

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Cleveland Reasoner
Senior Vice President and Chief Nuclear Officer

May 9, 2019

WM 19-0018

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Reference: Letter WM 19-0008, dated April 10, 2019, from C. O. Reasoner, WCNO, to USNRC

Subject: Docket No. 50-482: Correction to Wolf Creek Generating Station (WCGS) Financial Assurance Requirements for Decommissioning Nuclear Power Reactors 10 CFR 50.75(f)(1)

To Whom It May Concern:

Pursuant to 10 CFR 50.75(f)(1), Wolf Creek Generating Station (WCGS) provided the status of decommissioning funding in the referenced letter. Subsequent to that submittal, it was discovered that pages labeled as confidential existed in Enclosure VI to the referenced letter. The Enclosure to this submittal replaces Enclosure VI in its entirety.

This correction was evaluated under 10 CFR 50.9(b) and does not require notification to the Nuclear Regulatory Commission (NRC) within two working days. This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4000, or Ron Benham at (620) 364-4204.

Sincerely,



Cleveland Reasoner

COR/rlt

Enclosure: Direct Testimony of Adam H. Gatewood (July 9, 2015)

cc: S. A. Morris (NRC), w/e
B. K. Singal (NRC), w/e
N. H. Taylor (NRC), w/e
Senior Resident Inspector (NRC), w/e

ADD
MOD
NRK

Enclosure to WO 19-0018

Direct Testimony of Adam H. Gatewood (July 9, 2015)
(80 pages)

**BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

In the Matter of the Application of)
Westar Energy, Inc. and Kansas Gas)
and Electric Company to Make) **Docket No. 15-WSEE-115-RTS**
Certain Changes in Their Charges for)
Electric Service.)

DIRECT TESTIMONY

PREPARED BY

Adam H. Gatewood

UTILITIES DIVISION

KANSAS CORPORATION COMMISSION

JULY 9, 2015

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1 Introduction

2 **Q Would you please state your name and business address?**

3 A My name is Adam H. Gatewood. My business address is 1500 Southwest
4 Arrowhead Road, Topeka, Kansas, 66604.

5 **Q Who is your employer and what is your title?**

6 A I am employed in the Utilities Division of the Kansas Corporation Commission as
7 a Managing Financial Analyst.

8 **Q What is your educational and professional background?**

9 A I graduated from Washburn University with a B.A. in Economics and a Masters
10 of Business Administration. I have filed testimony before the Commission in
11 more than 100 proceedings. I have also filed testimony before the Federal Energy
12 Regulatory Commission.

13 **Q What is the purpose of your testimony?**

14 A My testimony addresses the appropriate rate of return (ROR) for Westar Energy
15 (Westar or WR). I also address Westar's annual funding level of its Wolf Creek

1 Decommissioning Trust Fund and the related testimony filed by Susan North.

2 **Executive Summary**

3 **Q Please Summarize Westar's requested ROR?**

4 A Westar is requesting a 7.99% rate of return that consists of the components in the
5 following table:

Westar Energy Rate of Return			
Proposed Rate of Return in Section 7 of Application			
Test Year Ended September 30, 2014			
Updated to December 31, 2014			
	Weight	Cost	Weighted Cost
Long-term Debt	46.25%	5.69%	2.63%
Common Equity	53.12%	10.00%	5.31%
Post 1970 ITC	0.63%	7.99%	0.05%
			7.99%
Sources: Section 7			

6

7 **Q Please summarize your response to Westar's Application.**

8 A I do not agree with Westar's proposed return on equity capital. Westar is
9 requesting a 10.00% return for its shareholders; my analysis determined that a
10 9.25% return for shareholders is appropriate in the current capital markets.
11 Regarding the issue of Westar's annual funding of its Decommissioning Trust, I
12 recommend Westar increase its annual accrual from \$3,150,000 to \$5,772,700.
13 This change is accounted for in Adjustment IS-4 of Staff Schedules.

14 **Q. Please Summarize Staff's proposed range of return on equity (ROE) and rate
15 of return (ROR).**

16 A. As shown in the following table, Staff is proposing that the Commission set
17 Westar's ROE in a range of 9.00% to 9.50%. Staff has set a 50 basis point range

1 and recommends an ROR of 7.59% and an ROE of 9.25%, which is the mid-point
2 of Staff's range.

Range of Staff Proposed Rate of Return Assuming Staff's Proposed Capital Structure			
Return on Equity	9.00%	9.25%	9.50%
Rate of Return	7.46%	7.59%	7.72%

3
4 **Q Please summarize why you believe 9.25% is a reasonable ROE.**

5 A I have completed an analysis of Westar's capital costs using traditional financial
6 models and applying the Hope and Bluefield benchmarks. My analysis
7 demonstrates that capital costs have declined since the Commission set Westar's
8 allowed ROE at 10.00% by the Commission in Docket No. 05-WSEE-981-RTS.

9 As I discussed in Docket 15-KCPE-116-RTS (15-116 Docket), I am also applying
10 a degree of gradualism or moderation in that I do not recommend a reduction in
11 the ROE that reflects the full extent of the decline in capital costs. I apply a
12 degree gradualism by recommending Westar's ROE be set in the range of 9.00%
13 to 9.50%. I am setting only a 50 basis point range – as opposed to the 100 basis
14 point range that I typically use – primarily because I believe 9.00% is appropriate
15 as the low-end of my range.

16 **Q What is the dollar amount of the difference in ROE positions?**

17 A Using Staff's capital structure and cost of debt, a 10 basis point change in the
18 allowed ROE results in about a \$4.4 million change in Staff's revenue
19 requirement for Westar. This relationship is an approximation and assumes

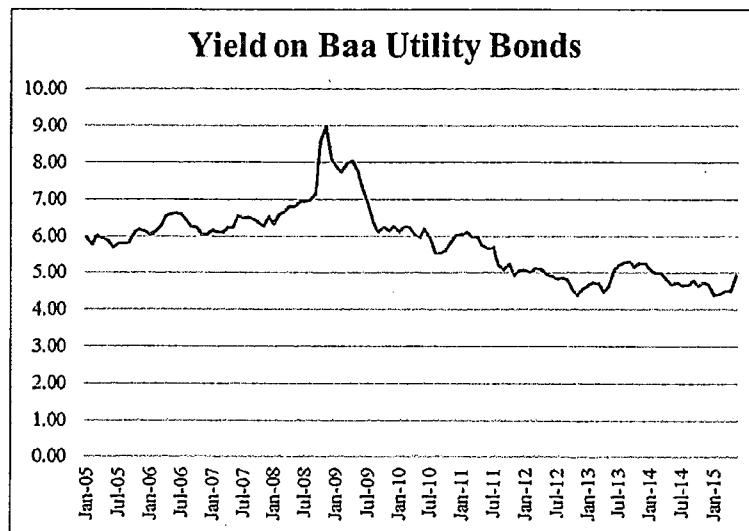
1 Staff's proposed rate base shown in Staff Schedule REV REQ.

2 **Q. Why should gradualism be considered in this case.**

3 A. I am applying the same principle of gradualism to Westar as I did in my
4 recommendation for KCPL filed on May 11th in the 15-116 Docket. As I
5 discussed in that Docket, I have never recommended gradualism before and only
6 do in these two Dockets because I believe that a 9.00% lower bound for the ROE
7 is appropriate due to three factors. First, Westar's embedded debt costs have
8 declined from 6.25% to 5.69% since the Order in Docket 05-WSEE-981-RTS was
9 issued in December of 2005, Westar's last fully litigated rate case. Capital costs
10 measured by the yield on investment grade utility bonds have also declined. As
11 shown in the following table, the prevailing yield on public utility bonds declined
12 from the 5.80% - 6.00% range in 2005 to 4.50% - 4.91% range in 2015. Over this
13 time period, the yield on Baa utility bonds has declined by 135 basis points (5.93
14 - 4.58 = 1.35). A longer historical perspective of yields on public utility bonds is
15 shown in Schedule AHG-1 which contains a chart and the underlying data of
16 monthly observations of yields on "A" and "Baa" rated utility bonds from 1919
17 through 2015 reported by Moody's Investor Services.

Yield on Baa Utility Bonds	
Jan-05	5.95
Feb-05	5.76
Mar-05	6.00
Apr-05	5.95
May-05	5.88
Jun-05	5.70
Jul-05	5.80
Aug-05	5.80
Sep-05	5.83
Oct-05	6.08
Nov-05	6.19
Dec-05	6.14
Jan-06	6.06
Average	5.93
Nov-14	4.75
Dec-14	4.70
Jan-15	4.39
Feb-15	4.44
Mar-15	4.51
Apr-15	4.51
May-15	4.91
Average	4.58
Source: Moody's	

1



2

3 Second, a 9.25% ROE provides a 500 basis point spread over the current market
 4 cost of Westar's long-term debt. I observed recent trades of Westar bonds. Those

1 trades are in the range of 3.98% to 4.36% during the months of May and June of
2 2015.¹

3 Third, and last of all, just as I stated in my 15-116 Docket testimony, authorized
4 ROEs below 10.00% are a fairly recent development. Before recommending an
5 ROE below 9.00%, I believe it is prudent to wait to see if the current capital
6 market conditions continue.

7 **Q Since 2005, the time of Westar's last litigated rate case, what has been the**
8 **trend in allowed returns?**

9 A For 2005, the average allowed ROE granted to electric utilities was 10.54%. For
10 the first quarter of 2015, that average was 10.37%. It is important to note that the
11 recent average includes four observations from Virginia that are "asset specific"
12 determinations which appear to include some level of incentive or premium that
13 distinguish them from the traditional rate case proceeding that we have before us.
14 Without those four cases, the average for this time period is 9.67%. Attached as
15 Schedule AHG-2 are Regulatory Research Reports: Major Rate Case Decisions
16 publications for 2014 and the first quarter of 2015.

17 **Q You recently filed testimony in the 15-116 Docket recommending a 9.25%**
18 **ROE for Kansas City Power & Light (KCP&L). Is your recommendation**
19 **for Westar based on your analysis of KCP&L in that Docket?**

20 A No. My recommendation in this Docket is based on my analysis of Westar and the
21 required return necessary for Westar to attract capital. The 15-116 Docket and

¹Based on the lowest and highest yields to maturity reported by FINRA for Westar debt series 4.625% due 2043; 4.10% due 2043; and 4.125% due 2042 in the months of May and June of 2015.

1 this Docket are occurring at essentially the same time. These two electric utilities
 2 risk profiles are similar with nearly identical credit ratings by the major rating
 3 agencies. As a result of these Dockets occurring in the same capital markets
 4 environment and the fact that we are dealing with two electric utilities of nearly
 5 identical risk, it is expected that Staff's recommendations would (and should) be
 6 the same.

Credit Ratings			
	Moody's	S&P	Fitch Ratings
Great Plains Energy			
Long-term Rating	Baa2	BBB+	
Outlook	Stable	Stable	
Westar Energy			
Long-term Rating	Baa1	BBB+	BBB
Outlook	Stable	Stable	Positive
Source: SNL.com			

7
 8 **Q. Please summarize Staff's cost of equity estimates.**

9 A. The mid-point of my recommended range of 9.25% recognizes that by most
 10 measures capital costs have declined since Westar's last fully litigated rate case in
 11 2005.

Summary of Staff's Cost of Equity Estimates			
<u>Discounted Cash Flow Analysis</u>			
Based on the Average of Short-Term Growth Forecasts & Long-Term nGDP Forecasts			
	Mean		8.65%
	Low		8.47%
	High		8.84%
<u>Internal Rate of Return Analysis</u>			
Using Short-Term Growth EPS & Long-Term nGDP Forecast			
	Mean		8.53%
	Low		7.18%
	High		10.01%
<u>Capital Asset Pricing Model</u>			
	Forecasted Data		6.64%
	Historic Data		9.40%
<u>Changes in Bond Yields Since Order in 05-WSEE-981-RTS Docket</u>			
	Allowed Return on Equity Granted in 981 Docket		10.00%
	Decrease in Yield on Moody's Baa Utility Bonds		1.35%
	Staff Recommendation		9.25%
	Indicated Range	9.00%	9.50%

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9 Q

Please summarize your disagreement with Westar's cost of equity estimates.

10 A

The primary disagreement is that of estimating growth. This is the same

1 disagreement that the Commission has heard in rate cases during the past three
 2 years. This disagreement is not confined to electric utilities; it has occurred—and
 3 will likely continue to occur—in electric utilities, natural gas distribution,
 4 telephony, electric transmission, and natural gas pipeline utilities as well. The
 5 table below summarizes the findings of Westar's cost of equity models and a
 6 synopsis of what I believe to be the short comings of each of Westar's models. I
 7 will elaborate on each model later in my testimony.

Summary of Westar's Cost of Equity Estimates & Growth Rates			
Methodology	Range of Output		Discussion
Single Stage DCF	9.47%	9.52%	Mr. Somma's DCF analysis relies on a single stage DCF using 3 to 5 year forecasts of annual earnings growth rates. For his proxy group the average earnings growth rate is 5.86%.
CAPM	10.86%	11.76%	Mr. Somma's CAPM analysis is based on his assumption that the "market" or S&P500 Index will return 13.25% annually. His analysis assumes that the S&P500 will realize annual earnings growth greater than 11.00%
Risk Premium	10.33%	10.38%	Mr. Somma calculated a risk premium based on the difference between the returns granted by state commissions and the prevailing interest rates

8
 9 **Q. What support do utility executives and equity analysts usually provide when**
 10 **discussing why an ROE should not be lowered below ROE's set for other**
 11 **utilities?**

12 A. Commissions and Commission Staff frequently hear from utility executives and
 13 equity analysts regarding their belief that Commissions should refrain from
 14 lowering allowed returns below those reported for other utilities because such a
 15 decision will impair the utility's access to additional capital. Those pleas are
 16 devoid of any statistical or factual support. Furthermore, no utility has ever
 17 provided Staff empirical evidence to support its contention that a Commission's
 18 decision has impaired its ability to access necessary capital. However, what I

1 have observed is that Kansas utilities continue to issue long-term debt at attractive
 2 rates.

3 **Standards for a Reasonable Rate of Return**

4 **Q What is the role of rate of return in setting a revenue requirement for public**
 5 **utilities?**

6 **A** The rate of return (ROR) earned on the utility's rate base is part of the revenue
 7 requirement equation. The ROR is a cost of providing the utility service.

8 *Revenue Requirement = ROR (gross plant - accum. Depr.) + Operating Exp. + Income Taxes*

9 In the revenue requirement formula, the ROR expresses the utility's return on its
 10 net plant investment. The utility's ROR is its weighted average cost of the
 11 capital. That is, the cost of each of the various forms of capital supplied by
 12 investors which includes debt, preferred equity, common equity and any hybrid
 13 securities multiplied by their respective weight in the utility's capital structure.
 14 The cost or return associated with each of these forms of capital is unique and it is
 15 a function of risks associated with that form of capital.

Components of an Allowed Rate of Return				
Debt Capital:	Weighted Average Interest Rate	x	Ratio of Debt Capital	= Weighted Average Cost of Debt
Equity Capital:	Allowed Return on Equity	x	Ratio of Equity Capital	= Weighted Average Cost of Equity
				Sum Equals Allowed Rate of Return for the Utility

16
 17 The cost of debt generally relies on a contractual agreement with the investor,

1 making its cost relatively easy to determine because the cost is explicit within the
2 contract. Likewise, the ratios of the capital components are relatively easy to
3 determine because, under most circumstances, these ratios are traceable to the
4 utility's financial documents. It is the allowed ROE that requires the most time
5 and attention when setting the ROR because it is a cost that we cannot trace back
6 to a contractual agreement. It is best described as a forward looking discount rate
7 and equates to the rate that is necessary to induce equity investors to commit their
8 capital to the enterprise.

9 **Q What standards should commissions apply to making this decision?**

10 A The standards used to gauge the fairness and reasonableness of an allowed ROR
11 were announced by courts as the result of appeals of decisions issued by
12 regulatory agencies. Financial analysts and policy-makers rely on the courts'
13 decisions as a guide in estimating the appropriate cost of capital. The opinions do
14 not articulate precisely how to estimate or model a reasonable cost of capital.
15 Instead, the decisions provide critical questions for policy makers and analysts to
16 consider in determining a reasonable return for a regulated utility.

17 In general, United States Supreme Court decisions state that returns granted to
18 regulated public utilities should: 1) be commensurate with returns on investments
19 of similar risk; 2) be sufficient to assure the financial integrity of the utility under
20 economic management; and 3) change over time with changes in the money
21 market and business conditions.² An important take-away from these decisions is

² Smyth v. Ames 169 U.S. 466 (1898), Wilcox v. Consolidated Gas Co., 212 U.S. 19, 48-49 (1909).
Bluefield Water Works & Improvement Company v. Public Service Commission of West Virginia, 262
U.S. 679, 692-3 (1923).
Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591, 603 (1944).

1 that the Court has afforded regulatory agencies a significant amount of latitude in
2 establishing what is an appropriate ROR for a utility. The Kansas Supreme Court
3 has recognized and generally follows this body of law.³ This Commission has
4 noted that fact in Orders issued in previous Dockets.⁴

5 **Q Discuss how financial analysts apply the standards established by the Court.**

6 A For a ROR to meet the legal standards, the return should be as specific as possible
7 to the utility in question, in that the allowed return should consider the mix of debt
8 and equity capital the subject utility employs to finance its rate base and provide a
9 return for each of those components of its capitalization.

10 There are several court cases that, as a group, are viewed as the keystone to
11 measuring the adequacy of a utility's allowed return. The earliest of these
12 decisions go back to an era when it was not only the "rate of return" at issue but
13 also the fundamental measurement of the investment in the utility enterprise
14 commonly referred to as rate base. This is less of an issue today as regulators,
15 utility management, and investors readily accept actual historic-depreciated value
16 as a measure of investment to estimate the value of a utility's rate base, as
17 opposed to reproduction cost or market value. The Court's decision in *Bluefield*
18 addressed both rate base and ROR.⁵ Treatises on rate of return for public utilities,
19 such as The Cost of Capital – A Practitioner's Guide, generally agree that
20 *Bluefield* lays out the four standards for a fair return.

³ Kansas Gas & Elec. Co. v. State Corp. Comm'n, 239 Kan. 483, 491, 720 P.2d 1063, 1072 (1986).

⁴ Order: 1) Addressing Prudence; 2) Approving Application, in Part; & 3) Ruling on Pending Requests, Docket No. 10-KCPE-415-RTS; November 22, 2010; 37-38.

⁵ *Bluefield Water Works & Improvement Co. v. Pub. Svc. Comm'n of West Virginia*, 262 U.S. 679, 692-3 (1923).

- 1 1) *Comparable Earnings* – a utility is entitled to a return similar to that being
2 earned by other enterprises with similar risks, but not as high as those earned
3 by highly profitable or speculative ventures;
4 2) *Financial Integrity* – a utility is entitled to a return level reasonably sufficient
5 to assure financial soundness;
6 3) *Capital Attraction* – a utility is entitled to a return sufficient to support its
7 credit and raise capital; and
8 4) *Changing Level of Returns* – a fair return can change along with economic
9 conditions and capital markets.⁶

10 As a financial analyst preparing rate of return analyses, I take from *Bluefield* that
11 the Court requires that a rate order allow a utility an opportunity to earn a return
12 that is consistent with the utility's risk profile and consistent with observations in
13 the capital markets.

14 The Court's decision in *Hope*,⁷ like that in *Bluefield*, dealt with both valuation of
15 rate base as well as rate of return on that rate base. With respect to the rate of
16 return, the Court in *Hope* affirmed the four standards set out in *Bluefield*.

17 **Q Is a reasonable return necessarily equal to the return granted to other**
18 **utilities in other jurisdictions?**

19 **A No. Relying on the allowed returns granted to other utilities in other jurisdictions**

⁶ The Cost of Capital – A Practitioner's Guide by David C. Parcell; Prepared for the Society of Utility and Regulatory Financial Analysts; 1997; pp. 3-13 to 3-14.

⁷ *Federal Power Comm'n. v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944). *603 [8] [9] The rate-making process under the Act, i.e., the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests. Thus we stated in the *Natural Gas Pipeline Co.* case that 'regulation does not insure that the business shall produce net revenues.' But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. The conditions under which more or less might be allowed are not important here. Nor is it important to this case to determine the various permissible ways in which any rate base on which the return is computed might be arrived at. For we are of the view that the end result in this case cannot be condemned under the Act as unjust and unreasonable from the investor or company viewpoint.

1 runs the risk of overlooking: (1) changes in the capital markets; (2) differences in
2 other state Commissions' ratemaking policies; and (3) political pressures or other
3 state-specific factors. Commissions have to recognize that such a practice also
4 creates a degree of circular reasoning. Such a comparison also requires a
5 commission to place weight on a piece of data as evidence when they simply do
6 not have any specific facts from those reported cases to know how other state
7 commissions arrived at their decision or even what evidence was presented in
8 those Dockets. At best, returns authorized at other state commissions serve as a
9 rough benchmark of an average return on equity, as well as an indicator of a
10 downward or upward trend in returns. Simply put, the authorized returns of
11 separate utilities in other jurisdictions facing different risks are of limited
12 evidentiary value and are largely irrelevant to the *Hope* and *Bluefield* standards.

13 **Q Should the rate of return incorporate a return on equity that contains some**
14 **level of "cushion" to the cost of equity to compensate for potential future**
15 **changes in the capital markets?**

16 **A** No, it should not. Utilities seek rate adjustments on a regular basis as
17 demonstrated by the Kansas jurisdictional electric and gas utilities over the past
18 decade. Thus, there are periodic reviews of capital costs, that is, the allowed
19 return on equity and allowed return on debt is not set once and left at the level in
20 perpetuity. This provides protection to consumers and investors alike, in that the
21 periodic reviews eliminate the need for the Commission to inject any forecasting
22 of trends into their decision. As the cost of capital changes over time - and it will
23 change - the allowed return will be updated in future proceedings. In my view,

1 Court decisions do not require Commissions to speculate about the peaks and
2 troughs of our economy and capital markets; all of the directives from the Court
3 cases focus on the observations of the here and now.

4 **KCC Proxy Group**

5 **Q How did you estimate Westar's cost of equity?**

6 A To estimate Westar's cost of equity, I performed DCF and CAPM analyses on a
7 proxy group of similarly situated electric utility companies.

8 **Q Why is it necessary to select a proxy group to estimate the cost of equity for**
9 **Westar?**

10 A A proxy group aids us in meeting the standards set out in *Hope* and *Bluefield*, as it
11 focuses our analysis on a group of companies that are in the same industry and
12 exposed to similar risks. Financial theory tells us that investors require a return
13 that is commensurate with risk. Therefore, a proxy group similar in risk to Westar
14 provides us with a comprehensive picture of investors' expectations.

15 **Q Were you able to select a group of electric utilities similar in risk to Westar?**

16 A Yes, I found 22 proxy companies.

17 **Q How did you select a proxy group for your cost of equity analysis?**

18 A Using the following parameters, I was able to select a group of electric utilities
19 similar in risk to Westar (a table of the selection process is shown on Schedule
20 AHG-3):

- 1 • First, I began with the companies followed by Value Line Investment
 2 Survey and categorized as electric utilities. As a starting point, this
 3 parameter is important as it assures us the companies generally derive
 4 their earnings in the same industry as Westar by operating as ROR
 5 regulated electric utilities within the United States. Value-Line coverage
 6 also ensures that the common stock of these companies is publicly traded.
 7 There are 45 electric utilities followed by Value-Line.
- 8 • Second, from that group of 45 electric utilities, I selected those with credit
 9 ratings similar to Westar's credit rating. Westar's long-term credit rating
 10 is Baa1 by Moody's, BBB+ by Standard & Poors', and BBB by Fitch.
 11 The three ratings are relatively similar to each other.

Credit Ratings			
	Moody's	S&P	Fitch Ratings
Great Plains Energy			
Long-term Rating	Baa2	BBB+	
Outlook	Stable	Stable	
Westar Energy			
Long-term Rating	Baa1	BBB+	BBB
Outlook	Stable	Stable	Positive
Source: SNL.com			

- 12
- 13 I selected electric utilities with credit ratings one notch either side of Westar's rating.
 14 Credit ratings are a recognized broad indicator of a utility's financial health, financial
 15 risk, and business risk. Selecting those electric utilities with credit ratings very close
 16 to Westar's enables me to observe investors' required return for that level of risk.
 17 The following table shows the entire scope of credit ratings designations set by S&P
 18 and Moody's:

Credit Rating Range for Proxy Selection			
	S&P	Moody's	
	AAA	Aaa	
	AA+	Aa1	
	AA	Aa2	
	AA-	Aa3	
	A+	A1	
	A	A2	
Proxy Selection Range	A-	A3	Westar Long-term Rating
	BBB+	Baa1	
	BBB	Baa2	
	BBB-	Baa3	
	BB+	Ba1	
	BB	Ba2	
	BB-	Ba3	
	B+	B1	
	B	B2	
	B-	B3	
	CCC+	Caa1	
	CCC	Caa2	
	CCC-	Caa3	
	CC	Ca	
	C		
	D	D	

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The electric utilities followed by Value-Line fall in the range of AA-/Aa3 to BBB-/Baa3. Narrowing the range to one rating above and below that of Westar’s rating reduced the proxy group to 35 companies.

- Third, I eliminated those companies with pending mergers or acquisitions (M&A). M&A transactions bring about added uncertainty and speculation regarding the financial projections for earnings and dividends, growth potential, and financial health of the surviving entity. This parameter eliminated four companies from my proxy group.
- Fourth, the proxy group companies had to exhibit a stable dividend policy both in the recent past and going forward. A stable dividend is an attribute of a financially sound utility company. By any measure, Westar is

1 financially sound; members of the proxy group must reflect that same
2 attribute. This parameter did not eliminate any of the remaining 31
3 electric utilities.

4 The four parameters above have been adopted in recent cost of equity
5 analyses filed at the Federal Energy Regulatory Commission (FERC) and I
6 agree that these four parameters generally arrive at a group of companies
7 with commensurate investment risk to that of Westar. For this group of 31
8 electric utilities, I gathered information on their sources of revenues and
9 the focus of their asset base. The intent of this additional parameter is to
10 increase the proxy groups' focus on the electric utility industry. Although
11 each of the companies is categorized as electric utilities by Value-Line,
12 most of them derive some revenues from other industries; some are
13 combination natural gas distribution and electric utilities while others are
14 more diverse with operations outside of the public utility industry. I set
15 the threshold for electric utility revenues at 70%, which eliminated 9 of
16 the 31 electric utilities. The remaining 22 companies derive 73% to 100%
17 of their revenues from the electric utility business. It is these 22
18 companies that I analyzed to estimate Westar's cost of equity capital. The
19 selection process is shown in Schedule AHG-3 and the Proxy Group is
20 shown in Schedule AHG-4.

21 **Discounted Cash Flow (DCF) Model**

22 **Q Does the DCF model meet the legal standards discussed earlier in your**

1 **testimony?**

2 A Yes, a cost of equity estimate derived from the DCF model meets the legal
3 standards discussed above if the model incorporates current information from the
4 capital markets via current stock prices and accurate data that investors use to
5 establish their discount rate. The market based information ensures the cost of
6 equity estimates evaluate investors' required rate of return or discount rate that
7 reflects the economic environment.

8 **Q Has the DCF model been an accepted model for regulators to estimate the**
9 **cost of equity?**

10 A Yes. The DCF model is the most widely used model for regulatory bodies setting
11 allowed returns. Regulatory agencies may incorporate more than one model to
12 arrive at an estimate. If more than one is used, the DCF model is always one of
13 the models. If only one model is used, it will be the DCF model. Regulatory
14 agencies rely on the DCF analysis because, with reasonable inputs, it is a tool that
15 meets the legal standards that investors have used to value all sorts of investments
16 vehicles.

17 **Q What is the underlying basis for the DCF model?**

18 A The DCF model is an investment valuation model used to value different and
19 diverse types of investments such as real estate, bonds, and common stocks. The
20 DCF model is a useful tool to value any investment that involves regular, periodic
21 cash flows. The notion of discounting a future receipt of cash back to the present
22 so as to place a price or value on an investment goes back centuries. The formal

1 presentation of the DCF model as we use it today dates back to the 1930's in
2 Irving Fisher's book The Theory of Interest and John Burr Williams' 1938 text
3 The Theory of Investment Value. These two authors expressed the DCF model in
4 modern economic terms.

5 The premise of the DCF model in the valuation of common stock is that investors
6 determine the value of a company's common stock by discounting its future
7 dividend payments back to the present. The cornerstone of the DCF model is the
8 process of discounting those future cash flows back to the present at the investors'
9 required ROR. An investor's required rate of return is risk sensitive and sensitive
10 to the returns available on investments of comparable risk throughout the global
11 capital markets. In other words, as the risk of the investment increases, so will the
12 investors' required return. A higher required rate of return decreases the present
13 value of the stream of dividends that equates to the price of the stock. So, all
14 other variables being equal, investors price the riskier of two common stocks
15 lower because the cash flows or dividends are discounted back to the present at a
16 higher rate.

17 The form of the DCF model that regulatory agencies are accustomed to seeing is
18 often referred to as the Gordon Growth Model, which is a model that values the
19 present value of a stream of cash flows (dividends) growing at a constant rate into
20 perpetuity. The basic form of this DCF equation is:

21 *Stock Price = Annual Dividend / (Req'd Rate of Return - Dividend Growth Rate)*

$$P_0 = \frac{D_0(1+g)}{(Ke - g)}$$

22 where:

23 P_0 = the value of the common stock or asset

1 D_0 = the current dividend of the stock or annual cash flow from the asset

2 g = the annual growth rate of the dividend or cash flow forever

3 K_e = cost of equity or required rate of return for the stockholders

4 This is the form of the equation commonly found in texts regarding finance,
5 investments, and asset valuation. Such texts are inclusive of both theory and
6 practical application.

7 Regulatory agencies responsible for setting rates and revenue requirements want
8 to know the investors' required rate of return or K_e in the equation. So, we solve
9 the equation for that variable. The equation below shows the algebraic isolation
10 of the investors' required rate of return. By isolating investors' required rate of
11 return in the equation, we can estimate it by knowing the stock's dividend yield
12 and the annual dividend growth rate expected by investors. That form of the
13 equation is:

$$K_e = \frac{D_0(1+g)}{P_0} + g$$

14 This equation is frequently written out as:

15 *Req'd Rate of Return = (Current Annual Dividend/Current Stock Price) + Dividend Growth Rate*

16 *Req'd Rate of Return = Dividend Yield + Dividend Growth Rate*

17 Or as commonly abbreviated by regulatory agencies

18 $K_e = y + g$

19 where: y = Dividend Yield

20 g = Expected Dividend Growth

21
22 Through a handful of inputs, the DCF model distills down to an equation, a
23 complex cognitive process performed by investors. As with any equation that

1 attempts to model behavior, there are a host of assumptions that come along with

2 it. Generally those assumptions are:

- 3 • Investors evaluate common stock in the classical economic framework.
- 4 • Investors discount the expected cash flows at the same rate (K_e) in every
- 5 future period.
- 6 • K_e corresponds only to the specific stream of future dividends, rather than
- 7 earnings, and constitutes the source of value.
- 8 • The discount rate (K_e) must exceed the growth rate (g).
- 9 • The constant growth rate will continue for an indefinite future.
- 10 • Investors require the same discount rate (K_e) each year.
- 11 • There is no external financing.

12 **Q Why is it reasonable to accept these assumptions?**

13 A A certain number of assumptions come along with any financial or economic
14 model, especially ones that are attempting to emulate investors' behavior. The
15 question becomes whether the assumptions are so contrary to investors' behavior
16 in the real-world that the model output becomes meaningless or illogical. I do not
17 believe the assumptions of the DCF model are contrary to investor behavior.
18 Moreover, there are methods I use to evaluate whether an output falls outside of
19 the realm of reality. For example, the output can be compared with the returns
20 available on other investments such as long-term corporate bonds.

21 **Application of the DCF Model**

22 **Q How did you calculate the dividend yield (y) component of the DCF model?**

23 A The dividend yield (y) is the easiest of the two components to measure. It is
24 calculated by dividing the stock's annual dividend payment per share by its
25 market price per share. For example, a company paying an annual dividend of
26 \$2.00 per share with a market price of \$76.00 has a dividend yield of 2.63%.

1 **Q What is the source of the dividend information?**

2 A Historic and current dividend information is easily obtained from public sources.
3 The DCF model requires a forward looking dividend payment which is often the
4 current year's dividend payment increased by the expected growth rate or the
5 forecasted growth rate for next year. I obtained the dividend per share
6 information from Value-Line Investment Survey. The Value-Line reports for
7 each of the proxy companies are attached as Schedule AHG-5. I obtained the
8 stock prices for the dividend yields from YahooFinance. The stock prices and
9 2015 annual dividend observed for each of the proxy companies appears on
10 Schedule AHG-6. The projected 2016 annual dividend rate and resulting
11 dividend yields appear on Schedule AHG-7. The dividend used to calculate the
12 dividend yield is the 2015 dividend rate multiplied by the projected growth rate so
13 as to reflect the expected 2016 dividend payment.

14 **Q Is it proper to use the dividend rate of a full year in the future?**

15 A Yes it is a proper application, although this method is likely a slightly higher
16 dividend rate than merely escalating the current quarterly dividend rate by the
17 projected growth estimate. This method ensures that the DCF analysis contains a
18 truly forward dividend rate, throughout the eight month process of setting
19 Westar's new revenue requirement.

20 **Forecasted Growth Rates for the DCF Model**

21 **Q Please discuss the importance of the second component, the growth rate (g)**
22 **in the DCF equation.**

1 A The "g" represents the anticipated annual growth rate in cash flows that investors
2 expect to receive through dividends from the stock. This is a difficult and
3 contentious issue in a DCF analysis for two reasons. First, it is a key element in
4 the DCF model because the growth rate has a one-for-one effect on the utility's
5 allowed return. All other factors being equal, a higher growth rate results in a
6 higher return on equity for the utility. Second, there is an element of subjectivity
7 to selecting the growth rate due to the uncertainty about future earnings and
8 dividends. It is difficult to uncover what growth rate estimates investors rely on
9 when they value a stock and where they obtain that information.

10 **Q How did you estimate the growth rate in the DCF model?**

11 A The appropriate growth estimate is that which is expected by the market and
12 factored into investors' analyses to estimate a stock prices. That is, it is the
13 growth estimate investors used to determine the stock price. Determining
14 precisely how investors estimate the growth rate used in evaluating common
15 stocks is difficult. Earnings per share growth forecasts are commonly
16 incorporated into the DCF model. Investment firms that publish growth forecasts
17 publish three to five-year annual earnings growth estimates and that is about as far
18 into the future as analysts forecast for a specific company. I discussed earlier that
19 the DCF model assumes the growth rate continues in perpetuity, well beyond the
20 three to five-year window of analysts' forecasts for earnings and dividends.

21 **Q How do investors estimate the dividend growth rate beyond the three to five**
22 **year horizon of the short-term growth forecasts?**

1 A For a long-term perspective of potential growth, investors rely on forecasts of the
2 broad economy. There are sources for long-term growth estimates of this
3 country's gross domestic product (GDP) that extend out more than 20 years.
4 Mathematically, a growth estimate rolled out over 20 years is for all practical
5 purposes a perpetuity in the world of discounting future cash flows. Academic
6 texts and investment professionals use these forecasts in DCF models as a forecast
7 of potential long-term growth. GDP refers to the market value of all final goods
8 and services produced within a country in a given period. Nominal GDP (nGDP)
9 is that measure of goods and services which *includes* effects of price changes -
10 better known as inflation. Inflation must be included because the DCF analysis is
11 interested in the nominal required return or cost of equity, and investors'
12 expectations of inflation are contained in their required return. Keep in mind that
13 the "head-line" GDP reported in the media is real GDP; GDP less the inflation
14 experienced over the measurement period.

15 **Q Is it accepted practice to use nGDP growth estimates in the DCF model?**

16 A Yes, in the federal regulatory arena, similar to the responsibilities of the KCC, the
17 FERC uses nGDP to estimate the cost of equity. FERC has reviewed the issue of
18 long-term growth estimates used in DCF models; it took comments from
19 concerned parties that included state commissions, customers, investment
20 bankers, and interstate pipeline companies.⁸ Testimony from these parties made it
21 clear that long-term estimates of nGDP are a common component of valuation
22 analyses conducted by investment professionals. From that proceeding, FERC
23 concluded that long-term growth estimates of nGDP should be the estimate of

⁸ Transcript from Technical Conference held on January 23, 2008, FERC Docket PL07-2-000.

1 long-term growth in the DCF models used to estimate required returns for
2 interstate pipeline companies because that is consistent with investor behavior.⁹
3 In June of 2014, FERC concluded that the same methodology should be used in
4 setting the required returns for electric transmission companies.¹⁰

5 **Q Is there academic support for this issue?**

6 A Yes, valuation analysts have carefully considered the long-run growth rates used
7 to value assets. Using an incorrect growth estimate will lead to incorrectly
8 valuing an asset. Academic research supports has shown that nGDP growth
9 forecasts are an important input to valuation studies because the analyst has to
10 consider whether a company's annual earnings can grow faster than the broad
11 economy. In two of his books devoted to the subject of asset valuation,
12 Investment Valuation: Tools and Techniques for Determining the Value of Any
13 Asset, 2nd Edition and Damodaran on Valuation: Security Analysis for
14 Investment and Corporate Finance, 2nd Edition, Dr. Aswath Damodaran discusses
15 the nature of a stable growth rate for DCF models. He argues for viewing
16 nominal economic growth as the absolute maximum when using a stable-growth
17 model, such as the DCF model we are using.

18 *"The stable growth rate cannot exceed the growth rate of the economy in which a*
19 *firm operates, but it can be lower. There is nothing that prevents us from*
20 *assuming that mature firms will become a smaller part of the economy and it may,*
21 *in fact, be the more reasonable assumption to make. Note that the growth rate of*
22 *an economy reflects the contributions of both young, higher growth firms and*
23 *mature, stable growth firms. If the former grow at a rate much higher than the*
24 *growth rate of the economy, the latter have to grow at a rate that is lower."*
25 (Damodaran on Valuation: Security Analysis for Investment and Corporate
26 Finance, 2nd edition; Aswath Damodaran; p.148.

⁹ Policy Statement, FERC Docket PL07-2-000 (April 17, 2008); FERC Opinion No. 486, FERC Docket RP04-274 (Oct. 19, 2006).

¹⁰ Opinion No. 531; June 19, 2014; 147 FERC 61,234; para 36.

1
2 *"The growth rate of a company cannot be greater than that of the economy but it*
3 *can be less. Firms can become smaller over time relative to the economy. Thus,*
4 *even though the cap on the growth rate may be the nominal growth rate of the*
5 *economy, analysts may use growth rates much lower than this value for individual*
6 *companies."* (Damodaran on Valuation: Security Analysis for Investment and
7 Corporate Finance, 2nd edition; Aswath Damodaran; p.159)
8

9 It is worth noting that Professor Damodaran cites the nGDP growth projection as
10 a *ceiling* for long-term growth in most valuation studies. Certainly there are
11 industries that will exceed the average for a period of time, but even for those
12 industries experiencing rapid growth, that would not continue forever. For
13 purposes of my analysis, it is not realistic to place a mature industry like electric
14 utility services in a group of companies that should experience rapid growth over
15 an extended period of years.

16 **Q In that discussion, your source states that nominal economic growth is a**
17 ***ceiling* for long-term earnings growth. Is the *ceiling* the appropriate number**
18 **for an investor to use when valuing a common stock?**

19 A There is research that casts doubt on using the forecasted nGDP as the growth
20 ceiling in valuation studies as nGDP may actually overstate the growth potential
21 for a company's earnings. Research by Bernstein and Arnott warns practitioners
22 that a portion of nGDP growth is created by new enterprises and that portion of
23 nGDP growth does not contribute to the earnings growth of existing enterprises.¹¹

¹¹ Earnings Growth: The Two Percent Dilution; William J. Bernstein and Robert D. Arnot; Financial Analysts Journal; September/October 2003, pp 47-55.

Two important concepts played a key role in the bull market of the 1990s. Both represent fundamental flaws in logic. Both are demonstrably untrue. First, many investors believed that earnings could grow faster than the macroeconomy. In fact, earnings must grow slower than GDP because the growth of existing enterprises contributes only part of GDP growth; the role of entrepreneurial capitalism, the creation of new enterprises, is a key driver of GDP growth, and it does not contribute to the growth in earnings and dividends of existing enterprises. During the 20th century, growth in stock prices and dividends was 2 percent less than underlying macroeconomic growth. Second, many investors believed that stock buybacks would permit earnings to grow faster than GDP. The important metric is not the volume of buybacks, however, but net buybacks—stock buybacks less new share issuance, whether in existing enterprises or through IPOs. We demonstrate, using two methodologies, that during the 20th century, new share issuance in many nations almost always exceeded stock buybacks by an average of 2 percent or more a year.

1

2 **Q Does their view that nGDP growth is a ceiling on long-term earnings growth**
3 **exist outside of academia?**

4 A Yes, Bernstein and Arnott have both published in peer-reviewed academic
5 journals, books on investment strategy, as well as building careers in the field of
6 asset management and investment strategy. Furthermore, institutions directly
7 involved in asset valuation and asset management that apply valuation models to
8 analyze potential acquisition and merger transactions recognize that estimates of
9 firm-specific growth are a driver to the value of an asset; overstating growth
10 would cause a model to overestimate the value. These experts also warn of a
11 ceiling to earnings growth rates as being no more than that of broad economic
12 growth.

13 *“Growth rate: Few companies can be expected to grow faster than the economy*
14 *for long periods. The best estimate is probably the expected long-term rate of*
15 *consumption growth for the industry’s products, plus inflation.” (Valuation:*
16 *Measuring and Managing the Value of Companies; Tim Koller, Mark Goedhart,*
17 *and David Wessels; McKinsey & Co; 4th ed; p275.)*

1 The following quote from J.P. Morgan Asset Management (JPMAM) addresses
2 the limits on earnings growth on a macro-level. This statement by JPMAM
3 addresses the macro or economy-wide measures of profits and it is consistent with
4 the firm-specific view expressed by asset valuation experts in that analysts must
5 be aware of the forecasted growth rates applied in valuation models and how
6 those growth forecasts comport with broad measures of forecasted economic
7 growth.

8 *"One common mistake is to assume that earnings and dividends received by*
9 *investors can grow in line with—or even in excess of—overall economic growth*
10 *(GDP) in perpetuity. Granted, it is almost a truism that aggregate earnings must*
11 *grow at the same pace as the overall economy in the very long run; otherwise,*
12 *profits would eventually outstrip the size of the entire economy or dwindle to an*
13 *insignificant share of it. But not all of this earnings growth accrues to existing*
14 *shareholders. On the contrary, a large portion of economic growth comes from*
15 *the birth of new enterprises. Some commentators suggest (for example, Bernstein*
16 *and Arnott, 2003; Cornell, 2010) that new enterprises account for more than half*
17 *of GDP growth in the U.S., while in some rapidly developing economies new*
18 *enterprises may account for the lion's share of overall economic growth."* (Long-
19 term Capital Market Return Assumptions: 2015 Estimates and Thinking Behind
20 the Numbers; J.P. Morgan Asset Management; p.25
21 <https://am.jpmorgan.com/lu/institutional/lcmra>)
22

23 **Q Do you believe this information justifies incorporating long-run nGDP**
24 **growth forecasts in cost of equity analyses of utility companies?**

25 **A** Yes, in a general rate proceeding such as this, the Commission is attempting to
26 ascertain the discount rate investors apply to the future cash flows from an
27 investment in these utilities; therefore, the Commission should emulate investors'
28 analytical practices as much as possible to determine their discount rate. As noted
29 above, investment professionals include a long-run growth forecast for the general
30 economy when applying valuation models like the DCF and capital asset pricing

1 model, and that measure of macro-economic growth serves as the upper bounds of
2 a firm-specific analysis. Therefore, the Commission should consider that same
3 information.

4 **DCF Results**

5 **A Please discuss the results of your DCF analysis.**

6 **Q** The results of my DCF analysis appear in the following table. As I have set out
7 the foundations for the DCF analysis in the previous pages, in this section I will
8 discuss the specific information that I relied on for the DCF model and interpret
9 the results.

1 average of the weekly high prices while the high dividend yield is computed using
2 the weekly low prices.

3 **Q How did you arrive at a growth rate for each proxy company?**

4 **A** The growth rate is the average of the short-term growth rates¹² and the long-run
5 forecast of nGDP of 4.38%. Schedule AHG-8 summarizes all of the observed
6 growth forecasts; both historical and forecasted.

Summary of Growth Rates									
15-WSEE-115-RTS		Value-Line Historic Data				Forecasted Earnings Growth Rates			
		DPS Growth		EPS Growth		Value Line			
		10 Year	5 Year	10 Year	5 Year	DPS	EPS	IBES	FactSet
Allete Inc	ALE	0.00%	2.00%	7.00%	1.00%	4.00%	7.00%	6.00%	6.00%
Alliant Energy Corp	LNT	3.50%	6.50%	8.00%	6.50%	4.50%	6.00%	5.45%	6.10%
Ameren Corp	AEE	-4.50%	-9.00%	-2.50%	-4.00%	2.00%	5.00%	5.85%	7.22%
American Electric Pwr Co.	AEP	-1.50%	4.00%	0.50%	1.50%	5.00%	5.50%	5.10%	5.00%
Avista Corp	AVA	9.50%	11.50%	7.50%	6.50%	4.00%	7.00%	5.00%	0.00%
CMS Energy Corp	CMS	0.00%	23.50%	0.00%	12.00%	6.50%	5.50%	6.73%	6.00%
Consolidated Edison Inc.	ED	1.00%	1.00%	3.50%	2.50%	2.50%	3.00%	2.48%	2.00%
Dominion Resources Inc	D	5.50%	7.00%	3.00%	2.50%	7.50%	8.00%	5.89%	5.90%
Duke Energy Corp	DUK	0.00%	2.50%	0.00%	3.50%	2.50%	5.00%	4.49%	5.00%
Edison International	EIX	0.00%	2.50%	10.00%	4.50%	10.00%	3.00%	0.70%	5.50%
El Paso Electric Co	EE	0.00%	0.00%	13.50%	6.50%	5.00%	3.50%	7.00%	0.00%
Empire Distr. Electric	EDE	-2.50%	-4.50%	2.50%	5.00%	3.00%	3.00%	5.00%	5.00%
Great Plains Energy Inc	GXP	-6.50%	-12.50%	-3.50%	-2.00%	5.50%	5.00%	6.80%	6.80%
IdaCorp, Inc	IDA	0.00%	5.50%	9.00%	10.00%	6.00%	1.00%	4.00%	4.00%
Northwestern Corp	NWE	0.00%	3.00%	0.00%	8.00%	6.50%	6.50%	5.00%	5.00%
OGE Energy Corp	OGE	2.00%	3.00%	9.50%	7.50%	10.00%	3.00%	4.00%	5.00%
Pacific Gas & Electric Co	PCG	0.00%	3.00%	14.50%	-5.00%	2.50%	8.50%	4.71%	5.20%
Pinnacle West Capital Corp	PNW	3.50%	3.00%	3.50%	8.00%	3.50%	4.00%	4.70%	5.00%
Portland General Electric Co	POR	0.00%	2.50%	0.00%	3.00%	6.00%	6.00%	4.72%	5.40%
TECO Energy	TE	-1.50%	2.00%	1.50%	0.00%	2.00%	6.00%	9.20%	5.50%
Westar Energy Inc	WR	3.50%	3.50%	6.50%	9.00%	3.00%	6.00%	3.40%	3.20%
Xcel Energy Inc	XEL	2.50%	3.50%	7.00%	6.00%	6.00%	4.50%	4.58%	5.00%
	Mean	1.12%	3.02%	5.61%	4.40%	4.89%	5.09%	5.04%	5.19%
	Min	-6.50%	-12.50%	-3.50%	-5.00%	2.00%	1.00%	0.70%	2.00%
	Max	9.50%	23.50%	14.50%	12.00%	10.00%	8.50%	9.20%	7.22%

7
8 **Q What are your observations of the short-run growth forecasts?**

9 **A** The average of the short-run growth forecasts for the proxy group is 5.12% with a

¹² For each proxy company, I gathered four short-run, three to five year growth forecasts - earnings and dividend growth projections from Value-Line Investment Survey, analysts' earnings growth projections reported by FactSet through SNL Financial, and earnings growth projections reported by Thomson Financial Network reported by YahooFinance. FactSet and Thomson Financial Network aggregate analysts' earnings forecasts and report the mean of those estimates. Value-Line produces its own growth forecasts and publishes on a quarterly basis. The Value-Line report for each company appears in Schedule AHG-5.

1 range of 2.50% to 6.90%.

2 **Q How do the forecasts compare to historic growth rates realized by the proxy**
3 **group?**

4 A As you can see in the previous table, the averages from each forecast source fall
5 under the ten year historic averages and are greater than the five year historic
6 averages. All of the growth forecasts are positive although there are several
7 individual observations of negative historic growth for both the five and 10 year
8 periods.

9 **Q How did you estimate long-run nominal GDP growth?**

10 A I averaged the long-run nGDP forecasts of the Energy Information Agency (EIA)
11 in its 2015 Annual Energy Outlook and the Social Security Administration (SSA).
12 Both forecasts extend to 2090.

Nominal GDP Forecasts	
Energy Information Administration-- 2015 Annual Energy Outlook (2013 - 2090)	4.25%
Social Security Administration-- 2014 Annual Report to the Board of Trustees of OADSI (2014 - 2090)	4.50%
Average	4.38%

13
14 These two forecasts are consistent with the other long-run forecast for real GDP
15 shown in the following table, as both the EIA and SSA forecasts of nominal GDP
16 incorporate an inflation forecast of 1.8% to 2.0%, thus expecting real growth in
17 the range of 2.4% to 2.6%. The following table is taken from EIA's 2014 Annual
18 Energy Outlook. The first two lines contain EIA's forecasts from 2014 and 2013
19 respectively. Like the EIA and SSA, the Office of Management & Budget

1 (OMB) and Congressional Budget Office (CBO) are agencies of the U.S.
 2 Government. ISH Global Insight and INFORUM (University of Maryland) are
 3 subscription services and, of course, ExxonMobile is one of the largest
 4 corporations in the world. From a diverse group of interests, there is some
 5 consensus that long-run economic growth in real terms will be in the range of
 6 2.5%. Applying the 1.8% to 2.0% inflation forecasts would result in a nominal
 7 growth rate of 4.3% to 4.5%. This is in stark contrast to Mr. Somma's growth
 8 forecast of 5.62% in his DCF analysis and 11.28% growth used in his CAPM;
 9 both dramatically exceed the consensus forecasts from these seasoned,
 10 professional services. Mr. Somma's 5.61% nGDP is built on his unsupportable
 11 belief that real GDP will grow at an annual rate of 3.27%, which is about 100
 12 basis points greater than any of these professional forecasts.

Table CP1. Comparisons of average annual economic growth projections, 2012-40

Projection	Average annual percentage growth rates			
	2012-2015	2012-2025	2025-2040	2012-2040
AEO2014 (Reference case)	2.6	2.5	2.4	2.4
AEO2013 (Reference case)	2.6	2.6	2.4	2.5
IHSGI (May 2013)	2.6	2.5	2.4	2.5
OMB (January 2014) ^a	2.7	2.8	--	--
CBO (February 2014) ^a	2.6	2.5	--	--
INFORUM (November 2013)	2.4	2.8	2.3	2.4
Social Security Administration (August 2013)	3.0	2.7	2.2	2.4
IEA (2013) ^b	2.8	2.8	--	2.4
ExxonMobil	--	2.5	2.2	2.4
OEG (January 2013)	2.7	2.7	2.5	2.6

-- = not reported or not applicable.

^aOMB and CBO projections end in 2024, and growth rates cited are for 2012-24. AEO projections end in 2040.

^bIEA publishes U.S. growth rates for certain intervals: 2011-15 growth is 2.6%, 2011-20 growth is 2.8%, and 2011-35 growth is 2.4%.

CP-2

U.S. Energy Information Administration | Annual Energy Outlook 2014

13
 14 This table was published in the 2014 edition of the Annual Energy Outlook. The
 15 2015 did not contain a similar table. A check of ExxonMobil's 2015 Energy
 16 Outlook indicates its forecasts for GDP growth are 10 basis points higher than
 17 those published in 2014. I have not found any evidence that growth projections

1 shown in this 2014 table have changed significantly.

2 **Q How is the long-run nGDP forecast applied in your DCF analysis?**

3 A The long-run nGDP growth forecast of 4.38% is averaged with the short-run
4 growth forecasts. The result is the sustainable growth estimate used in the DCF
5 calculations for each of the proxy companies. In my analysis, I give equal weight
6 to short-run and long-run growth forecasts. The weighting is certainly debatable.
7 At FERC, in both natural gas pipeline and electric transmission rate cases, the
8 short-run growth is afforded a two-thirds weighting. In the regulated electric
9 utility industry, there is seldom a dramatic difference between a well-reasoned
10 short-run growth estimate and a sound long-run forecast of nGDP, so the
11 weighting is not going to cause a significant change in the results. Regardless of
12 the small difference, a long-run nGDP estimate is one component of any sound
13 DCF analysis, as it recognizes the upper-threshold of growth potential.

14 **Internal Rate of Return Analysis**

15 **Q Please discuss the internal rate of return (IRR) analysis that you performed.**

16 A An IRR analysis of an investment is a form of a discounted cash flow analysis,
17 only with a more cumbersome equation than the Gordon Growth Model that we
18 applied in the previous section. In the age of spreadsheets, the IRR equation is
19 not that much harder to manage than the dividend yield plus growth DCF model,
20 and as the IRR model allows us to apply the growth forecasts to their respective
21 forecast periods, the IRR model provides important information to policy makers.
22 In the IRR analysis, we are able to apply the five year growth forecasts to the

1 intended five years of dividends with the remaining years growing at the long-run
2 nGDP forecasted growth rate.

3 The IRR calculations appear in Schedule AHG-9. The following table
4 summarizes the results of the IRR. Recognizing that the short-term growth
5 forecasts are given much less weight than in the DCF analysis, the average for the
6 proxy group in the IRR analysis is about 20 basis points higher than the DCF
7 results.

<u>Internal Rate of Return</u>	
Allele Inc	8.96%
Alliant Energy Corp	8.45%
Ameren Corp	8.98%
American Electric Pwr Co	8.66%
Avista Corp	8.99%
CMS Energy Corp	8.27%
Consolidated Edison Inc	8.73%
Dominion Resources Inc	8.64%
Duke Energy Corp New	9.01%
Edison International	7.18%
El Paso Electric Co	7.91%
Empire District Electric Co	9.10%
Great Plains Energy Inc	8.75%
IDACORP Inc	7.52%
NorthWestern Corp.	8.50%
OGE Energy Corp	7.87%
Pacific Gas and Electric Co.	8.35%
Pinnacle West Capital Corp	8.69%
Portland General Electric Co.	8.03%
TECO Energy	10.01%
Westar Energy Inc	8.52%
Xcel Energy Inc	8.50%
Mean	8.53%
Min	7.18%
Max	10.01%

8
9 Capital Asset Pricing Model Analysis

10 Q Please describe the capital asset pricing model (CAPM).

11 A The CAPM offers an explanation of the positive relationship between risk and

1 ROR required by investors.¹³ It is appealing to regulators because it meets the
2 legal standards I discussed as it incorporates current data from the financial
3 markets and the unique risks of the utility in question.

4 $Ke = Rf + \text{Beta} (Rm - Rf)$ or

5 $Ke = Rf + \text{Beta} (Rp)$

6 where:

7 $Ke =$ required return on equity

8 $Rf =$ return on the risk-free security

9 $Rm =$ expected return from the market

10 $Rp =$ risk premium required by investors to purchase common stocks
11 instead of risk-free securities often calculated as $Rm - Rf$

12 $\text{Beta} =$ volatility of the security's or portfolio's return relative to the
13 volatility of the market's return

14 **Rf**

15 The Rf estimate is the interest rate investors believe represents a riskless return.

16 Although it is a simple concept, the answer is not universally agreed upon. The
17 90-day U.S. Treasury Bill yields are used as the risk-free rate because they
18 possess no default-risk and the time to maturity is short enough to minimize risks
19 from inflation. The 30-year U.S. Treasury Bond is also used as a risk-free rate of
20 return. This is not universally accepted because the value of U.S. Treasury Bonds
21 fluctuates as interest rates change. An investment in U.S. Treasury Bonds is a
22 risk-free investment if the investor plans to hold it until maturity. The risk-free
23 instrument chosen will have an effect on the results of the CAPM analysis.
24 Whichever instrument is selected, it should be used consistently in the equation.

25 **Beta**

26 The beta coefficient measures the volatility of return earned by the utility's stock
27 relative to the volatility of the returns earned by the broader equity market. The

¹³ The theoretical support for the CAPM is the work done by Harry Markowitz ("Portfolio Selection," Journal of Finance, March, 1952). W.F. Sharpe added the concept of a risk-free rate of return to the Markowitz model ("A Simplified Model of Portfolio Analysis," Management Science, January, 1963).

1 broad equity market is frequently measured using the S&P 500 Index. This
2 measure provides a look at the risk and volatility of a stock relative to other
3 investments. A stock with a beta of one is just as volatile as the market, .5 and the
4 stock is half as volatile as the market, and 1.25 it is twenty-five percent more
5 volatile than the market.

6 **Rm**

7 Rm is the expected return on the stock market as measured by a broad market
8 index such as the S&P 500. This represents the total return consisting of the price
9 change of the index plus dividends earned for the year.

10 **Rp**

11 The risk premium is the difference between investors' expected return from the
12 stock market and their expected return from the risk-free investment over the
13 same time period. The risk premium is written as $R_m - R_f$. The market return and
14 the risk-free return should be taken from the same time period so as to accurately
15 measure the additional return required by investors to take on the risk of common
16 stocks over the risk-free investment. Rp is calculated using the historic market
17 returns discussed above and the historic returns on U.S. Treasury Bills or Bonds
18 from the same time period.

19 **Q Please discuss your CAPM analysis.**

20 A I took two distinct approaches to the CAPM analysis. I performed one analysis
21 using historic measures of returns from the stock and bond markets and a second
22 analysis using forecasted returns. The results using historic returns are drastically
23 higher; 9.20% compared to 6.64%.

24 Both forms of my CAPM analysis incorporate the beta coefficients for the proxy

1 group. As you can see in the following table, the average for the group, as well as
 2 Westar, is 0.75 meaning the total return of the proxy group on average is about
 3 75% of the broad market. This is a clear indication that electric utilities like
 4 Westar and the proxy group are less volatile than the broad stock market, and
 5 investors expect a return lower than that expected of the market.

Beta Coefficients of Proxy Group		
Allite Inc	ALE	0.80
Alliant Energy Corp	LNT	0.80
Ameren Corp	AEE	0.75
American Electric Pwr Co	AEP	0.70
Avista Corp	AVA	0.80
CMS Energy Corp	CMS	0.75
Consolidated Edison Inc	ED	0.60
Dominion Resources Inc	D	0.70
Duke Energy Corp New	DUK	0.60
Edison International	EIX	0.75
El Paso Electric Co	EE	0.70
Empire District Electric Co	EDE	0.70
Great Plains Energy Inc	GXP	0.85
IDACORP Inc	IDA	0.80
NorthWestern Corp.	NWE	0.70
OGE Energy Corp	OGE	0.90
Pacific Gas and Electric Co.	PCG	0.65
Pinnacle West Capital Corp	PNW	0.70
Portland General Electric Co.	POR	0.80
TECO Energy	TE	0.85
Westar Energy Inc	WR	0.75
Xcel Energy Inc	XEL	0.65
		0.74
Source: Value-Line Investment Survey		

6
 7 **Q Please describe the forecasted-CAPM analysis.**

8 **A** For the forecasted-CAPM, I relied on the expected returns published JPMAM in
 9 its annual publication, Long-Term Capital Market Assumptions. JPMAM
 10 publishes 10 to 15 year forecasts of expected returns on dozens of investment
 11 asset classes. What is unique about this product is that JPMAM publishes not
 12 only the forecasted return, but also an extensive discussion that explains how they

1 arrived at those forecasted returns.¹⁴ JPMAM provides the following discussion
2 of how it uses the long term capital market return assumptions (LTCMRA) in its
3 own business as well as its intended audience. As you can see in the following
4 table, JPMAM forecasts an annual return on common stocks of 7.60%. The
5 Commission should compare this forecast to Mr. Somma's expectations for the
6 stock market; he expects annual returns of 13.25%. Mr. Somma's expectations
7 are far above the expected.

How do investors use the LTCMRAs?

The Long-Term Capital Market Return Assumptions are used widely by investment teams throughout J.P. Morgan Asset Management as well as by institutional investors—including pension plans, insurance companies, endowments and foundations—to ensure that investment policies and strategic asset allocations are developed based on a comprehensive and consistent set of "real world" views. In addition the LTCMRAs allow the resulting investment characteristics and return profiles to be tested and analysed, facilitating a more effective communication and underwriting of the implied risk and return profile.

When used, as is most often the case, to review an existing strategic asset allocation, the LTCMRAs can help investors to better assess and quantify the trade-offs available to them across multiple dimensions. These trade-offs include: the relative risk premia between more and less volatile assets; the risk premia associated with investing outside of their own domestic asset classes; which opportunities exist to increase portfolio diversification; and which nominal or real return target is achievable with a given level of portfolio volatility and vice versa.

8
9 Following the calculations and inputs through the CAPM equation in line 2 of the
10 following table, the forecasted return on a risk-free investment, 10 Year U.S.
11 Treasury Bonds, is subtracted from the expected return on common stocks

¹⁴ Long-term Capital Market Return Assumptions: 2015 Estimates and Thinking Behind the Numbers; J.P. Morgan Asset Management; p.7; <https://am.jpmorgan.com/lu/institutional/ltecmra>

1 resulting in a risk premium of 3.19%. This risk premium is essentially the
 2 additional return necessary to induce investors to take on the added risk associated
 3 with common stocks over the risk free investment. The beta coefficient is applied
 4 to the risk premium to ascertain how much of a risk premium is necessary for
 5 investors to, in this instance, take on risks of investing in electric utility stocks as
 6 opposed to the risk free U.S. Treasury Bond. As the electric utilities like the
 7 proxy group and Westar are less risky than common stock in general, their risk
 8 premium is 2.39%.

Capital Asset Pricing Model -- Forecasted Risk Premium Using Forecasted Market Returns & Treasury Bond Yields	
	Proxy Group & Westar
	Beta
1) Forecasted Returns on Common Stocks	7.60%
2) Forecasted Total Return on 10 Year T-Bonds	- 4.41%
3) Resulting Risk Premium	3.19%
4) Beta Coefficient	x 0.75
5) Risk Premium	2.39%
6) Forecasted Yield on 10 Year T-Bonds	+ 4.25%
7) Forecasted Cost of Equity	6.64%
1) Forecasted 10 to 15 Year Annual Return Arithmetic return on stocks for large companies by J.P. Morgan Asset Management 2015 Edition.	
2) Forecasted 10 to 15 Year Annual Return Arithmetic return on intermediate term U.S. Bonds by J.P. Morgan Asset Management 2015 Edition	
3) Resulting risk premium (1-2)	
4) Beta coefficient of 0.75 for the Proxy Group and Westar (Reported by Value-Line)	
5) row 3 x row 4 = asset specific risk premium	
6) Forecasted Yield on 10 year U.S. Treasury Bonds Forecasted by J.P. Morgan Asset Management 2015 Edition; Fixed Income Assumptions; Exhibit 2; p.56	
7) Forecasted cost of equity capital row 5 + row 6	
Sources:	
J.P. Morgan Asset Management, Long-term Capital Market Return Assumptions, 2015 Edition; J.P. Morgan Asset Management.	
www.jpmorganinstitutional.com/pages/jpmorgan/am/ia/research_and_publications/long-term_capital_market	

9

1 The expected risk free yield of 4.25%¹⁵ is added to the beta specific risk premium
2 to arrive at the cost of equity for the given beta coefficient of 6.64% 100 basis
3 points less than the returns JPMAM is forecasting for the broad stock market
4 indexes. These results appear low by historical measures, although in the current
5 capital markets investors in Westar, long-term bonds are purchasing bonds with
6 the expectation for returns or around 3.80% to 4.00% in March 2015 through May
7 of 2015.

8 **Q Please discuss the historical-CAPM analysis.**

9 A I performed a CAPM analysis incorporating historic data of returns earned from
10 1926 through 2014. The process is the same as that applied in the Forecasted
11 CAPM.

¹⁵ JMAM is one source for forecasted data. Another source is the Survey of Professional Forecasters published by the Federal Reserve Bank of Philadelphia; <https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/2015/survq115.cfm>

At page 17 in the February 13, 2015, edition the Survey, it is reported that for the next ten years, the mean expected annual return on the S&P 500 Index is 5.79% (20 forecasts) while the mean expected yield on 10 Year Treasury Bonds is 3.91% (25 forecasts). Forecasters project annual growth in real GDP over the next ten years of 2.51% and an annual inflation rate of 1.83% to 2.03%.

Capital Asset Pricing Model -- Historic Risk Premium			
Based on Historic Risk Premiums from 1926 to 2014			
		Proxy Group & Westar	
		Beta	
1)	Total Returns on Common Stocks		12.10%
2)	Total Return on Government Bonds	-	6.40%
3)	Resulting Risk Premium		5.70%
4)	Beta Coefficient	x	0.75
5)	Risk Premium		4.28%
6)	Yield on Government Bonds	+	5.12%
7)	Forecasted Cost of Equity		9.40%
1)	Historic returns on common stocks 1926-2014		
2)	Historic returns on Long-term Government Bonds 1926-2014		
3)	Resulting risk premium (1-2)		
4)	Beta coefficient of 0.75 for the Proxy Group and Westar (Reported by Value-Line)		
5)	row 3 x row 4 = asset specific risk premium		
6)	Historic Year-End Yield on Long-term Government Bonds 1926-2014		
7)	Forecasted cost of equity capital row 5 + row 6		
Sources:			
Ibbotson SBBI: 2015 Classic Yearbook & Value-Line Investment Survey			

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Keep in mind that, in relying on historic data, we are assuming that certain trends observed in the past will continue in the future. Most notably, we would be assuming that the historic risk premium relationship observed in the returns on common stocks versus the returns on U.S. Treasury Bonds continues in the future. The historic risk premium is 5.70% which is drastically greater than the 3.19% risk premium expected by professional forecasters and institutional investors. That difference is an indication that institutional investors and professional forecasters do not expect the future nominal returns to be as great as those experienced in the past.

1 **Staff Response to Mr. Somma's Direct Testimony**2 **Q What is the ROE Westar is requesting?**

3 A Westar is requesting an ROE of 10.00%.

4 **Q How did Westar arrive at a cost of equity estimate of 10%?**5 A Westar witness Anthony Somma provided a cost of equity analysis. His findings
6 are summarized in this table which is from page 63 of his testimony.

Table 11

Adjusted ROE Recommendation					
	Range		Weight	Weighted Range	
	DCF Results	9.47%		9.52%	50.0%
Forward CAPM Results	10.86%	11.76%	25.0%	2.72%	2.94%
Risk Premium Results	10.33%	10.38%	25.0%	2.58%	2.60%
				10.03%	10.30%
			Issuance Costs	0.12%	0.12%
			Adjusted ROE	10.15%	10.42%

7

8 His cost of capital study arrives at a range of 10.00% to 10.30%. As you can see
9 in the table, Mr. Somma places greatest weight, 50%, on the DCF analysis. He
10 weights the results of his CAPM and Risk Premium at 25% each.11 **Q Generally, what are your criticisms of Mr. Somma's analysis?**12 A Mr. Somma's DCF analysis assumes an unsustainably high growth rate, adjusting
13 that growth rate to a level that reflects the realities of the current and prospective
14 economy lowers the result closer to Staff's DCF analysis. Mr. Somma's CAPM
15 and Risk Premium analysis contain too many points of disagreement at both the
16 theoretical and application level, that I recommend the Commission place no
17 weight on them.18 **Q Is it reasonable to expect corporate earnings and dividends to grow at a rate**

1 **that is so much greater than forecasted nGDP?**

2 A No, it is not a reasonable expectation. As I explained earlier, there is a
3 considerable amount of both academic research and professional application of
4 the DCF model that discuss the growth rate issue. The research from both realms
5 is very clear: the broad measure of economic growth, most always defined as
6 nGDP, is a necessary limit on dividends and earnings growth.

7 **Q Did you uncover any other evidence that Mr. Somma's CAPM analysis**
8 **overstates investors' required returns?**

9 A Yes, there are obvious indicators in Mr. Somma's CAPM. For instance, the
10 required return on the market is very high and well above reasonable
11 expectations. Mr. Somma's CAPM assumes that the annual average return on the
12 S&P 500 Index will be 13.25%. His forecasts for the equity market far exceed
13 historic return of 12.10%¹⁶ and far exceed the expected returns for the future. As
14 a point of comparison, J.P. Morgan Asset Management forecasts an annual return
15 of 7.60 to 8.80% on common stocks over the next 10 to 15 years.¹⁷

16 **Q Does Mr. Somma's CAPM analysis provide the Commission with useful data**
17 **to estimate Westar's cost of equity?**

18 A No, it does not. The Commission should not place any weight on Mr. Somma's
19 CAPM analysis as I have demonstrated that the inputs are not representative of
20 the capital markets and would not be relied on by investors.

¹⁶ Historic total return on the S&P 500 Index from 1926 through 2014 as reported in Ibbotson SBBI 2015 Classic Yearbook, Market Returns for Stocks, Bonds, Bills & Inflation; Morningstar.

¹⁷ Long-Term Capital Market Return Assumptions: 2015 Estimates and the Thinking Behind the Numbers. <https://am.jpmorgan.com/us/institutional/lcmra>

1 **Response to Westar Proxy Group**

2 **Q Do you agree with the proxy group Mr. Somma used in his cost of equity**
3 **analysis?**

4 A No. Mr. Somma incorporates a market capitalization selection parameter that I do
5 not use in my selection.

6 **Q Do you believe the proxy group is a cause of the difference in ROE estimates**
7 **between you and Mr. Somma?**

8 A No, it is unlikely the cause of the difference as all of Mr. Somma's proxy
9 companies are in my analysis and, generally, except for the market capitalization
10 parameter, his selection criteria is similar to those that I used. Given these
11 similarities, I will not spend time rebutting his proxy group.

12 **Q To be clear, are you using the same proxy group as Mr. Somma?**

13 A No. My proxy group is larger, consisting of 22 electric utilities, and it includes all
14 12 of the electric utilities in Mr. Somma's proxy group.

15 **Response to Westar DCF Analysis**

16 **Q On page 45 of his direct testimony, Mr. Somma states that his DCF analysis**
17 **results in a mean of 9.47% and a median of 9.52%. Why are his estimates so**
18 **much higher than your DCF analysis?**

19 A There are two reasons for the difference: 1) the growth rates he selects; and 2) his
20 exclusion of the results of one company. Mr. Somma shows the result of his DCF
21 analysis in Table 3 on page 45 of his testimony. Oddly enough, there are no
22 tables in his Direct Testimony that show his specific inputs for his DCF model;
23 that information only exists in his work papers.

1 **Q Why do you disagree with the growth rates in Mr. Somma's DCF analysis?**

2 A I disagree because he relies solely on three to five year earnings growth forecasts
3 for his estimate of growth in his DCF model. Throughout his testimony, he refers
4 to securities analysts' three to five year earnings growth forecasts as "long-term
5 forecasts." His methodology is contrary to the fundamentals of the DCF model
6 which views growth prospects well beyond Mr. Somma's three to five year
7 horizon.

8 I discuss growth rate selection for the DCF model earlier in my testimony.
9 Research demonstrates that securities valuation theory and its practical
10 application of the DCF model demands a long-term view of growth. Whether the
11 practitioner uses a two-stage DCF model, as I have or single stage DCF model as
12 Mr. Somma has done, the practitioner has to recognize that the DCF model
13 demands a long-term growth projection; a growth estimate that goes beyond the
14 three to five year window of analysts' earnings growth forecasts.

15 **Q What are the sources for Mr. Somma's growth estimates?**

16 A He obtains three to five year forecasts of earnings growth from Value-Line
17 Investment Survey, Thomson Reuters, and Bloomberg. I do not object to any of
18 these sources for earnings growth rate estimates. I only object to Mr. Somma's
19 position that market participants use a three to five year forecast as that which
20 continues far beyond that time period.¹⁸

21 **Q How do his growth forecasts compare to historic growth rates for electric**
22 **utilities?**

¹⁸ His DCF calculations and the inputs to his DCF analysis appear only in his work papers (KCC #85).

1 A Mr. Somma does not provide any sort of review, analysis, or historical context for
2 his growth rates, nor does he even disclose the growth rates in his testimony.
3 Which is an odd presentation when he in fact acknowledges that the growth rate
4 in the DCF model is "...the most significant area of controversy among model
5 inputs."¹⁹ Despite his acknowledgment that this is a critical input to a DCF
6 model, he never provides any historical context for this critical input.

7 **Q You stated earlier that a 4.38% annual growth in nGDP is forecasted for the**
8 **coming decades. How does that compare to the growth rates Mr. Somma**
9 **uses?**

10 A As you can see in the following table, the average three to five year annual
11 earnings growth forecast for Westar's proxy group is 5.86%; significantly greater
12 than the forecasted growth rate for the economy. Mr. Somma never attempts to
13 explain why it is reasonable for us to assume that his proxy group of electric
14 utilities will grow at a rate so much greater than the U.S. economy for many
15 decades into the future.

¹⁹ Somma Direct 15-WSEE-115-RTS; p43; line 1.

Annual Growth Rates Contained in Mr. Somma's DCF Analysis	
	Growth
Westar Energy, Inc.	4.22%
Ameren Corp	7.08%
Allete Inc	6.00%
Avista Corp	4.75%
Great Plains Energy Inc	5.24%
IdaCorp Inc	excluded
Alliant Energy Corp	5.45%
NorthWestern Corp	6.87%
OGE Energy Corp	5.68%
PNM Resources Inc	8.14%
Pinnacle West Capital	4.48%
Portland General Electric Co	7.23%
TECO Energy	5.17%
Mean	5.86%
Median	5.56%
Source: Response to KCC DR #85	

1

2 **Q** You stated earlier that you disagree with the removal of IDACORP, Inc.
3 from the DCF results. Why do you disagree?

4 **A** Mr. Somma concluded that the DCF outcomes for IdaCorp were too low to be
5 logically representative of the capital markets, so he removed that result from the
6 average. Mr. Somma stated that he removed IdaCorp from the average because
7 its DCF results "...yielded a return on equity lower than the cost of debt that
8 Westar is requesting."²⁰ While that statement is true, it is not a reason for
9 removing that observation from the average. For an appropriate comparison, Mr.
10 Somma should be looking to the *market cost* of debt in the current capital markets
11 as opposed to the embedded or *historic cost* of debt. In the time period in which
12 Mr. Somma gathered pricing data, the yield on Baa/BBB rated utility debt was
13 about 4.30%. Thus, by a measure of current, market derived bond yields, the

²⁰ Somma Direct p44

1 estimates for IdaCorp should remain in the analysis. Leaving IdaCorp in the data
2 set lowers the average.

3 A test such as that applied by Mr. Somma is a common test used in cost of equity
4 studies as means to remove observations that are illogically low relative to other
5 investments. It is common place to assume to use observations on utility bond
6 yields as a benchmark. For instance, FERC has adopted a low-end limit of the
7 prevailing yield on utility bonds *plus* 100 basis points under the rationale that
8 investors would require a minimum risk premium of 100 basis points over the
9 available bond yield to induce them to purchase the common stock. As I pointed
10 out in the previous paragraph, the widely accepted benchmark is market yield; it
11 is not the historic or embedded yield as Mr. Somma relied on.

12 **Q If Mr. Somma had incorporated a long-run perspective in his growth**
13 **forecast and in IdaCorp, how much would that change the results of his DCF**
14 **analysis?**

15 A Giving the nGDP and his earnings growth rate forecast equal weighting would
16 lower the average of his DCF results 62 basis points. Shown in Table 3 on page
17 45 of Mr. Somma's Testimony, the average of 9.47% would decrease to 8.85%
18 which is comparable to the cost of equity estimates in Staff's DCF analysis.

19 **Response to Westar's Capital Asset Pricing Model**

20 **Q Do you agree with the results of Mr. Somma's CAPM analysis?**

21 A No, I do not. His CAPM analysis does not provide an accurate picture of
22 Westar's capital costs because of overly optimistic long-run growth rates.

23 **Q What is the result of Mr. Somma's CAPM analysis?**

1 A Mr. Somma's CAPM analysis indicates a cost of equity in the range of 10.86% to
2 11.76%.

3 **Q Where is the growth rate applied in the CAPM?**

4 A In Mr. Somma's CAPM analysis, the three to five year annual earnings growth
5 rate estimate is used to calculate the market return (R_m) used in the CAPM.
6 Thus, the growth rate is a couple layers deep into the CAPM equation, but
7 nonetheless it has a tremendous impact on the end result of the CAPM. The
8 growth rate is used to estimate the expected return on the S&P 500 stock index.
9 The expected return on the market index becomes the foundation for the
10 calculation of the individual company. If the foundation or R_m does not comport
11 with capital market theory and realistic valuation practices, then the CAPM
12 analysis on the individual company will be inaccurate.

13 **Q What is the R_m supposed to represent?**

14 A In the CAPM the R_m is the return expected by investors through an index of the
15 stock market such as the S&P 500.

16 **Q What does Mr. Somma claim the S&P 500 will return in the future?**

17 A Mr. Somma estimated that the S&P 500 will return 13.25% annually for many,
18 many years into the future; a dizzyingly high return that is even higher than the
19 often cited historic return on common stocks of 12.10% for 1926 through 2014.²¹
20 Economic growth for the foreseeable future is forecast to be significantly lower
21 than that experienced in those 88 years. This forecast for the S&P 500 is solely
22 his own. He does not provide any support for this estimate or provide any

²¹ Ibbotson SBBI 2015 Classic Yearbook: Market Results for Stocks, Bonds, Bills, and Inflation 1926-2014; Morningstar; p.40.

1 corroborating studies indicating that market participants factor estimates similar
2 to his into their decisions. I have not come across any analytical work that could
3 support such a high return on common stocks in the coming decades.

4 **Q How does Mr. Somma arrive at his forecast of a 13.25% annual return from**
5 **the S&P 500?**

6 A He performs a DCF analysis on each of the 500 companies in the S&P 500 Index.
7 The calculation requires a dividend yield and a long-run growth rate estimate to
8 apply to each company's dividends. Just as with the DCF estimates for his proxy
9 group, the calculation of the dividend yield is relatively uncontroversial. It is his
10 growth rate estimates that cause an extraordinarily high cost of equity estimate.

11 **Q What growth does he apply to each of the 500 companies?**

12 A Mr. Somma uses the annual earnings growth rate estimate obtained from
13 Bloomberg, a source he also uses in his DCF analysis of his proxy group.
14 Bloomberg reports the consensus or average of analysts' growth forecasts. These
15 are three to five year earnings growth rate projections. Consensus estimates are
16 an average of growth estimates made by analysts.

17 **Q How does he apply the growth forecasts?**

18 A Mr. Somma's calculations assume that the three to five year earnings growth for
19 each company continues in perpetuity, forever. For any company with a negative
20 three to five year earnings growth forecast, he applied a growth rate of *zero*. That
21 is to say, he has biased his growth estimate by assuming that no company in the
22 S&P 500 will ever experience negative earnings growth. He did not provide any
23 support or evidence that market participants share his level of optimism. I have

1 not evaluated the effect of Mr. Somma zeroing out the negative growth
2 projections; I find that to be an unusual methodology to use in evaluating the
3 expected return for the market.

4 **Q With that unique methodology that Mr. Somma applies, what is the growth**
5 **rate that Mr. Somma assumes for the S&P 500?**

6 A Mr. Somma expects earnings of the S&P 500 Index to grow at annual rate of
7 11.28%; more than two and a half times the expected growth rate of the nation's
8 economy. Mr. Somma's CAPM is highly dependent on this extraordinarily high
9 earnings growth forecast. Incorporating a growth forecast that is more in line
10 with expected long-run growth will lower the results of his CAPM analysis
11 proportionally to the change in forecasted growth. A growth rate estimate that is
12 more in line with expectations will result in a CAPM result that is closer to my
13 CAPM results.

14 **Q Are there any notable data points in Mr. Somma's S&P 500 index?**

15 A In Mr. Somma's analysis the forecasted growth rate for ExxonMobile is negative
16 for the next three to five years. That is not surprising given the sudden drop in
17 energy prices; it is conceivable that the company could experience a contraction
18 in earnings for a period of time. Mr. Somma's CAPM analysis assumes
19 ExxonMobile, the second largest publicly traded corporation in the world, will
20 forever have a growth rate of zero. Mr. Somma does not attempt to reconcile his
21 application of the CAPM with the reality of the financial markets. Under Mr.
22 Somma's analysis, we would expect the price of ExxonMobile to collapse; it has

1 not collapsed, it has declined in value as have most energy companies, but it has
2 not collapsed.

3 **Q If Mr. Somma is projecting zero growth, in lieu of the negative growth rate**
4 **reported by Bloomberg, why would ExxonMobile continue to have value and**
5 **continue to be the second largest investment vehicle in the world?**

6 A I would surmise that it is because investors do not apply growth forecasts in the
7 same manner as Mr. Somma has done throughout his analysis. Rather than
8 believing that analysts' three to five year earnings growth forecasts are the sole
9 forecasts for valuation analysis, market participants likely recognize that
10 ExxonMobile's three to five year growth forecast should not be used as an
11 estimate of growth in to perpetuity. That is why the stock has not collapsed and it
12 continues to be one of the largest corporations in the world. ExxonMobile is not
13 the only data point that exhibits a negative growth rate that was zeroed out by Mr.
14 Somma, there are several more examples in his analysis.

15 **Response to Westar's Risk Premium Study**

16 **Q Do you agree with the results of the Risk Premium study that begins on page**
17 **50 of Mr. Somma's Testimony?**

18 A I disagree with using this type analysis in setting Westar's allowed return because
19 this type of analysis has several shortcomings that cast doubt on the applicability
20 of the results. Although the data provides an interesting view of regulatory and
21 financial history, I recommend the Commission disregard it in setting Westar's
22 allowed return.

1 **Q How is the risk premium study constructed?**

2 A Mr. Somma's risk premium analysis is based on observations of allowed returns
3 granted by state regulatory commissions to electric utilities in litigated cases and
4 the yield on 10 Year U.S. Treasury Bonds prevailing at the time of the rate case.
5 From these observations, he established a relationship between the risk premium
6 (the allowed ROE granted by commissions minus the prevailing yield on 10 Year
7 U.S. Treasury Bond) and the yield on the 10 Year U.S. Treasury Bond.

8 **Q Is this a new type of analysis for estimating the cost of equity?**

9 A Mr. Somma's Risk Premium analysis is similar to that filed by several different
10 Kansas jurisdictional utilities in recent gas and electric rate cases. My criticism of
11 Westar's risk premium analysis is the same as in those recent dockets.

12 **Q Is the reasonable return on equity for Westar equal to the return granted to
13 other utilities in other jurisdictions many years ago?**

14 A No, relying on the allowed returns granted to other utilities in other jurisdictions
15 runs the risk of overlooking data in the present day capital markets, setting an
16 allowed return on what could be outdated information. At a minimum, such a
17 practice creates a degree of circular reasoning that could preclude a Commission
18 from setting an allowed return at any level other than some historic average when
19 current economic conditions call for something different. *Hope* and *Bluefield*
20 emphasize that an allowed return changes with changes in the capital markets.

21 **Q What are your observations of Mr. Somma's risk premium study?**

22 A The Commission needs to be cautious in using Mr. Somma's risk premium study
23 because it does not comport with the framework set out in the *Hope* and *Bluefield*

1 decisions, as there is no comparison of the risk of the electric utilities in the
2 historic data to the risk of Westar today. The *Hope* and *Bluefield* decisions state
3 that an allowed return must be commensurate with risks on similar investments;
4 Mr. Somma's risk premium study does not speak to that standard. It would be
5 comparable to merely performing a DCF analysis on all of the electric utilities,
6 without attempting to select a proxy group of comparable risk. Both I and Mr.
7 Somma recognize that electric utility companies are different from one another.
8 That is why both of us culled through many publicly traded electric utilities to
9 arrive at our respective proxy groups that we believe are similar in risk to Westar.
10 Keep in mind that research publications such as Value-Line cover about 45
11 companies in the electric utility industry, from which Mr. Somma selected 12 as
12 being of comparable risk to Westar; an indication that he believes that electric
13 utilities are not of equal risk.

14 **Q Have the electric utility industry and regulatory policies evolved and changed**
15 **over this period of time since 1980 that alters its risk profile?**

16 **A** Yes, I believe it has changed over this 35 year time period and Mr. Somma's risk
17 premium analysis fails to recognize any changes to the industry as merely
18 plugging in a recent interest rate does not measure changes in risk. For instance,
19 rate design, and trackers/riders/pass-through mechanisms have evolved over the
20 past two decades; these mechanisms lower the risk of utilities by shifting risk to
21 the consumer. Mr. Somma fails to account for such changes in the industry.
22 Equally important as those formal mechanisms used in Kansas is this Staff's
23 willingness to update Westar's rate base well beyond the test-year balances which

1 is a tremendous benefit to Westar. Mr. Somma does not offer his thoughts on
2 whether the Kansas regulatory mechanisms and post-test-year updates are the
3 norm for the industry either now or over history. Thus, based on Mr. Somma's
4 Testimony we cannot know whether those observations in the 1980's and 1990's
5 provide us with a risk premium measure that is applicable today.

6 Risk premium studies such as these provide some historical perspective of the
7 changes in capital costs that occurred in the past three decades and, for that reason
8 alone, a review of the data is interesting. The findings in this risk premium
9 analysis are not compelling evidence because there is no distinction of risk among
10 the observations in the data.

11 **Response to Westar's Request for Flotation Costs**

12 **Q Has Westar requested recovery of flotation costs as part of its cost of equity?**

13 A Yes, Mr. Somma has requested an additional 12 basis points to recover the
14 flotation costs associated with issuing equity capital.

15 **Q Does Staff support the recovery of such expenses added to the allowed return
16 on equity?**

17 A No. Staff does not support inclusion of flotation costs in its cost of equity because
18 Westar has not attempted to quantify the amount, if any, of unrecovered costs
19 associated with it issuing common equity.

20 **Q How much does Westar's adjustment collect in flotation costs?**

21 A In the following table, I calculate the annual revenue requirement of Westar's
22 proposed 12 basis point adjustment to recover flotation costs.

Quantification of Westar's Proposed Flotation Cost Adjustment			
Total Rate Base (Application Section 3)			\$ 5,062,804,912
Equity Ratio of Capital Structure			53%
Equity Financed Rate Base			\$ 2,683,286,603
Flotation Cost		0.12%	
Tax Gross Up Factor		0.6667	
Pretax Flotation Cost Collected in Rev Req		0.18%	
Annual Flotation Cost Charged to Westar Consumers			\$ 4,829,674

1

2 Westar does not quantify the dollar amount of this element on the revenue
 3 requirement, nor does it explain why recovering this expense through the cost of
 4 equity is efficient. I contend that it is not efficient because the cost of equity has
 5 to be grossed up to recover the associated income taxes.

6 **Q Is there a more efficient way to recover those costs?**

7 A Yes, simply track the actual costs, and include a pro forma adjustment to the test
 8 year operations to include those costs as an expense in the rate case. We could
 9 certainly spread recovery of those costs over a several decades.

10 **Q If the Commission follows past practices and allows Westar an allowance for**
 11 **flotation costs, does Mr. Somma's estimate of 12 basis points comport that**
 12 **practice?**

13 A Yes, it does, as he has applied the flotation cost adjustment to common equity less
 14 the retained earnings portion of common equity. Historically, flotation cost
 15 adjustments calculated in this manor are in the range of 10 to 12 basis points.

16 **Response to Westar's Claim of Needing a Premium on its ROE**

17 **Q Did you evaluate Mr. Somma's claim that Westar could justify a higher**
 18 **return due to its "small size"?**

1 A Yes, the issue of higher return or a premium to the allowed return related to
2 "small size" is not new to the Commission, although I believe this is the first time
3 it has been made by one of our major utilities. The Commission is faced with this
4 argument from time to time in testimony from rural telephone companies in
5 Kansas Universal Service Fund audits.

6 **Q Has the Commission explicitly agreed that small utilities require a premium
7 on their allowed return?**

8 A My recollection of the past decade is that the Commission has not explicitly
9 agreed with the concept of small utilities requiring a premium or higher allowed
10 return solely due to their relative size. Those decisions have almost exclusively
11 been in telecommunications cases dealing with regulated entities that are much,
12 much smaller than Westar. If the Commission is unwilling to accept the notion of
13 a small-size premium on those companies, there would be good reason not to
14 adopt such a premium for a much larger entity like Westar.

15 **Q What is your position on the small-size premium?**

16 A I have consistently opposed this type of adjustment because it is not a widely
17 accepted premise in public utility finance (or even finance generally) that size as
18 measured by capitalization is a determinant of risk. The data used to support the
19 notion of a small company risk premium has shown that there is a survivorship
20 bias. The survivorship bias stems from the fact that a larger proportion of small
21 companies cease to exist than larger companies. The studies supporting a small
22 company premium frequently fail to measure the full extent of the loss incurred
23 by investors in those small companies that disappear. Accurately measuring those

1 losses has been shown to eliminate measured small company premium.
2 There is a tremendous amount of data mining that has taken place on this very
3 topic and similar beliefs of market inefficiencies some believe create
4 opportunities for investors. Professor Burton Malkiel author of A Random Walk
5 Down Wall Street, addresses the measurement of a size premium along with
6 several other alleged measures of market inefficiencies in a 2003 journal article.
7 His conclusion is that if investors cannot replicate or exploit the alleged market
8 inefficiency, it likely does not exist. As this passage discusses, professionals have
9 attempted to profit from these alleged market conditions and it is not profitable.²²

Many of the predictable patterns that have been discovered may simply be the result of data mining. The ease of experimenting with financial databanks of almost every conceivable dimension makes it quite likely that investigators will find some seemingly significant but wholly spurious correlation between financial variables or among financial and nonfinancial data sets. Given enough time and massaging of data series, it is possible to tease almost any pattern out of most data sets. Moreover, the published literature is likely to be biased in favor of reporting such results. Significant effects are likely to be published in professional journals while negative results, or boring confirmations of previous findings, are relegated to the file drawer or discarded. Data-mining problems are unique to nonexperimental sciences, such as economics, which rely on statistical analysis for their insights and cannot test hypotheses by running repeated controlled experiments.

An exchange at a symposium about a decade ago between Robert Shiller, an economist who is sympathetic to the argument that stock prices are partially predictable and skeptical about market efficiency, and Richard Roll, an academic financial economist who also is a portfolio manager, is quite revealing (Roll and Shiller, 1992). After Shiller stressed the importance of inefficiencies in the pricing of stocks, Roll responded as follows:

I have personally tried to invest money, my client's money and my own, in every single anomaly and predictive device that academics have dreamed up. . . . I have attempted to exploit the so-called year-end anomalies and a whole variety of strategies supposedly documented by academic research. *And I have yet to make a nickel on any of these supposed market inefficiencies . . . a true market inefficiency* ought to be an exploitable opportunity. If there's nothing investors can exploit in a systematic way, time in and time out, then it's very hard to say that information is not being properly incorporated into stock prices.

10

²² The Efficient Market Hypothesis and Its Critics; Burton G. Malkiel; Journal of Economic Perspectives; Volume 17, Number 1, Winter 2003; pp 59-82.

1 It is clear from the research on this issue that it is possible to dredge the data
2 banks and find instances where there was some measure of a premium, but
3 investors establish their required return based on risk and there are more reliable
4 measures of the risk in an investment than the size of the company.

5 **Response to Proposed ROE Adjustment Mechanism**

6 **Q At page 71 of his Direct Testimony, Mr. Somma describes an ROE**
7 **adjustment mechanism. Do you believe the Commission should adopt such a**
8 **mechanism?**

9 A No. I have reviewed Mr. Somma's proposal. Staff's objection to this mechanism
10 is not based on the nuances of Mr. Somma's proposal; it is based on the
11 conceptual notion of an annual adjustment to a utility's allowed return. Staff does
12 not support such a mechanism for Westar because it would set one critical
13 element of the revenue requirement for annual adjustment while there is no annual
14 adjustment for other key drivers of the revenue requirement. Additionally,
15 Westar's allowed return is evaluated in each general rate case and, given the
16 current climate of heavy capital expenditures there have been and will likely
17 continue to be, regularly filed general rate cases. I want to emphasize that
18 Staff is opposed to such a mechanism. If the Commission has an interest in it,
19 Staff recommends that it be considered through a generic proceeding where
20 record is developed for the Commission to assess how this policy change would
21 affect the diverse group of stake-holders in Kansas.

22 **Capital Structure**

23 **Q Have you reviewed the capital structure proposed by Westar?**

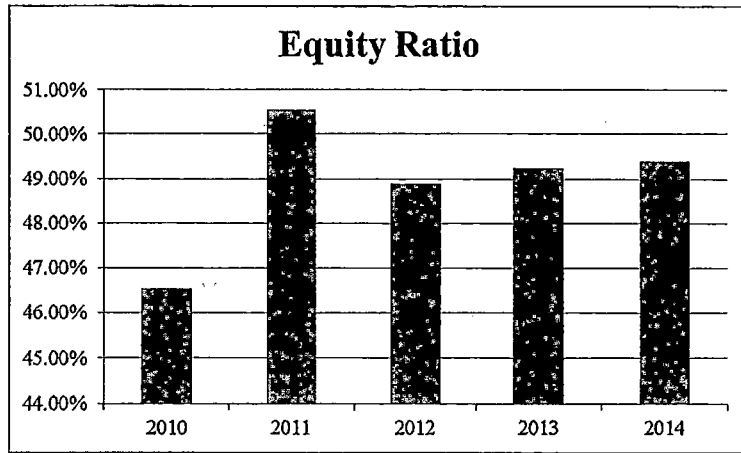
1 A Yes, I reviewed the capital structure Westar proposed in Section 7 and addressed
 2 in the Direct Testimony of Susan M. North. Westar calculated its ROR using a
 3 capital structure based on the test year ending September 30, 2014, applying
 4 adjustments to reflect projected balances to December 31, 2014, and then pro
 5 forma adjustments so that the capital structure reflects what it believes is a picture
 6 of its capitalization beyond the test year. Staff is accepting of post-test year
 7 adjustments to capital accounts as these are relatively easy to verify.

Pro Forma Capital Structure						
Test Year Ended September 30, 2014						
	September 30, 2014		December 31, 2014		Used In the ROR	
	Totals		Adjustments		Pro Forma	Ratio
				Adjustments	December 31, 2014	
Long-term Debt	\$ 3,215,356,038	49.29%	\$ 183,066	\$ (125,000,000)	\$ 3,090,539,104	46.25%
Common Equity	\$ 3,264,878,394	50.05%	\$ 29,977,610	\$ 254,469,857	\$ 3,549,346,861	53.12%
Post 1970 ITC	\$ 42,801,587	0.66%	\$ (782,217)	\$ -	\$ 42,019,370	0.63%
	\$ 6,523,036,019		\$ 29,378,459	\$ 129,469,857	\$ 6,681,904,335	
Source: Section 7						

8

9 **Q Do you agree with the capital structure proposed by Westar?**

10 A Generally, yes. I would only note that the proposed equity ratio is high relative to
 11 Westar's equity ratio reported in the past. It is not outlandishly high, but it is
 12 higher than that seen for more than a decade. As the difference is merely a couple
 13 percentage points difference than the historic observations, I am not proposing
 14 any adjustment to the capital structure. Staff is using Westar's capital structure as
 15 shown in Section 7 of Westar's Application.



1

2

	2010	2011	2012	2013	2014
Debt Ratio	53.46%	49.46%	51.11%	50.76%	50.60%
Equity Ratio	46.54%	50.54%	48.89%	49.24%	49.40%

3

4 **Cost of Debt**

5 **Q What is Westar asking to recover as its cost of debt capital?**

6 A In Section 7, Schedule 7-C Westar calculates an embedded cost of long-term debt
7 of 5.687%.

8 **Q Do you agree with Westar’s cost of debt?**

9 A Yes, that is the value that Staff will use to calculate the ROR.

10 **Wolf Creek Decommissioning Trust Annual Accrual**

11 **Q Please discuss the Wolf Creek Decommissioning issues in this Docket?**

12 A In this Docket, we are dealing with what is referred to as Phase-Two of the
13 triennial review of the Wolf Creek decommissioning cost estimate. In Phase-One

1 of the review, the Wolf Creek Owners²³ submitted a decommissioning cost
2 estimate and a forecasted cost-inflation rate. Those two variables are used in
3 Phase-Two for each of the owners to calculate their annual accrual payment to its
4 decommissioning trust fund. The annual accrual payment is part of the operating
5 expenses recovered through their respective revenue requirements. Susan North
6 presents Westar's proposal for Phase-Two.

7 **Q What is Westar's proposal for its annual accrual?**

8 A Westar has calculated an annual accrual of \$3,150,070 to fund its portion of the
9 decommissioning costs. I disagree with Westar's proposal.

10 **Q Please describe the analysis.**

11 A The goal of the calculations shown in Exhibit SMN-1 of Susan North's Direct
12 Testimony is to estimate how much Westar must deposit each year in a trust
13 account so as to have sufficient funds in the future to pay its share of
14 decommissioning Wolf Creek at the end of its operations. Westar's analysis
15 incorporates ten variables to arrive at an estimate for the annual accrual.

- 16 • Decommissioning cost estimate set in Phase-One (15-WCNE-093-
17 GIE)
- 18 • Decommissioning timing set in Phase-One (15-WCNE-093-GIE)
- 19 • Remaining life of fund
- 20 • Westar's 47% ownership percentage
- 21 • Kansas jurisdictional allocation factor
- 22 • Trust fund investment mix
- 23 • Trust fund management fees
- 24 • Taxes on fund earnings
- 25 • Earnings on fund investments
- 26 • Current trust fund balance

²³ Westar Energy owns 47% of Wolf Creek Nuclear Operating Corporation; Great Plains Energy owns 47%; and Kansas Electric Power Cooperative, Inc. owns the remaining 6%.

1 Now that the Commission has adopted a Decommissioning Plan in Phase-One, all
2 but two of the variables are readily discernable. That is to say, for most of the
3 inputs there is not much latitude in what constitutes a realistic input. The two
4 variables, the *trust fund investment mix* and the *earnings on fund investments*, are
5 difficult and somewhat speculative to forecast. Fortunately, these forecasts are
6 reviewed every three years; they are not set once and for all. Future Commissions
7 will have the opportunity to make adjustments in the future as new information
8 comes to light.

9 **Q Is the proposed investment asset mix reasonable?**

10 A The investment mix in Westar's analysis is a reasonable approximation because it
11 presents estimated asset allocation parameters that are likely to apply over the life
12 of the trust. Just as Westar modeled in Exhibit SMN-1, the investment mix
13 should change over time. The trust does not exist into perpetuity; it has a
14 definitive liquidation date and, at the end of its life, it is expected to achieve a
15 specific goal. Thus, as it nears the end-date, the portfolio managers should
16 increase the use of less volatile, fixed income investments so as to protect the
17 value. With the lower volatility investment vehicles comes a lower return.
18 Exhibit SMN-1 correctly models that facet of the investment strategy.

19 **Q Are the forecasted returns reasonable?**

20 A I disagree with the forecasted returns that Westar used in Exhibit SMN-1.
21 Westar's forecasted returns are built largely from historic returns from 1985-2013
22 for the equity investments or historic risk premiums for this time period coupled
23 with the current interest rate on the 30 Year Treasury Bonds for the fixed income

1 securities. My concern with a reliance on historic returns is that historic returns
 2 embody a level of annual economic growth that is considerably higher than what
 3 is likely in the future. It is generally the case that long-run *projected* returns on
 4 both debt and equity investments are lower than those experienced in the recent
 5 past. This trend is attributed to expectations for lower inflation relative to historic
 6 averages and expectations for slower growth in GDP.

7 **Q What data did you rely on to review the forecasted returns in SMN-1 and the**
 8 **adequacy of Westar's proposed annual accrual?**

9 A I relied on the 10 to 15 year returns forecasted by J.P. Morgan Asset
 10 Management. As you can see in the following table, J.P. Morgan's forecasts for
 11 equity returns are much lower than Westar's forecasts, and its forecasts for returns
 12 on cash or short-term fixed income securities are higher than Westar's forecast.

Comparison of Forecasted Returns		
	Westar*	J.P. Morgan Forecasted**
Large Capitalization Equities	11.40%	7.60%
Small Capitalization Equities	10.27%	8.81%
International Equities	7.65%	8.10%
Core Bonds (Corporates)	4.89%	4.95%
High Yield Bonds	7.63%	6.40%
Real Estate	7.73%	8.17%
Cash & Equivalents	0.98%	2.00%
*As filed in the testimony of Susan North (SMN-1)		
**Asset class forecasts of 10 to 15 year annual returns; Long-term Capital Market Return Assumptions, 2015 Edition (U.S.); J.P. Morgan Asset Management.		

13
 14 **Q Why do you believe it is reasonable to use the forecasts from J.P. Morgan to**

1 **estimate the annual accrual?**

2 A This information was prepared by JPMAM who manages investments globally.
3 As such, these forecasts represent the expectations of an important market
4 participant that directly manages \$1.7 trillion. As an asset manager, JPMAM
5 does not have an incentive to skew the forecasts, as doing so could harm its ability
6 to effectively manage client money. In its 2015 publication, it provides the
7 following discussion of how investors can make use of these forecasts.²⁴ Our
8 evaluation of the decommissioning trust and capital costs fall within JPMAM
9 intended use.

How do investors use the LTCMRAs?

The Long-Term Capital Market Return Assumptions are used widely by investment teams throughout J.P. Morgan Asset Management as well as by institutional investors—including pension plans, insurance companies, endowments and foundations—to ensure that investment policies and strategic asset allocations are developed based on a comprehensive and consistent set of “real world” views. In addition the LTCMRAs allow the resulting investment characteristics and return profiles to be tested and analysed, facilitating a more effective communication and underwriting of the implied risk and return profile.

When used, as is most often the case, to review an existing strategic asset allocation, the LTCMRAs can help investors to better assess and quantify the trade-offs available to them across multiple dimensions. These trade-offs include: the relative risk premia between more and less volatile assets; the risk premia associated with investing outside of their own domestic asset classes; which opportunities exist to increase portfolio diversification; and which nominal or real return target is achievable with a given level of portfolio volatility and vice versa.

10

11 **Q Precisely what changes do you propose making to Exhibit SMN-1?**

12 A My recommendation is to change the expected returns on the various asset classes

²⁴ Long-term Capital Market Return Assumptions: 2015 Estimates & Thinking Behind the Numbers; J.P. Morgan Asset Management; p.7; <https://am.jpmorgan.com/lu/institutional/lcmra>

1 from those proposed by Westar to the expected returns presented in the JPMAM
2 study shown in the previous table. The market balance of Westar's trust fund
3 needs to recognize income taxes that must be paid on the net amount of the trust
4 fund's unrealized gains as those taxes will have to be paid sometime in the future.
5 Recognizing the tax liability reduces the balance of the trust fund.²⁵

6 **Q What is the effect of those changes to the trust balance and expected returns?**

7 A Changing the returns increases the annual accrual from \$3,150,070 proposed by
8 Westar to \$5,772,700.

9 **Q How has the trust performed?**

10 A Westar's Decommissioning Trust, accounting for the annual contributions, the
11 accumulated tax liability, and the market value at December 31, 2014,
12 experienced an annual return of 5.40% for the period of 1985 through 2014. My
13 calculations are shown in Schedule AHG-10. Westar projected returns shown in
14 Exhibit SMN-1 are substantially higher than its experience since 1985.

15 **Q Does this conclude your testimony?**

16 A Yes.

²⁵ In response to KCC DR #334, Westar reported that the December 31, 2014, a fair value \$185,015,632 that includes net unrealized gains of \$20,929,450. At a 20% tax rate, the trust fund has a tax liability of \$4,185,890.

Yield on Moody's Baa Utility Bonds January 1919 -May 2015



Schedule AHG-1
15-WSEE-115-RTS

Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data						
Bas	A	Bas	A	Bas	A	Bas	A	Bas	A	Bas	A	Bas	A	Bas	A					
Jan-19	6.89	6.35	Jan-24	6.73	6.02	Jan-29	5.48	5.05	Jan-34	8.86	6.55	Jan-39	4.66	3.68	Jan-44	3.54	2.99	Jan-49	3.42	2.99
Feb-19	6.91	6.39	Feb-24	6.64	6.00	Feb-29	5.52	5.10	Feb-34	7.58	5.78	Feb-39	4.59	3.59	Feb-44	3.53	2.99	Feb-49	3.40	2.99
Mar-19	6.91	6.41	Mar-24	6.60	5.97	Mar-29	5.62	5.14	Mar-34	7.58	5.66	Mar-39	4.53	3.54	Mar-44	3.52	2.97	Mar-49	3.36	2.97
Apr-19	6.88	6.18	Apr-24	6.55	5.94	Apr-29	5.69	5.14	Apr-34	7.18	5.44	Apr-39	4.62	3.55	Apr-44	3.53	2.99	Apr-49	3.30	2.96
May-19	6.84	6.27	May-24	6.42	5.91	May-29	5.66	5.14	May-34	7.17	5.39	May-39	4.50	3.50	May-44	3.53	2.99	May-49	3.30	2.95
Jun-19	6.84	6.19	Jun-24	6.32	5.79	Jun-29	5.72	5.23	Jun-34	7.20	5.40	Jun-39	4.41	3.47	Jun-44	3.53	2.99	Jun-49	3.28	2.94
Jul-19	6.79	6.16	Jul-24	6.23	5.68	Jul-29	5.79	5.24	Jul-34	7.36	5.29	Jul-39	4.39	3.43	Jul-44	3.51	2.96	Jul-49	3.25	2.90
Aug-19	6.80	6.26	Aug-24	6.24	5.70	Aug-29	5.89	5.30	Aug-34	7.68	5.43	Aug-39	4.39	3.41	Aug-44	3.51	2.94	Aug-49	3.25	2.86
Sep-19	6.94	6.44	Sep-24	6.24	5.71	Sep-29	5.92	5.38	Sep-34	7.62	5.56	Sep-39	4.64	3.71	Sep-44	3.51	2.93	Sep-49	3.22	2.83
Oct-19	7.01	6.41	Oct-24	6.21	5.65	Oct-29	5.91	5.34	Oct-34	7.38	5.40	Oct-39	4.48	3.58	Oct-44	3.51	2.94	Oct-49	3.19	2.83
Nov-19	7.08	6.67	Nov-24	6.24	5.62	Nov-29	6.00	5.39	Nov-34	7.21	5.38	Nov-39	4.38	3.41	Nov-44	3.53	2.96	Nov-49	3.17	2.81
Dec-19	7.25	6.79	Dec-24	6.13	5.63	Dec-29	5.96	5.23	Dec-34	7.03	5.36	Dec-39	4.36	3.38	Dec-44	3.54	2.97	Dec-49	3.16	2.78
Jan-20	7.30	6.85	Jan-25	6.12	5.61	Jan-30	5.92	5.26	Jan-35	6.60	5.18	Jan-40	4.30	3.34	Jan-45	3.50	2.99	Jan-50	3.18	2.76
Feb-20	7.48	7.03	Feb-25	6.08	5.52	Feb-30	5.93	5.29	Feb-35	6.20	4.96	Feb-40	4.23	3.35	Feb-45	3.48	2.98	Feb-50	3.17	2.76
Mar-20	7.59	7.04	Mar-25	6.02	5.53	Mar-30	5.80	5.18	Mar-35	5.99	4.88	Mar-40	4.14	3.34	Mar-45	3.48	2.97	Mar-50	3.16	2.76
Apr-20	7.88	7.36	Apr-25	5.99	5.52	Apr-30	5.77	5.15	Apr-35	5.94	4.79	Apr-40	4.06	3.25	Apr-45	3.49	2.95	Apr-50	3.15	2.77
May-20	8.03	7.72	May-25	5.85	5.25	May-30	5.76	5.04	May-35	5.31	4.61	May-40	4.10	3.30	May-45	3.47	2.92	May-50	3.15	2.79
Jun-20	7.99	7.73	Jun-25	5.82	5.25	Jun-30	5.78	5.01	Jun-35	5.41	4.53	Jun-40	4.15	3.34	Jun-45	3.43	2.87	Jun-50	3.15	2.79
Jul-20	8.21	7.82	Jul-25	5.83	5.37	Jul-30	5.78	4.99	Jul-35	5.22	4.42	Jul-40	3.99	3.23	Jul-45	3.40	2.83	Jul-50	3.18	2.79
Aug-20	8.21	7.96	Aug-25	5.87	5.42	Aug-30	5.70	4.95	Aug-35	5.22	4.44	Aug-40	3.98	3.21	Aug-45	3.37	2.80	Aug-50	3.18	2.76
Sep-20	8.29	7.83	Sep-25	5.85	5.40	Sep-30	5.63	4.86	Sep-35	5.25	4.43	Sep-40	3.94	3.18	Sep-45	3.34	2.79	Sep-50	3.19	2.80
Oct-20	8.27	7.75	Oct-25	5.83	5.39	Oct-30	5.82	4.88	Oct-35	5.24	4.40	Oct-40	3.92	3.15	Oct-45	3.29	2.79	Oct-50	3.20	2.83
Nov-20	8.28	7.73	Nov-25	5.81	5.43	Nov-30	6.15	4.96	Nov-35	5.12	4.35	Nov-40	3.88	3.11	Nov-45	3.22	2.77	Nov-50	3.21	2.86
Dec-20	8.36	7.96	Dec-25	5.88	5.36	Dec-30	6.56	5.11	Dec-35	5.07	4.29	Dec-40	3.86	3.10	Dec-45	3.15	2.75	Dec-50	3.21	2.86
Jan-21	8.51	7.74	Jan-26	5.81	5.29	Jan-31	6.36	5.01	Jan-36	4.88	4.21	Jan-41	3.87	3.15	Jan-46	3.07	2.69	Jan-51	3.21	2.83
Feb-21	8.50	7.65	Feb-26	5.76	5.21	Feb-31	6.37	5.01	Feb-36	4.80	4.17	Feb-41	3.90	3.20	Feb-46	3.00	2.67	Feb-51	3.21	2.84
Mar-21	8.51	7.61	Mar-26	5.80	5.23	Mar-31	6.18	4.98	Mar-36	4.78	4.17	Mar-41	3.90	3.16	Mar-46	2.96	2.66	Mar-51	3.23	2.95
Apr-21	8.52	7.61	Apr-26	5.75	5.20	Apr-31	6.19	4.86	Apr-36	4.77	4.17	Apr-41	3.86	3.14	Apr-46	2.98	2.65	Apr-51	3.31	3.09
May-21	8.54	7.66	May-26	5.67	5.15	May-31	6.56	4.84	May-36	4.76	4.14	May-41	3.85	3.08	May-46	3.02	2.69	May-51	3.38	3.13
Jun-21	8.62	7.64	Jun-26	5.61	5.11	Jun-31	6.60	4.87	Jun-36	4.72	4.12	Jun-41	3.83	3.03	Jun-46	3.04	2.70	Jun-51	3.45	3.21
Jul-21	8.64	7.72	Jul-26	5.61	5.13	Jul-31	6.47	4.83	Jul-36	4.62	4.07	Jul-41	3.82	3.00	Jul-46	3.03	2.69	Jul-51	3.49	3.26
Aug-21	8.66	7.67	Aug-26	5.62	5.15	Aug-31	6.60	4.81	Aug-36	4.59	4.06	Aug-41	3.80	2.98	Aug-46	3.02	2.71	Aug-51	3.48	3.19
Sep-21	8.30	7.32	Sep-26	5.62	5.17	Sep-31	7.04	5.05	Sep-36	4.54	4.05	Sep-41	3.80	3.00	Sep-46	3.06	2.75	Sep-51	3.44	3.14
Oct-21	8.40	7.04	Oct-26	5.61	5.18	Oct-31	8.01	5.54	Oct-36	4.53	4.04	Oct-41	3.82	3.00	Oct-46	3.06	2.76	Oct-51	3.49	3.17
Nov-21	7.92	6.55	Nov-26	5.58	5.15	Nov-31	7.80	5.51	Nov-36	4.53	3.95	Nov-41	3.82	2.98	Nov-46	3.07	2.76	Nov-51	3.49	3.24
Dec-21	7.68	6.32	Dec-26	5.54	5.12	Dec-31	8.81	6.04	Dec-36	4.53	3.83	Dec-41	3.85	3.06	Dec-46	3.07	2.76	Dec-51	3.53	3.29
Jan-22	7.83	6.41	Jan-27	5.51	5.10	Jan-32	8.18	6.17	Jan-37	4.50	3.82	Jan-42	3.83	3.09	Jan-47	3.05	2.72	Jan-52	3.57	3.29
Feb-22	7.74	6.32	Feb-27	5.54	5.13	Feb-32	8.33	6.41	Feb-37	4.55	3.89	Feb-42	3.81	3.09	Feb-47	3.03	2.72	Feb-52	3.55	3.23
Mar-22	7.55	6.22	Mar-27	5.54	5.13	Mar-32	8.31	6.06	Mar-37	4.76	4.00	Mar-42	3.84	3.12	Mar-47	3.04	2.72	Mar-52	3.55	3.25
Apr-22	7.29	6.06	Apr-27	5.49	5.04	Apr-32	9.56	6.83	Apr-37	4.98	4.07	Apr-42	3.79	3.09	Apr-47	3.04	2.70	Apr-52	3.54	3.23
May-22	6.86	5.93	May-27	5.50	5.04	May-32	10.21	7.36	May-37	5.02	4.00	May-42	3.76	3.10	May-47	3.03	2.70	May-52	3.54	3.22
Jun-22	6.92	5.91	Jun-27	5.51	5.05	Jun-32	10.70	7.57	Jun-37	5.17	3.99	Jun-42	3.73	3.12	Jun-47	3.04	2.71	Jun-52	3.55	3.22
Jul-22	6.83	5.89	Jul-27	5.48	5.05	Jul-32	10.11	7.28	Jul-37	5.08	3.94	Jul-42	3.68	3.10	Jul-47	3.03	2.73	Jul-52	3.53	3.22
Aug-22	6.88	5.86	Aug-27	5.43	5.02	Aug-32	7.92	6.35	Aug-37	5.04	3.89	Aug-42	3.67	3.10	Aug-47	3.02	2.73	Aug-52	3.50	3.24
Sep-22	6.77	5.69	Sep-27	5.41	4.98	Sep-32	7.48	5.91	Sep-37	5.25	3.96	Sep-42	3.66	3.08	Sep-47	3.06	2.80	Sep-52	3.50	3.24
Oct-22	6.51	5.83	Oct-27	5.39	4.95	Oct-32	7.87	5.81	Oct-37	5.33	4.09	Oct-42	3.66	3.08	Oct-47	3.13	2.88	Oct-52	3.50	3.26
Nov-22	6.56	5.87	Nov-27	5.38	4.92	Nov-32	8.32	5.88	Nov-37	5.59	4.08	Nov-42	3.67	3.07	Nov-47	3.18	2.93	Nov-52	3.47	3.24
Dec-22	6.56	5.95	Dec-27	5.22	4.88	Dec-32	8.41	5.85	Dec-37	5.60	4.03	Dec-42	3.68	3.06	Dec-47	3.25	3.05	Dec-52	3.50	3.22
Jan-23	6.59	5.85	Jan-28	5.24	4.85	Jan-33	8.86	5.39	Jan-38	5.59	4.01	Jan-43	3.65	3.05	Jan-48	3.20	3.05	Jan-53	3.51	3.25
Feb-23	6.60	5.83	Feb-28	5.20	4.85	Feb-33	7.58	5.77	Feb-38	5.79	4.03	Feb-43	3.61	3.02	Feb-48	3.21	3.05	Feb-53	3.53	3.30
Mar-23	6.73	6.06	Mar-28	5.18	4.82	Mar-33	7.58	6.34	Mar-38	5.80	3.99	Mar-43	3.58	3.01	Mar-48	3.29	3.02	Mar-53	3.56	3.36
Apr-23	6.78	6.04	Apr-28	5.18	4.82	Apr-33	7.18	6.89	Apr-38	5.82	4.08	Apr-43	3.60	3.00	Apr-48	3.28	2.97	Apr-53	3.62	3.47
May-23	6.78	6.00	May-28	5.23	4.87	May-33	7.17	6.50	May-38	5.82	3.95	May-43	3.60	3.00	May-48	3.27	2.94	May-53	3.76	3.63
Jun-23	6.80	6.06	Jun-28	5.38	4.99	Jun-33	7.20	6.11	Jun-38	5.33	3.95	Jun-43	3.60	2.98	Jun-48	3.29	2.94	Jun-53	3.80	3.71
Jul-23	6.79	6.02	Jul-28	5.38	5.04	Jul-33	7.36	5.91	Jul-38	5.01	3.85	Jul-43	3.55	2.96	Jul-48	3.34	2.99	Jul-53	3.83	3.66
Aug-23	6.77	5.77	Aug-28	5.43	5.08	Aug-33	7.68	5.98	Aug-38	4.93	3.84	Aug-43	3.55	2.96	Aug-48	3.40	3.03	Aug-53	3.88	3.61
Sep-23	6.81	5.95	Sep-28	5.45	5.05	Sep-33	7.62	6.36	Sep-38	5.05	3.88	Sep-43	3.55	2.96	Sep-48	3.42	3.05	Sep-53	3.93	3.62
Oct-23	6.79	5.98	Oct-28	5.43	4.99	Oct-33	7.38	6.36	Oct-38	4.50	3.79	Oct-43	3.53	2.97	Oct-48	3.44	3.03	Oct-53	3.86	3.49
Nov-23	6.78	6.00	Nov-28	5.38	4.98	Nov-33	7.21	7.06	Nov-38	4.77	3.73	Nov-43	3.55	2.98	Nov-48	3.48	3.07	Nov-53	3.78	3.40
Dec-23	6.80	6.05	Dec-28	5.32	5.05	Dec-33	7.03	7.22	Dec-38	4.77	3.74	Dec-43	3.55	2.99	Dec-48	3.47	3.06	Dec-53	3.72	3.38

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Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data						
Baa	A	Baa	A	Baa	A	Baa	A	Baa	A	Baa	A	Baa	A	Baa	A					
Jan-54	3.72	3.32	Jan-59	4.71	4.52	Jan-64	4.74	4.49	Jan-69	7.42	7.04	Jan-74	8.58	8.36	Jan-79	10.29	9.90	Jan-84	14.05	13.39
Feb-54	3.69	3.23	Feb-59	4.77	4.50	Feb-64	4.74	4.50	Feb-69	7.39	7.13	Feb-74	8.68	8.42	Feb-79	10.27	9.84	Feb-84	14.05	13.41
Mar-54	3.58	3.16	Mar-59	4.69	4.47	Mar-64	4.73	4.51	Mar-69	7.61	7.27	Mar-74	8.81	8.46	Mar-79	10.53	10.04	Mar-84	14.56	13.87
Apr-54	3.53	3.16	Apr-59	4.68	4.56	Apr-64	4.75	4.52	Apr-69	7.68	7.30	Apr-74	9.04	8.77	Apr-79	10.56	10.10	Apr-84	14.82	14.16
May-54	3.51	3.14	May-59	4.87	4.77	May-64	4.73	4.53	May-69	7.56	7.16	May-74	9.23	9.00	May-79	10.70	10.30	May-84	15.28	14.90
Jun-54	3.50	3.16	Jun-59	4.97	4.86	Jun-64	4.74	4.55	Jun-69	7.77	7.41	Jun-74	9.48	9.32	Jun-79	10.56	10.14	Jun-84	15.50	15.09
Jul-54	3.48	3.14	Jul-59	5.03	4.88	Jul-64	4.75	4.54	Jul-69	7.92	7.52	Jul-74	9.72	9.66	Jul-79	10.48	9.98	Jul-84	15.50	14.82
Aug-54	3.47	3.13	Aug-59	5.04	4.89	Aug-64	4.75	4.54	Aug-69	7.82	7.44	Aug-74	10.14	10.03	Aug-79	10.50	10.14	Aug-84	14.79	14.43
Sep-54	3.44	3.12	Sep-59	5.17	5.03	Sep-64	4.73	4.53	Sep-69	8.11	7.63	Sep-74	10.59	10.45	Sep-79	10.78	10.36	Sep-84	14.51	14.17
Oct-54	3.41	3.12	Oct-59	5.29	4.96	Oct-64	4.72	4.51	Oct-69	8.47	8.02	Oct-74	11.03	10.78	Oct-79	11.89	11.40	Oct-84	14.17	13.80
Nov-54	3.39	3.11	Nov-59	5.20	4.90	Nov-64	4.72	4.53	Nov-69	8.53	8.00	Nov-74	11.38	10.46	Nov-79	12.48	11.89	Nov-84	13.72	13.23
Dec-54	3.38	3.11	Dec-59	5.13	4.96	Dec-64	4.72	4.54	Dec-69	8.89	8.59	Dec-74	11.40	10.27	Dec-79	12.51	11.79	Dec-84	13.46	13.11
Jan-55	3.37	3.13	Jan-60	5.20	5.02	Jan-65	4.71	4.53	Jan-70	9.00	8.69	Jan-75	11.57	10.37	Jan-80	12.92	12.27	Jan-85	13.36	12.99
Feb-55	3.38	3.14	Feb-60	5.23	5.00	Feb-65	4.69	4.51	Feb-70	8.96	8.51	Feb-75	11.32	9.99	Feb-80	14.42	13.55	Feb-85	13.44	13.08
Mar-55	3.38	3.15	Mar-60	5.11	4.91	Mar-65	4.68	4.50	Mar-70	8.81	8.31	Mar-75	10.94	9.72	Mar-80	15.26	14.65	Mar-85	14.19	13.87
Apr-55	3.40	3.15	Apr-60	4.96	4.79	Apr-65	4.69	4.49	Apr-70	8.94	8.31	Apr-75	10.86	10.06	Apr-80	14.35	13.87	Apr-85	14.11	13.61
May-55	3.40	3.19	May-60	5.08	4.86	May-65	4.71	4.50	May-70	9.20	8.67	May-75	10.95	10.23	May-80	12.93	12.53	May-85	13.62	13.12
Jun-55	3.41	3.21	Jun-60	5.05	4.84	Jun-65	4.77	4.52	Jun-70	9.52	9.04	Jun-75	10.85	10.10	Jun-80	12.63	12.21	Jun-85	12.66	12.13
Jul-55	3.43	3.21	Jul-60	5.03	4.79	Jul-65	4.78	4.54	Jul-70	9.48	9.06	Jul-75	10.80	10.01	Jul-80	12.75	12.26	Jul-85	12.70	12.07
Aug-55	3.46	3.24	Aug-60	4.81	4.64	Aug-65	4.79	4.58	Aug-70	9.34	8.88	Aug-75	10.87	10.12	Aug-80	13.50	12.96	Aug-85	12.73	12.13
Sep-55	3.48	3.27	Sep-60	4.71	4.57	Sep-65	4.82	4.63	Sep-70	9.32	8.82	Sep-75	10.89	10.19	Sep-80	14.07	13.43	Sep-85	12.72	12.13
Oct-55	3.47	3.30	Oct-60	4.82	4.61	Oct-65	4.85	4.66	Oct-70	9.27	8.76	Oct-75	10.89	10.16	Oct-80	14.43	13.58	Oct-85	12.52	12.01
Nov-55	3.48	3.32	Nov-60	4.80	4.62	Nov-65	4.89	4.71	Nov-70	9.29	8.79	Nov-75	10.78	10.04	Nov-80	14.79	14.12	Nov-85	12.04	11.49
Dec-55	3.40	3.35	Dec-60	4.78	4.65	Dec-65	4.97	4.83	Dec-70	9.04	8.48	Dec-75	10.79	10.11	Dec-80	15.29	14.63	Dec-85	11.48	10.97
Jan-56	3.50	3.31	Jan-61	4.79	4.64	Jan-66	4.99	4.86	Jan-71	8.76	8.15	Jan-76	10.55	9.90	Jan-81	15.30	14.26	Jan-86	11.24	10.79
Feb-56	3.50	3.29	Feb-61	4.76	4.59	Feb-66	5.02	4.92	Feb-71	8.55	7.89	Feb-76	10.31	9.71	Feb-81	15.86	14.91	Feb-86	10.74	10.26
Mar-56	3.51	3.29	Mar-61	4.72	4.48	Mar-66	5.19	5.14	Mar-71	8.63	8.05	Mar-76	10.17	9.67	Mar-81	15.83	15.14	Mar-86	9.91	9.48
Apr-56	3.59	3.40	Apr-61	4.74	4.48	Apr-66	5.39	5.25	Apr-71	8.58	8.07	Apr-76	9.95	9.53	Apr-81	16.14	15.48	Apr-86	9.63	9.14
May-56	3.62	3.48	May-61	4.77	4.52	May-66	5.44	5.23	May-71	8.68	8.34	May-76	9.91	9.55	May-81	16.66	16.25	May-86	10.02	9.59
Jun-56	3.65	3.49	Jun-61	4.78	4.57	Jun-66	5.52	5.40	Jun-71	8.79	8.45	Jun-76	10.01	9.54	Jun-81	16.30	15.74	Jun-86	10.03	9.62
Jul-56	3.70	3.55	Jul-61	4.84	4.65	Jul-66	5.61	5.45	Jul-71	8.78	8.45	Jul-76	9.88	9.37	Jul-81	16.98	16.21	Jul-86	9.69	9.37
Aug-56	3.84	3.63	Aug-61	4.90	4.73	Aug-66	5.79	5.58	Aug-71	8.80	8.40	Aug-76	9.67	9.13	Aug-81	17.19	16.58	Aug-86	9.70	9.29
Sep-56	4.02	3.72	Sep-61	4.91	4.73	Sep-66	6.06	5.81	Sep-71	8.59	8.18	Sep-76	9.47	8.90	Sep-81	17.76	17.16	Sep-86	9.96	9.52
Oct-56	4.15	3.79	Oct-61	4.92	4.71	Oct-66	6.07	5.74	Oct-71	8.48	8.10	Oct-76	9.41	8.79	Oct-81	17.71	17.21	Oct-86	9.52	9.52
Nov-56	4.15	3.82	Nov-61	4.89	4.68	Nov-66	6.06	5.63	Nov-71	8.47	7.96	Nov-76	9.34	8.76	Nov-81	16.49	16.20	Nov-86	9.69	9.28
Dec-56	4.18	3.91	Dec-61	4.88	4.65	Dec-66	6.09	5.67	Dec-71	8.44	7.90	Dec-76	9.21	8.62	Dec-81	17.02	16.29	Dec-86	9.47	9.12
Jan-57	4.26	3.96	Jan-62	4.86	4.65	Jan-67	5.83	5.46	Jan-72	8.37	7.79	Jan-77	9.17	8.61	Jan-82	17.83	16.83	Jan-87	9.29	8.95
Feb-57	4.26	4.05	Feb-62	4.86	4.66	Feb-67	5.63	5.28	Feb-72	8.32	7.78	Feb-77	9.19	8.65	Feb-82	17.53	16.84	Feb-87	9.24	9.00
Mar-57	4.25	4.05	Mar-62	4.83	4.64	Mar-67	5.69	5.44	Mar-72	8.26	7.77	Mar-77	9.20	8.70	Mar-82	17.16	16.50	Mar-87	9.19	8.99
Apr-57	4.24	4.01	Apr-62	4.81	4.59	Apr-67	5.74	5.42	Apr-72	8.30	7.82	Apr-77	9.17	8.71	Apr-82	17.00	16.31	Apr-87	9.85	9.38
May-57	4.28	4.01	May-62	4.74	4.51	May-67	5.93	5.66	May-72	8.30	7.84	May-77	9.13	8.71	May-82	16.68	16.04	May-87	10.40	9.91
Jun-57	4.33	4.09	Jun-62	4.68	4.48	Jun-67	6.14	5.84	Jun-72	8.31	7.77	Jun-77	9.02	8.58	Jun-82	17.21	16.42	Jun-87	10.46	10.02
Jul-57	4.41	4.20	Jul-62	4.68	4.50	Jul-67	6.23	5.94	Jul-72	8.36	7.82	Jul-77	8.97	8.51	Jul-82	17.09	16.42	Jul-87	10.62	10.15
Aug-57	4.19	4.37	Aug-62	4.72	4.53	Aug-67	6.29	5.96	Aug-72	8.22	7.64	Aug-77	8.91	8.49	Aug-82	16.37	15.83	Aug-87	10.90	10.45
Sep-57	4.66	4.55	Sep-62	4.74	4.51	Sep-67	6.32	6.05	Sep-72	8.01	7.61	Sep-77	8.85	8.46	Sep-82	15.58	15.40	Sep-87	11.58	11.22
Oct-57	4.73	4.61	Oct-62	4.71	4.49	Oct-67	6.42	6.18	Oct-72	7.94	7.66	Oct-77	9.01	8.61	Oct-82	15.10	14.79	Oct-87	11.29	10.75
Nov-57	4.82	4.62	Nov-62	4.65	4.45	Nov-67	6.63	6.48	Nov-72	7.86	7.60	Nov-77	9.06	8.64	Nov-82	14.81	14.46	Nov-87	11.18	10.61
Dec-57	4.81	4.36	Dec-62	4.66	4.44	Dec-67	6.91	6.57	Dec-72	7.78	7.48	Dec-77	9.08	8.64	Dec-82	14.69	14.43	Dec-87	11.09	10.54
Jan-58	4.60	3.93	Jan-63	4.65	4.39	Jan-68	6.76	6.54	Jan-73	7.77	7.52	Jan-78	9.27	8.92	Jan-83	14.56	14.24	Jan-88	10.50	9.96
Feb-58	4.23	3.93	Feb-63	4.65	4.37	Feb-68	6.68	6.37	Feb-73	7.88	7.62	Feb-78	9.29	8.97	Feb-83	14.31	14.26	Feb-88	10.23	9.70
Mar-58	4.25	4.16	Mar-63	4.66	4.37	Mar-68	6.75	6.41	Mar-73	7.95	7.66	Mar-78	9.37	8.98	Mar-83	14.33	13.94	Mar-88	10.43	9.84
Apr-58	4.25	3.95	Apr-63	4.67	4.37	Apr-68	6.94	6.58	Apr-73	7.96	7.63	Apr-78	9.54	9.09	Apr-83	14.07	13.61	Apr-88	11.08	10.40
May-58	4.23	4.01	May-63	4.67	4.37	May-68	6.99	6.62	May-73	7.91	7.63	May-78	9.70	9.22	May-83	14.05	13.50	May-88	11.28	10.72
Jun-58	4.20	3.99	Jun-63	4.67	4.37	Jun-68	7.01	6.62	Jun-73	7.94	7.71	Jun-78	9.78	9.40	Jun-83	14.16	13.64	Jun-88	11.00	10.53
Jul-58	4.19	4.04	Jul-63	4.67	4.39	Jul-68	6.92	6.53	Jul-73	8.10	7.82	Jul-78	9.73	9.51	Jul-83	14.01	13.58	Jul-88	11.22	10.75
Aug-58	4.44	4.29	Aug-63	4.66	4.38	Aug-68	6.92	6.27	Aug-73	8.47	8.04	Aug-78	9.53	9.32	Aug-83	14.21	13.57	Aug-88	11.39	10.89
Sep-58	4.69	4.55	Sep-63	4.69	4.40	Sep-68	6.67	6.27	Sep-73	8.61	8.04	Sep-78	9.47	9.28	Sep-83	14.10	13.42	Sep-88	10.92	10.41
Oct-58	4.74	4.56	Oct-63	4.66	4.41	Oct-68	6.74	6.40	Oct-73	8.44	8.02	Oct-78	9.69	9.46	Oct-83	13.95	13.25	Oct-88	10.31	10.01
Nov-58	4.67	4.47	Nov-63	4.68	4.42	Nov-68	7.01	6.59	Nov-73	8.44	8.15	Nov-78	9.99	9.68	Nov-83	14.12	13.38	Nov-88	10.25	9.90
Dec-58	4.65	4.49	Dec-63	4.73	4.46	Dec-68	7.23	6.87	Dec-73	8.51	8.24	Dec-78	10.08	9.70	Dec-83	14.23	13.52	Dec-88	10.44	10.06

Schedule AHG-1
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Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data		Moody's Public Utility Bond Data	
Bas	A	Bas	A	Bas	A	Bas	A	Bas	A	Bas	A
Jan-89	10.38	10.08	Jan-94	7.66	7.33	Jan-99	7.30	6.97	Jan-04	6.47	6.16
Feb-89	10.38	10.07	Feb-94	7.76	7.47	Feb-99	7.41	7.09	Feb-04	6.28	6.15
Mar-89	10.50	10.23	Mar-94	8.11	7.85	Mar-99	7.55	7.26	Mar-04	6.13	5.97
Apr-89	10.49	10.18	Apr-94	8.47	8.22	Apr-99	7.51	7.22	Apr-04	6.46	6.35
May-89	10.29	9.99	May-94	8.61	8.33	May-99	7.74	7.47	May-04	6.75	6.62
Jun-89	9.80	9.64	Jun-94	8.64	8.31	Jun-99	8.03	7.74	Jun-04	6.84	6.46
Jul-89	9.64	9.50	Jul-94	8.80	8.47	Jul-99	7.97	7.71	Jul-04	6.67	6.27
Aug-89	9.64	9.52	Aug-94	8.74	8.41	Aug-99	8.16	7.91	Aug-04	6.45	6.14
Sep-89	9.70	9.53	Sep-94	8.98	8.64	Sep-99	8.19	7.93	Sep-04	6.27	5.98
Oct-89	9.64	9.54	Oct-94	9.24	8.86	Oct-99	8.32	8.06	Oct-04	6.17	5.94
Nov-89	9.64	9.51	Nov-94	9.35	8.98	Nov-99	8.12	7.94	Nov-04	6.16	5.96
Dec-89	9.60	9.44	Dec-94	9.16	8.76	Dec-99	8.28	8.14	Dec-04	6.10	5.92
Jan-90	9.74	9.56	Jan-95	9.15	8.73	Jan-00	8.40	8.25	Jan-05	5.95	5.78
Feb-90	9.96	9.76	Feb-95	8.95	8.52	Feb-00	8.33	8.25	Feb-05	5.76	5.61
Mar-90	10.06	9.85	Mar-95	8.78	8.37	Mar-00	8.40	8.28	Mar-05	6.00	5.83
Apr-90	10.13	9.92	Apr-95	8.67	8.27	Apr-00	8.40	8.29	Apr-05	5.95	5.64
May-90	10.16	10.00	May-95	8.30	7.91	May-00	8.86	8.70	May-05	5.88	5.53
Jun-90	9.96	9.80	Jun-95	8.01	7.60	Jun-00	8.47	8.36	Jun-05	5.70	5.40
Jul-90	9.92	9.75	Jul-95	8.11	7.70	Jul-00	8.33	8.25	Jul-05	5.80	5.51
Aug-90	10.12	9.92	Aug-95	8.24	7.83	Aug-00	8.25	8.13	Aug-05	5.80	5.50
Sep-90	10.32	10.12	Sep-95	7.98	7.62	Sep-00	8.32	8.23	Sep-05	5.83	5.52
Oct-90	10.28	10.05	Oct-95	7.82	7.46	Oct-00	8.29	8.14	Oct-05	6.08	5.79
Nov-90	10.12	9.90	Nov-95	7.81	7.43	Nov-00	8.25	8.11	Nov-05	6.19	5.88
Dec-90	9.96	9.73	Dec-95	7.63	7.23	Dec-00	8.01	7.84	Dec-05	6.14	5.79
Jan-91	9.96	9.71	Jan-96	7.64	7.22	Jan-01	7.99	7.80	Jan-06	6.06	5.74
Feb-91	9.68	9.47	Feb-96	7.78	7.37	Feb-01	7.94	7.74	Feb-06	6.11	5.82
Mar-91	9.74	9.55	Mar-96	8.15	7.73	Mar-01	7.85	7.68	Mar-06	6.26	5.98
Apr-91	9.64	9.46	Apr-96	8.32	7.89	Apr-01	8.06	7.93	Apr-06	6.54	6.29
May-91	9.64	9.44	May-96	8.45	7.98	May-01	8.11	7.99	May-06	6.59	6.41
Jun-91	9.79	9.59	Jun-96	8.51	8.06	Jun-01	8.02	7.85	Jun-06	6.61	6.40
Jul-91	9.69	9.55	Jul-96	8.44	8.02	Jul-01	8.05	7.78	Jul-06	6.61	6.37
Aug-91	9.47	9.29	Aug-96	8.25	7.84	Aug-01	7.95	7.59	Aug-06	6.43	6.20
Sep-91	9.35	9.15	Sep-96	8.41	8.01	Sep-01	8.12	7.75	Sep-06	6.26	6.00
Oct-91	9.32	9.12	Oct-96	8.15	7.77	Oct-01	8.02	7.63	Oct-06	6.24	5.98
Nov-91	9.28	9.05	Nov-96	7.87	7.49	Nov-01	7.96	7.57	Nov-06	6.04	5.80
Dec-91	9.07	8.88	Dec-96	7.98	7.59	Dec-01	8.27	7.83	Dec-06	6.05	5.81
Jan-92	8.98	8.84	Jan-97	8.18	7.77	Jan-02	8.13	7.66	Jan-07	6.16	5.96
Feb-92	9.09	8.95	Feb-97	8.02	7.64	Feb-02	8.18	7.54	Feb-07	6.10	5.90
Mar-92	9.16	8.97	Mar-97	8.26	7.87	Mar-02	8.31	7.76	Mar-07	6.10	5.85
Apr-92	9.11	8.93	Apr-97	8.42	8.03	Apr-02	8.25	7.57	Apr-07	6.24	5.97
May-92	9.01	8.87	May-97	8.28	7.89	May-02	8.33	7.52	May-07	6.23	5.99
Jun-92	8.90	8.78	Jun-97	8.12	7.72	Jun-02	8.25	7.41	Jun-07	6.54	6.30
Jul-92	8.69	8.57	Jul-97	7.87	7.48	Jul-02	8.08	7.31	Jul-07	6.49	6.25
Aug-92	8.58	8.44	Aug-97	7.93	7.51	Aug-02	7.74	7.17	Aug-07	6.51	6.24
Sep-92	8.54	8.40	Sep-97	7.84	7.58	Sep-02	7.62	7.08	Sep-07	6.45	6.18
Oct-92	8.76	8.54	Oct-97	7.67	7.35	Oct-02	7.99	7.23	Oct-07	6.36	6.11
Nov-92	8.86	8.63	Nov-97	7.49	7.25	Nov-02	7.75	7.14	Nov-07	6.37	5.97
Dec-92	8.69	8.43	Dec-97	7.41	7.16	Dec-02	7.60	7.06	Dec-07	6.51	6.16
Jan-93	8.57	8.27	Jan-98	7.28	7.04	Jan-03	7.47	7.06	Jan-08	6.35	6.02
Feb-93	8.21	8.04	Feb-98	7.36	7.12	Feb-03	7.17	6.93	Feb-08	6.60	6.21
Mar-93	8.10	7.90	Mar-98	7.37	7.16	Mar-03	7.05	6.79	Mar-08	6.68	6.21
Apr-93	8.11	7.81	Apr-98	7.37	7.16	Apr-03	6.93	6.64	Apr-08	6.81	6.29
May-93	8.18	7.86	May-98	7.34	7.16	May-03	6.47	6.36	May-08	6.79	6.28
Jun-93	8.05	7.75	Jun-98	7.21	7.03	Jun-03	6.29	6.21	Jun-08	6.93	6.38
Jul-93	7.93	7.54	Jul-98	7.24	7.03	Jul-03	6.65	6.56	Jul-08	6.97	6.40
Aug-93	7.59	7.25	Aug-98	7.20	7.00	Aug-03	7.09	6.79	Aug-08	6.98	6.37
Sep-93	7.35	7.04	Sep-98	7.13	6.93	Sep-03	6.87	6.56	Sep-08	7.15	6.49
Oct-93	7.27	7.03	Oct-98	7.13	6.96	Oct-03	6.78	6.42	Oct-08	8.38	7.56
Nov-93	7.69	7.30	Nov-98	7.31	7.03	Nov-03	6.69	6.37	Nov-08	8.98	7.60
Dec-93	7.73	7.34	Dec-98	7.24	6.91	Dec-03	6.61	6.27	Dec-08	8.11	6.52
Jan-09	7.90	6.39	Jan-14	5.09	4.63	Jan-09	7.90	6.39	Jan-14	5.09	4.63
Feb-09	7.74	6.30	Feb-14	5.01	4.53	Feb-09	7.74	6.30	Feb-14	5.01	4.53
Mar-09	8.00	6.42	Mar-14	5.00	4.51	Mar-09	8.00	6.42	Mar-14	5.00	4.51
Apr-09	8.03	6.48	Apr-14	4.85	4.41	Apr-09	8.03	6.48	Apr-14	4.85	4.41
May-09	7.76	6.49	May-14	4.69	4.26	May-09	7.76	6.49	May-14	4.69	4.26
Jun-09	7.30	6.19	Jun-14	4.73	4.29	Jun-09	7.30	6.19	Jun-14	4.73	4.29
Jul-09	6.87	5.97	Jul-14	4.66	4.23	Jul-09	6.87	5.97	Jul-14	4.66	4.23
Aug-09	6.36	5.71	Aug-14	4.65	4.13	Aug-09	6.36	5.71	Aug-14	4.65	4.13
Sep-09	6.12	5.33	Sep-14	4.79	4.24	Sep-09	6.12	5.33	Sep-14	4.79	4.24
Oct-09	6.22	5.64	Oct-14	4.67	4.06	Oct-09	6.22	5.64	Oct-14	4.67	4.06
Nov-09	6.16	5.64	Nov-14	4.75	4.09	Nov-09	6.16	5.64	Nov-14	4.75	4.09
Dec-09	6.27	5.83	Dec-14	4.70	3.95	Dec-09	6.27	5.83	Dec-14	4.70	3.95
Jan-10	6.13	5.77	Jan-15	4.39	3.58	Jan-10	6.13	5.77	Jan-15	4.39	3.58
Feb-10	6.27	5.88	Feb-15	4.44	3.67	Feb-10	6.27	5.88	Feb-15	4.44	3.67
Mar-10	6.24	5.88	Mar-15	4.51	3.74	Mar-10	6.24	5.88	Mar-15	4.51	3.74
Apr-10	6.06	5.66	Apr-15	4.51	3.75	Apr-10	6.06	5.66	Apr-15	4.51	3.75
May-10	5.97	5.44	May-15	4.91	4.17	May-10	5.97	5.44	May-15	4.91	4.17
Jun-10	6.18	5.46	Jun-15	4.56	3.76	Jun-10	6.18	5.46	Jun-15	4.56	3.76
Jul-10	5.98	5.56	Jul-15	4.52	3.72	Jul-10	5.98	5.56	Jul-15	4.52	3.72
Aug-10	5.55	5.01	Aug-15	4.57	3.73	Aug-10	5.55	5.01	Aug-15	4.57	3.73
Sep-10	5.53	5.01	Sep-15	4.57	3.73	Sep-10	5.53	5.01	Sep-15	4.57	3.73
Oct-10	5.62	5.10	Oct-15	4.57	3.73	Oct-10	5.62	5.10	Oct-15	4.57	3.73
Nov-10	5.85	5.37	Nov-15	4.57	3.73	Nov-10	5.85	5.37	Nov-15	4.57	3.73
Dec-10	6.04	5.56	Dec-15	4.57	3.73	Dec-10	6.04	5.56	Dec-15	4.57	3.73
Jan-11	6.05	5.57	Jan-16	4.57	3.73	Jan-11	6.05	5.57	Jan-16	4.57	3.73
Feb-11	6.10	5.68	Feb-16	4.57	3.73	Feb-11	6.10	5.68	Feb-16	4.57	3.73
Mar-11	5.97	5.56	Mar-16	4.57	3.73	Mar-11	5.97	5.56	Mar-16	4.57	3.73
Apr-11	5.98	5.55	Apr-16	4.57	3.73	Apr-11	5.98	5.55	Apr-16	4.57	3.73
May-11	5.74	5.32	May-16	4.57	3.73	May-11	5.74	5.32	May-16	4.57	3.73
Jun-11	5.67	5.26	Jun-16	4.57	3.73	Jun-11	5.67	5.26	Jun-16	4.57	3.73
Jul-11	5.70	5.27	Jul-16	4.57	3.73	Jul-11	5.70	5.27	Jul-16	4.57	3.73
Aug-11	5.22	4.69	Aug-16	4.57	3.73	Aug-11	5.22	4.69	Aug-16	4.57	3.73
Sep-11	5.11	4.48	Sep-16	4.57	3.73	Sep-11	5.11	4.48	Sep-16	4.57	3.73
Oct-11	5.24	4.52	Oct-16	4.57	3.73	Oct-11	5.24	4.52	Oct-16	4.57	3.73
Nov-11	4.93	4.25	Nov-16	4.57	3.73	Nov-11	4.93	4.25	Nov-16	4.57	3.73
Dec-11	5.07	4.33	Dec-16	4.57	3.73	Dec-11	5.07	4.33	Dec-16	4.57	3.73
Jan-12	5.06	4.34	Jan-17	4.57	3.73	Jan-12	5.06	4.34	Jan-17	4.57	3.73
Feb-12	5.02	4.36	Feb-17	4.57	3.73	Feb-12	5.02	4.36	Feb-17	4.57	3.73
Mar-12	5.13	4.48	Mar-17	4.57	3.73	Mar-12	5.13	4.48	Mar-17	4.57	3.73
Apr-12	5.11	4.40	Apr-17	4.57	3.73	Apr-12	5.11	4.40	Apr-17	4.57	3.73
May-12	4.97	4.20	May-17	4.57	3.73	May-12	4.97	4.20	May-17	4.57	3.73
Jun-12	4.91	4.08	Jun-17	4.57	3.73	Jun-12	4.91	4.08	Jun-17	4.57	3.73
Jul-12	4.85	3.93	Jul-17	4.57	3.73	Jul-12	4.85	3.93	Jul-17	4.57	3.73
Aug-12	4.88	4.00	Aug-17	4.57	3.73	Aug-12	4.88	4.00	Aug-17	4.57	3.73
Sep-12	4.81	4.02	Sep-17	4.57	3.73	Sep-12	4.81	4.02	Sep-17	4.57	3.73
Oct-12	4.54	3.91	Oct-17	4.57	3.73	Oct-12	4.54	3.91	Oct-17	4.57	3.73
Nov-12	4.42	3.84	Nov-17	4.57	3.73	Nov-12	4.42	3.84	Nov-17	4	

Schedule AHG-10
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WOLF CREEK DECOMMISSIONING COSTS
EXTERNAL TRUST FUND
Review of 2014 Cost Estimate
ADJUSTED TO REFLECT KCC STAFF INPUTS

	in 2014 \$	In 2045 \$
TOTAL COST DECON method	\$765,060,000	\$1,939,869,279
KGE'S SHARE OF TOTAL COST	\$359,578,200	\$911,738,561
CURRENT VALUE OF TRUST (12/31/14)	\$ 180,829,742	Adjusted to Reflect Taxes on Unrealiz

EQUIVALENT BEFORE TAX RETURN: THE EXPECTED INVESTMENT RETURNS ARE
SHOWN ON PAGE 2 OF 2

PAYMENT GROWTH AMOUNT	\$0
GROWTH RATE FOR COSTS (INFLATION)	3.15%
# OF PERIODS FOR ANALYSIS	30
# OF PERIODS - 1	29
PERIOD OF PAYMENTS	MID YEAR
DECOMMISSIONING PERIOD IN YEARS	9
FUND MANAGER FEES	0.576%

LINE	YEAR	BEGIN YR. BALANCE	DECOM EXPENSE	ANNUAL CONTRIB.	EARNINGS AFTER FEES AND TAXES	END YR. BALANCE
	2012					
	2013					
	2014					
1	2015	\$180,829,742		\$2,762,483	\$9,161,452	\$192,753,677
2	2016	192,753,677		5,772,700	9,844,745	\$208,371,122
3	2017	208,371,122		5,772,700	10,629,297	\$224,773,119
4	2018	224,773,119		5,772,700	11,453,263	\$241,999,082
5	2019	241,999,082		5,772,700	12,318,620	\$260,090,402
6	2020	260,090,402		5,772,700	13,227,450	\$279,090,552
7	2021	279,090,552		5,772,700	14,181,935	\$299,045,187
8	2022	299,045,187		5,772,700	15,184,369	\$320,002,257
9	2023	320,002,257		5,772,700	16,237,162	\$342,012,118
10	2024	342,012,118		5,772,700	17,342,842	\$365,127,660
11	2025	365,127,660		5,772,700	18,504,066	\$389,404,427
12	2026	389,404,427		5,772,700	16,702,987	\$411,880,114
13	2027	411,880,114		5,772,700	17,659,005	\$435,311,819
14	2028	435,311,819		5,772,700	18,655,688	\$459,740,207
15	2029	459,740,207		5,772,700	19,694,766	\$485,207,673
16	2030	485,207,673		5,772,700	20,778,042	\$511,758,415
17	2031	511,758,415		5,772,700	21,907,395	\$539,438,510
18	2032	539,438,510		5,772,700	23,084,786	\$568,295,997
19	2033	568,295,997		5,772,700	24,312,259	\$598,380,956
20	2034	598,380,956		5,772,700	25,591,943	\$629,745,598
21	2035	629,745,598		5,772,700	26,926,059	\$662,444,357
22	2036	662,444,357		5,772,700	21,663,615	\$689,880,672
23	2037	689,880,672		5,772,700	22,556,274	\$718,209,645
24	2038	718,209,645		5,772,700	23,477,976	\$747,460,321
25	2039	747,460,321		5,772,700	24,429,666	\$777,662,687
26	2040	777,662,687		5,772,700	25,412,320	\$808,847,707
27	2041	808,847,707		5,772,700	26,426,945	\$841,047,352
28	2042	841,047,352		5,772,700	27,474,582	\$874,294,634
29	2043	874,294,634		5,772,700	28,556,305	\$908,623,638
30	2044	908,623,638		5,772,700	29,673,222	\$944,069,560
31	2045	944,069,560	76,742,107	1,443,175	15,496,371	\$884,266,999
32	2046	884,266,999	170,390,309		13,361,348	\$727,238,039
33	2047	727,238,039	209,293,207		10,189,818	\$528,134,650
34	2048	528,134,650	156,404,173		7,349,097	\$379,079,574
35	2049	379,079,574	127,253,390		5,101,820	\$256,928,004
36	2050	256,928,004	114,089,268		3,136,287	\$145,975,022
37	2051	145,975,022	58,558,037		1,854,229	\$89,271,213
38	2052	89,271,213	54,764,209		915,049	\$35,422,054
39	2053	35,422,054	35,623,101		202,618	\$1,571

KCC Adjustments to Expected Returns

FEDERAL TAX RATE 20.00%

FOR THE YEARS 2012 THROUGH 2025				
INVESTMENT MIX	EXPECTED RETURNS	RATIO	WEIGHTED RETURN	AFTER TAX
Large Cap	7.60%	30%	2.28%	1.82%
Small Cap	8.81%	8%	0.70%	0.56%
International Equities	8.14%	16%	1.30%	1.04%
Core Fixed Income	4.95%	21%	1.04%	0.83%
High Yield Bonds	6.40%	20%	1.28%	1.02%
Real Estate	8.17%	5%	0.41%	0.33%
Cash and equivalents	2.00%	0%	0.00%	0.00%
		100%	7.01%	5.60%

FOR THE YEARS 2026 THROUGH 2035				
INVESTMENT MIX	EXPECTED RETURNS	RATIO	WEIGHTED RETURN	AFTER TAX
Large Cap	7.60%	20%	1.52%	1.22%
Small Cap	8.81%	5%	0.44%	0.35%
International Equities	8.14%	12%	0.98%	0.78%
Core Fixed Income	4.95%	44%	2.18%	1.74%
High Yield Bonds	6.40%	8%	0.51%	0.41%
Real Estate	8.17%	3%	0.25%	0.20%
Cash and equivalents	2.00%	8%	0.16%	0.13%
		100%	6.04%	4.83%

FOR THE YEARS 2036 THROUGH 2044				
INVESTMENT MIX	EXPECTED RETURNS	RATIO	WEIGHTED RETURN	AFTER TAX
Large Cap	7.60%	10%	0.76%	0.61%
Small Cap	8.81%	2%	0.18%	0.14%
International Equities	8.14%	3%	0.24%	0.19%
Core Fixed Income	4.95%	65%	3.22%	2.58%
High Yield Bonds	6.40%	0%	0.00%	0.00%
Real Estate	8.17%	0%	0.00%	0.00%
Cash and equivalents	2.00%	20%	0.39%	0.31%
		100%	4.79%	3.83%

FOR THE YEARS 2045 THROUGH COMPLETION OF DECOMMISSIONING				
INVESTMENT MIX	EXPECTED RETURNS	RATIO	WEIGHTED RETURN	AFTER TAX
Large Cap	7.60%	0%	0.00%	0.00%
Small Cap	8.81%	0%	0.00%	0.00%
International Equities	8.14%	0%	0.00%	0.00%
Core Fixed Income	4.95%	30%	1.49%	1.19%
High Yield Bonds	6.40%	0%	0.00%	0.00%
Real Estate	8.17%	0%	0.00%	0.00%
Cash and equivalents	2.00%	70%	1.40%	1.12%
		100%	2.89%	2.31%

CERTIFICATE OF SERVICE

15-WSEE-115-RTS

I, the undersigned, hereby certify that a true and correct copy of the above and foregoing Direct Testimony was served by electronic service on this 9th day of July, 2015, to the following parties who have waived receipt of follow-up hard copies.

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