BEFORE THE

KANSAS CORPORATION COMMISSION

PREPARED DIRECT TESTIMONY OF

WILLIAM K. EDWARDS

ON BEHALF OF

MIDWEST ENERGY, INC.

DIRECT TESTIMONY OF WILLIAM K. EDWARDS

1

2 **Q. What is your name and business address?**

3 A. My name is William K. Edwards. My business address is 2201 Cooperative Way,

4 Herndon, Virginia 20171.

5

6 **Q. By whom are you employed, and in what capacity?**

7 A. I am employed by the National Rural Utilities Cooperative Finance Corporation

8 (CFC) as an economist and Vice President of Regulatory Affairs. In that capacity I

9 am responsible for the support of regulatory issues of cooperatives before the FERC

10 and many state commissions.

11

12 **Q. What is your educational background and experience?**

13 A. I received my BS degree in Business with a concentration in economics from

14 Christopher Newport College of the College of William & Mary in 1977, and a. MA

15 degree in economics from Old Dominion University in 1979. My major fields of

16 study included mathematical economics, econometrics, and microeconomics. I have

17 completed a number of courses toward a Ph.D. in economics from the Virginia

18 Polytechnic Institute & State University. I have worked for the firm of Ernst & Ernst

19 (Ernst & Whinney) in its Washington Utility Group as a consultant principally in the

20 electric utility industry. From 1982 to 1985, I was employed by Mississippi Power &

21 Light Company (Entergy - Mississippi) as a supervisor responsible for rate research.

22 From January 1986 until early 1995 I was employed by Central Louisiana Electric

1   Company, Inc. as Manager of Rate Research and subsequently as Director of Rates.

2   In that capacity I was responsible for regulatory affairs, regulatory accounting, rate

3   design, cost of service studies, rate administration, and the attendant litigation

4   associated with regulatory issues before both the Louisiana Public Service

5   Commission, and the Federal Energy Regulatory Commission. Since 1996, I have

6   been employed by CFC. A more comprehensive history of my experience is

7   contained in Schedule 1.

8

9 **Q. What is the purpose of your testimony?**

10 A. The purpose of my testimony is to support the reasonableness of the company's

11   proposed return on equity as well as the reasonableness of certain underlying

12   assumptions used in its estimate of the return on equity. Specifically, to determine

13   the reasonableness of a 40% equity ratio target, the appropriateness of reaching that

14   target equity ratio in 8 years, and the reasonableness of a 20-year capital rotation

15   cycle. Additionally, I have examined the return on equity estimate made by the

16   company for its reasonableness when compared to alternative formulas.

1   **THE ROLE OF CFC**

2   **Q. What is CFC?**

3   A. The National Rural Utilities Cooperative Finance Corporation (CFC) was

4   incorporated as a private, not-for-profit cooperative association under the laws of

5   the District of Columbia in April 1969. The principal purpose of CFC is to provide

6   its members with a dependable source of low cost capital and state-of-the-art

7   financial products and services. CFC provides its members with a source of

8   financing to supplement the loan programs of the Rural Utilities Service (RUS) of

9   the United States Department of Agriculture, which is the successor agency of the

10   Rural Electrification Administration (REA). CFC will also lend 100% of the loan

11   requirement for those members electing not to borrow from RUS. CFC is owned

12   by and makes loans primarily to its rural utility system members to enable them to

13   acquire, construct and operate electric distribution, generation, transmission, and

14   related facilities. CFC also provides guarantees on debt to its members for tax-

15   exempt financings of pollution control facilities and other properties constructed or

16   acquired by its members, debt in connection with certain leases and various other

17   transactions.

18

19   As of May 31, 2007, CFC had 1,544 members, including 899 utility members,

20   virtually all of which are consumer-owned cooperatives, 66 service members and 66

21   associate members. The utility members included 830 distribution systems and 69

1   generation and transmission ("power supply") systems operating in 49 states and

2   four U.S. territories.

3

4   **Q.   How does CFC obtain the funds it lends to cooperative utilities?**

5   A.   CFC functions as both a borrower and a lender. As a lender, CFC makes short,

6   medium, and long-term loans to its member systems. As security for its long-term

7   loans, CFC receives a first mortgage on its borrower's facilities. These mortgages

8   and related mortgage notes are in turn used as security for CFC collateral trust bonds

9   issued in the public capital market. Through the sale of such bonds as well as

10   commercial paper and other debt instruments, CFC obtains capital on behalf of its

11   member borrowers. In this role CFC acts as a borrower.

12

13   CFC issues long-, medium-, and short-term debt in both the domestic and foreign

14   capital markets. CFC issues long-term secured collateral trust bonds for periods

15   of two years to 30 years, unsecured medium-term notes for periods of nine months

16   to 30 years, unsecured quarterly income capital securities for periods of up to 49

17   years and unsecured commercial paper for periods of one to 270 days and

18   extendable commercial notes with maturities up to 390 days. CFC also enters into

19   bank bid note arrangements with banks. CFC's collateral trust bonds, medium-

20   term notes, quarterly income capital securities and commercial paper all carry

1 investment grade ratings from three rating agencies (Standard & Poors, Moodys,

2 and Fitch).

3

4 CFC sells unsecured commercial paper and medium-term notes to its members.

5 Commercial paper is sold for periods of up to 270 days and medium-term notes are

6 sold for periods of nine months to 30 years. CFC sets rates for both securities daily.

7 In addition, members may invest in the daily liquidity program, which can be

8 withdrawn by the members on demand.

9

1   **GENERAL FINANCIAL CONDITION OF MIDWEST ENERGY**

2   **Q. Is Midwest Energy a member of CFC?**

3   A.   Yes. Midwest Energy is a member of CFC and, on a consolidated basis, had long-

4   term loans of approximately $96 million as of August 31, 2007. Midwest Energy is

5   not a borrower of funds from the RUS, but is a borrower of CoBank. As of August

6   31, 2007, Midwest Energy had approximately $59 million of long-term debt

7   outstanding with CoBank.

8

9   **Q. In what ways does Midwest Energy differ from an investor owned utility?**

10   A.   The main difference between an investor owned utility and a cooperative is the form

11   of ownership and typically size. In the investor owned company, stockholders own

12   the equity of the utility and ratepayers (the customers) are not entitled to the benefits

13   and burdens of equity holders. The governance of investor owned utilities is

14   comprised of a Board of Directors separate from the customers of the utility.

15   Therefore, there is an implicit conflict of interests associated with investor owned

16   utilities; the interests of the equity owners are different from the interests of the

17   customers. In the past, vertically integrated electric utilities were regarded as

18   monopolies whose goal was to maximize profits to the stockholders at the expense

19   of their customers. As such, State and Federal government entities regulated the

20   rates of such utilities to reduce such behavior.

21

1   In a cooperative, the customers own the equity. Hence, the benefits (and burdens) of

2   being an equity holder belong to the customer. There are a number of benefits that

3   can accrue to customers of cooperative organizations that include non-profit tax-

4   exempt status, a return of excess margins, and [all things being equal] lower cost

5   electricity. In a cooperative, the Board of Directors is comprised of customers who

6   are democratically elected. As such, the conflict present with investor owned

7   utilities is not present with cooperative structures because the customers and equity

8   owners are the same. A rate increase filed with a state commission by a cooperative

9   has faced the scrutiny of the Board of Directors who are, themselves customers of

10   the cooperative and who have a fiduciary responsibility to represent the interests of

11   the equity owners.

12

13   Although aware of the differences, sometimes regulators forget that, as a result of

14   the cooperative structure, there is no incentive to maximize profits, or charge a

15   "profit" on sales to its members beyond its costs plus a margin for uncertainty.

16   Additionally, should customers of cooperatives become convinced that a specific

17   rate increase or other action is unnecessary, unreasonable, or otherwise unduly

18   prejudicial; they have as their remedy the ability to democratically replace the Board

19   of Directors and senior management. For these reasons, many states elect not to rate

20   regulate cooperatives. Indeed, I am informed that KSA 66-104d provides that

21   Kansas electric cooperatives organized under "The Electric Cooperative Act" with

1   fewer than 15,000 retail customers may, with membership approval, exempt

2   themselves from Kansas Corporation Commission rate regulation. Although

3   Midwest Energy is not organized under "The Electric Cooperative Act," and it has

4   nearly 48,000 retail electric customers, it is like smaller cooperatives because: (1) it

5   is operated on a non-profit basis, (2) it is owned entirely by its customers, and (3) it

6   has a democratically elected board of directors.

7

8   **Q. What are CFC's general loan policies?**

9   A. For distribution utilities, CFC offers three basic types of loans. These are: (1) long-

10   term secured loans made concurrently with the RUS; (2) 100% CFC loans made

11   exclusively from CFC funds; and short-term loans similar to a line of credit. CFC

12   offers long-term loans with maturities of up to 35 years, intermediate-term loans with

13   maturities of up to five years, and line of credit loans. Long-term and intermediate-

14   term loans are available at fixed or variable interest rates and line of credit loans are

15   available only at a variable interest rate. Long-term loans are generally secured by a

16   first mortgage lien on all assets and revenues of the borrower. Intermediate-term loans

17   may be secured or unsecured, and line of credit loans are generally unsecured. On line

18   of credit loans with a maturity of more than one year, the outstanding balance is

19   generally required to be paid down to zero for five consecutive days during each year.

20   CFC makes loans to borrowers on a concurrent basis with RUS.

21

1   CFC requires, as a minimum, a 1.35 modified debt service coverage ratio, and the

2   appropriate security. CoBank also requires that Midwest Energy maintain a 1.35

3   MDSC, but it also requires a minimum equity ratio of 25%. By contrast, the RUS

4   requires the minimum coverage ratios for distribution borrowers a TIER of 1.25,

5   DSC of 1.25, operating TIER of 1.1, and operating DSC of 1.1. (See 7 CFR §

6   1710.114).

7

8   It is important for the Commission to understand that these requirements are

9   minimum default requirements and values that approach the minimum default

10   requirements will not likely qualify a cooperative for future loans. If many systems

11   operated close to these minimums, CFC may not have the ability to raise new capital

12   in the financial markets.

13

14   Q. **What are some of the specific criteria that creditors like CFC use to evaluate**

15   **the credit worthiness of cooperative utilities like Midwest Energy?**

16   A. With the onset of electric deregulation in the mid-1990s as well as other more subtle

17   changes to the utility industry, CFC has re-evaluated its lending policies in an

18   attempt to better manage its portfolio. The revisiting of lending policies is a

19   continuing process to challenge CFC in its efforts to provide low cost capital to its

20   members. Although the credit decisions relating to specific applicants are "fact

1   specific" decisions, there are company specific criteria that are considered by CFC

2   prior to it issuing credit.

3

4   In evaluating the credit quality of cooperative utilities, CFC continues to focus on

5   several key factors: management, rates, generation and distribution facilities,

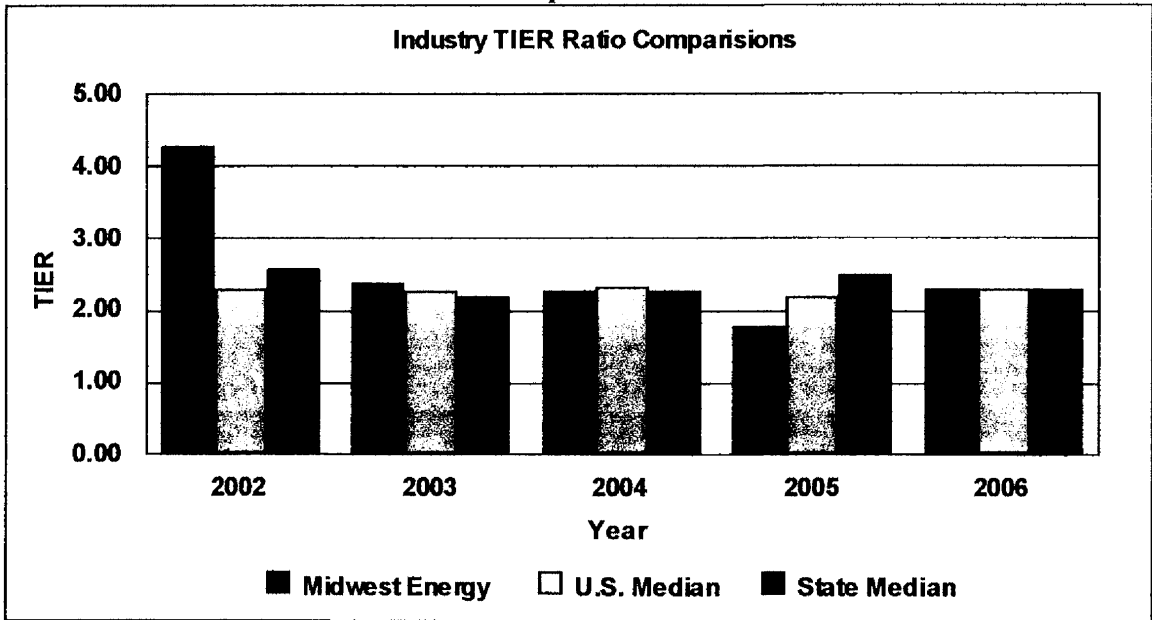6   regulation, demographics, financial performance, and legal provisions.

7

8   With respect to financial evaluations CFC has devised a list of key financial ratios

9   that it uses to supplement its credit decisions. The "Key Ratio Trend Analysis"

10   (KRTA) provides a generalized and quick method for credit analysts to preliminarily

11   evaluate a cooperative. The KRTA, reviews of audit reports, evaluations of

12   prospective financial models and their underlying assumptions, and discussions with

13   management regarding financial performance form the basis of CFC's evaluation.

14

15   Graphs 1 through 3 below illustrate that the electric component of Midwest Energy

16   compares reasonably well to the rest of the industry on a historical basis; however,

17   Midwest Energy's MDSC ratio and Equity Ratio to Total Capitalization is below

18   both the U.S. median level as well as the State of Kansas median levels. Indeed, the

19   MDSC ratio is noticeably below the both the U.S. median value as the Kansas

20   median level. With the Company's additional expected $60 million investment in

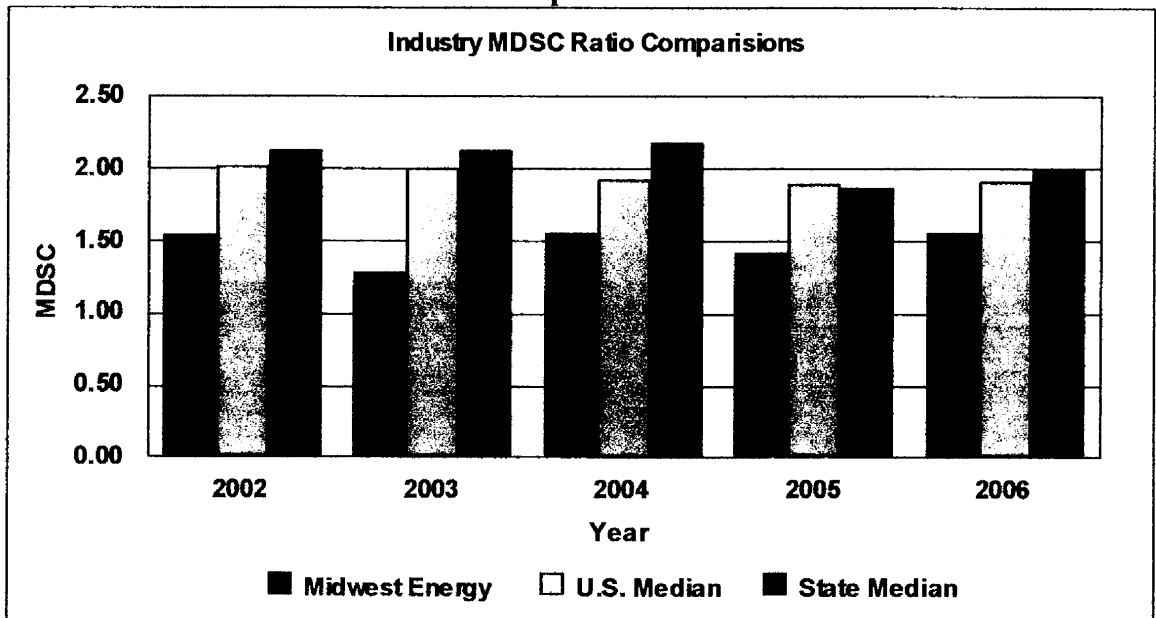1   Goodman Energy Center (GMEC), the equity percent is expected to fall well below
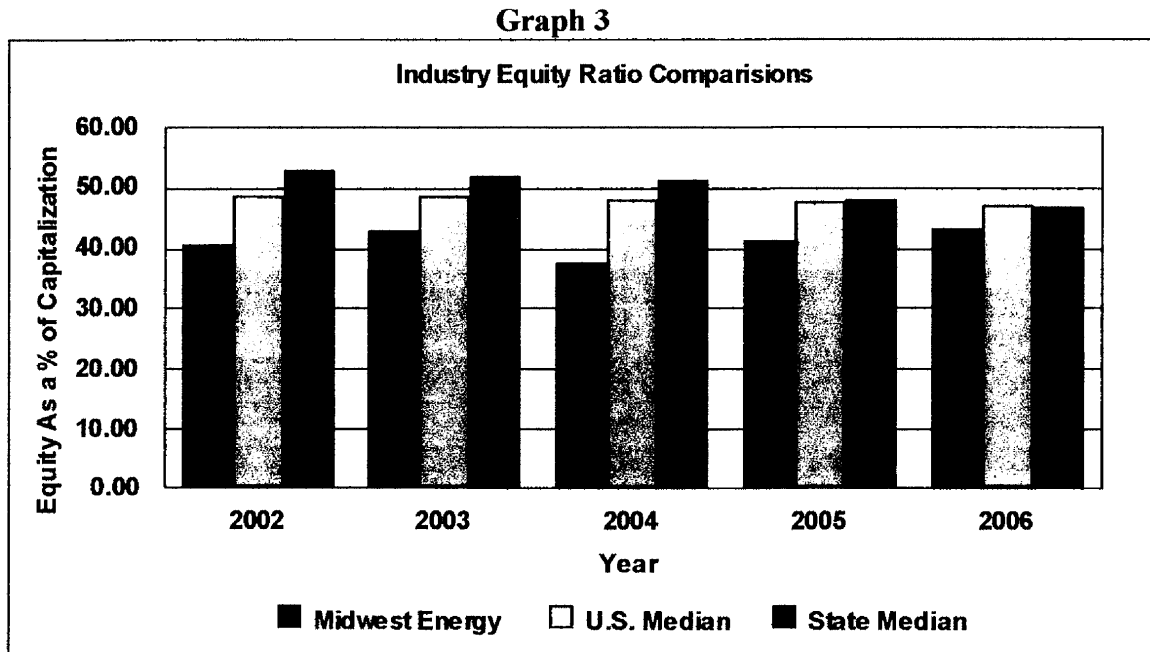
2   40%.

3

Graph 1

Industry TIER Ratio Comparisions

4
5

6

Graph 2

Industry MDSC Ratio Comparisions

7

1

Graph 3

Industry Equity Ratio Comparisions

(bar chart: Equity As a % of Capitalization vs. Year)

Vertical axis: Equity As a % of Capitalization — 0.00, 10.00, 20.00, 30.00, 40.00, 50.00, 60.00

Horizontal axis (Year): 2002, 2003, 2004, 2005, 2006

Legend: ■ Midwest Energy   □ U.S. Median   ■ State Median

2
3
4

5   Absent adequate rate relief to cover Midwest Energy's additional investments in its

6   rate base as well as its O&M expenses, the company's financial health will deteriorate

7   to a serious point. If that were to happen, it may be difficult for CFC, or any other

8   commercial lender(s), to lend funds to Midwest Energy at all. Alternatively,

9   commercial lenders may attempt to mitigate such high-risk positions by charging a

10   higher interest rate to compensate them for the perceived risks associated with

11   Midwest Energy absent adequate rate relief.

12

13 **Q. Please explain the importance to a cooperative of developing and maintaining**

14   **an adequate equity ratio.**

1   A. It is vitally important that cooperatives maintain an adequate equity ratio. The cost of

2   equity increases as the equity ratio decreases. Additionally, as a utility's equity ratio

3   declines significantly, it will tend to experience an increase in the cost of debt to

4   compensate lenders for the increased risk. Hence, there is a direct correlation

5   between financial risk and the cost of debt. In an attempt to remedy this situation,

6   Midwest Energy is requesting an equity adder allowing it to increase its equity ratio

7   to a reasonable level. If granted, the rate will be higher during the period when the

8   equity ratio is growing from its present level to its target. Additionally, CFC will

9   consider the action of the Commission in this docket carefully. If Midwest Energy

10   cannot increase its equity ratio, CFC will make subsequent credit decisions

11   accordingly, which may include higher priced CFC debt or restricted access to debt.

12

13   **Q. Is equity an important consideration in securing private source capital?**

14   A. Yes. CFC attempts to work closely with all its borrowers to assist them in building

15   and maintaining an appropriate equity level in order to achieve a capital structure

16   that will allow them to attract private capital and finance investment in plant and

17   facilities. CFC presently makes (and historically has made) recommendations and

18   provides courses designed to manage equity for cooperative personnel in order to

19   continue to have access to reasonably priced private capital.

20

1   **Q. Does CFC have an interest in the amount of equity that Midwest Energy**

2   **maintains?**

3   A. Yes. For the reasons I have previously identified, CFC is vitally interested in

4   Midwest Energy's capitalization as well as that of every other cooperative that seeks

5   financing from CFC. This interest is on an individual as well as a collective basis

6   since the overall position of the borrowers as a group is what CFC proffers to the

7   market. On a collective basis, the industry's equity ratios affect the attitudes of

8   investors of CFC securities. Should the overall equity position of cooperative

9   utilities change, investors can be expected to react toward CFC securities, as they

10   would towards the securities of an investor owned utility. If the overall equity ratio

11   of cooperatives declines, the investors would perceive an increase in risk and would

12   demand a higher risk premium associated with the cost of debt.

13

1   ASSUMPTIONS AFFECTING THE RETURN ON EQUITY

2 **Q. How Does Midwest Energy's equity ratio compare to other cooperatives?**

3 A. In its filing in this docket (Section 7, Schedule 1 Line 4, Column 6); the company

4   indicates that its adjusted test year equity ratio is 32.75%. As illustrated in Graph 3,

5   and in tabular form in Schedule 2, the U.S. median value of equity as a percentage of

6   capitalization is 47.27% in the most recent calendar year (2006) for which data is

7   available. The median value for Kansas electric cooperatives is 46.83% for 2006.

8   Midwest Energy's equity ratio is appreciably below these median levels. The equity

9   ratio should be permitted to grow toward either the national average or the Kansas

10   average at a reasonable pace.

11

12 **Q. In its return on equity calculation, Midwest Energy assumes a target equity**

13   **ratio of 40.00%. Is this target equity ratio reasonable?**

14 A. Yes. Midwest Energy is seeking to target an equity ratio of 40.00% for its electric

15   division in this docket. I believe that a targeted 40.00% equity ratio is reasonable in

16   that it balances the need to increase the equity ratio while targeting a value for the

17   immediate future that is appreciably below the current national and state median

18   values. The target ratio is 727 basis points below the national average and 683 basis

19   points below the Kansas average; it is therefore a conservative target equity ratio.

20

21 **Q. How is a "fair rate of return" on equity and debt determined?**

1   A. The return on equity is more difficult to determine than debt costs, and is particularly

2   more difficult when applied to a cooperative. Equity capital, like any resource, has a

3   cost associated with its usage. In a cooperative, the cost of equity is determined by

4   the growth in plant and the patronage capital rotation plan more than it is in an

5   investor owned utility where equity capital is exposed to factors such as capital

6   market risks and the competing returns available from other investment alternatives.

7   But like an investor owned utility, the cost of equity cannot be directly measured, it

8   therefore must be estimated by analyzing information concerning the patronage

9   capital rotation policy, the future growth in plant, and the current and prospective

10   equity target ratios.

11

12   The distribution customers who own Midwest Energy invested equity capital in the

13   form of patronage capital in the company. This capital investment continues when

14   Midwest Energy retains margins at the end of the year. The equity holder's patronage

15   capital investments may be jeopardized when Midwest Energy loses money or only

16   meets its minimum payment obligations and the equity portion of the balance sheet is

17   reduced or impaired. Consistent with the regulatory and economic standards

18   identified in the Bluefield (1923) and Hope (1944) decisions, I believe the return

19   should be sufficient to: (1) return past capital investment in the utility, (2) enable the

20   company to attract new capital, and (3) maintain the company's financial integrity.

1   Absent an adequate return on capital, Midwest Energy and its customer owners are

2   harmed.

3

4   The Bluefield and Hope decisions, as applied to cooperatives, are slightly different

5   than when applied to investor owned utilities. In the investor owned utility, common

6   equity is traded in very competitive markets largely to investors who are not

7   customers of the utility. Therefore, with respect to investor owned utilities, a return is

8   required commensurate with the risk adjusted opportunity cost in the financial market.

9   With respect to cooperatives, because they do not trade equity in the market but retain

10   margins for a period of time before returning them to the owner customers, the

11   conceptual return should be adequate enough to allow Midwest Energy the

12   opportunity to meet its operating requirements, provide for access to the debt capital

13   markets and enable Midwest Energy to return the patronage capital pursuant to a

14   reasonable schedule.

15

16   Q. **Why should a distribution cooperative like Midwest Energy be entitled to an**

17   **equity return? Isn't Midwest Energy a non-profit cooperative?**

18   A. Midwest Energy is a non-profit tax exempt cooperative. As such, Midwest Energy

19   provides service to its members at rates that are essentially at costs. However, equity

20   capital has a cost associated with its rotation and Midwest Energy's growth and the

1   determination of that cost becomes the basis of the return on equity recommendation

2   contained in the company's request.

3

4   Q. **Are there different methods to estimate the return on equity for a cooperative**

5   **like Midwest Energy?**

6   A. There are several formulas useful for determining the cost of equity capital from a

7   cooperative like Midwest Energy. These formulas have been developed over the last

8   30 plus years. Much of the original work in this field is attributable to Mr. James W.

9   Goodwin during the late 1960s and early 1970s. Mr. Goodwin worked for the REA

10   as chief of the REA Retail Rate Branch and wrote several papers on the subject of

11   equity costs associated with cooperatives. The formula Mr. Goodwin developed was

12   generated from the equity side of a standard revenue requirements calculation as

13   shown below.

14

15   Eq(1): $K_e = [(1+g)^n - (1-g)^{n-1}] / (1+g)^{n-1} - 1$
16
17   Where:
18   K_e = Return On Equity
19   g = Growth Rate in Rate Base
20   n = Patronage Capital Rotation Period
21

22   Subsequent work by both the RUS (formerly the REA) and CFC has resulted in a

23   modification to the original formula to reflect a forward-looking analysis. The

24   modified formula is shown as equation 2 below.

1

2   Eq(2): $K_e = [(1+g)^{n+1} - (1-g)^n] / (1+g)^n - 1$

3

4   These formulas produce a minimum return required to hold the equity ratio at its

5   present level while growing at a fixed level of growth (g) and revolving capital credits

6   an a specific cycle (n years). It also implicitly assumes a retirement of patronage

7   capital schedule that grows as margins grow over time. However, should the equity

8   ratio be appreciably below (above) its target level, then neither the "Goodwin" model

9   nor its successor (the modified "Goodwin" model) will produce a return that will

10   allow the cooperative to achieve its target level.

11

12   The model the company is using permits adjustments to the cost of equity that will

13   permit it to achieve the target ratio in a fixed number of years. I am informed that this

14   Commission has used this model before when analyzing the return on equity of

15   distribution cooperatives and it was adopted in a prior Midwest Energy rate

16   application. Because the equity ratio is appreciably below the target equity ratio, the

17   adjustment component in the company's model will produce an increase in the return

18   on equity (ROE) to permit the cooperative a higher return than it would ordinarily

19   require. This is necessary to protect the existing equity investment of the members

20   who may lose part of their equity should Midwest Energy be subject to higher

21   financing costs if the return on equity did not permit such a premium. Hence, the

1   company used a return model as shown in equation 3 below in an effort to protect and

2   return the member-owner's equity capital.

3

4   Eq(3): $K_e = g + (1/n) + ((1+g)*(((We^*/We)^(1/t))-1)$
5
6   Where:
7   K_e = Required Return On Equity
8   g = Anticipated Growth Rate In Plant
9   n = Patronage Capital Rotation Period
10   We^* = The Target Equity Ratio
11   We = The Actual Equity Ratio
12   t = Target Number Of Years To Reach We^*
13

14   Another model, which has been used by this Commission (Caney Valley Electric

15   Cooperative Association Docket No. 121,082-U), is predicated upon the modified

16   "Goodwin" model, but contains an adjustment mechanism for equity ratios identical

17   to equation 2 above and can be used as a check for the ROE calculation for the

18   estimate of ROE made by the company. This model is shown below in equation 4.

19

20   Eq(4): $Ke = [((1+g)^(n+1)-(1+g)^n)/((1+g)^n)-1]$

21                   $+[(1+g)*((We^*/We)^(1/t))-1]$

22

23   The underlying difference between equations 3 and 4 is that equation 3 implicitly

24   assumes a levelized return of patronage capital whereas equation 4 assumes patronage

25   capital is retired as margins grow.

26

1   For the purposes of my review, I have relied on both equations 3 and 4 in my analysis.

2   However, I recommend equation 3, which the Commission has used before with

3   Midwest Energy.

4

5   **Q. The company has provided estimates of growth rates, which it relies on in**

6   **developing its recommendations for ROE. Are these growth rates reasonable?**

7   A. The company uses a 4.74% growth rate for its electric properties in this docket.

8   These growth rates represent the expected growth rates from 2007 through 2011.

9   The growth rates (and subsequent ROEs) should be set on a forward-looking basis

10   because it is the basis upon which rates will be set, and is the basis upon which

11   patronage capital will be refunded to the equity owners of Midwest Energy.

12   Additionally, the estimates of growth rates must be sustainable. Should Midwest

13   Energy expect a one or two year growth of 7% when the long-term sustainable

14   growth rate was appreciably below 7%, the resulting ROE and rates would over-

15   collect the required return. In a cooperative, this type of error is partially mitigated

16   by the fact that revenues in excess of costs are ultimately refunded to the equity

17   owners. However, customers are still deprived of the opportunity cost of their

18   capital while the cooperative has it. Alternatively, a growth rate that is too low

19   jeopardizes the efforts of the cooperative to return the patronage capital.

20

1   The future growth rates are lower than the historical growth rates (See Schedule 2).

2   Graph 4 illustrates the growth rate over the 1998-2011 period.

3

4   **Graph 4**
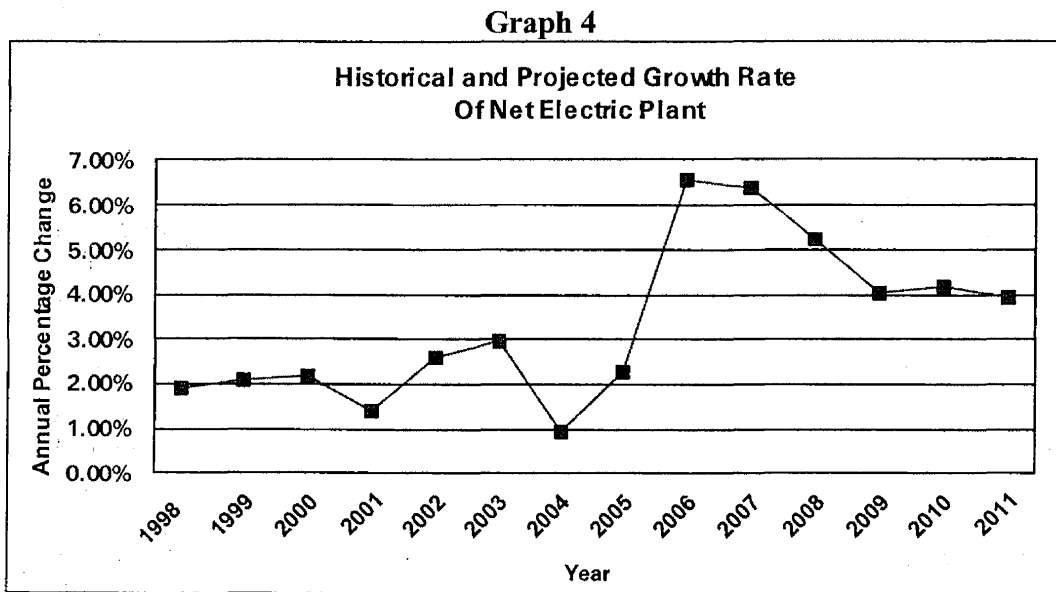
5

6

7   I believe the 4.74% projected growth rate is appropriate. The variance among the

8   growth rates is greater in the historical data, which tends to undermine the value of

9   the historical average in that comparison of historical top projected growth rates in

10   Schedule 2.

11

12   **Q.   Is the company's assumption of achieving a 40.00% equity ratio in 8 years**

13   **reasonable?**

14   A.   As I have discussed previously, the 40% target equity ratio represents a reasonable

15   and conservative assumption. The 8 year period is a conservative assumption on the

1   part of Midwest Energy. We are in a period where generation costs are increasing as

2   a result of base load capacity additions, investment in environmental equipment, and

3   rising fuel costs. Indeed, the peaking unit proposed in this docket will be used to

4   offset peak period purchases of demand and energy that can materially increase the

5   cost of purchase power. Because generation costs are rapidly escalating, it appears to

6   me unlikely that the life of the proposed rates will either meet or exceed 8 years.

7   Although it is not a requirement that the company achieve its equity target within the

8   life of its rates, it is a good planning practice. Absent achieving the equity ratio goal

9   in the life of the proposed rates will mean that another premium may be required in a

10   subsequent electric docket.

11

12 Q. **The methodology that the company used assumes, as an input, a patronage**

13   **capital rotation cycle of 20 years. Is a 20-year rotation cycle consistent with the**

14   **industry?**

15 A. Yes. Although CFC does not directly collect data on patronage capital rotation

16   cycles, we are aware of the cycle used by many cooperatives. It is my experience

17   that the majority of rotation cycles extend in range from 15 to 23 years. Some

18   rotation cycles are longer, and some are shorter; however, the median value will

19   likely be between 15 and 20 years. As an example, CFC's rotation cycle extends for

20   15 years. Therefore, I believe that a rotation cycle of 20 years is reasonable based on

21   the performance of other cooperatives.

1

2   **Q. Are the company's return on equity results reasonable given the input**

3   **assumptions you have discussed?**

4   A. Yes. The results of the company's analysis are shown in Schedule 3 and are

5   summarized below in Table 1 for the reader's convenience.

6   Table 1

7   Base Case Return on Equity

8   For Midwest Energy By Model

9

10

	Electric
Company Proposed Model	12.39%
Adj. Modified "Goodwin" Model	10.50%
Difference	1.89%

11

12

13

14

15

16

17   **Q. Why are there differences associated with the company's proposed ROE model**

18   **and the adjusted modified "Goodwin" model?**

19   A. As indicated before, the different models represent subtle differences in the

20   underlying assumptions regarding the return on equity required to return patronage

21   capital. The company's model assumes a levelized approach to the return of

22   patronage capital. The adjusted modified "Goodwin" model assumes that patronage

23   capital is retired proportionate to the growth in margins. Both are correct given the

24   assumptions upon which they rely.

25

1   The adjusted modified "Goodwin" model was not included herein to suggest an

2   alternative return. It is included in my testimony to test the reasonableness of the

3   company's estimate of return on equity for the electric assets. I believe that the use

4   of this alternative model supports the company's conclusions as to its return on

5   equity for its electric operations.

6

7 **Q. Is the company's estimated return on equity reasonable?**

8 A. Yes. The company's approach is reasonable. Additionally, it is important that the

9   Commission conceptually recognize that Midwest Energy should be permitted to

10   claim the proposed equity premium associated with the company's estimate of the

11   ROEs for both its electric assets as shown below in Table 2 if patronage capital is to

12   be returned to the customer owners of Midwest Energy.

13
14   Table 2
15   Base Case Return on Equity
16   For Midwest Energy by Component
17
18
19   Company Proposed Model:
20   Return Without Equity Ratio Adj.   9.74%
21   Equity Ratio Adj.   2.65%
22   Total Required Return (K$_e$)   12.39%
23

24   As a test of reasonableness, I considered a range of growth rates and changes to the

25   time required to reach the target equity level as variables to test the ROE results. I

26   considered a range of growth rates extending from 3.19% to 6.30% in the ROE

1   calculation. The growth rate range represents a range based on a 90% probability

2   based on the average and standard deviation of the growth rate data evaluated under

3   a normal probability curve. The results are illustrated in Table 3 below.

4

5   I had also considered a range of the time to achieve the equity target extending from

6   a period of 5 years to 12 years as well. The results on the ROE estimates are shown

7   below in Table 3.

8   Table 3
9   An Analysis of ROE Variances

Input Assumption	ROE	ROE	ROE
g =3.19%	10.8028%		10.8028%
g =6.30%	13.9892%		13.9892%
t =5 Yrs		14.0191%	14.0191%
t =12 Yrs		11.5047%	11.5047%
	12.3960%	12.7619%	12.5790%

10

11   Therefore, I believe the company's request for a 12.39% ROE is reasonable.

12   Additionally, the company has applied the model with assumptions which are largely

13   favorable to the member-owners.

14

15   **Q. Does this conclude your testimony at this time?**

16   A. Yes.

WILLIAM K. EDWARDS

Mr. Edwards the Vice President of Regulatory Affairs at the National Rural Utilities Cooperative Finance Corporation. Mr. Edwards' primary focus is the public utility industry. His areas of expertise include utility regulation, load forecasting, planning, cost and rate design, and mergers & acquisitions. Mr. Edwards has previously worked for the firm of Ernst & Whinney as a consultant, Mississippi Power & Light Company an operating company of Entergy as a supervisor in the Rate Department, Central Louisiana Electric Company as Director of Rates & Regulation, and Air Liquide America Corporation as an Energy Manager.

PROFESSIONAL EXPERIENCE

Mr. Edwards has extensive experience in the above listed areas. Representative projects are listed below for each of these areas.

Regulation. Mr. Edwards has broad and extensive experience in regulatory matters both as a consultant and as a utility executive. As Director of Rates for Central Louisiana Electric Company, Mr. Edwards had the responsibility for planning and successful execution of a number of dockets before both the Louisiana Commission and the FERC. Such experience includes, but is not limited to the following projects.

- Indiana Power & Light Rate Design Efforts Before the Indiana Commission
- ISES 1 & 2 rate proceedings before the Mississippi Public Service Commission
- Grand Gulf Rate proceeding before the Mississippi Public Service Commission
- Dolet Hills rate proceeding before the Louisiana Public Service Commission
- Wholesale rate proceeding before the FERC on behalf of Mississippi Power & Light Company
- Wholesale rate proceeding before the FERC on behalf of Central Louisiana Electric Company
- Transmission rate proceeding before the FERC on behalf of Central Louisiana Electric Company
- Antitrust case before the FERC on behalf of Central Louisiana Electric Company
- Deseret Rate complaint before the FERC involving rate of return and cost support.
- Electric industry restructuring.

Load Forecasting. Mr. Edwards has been involved in many load forecasting efforts with the utility industry and has participated in the industry debates regarding the evolution of methodologies for forecasting. Some of the companies Mr. Edwards has been involved with include the following.

- Wisconsin Public Service Commission - A review of the forecasting methodologies of the Wisconsin Utilities
- Delmarva Power & Light - Advance Plan Proceedings before the Delaware Commission
- Entergy - Forecasting Committee
- Central Louisiana Electric Company - Development of an econometric load forecast 1985-1995

- Aluminum Association of America - electric end-use and econometric approaches to load forecasting.

Planning. Mr. Edwards has extensive knowledge and experience with production costing models (e.g. PROMOD and POWRSYM) and load flow models (PTI and Westinghouse). Mr. Edwards has experience with GE-MAPS software and frequently uses it for the evaluation of generation additions at CFC.

- Entergy - determination of fuel savings attributable to load and unit changes
- Central Louisiana Electric Company:
  - o Fuel Budgets,
  - o Analysis of Savings from Joint Dispatching,
  - o Generation Planning
  - o Rate Studies, and
  - o Loss Studies.
- NRUCFC:
  - o Market Evaluation of New/Proposed Generation Additions
  - o Transmission Pricing Evaluation

Cost & Rate Design. Mr. Edwards has had extensive experience with cost analysis/determination and rate design for a number of companies including:

- Northern Indiana Public Service Company
- Delmarva Power & Light
- Arkansas Power & Light
- Mississippi Power & Light
- Louisiana Power & Light
- New Orleans Public Service Company
- Missouri Public Service Company
- Iowa Public Service Company
- Wisconsin Public Service Company
- Empire District Power Company
- New York State Gas & Electric Company
- Iowa Power & Light Company
- Allegheny Power System
- Central Louisiana Electric Company
- Air Liquide America Corporation
- Numerous Electric Cooperatives

Mergers & Acquisitions. Mr. Edwards has performed a number of merger & acquisitions studies for various clients including:

- Central Louisiana Electric Company
- MidWest Energy
- Acquisition of Montana Power Company's hydroelectric facilities

TESTIMONY

Mr. Edwards has testified before the following Commissions on a broad range of topics:

Company	Jurisdiction	Subject
NIPSCO	Indiana	Long-Run Marginal Cost
IP&L	Indiana	Long-Run Marginal Cost
MP&L	Mississippi	Econometric Forecasts
MP&L	FERC	Financial Model/Rate of Return
CLECO	Louisiana	Rate Design/Revenue Recovery
CLECO	Louisiana	FASB 106 Issues
CLECO	Louisiana	Securities Issuances
CLECO	Louisiana	Securities Issuances
CLECO	Louisiana	Securities Issuances
CLECO	FERC	Cost of Service/Rate of Return
CLECO	FERC	Cost of Service/Rate of Return
CLECO	FERC	Cost of Service
CLECO	FERC	Antitrust Issues
CLECO	FERC	Antitrust Issues
Air Liquide	Washington	Restructuring
Air Liquide	Texas	Restructuring
Air Liquide	Arizona	Rates/Corporate Structure
Air Liquide	Louisiana	Short-Run Marginal Costs and Non-Firm Rates
Idaho Co-ops	Idaho	Restructuring
Central Elect Co-op	Montana	Antitrust
Arizona Elect Power	Arizona	Stranded Costs
Montana Co-ops	Montana	Restructuring
Four County Elect	North Carolina Superior Court	Monopolization
CFC/Deseret G&T	FERC	Return, Cost of Service
Midwest Energy	Kansas	Return on Equity
Wayne-White Co-op	FERC	Market Power
Wayne-White	FERC	Sale for Resale Rates
Wayne-White	FERC	Transmission Rates
Vermont Electric	Vermont	Return on Equity
Oregon Trials	Oregon	Return on Equity
Midwest Energy	Kansas	Return on Equity
Oregon Trials	Oregon	Formulary Attachment Rates

Mr. Edwards has testified before the Idaho Legislature regarding electric utility restructuring and before the Transition Advisory Committee of the Montana Legislature regarding restructuring of electric distribution companies.

EDUCATION

Mr. Edwards holds a B.S. degree in Economics from Christopher Newport College of the College of William & Mary (with distinction) and a M.A. degree from Old Dominion University in Economics. Mr. Edwards has completed the majority of requirements for the Ph.D. degree in economics at Virginia Polytechnic Institute & State University in economics. Mr. Edwards' fields of concentration include econometrics, mathematical economics, and microeconomics.

PUBLICATIONS AND PRESENTATIONS

Mr. Edwards has published or has spoken at the following industry conferences:

- "Integrated Resource Planning – Keys to Obtaining Approvals," EnerVision Conference (Breaking the Mold – Meeting Customer's Future Electric Energy Needs), October 9-10, 2007, Atlanta Georgia.
- "Ratemaking – Essential Issues for Financial Success," CFC 2007 Forum, June 2007, with Tom Kandel.
- "The Ratemaking Process," Minnesota Association of Cooperatives, Minneapolis, Minnesota, April 2007.
- "Power Contracts: Identifying and Mitigating the Risks," EnerVision Inc. Conference, September 2006, Atlanta, Georgia.
- "Equity Management and the Ratemaking Process: An Overview of Theory and Practice", CFC's Independent Borrowers Meeting, June 2004, Boston, Massachusetts.
- "Restructuring at the Crossroads: In the Wake of SMD." CFC Forum, June 2003.
- "Ratemaking and Restructuring", CFC's Forum, June 27-29, 2001, Chicago, Illinois.
- "Restructuring and Antitrust: Issues Facing An Industry", South Dakota Legal Seminar, November 2000, Pierre, South Dakota.
- "RTOs: Rates & Regulatory Issues", CFC's Independent Borrowers Meeting, November 8-10, 2000, San Diego, California.
- "FERC & Distribution Cooperatives", Tri-State Office Managers & Accountants Meeting, Sponsored by the South Dakota Rural Electric Association, Inc. August 24, 2000.
- "Inferences of Restructuring On The Electric Utility Industry", Association of Illinois Cooperatives, Springfield, Illinois, July 2000.
- "Strategic Planning And Recent Changes In FERC Policy Regarding The Regulation Of Cooperatives", Comments before the Arkansas Electric Cooperative Corporation, Little Rock, Arkansas, December 1999.
- "Cooperative Regulatory Issues at the FERC", National Rural Utilities Cooperative Finance Corporation Forum in New York, New York, 1999.
- "Changes In Regulatory Jurisdiction Resulting From Restructuring", Montana Association of Electric Cooperatives, June 1999.
- "Regulatory Restructuring and Economies of Scale & Scope", Montana Association of Electric Cooperatives, June 1998.
- "Role of Antitrust Laws in the Restructuring Process", Kentucky Association of Electric Cooperatives, September 1997.
- "FERC Regulation of Cooperatives", National Rural Utilities Cooperative Finance Corporation Seminars in Denver, Washington, and Atlanta February/March 1997.
- "FERC Regulation: Services & Financial Solutions, Proceedings from CFC Borrowers Interim Meetings", In conjunction with John T. Stough, Jr. Esq., N. Beth Emery, Esq., Geoffry Hobday, Esq., March 1997.
- "The Essentials of FERC Regulation of Cooperatives", In conjunction with N. Beth Emery, Esq. And Daniel E. Frank, Esq. On behalf of the National Rural Utilities Cooperative Finance Corporation, February 1997.

- "Unresolved FERC Rate Making Issues", <u>National Rural Utilities Cooperative Finance Corporation</u> Independent Borrowers Conference, July 2, 1997.
- "Major Issues Facing the Electric Utility Industry As A Result of Restructuring", <u>Texas Cooperative Accounting Association</u>, June 1997.
- "FERC's New Merger Policy", <u>National Rural Utilities Cooperative Finance Corporation</u>, March 1997.
- Acquisitions and the Future of Electric Distribution Cooperatives", Presentation Before the <u>Indiana Statewide Association of Electric Cooperatives</u>, August, 1996.
- The Economics of Acquisitions, Presentation Before the <u>National Rural Electric Cooperative Association</u>, June 1996.
- "Comments Regarding Electric Industry Restructuring", on behalf of <u>Air Liquide America Corporation</u> for the FERC 1995.
- "Non-Firm Industrial Rates: Economic Justification Vs Marketing Justification", Presentation Before the <u>Southeastern Electric Exchange</u>, April 1992.
- "Econometric Elasticity Measures Using Directly Estimated Differential Equations", Presentation Before the <u>Southeastern Electric Exchange</u>, October 1989.
- "Role of Marginal Costs in the Rate Making Process", <u>Entergy Rate Conference</u>, June 1984.
- "An Inverse Limit Theorem to the Core of the Economy", <u>Old Dominion University Thesis for the Degree of Master of Arts in Economics</u>, Summer 1979.

PROFESSIONAL AFFILIATIONS

Mr. Edwards is a member of the American Economic Association (AEA), and the American Statistical Association. In 1993, Mr. Edwards served as chairman of the Southeastern Electric Exchange's Rate Section. Mr. Edwards has additionally been a member of the Edison Electric Institute's Rate Committee.

Midwest Energy
Review of Electric Growth Assumptions

	(a)		(b)		(c)	(d)
Line No.	Year		Electric Net Plant Before Acq.	After Acq.	Percentage Change	Notes
1	1997		$110,637,175			Actual
2	1998		$112,767,630		1.93%	Actual
3	1999		$115,115,561		2.08%	Actual
4	2000		$117,620,137		2.18%	Actual
5	2001		$119,273,798		1.41%	Actual
6	2002		$122,389,599		2.61%	Actual
7	2003		$126,022,555	$159,101,005	2.97%	Actual
8	2004			$160,618,996	0.95%	Actual
9	2005			$164,253,068	2.26%	Actual
10	2006			$175,041,928	6.57%	Actual
11	2007			$186,227,408	6.39%	Projected
12	2008			$195,928,805	5.21%	Projected
13	2009			$203,822,296	4.03%	Projected
14	2010			$212,292,497	4.16%	Projected
15	2011			$220,651,947	3.94%	Projected

16	Historical Growth (1998-2006)	2.55%
17	Historical Standard Deviation	1.53%
18	t-Statistic	1.67
19	Est. Furture Growth (2007-2011	4.74%
20	Future Est. Standard Deviation	0.94%
21	t-Statistic	5.04

::

William K. Edwards
Schedule 3

Midwest Energy Results Of Return Formulas
For Electric

Line No.	Parameter	Variable Name	Parameter Value
1	Growth Rate	g	4.74%
2	Current Equity Level	We	32.75%
3	Target Equity Level	We*	40.00%
4	Time to Reach Target Equity (yr	t	8
5	Cap. Credits Rotation Cycle (yrs	n	20

Company Sponsored Return Model w/o Equity Ratio Adjuster:

6 $Ke = g + (1/n) =$ 9.74%

Company Sponsored Return Model:

7 $Ke = g + (1/n) + ((1+g)*(((We*/We)^{(1/t)})-1)) =$ 12.40%

Modified "Goodwin" Model:

8 $Ke = ((1+g)^{(n+1)} - (1+g)^n)/((1+g)^n) - 1 =$ 7.85%

Modified "Goodwin" Model with Equity Ratio Adjuster:

9 $Ke = [((1+g)^{(n+1)} - (1+g)^n)/((1+g)^n) - 1]$
10     $+[(1+g)*((We*/We)^{(1/t)})-1] =$ 10.50%