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January 30, 2002

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Blanca S. Bayo, Director
Division of Records and Reporting
Betty Easley Conference Center
4075 Esplanade Way
Tallahassee, Florida 32399-0870

Re: Docket No.: 990649B-TL

Dear Ms. Bayo:

On behalf of the Z-Tel Communications, Inc., enclosed for filing and distribution are the original and 15 copies of the following:

- ▶ Testimony and Exhibits of George S. Ford

Please acknowledge receipt of the above on the extra copy of each and return the stamped copies to me. Thank you for your assistance.

Sincerely,



Joseph A. McGlothlin

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MCWHIRTER, REEVES, MCGLOTHLIN, DAVIDSON, DECKER, KAUFMAN, ARNOLD & STEEN, P.A.

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FPSC-COMMISSION CLERK

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Investigation into
pricing of unbundled
elements (Sprint/Verizon track)

)
) DOCKET NO. 990649B-TP
) Filed: January 30, 2002

REVISED TESTIMONY OF
DR. GEORGE S. FORD
ON BEHALF OF
Z-TEL COMMUNICATIONS, INC.
JANUARY 30, 2002

DOCUMENT NUMBER DATE

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FPSC COMMISSION CLERK

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is George S. Ford. I am the Chief Economist for Z-Tel
3 Communications, Incorporated (Z-Tel). My business address is 601 South
4 Harbour Island Boulevard, Suite 220, Tampa, Florida 33602.

5 **Q. BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
6 **RELATED PROFESSIONAL EXPERIENCE.**

7 A. I received a Ph.D. in Economics from Auburn University in 1994. My graduate
8 work focused on the economics of industrial organization and regulation, with
9 course work emphasizing applied price theory and statistics. In 1994, I became
10 an Industry Economist for the Federal Communications Commission's
11 Competition Division. The Competition Division of the FCC was tasked with
12 ensuring that FCC policies were consistent with the goals of promoting
13 competition and deregulation across the communications industries. In 1996, I
14 left the FCC to become a Senior Economist at MCI WorldCom where I was
15 employed for about four years. While at MCI WorldCom, I performed economic
16 studies on a variety of topics related to federal and state regulatory proceedings.
17 In May 2000, I became Z-Tel's Chief Economist.

18 In addition to my responsibilities at Z-Tel, I maintain an active research
19 agenda on communications issues and have published research papers in a
20 number of academic journals including the Journal of Law and Economics, the
21 Journal of Regulatory Economics, and the Review of Industrial Organization,
22 among others. I am also a co-author of the chapter on local and long distance

1 competition in the International Handbook of Telecommunications Economics. I
2 often speak at conferences, both at home and abroad, on the economics of
3 telecommunications markets and regulation.

4 **Q. COULD YOU DESCRIBE Z-TEL'S SERVICE OFFERINGS?**

5 A. Z-Tel is a Tampa-based, integrated service provider that presently provides
6 competitive local, long distance, and enhanced services to residential consumers
7 in thirty-five states, including New York, Pennsylvania, Massachusetts, Texas,
8 Michigan, Georgia, Illinois, among others. Z-Tel plans to expand nationally as the
9 unbundled network element platform ("UNE-P") becomes available at TELRIC
10 rates. The company's goal is to offer a competitive service to the residential
11 consumers of every state.

12 Z-Tel's service is not just a simple bundle of traditional
13 telecommunications services. Z-Tel's service is unique in that it combines its
14 local and long distance telecommunications services with Web-based software.
15 This consideration enables each Z-Tel subscriber to organize his or her
16 communications, including email, voicemail, fax, and even a Personal Digital
17 Assistant ("PDA"), by accessing a personalized web-page via the Internet. In
18 addition, the personal Z-Line number can be programmed to follow the customer
19 anywhere he or she goes, via the "Find Me" feature. Other service features
20 include low long distance rates from home or on-the-road and message
21 notification by phone, email, or pager. Customers can also initiate telephone calls

1 (including conference calls in the near future) over the traditional phone network,
2 using speed-dial numbers from their address book on their personalized web page.

3 **Q. WHAT INTEREST DOES Z-TEL COMMUNICATIONS HAVE IN THIS**
4 **PROCEEDING?**

5 A. Z-Tel's service is a bundle of many different communications services including
6 voicemail, email, fax, Internet, PDAs, and local and long distance
7 telecommunications into an easy-to-use communications control center. An
8 important element of that bundle is local exchange telecommunications service.
9 To provide the local exchange portion of its service offering, Z-Tel must purchase
10 unbundled network elements from incumbent local exchange carriers like Verizon
11 and Sprint. At present, Z-Tel's primary means of providing local exchange
12 service provision is UNE-P. Because Z-Tel is dependent upon the local exchange
13 carrier's UNEs to provide service at this time, Z-Tel has a strong interest in
14 ensuring the rates established for UNEs are TELRIC compliant and conducive to
15 competitive entry.

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

17 In my testimony I will address two issues. The first is the cost of capital that should be
18 used for Verizon and Sprint when calculating the costs upon which to base UNE rates.
19 The cost of capital, or weighted average cost of capital ("WACC"), is an important
20 element of the cost studies in that small changes in the WACC can affect materially most
21 UNE rates. I show, based on this Commission's own Order, that the approach of Verizon
22 witness Dennis Vander Weide to the task of quantifying Verizon's cost of capital is
23 lacking. I recommend that, in lieu of his approach, the Commission should instead

1 update the well reasoned analysis that it adopted in the BellSouth phase of this
2 proceeding.

3 I then provide a framework that gives guidance on the relative costs of UNE
4 between Verizon-Florida and BellSouth. This analysis shows that the cost of UNEs for
5 Verizon-Florida is slightly less than for BellSouth-Florida. Thus, Verizon's UNE rates
6 should be no more than the UNE rates set in the BellSouth proceeding. While the UNE
7 rates for BellSouth are not yet finalized, a comparison of the rates determined in the
8 BellSouth Cost Order indicates that, notwithstanding the assertions of Verizon witnesses
9 Bert Steele and Dennis Trimble, who contend that Verizon's proposed UNE rates meet
10 the TELRIC standard, the values that Verizon proposes for unbundled loops and
11 switching are suspect on their face.

12 *The Weighted Average Cost of Capital*

13 **Q: WHY DO YOU CONTEND THAT DR. VANDER WEIDE'S ANALYSIS OF THE**
14 **COST OF CAPITAL IS LACKING?**

15 **A:** Dr. Vander Weide's analysis entirely ignores the Commission's recent decision in Phase
16 A of this same proceeding regarding the cost of capital. With respect to the cost of debt,
17 Dr. Vander Weide ignores the impact of short-term debt. The commission found in
18 Phase A of this proceeding that short-term debt is an important element in the
19 determination of the cost of capital. (BellSouth Cost Order, p. 155). Furthermore, in an
20 effort to estimate the forward-looking cost of equity, Dr. Vander Weide performs a
21 discounted cash flow analysis using a large number of firms drawn from a variety of
22 industries that are, in most cases, wholly unrelated to telecommunications. In the Phase
23 A Order, the Commission decisively rejected this approach and concluded that the
24 appropriate group of comparable firms that should be used in such an analysis includes

1 only the Regional Bell Operating Companies and GTE . (“We agree with witness
2 Hirshleifer’s conclusion that the RBHSc and GTE are an appropriate group to
3 consider when deciding the cost of capital for UNEs;” “we find problems with
4 witness Billingsley’s comparable group of companies as a proxy for BellSouth’s
5 UNE business.” BellSouth Cost Order, p. 153, 4). By ignoring short-term debt
6 and employing an analysis rejected by this Commission only a few months ago,
7 Dr. Vander Weide’s analysis is not particularly helpful in determining the cost of
8 capital in this phase of the proceeding.

9 **Q: DESCRIBE FURTHER THE RECENT COMMISSION ANALYSIS TO WHICH**
10 **YOU REFER.**

11 A: In Order No. PSC-01-1181-FOF (990649A-TP, “BellSouth Cost Order”), released in
12 May 2001, this Commission established a forward-looking cost of capital of 10.24%.
13 This cost of capital consisted of a cost of equity of 12.2%, a cost of debt of 7.3%, and a
14 capital structure of 60% equity and 40% debt [$0.6 \cdot 12.2 + 0.4 \cdot 7.3 = 10.24\%$]. The cost of
15 equity was determined using the Capital Asset Pricing Model (“CAPM”), whereas the
16 cost of debt was computed as a weighted average of short and long-term debt. The cost of
17 long-term debt was computed by adding a premium to the then current Treasury bond
18 rate. The cost of equity was computed using a risk-free rate of 6.67%, a market risk-
19 premium of 8.35%, and a Beta of 0.66 [$6.67 + 0.66(8.35) = 12.2$].

20 **Q: WERE THE INPUTS USED TO COMPUTE THE COST OF CAPITAL SPECIFIC**
21 **TO BELLSOUTH?**

22 A: Only one of the many inputs could be described as BellSouth-specific, but that input has
23 similar values across all the Regional Bell Companies (“RBOCs”) – the Commission

1 ordered comparable firms. Thus, all of the inputs can be described as applying generally
2 to a provider of unbundled network elements. Because none of the inputs are BellSouth
3 specific, there is no reason to believe that the methodology adopted by this Commission
4 to determine the cost of capital in this case should be any different than that set forth in
5 the BellSouth Cost Order. All that needs to be done here is to update the inputs and re-
6 compute the cost of capital. If the updated estimate of the cost of capital is similar to the
7 10.24% cost of capital established earlier, then it may be sensible just to apply that same
8 cost of capital in this phase of the proceeding. Consistency has its value. If significant
9 differences in the estimates of cost of capital are observed, either above or below the
10 previously established rate, then the cost of capital should be altered to reflect changes in
11 market conditions that have altered the forward-looking cost of capital.

12 **Q: WAS THE BELLSOUTH COST ORDER CLEAR IN ITS COMPUTATION OF**
13 **THE WACC?**

14 **A:** Yes. In the BellSouth Cost Order, the Commission clearly set forth the formula it used to
15 compute the cost of capital. The calculations in my testimony mirror the Commission's
16 formula. In many cases, the inputs used in the Commission's formula were easily
17 replicated.

18 **Q: GENERALLY, WHAT PROCEDURE DOES YOUR ANALYSIS FOLLOW?**

19 **A:** My approach is straightforward. I attempt simply to replicate the cost of capital
20 calculations from the BellSouth Cost Order using the primary data sources. After
21 replicating the calculations, I then update the inputs with current data. This approach to
22 computing the cost of capital has the benefits both of consistency within this proceeding
23 and a reliance on the Commission's own methods. For the purpose of consistency and
24 conceptual validity, in a very few cases I altered the procedures used to estimate the

1 inputs. Importantly, these different procedures have no effect on the final rate established
2 in the BellSouth Cost Order. But, these alternative procedures are more easily updated
3 and, I believe, more consistent and theoretically appropriate.

4 *The Cost of Debt*

5 **Q: HOW DID THE COMMISSION COMPUTE THE FORWARD-LOOKING COST**
6 **OF DEBT IN THE BELLSOUTH COST ORDER?**

7 A: The Commission computed the cost of debt using the following formula:

8
$$C_D = W_S \cdot R_S + (1 - W_S) \cdot [R_F + 0.5 \cdot (P_S + P_L)] \quad (1)$$

9 where C_D is the cost of debt, W_S is short-term debt as a percentage of total debt, R_S is the
10 short-term cost of debt, R_F is the risk-free rate, P_S is the short-term premium and P_L the
11 long-term premium of the Aaa Public Utility Bonds over the 30-Year Treasury Bond. The
12 term $[0.5 \cdot (P_S + P_L)]$ is the simple average of the short and long-term premiums of Public
13 Utility over Treasury yields. Notably, this formula was a creation of the Commission
14 itself, and not taken directly from the testimony of the parties.

15 **Q: PLEASE DESCRIBE THE INPUTS USED TO COMPUTE THE COST OF DEBT.**

16 A: In the "A" proceeding, the short-term cost of debt (R_S) was set equal to the March-May
17 2000 average yield on AA-rated Non-Financial Commercial Paper (6.22%).¹ Short-term
18 debt was weighted 17% of total debt. The risk-free rate (R_F) was the March-to-May 2000
19 average of the 30-year Treasury Bond yield (6.02%). The short-term premium of
20 Corporate over Treasury bonds was computed as the average premium over the
21 March-to-May 2000 period (1.97%), whereas the long-term premium was computed as

1 the average spread from March 1995 to February 2000 (1.01%). The final cost of debt,
2 therefore, was computed as

3
$$C_D = 0.17 \cdot 6.22 + 0.83 \cdot [6.02 + 0.5 \cdot (1.97 + 1.01)] = 7.3\%$$

4 which was the final value selected in the BellSouth Cost Order.

5 **Q: WERE YOU ABLE TO REPLICATE THE CALCULATIONS FROM THE**
6 **ORIGINAL DATA SOURCES?**

7 A: Yes. With one exception, I was able to replicate both the inputs and calculations
8 described in the BellSouth Cost Order. One input, the weight for short-term debt, cannot
9 be replicated exactly because it was based on a prospective, unsupported response to
10 discovery by BellSouth.

11 **Q: HAVE YOU UPDATED THE INPUTS FOR THE COMPUTATION OF THE**
12 **COST OF DEBT?**

13 A: Yes, I have made the exact same computations using the most current data available. The
14 data has been updated with a series ending in December 2001. For example, instead of
15 using the three-month period March-to-May 2000 as in the BellSouth Cost Order, I use
16 the three-month period October-to-December 2001.

17 **Q: WHAT IS THE UPDATED SHORT-TERM DEBT RATE?**

18 A: For the BellSouth Cost Order, the short-term debt rate (R_s) was measured as the average
19 yield on AA-rated 3-Month Commercial Paper (Non-Financial) during the months
20 March-to-May 2000. During that time, the yield was 6.22%. The average yield on AA-

1 rated 3-month Commercial Paper for the three-month period October-to-December 2001
2 is 2.01%. Exhibit ____ (GSF-1).

3 **Q: WHAT IS THE UPDATED RISK-FREE RATE?**

4 A: For the BellSouth Cost Order, the risk-free rate R_F was measured as the average yield on
5 the 30-Year Treasury bonds during March-to-May 2000. During that time, the yield was
6 6.02%. The average yield on the 30-year treasury for the three-month period
7 October-to-December 2001 is 5.31%. Exhibit ____ (GSF-2).

8 **Q: WHAT ARE THE UPDATED YIELD PREMIUMS?**

9 A: For the BellSouth Cost Order, the short-term premium was measured as the average yield
10 spread between Aaa Public Utility bonds and 30-Year Treasury bonds during March-to-
11 May 2000. The long-term premium was measured over the sixty-month period beginning
12 in March 1995 and ending in February 2000. The respective yield premiums were 1.97
13 and 1.01 during these periods. The updated premiums are 2.17% (P_S) over the
14 three-month period October-to-December 2001, and 1.45% (P_L) over the sixty-month
15 period January 1997 through December 2001. Exhibit ____ (GSF-2). The simple average
16 of the two is 1.81%.

17 **Q: WHAT IS THE UPDATED INPUT FOR SHORT-TERM DEBT AS A**
18 **PERCENTAGE OF TOTAL DEBT?**

19 A: This input was the most difficult to replicate, because it was based on a prospective,
20 unsupported response to a discovery request and, consequently, does not have a verifiable
21 data source.

1 Q: WERE YOU ABLE TO EVALUATE, INDIRECTLY, THE ASSUMED PERCENT
2 OF SHORT-TERM DEBT?

3 A: Yes. Historical data for the RBOCs indicates that Commercial Paper – the relevant yield
4 for short-term debt in Equation (1) -- represents about 20% of total debt and has done so
5 since 1998. No significant trend towards more or less Commercial Paper has been
6 observed in recent years. Though I cannot replicate the 17% assumption adopted in the
7 earlier phase, the lack of a significant trend in the data led me to retain the 17%
8 assumption for short-term debt adopted in BellSouth Cost Order. History, however,
9 indicates that the percent of short-term debt held as Commercial Paper is closer to 20%
10 than 17%. Exhibit ____ (GSF-3).

11 Q: USING THESE INPUTS AND THE COMMISSION'S FORMULA, WHAT IS
12 THE UPDATED, FORWARD-LOOKING COST OF DEBT?

13 A: The updated, forward-looking cost of debt is

14
$$C_D = 0.17 \cdot 2.01 + 0.83 \cdot [5.31 + 0.5 \cdot (2.17 + 1.45)] = 6.25\%.$$

15 If the weight for short-term debt is set at the historical level of 20%, the cost of debt is
16 6.10%. Exhibit ____ (GSF-4). Note that the long-term cost of debt is 7.12% [= 5.31 +
17 0.5 · (2.17 + 1.45)].

18 Q: WHY IS THIS VALUE LOWER THAN THE COST OF DEBT ESTABLISHED IN
19 THE BELLSOUTH COST ORDER?

20 A: The reduction in the forward-looking cost of debt is driven primarily by declines in the
21 cost of short-term debt and the risk-free rate. The marginal effects of the changes to
22 inputs are as follows: 1) the reduction in the short-term debt rate reduced the cost of debt
23 by 72 basis points [= 0.17 · (2.01 - 6.22)]; 2) the decline in the risk-free rate reduced the

1 cost of debt by 59 basis points [= $0.83 \cdot (5.31 - 6.02)$]; and 3) the increase in the yield
2 spreads increased the cost of debt by 27 basis points [= $0.83 \cdot (1.81 - 1.49)$]. The
3 combination of the three marginal effects is a 104 basis point reduction in the
4 forward-looking cost of debt [= $-72 - 59 + 27$]. Exhibit ____ (GSF-4).

5 **Q: WHAT COST OF DEBT DO YOU RECOMMEND FOR THIS PHASE OF THE**
6 **PROCEEDING?**

7 A: Adopting the computations prescribed by the Commission in the earlier phase of this
8 proceeding and updating the inputs, I estimate a forward-looking cost of debt of either
9 6.10% or 6.25%, depending on the assumption made about the weight of short-term debt.
10 Exhibit ____ (GSF-4).

11 **Q: WHAT COST OF DEBT WAS RECOMMENDED BY DR. VANDER WEIDE?**

12 A: Dr. Vander Weide recommends a copy of debt of 7.55%. This figure is the average yield
13 on Moody's A-rated industrial bonds for March 2001. (Vander Weide, p. 49.) The
14 primary difference between Dr. Vander Weide's cost of debt and the Commission's
15 approach is that Dr. Vander Weide has ignored short-term debt. The updated long-term
16 cost of debt of 7.12% is similar to Dr. Vander Weide's recommendation. Thus, the bulk
17 of the difference in the estimated cost of debt rests between the Commission's approach
18 and Dr. Vander Weide is that Vander Weide disregarded the Commission's Order in
19 Phase A calling for the inclusion of short-term debt.

20 *Cost of Equity*

21 **Q: HOW WAS THE COST OF EQUITY DETERMINED IN THE BELLSOUTH**
22 **COST ORDER?**

1 A: The Commission employed the Capital Asset Pricing Model (“CAPM”) to determine the
2 cost of equity. The CAPM is summarized by the following equation

$$3 \quad C_E = R_F + \beta \cdot (R_M - R_F) \quad (2)$$

$$4 \quad = R_F + \beta \cdot P_M \quad (3)$$

5 where C_E is the cost of equity, R_F is the risk-free rate, R_M is the return on a broad
6 portfolio of stocks, P_M is the market risk premium, and β is the firm’s “Beta.” In its
7 BellSouth Cost Order, the Commission selected a risk-free rate of 6.67, a risk premium of
8 8.35%, and a Beta of 0.66. These input values render a cost of equity of 12.2%.

9 **Q: DOES THE CAPM PRODUCE FORWARD LOOKING ESTIMATES OF THE**
10 **COST OF CAPITAL?**

11 **A:** Yes. Because the method is based on stock market prices, which presumably incorporate
12 investors’ expectations of the firm’s future earnings, the CAPM is forward-looking.

13 **Q: WHAT WAS THE SOURCE FOR THE INPUTS USED TO COMPUTE THE**
14 **COST OF EQUITY?**

15 **A:** The risk-free rate was based on the implied yield for Treasury bond futures in May 2000.
16 The risk-premium was computed as the yield spread on the S & P 500 Composite Index
17 and Aaa Corporate Utility bonds over the period October 1987 to May 2000. The Beta
18 was the levered average Beta for the RBOCs and GTE.

19 **Q: DO YOU BELIEVE THE COMMISSION’S COMPUTATION OF THE COST OF**
20 **EQUITY WAS REASONABLE?**

21 **A:** Yes, I believe the use of the CAPM was a sensible and appropriate decision and that the
22 Commission should continue to apply it here. But, while the Commission applied a good

1 theoretical concept, there were a couple of irregularities in the inputs. Notably, all of
2 these irregularities were based on calculations performed by witnesses and not the
3 Commission itself.

4 **Q: WHAT IRREGULARITIES DID YOU FIND IN THE COMPUTATION OF THE**
5 **COST OF EQUITY?**

6 A: First, there is a fundamental inconsistency in the computation of the risk-free rate and the
7 market risk premium.

8 **Q: PLEASE DESCRIBE THIS INCONSISTENCY.**

9 A: The Commission adopted a market-risk premium from the testimony of BellSouth
10 witness Randall Billingsley. Dr. Billingsley computed the risk premium as the yield
11 spread between the S&P 500 Composite and Aaa Public Utility Debt. The value of this
12 premium was 15.02% as of May 2000. Dr. Billingsley computed a risk-free rate of
13 6.67%, which was the implied yield on Treasury Bond futures in May 2000. The
14 difference between the two yields is 8.35%, and this value was the market risk premium
15 used in the BellSouth Cost Order.

16 **Q: WHAT IS WRONG WITH THIS CALCULATION?**

17 A: As portrayed in Equation (2), the market risk premium is computed as the difference
18 between the return on stocks and the risk-free rate ($P_M = R_M - R_F$). Yet, this is not the
19 calculation that was used to determine the market risk premium. The respective yields on
20 Treasury Bonds (or Treasury Bond futures) and Aaa Public Utility debt are clearly not the
21 same. In fact, the Commission used the yield spread of 1.01% between the risk-free
22 Treasury bonds and Aaa Public Utility debt to establish the forward-looking cost of debt.
23 Thus, the market risk premium of 8.35% adopted in the BellSouth Cost Order was

1 understated by about 101 basis points. The corrected market-risk premium would be
2 about 9.36%.

3 **Q: ARE THERE OTHER PROBLEMS WITH THE COMPUTATION OF THE COST**
4 **OF EQUITY?**

5 A: Yes. The risk-free rate used for the cost of equity was different than the risk-free rate
6 used for the cost of debt. The risk-free rate is the risk-free rate, and it should not differ
7 among the calculations required to compute the cost of capital.

8 **Q: HOW CAN THIS INCONSISTENCY BE REMEDIED?**

9 A: Fortunately, adjusting the analysis is rather straightforward, requiring only that the risk-
10 free rate be applied consistently across calculations. My testimony follows this consistent
11 approach, adopting the updated risk-free rate of 5.31% and the previous risk-free rate of
12 6.02% for all computations.

13 **Q: WERE THERE OTHER IRREGULARITIES IN THE COMPUTATION OF THE**
14 **COST OF EQUITY?**

15 A: Yes. In the BellSouth Cost Order, the Commission used a Beta of 0.66, which was a
16 levered Beta for the Regional Bell Companies and GTE as constructed by
17 AT&T/WorldCom witness John Hirshliefer. The irregularity in this instance is that the
18 Commission staff did not endorse Hirshliefer's leveraging of Betas. BellSouth Cost
19 Order, p. 154. The Commission did observe that the levered 0.66 Beta was reasonably
20 close to BellSouth's unlevered BARRA Beta of 0.65 (in December 1999), and the two
21 Betas were sufficiently close for the Commission to conclude that the levered Beta was
22 not unreasonable.

1 Q: IS IT POSSIBLE TO ELIMINATE THE USE OF LEVERED BETAS WITHOUT
2 ALTERING THE WACC THE IN BELLSOUTH COST ORDER?

3 A: Yes. Over the twelve-month period June 1999 to July 2000, or January 2000 through
4 December 2000, the average unlevered Beta for the RBOCs was 0.66. This number
5 coincides with the Beta used in the BellSouth Cost Order. Exhibit ____ (GSF-5).

6 Q: IF THESE IRREGULARITIES ARE REMEDIED, WHAT EFFECT WOULD
7 THE CHANGES TO A MORE CONSISTENT APPROACH HAVE ON THE
8 COST OF EQUITY IN THE BELLSOUTH COST ORDER?

9 A: Repairing the problems with the computation of the market risk premium, the risk-free
10 rate, and Beta has no impact on the cost of equity determined in the BellSouth Cost
11 Order. The increased market risk premium combined with the consistent treatment of the
12 risk-free rate across debt and equity calculations produces a cost of equity equal at the
13 time to

$$C_E = 6.02 + 0.66 \cdot (9.36) = 12.2\%.$$

14
15 Thus, there would be no difference in the cost of equity established in the BellSouth Cost
16 Order if these irregularities were eliminated. Thus, it seems sensible to move to a more
17 consistent approach. To facilitate this consistent approach, I supply the Commission with
18 all the necessary inputs to make the correct calculations.

19 Q: HAVE YOU UPDATED THE INPUTS REQUIRED TO COMPUTE THE COST
20 OF EQUITY?

21 A: Yes. As discussed previously, the risk-free rate has declined from 6.02% to 5.31%. I use
22 this updated risk-free rate to compute the cost of equity. Exhibit ____ (GSF-2). The

1 procedure I employ to estimate the market-risk premium is simple and transparent. The
2 data is publicly available and available on the Internet. Selecting a method to estimate the
3 market risk premium that is simple, produces results consistent with other more
4 complicated methods, and is easily reproduced has obvious benefits.

5 **Q: HAS THE MARKET PREMIUM CHANGED?**

6 A: Yes. According to my calculations, the market risk premium has declined from 9.39% to
7 8.34%. Exhibit ___ (GSF-6).

8 **Q: HOW DID YOU COMPUTE THE MARKET RISK PREMIUM?**

9 A: I have recomputed the market risk premium for the 20-year period 1981 through 2000,
10 and 1982 through 2001. The former time period coincides with that used in the BellSouth
11 Cost Order of this proceeding and the resulting market risk premium of 9.39% is nearly
12 identical to the "corrected" risk premium of 9.36% used in the earlier phase. Using
13 arithmetic mean returns, the market risk premium in the later period 8.34%. Thus, the
14 market risk premium has declined, and this lower value is used in my calculation of the
15 cost of equity.

16 **Q: IS HISTORICAL DATA APPROPRIATE FOR MEASURING THE FORWARD-
17 LOOKING MARKET RISK PREMIUM?**

18 A: Yes. The risk premium follows no systematic or predictable pattern. Thus, the best
19 estimate of its future value is the arithmetic average of its historical values.

20 **Q: DO YOU BELIEVE YOUR ESTIMATES OF THE MARKET RISK PREMIUM
21 ARE REASONABLE?**

1 A: My goal is not to argue over the levels previously chosen by this Commission. Rather,
2 my efforts are devoted to the replication of the Commission's methodology and the
3 elimination of any irregularities or inconsistencies in that methodology under the
4 constraint that the remedies to these problems do not, in the end, alter the Commission's
5 earlier decision about the cost of capital. That said, the method used to compute the
6 market risk premium is legitimate. There are many methods to estimate the market risk
7 premium, and just as many estimates of the market risk premium as methods. Professor
8 Aswath Damodaran at the Stern Business School, for example, provides a number of
9 estimates of the market risk premium on his website.² Generally, the market risk
10 premiums he estimates are considerably smaller than the values I have recommended
11 here. Dr. Vander Weide proposed a market risk premium of 7.8% in his testimony before
12 this Commission in Docket No. 000824-EI. Testimony of James H. Vander Weide,
13 Docket No. 000824-EI, September 14, 2001, p. 38. I believe my estimate of the market
14 risk premium is conservative.

15 Q: **HAVE YOU UPDATED THE BETA?**

16 A: Yes. Over the twelve-month period January 2001 to December 2001, the average RBOC
17 Beta was 0.58. Exhibit ____ (GSF-5).

18 Q: **WHAT WOULD THE RISK-FREE RATE AND MARKET RISK PREMIUM BE**
19 **IF YOU ADHERED MORE CLOSELY TO THE APPROACH TAKEN IN THE**
20 **BELLSOUTH COST ORDER?**

21 A: Mirroring the calculations used in Phase A, the implied yield on Treasury futures in
22 December 2001 is 6.02%. Exhibit ____ (GSF-7) . As just discussed, I calculate a market

² http://www.stern.nyu.edu/~adamodar/New_Home_Page/data.html.

1 risk premium on Treasury Bonds of 8.36%. Subtracting the long-term spread between
2 Aaa Public Utility bonds and Treasuries of 1.45%, the implied market risk premium is
3 6.89%.

4 **Q: WHAT IS THE UPDATED, FORWARD-LOOKING COST OF EQUITY?**

5 A: In my opinion, the best estimate based on the Commission's methodology is about 10%.
6 Exhibit ___ (GSF-8) summarizes the estimated cost of equity under a variety of input
7 combinations, and all estimates are about 10%.

8 **Q: WHAT ASSUMPTION DID YOU MAKE ABOUT CAPITAL STRUCTURE?**

9 A: As in the BellSouth Cost Order, I use a capital structure of 40% debt and 60% equity.
10 The Commission cited a number of sources for this assumed capital structure, including
11 BellSouth's own assertions about its target capital structure. Staff's 5th Set of
12 Interrogatories, TP-990649A-TP, June 13, 2000, Item No. 49, Page 1 of 1. Because
13 RBOC capital structure is not something that undergoes dramatic changes over short
14 periods of time, I see no obvious reasons for adjusting the capital structure assumed in the
15 BellSouth Cost Order. Indeed, the ratio of RBOC (book) debt to market capitalization has
16 remained relatively stable over the past few years. Current financial statistics indicate that
17 the book capital structure of the RBOCs is about 55% debt and 45% equity, so a 40-60
18 assumption is well below book values. Exhibit __ (GSF-9).

19 **Q: BASED ON THE UPDATED INPUTS, WHAT IS THE FORWARD-LOOKING**
20 **COST OF CAPITAL?**

21 A: Following the approach of the BellSouth Cost Order, the forward-looking cost of capital
22 is computed using the following formula:

1
$$= 0.40 \cdot C_D + 0.60 \cdot C_E.$$

2 My estimates of the forward-looking cost of debt are 6.10% and 6.25%. Estimates of the
3 forward-looking cost of equity are about 10.0% to 10.1%. Considering these estimates,
4 the updated, forward-looking cost of capital lies between 8.43% and 8.56%, with a mid-
5 point of about 8.50%. Estimates of the cost of capital using different combinations of the
6 updated inputs are provided are provided in Exhibit ____ (GSF-10).

7 **Q: WHAT COST OF CAPITAL DO YOU RECOMMEND FOR THIS PHASE OF**
8 **THIS PROCEEDING?**

9 A: Using the Commission's prescribed calculations in the BellSouth Cost Order with
10 updated inputs, the forward-looking cost of capital is about 8.5%.

11 **Q: WHY, USING THE SAME METHODOLOGY AS IN THE BELLSOUTH COST**
12 **ORDER, IS THE UPDATED COST OF CAPITAL SUBSTANTIALLY LESS**
13 **THAN THE COST OF CAPITAL ESTABLISHED IN THAT EARLIER ORDED?**

14 A: The current economy is markedly different than the economy in late 1999 and early 2000.
15 The cost of debt has fallen substantially, with the risk-free rate down 71 basis points and
16 commercial paper down about 400 basis points. Further, the market risk premium and
17 perceived risk faced by the RBOCs – as measured by Beta – have both declined.

18 **Q: PLEASE SUMMARIZE YOUR TESTIMONY ON THE COST OF CAPITAL.**

19 A. I have followed the Commission's own formula, detailed in the BellSouth Cost Order, for
20 computing the forward-looking cost of capital. The inputs used for the computations are,
21 in most cases, determined in an identical manner to the BellSouth Cost Order. In some
22 cases differences exist, but in these cases I believe my estimates are an improvement over

1 those used in the BellSouth Cost Order. Using consistent methods and data sets,
2 reasonable estimates of the updated, forward-looking cost of capital is 8.5%.

3 *Comparative Cost Analysis*

4 **Q: THIS COMMISSION IS CURRENTLY COMPLETING PHASE A OF THIS**
5 **PROCEEDING. IN PHASE A, THE UNE RATES FOR BELL SOUTH-FLORIDA**
6 **ARE BEING DETERMINED. DO THE RATE PRESCRIPTIONS IN THAT**
7 **PHASE OF THE PROCEEDING SHED ANY LIGHT ON THE UNE RATES FOR**
8 **VERIZON-FLORIDA?**

9 A: I believe so. For example, if the costs of serving the Verizon regions of the state are
10 identical to the costs of serving the BellSouth regions, then the UNE rates should be
11 roughly identical between the two carriers. If the costs are higher in one region than the
12 other, the UNE rates should reflect those cost differences. If the Commission adopts the
13 same TELRIC principles in this phase as in the former phase of this proceeding, then my
14 analysis indicates that the UNE rates established for Verizon in this proceeding should be
15 slightly less than the UNE rates set for BellSouth. (In making this statement, I do not
16 imply that I believe BellSouth's current UNE rates are at an appropriate level. In the "A"
17 Phase, I have asserted that an application of the same comparison among states indicates
18 BellSouth's Florida UNE-P loop rate is overstated.)

19 **Q: HOW DID YOU REACH THIS OBSERVATION?**

20 A: I used the FCC's Hybrid Proxy Cost Model ("HCPM") to compare the costs of providing
21 elements between BellSouth-Florida and Verizon-Florida. Evaluating the relative cost of
22 providing UNEs across the BellSouth and Verizon territories in Florida with an
23 independent cost model clearly shows that UNE rates in the BellSouth and Verizon
24 regions should be more alike than different. In fact, the costs of UNEs in the Verizon

1 region are typically less than the costs in the BellSouth region. While this comparative
2 analysis does not produce specific rates – that is the role of the cost models – it does
3 provide some indication of the TELRIC “zone of reasonableness” and operates as a
4 sanity check on the rates proposed by Verizon.

5 **Q: HOW IS THE HCPM USED TO MAKE SUCH COMPARISONS?**

6 A: The general idea is that the ratio of rates between two carriers within a state, or between
7 carriers across states, should roughly approximate the corresponding ratio of costs. If the
8 costs are identical, the rates should be roughly identical. It is that simple.

9 **Q: HAS THE HCPM BEEN USED TO PERFORM SUCH ANALYSES IN OTHER**
10 **CONTEXTS?**

11 A: Yes. The FCC has used the approach in numerous 271 Orders, beginning with the
12 Oklahoma-Kansas 271 Order. OK-KS Order, ¶84-5. In that Order, the FCC said:

13 Our USF cost model provides a reasonable basis for comparing cost differences
14 between states. We have previously noted that while the USF cost model should
15 not be relied upon to set rates for UNEs, it accurately reflects the relative cost
16 differences among states (emphasis added).³

17 Thus, while the HCPM should not be used to determine the absolute level of the UNE
18 rate, the model is a reliable source of how costs differ across states and, similarly, across
19 carriers within a state. The FCC has since applied this principle in subsequent 271 Orders
20 including Massachusetts, Pennsylvania, and Arkansas and Missouri.

21 The concept of using the HCPM in the way I have described is a rather general
22 concept, and its use in the 271 proceedings is only one of many applications of this idea.
23 This Commission will have to determine the usefulness of this comparative approach in

1 the instant proceeding. At a minimum, I believe a comparative analysis using the HCPM
2 provides general guidance on the reasonableness of proposed TELRIC rates – at least
3 relative to the rates established for other carriers or in other states.

4 **Q: FOR WHICH ELEMENTS DO YOU COMPARE COSTS BETWEEN**
5 **BELLSOUTH-FLORIDA AND VERIZON-FLORIDA?**

6 A: The 2-wire analog loop and unbundled switching, including transport. The details of the
7 relevant computations are provided in Exhibit ___ (GSF-11).

8 **Q: WHAT DOES THE HCPM SAY ABOUT THE RELATIVE COST OF LOOPS**
9 **BETWEEN BELLSOUTH-FLORIDA AND VERIZON-FLORIDA?**

10 A: The HCPM estimates that the cost of a loop for Verizon-Florida is roughly equal to that
11 for Bellsouth-Florida. The average HCPM loop cost for Verizon-Florida is \$17.02,
12 whereas the average HCPM loop cost for BellSouth-Florida is \$17.21 – about a 1%
13 difference. Thus, we should expect that the TELRIC rates for loops established in the
14 proceeding should be roughly identical between the two carriers.

15 **Q: WHAT DOES THE HCPM SAY ABOUT THE RELATIVE COST OF**
16 **SWITCHING BETWEEN BELLSOUTH-FLORIDA AND VERIZON-FLORIDA?**

17 A: As with loops, the costs are roughly identical. The average, per-line monthly switching
18 cost for Verizon is \$2.13, whereas the average, per-line monthly switching cost for
19 BellSouth-Florida is \$2.33 – about a 9% difference. Again, we should expect that the
20 TELRIC rates established for Verizon-Florida in the proceeding for switching (on a
21 monthly, per-line basis) should be slightly less than BellSouth's UNE switching rates.

³ FCC KS-OK 271 Order, ¶ 84.

1 Q: WILL THE SWITCH PORT AND USAGE RATES BE IDENTICAL BETWEEN
2 BELLSOUTH AND VERIZON?

3 A: Not necessarily. The rates for the individual elements that make up switching may not be
4 equal, but when taking into account usage characteristics of the customers, the average,
5 per-line monthly element costs for switching – including the port and end-office usage –
6 should be approximately the same for the two carriers. So, when evaluating proposed
7 rates, one must account for usage. The relevant usage data is provided in Exhibit
8 ____(GSF-10).

9 Q: IN YOUR OPINION, DO THE UNE RATES PROPOSED BY VERIZON
10 REFLECT THE RELATIONSHIPS THAT YOU WOULD EXPECT TO SEE?

11 A: While BellSouth's UNE rates have not been finalized, I think it is worth noting that
12 Verizon has proposed rates that are substantially higher than the rates set forth in the
13 BellSouth Cost Order. For example, the BellSouth Order sets rates for two-wire analog
14 loops for UNE-Combinations at \$14.83, \$18.24, and \$23.98. Verizon has proposed loops
15 rates of \$22.17, \$30.91, and \$77.39. Obviously, these rates are not even remotely similar.
16 The BellSouth Order also set a fixed rate for switch port features of \$3.40. Yet, Verizon
17 proposed to charge \$4.20 for nothing more than "three-way calling" (\$1.46) and remote
18 call forwarding (\$2.74). Computing monthly, per-line switching costs using the minutes
19 in Exhibit __ (GSF-11), the rates in the BellSouth Cost Order produce a monthly cost of
20 3.23 whereas Verizon has proposed to charge 7.27. Verizon's proposed rates, therefore,
21 do not satisfy a comparative cost analysis.

22 Q: DOES THIS CONCLUDE YOUR TESTIMONY?

23 A: Yes.

Cost of Short-Term Debt		
(3-Month AA Non-Financial Commercial Paper)		
Month/Year	Rate	Averages
Jan-00	5.74	
Feb-00	5.87	
Mar-00	6.00	
Apr-00	6.11	6.22
May-00	6.54	
Jun-00	6.57	
Jul-00	6.52	
Aug-00	6.49	
Sep-00	6.47	
Oct-00	6.51	
Nov-00	6.50	
Dec-00	6.34	
Jan-01	5.49	
Feb-01	5.14	
Mar-01	4.78	
Apr-01	4.44	
May-01	3.93	
Jun-01	3.67	
Jul-01	3.59	
Aug-01	3.42	
Sep-01	2.81	
Oct-01	2.28	
Nov-01	1.97	2.01
Dec-01	1.78	

Source: FRED, Federal Reserve Bank of St. Louis
(<http://www.stls.frb.org/fred/data/irates.html>).

Yields on Treasury Bond and Aaa Public Utility Debt

Date	30 Year Treasury Bond	Aaa Utility	Date	30 Year Treasury Bond	Aaa Utility	Date	30 Year Treasury Bond	Aaa Utility
Jan-95	***	***	May-97	6.94	7.72	Sep-99	6.07	7.55
Feb-95	***	***	Jun-97	6.77	7.55	Oct-99	6.26	7.73
Mar-95	7.45	8.18	Jul-97	6.51	7.29	Nov-99	6.15	7.56
Apr-95	7.36	8.08	Aug-97	6.58	7.39	Dec-99	6.35	7.74
May-95	6.95	7.71	Sep-97	6.50	7.33	Jan-00	6.63	7.95
Jun-95	6.57	7.39	Oct-97	6.33	7.18	Feb-00	6.23	7.82
Jul-95	6.72	7.51	Nov-97	6.11	7.09	Mar-00	6.05	7.87
Aug-95	6.86	7.66	Dec-97	5.99	6.99	Apr-00	5.85	7.87
Sep-95	6.55	7.42	Jan-98	5.81	6.85	May-00	6.15	8.22
Oct-95	6.37	7.23	Feb-98	5.89	6.91	Jun-00	5.93	7.96
Nov-95	6.26	7.13	Mar-98	5.95	6.96	Jul-00	5.85	8.00
Dec-95	6.06	6.94	Apr-98	5.92	6.94	Aug-00	5.72	7.89
Jan-96	6.05	6.92	May-98	5.93	6.94	Sep-00	5.83	7.92
Feb-96	6.24	7.11	Jun-98	5.70	6.80	Oct-00	5.80	7.80
Mar-96	6.60	7.45	Jul-98	5.68	6.80	Nov-00	5.78	7.71
Apr-96	6.79	7.60	Aug-98	5.54	6.75	Dec-00	5.49	7.51
May-96	6.93	7.73	Sep-98	5.20	6.66	Jan-01	5.54	7.53
Jun-96	7.06	7.83	Oct-98	5.01	6.63	Feb-01	5.45	7.46
Jul-96	7.03	7.78	Nov-98	5.25	6.59	Mar-01	5.34	7.31
Aug-96	6.84	7.59	Dec-98	5.06	6.43	Apr-01	5.65	7.53
Sep-96	7.03	7.76	Jan-99	5.16	6.41	May-01	5.78	7.61
Oct-96	6.81	7.50	Feb-99	5.37	6.56	Jun-01	5.67	7.50
Nov-96	6.48	7.21	Mar-99	5.58	6.78	Jul-01	5.61	7.46
Dec-96	6.55	7.33	Apr-99	5.55	6.80	Aug-01	5.48	7.36
Jan-97	6.83	7.53	May-99	5.81	7.09	Sep-01	5.48	7.52
Feb-97	6.69	7.47	Jun-99	6.04	7.37	Oct-01	5.32	7.45
Mar-97	6.93	7.70	Jul-99	5.98	7.34	Nov-01	5.12	7.45
Apr-97	7.09	7.88	Aug-99	6.07	7.54	Dec-01	5.48	7.83

Period	Risk-Free Rate	Spread
March-to-May 2000	6.02	1.97
October-to-December 2001	5.31	2.17
March 1995 to February 2000		1.01
January 1997 to December 2001		1.45

Source: FRED, Federal Reserve Bank of St. Louis (<http://www.stls.frb.org/fred/data/irates.html>); BellSouth Discovery Response, Staff's 5th Set of Interrogatories, June 13, 2000, Item No. 55, Page 1 of 1; Mergent Bond Record.

Elements of Short-Term Debt				
Bellsouth	1998	1999	2000	Average
Bank Loans/Other	\$765	\$258	\$1,129	\$717
Commercial Paper	\$2,378	\$6,896	\$5,730	\$5,001
Maturing Long-term Debt	\$311	\$499	\$710	\$507
Total Short-Term	\$3,454	\$7,653	\$7,569	\$6,225
Percent Bank Loans/Other	22%	3%	15%	12%
Percent Commercial Paper	69%	90%	76%	80%
Percent Maturing Long-term Debt	9%	7%	9%	8%
Total Debt	\$12,169	\$16,766	\$20,032	\$16,322
Short-term Debt to Total Debt	28%	46%	38%	38%
Commercial Paper to Total Debt	20%	41%	29%	31%
Verizon				
Bank Loans/Other	\$300	\$371	\$360	\$344
Commercial Paper	\$1,384	\$8,725	\$12,659	\$7,589
Maturing Long-term Debt	\$1,304	\$5,967	\$1,819	\$3,030
Total Short-Term	\$2,988	\$15,063	\$14,838	\$10,963
Percent Bank Loans/Other	10%	2%	2%	3%
Percent Commercial Paper	46%	58%	85%	69%
Percent Maturing Long-term Debt	44%	40%	12%	28%
Total Debt	\$17,646	\$47,482	\$57,329	\$40,819
Short-term Debt to Total Debt	17%	32%	26%	27%
Commercial Paper to Total Debt	8%	18%	22%	19%
SBC				
Bank Loans/Other	\$25	\$21	\$1,419	\$488
Commercial Paper	\$3,412	\$2,623	\$6,437	\$4,157
Maturing Long-term Debt	\$741	\$730	\$2,614	\$1,362
Total Short-Term	\$4,178	\$3,374	\$10,470	\$6,007
Percent Bank Loans/Other	1%	1%	14%	8%
Percent Commercial Paper	82%	78%	61%	69%
Percent Maturing Long-term Debt	18%	22%	25%	23%
Total Debt	\$21,348	\$20,849	\$25,962	\$22,720
Short-term Debt to Total Debt	20%	16%	40%	26%
Commercial Paper to Total Debt	16%	13%	25%	18%

Composite	1998	1999	2000	Average
Bank Loans/Other	\$1,090	\$650	\$2,908	\$1,549
Commercial Paper	\$7,174	\$18,244	\$24,826	\$16,748
Maturing Long-term Debt	\$2,356	\$7,196	\$5,143	\$4,898
Total Short-Term	\$10,620	\$26,090	\$32,877	\$23,196
Percent Bank Loans/Other	10%	2%	9%	7%
Percent Commercial Paper	68%	70%	76%	72%
Percent Maturing Long-term Debt	22%	28%	16%	21%
Total Debt	\$51,163	\$85,097	\$103,323	\$79,861
Short-term Debt to Total Debt	21%	31%	32%	29%
Commercial Paper to Total Debt	14%	21%	24%	21%

Cost of Debt (C_D)				
	(1)	(2)	BellSouth Order	Marginal Effects
Risk Free Rate (R_F)	5.31	5.31	6.02	(0.59)
ST Premium (P_S)	2.17	2.17	1.97	
LT Premium (P_L)	1.45	1.45	1.01	
$0.5(P_S + P_L)$	1.81	1.81	1.49	0.27
LT Debt Rate [$R_F + 0.5(P_S + P_L)$]	7.12	7.12	7.50	
ST Debt Rate (R_S)	2.01	2.01	6.22	(0.72)
Short Term Debt Percent	0.17	0.20	0.17	
Long Term Debt Percent	0.83	0.80	0.83	
Cost of Debt (C_D)	6.25	6.10	7.3	

Betas				
Date	Verizon	BellSouth	SBC	Average
Dec-01	0.614	0.439	0.456	0.503
Nov-01	0.607	0.439	0.458	0.501
Oct-01	0.652	0.418	0.502	0.524
Sep-01	0.658	0.437	0.517	0.537
Aug-01	0.739	0.514	0.625	0.626
Jul-01	0.716	0.475	0.590	0.594
Jun-01	0.733	0.478	0.602	0.604
May-01	0.729	0.472	0.588	0.596
Apr-01	0.723	0.470	0.586	0.593
Mar-01	0.695	0.479	0.640	0.605
Feb-01	0.716	0.478	0.625	0.606
Jan-01	0.686	0.505	0.657	0.616
Dec-00	0.677	0.499	0.654	0.610
Nov-00	0.668	0.499	0.644	0.604
Oct-00	0.674	0.408	0.625	0.569
Sep-00	0.705	0.438	0.652	0.598
Aug-00	0.798	0.503	0.809	0.703
Jul-00	0.839	0.542	0.827	0.736
Jun-00	0.823	0.530	0.827	0.727
May-00	0.825	0.535	0.830	0.730
Apr-00	0.788	0.513	0.833	0.711
Mar-00	0.788	0.536	0.872	0.732
Feb-00	0.654	0.465	0.853	0.657
Jan-00	0.569	0.404	0.807	0.593
Dec-99	0.598	0.416	0.751	0.588
Nov-99	0.626	0.423	0.795	0.615
Oct-99	0.642	0.439	0.787	0.623
Sep-99	0.678	0.456	0.813	0.649
Aug-99	0.743	0.482	0.836	0.687
Jul-99	0.717	0.445	0.783	0.648

0.58

0.66

0.66

Source: www.alacra.com (BARRA Beta Book).

Market Risk Premium

Year	T-Bond	S&P 500	Phase A	Phase B
1981	13.44%	13.70%	1	
1982	12.76%	0.00%	2	1
1983	11.18%	41.43%	3	2
1984	12.39%	4.56%	4	3
1985	10.79%	23.37%	5	4
1986	7.80%	31.46%	6	5
1987	8.58%	23.89%	7	6
1988	8.96%	-1.78%	8	7
1989	8.45%	26.13%	9	8
1990	8.61%	6.21%	10	9
1991	8.14%	19.12%	11	10
1992	7.67%	12.91%	12	11
1993	6.60%	11.91%	13	12
1994	7.37%	4.52%	14	13
1995	6.88%	22.12%	15	14
1996	6.70%	26.72%	16	15
1997	6.61%	32.40%	17	16
1998	5.58%	26.87%	18	17
1999	5.87%	24.31%	19	18
2000	5.94%	8.27%	20	19
2001	5.49%	-15.29%		20
Average Return Treasury Bond			8.52%	8.12%
Average Return S&P 500			17.91%	16.46%
Market Risk Premium			9.39%	8.34%

Source: FRED, Federal Reserve Bank of St. Louis
(<http://www.stls.frb.org/fred/data/irates.html>), S&P 500
returns computed using the average value of the index for each
year.

Implied Yield for Treasury Bond Futures

Date	Price	Avg Price	Implied Yield
12/28/2001	\$100.5313	\$100.77	6.02%
12/21/2001	\$101.0938		
12/14/2001	\$100.9063		
12/07/2001	\$100.5625		
05/26/2000	\$95.2813	\$93.91	6.66%
05/19/2000	\$93.2813		
05/12/2000	\$93.4688		
05/05/2000	\$93.5938		

Source. <http://www.britefutures.com/BFCharts/BFChartWeekly.asp?symbol=USD>

Cost of Equity						
	2001	2001	2001	2001	Phase A	Phase A*
Risk Free Rate (R_F)	5.31	6.02	5.31	6.02	6.67	6.02
Beta (β)	0.58	0.58	0.58	0.58	0.66	0.66
Premium (P_M)	8.34	6.89	8.34	6.89	8.35	9.36
Cost of Equity (C_E)	10.1	10.0	10.1	10.0	12.2	12.2

Capital Structure			
	Total Debt To Equity*	Debt	Equity
BellSouth	1.11	0.53	0.47
SBC	0.78	0.44	0.56
Verizon	1.83	0.65	0.35
Average	1.24	0.55	0.45

* www.marketguide.com; www.alacra.com.

Weighted Average Cost of Capital: Summary Computations

	2001	2001	2001	2001	Phase A*	Phase A
Risk Free Rate (R_F)	5.31	6.02	5.31	6.02	6.67	6.02
Beta (β)	0.58	0.58	0.58	0.58	0.66	0.66
Premium (P_M)	8.34	6.88	8.34	6.88	8.35	9.36
Cost of Equity (C_E)	10.1	10.0	10.1	10.0	12.2	12.2
Risk Free Rate (R_F)	5.31	5.31	5.31	5.31	6.02	6.02
ST Premium (P_S)	2.17	2.17	2.17	2.17	1.97	1.97
LT Premium (P_L)	1.45	1.45	1.45	1.45	1.01	1.01
$0.5(P_S + P_L)$	1.83	1.83	1.83	1.83	1.49	1.49
LT Debt Rate [$R_F + 0.5(P_S + P_L)$]	7.12	7.12	7.12	7.12	7.50	7.51
ST Debt Rate (R_S)	2.01	2.01	2.01	2.01	6.22	6.22
Short Term Debt Percent (W_S)	0.17	0.17	0.20	0.20	0.17	0.17
Long Term Debt Percent ($1 - W_S$)	0.83	0.83	0.80	0.80	0.83	0.83
Cost of Debt (C_D)	6.10	6.10	6.25	6.25	7.3	7.3
Capital Structure						
Percent Equity	0.60	0.60	0.60	0.60	0.60	0.60
Percent Debt	0.40	0.40	0.40	0.40	0.40	0.40
Weighted Avg Cost of Capital	8.56	8.49	8.50	8.43	10.24	10.24

* Computed using adjusted inputs to correct for irregularities and inconsistencies in previous approach.

HCPM Cost Estimates for BellSouth and Verizon

	Verizon Florida	BellSouth Florida
Loop	17.02	17.21
Switching	2.13	2.33
Minutes		
End-Office Switching	966	1,420
Direct Transport	319	483
Common Transport	13	20
Tandem Switching	7	10

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of Testimony of Dr. George S. Ford on behalf of Z-Tel Communications, Inc., has on this 30th day of January, 2002 been served (*) Hand Delivery, U.S. Mail and Email to the following:

(*)Jason K. Fudge
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