 1700 stocks. The dividend yield is

1   1.60 percent, and Value Line estimates that the potential for market appreciation is 50

2   percent in the coming 3 to 5 years. Using the mid-point of 4 years, this forecast translates

3   into a growth factor of 10.67 percent per year. The sum of the dividend yield of 1.60

4   percent and a growth rate of 10.67 percent yields an overall market return of 12.27

5   percent.

6

7   Although I do not necessarily agree that the 30-year Treasury bond yield is the

8   appropriate risk-free rate for purposes of the CAPM, I have accepted it in line 5. The

9   yield on these bonds as of June 16, 2006 was 5.17 percent. Based on these inputs, I

10   arrive at an overall market risk premium of 7.10 percent.

11

12   As demonstrated in Schedule CWK-8, there is a wide variety of beta measures for the

13   electric company comparison group. To minimize the effect of these variations, I have

14   used the average of the three sources of betas, Thomson, Value Line and Zacks, for the

15   narrow group of electric utilities most similar to Empire. This average is 0.66. When

16   applied to the total market risk premium of 7.10 percent, the risk premium for the electric

17   companies is 4.68 percent. When added to the risk-free rate of 5.17 percent, the indicated

18   return on equity is 9.85 percent.

19

20   Q,   WHAT DOES YOUR CAPM ANALYSIS SHOW WITH REGARD TO YOUR

21   CLASSIC DCF ANALYSIS?

22

23   A.   In spite of all the uncertainties and judgment involved, the CAPM analysis yields a rate

24   of return indication only 20 basis points different from my the results of my DCF analysis

25   of the 16 electric utilities most similar to Empire. I therefore believe that the CAPM

26   supports the results of my DCF analysis.

27

28

29

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[7] Ex Parte No. 415, *Railroad Cost of Capital* – 1981, 365 I.C.C. 734, AT 741.

1 **RISK PREMIUM APPROACHES**

2

3 **Q.   WHAT IS THE RISK PREMIUM APPROACH?**

4

5 A.   The risk premium approach operates on the assumption that investors require a greater

6   return from common stocks than from fixed return instruments such as preferred stocks

7   and bonds. This greater return is the "equity risk premium" that results from the fact that

8   common shareholders receive the residual operating income of the company after the

9   senior capital obligations have been satisfied. Since the yields on bonds and preferred

10   stocks are clearly measurable, all that is required to identify the return to stocks is to

11   estimate the risk premium over these fixed return instruments.

12

13 **Q.   ARE THERE PROBLEMS WITH THE RISK PREMIUM APROACH?**

14

15 A.   Yes. The principal problem is that no one has yet come up with a truly effective way to

16   measure the equity risk premium. To identify the equity risk premium, one must identify

17   the return that investors expect when they commit their funds to equity investments.

18   Essentially, this requires that the analyst identify the conclusion of this exercise – the

19   return to equity – as an input to the analysis. As a result, the risk premium approach is

20   intrinsically a circular process: to identify the return to equity, it is necessary to know the

21   return to equity. As I will demonstrate with respect to Dr. VanderWeide's risk premium

22   approaches, the result is a set of procedures that are fraught with conceptual, and in some

23   cases statistical problems.

24

25 **Q.   WHAT MEASUREMENTS OF EQUITY RISK PREMIUMS DOES DR.**

26   **VANDERWEIDE EMPLOY?**

27

28 A.   Dr. VanderWeide has applied two risk premium approaches, "ex ante" and "ex post." He

29   concludes from the results, as well as his CAPM study, that his own DCF return

30   indications are understated.

24

1

2 **Q.** **PLEASE DESCRIBE DR. VANDERWEIDE'S "EX ANTE" RISK PREMIUM**

3 **ANALYSIS.**

4

5 A. Dr. VanderWeide's "ex ante" approach derives a risk premium by comparing the DCF

6 returns to a group of proxy electric companies during the period January 2003 through

7 November 2005 with the corresponding yields on A-rated utility bonds. He finds that the

8 difference to be 4.0 percent. He then adds this 4.0 percent to his projection of Global

9 Insight's forecast of A-rated utility bond yields for 2007, which is 6.9 percent, to derive

10 an equity return of 10.9 percent.

11

12 **Q.** **WHAT IS YOUR ASSESSMENT OF DR. VANDERWEIDE'S EX ANTE RISK**

13 **PREMIUM ANALYSIS?**

14

15 A. It is somewhat ironic that Dr. VanderWeide bases this analysis on a study of monthly

16 DCF returns to electric utilities and then uses the results to denigrate his own DCF

17 analysis. If the DCF approach is appropriate for this risk premium analysis, then it

18 should be accepted as a valid test in its own right. Yet, notwithstanding that both tests

19 are based on the same theory, the results of the two approaches, DCF and DCF-derived

20 risk premium, differ by more than 100 basis points.

21

22 Specifically, Dr. VanderWeide's Schedule JVW-3 shows that the DCF return on electric

23 companies (he does not define which companies) was 9.66 percent in November 2005, up

24 from 9.14 in the previous July. Somehow, these results underlie an asserted finding that

25 the return on equity for electric companies is not 9.66 percent, but 10.9 percent, 124 basis

26 points higher. The self-contradiction of this calculation renders it useless as a test of

27 equity return.

28

29 **Q.** **PLEASE DESCRIBE DR. VANDERWEIDE'S "EX POST" RISK PREMIUM**

30 **ANALYSIS.**

1

2   A.   Dr. VanderWeide's "ex post" analysis is based on the historical difference between the

3   experienced earnings on stocks and the experienced yields on bonds over an extended

4   time period. Dr. VanderWeide conducted two such comparisons, the first being a

5   comparison of returns to S&P's 500 stocks with yields on Moody's A-rated utility bonds

6   over the period since 1937. He found the difference to be 5.27 percent. The second

7   comparison was between the experience returns to the utility stocks within S&P's list of

8   500 stocks and the yields on Moody's A-rated utility bonds during the same 67-year

9   period. This comparison yielded a difference of 4.16 percent. He then added these risk

10   premiums to the predicted 2007 return on A-rated utility bonds of 6.9 percent to yield

11   what he believes to be an equity return indication in the range of 11.1 to 12.2 percent,

12   with a mid-point of 11.7 percent.

13

14   **Q.**   **WHAT IS YOUR ASSESSMENT OF DR. VANDERWEIDE'S EX POST RISK**

15   **PREMIUM ANALYSIS?**

16

17   A.   There are serious problems with this approach from both a statistical and conceptual

18   standpoint. Statistically, one need only glance at the column titled "Stock Return" in Dr.

19   VanderWeide's Schedule JVW-5 (page 67) to recognize that the variation in the

20   observations is significantly greater than the mean. When that happens, the mean has

21   little value as a predictor for yet another observation. I have conducted an analysis of this

22   column, and I find that 70 percent of the observations lie outside of the 95 percent

23   confidence range. This means that there is a very low probability that any value will fall

24   near the mean. The mean value is thus a very poor predictor of future returns to equity,

25   and hence the future equity risk premium.

26

27   Conceptually, one must question whether realized rates of return equate to expected rates

28   of return. Obviously, investors in electric utility stocks in 2002 did not expect to receive

29   a return of negative 20.05 percent. Nor did 1998 investors expect to receive a positive

30   31.25 percent return. If they had, then probably every investor in the country would have

1   bought electric utility stocks. The implicit assumption of the realized risk premium

2   approach is that the average of these missed expectations, plus and minus, equals an

3   accurate estimate of next year's expectation. This is simply not a logical conclusion. If

4   investors consistently earn more or less than they expected, why should the average of

5   those failed expectations match their actual expectation?

6

7   Moreover, this approach assumes that risk premiums do not change over time. That is

8   undeniably not the case. When inflation is high, the risk associated with fixed income

9   investments, i.e. bonds, increases correspondingly, and the risk of variable return

10   investments declines. The risk premium of stocks over bonds declines. Conversely,

11   when inflation and interest rates are low, and the economy is prospering, the benefit of

12   stock investments relative to bonds increases, and the equity risk premium increases.

13   These risk premium fluctuations are nowhere reflected in Dr. VanderWeide's historical

14   risk premium analysis.

15

16   For the foregoing reasons, I conclude that very little credibility can be ascribed to Dr.

17   VanderWeide's ex post risk premium approach.

18

19   **EQUITY RETURN CONCLUSION**

20

21   **Q.   WHAT EQUITY RETURN DO YOU RECOMMEND FOR EMPIRE?**

22

23   A.   As noted earlier, I believe that the DCF procedure yields the most valuable indications of

24   the required return on equity.   Of the two DCF calculations I have made, that applicable

25   to the narrow group is by far the most relevant. These are heavily regulated electric

26   utilities that have not ventured into risky merchant generation and marketing activities.

27   For this reason, I recommend the 9.65 percent narrow group DCF rate of return.

28   Because the broad group is so much riskier than Empire, I conclude that the 10.09

29   percent return on equity is too high for Empire.

30

1   As a check on my DCF results, I have applied the CAPM procedure. While this approach

2   has many defects, the 9.85 percent result supports the 9.65 percent DCF result.

3

4 **Q.**   **DOES THIS CONCLUDE YOUR TESTIMONY?**

5

6 A.   Yes. It does.

Charles W. King

Experience

Snavely King Majoros O'Connor & Lee, Inc.
Washington, DC

President (1989 to Present)
Vice President (1970 - 1989)

Mr. King, a founder of the firm and acknowledged authority on regulatory economics, brings over thirty years of experience in economic consulting to his direction of the firm's work in transportation, utility and telecommunications economics.

Mr. King has appeared as an expert witness on over 300 separate occasions before more than thirty state and nine U.S. and Canadian federal regulatory agencies, presenting testimony on rate base calculations, rate of return, rate design, costing methodology, depreciation market forecasting, and ratemaking principles. Mr. King has also testified before House and Senate Committees on energy and telecommunications legislation pending before the U.S. Congress.

In telecommunications, Mr. King has testified before the Federal Communications Commission on a number of policy issues, service authorization, competitive impacts, video dialtone, and prescription of interstate depreciation rates. Before state regulatory bodies, he has presented testimony in proceedings on intrastate rates, costs earnings and depreciation.

Mr. King has testified in electric, gas and water utility cases on virtually every aspect of regulation, including cost of capital, revenue requirements, depreciation, cost allocation and rate design. Mr. King is one of the nation's leading authorities on utility depreciation practices, having testified on this subject in several dozen cases before state regulatory bodies.

In addition to his appearances as a witness in judicial and administrative proceedings, Mr. King has negotiated settlements among private parties and between private parties and regulatory offices. Mr. King also has directed depreciation studies, investment cost benefit analyses, demand forecasts, cost allocation studies and antitrust damage calculations. Mr. King directed analyses of the prices of services under Federal Government's FTS2000 long distance system.

In Canada, Mr. King designed and directed an extended inquiry into the principles and procedures for regulating the telecommunication carriers subject to the jurisdiction of the Canadian Transport Commission. He also was the principal investigator in the Canadian Transport Commission's comprehensive review of rail costing procedures.

EBS Management Consultants, Inc., Washington, DC

Director, Economic Development Department (1968-1970)

Mr. King organized and directed a five-person staff of economists performing research, evaluation, and planning relating to economic development of depressed areas and communities within the U.S. Most of this work was on behalf of federal, state, and municipal agencies responsible for community or regional economic development.

Principal Consultant (1966-1968)

Mr. King conducted research on a broad range of economic topics, including transportation, regional economic development, communications, and physical distribution.

W.B. Saunders & Company, Inc., Washington, DC

Staff Economist (1962-1966)

For this economic consulting firm, which later merged with EBS Management Consultants, Inc., Mr. King engaged in numerous research efforts relating primarily to economic development and transportation.

U.S. Bureau of the Budget, Office of Statistical Standards

Analytical Statistician (1961-1962)

Mr. King was responsible for the review of all federal statistical and data-gathering programs relating to transportation.

Education

Washington & Lee University, B.A. in Economics

The George Washington University, M.A. in Government Economic Policy