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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
OFFICE OF THE JUDGE ADVOCATE GENERAL
901 NORTH STUART STREET
ARLINGTON, VA 22203-1837

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Arizona Corporation Commission

BEFORE THE ARIZONA CORPORATION COMMISSION

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JUL 24 2000

DOCKETED BY [Signature]

IN THE MATTER OF THE APPLICATION)
OF US WEST COMMUNICATION, INC. A)
COLORADO CORPORATION, FOR A)
HEARING TO DETERMINE THE EARNINGS)
OF THE COMPANY FOR A HEARING TO)
DETERMINE THE EARNINGS OF THE)
COMPANY FOR RATEMAKING PURPOSES,)
TO FIX A JUST AND REASONABLE RATE)
OF RETURN THEREON AND TO APPROVE)
RATE SCHEDULES)

DOCKET NO. T-01051B-99-0105

NOTICE OF FILING

Enclosed for filing are an original and ten(10) copies of the Direct Testimony of Richard B. Lee, and Direct Testimony of Charles W. King, on behalf of the United States Department of Defense and All Other Federal Executive Agencies, in the above referenced proceeding.

Copies have been served on all known parties in accordance with the enclosed Service List.

Respectfully submitted this 21st day of July, 2000.

Sincerely,

[Handwritten Signature]

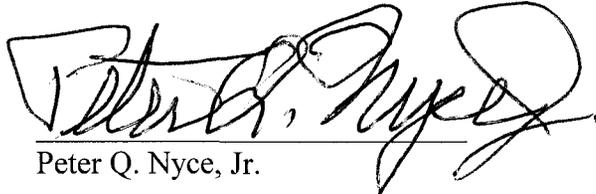
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Enclosure

CERTIFICATE OF SERVICE

I, Peter Q. Nyce, Jr., certify that I have this day caused the Direct Testimony of Richard B. Lee, and Direct Testimony of Charles W. King, on behalf of the Department of Defense and All Other Federal Executive Agencies, to be served on all known parties by sending a copy by either Federal Express or by regular U.S. Mail delivery to those on the "Service List" attached hereto.

Executed July 21, 2000, at Arlington Virginia.



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BEFORE THE ARIZONA CORPORATION COMMISSION

CARL J. KUNASEK
Chairman

JIM IRVIN
Commissioner

WILLIAM A. MUNDELL
Commissioner

IN THE MATTER OF THE APPLICATION)
OF U S WEST COMMUNICATIONS, INC.,)
A COLORADO CORPORATION, FOR A)
HEARING TO DETERMINE THE EARNINGS)
OF THE COMPANY, THE FAIR VALUE)
OF THE COMPANY FOR RATEMAKING)
PURPOSES, TO FIX A JUST AND)
REASONABLE RATE OF RETURN THEREON)
AND TO APPROVE RATE SCHEDULES)
DESIGNED TO DEVELOP SUCH RETURN)
_____)

DOCKET NO. T-01051B-99-0105

DIRECT TESTIMONY
of
RICHARD B. LEE

on behalf of

THE UNITED STATES DEPARTMENT OF DEFENSE
And
ALL OTHER FEDERAL EXECUTIVE AGENCIES

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by

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July 25, 2000

Direct Testimony of Richard B. Lee

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1 **INTRODUCTION**

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

3 A. My name is Richard B. Lee. I am Vice President of the economic consulting firm
4 of Snavelly King Majoros O'Connor & Lee, Inc. ("Snavelly King"). My business
5 address is 1220 L Street, N.W., Suite 410, Washington, D.C. 20005.

6 **Q. PLEASE DESCRIBE SNAVELY KING.**

7 A. Snavelly King, formerly Snavelly, King & Associates, Inc., was founded in 1970 to
8 conduct research on a consulting basis into the rates, revenues, costs and
9 economic performance of regulated firms and industries. The firm has a
10 professional staff of 12 economists, accountants, engineers and cost analysts.
11 Most of its work involves the development, preparation and presentation of
12 expert witness testimony before Federal and state regulatory agencies. Over the
13 course of its 27-year history, members of the firm have participated in over 500
14 proceedings before almost all of the state commissions and all Federal
15 commissions that regulate utilities or transportation industries.

16 **Q. PLEASE DESCRIBE THE TYPE OF WORK YOU HAVE PERFORMED WHILE**
17 **AT SNAVELY KING.**

18 A. Since joining Snavelly King in 1991, I have assisted clients in proceedings before
19 the Federal Communications Commission ("FCC") related to a variety of matters.
20 Attachment 1 is a list of the FCC filings I have prepared on behalf of the General
21 Services Administration ("GSA"). The GSA represents the customer interests of
22 the Federal Executive Agencies in matters before the FCC.

1 I have also assisted clients in proceedings before twenty-three state
2 commissions related to the telephone, cellular telephone and electric industries.

3 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN ANY REGULATORY**
4 **PROCEEDING?**

5 A. Yes, I have. Attachment 2 is a list of my appearances before regulatory
6 agencies on behalf of various clients.

7 **Q. WHAT WAS YOUR EMPLOYMENT PRIOR TO JOINING SNAVELY KING?**

8 A. From 1980 to 1990, I was employed by American Telephone and Telegraph
9 Company ("AT&T") in its Federal Regulatory Affairs Division. As Regulatory Vice
10 President - Financial and Accounting Matters, I represented AT&T before the
11 FCC in all financial and accounting matters. In that capacity, I directed the
12 preparation and presentation to the FCC of all AT&T Communications rate case
13 revenue requirement filings. I was also responsible for the preparation and
14 presentation to the FCC of all AT&T Communications monthly earnings reports
15 and annual earnings forecasts.

16 **Q. WHAT WAS YOUR EMPLOYMENT HISTORY PRIOR TO 1980?**

17 A. From 1963 to 1980, I was employed by the New York Telephone Company. I
18 held a variety of progressively responsible positions leading to a position
19 representing the Company in accounting matters before the New York Public
20 Service Commission. In this capacity, I participated in the development of
21 Company revenue requirements in a number of general rate cases and related
22 proceedings.

1 My complete resume is attached as Attachment 3.

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

3 A. I earned a Bachelor of Science degree in Industrial Administration with High
4 Honors from Yale University in 1961. I earned a Master of Business
5 Administration degree with Distinction from the Harvard Business School in
6 1963.

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

8 A. I am appearing on behalf of the United States Department of Defense and all
9 other Federal Executive Agencies ("DOD/FEA").

10 **Q. WHAT IS DOD/FEA'S INTEREST IN THIS PROCEEDING?**

11 A. As a user of telecommunications services provided by U S WEST
12 Communications, Inc. ("U S WEST"), DOD/FEA's interest is in the maintenance
13 of just and reasonable rates.

14 **Q. WAS THIS TESTIMONY PREPARED BY YOU OR UNDER YOUR DIRECT
15 SUPERVISION?**

16 A. Yes, it was.

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

18 A. The purpose of my testimony is to present adjustments to the revenue
19 requirements presented in the testimonies of U S WEST witnesses George
20 Redding and Kerry Dennis Wu.

1 **Q. PLEASE SUMMARIZE YOUR FINDINGS.**

2 A. Mr. Redding contends that U S WEST has a need for \$201.2 million in additional
3 revenues.¹ After adjustment, I find that U S WEST has a revenue requirement
4 excess of \$46.9 million.

5 U S WEST requests approval of a net rate increase of \$88.6 million.² I
6 am reserving judgment as to what U S WEST's net rate change should be until I
7 have had the opportunity to review the filings of the other parties to this case.

8

9 **ADJUSTMENT SUMMARY**

10 **Q. HAVE YOU RESTATED U S WEST'S REVENUE REQUIREMENT FOR THE**
11 **TEST YEAR ENDED DECEMBER 31, 1999?**

12 A. Yes, I have. In Column a of Attachment 4 to this testimony I have shown the
13 change in revenue requirements presented by Mr. Redding. My adjustments are
14 shown in Column b, and my proposed Adjusted Test Year is shown in Column c.

15 **Q. HAVE YOU SUMMARIZED YOUR TEST YEAR ADJUSTMENTS?**

16 A. Yes, I have. The seven adjustments I propose are summarized on Attachment 5
17 to this testimony.

¹ Redding Supplemental Direct Testimony, p. 3.

² U S WEST Supplemental Response to UTI 43-19S1.

1 **ADJUSTMENT 1 – CUSTOMER OPERATIONS EXPENSE**

2 **Q. WHAT IS YOUR FIRST ADJUSTMENT?**

3 A. My first adjustment reduces U S WEST's revenue requirements by \$20.1 million
4 to reflect a correction to Mr. Redding's estimate of end-of-period customer
5 operations expense.

6 Mr. Redding explains that he performed a number of calculations to bring
7 revenue, expense and taxes to end-of-period levels to match his December 31,
8 1999, rate base.³ He states:

9 Once December is normalized, it must
10 then be compared to a trend of
11 operational results. This is done to
12 ensure that the month being annualized
13 is representative of the trends in
14 operational results, both revenues and
15 expenses. In the case of the updated
16 test year, a few items were not in
17 alignment with trend. When this occurs,
18 additional analysis must be undertaken
19 and alternatives to the annualization of
20 December must be used.⁴
21

22 Mr. Redding's calculations result in an end-of-period customer operations
23 expense adjustment of \$23.3 million over 1999 actuals.⁵

24 To test Mr. Redding's estimate, I performed a regression analysis of total

³ Redding Supplemental Testimony, pp. 6-8.

⁴ Id., p. 7.

⁵ Id., GAR-S7.

1 company customer operations expense by month from January 1997 through
2 December 1999. This analysis results in an end-of-period total company
3 customer operations expense of \$248.9 million, as shown on Page 1 of
4 Attachment 6 to this testimony. On page 3 of Attachment 6, I calculate that end-
5 of-period intrastate customer operations expense should be \$179.0 million, or
6 \$20.1 million less than Mr. Redding's estimate.

7 Based upon this analysis, I calculate a revenue requirement reduction of
8 \$20.5 million on Page 4 of Attachment 6.

9
10 **ADJUSTMENT 2 – CORPORATE OPERATIONS EXPENSE**

11 **Q. WHAT IS YOUR SECOND ADJUSTMENT?**

12 A. My second adjustment reduces U S WEST's revenue requirements by \$11.5
13 million to reflect a correction to Mr. Redding's estimate of end-of-period
14 corporate operations expense.

15 Mr. Redding's calculations result in an end-of-period corporate operating
16 expense adjustment of \$17.9 million over 1999 actuals.⁶ My regression analysis
17 results in an end-of-period total company corporate operations expense of
18 \$243.4 million, as shown on Page 1 of Attachment 7 to this testimony. On Page
19 3 of Attachment 7, I calculate that end-of-period intrastate corporate operations
20 expense should be \$172.3 million, or \$11.5 million less than Mr. Redding's

⁶ Id.

1 estimate.

2 Based upon this analysis, I calculate a revenue requirement reduction of
3 \$11.7 million on Page 4 of Attachment 7.

4

5 **ADJUSTMENT 3 – SERVICES DEREGULATED BY FCC**

6 **Q. WHAT IS YOUR THIRD ADJUSTMENT?**

7 A. My third adjustment reduces U S WEST's revenue requirement by \$13.0 million
8 to reflect a disallowance of one-half of the effect on the test period of services
9 deregulated by the FCC. This adjustment is consistent with the Commission's
10 decision in Docket No. E-1051-93-183.⁷

11 In his testimony, Mr. Redding did not oppose this adjustment.⁸ In
12 response to a data request, however, U S WEST stated that its disagreement is
13 reflected by its failure to propose such an adjustment.⁹

14 In Docket No. E-1051-93-183, the Commission stated that "neither the
15 interstate nor the intrastate jurisdiction should bear the entire deficiency" of
16 services deregulated by the FCC.¹⁰ While I am not convinced that intrastate
17 ratepayers should subsidize such services at all, I have proposed the removal of

⁷ Decision No. 58927, pp. 21-23.

⁸ Redding Direct Testimony, p. 18.

⁹ U S WEST Response to UTI 16-7, c.

¹⁰ Decision No. 58927, pp. 22-23.

1 only one-half of the deficiency at this time.

2 Based upon U S WEST's response to my data request,¹¹ I calculate my
3 adjustment on Page 1 of Attachment 8, and the revenue requirement effect on
4 Page 2 of Attachment 8.

5

6 **ADJUSTMENT 4 – DIRECTORY ADVERTISING**

7 **Q. WHAT IS YOUR FOURTH ADJUSTMENT?**

8 A. My fourth adjustment reduces U S WEST's revenue requirement by \$42.7 million
9 to reflect the imputation of directory advertising revenues. This adjustment
10 conforms to the imputation proposed by U S WEST in Docket No. E-1051-93-
11 183.

12 Mr. Redding makes no adjustment for directory advertising because U S
13 WEST believes “ the appropriate fees and value of services provided by DEX are
14 already reflected in the books.”¹² Mr. Redding states that the rationale for his
15 position is provided in the testimony of U S WEST witness Ann Koehler-
16 Christensen.

17 **Q. DO YOU AGREE WITH U S WEST'S POSITION?**

18 A. No, I don't. As the Commission noted in Docket No. E-1051-93-183, the court
19 refused to transfer the Directory operation to AT&T at divestiture so that the

¹¹ U S WEST Response to DOD 4-7.

¹² Redding Direct Testimony, p. 20.

1 "significant profits" of this operation could continue to be used to reduce local
2 telephone rates.¹³

3 Since divestiture, the annual amount imputed in Arizona to support local
4 telephone rates has been \$43 million. In Docket No. E-1051-93-183, U S WEST
5 argued with ultimate success that an imputation in excess of \$43 million would
6 conflict with the "spirit and terms of the 1998 Settlement Agreement as approved
7 in Decision No. 56020."¹⁴ I believe the reverse is also true, and an adjustment of
8 less than \$43 million would be inappropriate in this case.

9 **Q. ARE THERE ANY CIRCUMSTANCES UNDER WHICH YOU WOULD**
10 **CONSIDER AN IMPUTATION OF LESS THAN \$43 MILLION APPROPRIATE?**

11 A. Yes. I believe that the amount could reasonably be reduced if U S WEST
12 demonstrated that the profits generated by the Directory operation had fallen
13 since 1984. U S WEST has not made such showing.

14 To the extent that competitors now provide local telephone services in U S
15 WEST's territory, I would also find it appropriate for the Commission to establish
16 a system by which the \$43 million is imputed or paid to all local service providers
17 in proportion to the number of lines they serve.

¹³ Decision No. 58927, p. 10.

¹⁴ Id., p. 12.

1 **Q. HAVE YOU CALCULATED THE REVENUE REQUIREMENT EFFECT OF THIS**
2 **ADJUSTMENT?**

3 A. Yes. On Page 1 of Attachment 9, I show an imputation of \$42,657,000 as
4 proposed by U S WEST in Docket No. E-1051-93-183.¹⁵

5

6 **ADJUSTMENT 5 – PRODUCTIVITY**

7 **Q. WHAT IS YOUR FIFTH ADJUSTMENT?**

8 A. My fifth adjustment reduces U S WEST's revenue requirement by \$25.6 million
9 to reflect expected productivity improvements.

10 **Q. WHY DO YOU PROPOSE THIS ADJUSTMENT?**

11 A. Mr. Redding proposes a pro forma adjustment to reflect wage and salary
12 increases subsequent to the test year.¹⁶ It would be inappropriate to increase
13 test year requirements for such input price increases and ignore offsetting
14 productivity increases subsequent to the test year.

15 **Q. DID MR. REDDING PROPOSE A PRODUCTIVITY ADJUSTMENT?**

16 A. No, he did not. He states that productivity is "one of the means the Company
17 has of maintaining its earnings between rate cases."¹⁷

18 **Q. DO YOU AGREE WITH MR. REDDING'S STATEMENT?**

¹⁵ Id., p. 11.

¹⁶ Redding Direct Testimony, p. 11.

¹⁷ Id., p. 36.

1 A. I agree that productivity improvements reduce revenue requirements between
2 rate cases, and that input price increases (such as wage increases) increase
3 revenue requirements between rate cases. If productivity improvements exceed
4 input price increases, earnings will go up between rate cases. If input price
5 increases exceed productivity improvements, earnings will go down.

6 But the task at hand is setting rates in this rate case at just and
7 reasonable levels. If an adjustment is made to reflect input price increases
8 subsequent to the test period, an appropriate productivity offset must also be
9 calculated.

10 **Q. HOW DID YOU CALCULATE YOUR PROPOSED PRODUCTIVITY**
11 **ADJUSTMENT?**

12 A. On Page 1 of Attachment 10, to this testimony, I applied the average annual
13 productivity increase over the years 1994 to 1998 to the expense categories
14 used in Mr. Redding's productivity calculation.¹⁸ The average annual productivity
15 increase for this period was 3.5 percent.¹⁹ This calculation results in \$25.1
16 million in reduced expenses. On Page 2 of Attachment 10, I calculate the
17 revenue requirement effect of this change.

¹⁸ U S WEST Response to Data Request UTI 1-12.

¹⁹ Redding Direct Testimony, GAR-12.

1 **ADJUSTMENT 6 – DEPRECIATION**

2 **Q. WHAT IS YOUR SIXTH ADJUSTMENT?**

3 A. My sixth adjustment reduces U S WEST's revenue requirement by \$108.9 million
4 to reflect a correction to Mr. Redding's estimate of end-of-period depreciation
5 expense and depreciation reserve.

6 On May 4, 2000, the Commission ordered U S WEST to file updated
7 depreciation rates based upon newly prescribed depreciation parameters.²⁰ U S
8 WEST witness Kerry Dennis Wu calculates rates using 1/1/97 reserve percents
9 and shows these rates under the heading "Rates Effective in 1997" on his Exhibit
10 KDW 1. On Page 4 he shows a change in accruals of \$79.2 million due to these
11 rates based upon investment as of 1/1/97.

12 However, U S WEST did not book depreciation accruals pursuant to these
13 new rates retroactive to 1/1/97. Indeed, U S WEST did not begin booking
14 accruals at these new rates until May 2000.²¹ Nevertheless, Mr. Wu multiplied
15 these rates by 12/31/99 investment to calculate end-of-period depreciation
16 expense.²²

17 There are two problems with Mr. Wu's calculations. First, depreciation
18 rates should be made effective as of the study date on which the rates are

²⁰ Decision No. 62507.

²¹ U S WEST Response to DOD 4-6.

²² Wu Testimony, KDW 2, Page 1.

1 based, in this case, 1/1/97. The FCC affirmed this policy nearly a decade ago.²³
2 Second, depreciation rates based upon the parameters now prescribed by the
3 Commission should be determined as of the end of 1999 for purposes of this
4 rate case. The use of depreciation rates based upon 1/1/97 depreciation reserve
5 levels results in materially distorted depreciation expense.

6 I have corrected these two problems in Attachment 11 to this testimony.
7 On Page 1 of Attachment 11, I estimated what the depreciation reserve would be
8 as of 12/31/99 had the rates calculated by Mr. Wu been made effective as of
9 1/1/97. On Page 2 of Attachment 11, I calculate depreciation rates based upon
10 Mr. Wu's calculations, but using my estimate of 12/31/99 depreciation reserve
11 levels. In Column f, I determine end-of-period accruals based upon these rates
12 and 12/31/99 intrastate investment. The use of this updated data results in
13 \$60.6 million less test period depreciation expense, as shown at the bottom of
14 Column f.

15 Based upon this analysis, I calculate a revenue requirement reduction of
16 \$108.9 million on Page 3 of Attachment 11.

17 **Q. BY IMPUTING DEPRECIATION ACCRUALS FOR 1997-1999, ARE YOU NOT**
18 **EFFECTIVELY RECOMMENDING RETROACTIVE RATEMAKING?**

19 **A.** No. In Decision No. 62507 the Commission approved depreciation lives as short

²³ The Prescription of Revised Percentages of Depreciation pursuant to the Communications Act of 1934, as amended for Alascom, Inc., et al., Memorandum Opinion and Order, FCC 91-31, released January 31, 1991.

1 or shorter than those used by U S WEST on its financial books. The FCC allows
2 such short lives only after a below-the-line write-off of the difference between the
3 carrier's regulatory and financial book reserves.²⁴ My calculation effectively
4 lowers the regulatory net book cost for ratemaking purposes to be consistent
5 with the high depreciation rates derived from the use of short depreciation lives.
6 The FCC's procedures perform a similar matching through its conditions. The
7 FCC states:

8 These conditions are important because they
9 provide assurance that carriers do not engage
10 in a practice that would disadvantage
11 consumers and competition by using high
12 financial depreciation rates with high regulatory
13 net book costs or by applying inappropriate
14 depreciation rates to regulatory plant
15 accounts.²⁵
16
17

18 **ADJUSTMENT 7 – RATE OF RETURN**

19 **Q. WHAT IS YOUR SEVENTH ADJUSTMENT?**

20 A. My seventh adjustment reduces U S WEST's revenue requirement by \$25.6
21 million to reflect the use of a reduced rate of return.

22 Mr. Redding uses a 10.86 percent rate of return in the development of his

²⁴ 1998 Biennial Regulatory Review – Review of Depreciation Requirements for Incumbent Local Exchange Carriers, CC Docket No. 98-137, Report and Order, FCC 99-397, released December 30, 1999, para. 24-35.

²⁵ Id., para. 26.

1 revenue requirement proposal.²⁶ He states that support for his rate of return is
2 provided in the testimony of U S WEST witness Peter C. Cummings.²⁷

3 In his testimony in this proceeding, DOD/FEA witness Charles W. King
4 explains that the appropriate rate of return for use in this proceeding is 9.54
5 percent.²⁸ On Page 1 of Attachment 12 to this testimony, I calculate that the use
6 of this lower rate of return reduces U S WEST's required earnings by \$15.0
7 million. On Page 2 of Attachment 12, I calculate the revenue requirement effect
8 of this adjustment.

9
10 **CONCLUSION**

11 **Q. WHAT DO YOU CONCLUDE AS A RESULT OF YOUR ANALYSIS OF U S**
12 **WEST'S REVENUE REQUIREMENT?**

13 **A.** I conclude that U S WEST has a revenue requirement excess of \$46.9 million,
14 as shown on Attachment 4 to this testimony.

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

16 **A.** Yes, it does.

²⁶ Redding Supplemental Direct Testimony, GAR-S1.

²⁷ Redding Direct Testimony, p. 7.

²⁸ King Testimony, p. 37.

RICHARD B. LEE

FCC FILINGS ON BEHALF OF GENERAL SERVICES ADMINISTRATION

<u>PROCEEDING</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>DATE</u>
CC Docket No. 87-568	AT&T Communications Revisions to Tariff FCC No. 12	Reply	3/25/91
CC Docket No. 91-141	Expanded Interconnection with Local Telephone Company Facilities	Comments Reply Reply Comments Reply Comments Reply	8/6/91 9/20/91 12/10/91 1/14/93 2/19/93 4/2/93 4/30/93
DA Docket No. 91-698	New York Telephone Co. Petition for Waiver of Part 61.49(g) of the Commission's Rules	Comments Reply	8/9/91 9/9/91
CC Docket No. 89-79	Amend. of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for Open Network Architecture	Comments	8/26/91 9/25/91 10/2/91
CC Docket No. 87-313	Policy and Rules Concerning Rates for Dominant Carriers	Comments Reply Reply	8/26/91 9/25/91 10/2/91

<u>PROCEEDING</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>DATE</u>
CC Docket No. 91-213	Transport Rate Structure and Pricing	Comments Reply Comments Reply	11/22/91 1/22/91 2/1/93 3/19/93
Petition	ONA Access Charge Tariff Filings	Petition to Suspend	11/26/91
DA No. 91-1452	Federal-State Joint Conference on ONA Staff Report on Uniform Tariffing Guidelines for ONA Services	Comments Reply	12/20/91 1/21/92
CC Docket No. 91-346	Intelligent Networks	Reply Comments Reply	4/6/92 11/1/93 12/1/93
CC Docket No. 92-133	Amend. of Parts 65 and 69 of the Commission's Rules to Reform the Interstate Rate of Return Prescription and Enforcement Processes	Comments Reply	9/11/92 10/13/92
CC Docket No. 92-91	ONA Tariffs of Bell Operating Companies	Comments	10/16/92
CC Docket No. 92-222	Amendment of the Part 69 Allocation of General Support Facility Costs	Comments Reply	12/4/92 12/18/92
CC Docket No. 92-256	Application of ONA and Nondiscrimination Safeguards to GTE Corporation	Comments Reply	2/1/93 3/24/93

<u>PROCEEDING</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>DATE</u>
CC Docket No. 92-296	Simplification of the Depreciation Prescription Process	Reply Reply Reply	4/13/93 1/21/94 12/14/94
DA 93-481	Ameritech's Petition for Declaratory Ruling and Related Waivers to Establish a New Regulatory Model for the Ameritech Region	Reply	7/12/93
DA 93-687	Rochester Telephone Corp. Petition for Waivers of Part 61 Tariff Rules and Part 69 Access Charge Rules to Implement Its Open Market Plan	Comments Reply	7/19/93 8/9/93
CC Docket No. 91-273	Amendment of Part 63 of the Commission's Rules to Provide for Notifications by Common Carriers	Comments Reply	1/21/94 2/22/94
DA Docket No. 93-1537	NYNEX Transition Plan to Preserve Universal Service in a Competitive Environment	Reply	3/2/94
Petition	Petition for Declaratory Ruling Assigning an N11 Dialing Code for use by the Public in Gaining Access to the Services of the Federal Executive Agencies	Petition	3/11/94

<u>PROCEEDING</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>DATE</u>
CC Docket No. 94-1	Price Cap Performance Review for Local Exchange Carriers	Comments Reply Comments Comments Comments Reply Comments Reply	5/9/94 6/29/94 1/31/95 4/17/95 10/27/95 11/20/95 12/18/95 3/1/96
CC Docket No. 94-54	Equal Access and Interconnection Obligations Pertaining to Commercial Mobile Radio Services	Comments Reply	8/30/94 10/13/94
IAD File No. 94-101	Requests of Federal Agencies and Others for the Assignment of N11 Codes	Reply	9/23/94
CC Docket No. 80-286	Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board	Reply Comments Reply	12/2/94 9/12/95 11/9/95
CC Docket No. 92-237	Administration of the North American Numbering Plan	Nomination Application	8/7/95 9/12/95
CC Docket No. 95-115	Amendment of the Commission's Rules and Policies to Increase Subscribership and Usage of the Public	Comments Reply	9/27/95 11/13/95

<u>PROCEEDING</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>DATE</u>
CC Docket No. 95-155	Toll Free Service Access Codes	Comments Reply	11/1/95 11/20/95
CCB-IAD 95-110	Telecommunications Access Provider Survey	Comments Reply	12/11/95 1/16/96
CC Docket No. 87-124	Access to Telecommunications Equipment and Services by Persons With Disabilities	Comments Reply	1/12/96 2/29/96
AAD 96-28	Rate of Return Inquiry	Comments Reply	3/11/96 4/15/96
CS Docket No. 96-46	Implementation of Section 302 of the Telecommunications Act of 1996	Comments Reply	4/1/96 4/11/96
CC Docket No. 96-45	Federal-State Joint Board on Universal Service	Comments Reply Comments	4/12/96 5/7/96 10/17/97
CC Docket No. 96-61	Policy and Rules Concerning the Interstate, Interexchange Marketplace	Reply	5/3/96
CC Docket No. 96-98	Implementation of the Local Competition Provisions in the Telecommunications Act of 1996	Comments Reply	5/16/96 6/3/96

<u>PROCEEDING</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>DATE</u>
CC Docket No. 96-112	Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services	Comments Reply	5/28/96 6/12/96
CC Docket No. 96-150	Accounting Safeguards Under the Telecommunications Act of 1996	Comments Reply	8/26/96 9/10/96
CC Docket No. 91-141 CCB-IAD File No. 98-102	Local Competition Survey	Comments Reply	6/8/98 6/22/98
CC Docket No. 98-81	1998 Biennial Regulatory Review - Review of Accounting and Cost Allocation Requirements	Reply	9/4/98
CC Docket No. 98-117	1998 Biennial Regulatory Review Review of ARMIS Reporting Requirements	Reply	9/4/98
CC Docket No. 98-166	Prescribing the Authorized Unitary Rate of Return for Interstate Services of Local Exchange Carriers	Comments	1/19/99 3/16/99
CC Docket No. 96-45 CC Docket No. 97-160	Federal-State Joint Board on Universal Service Forward-Looking Mechanism for High Cost Support for Non-Rural LECs	Comments Reply	7/23/99 8/6/99
CC Docket No. 98-147	Deployment of Wireline Services Offering Advanced Telecommunications Capability	Comments	9/24/99

<u>PROCEEDING</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>DATE</u>
CC Docket No. 98-137	1998 Biennial Regulatory Review - Review of Depreciation Requirements for Incumbent Local Exchange Carriers	Comments Reply	4/17/00 4/28/00

RICHARD B. LEE

APPEARANCES BEFORE REGULATORY AGENCIES

<u>STATE</u>	<u>CLIENT</u>	<u>UTILITY</u>	<u>CASE</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>FILE DATE</u>	<u>CROSS DATE</u>
CA	US Department Of Defense	All LECs	I.87-11-033 Phase III	IntraLATA Competition	Direct Reply	9/23/91 10/2/91	10/7/91 10/7/91
CA	US Department Of Defense	All LECs	I.87-11-033 Phase III	Rate Design	Direct Reply Suppl.	12/16/91 1/17/92 4/18/92	4/28/92 4/28/92 4/28/92
CO	US Department Of Defense	All LECs	92R-050T	Interconnection	Direct	8/20/92	8/31/92
WV	Consumer Advocate Division of WV PSC	C&P	90-424-T-PC	Cost Allocation	Direct Reply	10/6/92 12/18/92	1/14/93 1/14/93
CA	US Department Of Defense	Pacific Bell	A.92-05-004	Incentive Regulation	Direct Reply	4/8/93 5/5/93	6/9/93 6/9/93
DC	US Department Of Defense	C&P	926	Productivity	Direct	7/30/93	10/7/93

<u>STATE</u>	<u>CLIENT</u>	<u>UTILITY</u>	<u>CASES</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>FILE DATE</u>	<u>CROSS DATE</u>
NJ	US Department Of Defense	All LECs	TX90050349 TE92111047 TE93060211	IntraLATA Competition	Direct Reply	4/5/94 4/25/94	-- --
CT	Connecticut Resellers	Cellular Carriers	94-03-27	Financial Performance	Direct	--	6/7/94
NY	US Executive Agencies	Niagara Mohawk	94-E-0098 94-E-0099 94-G-0100	Incentive Regulation	Direct	8/31/94	10/26/94
DC	DC Office Of People's Counsel	Pepco	939	Productivity	Direct	1/17/95	3/17/95
GA	GA Public Service Commission	Southern Bell	5503-U	Cost Allocation	Direct Reply	1/27/95 4/14/95	2/14/95 4/25/95
HI	US Department Of Defense	GTE Hawaiian	94-0298	Rate Case	Direct	5/7/96	--
CANADA	AT&T Canada	Stentor Companies	96-8	Depreciation	Direct	8/27/96	11/5/96

<u>STATE</u>	<u>CLIENT</u>	<u>UTILITY</u>	<u>CASE</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>FILE DATE</u>	<u>CROSS DATE</u>
NJ	AT&T	Bell Atlantic	T096070519	Depreciation	Direct	9/18/96	10/3/96
MA	AT&T	New England Telephone	DPU96-80/81	Depreciation	Direct	10/11/96	--
NY	AT&T	New York Telephone	95-C-0657 94-C-0095 91-C-1174	Depreciation	Rebuttal	10/15/96	11/8/96
VA	AT&T	GTE	PUC960117	Depreciation	Direct	10/30/96	--
NJ	AT&T	All LECs	TX95120631	Depreciation	Direct Rebuttal	11/1/96 12/20/96	1/24/97 1/24/97
PA	AT&T/MCI	Bell Atlantic	A-310203F0002	Depreciation	Rebuttal Direct Surrebuttal	1/13/97 2/7/97 2/21/97	1/28/97 2/25/97 2/25/97
DE	AT&T/MCI	Bell Atlantic	96-324	Depreciation	Rebuttal	2/4/97	2/18/97
WY	AT&T	U S West	7200-TF-96-95 7000-TF-96-319	Depreciation	Direct	2/5/97	2/12/97

Attachment 2
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<u>STATE</u>	<u>CLIENT</u>	<u>UTILITY</u>	<u>CASE</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>FILE DATE</u>	<u>CROSS DATE</u>
WV	AT&T	Bell Atlantic	96-1516-T-PC 96-1561-T-PC 96-1009-T-PC 96-1533-T-T	Depreciation	Direct Rebuttal	2/13/97 2/20/97	2/27/97 2/27/97
MD	AT&T/MCI	Bell Atlantic	8731, Phase II	Depreciation	Direct	3/7/97	4/14/97
UT	AT&T/MCI	U S West	94-999-01	Depreciation	Direct Rebuttal Surrebuttal Sup. Surr.	3/19/97 3/31/97 4/23/97 5/2/97	5/13/97 5/13/97 5/13/97 5/13/97
DC	AT&T/MCI	Bell Atlantic	962	Depreciation	Direct Rebuttal	3/24/97 5/2/97	6/11/97 6/11/97
VA	AT&T/MCI	Bell Atlantic	970005	Depreciation	Affidavit Direct Rebuttal	4/7/97 4/23/97 6/10/97	6/27/97 6/27/97 6/27/97
HI	US Department Of Defense	GTE	7702	Depreciation	Direct Reply	7/03/97 8/28/97	10/22/97 10/22/97
LA	AT&T/MCI	Bell South	22022/22093	Depreciation	Direct	8/25/97	9/16/97

<u>STATE</u>	<u>CLIENT</u>	<u>UTILITY</u>	<u>CASE</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>FILE DATE</u>	<u>CROSS DATE</u>
ME	AT&T	Bell Atlantic	96-781	Depreciation	Direct Surrebuttal	9/15/97 12/22/97	1/20/98 1/20/98
TENN	AT&T/MCI	Bell South	97-01262	Depreciation	Direct	10/10/97 10/17/97	2/25/98 2/25/98
VT	AT&T	Bell Atlantic	5713	Depreciation	Direct Surrebuttal	10/30/97 12/4/97	12/11/97 12/11/97
KY	AT&T/MCI	BellSouth, GTE, CBT	360	Depreciation	Reply	11/4/97	--
PA	AT&T	GTE	A-310125F002 GTEN-11	Depreciation	Direct	11/13/97	--
NC	AT&T/MCI	BellSouth, GTE, Sprint	P-100, SUB133b	Depreciation	Direct	12/10/97 1/30/98	--
NC	AT&T/MCI	BellSouth, GTE, Sprint	P-100, SUB133d	Depreciation	Direct	12/15/97 3/9/98	--
OHIO	AT&T/MCI	CBT	96-899-TP-ALT	Depreciation	Direct Reply	12/17/97 12/23/98	3/22/99 3/22/99
LA	AT&T/MCI	BellSouth	U-20883 Subdocket A	Depreciation	Direct Reply	1/9/98 1/20/98	--

Attachment 2
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<u>STATE</u>	<u>CLIENT</u>	<u>UTILITY</u>	<u>CASE</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>FILE DATE</u>	<u>CROSS DATE</u>
OK	AT&T	SBC	970000213 970000442	Depreciation	Direct	1/12/98	--
MISS	AT&T	BellSouth	97-AD-544	Depreciation	Direct Reply	1/28/98 3/13/98	--
MISS	AT&T	BellSouth	98-AD-035	Depreciation	Direct Reply	2/23/98 3/6/98	--
TENN	AT&T	BellSouth, GTE, Sprint	9700888	Depreciation	Direct Reply	3/18/98 3/25/98	--
RI	AT&T	Bell Atlantic	2681	Depreciation	Direct Surrebuttal	6/30/98 12/11/98	1/7/99
AZ	U S Department Of Defense	U S West	T-01051B- 97-0689	Depreciation	Direct Suppl Surrebuttal Comments Suppl Direct Reply	7/13/98 7/15/98 8/17/98 10/30/98 4/2/99 2/7/00 2/22/00	11/13/98 11/13/98 11/13/98 11/13/98 4/27/99 2/28/00 2/28/00

<u>STATE</u>	<u>CLIENT</u>	<u>UTILITY</u>	<u>CASE</u>	<u>SUBJECT</u>	<u>TYPE</u>	<u>FILE DATE</u>	<u>CROSS DATE</u>
MICH	Michigan Cable Television Association	All	U-11016	Affiliate Transactions	Direct Reply	5/27/98 7/1/99	7/29/99 7/29/99
HI	U S Department of Defense	GTE	7702	Collocation and Nonrecurring Charges	Direct	6/2/00	
NY	AT&T/MCI	Bell Atlantic	98-C-1357	Depreciation	Reply	6/26/00	

Experience**Snavelly King Majoros O'Connor
& Lee, Inc.
Washington, DC***Vice President (1996 to Present)**Senior Consultant (1991 to 1995)*

Mr. Lee provides consulting services that reflect his depth of experience with regulated utilities. For over a quarter of a century, he has been extensively involved in regulatory financial and accounting matters.

Mr. Lee has provided expert witness testimony, technical assistance and strategic support to clients in state commission proceedings related to the telephone, cellular telephone and electric industries. His testimony has addressed such matters as intraLATA competition, rate design, interconnection, cost allocation, incentive regulation, productivity, and overall financial performance. Mr. Lee has also conducted a cost allocation and affiliate transaction audit of a major telephone company on behalf of its state commission.

Mr. Lee has assisted clients in proceedings before the Federal Communications Commission (FCC) related to integrated long distance service packages, enhanced services, expanded local exchange interconnection, open network architecture, intelligent networks, rate of return, depreciation, network reliability, incentive regulation, and video dialtone. Recently, Mr. Lee performed a study on plant writedowns in the U.S. telecommunications industry on behalf of the Canadian Radio-Television and Telecommunications Commission.

AT&T, Basking Ridge, NJ*Regulatory Vice President (1988-1990)**Division Manager (1980-1988)*

Mr. Lee represented AT&T before the FCC in all financial and accounting matters. In this capacity, he directed the preparation of all financially related AT&T filings and coordinated the analysis of commission and intervenor responses. In addition, he was responsible for the periodic review of AT&T financial operating results and the development of related capital and expense forecasts.

Mr. Lee directed the design and implementation of AT&T's automated system for the reporting of financial information to the FCC. He also was responsible for the implementation of AT&T's manual for the separation of regulated and unregulated costs and the conversion of the company to the revised Uniform System of Accounts.

His responsibilities included liaison with the FCC's audit staff and coordination of their activities with respect to AT&T. During his tenure, Mr. Lee brought scores of FCC investigations involving many billions of dollars to equitable conclusions.

Mr. Lee participated in the strategic development of price cap incentive regulation proposals and performed numerous related financial analyses. He also conceived and developed a methodology which reduced the administrative burden of AT&T's depreciation filings by over 90%.

Prior to divestiture, Mr. Lee coordinated all Bell System depreciation filings, rate of return pleadings and interstate rate cases. He was responsible for securing FCC approval of the accounting entries which implemented the Modified Final Judgment.

**New York Telephone Company
New York, NY***District Manager (1970-1980)**Accounting Manager (1963-1970)*

Mr. Lee held a variety of progressively responsible positions leading to his selection as the Company's accounting representative before the New York Public Service Commission. In this capacity, he participated in numerous general rate cases and related proceedings.

In an earlier assignment, Mr. Lee directed an inter-departmental study of the company's "Lost Telephone Set" problem. The study resulted in both operational improvements and major strategy changes by the company.

While in a rotational assignment to AT&T, Mr. Lee developed a cost accounting and productivity measurement system that was implemented in all Bell System Comptrollers Departments.

Mr. Lee also managed numerous line organizations of up to 200 persons responsible for billing and collection, property and cost and data processing functions.

Education*Yale University, B.S. (High Honors)**Harvard Business School, MBA (Distinction)***Professional Affiliations***Society of Depreciation Professionals*

U S WEST Intrastate Revenue Requirements
Test Year Ended December 31, 1999
\$(000)

	<u>U S WEST</u> <u>Test Year</u> (a)	<u>DOD / FEA</u> <u>Test Year</u> <u>Adjustments</u> (b=c - a)	<u>Adjusted</u> <u>Test</u> <u>Year</u> (c)
1. Adjusted Rate Base	\$1,422,099	(\$283,247)	\$1,138,852
2. Adjusted Net Operating Income	\$43,822	\$99,673	\$143,495
3. Current Rate of Return (L2 / L1)	3.08%	9.52%	12.60%
4. Required Operating Income (L1 x L5)	\$154,430	(\$45,792)	\$108,638
5. Required Rate of Return	10.86%	-1.32%	9.54%
6. Operating Income Deficiency (L4 - L2)	\$110,608	(\$145,464)	(\$34,856)
7. Gross Revenue Conversion Factor	1.7056	1.7056	1.7056
8. Increase in Revenue Requirement (L6 x L7)	\$188,654	(\$248,100)	(\$59,446)
9. BellCore 3 Year Revenue Requirement	(\$686)	\$0	(\$686)
10. Automatic Adj. Revenue Requirement	\$13,252	\$0	\$13,252
11. Increase in Gross Revenue Requirement (L8 + L9 + I10)	\$201,220	(\$248,100)	(\$46,880)

Sources: Col. a = GAR-S1
Col. c = Attachment 5.

DOD/FEA Test Year Adjustment Summary
\$(000)

	U S WEST Test Year (a)	Adj. 1 Customer Operations (b)	Adj. 2 Corporate Operations (c)	Adj. 3 FCC Deregulated Services (d)	Adj. 4 Directory Advertising (e)	Adj. 5 Productivity Adjustment (f)	Adj. 6 Depreciation Adjustment (g)	Adj. 7 Rate of Return Adjustment (h)	Adjusted Test Year (i=Sum(a..h))
1. Adjusted Rate Base	1,422,099	-	-	(29,021)	-	-	(254,226)	-	1,138,852
2. Adjusted Net Operating Income	43,822	12,038	6,870	4,474	25,010	15,036	36,245	-	143,495
3. Current Rate of Return	3.08%	-	-	-	-	-	-	-	12.60%
4. Required Operating Income	154,430	-	-	(3,151)	-	-	(27,607)	(15,033)	108,638
5. Required Rate of Return	10.86%	-	-	-	-	-	-	-1.32%	9.54%
6. Operating Income Deficiency	110,608	(12,038)	(6,870)	(7,625)	(25,010)	(15,036)	(63,852)	(15,033)	(34,856)
7. Gross Revenue Conversion Factor	1.7056	1.7056	1.7056	1.7056	1.7056	1.7056	1.7056	1.7056	1.7056
8. Increase in Gross Revenue Requirements	188,654	(20,531)	(11,716)	(13,004)	(42,657)	(25,646)	(108,906)	(25,640)	(59,446)
9. Three Year Revenue Requirement	(686)	-	-	-	-	-	-	-	(686)
10. Adjustment to Revenue Requirements	13,252	-	-	-	-	-	-	-	13,252
11. Total Increase in Revenue Requirement	201,220	(20,531)	(11,716)	(13,004)	(42,657)	(25,646)	(108,906)	(25,640)	(46,880)

Source

Att. 6

Att. 7

Att. 8

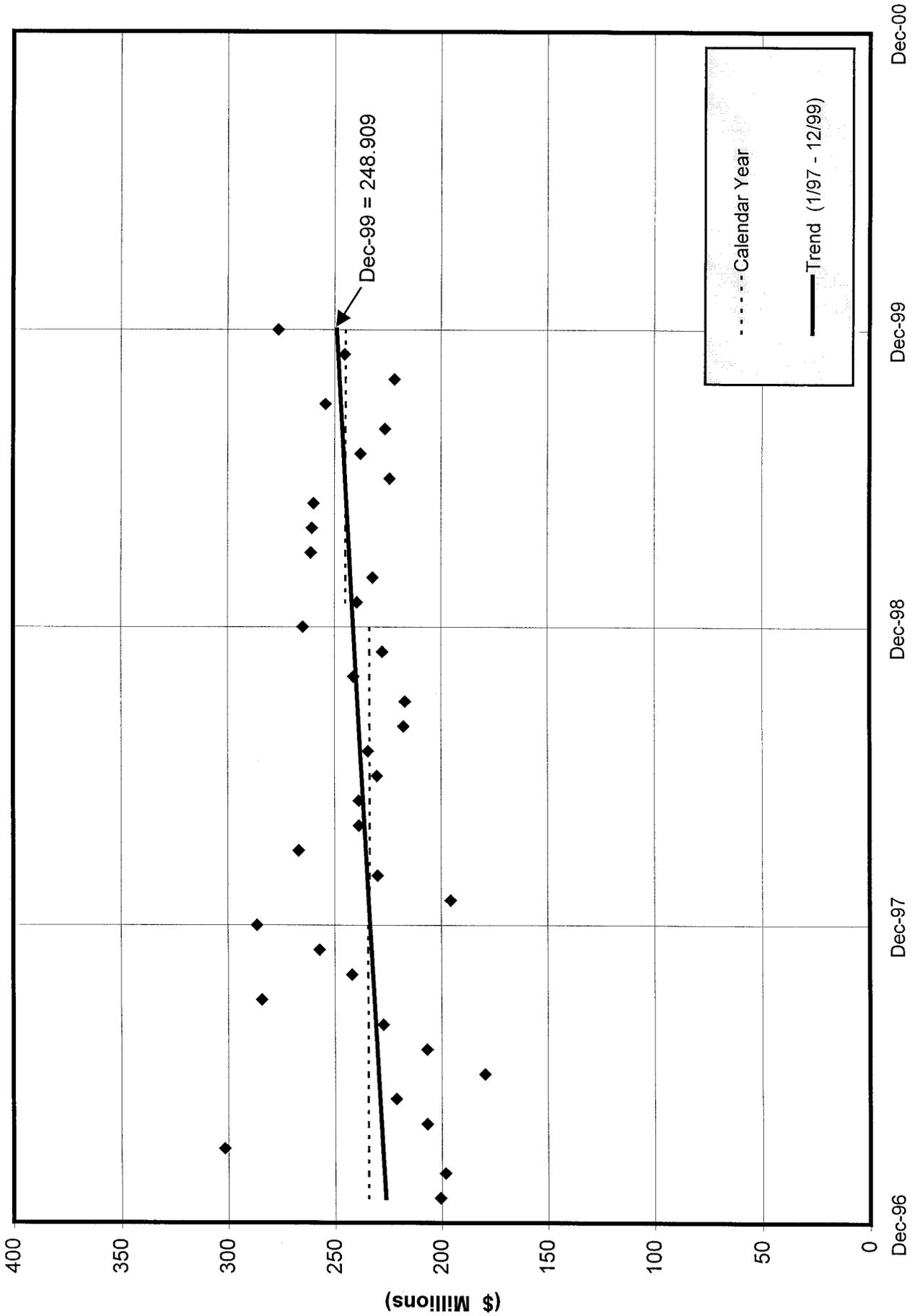
Att. 9

Att. 10

Att. 11

Att. 12

Annualized Customer Operations Expenses



Customer Operations Expense Trend Data

<u>YR / MO</u>	<u>Customer Operations</u> a	<u>Annualized</u> b = 12a	<u>Annualized</u> (for graph)
Dec-96			
Jan-97	16,720,443	200,645,316	201
Feb-97	16,520,764	198,249,168	198
Mar-97	25,143,173	301,718,076	302
Apr-97	17,223,713	206,684,556	207
May-97	18,429,500	221,154,000	221
Jun-97	14,963,836	179,566,032	180
Jul-97	17,229,120	206,749,440	207
Aug-97	18,938,783	227,265,396	227
Sep-97	23,682,508	284,190,096	284
Oct-97	20,161,619	241,939,428	242
Nov-97	21,422,517	257,070,204	257
Dec-97	23,864,705	286,376,460	286
Jan-98	16,300,196	195,602,352	196
Feb-98	19,157,246	229,886,952	230
Mar-98	22,238,304	266,859,648	267
Apr-98	19,880,682	238,568,184	239
May-98	19,883,789	238,605,468	239
Jun-98	19,172,672	230,072,064	230
Jul-98	19,524,349	234,292,188	234
Aug-98	18,131,637	217,579,644	218
Sep-98	18,069,367	216,832,404	217
Oct-98	20,093,087	241,117,044	241
Nov-98	18,957,780	227,493,360	227
Dec-98	22,069,756	264,837,072	265
Jan-99	19,949,677	239,396,124	239
Feb-99	19,330,094	231,961,128	232
Mar-99	21,757,953	261,095,435	261
Apr-99	21,709,291	260,511,491	261
May-99	21,649,037	259,788,438	260
Jun-99	18,672,400	224,068,806	224
Jul-99	19,809,729	237,716,744	238
Aug-99	18,848,829	226,185,946	226
Sep-99	21,181,252	254,175,028	254
Oct-99	18,477,937	221,735,247	222
Nov-99	20,438,169	245,258,029	245
Dec-99	23,020,939	276,251,272	276
1997	234,300,681		
1998	233,478,865		
1999	244,845,307		

Source: US WEST Responses to UTI 4-3 and UTI 42-3.

DOD/FEA Test Year Adjustment 1
Customer Operations Expenses
\$(000)

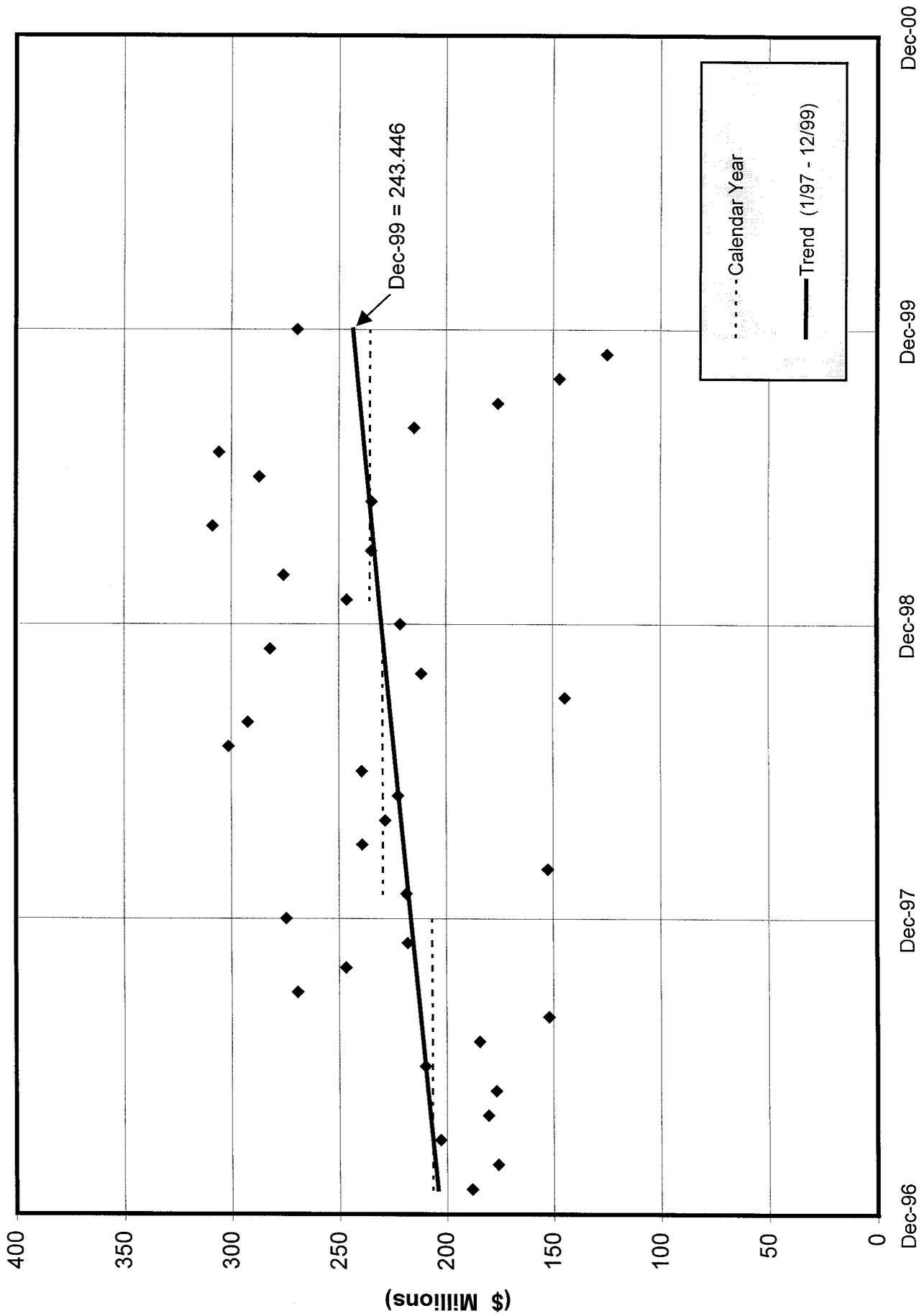
1. USW-AZ Customer Operations Expense Level - 12/31/99 (Attachment 6, p. 1)	248,909
2. Intrastate Regulated Factor (RUCO 22-1, Attachment A, WP1-AZ Factor, Col. i)	0.7770
3. Regulated Intrastate (L1 x L2)	193,402
4. Less: FCC Deregulated (RUCO 22-1, Attachment A, WP1-AZ Factor, Col. e)	26,493
5. Add: Payphones & Wireless (RUCO 22-1, Attachment A, WP1-AZ Factor, Col. f)	12,056
6. Intrastate Expense (L3 - L4 + L5)	178,965
7. US West Estimate (UTI 42-1, WP10-AZ EopNib(PA), Col. S)	199,095
8. Expense Adjustment (L6 - L7)	(20,130)

DOD/FEA Test Year Adjustment 1
Customer Operations Expenses
\$(000)

Operating Revenue	-
Operating Expenses	(20,130)
Total Operating Income Taxes	8,092
Net Operating Income	12,038
Rate Base	-
Revenue Requirements	(20,531)

This adjustment revises test year Customer Operations Expense.

Annualized Corporate Operations Expenses



Corporate Operations Expense Trend Data

<u>YR / MO</u>	<u>Corporate Operations</u> a	<u>Annualized</u> b = 12a	<u>Annualized</u> (for graph)
Dec-96			
Jan-97	15,672,883	188,074,596	188
Feb-97	14,652,942	175,835,304	176
Mar-97	16,900,272	202,803,264	203
Apr-97	15,034,699	180,416,388	180
May-97	14,718,728	176,624,736	177
Jun-97	17,490,737	209,888,844	210
Jul-97	15,372,710	184,472,520	184
Aug-97	12,671,508	152,058,096	152
Sep-97	22,446,203	269,354,436	269
Oct-97	20,558,302	246,699,624	247
Nov-97	18,166,327	217,995,924	218
Dec-97	22,885,668	274,628,016	275
Jan-98	18,216,069	218,592,828	219
Feb-98	12,712,523	152,550,276	153
Mar-98	19,927,301	239,127,612	239
Apr-98	19,032,551	228,390,612	228
May-98	18,525,663	222,307,956	222
Jun-98	19,936,508	239,238,096	239
Jul-98	25,107,922	301,295,064	301
Aug-98	24,356,943	292,283,316	292
Sep-98	12,038,740	144,464,880	144
Oct-98	17,619,974	211,439,688	211
Nov-98	23,499,777	281,997,324	282
Dec-98	18,435,694	221,228,328	221
Jan-99	20,515,902	246,190,824	246
Feb-99	22,983,839	275,806,068	276
Mar-99	19,565,256	234,783,066	235
Apr-99	25,735,624	308,827,491	309
May-99	19,558,691	234,704,291	235
Jun-99	23,920,697	287,048,360	287
Jul-99	25,485,663	305,827,958	306
Aug-99	17,908,222	214,898,663	215
Sep-99	14,640,590	175,687,081	176
Oct-99	12,250,854	147,010,242	147
Nov-99	10,406,925	124,883,099	125
Dec-99	22,449,999	269,399,987	269
1997	206,570,979		
1998	229,409,665		
1999	235,422,261		

Source: US WEST Responses to UTI 4-3 and UTI 42-3.

DOD/FEA Test Year Adjustment 2
Corporate Operations Expenses
\$(000)

1.	USW-AZ Corporate Operations Expense Level - 12/31/99 (Attachment 7, p. 1)	243,446
2.	Intrastate Regulated Factor (RUCO 22-1, Attachment A, WP1-AZ Factor, Col. i)	0.7922
3.	Regulated Intrastate (L1 x L2)	192,858
4.	Less: FCC Deregulated (RUCO 22-1, Attachment A, WP1-AZ Factor, Col. e)	26,416
5.	Add: Payphones & Wireless (RUCO 22-1, Attachment A, WP1-AZ Factor, Col. f)	5,848
6.	Intrastate Expense (L3 - L4 + L5)	172,290
7.	US West Estimate (UTI 42-1, WP10-AZ EopNib(PA), Col. S)	183,778
8.	Expense Adjustment (L6 - L7)	(11,488)

DOD/FEA Test Year Adjustment 2
Corporate Operations Expenses
\$(000)

Operating Revenue	-
Operating Expenses	(11,488)
Total Operating Income Taxes	4,618
Net Operating Income	6,870
Rate Base	-
Revenue Requirements	(11,716)

This adjustment revises test year Corporate Operations Expense.

DOD/FEA Test Year Adjustment 3
Services Deregulated By FCC
\$(000)

	FCC Deregulated <u>Services</u> (a)	1/2 FCC Deregulated <u>Services</u> (b = a / 2)
1. Revenues	102,104	51,052
2. Expenses	117,065	58,533
3. Rate Base	58,042	29,021

Source: Col. a = U S WEST's Response to DOD 4-7.

DOD/FEA Test Year Adjustment 3
Services Deregulated By FCC
\$(000)

Operating Revenue	(51,052)
Operating Expenses	(58,533)
Total Operating Income Taxes	3,007
Net Operating Income	4,474
Rate Base	(29,021)
Revenue Requirements	(13,004)

This adjustment reflects half of the impact of services deregulated by the FCC on the test year.

DOD/FEA Test Year Adjustment 4
Directory Advertising
\$(000)

Operating Revenue	42,657
Operating Expenses	834
Total Operating Income Taxes	16,813
Net Operating Income	25,010
Rate Base	-
Revenue Requirements	(42,657)

This adjustment imputes directory advertising revenue to the test year.

DOD/FEA Test Year Adjustment 5
Productivity
\$(000)

1.	Test Year Expenses	
a.	Maintenance	\$266,053
b.	Engineering/ Network/ Access/ Other	75,609
c.	Customer Operations	190,243
d.	Corporate Operations	<u>186,490</u>
e.	Total (Sum L1a - L1d)	\$718,395
2.	1994-1998 Average Productivity	3.5%
3.	Estimated Expense Reduction (L1e x L2)	\$25,144

Source Line 1 = GAR-5, p.1, col. e.
Line 2 = GAR-12.

DOD/FEA Test Year Adjustment 5
Productivity
\$(000)

Operating Revenue	0
Operating Expenses	(25,144)
Total Operating Income Taxes	10,108
Net Operating Income	15,036
Rate Base	-
Revenue Requirements	(25,646)

This adjustment reflects expected productivity improvement.

DOD/FEA TEST YEAR ADJUSTMENT 6
DEPRECIATION
(\$ 000)

Account Number	Account Name or Subclass of Plant	Intrastate Investment 12/31/99 (a)	Change In Accruals		12/31/99 Reserve (d)	Adjusted Reserve (e=c+d)	Reserve Percent (f=e/a)
			Annual (b)	3 Year (c=3*b)			
2112	Motor Vehicles	47,502	(2,308)	(6,924)	34,912	27,988	58.9%
2114	Spec Purpose Vehicles	18	1	3	0	3	16.7%
2115	Garage Work Equipment	961	90	270	(684)	(414)	-43.1%
2116	Other Work Equipment	15,891	1,851	5,553	2,269	7,822	49.2%
2121	Buildings	115,383	(476)	(1,428)	39,573	38,145	33.1%
2122	Furniture	1,208	174	522	(20)	502	41.6%
2123.1	Ofc. Support Eqpt	3,883	610	1,830	1,649	3,479	89.6%
2123.2	Company Communications Eqpt	1,040	(728)	(2,184)	1,594	(590)	-56.7%
2124	Gen. Purpose Computers	79,409	(10,237)	(30,711)	67,857	37,146	46.8%
2211	Analog Switching Equipment	110,824	16,400	49,200	47,604	96,804	87.3%
2212	Digital Switching Equipment	655,053	15,529	46,587	278,255	324,842	49.6%
2220	Operator Systems	6,498	0 *	0	4,187	4,187	64.4%
2231	Radio Systems	23,571	(895)	(2,685)	19,450	16,765	71.1%
2232.1	Circuit DDS	5,667	(663)	(1,989)	6,006	4,017	70.9%
2232.2	Circuit Digital	752,751	6,040	18,120	395,804	413,924	55.0%
2232.3	Circuit Analog	32,631	(3,906)	(11,718)	31,098	19,380	59.4%
2351	Public Telephone Terminal Eqpt.	17,969	(181)	(543)	8,792 **	8,249	45.9%
2362	Other Terminal Equipment	40,092	(1,000)	(3,000)	21,273	18,273	45.6%
2411	Pole Lines	34,403	125	375	27,203	27,578	80.2%
2421.1	Aerial Cable - Metallic	121,417	2,419	7,257	94,889	102,146	84.1%
2421.2	Aerial Cable - Nonmetallic	4,563	33	99	1,303	1,402	30.7%
2422.1	Underground Cable - Metallic	257,054	7,936	23,808	160,771	184,579	71.8%
2422.2	Underground Cable - Nonmetallic	64,194	2,310	6,930	24,788	31,718	49.4%
2423.1	Buried Cable - Metallic	927,241	50,736	152,208	414,376	566,584	61.1%
2423.2	Buried Cable - Nonmetallic	12,727	171	513	4,860	5,373	42.2%
2424.1	Submarine Cable - Metallic	2	2	0	0	0	-
2424.2	Submarine Cable - Nonmetallic	0	0	0	0	0	-
2426.1	Intrabldg Cable - Metallic	30,275	(197)	(591)	22,912	22,321	73.7%
2426.2	Intrabldg Cable - Nonmetallic	429	3	9	177	186	43.4%
2431	Aerial Wire	6,494	504	1,512	2,117	3,629	55.9%
2441	Conduit Systems	225,140	401	1,203	54,795	55,998	24.9%
	Total	3,594,290	84,744	254,226	1,767,810	2,022,036	56.3%

Source: Col. a = Wu Testimony, 5/3/00, Exhibit KDW-2, p.1, Col A.
Col. b = Wu Testimony, 5/3/00, Exhibit KDW-1, p.4, Col P.
Col. d = Response to WDA 21-001, Attachment D.

* Assumes no accruals since 1/1/97.

** 12/31/97 Reserve, WU Testimony, 5/3/00, Exhibit KDW 1, p. 5, Col. B.

DOD/FEA TEST YEAR ADJUSTMENT 6
DEPRECIATION
(\$000)

Account Number	Account Name or Subclass of Plan	Reserve Percent (a)	Future Net Salvage Percent (b)	Average Remaining Life (c)	Remaining Life Rate (d= (100-a-b)/c)	Intrastate Investment 12/31/99 (e)	Test Period Accruals (f=d*e)
2112	Motor Vehicles	58.9%	16%	3.6	7.0%	47,502	3,325
2114	Spec Purpose Vehicles	16.7%	0%	7.3	11.4%	18	2
2115	Garage Work Equipment	-43.1%	-4%	9.7	15.2%	961	146
2116	Other Work Equipment	49.2%	7%	5.7	7.7%	15,891	1,224
2121	Buildings	33.1%	-6%	25.5	2.9%	115,383	3,346
2122	Furniture	41.6%	0%	4.8	12.2%	1,208	147
2123.1	Ofc. Support Eqpt	89.6%	0%	3.0	3.5%	3,883	136
2123.2	Company Communications Eqpt	-56.7%	0%	3.7	42.4%	1,040	441
2124	Gen. Purpose Computers	46.8%	5%	2.1	23.0%	79,409	18,264
2211	Analog Switching Equipment	87.3%	0%	*	*	110,824	14,020
2212	Digital Switching Equipment	49.6%	3%	5.1	9.3%	655,053	60,920
2220	Operator Systems	64.4%	-3%	5.2	7.4%	6,498	481
2231	Radio Systems	71.1%	-2%	5.9	5.2%	23,571	1,226
2232.1	Circuit DDS	70.9%	3%	3.8	6.9%	5,667	391
2232.2	Circuit Digital	55.0%	2%	5.1	8.4%	752,751	63,231
2232.3	Circuit Analog	59.4%	0%	3.1	13.1%	32,631	4,275
2351	Public Telephone Terminal Eqpt.	45.9%	30%	3.6	6.7%	17,969	1,204
2362	Other Terminal Equipment	45.6%	2%	6.3	8.3%	40,092	3,328
2411	Pole Lines	80.2%	-138%	25.3	6.2%	34,403	2,133
2421.1	Aerial Cable - Metallic	84.1%	-27%	5.1	8.4%	121,417	10,199
2421.2	Aerial Cable - Nonmetallic	30.7%	-27%	10.6	9.1%	4,563	415
2422.1	Underground Cable - Metallic	71.8%	-6%	5.6	6.1%	257,054	15,680
2422.2	Underground Cable - Nonmetallic	49.4%	-6%	6.0	9.4%	64,194	6,034
2423.1	Buried Cable - Metallic	61.1%	-7%	5.6	8.2%	927,241	76,034
2423.2	Buried Cable - Nonmetallic	42.2%	-7%	10.2	6.4%	12,727	815
2424.1	Submarine Cable - Metallic	0.0%	0%	0.5	200.0%	2	4
2424.2	Submarine Cable - Nonmetallic	0.0%	0%	0.0	0.0%	0	0
2426.1	Intrabldg Cable - Metallic	73.7%	0%	7.7	3.4%	30,275	1,029
2426.2	Intrabldg Cable - Nonmetallic	43.4%	0%	6.2	9.1%	429	39
2431	Aerial Wire	55.9%	-30%	5.6	13.2%	6,494	857
2441	Conduit Systems	24.9%	-20%	41.3	2.3%	225,140	5,178
	Total					3,594,290	294,524
	US WEST (Wu Testimony, Exhibit KDW-2, p.1, Col. E)						355,134
	Adjustment						(60,610)

Source: Col. a = Attachment 11, p. 1
Col. b = Wu Testimony, 5/3/00, Exhibit KDW-1, p.5, Cols E & G.
Col. c = Response to WDA 21-151.

* AYFR = Year 2000 (Accruals = Investment - Reserve)

DOD/FEA TEST YEAR ADJUSTMENT 6
DEPRECIATION
(\$000)

Operating Revenues	0
Operating Expenses	(60,610)
Total Operating Income Taxes	24,365
Net Operating Income	36,245
Rate Base	(254,226)
Revenue Requirements	(108,906)

This adjustment revises U S West's estimate of the end of period depreciation expense and rate base.

DOD/FEA Test Year Adjustment 7
Rate of Return
\$(000)

1.	U S WEST Rate of Return (GAR-S1)	10.86%
2.	DOD/FEA Rate of Return (King Testimony)	9.54%
3.	Reduction to Rate of Return (L1 - L2)	1.32%
4.	Adjusted Rate Base (Attachment 5)	\$1,138,852
5.	Reduction in Required Earnings (L3 x L4)	\$15,033

DOD/FEA Test Year Adjustment 7
Rate of Return
\$(000)

Operating Revenue	-
Operating Expenses	-
Total Operating Income Taxes	-
Net Operating Income	15,033
Rate Base	-
Revenue Requirements	(25,640)

This adjustment reflects a 9.54 percent required rate of return.

BEFORE THE ARIZONA CORPORATION COMMISSION

CARL J. KUNASEK

Chairman

JIM IRVIN

Commissioner

WILLIAM A. MUNDELL

Commissioner

IN THE MATTER OF THE APPLICATION)
OF U S WEST COMMUNICATIONS, INC.,)
A COLORADO CORPORATION, FOR A)
HEARING TO DETERMINE THE EARNINGS)
OF THE COMPANY, THE FAIR VALUE)
OF THE COMPANY FOR RATEMAKING)
PURPOSES, TO FIX A JUST AND)
REASONABLE RATE OF RETURN THEREON)
AND TO APPROVE RATE SCHEDULES)
DESIGNED TO DEVELOP SUCH RETURN)
_____)

DOCKET NO. T-01051B-99-0150

DIRECT TESTIMONY

of

CHARLES W. KING

On behalf of

THE UNITED STATES DEPARTMENT OF DEFENSE

And

ALL OTHER FEDERAL EXECUTIVE AGENCIES

ROBERT N. KITTEL, CHIEF

Regulatory Law Office

Office of The Judge Advocate General

U.S. Army Litigation Center

901 N. Stuart Street, Suite 713

Arlington, Virginia 22203-1837

by

Peter Q. Nyce, Jr.

General Attorney

July 25, 2000

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1 **INTRODUCTION**

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

3 A. My name is Charles W. King. I am President of the economic consulting firm of
4 Snavelly King Majoros O'Connor & Lee, Inc. ("Snavelly King"). My business address
5 is 1220 L Street, N.W. Suite 410, Washington, D.C. 20005.

6 **Q. PLEASE DESCRIBE SNAVELLY KING.**

7 A. Snavelly King, formerly Snavelly, King & Associates, Inc., was founded in 1970 to
8 conduct research on a consulting basis into the rates, revenues, costs, and
9 economic performance of regulated firms and industries. The firm has a professional
10 staff of 12 economists, accountants, engineers and cost analysts. Most of its work
11 involves the development, preparation and presentation of expert witness testimony
12 before Federal and state regulatory agencies. Over the course of its 30-year history,
13 members of the firm have participated in over 500 proceedings before almost all of
14 the state commissions and all Federal commissions that regulate utilities or
15 transportation industries.

16 **Q. HAVE YOU ATTACHED A DESCRIPTION OF YOUR BACKGROUND AND**
17 **EXPERIENCE?**

18 A. Yes. Attachment A to this testimony is a one-page resume of my professional
19 background and experience.

20 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY PROCEEDINGS?**

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1 A. Yes. I have testified on over 300 separate occasions before 35 state and nine
2 federal regulatory commissions in the United States and Canada. Attachment B is
3 a listing of these appearances.

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

5 A. I am appearing on behalf of the United States Department of Defense and all other
6 Federal Executive Agencies ("DOD/FEA").

7 **Q. WHAT IS DOD/FEA'S INTEREST IN THIS PROCEEDING?**

8 A. As a user of the telecommunications services provided by US WEST
9 Communications, Inc ("US WEST"), DOD/FEA's interest is in the maintenance of just
10 and reasonable rates.

11 **Q. WAS THIS TESTIMONY PREPARED BY YOU OR UNDER YOUR DIRECT
12 SUPERVISION?**

13 A. Yes. It was.

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

15 A. The purpose of my testimony is to recommend a fair rate of return to be applied to
16 the rate base for US WEST's Arizona intrastate operations. Since US WEST has
17 presented its version of a fair rate of return through the testimony of Peter C.
18 Cummings, much of my testimony responds to the positions stated in Mr. Cummings'
19 testimony.

1 Q PLEASE SUMMARIZE YOUR FINDINGS.

2 A. I find that a fair rate of return on the original cost rate base for US WEST's Arizona
3 intrastate operations is 9.54 percent. When applied to the fair value rate base, this
4 return should be adjusted to produce the same dollar amount of return.

5 I. CAPITAL STRUCTURE AND COST OF DEBT

6 Q. WHAT CAPITAL STRUCTURE IS APPROPRIATE FOR US WEST'S ARIZONA
7 INTRASTATE OPERATIONS?

8 A. In his Supplemental Direct Testimony, US WEST witness Peter Cummings has
9 updated US WEST's capital structure to February, 2000. He states that the updated
10 capital structure is 47.6% debt and 52.78% equity.

11 Q. HOW DOES THE PURCHASE OF US WEST BY QWEST COMMUNICATIONS
12 INTERNATIONAL AFFECT US WEST'S CAPITAL STRUCTURE?

13 A. In the short term at least, the merger with Qwest does not affect US WEST's capital
14 structure. That is because Qwest is retaining US WEST as a stand-alone subsidiary
15 with its own balance sheet. The capital structure is drawn from the liabilities side of
16 that balance sheet.

17 Q. WHAT IS THE COST OF US WEST'S DEBT?

18 A. In his Supplemental Testimony, Mr. Cummings also updated US WEST's embedded
19 debt cost to 7.39%.

1 **II. THE COST OF EQUITY**

2 **Q. WHAT IS THE BASIS FOR FINDING A RATE OR RETURN TO THE EQUITY**
3 **COMPONENT OF THE CAPITAL DEVOTED TO US WEST'S ARIZONA**
4 **INTRASTATE OPERATIONS**

5
6 A. In its landmark Hope Natural Gas decision, the United States Supreme Court
7 established the following standards for the return to equity that must be allowed a
8 regulated public utility:

9 ...the return to the equity owner should be commensurate with the
10 returns on investments in other enterprises having corresponding risks.
11 That return, moreover, should be sufficient to assure confidence in the
12 financial integrity of the enterprise, so as to maintain its credit and to
13 attract capital.¹

14 It can be seen from this excerpt that there are essentially three standards for
15 determining an appropriate return to equity. The first is the "comparable earnings"
16 standard, that the earnings must be "commensurate with the returns on investments
17 in other enterprises having corresponding risks." The second is that they must be
18 sufficient to assure "the financial integrity of the enterprise," and the third is that they
19 must allow the utility to be able to attract capital.

20
21 **Q. HOW CAN THE COMPARABLE EARNINGS STANDARD BE APPLIED IN**
22 **ESTIMATING THE RATE OF RETURN TO EQUITY CAPITAL?**

¹Federal Power Commission et. al. vs. Hope Natural Gas Company, 320 U.S.
592, at 603.

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1 A. There is a certain circularity to the comparable earnings standard because the
2 competitive nature of the capital markets virtually ensures that the returns to all
3 enterprises having corresponding risks are comparable with each other. Investors
4 establish the price of each traded stock based on that stock's present and
5 prospective earnings in comparison with the present and prospective earnings of all
6 other stocks and other investments available to them. If the earnings of a firm are
7 depressed, then investors will pay only a low price for that firm's stock. As a result,
8 their return on the market value of that stock will be comparable to the return on the
9 market value of the stock of other highly profitable companies which, as a
10 consequence of their profitability, have been bid up to a very high price. Thus, if
11 "return" is defined as the earnings of an equity investment relative to its current
12 market price, then the comparable earnings test becomes a cipher. All returns are
13 comparable with all other returns.

14
15 In public utility regulation the conventional procedure for resolving this circularity is
16 to identify the required equity return based on the market value of a utility's stock.
17 That return is combined with the cost of debt, using either the actual or a
18 hypothetical minimum-cost capital structure. The blended return to total capital is
19 then applied to a rate base reflective of the book value of the utility's investment.
20 The book value is the accountant's quantification of the original cost of the utility's
21 assets adjusted for ratepayer contributions such as deposits and deferred taxes.
22 Under this procedure, the market price of a stock is used only to determine the return
23 that investors expect from that stock. That expectation is then applied to the book
24 value of the utility's investment to identify the level of earnings which regulation will
25 allow the utility's common shareholders to recover.

26 In Arizona, there is a mechanism to adjust the rate base for the growth in value of

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1 the investment due to the effect of dollar inflation. However, since the rates of return
2 for both equity and debt already incorporate an allowance for the risk of inflation, any
3 application of market-based returns to the "fair value" rate base results in a double
4 count of the effect of inflation. This is why the Commission is correct in its practice
5 of adjusting the rate of return applicable to the fair value rate base so that the return
6 allowance is the same as when the unadjusted rate of return is applied to the rate
7 base valued at original cost.

8 **Q. HOW CAN THE FINANCIAL INTEGRITY AND CAPITAL ATTRACTION**
9 **STANDARDS BE APPLIED IN ESTIMATING THE RATE OF RETURN TO EQUITY**
10 **CAPITAL?**

11 A. If US WEST can earn a return on its investment comparable to that required by its
12 own shareholders and by shareholders of companies of comparable risk, then it
13 should have no difficulty in attracting capital and maintaining credit. Investors would
14 have no reason to shun US WEST in favor of other investment opportunities. Thus,
15 if the comparable earnings test is met, then the financial integrity and capital
16 attraction standards are also met as well.

17 **Q. WHAT ARE COMPANIES OF COMPARABLE RISK TO US WEST?**

18 A. The companies with business risks most comparable to US WEST are those in the
19 same business as US WEST, that is, local exchange and intraLATA toll telephone
20 service and toll access service. Obviously, these are other telephone companies.
21 Within this category, the companies most comparable are the Regional Bell Holding
22 Companies ("RBHCs"), of which US WEST is one. These are the "Baby Bells" that
23 were spun off from the Bell System when that system was broken up on January 1,

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1 1984.

2 Originally there were seven Baby Bells, but they have since collapsed into four
3 following the merger of Pacific Telesis and Ameritech into Southwestern Bell and
4 NYNEX into Bell Atlantic. Within the past two months, the identity of even these four
5 has been further blurred by the merger of Bell Atlantic and GTE and by the
6 acquisition of US WEST by Qwest Communications International. Of the original
7 seven Baby Bells, only Bell South remains in its original form, unaffected by merger
8 activity.

9 Some other companies might also be considered as comparable to the US WEST
10 in terms of investor-perceived risk. GTE might have been a leading candidate
11 except that it has just merged into Bell Atlantic. The new company, Verizon, is
12 therefore a blend of these two predecessor companies. The United and Central
13 telephone companies might be suitable for comparison were they not owned by
14 Sprint, which is best known to the public -- including the investing public -- as a long-
15 distance and wireless carrier. The remaining independents, Frontier, Aliant,
16 Cincinnati Bell, and Citizens, all have long-distance, CLEC² and cellular activities that
17 set them apart from US WEST. They are also much smaller than the US WEST, so
18 that their inclusion would require some sort of weighting process to recognize their
19 relative position in the telephone industry.

20 Beyond the telephone industry, the most comparable companies to US WEST are
21 found in the electric utility industry. They, too, are traditional regulated utilities with
22 geographically defined franchise areas that are now experiencing growing

²Competitive Local Exchange Carrier

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1 competition and considerable industry restructuring. Like US WEST, many electric
2 utilities are venturing into related competitive activities, and they are often targets for
3 merger and acquisition.

4 **Q. DID MR. CUMMINGS ALSO USE LISTS OF COMPANIES THAT HE CLAIMS**
5 **HAVE RISKS COMPARABLE TO US WEST?**

6 A. Yes. Mr. Cummings compared US WEST with the RBHCs, as I propose to do. He
7 also surveyed 9000 firms in Standard & Poor's Computstat data base for two criteria
8 that he claims equate them to US WEST in terms of risk: an S&P bond rating of A+
9 or greater and cash flow variability similar to US WEST. In his initial testimony, he
10 identified 20 companies, and in his supplemental testimony 30 companies, that he
11 believes to be comparable in risk to US WEST.

12 **Q. DO YOU AGREE THAT THE TWO CRITERIA USED BY MR. CUMMINGS**
13 **EFFECTIVELY IDENTIFY COMPANIES OF COMPARABLE RISK TO US WEST?**

14 A. No. The first criterion, an S&P A+ rating or better, suggests companies that have
15 comparable debt risk, not comparable equity risk. A company with a high degree of
16 business risk can minimize its debt risk by maintaining a relatively small amount of
17 debt. US WEST maintains over 45 percent of its capitalization in the form of debt,
18 which is higher than most industrial companies with comparable S&P bond ratings,
19 but lower than most electric or gas utilities. The differences in capital structure alone
20 make the "comparable" companies dissimilar to US WEST in terms of equity risk.

21 The second criterion, variability of cash flow, fails to consider the relation of cash flow
22 to fixed costs. A company with a much lower proportion of fixed costs than US

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1 WEST, but with the same cash flow variability, will enjoy a much lower level of risk.
2 Conversely, a company with a greater fixed cost obligation will experience greater
3 risk.

4 The greatest difference, however, lies in the nature of the businesses in which most
5 of his comparison companies are engaged. Unlike US WEST, the industrial
6 companies in his comparison group do not produce products or services that are so
7 vested with the public interest that they require governmental price regulation. Nor
8 do any of these industrial enterprises operate in geographically designated markets
9 where they enjoy government-condoned monopoly pricing power. Thus, while these
10 industrial enterprises may retrospectively have experienced earnings variability
11 similar to US WEST, none of them can look forward to continued earnings stability
12 with anything like the confidence of US WEST. Mr. Cummings' selection reflects the
13 variability of cash flow between 1989 through 1997. Investors' perception of risk is
14 prospective, specifically whether cash flow will continue to be stable in the future.
15

16 **Q. ARE THERE ANY COMPANIES IN MR. CUMMINGS' LISTs THAT ARE**
17 **COMPARABLE TO US WEST?**

18 A. Yes, as noted, electric utilities are similar in risk to US WEST. In Exhibit PCC-6, Mr.
19 Cummings listed four electric utilities -- Consolidated Edison, DPL Inc., FPL Group,
20 IPALCO Enterprises -- which, according to Mr. Cummings, had an average DCF
21 equity cost of 8.5 percent. In Exhibit PCC-04, Mr. Cummings dropped Consolidated
22 Edison and added Duke Energy, Northern States Power, OGE Energy and Otter Tail
23 Power. As computed by Mr. Cummings, these seven electric utilities showed an
24 average DCF equity return of 12.0 percent, compared with 14.0 percent for the full
25 list of 30 companies. I suspect that the relatively greater confidence in the future

1 cash flow of utilities relative to industrial enterprises accounts for these lower equity
2 costs.

3 **Q. HOW WILL YOU IDENTIFY THE MARKET-DETERMINED RATE OF RETURN TO**
4 **THE EQUITY CAPITAL INVESTMENT IN US WEST'S ARIZONA OPERATIONS?**

5 A. I shall first apply the Discounted Cash Flow ("DCF") procedure, which I consider to
6 be the most accurate test of a market return. I shall then consider the Capital Asset
7 Pricing Model, discuss its conceptual and measurement problems, and assess its
8 value in measuring the relative riskiness of different companies. In the course of
9 this discussion, I will comment on the analysis presented by US WEST witness
10 Peter Cummings and explain why his proposed equity return, which is 250 basis
11 points (2.5%) higher than my recommendation, is inappropriate for the equity of US
12 WEST.

13 **A. DISCOUNTED CASE FLOW PROCEDURE**

14 **Q. PLEASE DESCRIBE THE DISCOUNTED CASH FLOW PROCEDURE.**

15 A. The basic premise of the Discounted Cash Flow ("DCF") procedure is that the
16 market values each stock at the discounted present value of all future flows of cash
17 that investors expect from purchasing that stock. The discount rate that equates
18 those future cash flows with the market value of the stock is the investors' required
19 rate of return.

20
21 The DCF approach is usually represented by the following formula:
22

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- 1 $k = \frac{d}{P} + g$
2 where k = required rate of return
3 d = dividend in the immediate period
4 P = market price
5 g = expected growth rate in dividends

6 While the DCF method is usually presented in mathematical notation format (as
7 above), it can also be described in narrative fashion. The formula says that the
8 return which any investor expects from the purchase of a stock consists of two
9 components. The first is the immediate cash flow in the form of a dividend. The
10 second is the prospect for future growth in dividends. The sum of the rates of these
11 two flows, present and future, equals the return that investors require. Investors
12 adjust the price they are willing to pay for the stock until the sum of the dividend yield
13 and the annual rate of expected future growth in dividends equals the rate of return
14 they expect from other investments of comparable risk. The DCF test thus
15 determines what the investing community requires from the company in terms of
16 present and future dividends relative to the current market price.

17 **Q. IS THERE A CONVENTIONAL PROCEDURE FOR CALCULATING DCF**
18 **RETURNS?**

19 A. Yes. There is a conventional procedure for calculating equity return under the DCF
20 formula that is often referred to as "classic" DCF calculation. The Federal
21 Communications Commission ("FCC") recently concluded tentatively that this method
22 should be given the greatest weight in determining the rate of return to equity.³ I

³Notice Initiating a Prescription Proceeding and Notice of Proposed Rulemaking, CC Docket No. 98-166, October 5, 1998, ¶ 26.

1 agree with that conclusion.

2 **Q. HOW IS THE "g" OR GROWTH FACTOR IN THE DCF FORMULA IDENTIFIED**
3 **UNDER THE CLASSIC DCF CALCULATION?**

4 A According to the DCF theory, the relevant measure of "g" should be the growth in
5 dividends. Dividends, however, are susceptible to management's discretionary
6 control of the dividend payout ratio. In the short run at least, they may not reflect the
7 underlying driver of earnings. For this reason, the classic DCF calculation uses
8 earnings per share growth ("EPS") is the indicator of the "g" factor.

9 The classic DCF calculation also employs predictions of EPS growth, usually in the
10 three to five year time horizon. One leading source of these predictions is survey of
11 institutional investment analysts called the Institutional Brokers Estimate Sytem
12 ("I/B/E/S"). This was the source of Mr. Cummings' growth estimates.

13 **Q. HOW DOES THE CLASSIC DCF CALCULATION DERIVE THE DIVIDEND YIELD**
14 **PORTION OF THE DCF FORMULA?**

15 A. Under the classic calculation, the dividend yield is calculated as the next year's
16 dividend divided by a recent average of the price of the stock. The resultant yield
17 should reasonably match the dividend yields shown by the financial reporting
18 services.

19 There are several ways to predict next year's dividend. Several investors' services
20 provide forecasts of dividends. Another, somewhat more mechanical approach is
21 to compute the next year's dividend as the most recent dividend annualized plus one

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1 half the analysts' prediction of the long-term growth rate in earnings per share.

2 **Q. HOW IS THE DENOMINATOR IN THE DIVIDEND YIELD CALCULATION, THE**
3 **RECENT PRICE OF THE STOCKS, IDENTIFIED?**

4 A. Some judgement is required to establish a set of price observations that capture the
5 investing public's current perception of value while at the same time reflecting some
6 stability in the market. Given the fluctuations of the markets, a price observation for
7 a single day, week, or even month runs the risk of becoming obsolete in a very short
8 time. Market fluctuations also mean that the use of monthly highs and lows may
9 exaggerate the effect of some of the sharp drops and rises that the markets have
10 experienced recently. For this reason, I believe it is best to use the average of the
11 prices over a period one to three recent months.

12 **Q. MR. CUMMINGS CLAIMS THAT IT IS APPROPRIATE TO COMPOUND THE**
13 **QUARTERLY DIVIDENDS IN ORDER TO CALCULATE THE ACTUAL DIVIDEND**
14 **YIELD. DO YOU AGREE?**

15 A. No. Mr. Cummings argues that the yield from quarterly dividends is greater than the
16 simple summation of those dividends because investors have the opportunity to earn
17 return during the portion of the year following the receipt of each dividend. Thus, the
18 yield on the first quarter's dividend is supplemented by that dividend's earnings
19 power during the three remaining quarters that the investor holds it. The second
20 quarter's dividend earns additional return during the following two quarters. The third
21 dividend generates a quarter of a year's return.

22 All this is true, but it has nothing to do with the cash dividends that must be

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1 generated by the dividend-issuing company to satisfy investors' requirements.
2 Investors' ability to earn on quarterly dividends is quite outside of the cash flow from
3 the company: it is achieved by taking that cash flow and reinvesting it elsewhere.
4 The cash flow from the company does not need to be supplemented.

5 **Q HAVE YOU CALCULATED THE "CLASSIC" DCF RETURN FOR US WEST?**

6 A. Yes. As Mr. Cummings correctly notes, the US WEST's stock performance has
7 been distorted recently by its impending merger with Qwest. Because of this
8 merger, I/B/E/S provides no earnings growth forecasts for US WEST. However,
9 Zacks Investment Research, Inc. surveyed regional, national and institutional brokers
10 for their expectations as to the earnings that an investor in US WEST might expect
11 if he bought the stock prior to the merger. Zacks reports seven forecasts of the
12 annual percentage growth in US WEST's EPS over the coming five years, analyzed
13 as a stand-alone company. The average of these seven estimates is 7.22 percent.

14 US WEST's dividend has been \$2.14 annually for past six years, and neither Zacks
15 nor Value Line expect that it would have increased.

16 US WEST's impending merger has heavily influenced the price of its stock, causing
17 it to rise from \$66 in mid-April to \$85.75 on June 30, the day before the merger was
18 consummated. Since the objective of this exercise is to estimate the cost of the
19 equity in US WEST devoted to Arizona intrastate telephone operations, it is
20 desirable, insofar as possible, to exclude the distorting effect of the expected merger.
21 For this reason, I have excluded the sharp runup in US WEST's price that occurred
22 in June when it appeared that US WEST would receive all of the necessary merger
23 approvals. Instead, I have used the average price during the six-week period from

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1 April 15 through May 26, which was \$71.35.

2 The paradoxical effect of this exclusion is to bias my return estimate upward. By
3 using a lower pre-merger price, I increase the dividend yield, which increases the
4 DCF return. Specifically, the \$2.14 dividend divided by \$71.35 produces a yield of
5 3.0 percent. Had I used the closing price of \$85.75 just before the merger, the yield
6 would have been only 2.5 percent.

7 I am probably further exaggerating US WEST's required return when I combine this
8 dividend yield with Zack's forecast of earnings growth. A year ago, I/B/E/S forecast
9 US WEST's long-term growth at only 6.6 percent. The 7.22 percent produced by
10 Zack's probably anticipates the expected merger of US WEST with a dynamic and
11 fast-growing company like Qwest.

12 The sum of the dividend yield of 3.0 percent and the growth rate of 7.22 percent
13 produces a "classic" DCF calculation for US WEST of 10.22 percent.

14 **Q. HAVE YOU CONDUCTED A CLASSIC DCF ANALYSIS OF THE OTHER THREE**
15 **BABY BELL COMPANIES?**

16 **A.** Yes. For this purpose, I have used the I/B/E/S consensus (mean) forecast of
17 earnings growth, the most recent dividends annualized and increased by one half
18 Zack's estimate of annual dividend growth, and the average weekly closing price for
19 the three-month period April 14 through July 14. The results are as follows:

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Table 1
DCF Analysis of Bell Companies

		Source	Verizon	BellSouth	SBC
1.	Long Term Growth Consensus	I/B/E/S	11.65%	11.06%	12.87%
2.	Recent Dividend Annualized	Yahoo	\$0.19	\$0.76	\$1.01
3.	Dividend Growth	Zack's	11.65% ⁴	2.0%	4.0%
4.	Next year's Dividend	L2* (1+L3/2)	\$0.20	\$0.77	\$1.03
5.	Average Price April 14 - July 14, 2000	CBS MarketWatch	\$54.83 ⁵	\$46.00	\$44.51
6.	Dividend Yield	L4/L5	0.36%	1.67%	2.31%
7.	DCF Return	L1+L6	12.01%	12.73%	15.18%

Q. HAVE YOU PERFORMED A CLASSIC DCF CALCULATION FOR COMPARABLE ELECTRIC UTILITIES?

A. Yes. Electric utilities are a much more varied group in terms of credit-worthiness than the five RBHCs. To limit the sample to a group with risk approximately equal to that of US WEST, I selected electric utilities rated A3 or better rating by Moody's in its most recent quarterly update.⁶ US WEST has a Moody's rating of A2. There are 34 companies in this comparison group. They are listed in Exhibit CWK-1.

⁴Zack's forecast unavailable; use I/B/E/S EPS growth forecast

⁵Bell Atlantic and GTE blended prior to June.

⁶Moody's Short-Term Market Record: Quarterly Update, April 2000, Moody's Investor Services, Volume XX, No. 2.

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1 Exhibit CWK-1 develops the DCF cost of capital for the comparison electric utilities
2 in a similar manner to that which I used to develop the DCF cost of capital for the
3 telephone companies under the "classic" formulation. In this case, however, I used
4 the dividend yield as it was reported on the current Zacks Investor Research reports
5 for the respective companies. For the "g" factor, I used the Zacks' consensus
6 estimates of the percentage growth in earnings per share over the coming five years.
7 Zacks does not provide a consensus forecast for CILCORP, Madison Gas & Electric
8 and New England Electric System, so they were necessarily excluded from the
9 average.

10
11 Exhibit CWK-2 shows that the DCF returns within this comparison group range from
12 9.06 to 14.83 percent, with an average of 11.53 percent.

13 **Q. ARE THERE ALTERNATIVE FORMULATIONS OF THE DCF PROCEDURE?**

14 A. Yes. There are broadly two alternative formulations to the DCF procedure that have
15 been used in utility rate of return studies, both reflecting different ways of estimating
16 the "g" or growth factor. The first is based on the proposition that growth in earnings
17 and dividends for a regulated public utility is constrained by the growth in book value
18 per share. This is because public utility regulation has traditionally authorized
19 earnings in relation to a "rate base" reflective of the book value of the investment
20 devoted to utility service. The rate of growth in per-share book value is a function of
21 (1) the earnings retention ratio, (2) the authorized rate of return and (3) dilution or
22 accretion from sales of new stock.

23 The other alternative uses historical trends in growth in earnings and dividends to
24 calculate the "g" factor in the DCF formula.

1 **Q. WHAT IS YOUR ASSESSMENT OF THESE TWO ALTERNATIVE APPROACHES**
2 **FOR THE RBHCs AND US WEST?**

3 A. The book value growth model is altogether unsuited to the Regional Bell Holding
4 Companies ("RBHC") because much of their investment is no longer subject to rate-
5 base/rate-of-return regulation that sets earnings allowances according to the book
6 value of investment. The FCC now regulates interstate access charges under a
7 "price cap" plan that ties these rates to an indices of inflation less productivity offsets,
8 not to the book value of interstate plant.⁷ Many states have also reduced or altered
9 their regulation of intrastate rates so that earnings are no longer tied to book
10 investment. As a result, the RBHCs' rates of return on book investment have drifted
11 away from each other and from any calculated estimate of their required rate of
12 return. When this tie is broken, the book value per share model for estimating the
13 "g" factor loses its rationale.

14 Historical trends in dividends and earnings are relevant to an estimation of the "g"
15 factor only to the extent that investors regard them as indicators of their future
16 expectations. Most financial reports display considerable historical data, including
17 past earnings per share and dividends, which suggests that this information is of
18 interest to investors and analysts. The weight that they give to the trends in these
19 indicators is, of course, unknown and unknowable.

20 **Q. CAN YOU IDENTIFY THE HISTORICAL GROWTH TRENDS OF THE RBHCs?**

⁷Federal Communications Commission, Sixth Report and Order in CC Docket
Nos. 96-262 and 94-1, May 31, 2000.

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1 A. The RBHCs' earnings have been extraordinarily erratic during the past few years.
2 This is partly owing to mergers (SBC, Bell Atlantic) and partly to special charges (all
3 five RBHCs in 1993, 1994 and 1995). Nevertheless, Zacks Investment Research
4 publishes a figure for the historical percentage growth in earnings during the past five
5 years which presumably corrects for these extraneous factors.

6 **Q. WHAT ARE THE DCF INDICATIONS USING HISTORICAL TRENDS?**

7 A. The following table presents the DCF estimates for the four RBHCs using historical
8 growth rates in earnings per share:

9 Table 2
10 DCF Using Earnings per Share Growth, Last 5 Years

	EPS Growth	Dividend Yield	DCF Return
11 US WEST	4.6%	3.0%	7.6%
12 Verizon	10.5%	.4%	10.9%
13 BellSouth	19.3%	1.67%	21.0%
14 SBC Communications	9.1%	2.3%	11.4%

15 This table demonstrates the weakness of attempting to use historical trends as the
16 basis for the "g" factor in the DCF formula. Two of the four observations are so out
17 of range as to lack credibility: US WEST's return is too low and BellSouth's is too
18 high. These unreasonable results cast doubt on the validity of the remaining two
19 indications that do seem to be within the range of reasonableness. For this reason,
20 I am inclined to disregard DCF results using historical growth rates.

1 **B. CAPITAL ASSET PRICING MODEL**

2 **Q. WHAT IS THE CAPITAL ASSET PRICING MODEL?**

3 A. The Capital Asset Pricing Model ("CAPM") is based on the proposition that investors,
4 through diversification, can eliminate the specific risk of individual stocks, but they
5 cannot avoid the general risk of the stock market as a whole. That market risk is a
6 function of the variability of stock prices over time. Stocks that vary with the market,
7 but less so, are perceived to have a lower risk than the market, while those that
8 display more exaggerated covariance with the market are considered more risky than
9 the market as whole.

10 The measure of this covariance is a statistic called "beta". The market has a beta
11 of 1.0. Any stock that varies with the market but to a lesser degree has a beta of
12 less than 1.0. Conversely, stocks that fluctuate in a more exaggerated fashion than
13 the market have betas greater than 1.0.

14
15 As employed by utility-sponsored analysts such as Mr. Cummings, the CAPM
16 approach attempts to estimate the equity return of any given company by applying
17 that company's beta to the differential between a risk-free return and the average
18 return required from the market as a whole.

19
20 **Q. WHAT IS YOUR ASSESSMENT OF CAPM AS A METHOD FOR ESTIMATING A**
21 **COMPANY'S RATE OF RETURN?**

22 A. The CAPM is much more persuasive in theory than in practice. That is because it
23 requires the quantification of highly uncertain and to some extent subjective

1 measures. There are four such measures:

- 2 ● The return required from risk-free investments;
- 3 ● The Beta for the individual company;
- 4 ● The risk premium between the risk-free return and the return required by the
5 stock market as a whole, and
- 6 ● The relationship between Beta and the market risk premium.

7

8 Because there are selection and measurement problems with all four of these
9 measures, the CAPM can be considered as only a rough indicator of required return.

10 **Q. WHY DO YOU SAY THAT THE RETURN FROM RISK-FREE INVESTMENTS IS**
11 **UNCERTAIN AND TO SOME EXTENT SUBJECTIVE?**

12 A. The problems associated with this indicator are illustrated by Mr. Cumming's
13 selection of intermediate (3-5 year) and long term (30 year) Treasury bond yields as
14 measure of a risk-free return. The so-called "risk-free rate" is either 6.57 or 6.18
15 percent ⁸ depending on whether one uses the intermediate or the long term bond
16 rate. Nor is this differential just a current aberration.

17 While it is true that there is virtually no risk of default from long-term Treasury bonds,
18 these investments can have a very substantial inflation risk that is not found in
19 shorter term Treasury instruments or in the stock market. The proof of this risk is in
20 the yields themselves. Until quite recently, long-term bond yields were almost always
21 higher than intermediate bond yields, and intermediate bond yields were almost

⁸Cummings Exhibit PCC-05, pages 1 and 2, column A.

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1 always higher than short term bonds, CD's and bills. This relationship was very clear
2 a year ago in June 1999:

3 Table 3
4 U.S. Treasury Yields, June 1999⁹
5

6 3-Month Bills, auction high	4.60%
7 6-Month Constant Maturities	4.75%
8 1-Year Constant Maturity	5.03%
9 3-Year Bonds	5.62%
10 5-Year Bonds	5.68%
11 10-Year Bonds	5.79%
12 30-Year Bonds	5.98%

13 This inverse correlation between the term of the instrument and its yield has broken
14 down within the last year. Still, the latest Federal Reserve Release shows that
15 Treasury bills maturing within one year are yielding in the range of 5.74 to 6.00
16 percent, while long-term Treasury bonds yield, on average 6.23 percent.¹⁰ Clearly,
17 an instrument bearing a yield of 6.23 percent cannot be considered "risk free" if there
18 are alternative instruments which investors are actively buying that yield only 5.74
19 percent.

20 The explanation for these differences in yield lies in the inflation risk borne by longer
21 term securities. Any investor knows that once he buys such a bond, he is locked into
22 a fixed monthly or quarterly payment stream that will not change regardless of any

⁹Federal Reserve Bulletin, Domestic Financial Statistics

¹⁰Federal Reserve Statistical Release, July 5, 2000

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1 future trends in the economy or in the capital markets. If interest rates increase, the
2 value of the bond will decline, and while the bond will ultimately be repaid, the
3 investor is at risk for the reduced value of the bond up to the date of its maturity. The
4 farther away that maturity, the greater the risk. That is why yields on Treasury
5 instruments typically increase the longer the term of the instrument, as demonstrated
6 in Table 3 above.

7 **Q. WHY DO YOU SAY THAT THE ESTIMATION OF COMPANY BETAs IS**
8 **UNCERTAIN AND TO SOME EXTENT SUBJECTIVE?**

9 A. Mr. Cummings testifies that he calculated his own beta for US WEST based on daily
10 returns on US WEST's stock and on S&P's 500 companies during the period
11 November 1, 1995 through August 31, 1998. He derived a beta for US WEST of
12 .6266, but this was later corrected to .6419. He then adjusted the beta using both
13 Merrill Lynch and Value Line adjustment procedures, to .76.¹¹

14 It is obvious that other methods and other periods would yield different betas, and
15 indeed they do, as shown in the following table.

¹¹US WEST Response to APA03, No. 15, p.2.

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Table 4
Investment Analysts' Estimates of Beta, 1999

Company	Thompson	S&P	Yahoo	Zacks	Market Guide	Value Line
Ameritech	.66	.70	.66	.66	.70	.85
Bell Atlantic	.68	.74	.68	.72	.74	.85
Bell South	.45	.48	.45	.47	.48	.85
SBC Com.	.81	.84	.82	.78	.84	.80
US WEST	.51	.47	.41	.53	.47	.75

The only beta estimate for US WEST that even remotely approaches that of Mr. Cummings is the Value Line estimate. This is probably because both Mr. Cummings and Value Line adjust the "raw" beta upward, in Mr. Cummings' case from .6266 to .76.

Mr. Cummings provides no explanation for this adjustment. However, I inquired of Value Line as to the source of its adjustment and was directed to an article by Marshall Blume, "On the Assessment of Risk," in the March 1971 *Journal of Finance*. Dr. Blume performed time series analyses of beta measurements of different portfolios of stocks, comparing six different periods between 1926 and 1961. Dr. Blume's principal finding was that the beta measured in one period was a very good predictor of future betas for portfolios of stocks. However, for individual stocks, he found that a beta derived in the earlier period typically explained only 36 percent of the beta in the future period, leaving 64 percent unexplained, Dr. Blume noted that, "The large magnitude of unexplained variation may make the beta coefficient an inadequate measure of risk for analyzing the cost of equity for an individual firm, although it may be adequate for cross-section analyses of cost of equity."

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1 In order to reflect this poor predictability of beta as a measure of future risk, Dr.
2 Blume adjusted the current measure of beta by its standard error. The effect of this
3 adjustment is to increase the beta. The objective of this adjustment is to discount
4 the value of the beta as a measure of risk, not to imply the stock becomes
5 significantly less risky as time progresses.

6 The data in Table 4 indicate that only Value Line adjusts its beta. According to Mr.
7 Cummings, Merrill Lynch does also. The other analysts apparently use the "raw"
8 beta.

9 Accepting the propriety of using beta at all for a single company -- which Dr. Blume
10 questions — there is obviously no consensus on the value of beta at any given point
11 in time, nor is there any consensus on whether raw or adjusted betas should be
12 used. The selection of beta is therefore uncertain and somewhat subjective.

13
14 **Q. WHY DO YOU SAY THAT THE ESTIMATION OF THE PREMIUM BETWEEN THE**
15 **RISK-FREE RETURN AND THE OVERALL STOCK MARKET RETURN**
16 **REQUIREMENT IS UNCERTAIN AND TO SOME EXTENT SUBJECTIVE?**

17 A. Obviously, if it is difficult to estimate the return requirement for a single company, it
18 is also difficult to measure that requirement for the overall market. The procedures
19 used by Mr. Cummings illustrate this difficulty. Mr. Cummings employed two
20 approaches to this measurement. The first is the historical risk premium approach,
21 which Mr. Cummings refers to as "ex post", and the other is the "ex ante" which is a
22 DCF measurement for the entire market.

23 **Q. PLEASE DESCRIBE THE HISTORICAL RISK PREMIUM APPROACH.**

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1 A. The historical risk premium is predicated on the proposition that the expected risk
2 premium over debt financing is the difference in average realized returns for stocks
3 and bonds over large number of years. The theory holds that expectations and
4 realized returns converge given a long enough period of time. Mr. Cummings
5 employs the conventional measure, which is the Ibbotson Associates' calculations
6 of differences between returns to common stocks and to bonds over a period
7 beginning in 1926 and running up to the present.

8 **Q. WHAT IS YOUR ASSESSMENT OF THE HISTORICAL RISK PREMIUM**
9 **APPROACH?**

10 A. The historical risk premium model is both conceptually and statistically so flawed as
11 to be without value.

12 **Q. WHY DO YOU SAY THE HISTORICAL RISK PREMIUM APPROACH IS**
13 **CONCEPTUALLY FLAWED?**

14 A. This historical risk premium approach relies on two erroneous assumptions: first, that
15 the risk premium for equity investment is fixed for extended periods of time, and
16 second, that the risk premium can be derived from observations of realized returns
17 in the past.

18 **Q. WHY IS IT ERRONEOUS TO ASSUME THAT THE RISK PREMIUM FOR EQUITY**
19 **INVESTMENT IS FIXED FOR EXTENDED PERIODS OF TIME?**

20 A. First, I should note that this assumption of an unchanging equity risk premium is

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1 implicit to this methodology, not explicit. Nowhere in their exposition of this approach
2 do its authors, Roger G. Ibbotson and Rex A. Sinquefeld, assert that the risk
3 premium never changes over time. However, this assumption is the undeniable
4 corollary of adopting an average of the return differentials over 72 years as the
5 measure of the current difference between the required returns on equity and debt.

6 The assumption is flatly incorrect. The risks of stocks and bonds are inversely
7 related. During periods of slow economic growth or recession, bonds are a safe
8 haven from the threat of declining earnings. Inflation, which is the principal risk of
9 fixed income securities, tends to be quite low during recessions. The equity risk
10 premium relative to debt is quite high.

11 In the past (although happily not at present), periods of high growth tended to be
12 accompanied by the potential — and sometimes the reality — of high inflation. In
13 that environment, stocks become the haven. Not only do stocks receive the benefit
14 of expanded markets and increased earnings, but their value rises with inflation,
15 often ahead of it. Bonds, which have a fixed nominal return, decline in value in the
16 face of threatened inflation, and their yields increase. The risk premium for stocks
17 declines. Indeed, it was argued during the oil crises of the 1970s that the risk
18 premium of stocks relative to bonds had become negative.

19 **Q. WHY IS IT ERRONEOUS TO ASSUME THAT REALIZED RETURNS CONVERGE**
20 **ON EXPECTED RETURNS, GIVEN ENOUGH TIME?**

21 **A.** The basis for this assumption is that realized returns have a “random walk” such that
22 although no one investor necessarily realizes his required return, the whole body of

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1 investors over time realize their requirements on average.¹² The advocates of this
2 theory readily acknowledge that expectations and realization do not converge in the
3 short run. No one would have invested a dollar during 1929 had he known the
4 returns that were actually realized in 1930 through 1933. Conversely, the realized
5 returns from stock investments during the past eight years have far exceeded even
6 the most optimistic expectations of investors at the beginning of that period.

7 It is thus assumed that over a long enough time, the variations in earned returns
8 even out, with the negatives offsetting the positives, so that the long-term
9 experienced returns have conformed to the long-term expected returns. This is a
10 statement of faith, not of fact, and it flies in the face of common sense. If short-term
11 returns consistently fail to reflect investor expectations, what possible logic supports
12 the proposition that the sum of these failed expectations equals the actual
13 expectation? If the actual return differentials match expected return differentials, it
14 would be the result of pure chance, not of any reasoned or rational explanation.

15 **Q WHY DO YOU SAY THAT THE HISTORICAL RISK PREMIUM APPROACH IS**
16 **STATISTICALLY FLAWED?**

17 **A.** Mr. Cummings did not provide the data from which his historical risk premiums were
18 developed, but I have been able to obtain a 1982 version of the Ibbotson-Sinquefield
19 publication that contains return and "risk premia" data for the period 1926 through
20 1981. Exhibit CWK-2 presents the returns on stocks, bonds and the risk premiums
21 for each year. At the bottom of the page is found the averages. It is these averages

¹²R.G. Ibbotson and R.A. Sinquefield, *Stocks, Bonds, Bills, and Inflation: the Past and the Future*, Financial Analysts Research Foundation, 1982 Edition, Monograph #15.

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1 that are assumed to be representative of the risk premium that investors required for
2 stocks relative to bonds.

3 The exhibit also shows the standard deviation, or average error, of each series. In
4 each case, the average error exceeds the mean, and in the case of the risk
5 premiums it is 2.66 times the mean. When the variance around the mean is this
6 great, the mean has no statistical significance. That is, it cannot be used as a
7 predictor of future values of the statistic measured. The average of past risk
8 premiums has no statistical value as an indication of future risk premiums.

9 **Q. HOW DID MR. CUMMINGS DEVELOP HIS EX ANTE ESTIMATE OF THE**
10 **MARKET'S REQUIRED RETURN?**

11 A. Mr. Cummings simply summed the dividend yield and the I/B/E/S five-year growth
12 forecasts for each of Standard & Poor's 500 companies to arrive at a composite DCF
13 return of 14.8 percent, subsequently revised to 15.8 percent.

14 **Q. WHAT IS YOUR ASSESSMENT OF MR. CUMMINGS' EX ANTE ESTIMATE OF**
15 **THE MARKET'S REQUIRED RETURN?**

16 A. This is certainly a much more reasonable way to estimate the market's required
17 return than using the experienced historical difference between stock and bond
18 returns, but it suffers from the problem of redundancy. If the DCF procedure is
19 employed to implement the CAPM, why bother with the CAPM in the first place?
20 Why not use the DCF model as the basic measure of equity return for the company
21 or the industry under study?

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1 Beyond that conceptual problem, I question Mr. Cummings' 15.8%. It is the simple
2 average of the growth and yield expectations of all 500 companies in the S&P list.
3 This simple average is not a valid measure of the total market's earnings
4 requirements. The market does not invest equally in all companies. Rather, it has
5 substantially larger investments in larger companies and smaller investments in
6 smaller companies. Intuitively, one would expect large companies to have less risk,
7 on average, than small companies. If so, then a simple average of the DCF returns
8 for S&P's 500 companies would be higher than a dollar weighted average that
9 reflects the actual mix of investments in the market.

10 **Q. ARE THERE ANY OTHER PROBLEMS WITH THE CAPM PROCEDURE?**

11 A. Yes. The CAPM calls for the beta, whatever it is, to be applied to the risk premium
12 between risk-free securities, whatever they are, and the market's required rate of
13 return, whatever it is. It is presumed that beta is linearly related to this risk premium.
14 A beta of 0.0 would yield a return requirement equivalent to the risk-free rate, so a
15 beta of .5 should translate into the risk free rate, plus one-half of the market's risk
16 premium.

17 To my knowledge, no one has established this linear relationship empirically. Recall
18 that beta measures only systematic risk. Unsystematic risk, that is, variation in price
19 unrelated to the market, is assumed away. I question whether the market totally
20 discounts unsystematic risk. If it does not, then the CAPM is invalid as a procedure
21 for measuring return requirements.

22 This issue might be resolved by regressing the DCF returns of individual companies
23 against their betas. This test, however, would again raise the question of

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1 redundancy. If the DCF model is to be used to assess the CAPM, why bother with
2 the CAPM in the first place?

3

4 **Q. WHAT IS YOUR ASSESSMENT OF THE CAPM AS A PROCEDURE FOR FINDING**
5 **THE COST OF EQUITY OF A COMPANY LIKE US WEST?**

6 A. Given all of the measurement problems that I have discussed, I question the value
7 of the CAPM as a predictor of the absolute level of the cost of equity for any one
8 company. As noted by Dr. Blume, its greatest value is to test the riskiness, and
9 possibly the required return, of portfolios of stocks.

10 **Q. DO YOU THEREFORE CONCLUDE THAT CAPM CONCEPTS HAVE NO VALUE**
11 **WHATEVER IN EVALUATING US WEST'S REQUIRED RETURN?**

12 A. No. I believe that the concepts of the CAPM have considerable value in assessing
13 the relative risk of different companies.

14

15 Although the specific measures differ depending on the period covered and on the
16 adjustment methodology, the beta does appear to reflect fairly consistent differences
17 in risk among seemingly like companies. Table 4 shows that in 1999 there was a
18 clear consensus among the various investment analysts as to the general risk
19 relationships among the five RBHCs. All six of the investor services surveyed
20 agreed that SBC Communications is the most risky RBHC. Second was Bell
21 Atlantic, which is only slightly more risky than Ameritech. Bell South and US WEST
22 were found considerably less risky than Bell Atlantic. Three of the five services
23 found US WEST to have to least risk of the five.

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1 The value of these beta measurements is not so much in their ability to identify the
2 required rate of return as it is explain the differences in rates of return among the
3 RBHCs.

4
5 **Q. CAN THESE BETA DIFFERENCES BE USED TO EXPLAIN THE DIFFERENCES**
6 **AMONG THE DCF INDICATIONS THAT YOU HAVE CALCULATED?**

7 A. Yes. Because Verizon has only recently been formed, I do not have the array of
8 beta observations that I was able to accumulate last year. However, Zack's beta
9 estimates for the four RBHCs reveals the following relationship to my DCF
10 indications:

11 Table 5
12 Comparison of DCF Returns and Betas

Company	DCF Return	Zack's Beta ¹³
US WEST	10.22%	.49
Verizon	12.01%	.82
Bell South	12.73%	.54
SBC Communications	15.18%	.89

13
14
15
16
17
18 Certainly the betas help explain the extremes of the DCF returns. The highest beta,
19 that for SBC Communications, corresponds with the highest return requirement, as
20 one would expect. The lowest beta, that for US WEST, corresponds with the lowest
21 DCF return, again as one would expect. The observations in between are more
22 obscure. Verizon's beta cannot have much predictive value because it is actually a

¹³Zack's Investment Research Inc. Company Reports, July 2000.
<http://my.zacks.com/reports>

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1 combination of the betas of the two predecessor companies, Bell Atlantic and GTE,
2 neither of which exist any longer. The merger of these two companies has to have
3 clouded investor perception of Verizon's beta as a predictor of risk.

4 Most inexplicable is the result for Bell South. This company has an average beta
5 only slightly higher than that of US WEST, yet its DCF return is 251 basis points
6 higher. Possibly this relationship has to do with the mix of current dividend yield and
7 growth. Table 1 shows that Bell South's dividend yield is only 1.67%, the second
8 lowest among the RBHCs, while that of US WEST is 3.00%, the highest of the four
9 companies. It may be that investors place relatively greater value on the higher
10 immediate return of US WEST than on the promise of high growth offered by Bell
11 South. This would justify a lower required return from US WEST.

12 One thing is clearly demonstrated by these beta comparisons: that Mr. Cummings
13 was incorrect in his rejection of US WEST as "clearly out of range compared to the
14 other estimates."¹⁴ Mr. Cummings' findings regarding US WEST were indeed out of
15 range, but that is because US WEST is demonstratively less risky than his
16 comparison groups. Since this inquiry relates to US WEST, that finding cannot be
17 ignored.

18 **C. EQUITY RETURN - CONCLUSION**

19 **Q. WHAT IS YOUR NET CONCLUSION AS REGARDS THE REQUIRED RETURN TO**
20 **US WEST'S EQUITY CAPITAL?**

¹⁴Cummings Testimony, page 47.

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1 A The relationships shown in Table 5 indicate the general range of US WEST's
2 required rate of return to equity. SBC and Verizon are riskier companies than US
3 WEST. Only Bell South has a beta close to that of US WEST, and for this reason,
4 its DCF return of 12.73 percent can be taken as the top of the range for US WEST.
5 This is a generous treatment of US WEST because there are undoubtedly other
6 influences that increase the perceived risk of Bell South that do not apply to US
7 WEST. I also generously accept that the indicated DCF return of 10.22% for US
8 WEST is the bottom of the range. Normally, one would assume that the DCF return
9 for a specific company is the middle of its true rate-of-return range. Using these
10 standards, I conclude that the required return for US WEST's equity capital lies
11 within a range of 10.22 to 12.73 percent.

12 The reasonableness of this range is demonstrated by the return requirements of the
13 electric utilities. Their composite DCF return of 11.53 percent is only slightly above
14 the mid-point of this range (11.48%).

15 **Q. WHERE WITHIN THIS RANGE DO YOU RECOMMEND THE RETURN BE SET**
16 **FOR US WEST'S REGULATED INTRASTATE TELEPHONE OPERATIONS?**

17 A. The range of 10.22 to 12.73 percent covers the gamut of US WEST's business
18 activities. These include not only local exchange and short-haul toll telephone
19 service — the services subject the Commission's regulation — but also US WEST's
20 ventures into Internet access, wireless, directories, and video. While the regulated
21 services are facing some increased competition, US WEST is still overwhelmingly
22 dominant in these markets. With the possible exception of directories, US WEST
23 enjoys no comparable market dominance for the remaining, unregulated services.
24 Since these unregulated services are clearly more risky than US WEST's regulated

1 service, it is appropriate to set the equity return for the Company's regulated
2 intrastate services no higher than the mid-point of the rate-of-return range.

3 **Q. WHAT EQUITY RATE OF RETURN DO YOU RECOMMEND FOR US WEST'S**
4 **REGULATED INTRASTATE SERVICES?**

5 A. I recommend a rate of return on the equity capital devoted to US WEST's regulated
6 intrastate services of **11.5**, which is the approximate mid-point of the rate of return
7 range. Since this rate of return is 128 basis point above the DCF return indicated
8 for US WEST, it allows sufficient margin to ensure that US WEST's investors recover
9 their return requirements even if there is a modest increase in the cost of capital.

10 **D. FLOTATION COSTS**

11 **Q. WHAT ARE FLOTATION COST?**

12 A. Flotation costs are the expenses associated with the issuing new stock. They
13 include such costs as underwriters' commissions, legal fees, and the preparation and
14 publication of prospectuses.

15 **Q. WHY ARE FLOTATION COSTS AN ISSUE IN THIS CASE?**

16 A. Mr. Cummings claims that it is necessary to increase the return to equity to account
17 for flotation costs. This is because the actual proceeds that the Company receives
18 are less than the amount of the stock issued when new public stock sales are
19 conducted. Since the paid-in capital is less than the capital outstanding, it is
20 necessary, argues Mr. Cummings, to adjust upward the rate or return on the invested

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1 capital to ensure that outstanding stock receives its full return.

2

3 **Q. PLEASE DESCRIBE MR. CUMMINGS' STOCK FLOTATION ADJUSTMENT.**

4 A. Using historical US WEST and Bell System data, Mr. Cummings estimates that
5 flotation costs account for 2.0 percent of the cost of each new stock issue. He then
6 weights the amount of US WEST's capital raised from public offerings with the non-
7 public equity capital to arrive at an adjustment of 1.7 percent. He increases his
8 recommended rate of return by this amount.

9 **Q. IS IT APPROPRIATE TO ADJUST THE RATE OF RETURN FOR FLOTATION**
10 **COSTS?**

11 A. No. Mr. Cumming's rate of return adjustment would generate far more revenue than
12 the actual flotation costs the Company has incurred. As applied to his recommended
13 rate of return of 14 percent, the effect of the flotation cost adjustment is
14 approximately 0.20 percent, that is, 20 basis points. The effect on the overall rate
15 or return is 10 basis points. Applied to US WEST's year-end 1999 capitalization of
16 \$23,216 million, this 0.10% would generate \$23.2 million annually. Mr. Cummings'
17 Exhibit PCC-10 indicates that between 1984 and 1994, the Company spent a total
18 of \$55 million on stock issuance costs. If amortized over the 15 years since 1984,
19 the annual cost recognition would come to \$3.7 million per year. Mr. Cummings'
20 adjustment would generate over six times this amount each year indefinitely into the
21 future.

22 **Q. WHAT IS YOUR RECOMMENDATION WITH RESPECT TO FLOTATION COST?**

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1 A. An adjustment to the rate of return is a very expensive way to recognize flotation
2 costs. If the Company actually incurs flotation costs, then the Commission might
3 consider amortizing them in the revenue requirement. This treatment would parallel
4 that applied to debt flotation costs.

5 **Q. NOTWITHSTANDING THIS RECOMMENDATION, DOES YOUR RECOMMENDED**
6 **RETURN TO EQUITY ALLOW THE RECOVERY OF FLOTATION COSTS?**

7 A. Yes. Although I do not believe it appropriate to make an explicit adjustment of
8 flotation costs, I have recommended a rate of return to equity that is above the return
9 indicated by my DCF analysis of US WEST's stock. The premium I have proposed
10 over the DCF return is more than enough to compensate for the flotation costs that
11 US WEST has incurred or may incur in the future.

Attachment A

Resume of Charles W. King

Charles W. King

Experience

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

President (1989 to Present)

Vice President (1970 - 1989)

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

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

In telecommunications, Mr. King has testified before the Federal Communications Commission on a number of policy issues, service authorization, competitive impacts, video dialtone, and prescription of interstate depreciation rates. Before state regulatory bodies, he has presented testimony in proceedings on intrastate rates, earnings and depreciation. Mr. King recently directed analyses of the prices of services under Federal Government's FTS2000 long distance system.

In addition to his appearances as a witness in judicial and administrative proceedings, Mr. King has negotiated settlements among private parties and between private parties and regulatory offices. Mr. King also has directed depreciation studies, investment cost benefit analyses, demand forecasts, cost allocation studies and antitrust damage calculations.

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

EBS Management Consultants, Inc. Washington, DC

*Director, Economic Development Department
(1968-1970)*

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

Principal Consultant (1966-1968)

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

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

Staff Economist (1962-1966)

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

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

Analytical Statistician (1961-1962)

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

Education

Washington & Lee University, B.A. in Economics

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

Attachment B

**Expert Witness Appearances
of Charles W. King**

CHARLES W. KING
 Snavelly King Majoros O'Connor & Lee, Inc.
 1220 L Street, N.W.
 Suite 410
 Washington, D.C. 20005
 (202) 371-1111

Appearances before State Regulatory Agencies

State	Electric, Gas, Water Utility Cases			Date of Cross-Examination
	Client	Case		
		Case Number	Utility	
AK	Exxon USA	P-89-1,2	Trans Alaska Pipeline System	October 18, 1990
AZ	Arizona Corporation Commission Arizona Retailers Association	U-1345-I U-1345-II	Arizona Public Service Co. Arizona Public Service Co.	December 16, 1980 January 15, 1981
CA	California Retailers Association California Retailers Association California Retailers Association California Retailers & California Manufacturers California Retailers Association	57666 57602 59351 59351 61138	Pacific Gas & Electric Co. Southern California Edison Pacific Gas & Electric Co. Southern California Edison Southern California Edison	March 6, 1978 April 25, 1978 June 12, 1981 May 20, 1982 May 28, 1982
CO	U. S. Department of Defense J.C. Penny Company U.S. Department of Defense U. S. Department of Defense U.S. Department of Defense U.S. Department of Defense U.S. Department of Defense	I&S 1100 5693 I&S 1339 I&S 1540 C. Council C. Council C. Council C. Council	Colorado Springs (Elec) All Electric Utilities Colorado Springs DPU (Gas) Colorado Springs DPU (Gas) Colorado Springs DPU (Gas) Colorado Springs DPU (Elec) Colorado Springs DPU (Elec) Colorado Springs DPU (Elec)	June 14, 1977 March 8, 1978 October 18, 1979 February 9, 1982 September 30, 1984 June 6, 1985 May 19, 1986 June 30, 1987
CT	Retailers Merchants Association Division of Consumer Counsel Public Utilities Control Auto Division of Consumer Counsel Division of Consumer Counsel Division of Consumer Counsel Division of Consumer Counsel Coalition of Hotels, Alloys & Retailers Coalition of Hotels, Alloys & Retailers	72-0204 76-0604,5 78-0303 80-0403,4 81-0413 81-0602,4 82-0701 85-10-22 87-07-01	Various Electric Utilities CL&P and HELCO Bridgeport Hydraulic Co. CL&P and HELCO United Illuminating Company CL&P and HELCO CL&P CL&P CL&P	July 22, 1976 November 10, 1977 (none) August 11, 1980 July 20, 1981 October 5, 1981 September 28, 1982 (none) April 25, 1988

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Appearances before State Regulatory Agencies

State	Electric, Gas, Water Utility Cases			Date of Cross-Examination
	Client	Case		
		Case Number	Utility	
DC	D.C. People's Counsel	685	Potomac Electric Power Company	March 6, 1978 (none)
	D.C. People's Counsel	715	Potomac Electric Power Company	April 4, 1980
	D.C. People's Counsel	725	Potomac Electric Power Company	January 1, 1981
	D.C. People's Counsel	737	Potomac Electric Power Company	June 26, 1981
	Washington Metro Area Transit Authority	748	Potomac Electric Power Company	December 15, 1981
	Washington Metro Area Transit Authority	758	Potomac Electric Power Company	September 21, 1982
	D.C. People's Counsel	785	Potomac Electric Power Company	March 29, 1984
	Washington Metro Area Transit Authority	759	Potomac Electric Power Company	June 10, 1985
	D.C. People's Counsel	685 Remand	Potomac Electric Power Company	August 20, 1991
	D.C. People's Counsel	905	Potomac Electric Power Company	May 7, 1992
	D.C. People's Counsel	912	Potomac Electric Power Company	May 22, 1992
	D.C. People's Counsel	834, III	Potomac Electric Power Company	September 24, 1992
	D.C. People's Counsel	917	Potomac Electric Power Company	June 15, 1993
	D.C. People's Counsel	922	Washington Gas Light Company	December 16, 1993
	D.C. People's Counsel	929	Potomac Electric Power Company	Filed April 22, 1994
	D.C. People's Counsel	934	Washington Gas Light Company	March 16, 1995
	D.C. People's Counsel	939	Potomac Electric Power Company	April 16, 1995
	D.C. People's Counsel	951	Potomac Electric Power Company	February 20, 1957
	D.C. People's Counsel	945	Potomac Electric Power Company	September 29, 1999
	DE	DPSC Staff	94-164	Artesian Water Company
DPSC Staff		94-149	Wilmington Suburban Water Company	March 10, 1995
FL	Florida Retail Federation	790593-EU	All Electric Utilities	March 5, 1981
	Florida Retail Federation	810002-EU	Florida Power and Light Company	July 23, 1981
	Florida Retail Federation	820097-EU	Florida Power and Light Company	September 22, 1982
	Florida Retail Federation	820097-EU	Florida Power and Light Company	April 11, 1983
	Florida Retail Federation	830012-EU	Tampa Electric Company	August 19, 1983
	Florida Retail Federation	830465-EI	Florida Power and Light Company	April 19, 1984
GA	Florida Retail Federation	830465-EI	Tampa Electric Company	(none)
	Georgia Retail Federation	3270-U	Georgia Power Company	September 3, 1981
	Georgia Public Service Commission	4007-U	Georgia Power Company	August 21, 1991
	Georgia Public Service Commission	4384-U	All Electric Utilities	August 1, 1993
	Georgia Public Service Commission	4755-U	Georgia Power Company	January 25, 1994
	Georgia Public Service Commission	4697-U	All Utilities	May 10, 1994
HI	Georgia Public Service Commission	9355-U	Georgia Power Company	November 4, 1998
	Public Utilities Department Hawaii Consumer Advocate	2793 4536	All Electric Utilities Hawaiian Electric Company	February 14, 1978 February 1, 1983

State	Electric, Gas, Water Utility Cases			Date of Cross-Examination		
	Client	Case				
		Case Number	Utility			
IL	Illinois Retail Merchants Association/ Chicago Bldg. Mgrs. Association Illinois Retail Merchants Association/ Chicago Bldg. Mgrs. Association	76-0698	Commonwealth Edison	June 22, 1977		
		76-0568	All Electric Utilities	(none)		
		80-0546	Commonwealth Edison	March 5, 1981		
		82-0026	Commonwealth Edison	July 22, 1982		
		83-0537	Commonwealth Edison	March 19, 1984		
		87-0427	Commonwealth Edison	March/April 22, 1988		
		90-0169	Commonwealth Edison	October 29, 1990		
		IN	Indiana Retail Council Indiana Retail Council Indiana Retail Council	35780-S2 35780-S1 36318	N. Ind. Public Service co. Public Service of Indiana Public Service of Indiana	June 1, 1980 October 15, 1980 May 4, 1982
				115,379-U	All Kansas Utilities	January 22, 1981
KY	Seven Kentucky Retailers	7310	Louisville Gas & Electric Co.	April 25, 1979		
MA	Coalition of Municipalities Coalition of Municipalities Coalition of Municipalities Coalition of Municipalities	20279	Western Massachusetts Electric	March 19, 1980		
		557/558	Western Massachusetts Electric	May 14, 1981		
		957	Western Massachusetts Electric	March 9, 1982		
		1300 85-270	Western Massachusetts Electric Western Massachusetts Electric	January 1, 1983 March 26, 1986		
MD	Maryland People's Counsel Maryland People's Counsel Maryland People's Counsel	6977	Washington Gas & Light Company	September 17, 1976		
		6814	Potomac Electric Power Company	September 1, 1977		
		6807	All Electric Utilities			

State	Electric, Gas, Water Utility Cases			Date of Cross-Examination				
	Client	Case						
		Case Number	Utility					
MD	Maryland People's Counsel Maryland People's Counsel Maryland People's Counsel Maryland People's Counsel Maryland People's Counsel Retail Merchants of Baltimore Maryland People's Counsel Maryland People's Counsel Maryland People's Counsel Organization of Consumer Justice Maryland People's Counsel Maryland People's Counsel Retail Merchants of Baltimore Genstar Stone Products, et al. Industrial Intervenor Maryland People's Counsel	6882 6985 7070 7149 7163 7236 7397 7427 7574 7597 7604 7588 7663 7685 7878 7878 7983	Baltimore Gas & Electric Company Baltimore Gas & Electric Company Baltimore Gas & Electric Company Potomac Electric Power Company All Electric Utilities Delmarva Power & Light Company Baltimore Gas & Electric Company Delmarva Power & Light Company Baltimore Gas & Electric Company Potomac Electric Power Company Potomac Electric Power Company Baltimore Gas & Electric Company Potomac Electric Power Company Baltimore Gas & Electric Company Potomac Electric Power Company Potomac Electric Power Company Baltimore Gas & Electric Company	(none) September 28, 1976 December 20, 1976 April 18, 1978 January 17, 1979 October 23, 1978 June 20, 1980 September 8, 1980 December 2, 1981 February 18, 1982 April 20, 1982 October 19, 1982 November 22, 1982 April 12, 1983 December 9, 1985 June 28/July 1986 March 4, 1987				
					MI	U-10102 U-11772	Detroit Edison Company Consumers Energy/Detroit Edison	March 22, 1993 November 16, 1998
					MN	EOO2/6R-77-611	Northern States Power	1979
					MO	EO-78-161	Kansas City Power & Light Company	February 19, 1981
					NC	E-100	All Electric Utilities	December 18, 1975
					NH	79-187-II 80-260 82-333	Public Service of N.H. Public Service of N.H. Public Service of N.H.	February 6, 1981 February 5, 1981 November 2, 1983

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Appearances before State Regulatory Agencies

State	Electric, Gas, Water Utility Cases			Date of Cross-Examination
	Client	Case		
		Case Number	Utility	
NJ	Dept. of Public Advocate Dept. of Public Advocate N.J. Retail Merchants Association Department of Public Advocate Resorts International Hotel, Inc. Dept. of Public Advocate Dept. of Public Advocate Dover Township Fire Chiefs	Public Service Electric & Gas Atlantic City Electric Co. All New Jersey Utilities N.J. Natural Gas Company Atlantic City Sewerage Co. Atlantic City Electric Co. Elizabethtown Gas Tom's River Water Company	761-8	January 18, 1977
			7911-951	April 21, 1980
			803-151	March 31, 1981
			815-459	(none)
			8011-827	(none)
			822-116	August 11, 1982
			355-87	June 9, 1987
88-080967	February 22, 1989			
NY	N.Y. Council of Retail Merchants Metropolitan N.Y. Retail Council Metropolitan N.Y. Retail Council N.Y. Metro. Transit Authority	All Electric Utilities Consolidated Edison Company Long Island Lighting Company Consolidated Edison Company	26806	February 3, 1976
			27029	(none)
			27136	July 1, 1977
			27353	September 5, 1980
OH	Ohio Council of Retail Association Ohio Council of Retail Association	Cleveland Elec. Illuminating Cincinnati Gas & Electric	88-170-EL	(none)
			83-1529-EL	February 15, 1992
PA	Pennsylvania Retail Association Southeastern Pa. Transp. Authority Eastern Penn Energy Users Group Eastern Penn Energy Association Penn Business Utility User Group	All Electric Utilities Philadelphia Electric Company Penn. Power & Light Company Penn. Power & Light Company Philadelphia Electric Company	76-PRMD-7	September 7, 1977
			R-811626	December 11, 1981
			R-822169	March/April 1983
			R-842651	December 3, 1984
			R-850152	February 19, 1986
TX	Houston Retailers Association Houston Retailers Association Cities for Fair Utility Rates	Houston Lighting Company Houston Lighting Company Houston Lighting Company	5779	October 19, 1984
			6765	September 25, 1986
			8425/8431	April 25, 1989

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 Appearances before State Regulatory Agencies

State	Electric, Gas, Water Utility Cases			Date of Cross-Examination
	Client	Case		
		Case Number	Utility	
VA	Consumer Congress of Virginia Consumer Congress of Virginia Va. Business Committee on Energy Virginia Pipe Trades Council	19426 19960 PUE 7900012 PUE 8900051	Virginia Electric Power Company Virginia Electric Power Company Virginia Electric Power Company Old Dominion Electric Corp. &	July 1, 1975 September 19, 1978 February 25, 1981 October 31, 1989
WI	Wisconsin Merchants Federation	6630-ER-2	Wisconsin Electric Power Company	May 15, 1978

CHARLES W. KING
Appearances before State Regulatory Agencies

State	Client	Telecommunications Cases		Date of Cross-Examination
		Case Number	Case	
			Utility	
AL	U.S. Department of Defense	24472	All Telephone Companies	June 14, 1995
AZ	Arizona Burglar & Fire Alarm Association Federal Executive Agencies	9981-E-1051-80-64 E-1051-88-146	Mountain State Telephone Mountain State Telephone	(none) (none)
CA	Western Burglar & Fire Alarm Association Western Burglar & Fire Alarm Association California Cellular Resellers Federal Executive Agencies California Cellular Resellers Cellular Services, Inc. Federal Executive Agencies	59849 5984cont. A83-01-22 A83-02-02 A82-11-07 A85-01-034 A87-01-02 A88-07-17019 A.88-11-1040 1.87-11-033 1.88-11-040 1.88-11-040 A92-05-004	Pacific Telephone & Telegraph Pacific Telephone & Telegraph Pacific Telephone & Telegraph General Telephone of California Pacific Telephone & Telegraph Pacific Telephone & Telegraph Pacific Telephone & Telegraph General Telephone of California Pac. Bell Tel. & GTE of CA. All Cellular Carriers All Telephone Companies All Cellular Carriers All Cellular Carriers Pacific Telephone & Telegraph	March 25, 1981 June 23, 1982 June 29, 1983 January 17, 1984 Jan. 18, Oct. 31 November 28, 1984 June 4, 1985 October 2, 1986 October 22, 1987 January 23, 1989 August 11, 1989 March 6-7, 1991 August 19, 1991 October 3, 1991 June 9, 1993
CO	U.S. Department of Defense U.S. Department of Defense U.S. Department of Defense U.S. Department of Defense Colorado Municipal League U.S. Department of Defense U.S. Department of Defense AT&T	I&S 717 I&S 1700 Appl. I&S 1766 Appl 36883 I&S 891-082T 905-544T 90A-665T 92M-039T 92S-229T 90A-665T 96S-331T	Mountain Bell Telephone Company Mountain Bell Telephone Company Mountain Bell Telephone Company Mountain Bell Telephone Company Mountain Bell Telephone Company U.S. West Communications U.S. West Communications U.S. West Communications U.S. West Communications U.S. West Communications U.S. West Communications U.S. West Communications	1972 (none) September 18, 1986 November 28, 1988 December 13, 1988 February 21, 1990 July 17, 1991 October 23, 1991 February 24-24, 1992 July 30-31, 1992 November 6, 1996 April 17, 1997

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State	Telecommunications Cases			Date of Cross-Examination
	Client	Case		
		Case Number	Utility	
CT	Connecticut Consumer Counsel CT Cellular Resellers Assn. CT Cellular Resellers Coalition AT&T	770526 89-12-05 94-03-27 AT&T/SNET Arbitration	Southern New England Telephone Co. Southern New England Telephone Co. Springwich Cellular/Bell/Atlantic Southern New England Telephone Co.	November 10, 1977 (none) May 16, June, 1994 Filed October 28, 1996
DC	D.C. People's Counsel D.C. People's Counsel General Services Administration General Services Administration General Services Administration	729 798 827 854 850 926	Chesapeake & Potomac Tel. Co. Chesapeake & Potomac Tel. Co.	May 13, 1980 July 18, 1983 May 7, 1985 April 16, 1987 October 7, 1991 October 7, 1993
DE	Public Service Commission Federal Executive Agencies Public Service Commission	Depr.Repre 86-20 Depr.Repre	Diamond State Telephone Co. Diamond State Telephone Co. Diamond State Telephone Co.	April 1, 1985 July 31, 1987 March 8, 1988
FL	GTE Sprint Communications Company Office of Public Counsel Federal Executive Agencies Federal Executive Agencies Federal Executive Agencies	720536-TP Depr.Repre 880069-TL 880069-TL 880069-TL	All Telephone Companies Southern Bell Southern Bell Southern Bell Southern Bell	September 12, 1983 July 30, 1986 July 21, 1988 November 30, 1990 February 11, 1992
GA	Georgia Attorney General Federal Executive Agencies Federal Executive Agencies Georgia Public Service Commission	3893-U 3905-U 3987-U 4018-U	Southern Bell Telephone Co. Southern Bell Telephone Co. Southern Bell Telephone Co. Southern Bell Telephone Co.	January 8, 1990 June 12, 1990 February 13, 1992 Jan 14, Feb 10, 1993
HI	Hawaii Public Utility Commission Four Hawaii Counties Department of Defense Department of Defense Department of Defense	1871 4588 7579 94-0093 7702 94-0298	Hawaiian Telephone Company Hawaiian Telephone Company Hawaiian Telephone Company Oceanic Communications All Communications Carriers GTE Hawaiian Telephone Company	July 8, 1971 December 15, 1983 April 26, 1994 March 13, 1995 June 2, 1995 May 7, 1996

State	Telecommunications Cases			Date of Cross-Examination
	Client	Case		
		Case Number	Utility	
ID	U.S. Department of Energy U.S. Department of Energy	U-1000-63 U-1000-70	Mountain Bell Telephone Co. Mountain Bell Telephone Co.	May 16, 1983 March 6, 1984
IL	Illinois Alarm Companies Attorney General of Illinois GTE Sprint Communications Co. Federal Executive Agencies	79-0143 81-0478 83-0142 89-0033	Illinois Bell Telephone Illinois Bell Telephone All Telephone Companies Illinois Bell Telephone	September 26, 1979 December 28, 1981 August 4, 1983 June 12, 1989
KS	State Corporation Commission Federal Executive Agencies Federal Executive Agencies	Depr. Repr. 166.856-U 190, 492	Southwestern Bell Southwestern Bell All Telephone Companies	May 12-14, 1986 November 7, 1989 November 4, 1994
MD	Maryland People's Counsel Maryland People's Counsel Maryland People's Counsel Maryland People's Counsel Federal Executive Agencies Federal Executive Agencies Federal Executive Agencies	6813 6881 7025 7467 7851 8106 8274	C&P Telephone Company C&P Telephone Company C&P Telephone Company C&P Telephone Company C&P Telephone Company C&P Telephone Company C&P Telephone Company	1975 December 17, 1975 March 15, 1975 October 20, 1981 March 20, 1985 May 9, 1988 August 2, 1990
MI	Michigan Attorney General Michigan Attorney General	U-8911 U-9553	Michigan Bell Telephone Co. AT&T Communications/MCI	November 7, 1988 December 4, 1990
MN	GTE Sprint Communications Co. U.S. Department of Defense	83-102-HC 87-021-BC	All Telephone Companies Northwest Bell Telephone Co.	August 5, 1983 (none)
MO	GTE Sprint Communications Co. Federal Executive Agencies Federal Executive Agencies	TR83-253 TC-89-14 TO-89-56	Southwestern Bell Tel. Co. Southwestern Bell Tel. Co. Southwestern Bell Tel. Co.	September 5, 1983 (none) November 7, 1990
MS	Federal Executive Agencies	U-5453	South Central Bell Tel. Co.	May 15, 1990

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State	Telecommunications Cases				Date of Cross-Examination
	Client	Case		Utility	
		Case Number			
NJ	Department of Public Advocate Department of Public Advocate Department of Public Advocate Department of Public Advocate	Depr.Repr. 815-458	N.J. Bell Telephone Company	N.J. Bell Telephone Company N.J. Bell Telephone Company N.J. Bell Telephone Company N.J. Bell Telephone Company N.J. Bell Telephone Company	Mar-79 October 15, 1981 March 1, 1982 February 1, 1985 September 30, 1992
		Depr.Repr. T092030358			
		1032	Mountain Bell Telephone Co.		
		86-151-TC	General Telephone of Southwest		
NV	Prime Cable of Las Vegas Prime Cable of Las Vegas	95-8034/8035 96-9035	Central Telephone - NV	Sprint/Centel, Nevada Bell	Filed November 22, 1995 June 2, 1997
		27350 27469 27710 28425	New York Telephone Company New York Telephone Company New York Telephone Company All Telephone Companies		October 17, 1978 May 17, 1979 July 24, 1980 July 8, 1983
NY	Holmes Protection, Inc. Holmes Protection, Inc. 5 Alarm Companies GTE Sprint Communications Co.	R-832316	Pennsylvania Bell Telephone		September 20, 1983
		Depr.Repr. 86-511-C 86-541-C Depr.Repr. 89-180-C	Southern Bell Southern Bell General Telephone of South Southern Bell ALLTEL of South Carolina		July 1, 1986 December 11, 1986 April 8, 1987 July 10, 1989 September 26, 1989
PA	City of Philadelphia	8585/8218	Southwestern Bell Telephone Co.		(none)
SC	Office of Consumer Advocate Office of Consumer Advocate Office of Consumer Advocate Office of Consumer Advocate Office of Consumer Advocate	19696 PUC 890014	C&P Telephone Company All Telephone Companies		October 6, 1976 February 13, 1989
TX	U.S. Department of Defense				
VA	U.S. Dept. Of Defense, GSA, et Federal Executive Agencies				

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State	Telecommunications Cases			Date of Cross-Examination
	Client	Case		
		Case Number	Utility	
VI	V.I. Department of Commerce V.I. Public Service Commission	205 341	Virgin Islands Telephone Co. Virgin Islands Telephone Co.	April 29, 1980 March 20, 1991
WA	U.S. Department of Defense U.S. Department of Defense U.S. Department of Defense U.S. Department of Defense WA Attorney General/TRACER U.S. Department of Defense U.S. Department of Defense WA Attorney General/TRACER WA Attorney General/TRACER	U-72-39 U-87-796-T U-88-20524 U-89-2698-F UT-940641 UT-941464 UT-951425 UT-961632	Pacific Northwest Bell Pacific Northwest Bell Pacific Northwest Bell US West Communications US West Communications US West Communications US West Communications US West Communications GTE Northwest, Inc	1973 December 20, 1983 November 8, 1988 November 28, 1989 Filed October 14, 1994 June 22, 1995 January 22, 1996 Filed June 23, 1997 July 29, 1997
WI	GTE Sprint	6720-TR-38	All Telephone Companies	October 20, 1983

Federal Communications Commission			
Client	Docket	Subject	Date of Cross-Examination
Department of Defense	16020	Consat Rate of Return	1973
Airline Parties	16258	Bell System Rates	July 22, 1968
National Data Corporation	18128	TELPAC	3/22, 10/15 1971, Feb. 22, 1972
Press Wire Services	19989	WATS	(none)
Aeronautical Radio	19919	Private Line Rates	(none)
Department of Defense	20814	Private Line Rates	October 5, 1978
State of Hawaii	20690	1,544 Mbps Service	January 30, 1979
International Record Carriers	21263	Interstate Separation	February 7, 1979
ITT World Communications	CC78-97	Telex/TWX Rates	March 6, 1980
Aeronautical Radio	CC84-633	Rate of Return	(none)
MCI	CC78-72	Access Line Charges	(none)
Ind. Data Com. Mfg. Assn.	CC84-800	Rate of Return	(none)
Tymnet, Inc.	CC85-26	AT&T Accounting Plan	(none)
Adelphia Jones Intercable, et. al.	ENF84-22	Packet Switching Costs	(none)
Adelphia Jones Intercable, et. al.	Bell Atlantic	Video Dialtone	(none)
Adelphia Jones Intercable, et. al.	Bell Atlantic	Video Dialtone	Filed 7/29/94
	Bell Atlantic	Video Dialtone	Filed 8/23/94
			Filed 2/21/95
Nuclear Regulatory Commission			
Fauquier League for Environment Protection	50-328	Va. Electric Power Co.	1976
	50-329		
Postal Rate Commission			
Association of Third Class Mail Users	R71-1	Rates	1970
Dow Jones & Company	R72-1	Rates	1972
Dow Jones & Company	R74-1	Rates	September 13, 1974
Dow Jones & Company	MC76-2	Rate Structure	January 6, 1979
Dow Jones & Company	MC79-3	Rate Structure	September 12, 1979
Warshawsky & Company	R80-1	Rates	November 25, 1980
Dow Jones & Company	C82-1	Rate Structure	(none)
Dow Jones & Company	R84-1	Postal Costs	June 14, 1984
Dow Jones & Company	R87-1	Rate Structure Costs	November 2, 1987
Dow Jones & Company	R90-1	Rate Structure Costs	Sept 12, Oct 10, 1990
Dow Jones & Company	MC91-1	Pre-barcoding Discounts	November 19, 1991
Dow Jones & Company	MC91-3	Palletization Discounts	March 2, 1992

U.S. Congress			
Client	Docket	Subject	Date of Cross-Examination
National Retail Merchants Association National Wireless Resellers Association	House/Senate Hearings House Commerce Committee	Electric Rate Reform Legislation Interconnection & Resale of Wireless Services	1976, 1977 & 1979 October 12, 1995
Federal Maritime Commission			
State of Hawaii Foss Alaska Line Palmetto Shipping and Stevedoring	71-18 79-54 85-20	Ocean Shipping Rates Barge Rate Increase Vessel Charge Liability	October-71 Jul-79 October 27, 1986
Interstate Commerce Commission			
Western Coal Traffic League Western Coal Traffic League Western Coal Traffic League Arkansas Power & Light Co. Central Illinois Light Co. Western Coal Traffic League	Ex Parte 349 Ex Parte 357 Ex Parte 375 (Sub1) 37276 37450 Ex Parte 347	R.R. Rate Increase R.R. Rate Increase R.R. Rate Increase Cost of Capital Cost of Capital Costing Methods	May-76 Oct-78 June 1, 1980 (none) March 10, 1981 (none)
Thomas Cook, Inc.	36595	Air Fare Deregulation	(none)
Copyright Royalty Tribunal			
Public Broadcasting Service	88-2-86CD	Television Valuation	(none)
Federal Energy Regulatory Commission			
Exxon USA	OR89-2-000	Pipeline Quality Bank	October 18, 1990
Canadian Transport Commission			
Rail Costing Inquiry, 1967-1969 Telecommunications Costing Inquiry, 1972-1975			

DCF Cost Of Capital
Electric Utilities Rated A3 or Higher by Moody's
April 2000
as of July 3, 2000

Company (Utility Subsidiary)	Stock Symbol	Moody's Long-term Debt Rating	Next 5-year growth (Percent)	Yield (Percent)	DCF Return (Percent)
Allegheny	AYE	A1	4.58	6.10	10.68
Alliant Energy Corp	LNT	A2	4.00	7.50	11.50
Ameren Corp.	AEE	Aa2	3.33	7.50	10.83
Cleco Corp.	CNL	A2	9.00	4.90	13.90
Constellation (Baltimore Gas & Electric)	CEG	A1	6.60	5.20	11.80
Carolina Power & Light	CPL	A2	4.92	6.39	11.31
CILCORP (Central Illinois Light Co.)	CER	A2	N/A	N/A	N/A
Consolidated Edison	ED	A1	3.33	7.40	10.73
DTE Energy	DTE	A3	4.83	6.50	11.33
Dominion Resources (VEPCO)	D	A2	7.82	6.00	13.82
Duke Energy	DUK	Aa3	8.81	3.90	12.71
Edison International	EIX	A2	7.78	5.50	13.28
EnergyEast (NYSEG)	NEG	A3	7.57	4.50	12.07
Florida Power & Light	FPL	A2	6.09	4.40	10.49
Florida Progress Co.	FPC	A1	4.95	4.70	9.65
Hawaiian Electric Industries	HE	A3	3.14	7.10	10.24
Kansas City Power & Light	KLT	A1	3.60	7.40	11.00
LG & E Energy	LGE	A3	3.89	5.30	9.19
Madison Gas & Electric	MDSN	Aa2	N/A	N/A	N/A
New England Electric System	NES	A1	N/A	N/A	N/A
New Century Energies	NCE	A3	4.69	7.20	11.89
Northern States Power	NSP	Aa3	5.63	7.20	12.83
OGE Energy (Oklahoma G & E)	OGE	A1	4.00	7.20	11.20
Otter Tail Power	OTTR	Aa3	5.00	4.90	9.90
PG & E Corp (Pacific Gas & Electric)	PCG	A1	6.83	4.90	11.73
Potomac Electric Power Corp. (PEPCO)	POM	A1	3.81	6.40	10.21
PP & L Resources	PPL	A3	5.33	4.80	10.13
Reliant Energy (HL & P)	REI	A3	9.34	5.10	14.44
Sempra Energy	SRE	A2	6.75	7.10	13.85
SCANA Corp.	SCG	A1	4.46	4.60	9.06
TECO Energy (Tampa Electric)	TE	Aa3	6.41	6.70	13.11
Western Resources	WR	A3	4.60	7.70	12.30
Wisconsin Energy (WEPCO)	WEC	Aa2	4.50	7.90	12.40
WPS Resources (Wisconsin Pub. Serv.)	WPS	Aa2	3.00	6.70	9.70
Mean			5.44	6.09	11.53

ANALYSIS OF STOCK RETURNS, BOND RETURNS AND RISK PREMIA
1926-1981

YEAR	STOCKS	BONDS	RISK PREMIA
1926	0.1162	0.0737	0.0811
1927	0.3749	0.0744	0.3342
1928	0.4361	0.0284	0.3924
1929	-0.0842	0.0327	-0.1264
1930	-0.2490	0.0798	-0.2671
1931	-0.4334	-0.0185	-0.4397
1932	-0.0819	0.1082	-0.0911
1933	0.5339	0.1038	0.5360
1934	-0.0144	0.1384	-0.0160
1935	0.4767	0.0961	0.4743
1936	0.3392	0.0674	0.3369
1937	-0.3503	0.0275	-0.3523
1938	0.3112	0.0613	0.3115
1939	-0.0041	0.0397	-0.0043
1940	-0.0978	0.0339	-0.0978
1941	-0.1159	0.0273	-0.1164
1942	0.2034	0.0260	0.2003
1943	0.2590	0.0283	0.2547
1944	0.1975	0.0473	0.1936
1945	0.3644	0.0408	0.3600
1946	-0.0807	0.0172	-0.0840
1947	0.0571	-0.0234	0.0518
1948	0.0550	0.0414	0.0466
1949	0.1879	0.0331	0.1751
1950	0.3171	0.0212	0.3019
1951	0.2402	-0.0269	0.2222
1952	0.1837	0.0352	0.1646
1953	-0.0099	0.0341	-0.0277
1954	0.5262	0.0539	0.5136
1955	0.3156	0.0048	0.2956
1956	0.0656	-0.0681	0.0400
1957	-0.1078	0.0871	-0.1353
1958	0.4336	-0.0222	0.4126
1959	0.1195	-0.0097	0.0876
1960	0.0047	0.0907	-0.0215
1961	0.2689	0.0482	0.2429
1962	-0.0873	0.0795	-0.1118
1963	0.2280	0.0219	0.1914
1964	0.1648	0.0477	0.1254
1965	0.1245	-0.0046	0.0822
1966	0.1006	0.0020	-0.1420
1967	0.2398	-0.0495	0.1904
1968	0.1106	0.0257	0.0559
1969	0.0850	-0.0809	-0.1423
1970	0.0401	0.1837	-0.0240
1971	0.1431	0.1101	0.0954
1972	0.1898	0.0726	0.1462
1973	-0.1466	0.0114	-0.2029
1974	-0.2647	-0.0306	-0.3213
1975	0.3720	0.1464	0.2983
1976	0.2384	0.1865	0.1794
1977	-0.0718	0.0171	-0.1175
1978	0.0656	-0.0007	-0.0059
1979	0.1844	-0.0418	0.0736
1980	0.3242	-0.0262	0.1911
1981	-0.0491	-0.0096	-0.1729
1. Mean	0.1205	0.0374	0.0828
2. Standard Deviation	0.2148	0.0562	0.2204
3. T-value (1. / 2.)	0.56	0.67	0.38
4. Relative Error (2. / 1.)	178.2%	150.2%	266.1%

Source: Stocks, Bonds, Bills and Inflation, The Past and the Future, Roger Ibbotson and Rex A Siquefield
Roger Ibbotson and Rex A Siquefield, The Financial Analysis Research Foundation, 1982 Edition

Mean = Average or expected value of series

Standard Deviation = Average error of Series

T-value = Significance of Average Value - For 95% Confidence that Mean is representative of series t-value must be > 1.96

Relative Error = Average Error as a Percent of Average Value

None of these averages can be used as representatative of a typical value for stocks, bonds, or risk premia.