BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Review of:	)	
Unbundled Loop and Switching Rates;	)	Docket No. UT-023003
the Deaveraged Zone Rate Structure; and	)	
Unbundled Network Elements,	)	
Transport and Termination	)	
(Recurring Costs)	)	
	)	

OPENING POST-HEARING BRIEF OF

AT&T COMMUNICATIONS OF THE PACIFIC NORTHWEST, INC.

July 15, 2004

NON-CONFIDENTIAL VERSION

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I. INTRODUCTION AND EXPLANATION OF TELRIC PRINCIPLES

1. This proceeding represents the Commission with its latest opportunity to establish rates for unbundled network elements ("UNEs") for Verizon Northwest Inc. ("Verizon") that are consistent both with the Federal Communications Commission's ("FCC's") total element long-run incremental cost ("TELRIC") principles and the Commission's, the state legislature's, and Congress' goals to foster development of effective local exchange competition in Washington. Unfortunately, the Commission's past efforts at establishing conditions to promote competition in Verizon's local exchange markets have met with little success. Verizon continues to retain a 97% market share in its local service territory, Ex. 1062T (Staff Spinks Response) at 11, and has not petitioned for, much less been granted, competitive classification for any local exchange service in Washington since passage of the federal Telecommunications Act of 1996 ("Act").

2. AT&T Communications of the Pacific Northwest, Inc. ("AT&T") has provided the Commission with proposals and supporting evidence to improve that situation. AT&T has sponsored HM 5.3 to be used in determining Verizon's costs to provide unbundled network elements ("UNEs"), along with documentation and testimony supporting the inputs that AT&T has proposed. Commission Staff ("Staff") also endorses HM 5.3, and although Staff proposes inputs ordered by the Commission in the original cost docket, the resulting rates are a significant improvement over the rates currently in effect.

3. Verizon, on the other hand, proposes to make a bad situation even worse. Verizon has developed a new series of web-based cost models that are Byzantine in their complexity and incorporate inputs and assumptions that are not even remotely reasonable. As a result, Verizon proposes to substantially *increase* existing rates, which would serve only to further solidify Verizon's monopoly on local service in its Washington exchanges and undermine the minimal level of competition that currently exists.

4. AT&T urges the Commission to establish rates for the UNEs at issue in this proceeding consistent with AT&T's proposals and at levels that are significantly lower than the rates currently in effect. Only when UNEs are priced at those levels can there exist the possibility that effective local exchange competition will develop in Verizon's local service territory in Washington.

A. Guidance Provided by Prior WUTC Orders.

5. This is the third cost docket that the Commission has undertaken since passage of the Act, and each of the two prior proceedings involved multiple phases or parts. The Commission, therefore, is thoroughly familiar with most of the issues to be resolved in this docket. In particular, the Commission's Eighth Supplemental Order in Docket Nos. UT-960369, *et al*. ("*Eighth Supplemental Order*"), establishes guiding principles for cost models and the inputs and assumptions to be used to establish UNE rates. These principles have been applied and further refined in subsequent cost docket orders.

6. In particular, the Commission long ago established, and has consistently implemented, its interpretation of the FCC's TELRIC principles.[1] AT&T has incorporated those principles into HM 5.3. Verizon, however, proposes that the Commission alter its well-established TELRIC interpretation and approve Verizon's extensive use of existing network design and facilities as consistent with this revised interpretation. The Commission should refuse to do so. Not only is Verizon's proposal inconsistent with prior Commission orders and FCC rules, Verizon has presented no empirical data to demonstrate that any of its existing network or facilities represent the least-cost, most efficient, forward-looking design or facilities that Verizon would use if rebuilding its network today. The Commission, therefore, should

[1] *E.g.*, *Eighth Supp. Order* ¶¶ 9-10.

continue to rely on the interpretation of TELRIC principles reflected in its prior cost docket orders.

B. The Impact, if Any, of the WCB Virginia Arbitration Order on the WUTC's Decision Making.

7. The FCC's Wireline Competition Bureau's *Virginia Arbitration Order*[2] represents the latest interpretation by the FCC of its rules implementing the UNE pricing standards established in the Act. Although the Bureau, rather than the FCC Commissioners, issued the order, the Bureau was "acting through authority expressly delegated by the [FCC]."[3] FCC rules expressly provide that such orders "have the same force and effect as actions taken by the [FCC]":

> Pursuant to section 5(c) of the Communications Act, the Commission has delegated authority to its staff to act on matters which are minor or routine or settled in nature or those in which immediate action may be necessary. . . . Actions taken under delegated authority are subject to review by the Commission, on its own motion or on an application for review filed by a person aggrieved by the action. Except for the possibility of review, ***actions taken under delegated authority have the same force and effect as actions taken by the Commission.***[4]

8. Accordingly, the *Virginia Arbitration Order* has the same effect as an order from the FCC, and the Bureau's interpretation of FCC rules is entitled to substantial weight, if not deference, by the Commission in making its determinations in this proceeding.[5]

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[2] *In re Petition of WorldCom, Inc., Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes With Verizon Virginia, Inc., and for Expedited Arbitration,* CC Docket Nos. 00-218 & 00-251, DA 03-2738, Memorandum Opinion and Order (Aug. 29, 2003) (*"Virginia Arbitration Order"*).

[3] *Id*. ¶ 2.

[4] 47 C.F.R. § 0.5(c) (emphasis added).

[5] In addition to acting through authority expressly delegated by the FCC, the Bureau was also "stand[ing] in the stead of the Virginia State Corporation Commission." *Virginia Arbitration Order* ¶ 2. Determinations that are specific to Virginia or based on the specific factual record before the Bureau, therefore, would not be binding on this Commission.

9. Specifically with respect to TELRIC principles, the Bureau reiterated the standards that the FCC first established in the Local Competition Order.[6] The Bureau then refused to endorse Verizon's interpretation of those standards, in particular Verizon's heavy reliance on existing facilities and network design:

> We agree with Verizon that it is rational for a company to continue to use capital equipment that is no longer state-of-the-art. The TELRIC rules, however, recognize that the value of such equipment in a competitive market will be no higher than the market value of newer, more efficient equipment that performs the same functions. In other words, even if there are valid reasons for Verizon not to deploy particular equipment, the prices Verizon could charge for network elements in a competitive market still would be affected by the deployment of more efficient equipment unless there are reasons why no carrier would deploy the particular equipment.[7]

Consistent with this general observation, the Bureau then declined to adopt Verizon's loop cost model:

> In contrast to the [AT&T/MCI Model], the Verizon recurring loop cost study is not an economic cost model; it is an engineering cost study based on the Verizon network that exists, or existed in the past, in Virginia . . . . Because of Verizon's extensive use of historical network design and data, its loop cost studies are not as consistent as the [AT&T/MCI] loop module with the Commission's TELRIC rules, which require "use of the most efficient telecommunications technology currently available and the lowest cost network configurations," limited only by existing wire center locations.[8]

10. Neither the Commission nor the FCC, therefore, has adopted Verizon's interpretation of the FCC's TELRIC rules, and Verizon has provided no basis on which the Commission should do so now.

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[6] *Id.* ¶¶ 27-30.
[7] *Id.* ¶ 34 (footnote omitted).
[8] *Id.* ¶ 52 (quoting 47 C.F.R. § 51.505(b)(1)).

II. COST OF CAPITAL

A. TRO and Other Applicable Federal Authority.

11. The FCC first established cost of capital requirements in its *Local Competition Order*,[9] and subsequently "clarified" two of those requirements in its *Triennial Review Order*.[10] Specifically, the FCC stated that "a TELRIC-based cost of capital should reflect the risks of a competitive market. The objective of TELRIC is to establish a price that replicates the price that would exist in a market in which there is facilities-based competition."[11] The Wireline Competition Bureau applied these principles to the cost of capital calculations proposed by the parties in its *Virginia Arbitration Order*.[12] Both AT&T and Verizon claim to make calculations that are consistent with the Bureau's determinations. As discussed in the following sections, however, AT&T, not Verizon, has properly reflected the FCC's principles and the Bureau's implementation of those principles.

B. Capital Structure.

1. Should the Cost of Debt Be Based on Market Valuation of Debt? If So, How Was This Done in the Party's Preferred Study?

12. Both AT&T and Verizon have proposed costs of debt based on market valuation, as discussed in subsection C. The capital structure that each Party has proposed reflects those respective cost of debt calculations, but the calculations do not impact that capital structure.

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[9] *In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, FCC 96-325, First Report and Order ¶ 702 (Aug. 8, 1996) ("*Local Competition Order*").
[10] *In re Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket Nos. 01-338, *et al*., FCC 03-36, Report and Order and Order on Remand ¶¶ 677-84 (Aug. 21, 2003).
[11] *Id*. ¶ 680.
[12] *Virginia Arbitration Order* ¶¶ 58-104.

2. Should the Cost of Equity Be Based on Market Valuation of Equity? If So, How Was This Done in the Party's Preferred Study?

13. Both AT&T and Verizon have proposed costs of equity based on market valuation, as discussed in subsection D. The capital structure that each Party has proposed reflects those respective cost of equity calculations, but the calculations do not impact that capital structure.

3. Recommended Capital Structure.

14. AT&T proposes a capital structure that consists of 70% equity and 30% debt. AT&T used the methodology that the Wireline Competition Bureau adopted in the *Virginia Arbitration Order*[13] but based the application of that methodology on the market capitalization figures for all of the Regional Bell Operating Companies ("RBOCs") for the most recent five year period for which statistics are available (1999-2003). Ex. 651T (AT&T Selwyn Direct) at 58-59.

15. Verizon proposes a capital structure of 75% equity and 25% debt, based on older data (1998-2002) for the S&P Industrials and selected telecommunications companies. Verizon, however, has produced no evidence to demonstrate that the average of the S&P Industrials represents the capital structure of an ILEC in a TELRIC environment, nor has Verizon identified which companies it includes among its "telecommunications companies." *Id*. at 57.

16. AT&T's proposed capital structure is consistent with the methodology adopted in the *Virginia Arbitration Order* and with the application of that methodology to the relevant companies for the most recent time period. The Commission, therefore, should adopt the 70% equity and 30% debt capital structure that AT&T has proposed.

[13] *Virginia Arbitration Order* ¶¶ 102-03.

C. Cost of Debt.

17. AT&T has calculated Verizon's cost of debt as 4.98%, which is the weighted average cost of all of the company's outstanding issues, including the debt of Verizon's parent and subsidiary corporations. Ex. 651T (AT&T Selwyn Direct) at 10-11. Verizon contends that this represents "short term" debt, which is not appropriate for financing the construction of the long-term assets of the telecommunications network modeled in UNE cost studies. That "short term" debt, however, matures in an average of 12 years – far longer than the one-year maturity to which the term "short term debt" applies.[14] Verizon, moreover, ignores its own modeling assumption of using a mix of vintages in equipment and design by claiming that the proper calculation if Verizon's actual debt were to be used should be based on the bonds that Verizon would obtain today to finance network construction.

18. Verizon estimates a 6.26% cost of debt using an average yield to maturity of Moody's A-rated industrial bonds for April 2003. Verizon contends that this estimate is conservative because it does not include flotation costs that must be paid to issue debt securities. None of the industrial companies in Verizon's analysis, however, are telecommunications companies, rendering that analysis inapplicable to the cost of debt that Verizon would incur to finance network construction. Ex. 651T (AT&T Selwyn Direct) at 10.

19. The FCC Wireline Competition Bureau weighed virtually the same proposals and adopted the cost of debt that AT&T proposed. The Bureau reiterated that "the cost of capital calculation is intended to reflect the cost of capital of a telecommunications carrier that operates in a market with facilities-based competition."[15] The Bureau found AT&T's proposal superior because "it at least reflects the cost of companies in the relevant industry. In contrast, Verizon

[14] *E.g.*, Standard & Poor's, Standard & Poor's Bond Guide (February 27, 2004).
[15] *Virginia Arbitration Order* ¶ 67.

has not demonstrated that the debts faced by S&P companies generally are at all related to the costs telecommunications carriers would face in a market with facilities-based competition."[16]

20. The Bureau's conclusion is equally applicable in this proceeding. AT&T's proposal reflects the cost of debt of telecommunications service providers, not companies whose business is entirely unrelated to such service. Verizon has produced no evidence to demonstrate that the debts the S&P companies face are at all related to the costs the telecommunications carriers would face in a TELRIC environment. The Commission, therefore, should adopt the 4.98% cost of debt that AT&T has proposed.

D. Cost of Equity.

21. The Wireline Competition Bureau adopted the Capital Asset Pricing Model ("CAPM") approach to the development of a cost of equity, concluding that "the CAPM is the better mechanism for estimating the cost of equity in this proceeding. The CAPM requires three estimates: (1) risk-free rate; (2) risk premium; and (3) beta."[17] "The risk-free rate, the first term in the CAPM, is the rate of return an investor could obtain if it faced no risk."[18] "The market risk premium component of the CAPM reflects the difference between the expected rate of return for the market as a whole and the expected risk-free rate of return."[19] "Beta measures the degree to which a company's stock price varies relative to the market as a whole, *i.e.*, it represents the systematic or non-diversifiable risk of the stock."[20]

22. AT&T proposes that the Commission, like the Bureau, adopt the CAPM approach to the development of a cost of equity. AT&T has used the Bureau's methodology as applied to updated and additional data, and AT&T has calculated Verizon's cost of equity as 8.51%.

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[16] *Id*.
[17] *Id*. ¶ 71.
[18] *Id*. ¶ 77.
[19] *Id*. ¶ 81.

Verizon, on the other hand, proposes use of a one-stage Discounted Cash Flow ("DCF") model, which it uses to calculate a cost of equity of 13.95%. Verizon's model, assumptions, and data are seriously flawed and should be rejected.

1. Determining the Appropriate Sample – Which Firms Should Be Included/Excluded and Why?

23. Both the CAPM and the DCF models make their calculations based on the market equity figures for a sample of companies. Because the object is to reflect the cost of equity incurred by a telecommunications carrier operating in a market with facilities-based competition, AT&T recommends that the Commission use market equity figures for the ILEC operations of the RBOCs. Verizon, however, contends that these figures represent monopoly operations, rather than the more competitive environment contemplated under TELRIC. Yet such a contention is at odds with Verizon's claim to be already subject to facilities-based competition. In any event, Verizon has failed to produce any evidence to demonstrate that the market cost of equity incurred by telecommunications companies that construct telephone networks is an inappropriate sample to use when estimating the cost of equity that will be incurred by telecommunications companies that construct telephone networks in the future.

24. Verizon proposes a subset of the S&P industrials as a proxy for the cost of equity for telecommunications companies. That "proxy," however, includes *not even one* telecommunications firm, even though the Bureau specifically concluded that the relevant "cost of capital" should reflect the cost of a *telecommunications carrier* that operates in a market with facilities-based competition."[21] Not surprisingly, Verizon's self-selected "sample" of non-

[20] *Id*. ¶ 87.

[21] In fact, as Dr. Selwyn has noted, had Verizon's DCF method been applied specifically to RBOCs rather than to a "sample" of 100 or so industrials, the resulting cost of equity would have been computed at 8.36% rather than the 13.95% that Verizon obtained using its *non-telecom* "sample." Applying Verizon's DCF approach for all ten telecom firms in the S&P 500 (all ten of

telecommunications companies have an average forecasted earnings growth of 11.90%, which is nearly double that for the 10 telecommunications firms in the S&P 500, and roughly *triple* that for the four RBOCs. Ex. 657TC (AT&T Selwyn Surrebuttal) at 6. Verizon has produced no evidence demonstrating that this sample in any way accurately represents the cost of equity of an ILEC in a TELRIC environment. The Commission, therefore, should reject use of Verizon's "sample" and should adopt use of the RBOCs' ILEC entities, as AT&T has proposed.

2. Which Methodology Is Appropriate and Why?

25. The Wireline Competition Bureau "conclude[d] that the CAPM is the better mechanism for estimating the cost of equity in this proceeding" because "the CAPM does not rely on assumptions concerning dividend growth rates, and therefore cost of capital estimates derived from the CAPM are no better or worse for companies that are growing rapidly than for those growing slowly."[22] AT&T thus recommends that the Commission adopt this same methodology.

26. Verizon, however, proposes that the Commission use Verizon's single stage or "constant growth" DCF model. The Bureau rejected this model, finding that "Verizon's use of the constant growth DCF model to estimate the cost of equity capital for its S&P proxy group stretches the reasonable limits of its use."[23] Specifically, the Bureau found that the constant growth rate Verizon used was more than twice the long-term economy-wide growth rate estimate. The Bureau logically concluded that, "no company can grow forever at a greater rate than the economy as a whole, and therefore we conclude that Verizon's assumption is not

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which Verizon had excluded), the Verizon DCF would have computed a cost of equity at 8.22%. Ex. 657TC (AT&T Selwyn Surrebuttal) at 10.

[22] *Virginia Arbitration Order* ¶ 71.

[23] *Id*. ¶ 73.

reasonable."[24] The Commission should reach the same conclusion and should adopt the CAPM methodology.

27. The CAPM starts with a "risk-free" cost of capital and adjusts it to reflect the level of *systematic risk* specific to a particular company or industry. The Bureau assumed a "beta" value of 1.0, representing the average level of risk for all S&P 500 companies, which is defined for the market-wide average at 1.0. The Bureau concluded that "[a]bsent evidence of any unique risks associated with the telecommunications industry, *or a particular segment of the industry*, we would be uncomfortable prescribing a cost of equity capital for UNEs that is based on a beta significantly higher or lower than the average beta for companies that face competition"[25]

28. AT&T has provided such evidence, which confirms that there *are* "unique risks" associated with particular industry segments, and provides precisely the type of evidence that the Bureau had found to be lacking. Ex. 651T (AT&T Selwyn Direct) at 26. Dr. Selwyn performed two separate analyses for the purpose of identifying the appropriate level of risk to ascribe to "a telecommunications carrier that operates in a market with facilities-based competition." First, he performed an econometric multiple linear regression analysis for the purpose of identifying the source(s) of the apparent increases in RBOC beta values that have been observed in recent years. ***Id.*** at 41. Using corrected data input values, the regression results revealed that the only explanatory variable that was statistically significant at the 95% confidence level was Percent Non-ILEC Assets, *id.* at Bench Request Response 3-8, indicating that the source of increased risk *at the parent company level* was the RBOCs' growing diversification in *non-ILEC* and clearly riskier lines of business. Importantly as well, the CLEC Facilities-Based Market Share

[24] *Id*.
[25] *Id*. ¶ 90 (emphasis added).

variable was not significant at the 95% confidence level, *id*., indicating that, contrary to Verizon's contention, *there is no basis to ascribe any elevated risk to the presence of facilities-based competition over that which otherwise confronted "pure" ILEC entities*.

29. Dr. Selwyn also demonstrated the absence of any consistent relationship between the presence of competition and systematic risk by looking at beta values for a number of other industries. Ex. 651T (AT&T Selwyn Direct) at 38. For example, some highly-competitive industries such as Soft Drinks, Fast Food Restaurants, and Petroleum had very low beta values (0.67, 0.79, and 0.87, respectively), while other, equally competitive industries – Computers and Semiconductors – had beta values of 1.31 and 1.49. The record evidence demonstrates that the presence or absence of facilities-based competition does not affect the systematic risk confronting a telecommunications carrier, but that diversification of the parent corporation into *other* lines of business does result in an increase in systematic risk. Accordingly, the *relevant basis* for establishing the cost of capital for an incumbent local exchange carrier supplying UNEs is the beta associated with a "pure" ILEC, stripped of its nonregulated and riskier affiliations.

30. Having confirmed the lack of any statistically significant relationship between the level of facilities-based competition and the systematic risk (beta) confronting an ILEC, Dr. Selwyn then proceeded to isolate the beta value specifically applicable to the RBOCs' ILEC entities (such as Verizon Northwest) from the portfolio risk confronting the overall RBOC. Using beta values for stand-alone wireless, broadband, long distance and international telecom firms and the relative asset weights of each of these segments of the RBOCs, Dr. Selwyn calculated the implicit beta value of the RBOC ILEC entities. The Bureau observed that "betas may be thought of as a weighted average of the betas for each line of business in which [the

RBOCs] operate."[26] Since the beta values of all of the non-ILEC segments of the conglomerate RBOCs were significantly greater than the overall RBOC parent company beta, the beta values for the traditional ILEC services components of each of the RBOCs must *necessarily* be less than the average overall beta of 1.01 for the four RBOCs' stocks that Dr. Selwyn had calculated. Ex. 651T (AT&T Selwyn Direct) at 49. In fact, Dr. Selwyn's analysis demonstrated that, when the riskier non-ILEC components of the RBOCs are removed, the "pure" ILEC beta values are approximately 0.75. *Id*. at 50-51.

31. Verizon made no attempt to present *any* evidence specifically identifying any unique risks associated with the telecommunications industry, *or a particular segment of the industry*. Instead, Verizon relies on the Bureau's adoption of a beta of 1.0 as representing the average level of risk for all industrial companies. Verizon uses the S&P industrials "as a proxy for the cost of equity for telecommunications companies" because "using a beta of one in the capital asset pricing model is the same thing." Tr. at 612 (Verizon Vander Weide). That "proxy," as discussed, improperly failed to include *not even one* telecommunications firm. AT&T's analysis demonstrates the fallacies in Verizon's approach.

32. Verizon nevertheless criticizes Dr. Selwyn's regression and risk disaggregation analyses. Verizon argues that Qwest (and pre-merger US WEST) data should have been excluded from both the regression and risk disaggregation analysis, but that if Qwest data is to be included, then pre-merger Qwest, not pre-merger US WEST, results should have been used on the basis that the acquisition of US WEST by Qwest did not materially affect Qwest's beta. Response to Bench Request No. 3, Verizon Expert Report at 9-10. Not only does this criticism reflect a complete misunderstanding of the purpose of Dr. Selwyn's analysis, it is also

[26] *Virginia Arbitration Order* ¶ 93.

demonstrably wrong on the facts. As Dr. Selwyn explained, "Prior to its acquisition of US West in 2000, *Qwest was not a Regional Bell*, and Qwest had no ILEC assets. The fact that Qwest was the surviving entity after the merger is of no consequence, because the analysis needed to focus upon US West before the merger and upon the *neo-US West* (by whatever name it had adopted) following the merger." *Id*., AT&T Selwyn Response to Expert Report, at 5.

33. Verizon also claims that Qwest and US WEST data points are "outliers," a conclusion that was apparently reached through a subjective visual inspection of a scatterplot of data points. *Id*., Verizon Expert Report 5-7. As Dr. Selwyn noted, however, "the systematic identification of true outliers is predicated upon well-established econometric methods that are, in turn, grounded in formal objective tests, tests that are nowhere contained in the Verizon Report." *Id*., AT&T Selwyn Response to Expert Report at 2. Dr. Selwyn conducted these tests and has demonstrated that the Qwest and US WEST data points to which Verizon refers are decidedly *not* outliers. *Id*. at 2-5. Thus, "to exclude these data as suggested by Verizon's Report would constitute 'data mining' and would surely produce erroneous and misleading results." *Id*. at 5. Dr. Selwyn then went on to demonstrate that the weighted average *unlevered* Beta for pre-merger US WEST and pre-merger Qwest is entirely consistent with his core hypothesis and conclusion – i.e., that diversification into non-ILEC lines of business, *and not the growth of facilities-based competition* – is the primarily driver of increased RBOC risk.

34. Verizon does not use the CAPM approach, but makes its DCF calculation by averaging securities analyst forecasts of future earnings growth for roughly 100 of the S&P 500 industrial companies. Verizon's cost of equity calculation is directly driven by the average forecasted earnings growth for the "sample" of companies that he has selected. Not only does this "sample" exclude all telecommunications firms, but Verizon affords no importance whatsoever to the fact that, in the past, the analyst forecasts upon which it relies (both now and in

prior cost of capital testimony) have been substantially inaccurate. Verizon's witness, Dr. Vander Weide, admitted that (based upon the *S&P 2003 Analyst Handbook*, Exhibit 121) the average earnings per share for the S&P 500 composite for 1998 was $40.79, and that had the then-forecasted 12.51% annual earnings growth actually occurred, the composite earnings per share figure for 2002 would have been $65.36. Tr. at 619 (Verizon Vander Weide); Exhibit 121. According to the *2003 S&P Analyst Handbook*, earnings per share for the S&P composite for 2002 were actually only $22.57, *id*., a far cry from the $65.36 that Dr. Vander Weide's 1998 I/B/E/S analysts had projected. The Commission should give no credence to Verizon's analysis.

3. Recommended Cost of Equity.

35. . AT&T recommends a cost of equity of 8.51%, based on the CAPM model and methodology adopted by the Bureau and applied with updated and additional data. Verizon proposes a cost of equity of 13.95%, based on a single stage DCF model that the Bureau rejected, as well as on data having no demonstrable connection to telecommunications companies and forecasts that are historically inaccurate. The Commission, therefore, should adopt the cost of equity that AT&T recommends.

E. Option Value of UNEs and Affect on Cost of Money.

36. Not content to recommend a cost of capital that is approximately 25% higher than the cost of capital the Commission previously has used, Verizon proposes that the Commission include a "TELRIC-based risk adjustment" of almost 4%, ostensibly to account for the "cancelable" nature of the typical monthly UNE lease contract. Verizon's proposal does not withstand scrutiny.

37. Whatever "risks" may be driven by the presence of "cancelable leases" should be captured in the risk premium (beta) that investors ascribe to the ILEC's equities. Ex. 651T (AT&T Selwyn Direct) at 61. Verizon strains credulity in claiming that the market is unaware of

such risks when valuing Verizon's stock. Such a theory, moreover, implicitly suggests that the risk that a CLEC will "cancel" a UNE is materially greater than the risk that the ILEC's end user customers will "cancel" their service, a risk that is obviously included in Verizon's current cost of equity. *Id*. Verizon has not even offered any evidence to prove such a contention. Nor could it. The FCC and the D.C. Circuit have concluded that Verizon's obligation to provide UNEs is limited to those facilities the denial of access to which would impair CLECs' ability to provide competing service.[27] Verizon cannot credibly claim that a CLEC is more likely to "cancel" its UNE lease when the result is the inability of the CLEC to provide competing service. Indeed, TELRIC assumes the existence of facilities-based competition, which makes it far more likely that retail customers will "cancel" their service.

38. The New Hampshire Public Utilities Commission recently rejected Verizon's cancelable-lease-risk premium theory, finding

> Finally, no reasonable basis has been advanced in this case to apply a cancelable lease analogy to the UNE business, as opposed to the retail business. With the exception of individual long term contracts or special tariffs, none of Verizon's customers, wholesale or retail, are bound to remain with Verizon. Arguably, any premium that may apply to reflect the cancelable nature of the use of Verizon's facilities applies to retail service as well as wholesale service. However, as we have noted above, we have no basis on this record to differentiate the risk of retail an UNE business. In any event, the risk of revenue loss from demand reductions is captured in the overall rate of return, properly set, as is all risk facing the firm.

Id. at 67 (quoting *Verizon New Hampshire Investigation Into Cost of Capital*, NHPUC Docket No. DT 02-110, Order No. 24,265, slip op. at 47 (Jan. 14, 2004)); *see id*. at 68-69. This Commission should reach the same conclusion.

[27] *E.g., United States Telecom Ass'n v. FCC*, 359 F.3d 554 (D.C. Cir. 2004).

III. DEPRECIATION

39. AT&T and Commission Staff recommend that the Commission continue to use the latest depreciation lives that the Commission has prescribed for Verizon. The Commission has thoroughly reviewed those lives and found them to be fair, just, reasonable, and sufficient. That finding is no less applicable when establishing UNE rates in this proceeding. Indeed, the Commission has consistently used its prescribed depreciation lives in setting UNE rates in every cost docket to date.

40. Verizon, however, contends that Commission-prescribed depreciation lives are not consistent with TELRIC because they are established in conjunction with rate of return regulation and are four years old. Verizon recommends that the Commission use depreciation lives that Verizon has developed for financial accounting purposes allegedly in compliance with generally accepted accounting principles ("GAAP Lives"). According to Verizon, these lives are consistent with TELRIC principles and with the lives used by other telecommunications providers. The Commission should refuse to adopt Verizon's recommendation.

41. The Wireline Competition Bureau rejected each of Verizon's arguments in its *Virginia Arbitration Order*. The Bureau adopted the regulatory depreciation lives that the FCC had established for Verizon in 1994 and 1995, as modified in 1999.[28] The Bureau specifically refused to credit Verizon's claim that these lives do not comply with TELRIC principles:

> We reject Verizon's argument that FCC regulatory lives are not sufficiently forward-looking. The Commission has used forward-looking asset lives for some time in it regulation of incumbent LEC depreciation practices, and the asset lives that we adopt here are the most recent ones prescribed by the Commission. While Verizon asserts generally that technological advances and increased competition justify the use of shorter lives, it provides no specific guidance to support its position. For example, Verizon provides no studies or other documents explaining the anticipated

[28] *Virginia Arbitration Order* ¶ 112.

> technological advances that might cause it to retire plant more quickly than anticipated when the [Commission-prescribed lives were] established (or modified in the case of digital switching), nor has it effectively rebutted AT&T/WorldCom's argument that new technology can extend the life of assets, as DSL technology has done with copper facilities. Similarly, Verizon provides no evidence to demonstrate how increased competition has affected retirement rates since the asset lives we use were established, or how it might affect future retirement rates.[29]

Similarly here, the Commission has consistently established forward-looking asset lives, and the lives it established in 2000 for Verizon are the most recent such lives – more recent than the lives that the Bureau adopted for Virginia. The record in this case is also devoid of any specific evidence to support Verizon's position. Verizon has presented no studies, documents, or other evidence to explain, much less prove, that anticipated technological advances will accelerate its current asset lives or that increased competition has or will have any impact on those lives.

42. The Bureau also found that Verizon had failed to demonstrate that GAAP lives more accurately reflect the actual economic life of assets than regulatory lives:

> We find that Verizon has not demonstrated that financial book lives are a more appropriate measure of the actual economic life of an asset. Verizon did not document or explain in significant detail the methodologies, studies, or data that it, or its auditor, relied on in developing asset lives, nor did it demonstrate that these lives are in fact compliant with GAAP. As compared to our thorough understanding of the process by which the [Commission-prescribed] lives were developed, Verizon has given us no real basis on which to conclude that the asset lives it proposes reflect the anticipated economic life of assets in a competitive market.[30]

Verizon provided no more information to this Commission than it apparently did to the Bureau. Verizon offered nothing more than unsupported testimony that its proposed lives comply with GAAP, and provided no documentation or empirical evidence to demonstrate how those lives were developed. The Commission, being intimately familiar with how its prescribed lives were

[29] *Id*. ¶ 115 (footnote omitted).

developed, has no basis on which to conclude that Verizon's proposed asset lives reflect the anticipated economic life of assets in a competitive market.

43. Finally, the Bureau found unconvincing Verizon's comparison of its proposed lives with the financial lives used by other companies:

> For similar reasons, we find that Verizon's comparison of its proposed lives to the financial book lives used by IXCs and cable operators is unconvincing. Even if we were to accept that the economic life of a LEC's assets is the same as the economic life of the assets of an IXC or a cable operator, we have no information on how these lives were developed and no basis upon which to find that they reflect the best estimate of the anticipated economic life of the assets.[31]

Again, the record is devoid of any evidence on how other companies developed their financial book lives, and the Commission has no basis on which it could find that the economic lives of other companies' assets are comparable to Verizon's or reflect the best estimate of the anticipated economic life of the assets.

44. The Bureau's ultimate conclusion is equally applicable to this case. The Commission has already established forward-looking depreciation lives for Verizon. Verizon has provided no factual support for the lives it has proposed or any evidentiary basis on which the Commission could find that those lives better reflect the anticipated economic lives of Verizon's assets than the Commission's prescribed lives. The Commission, therefore, should adopt AT&T's and Staff's recommendation.

IV. EXPENSE AND OTHER ANNUAL COST FACTORS

45. The expense module in HM 5.3 converts the investments associated with each component of the network into per-unit costs for individual UNEs by considering three categories of cost: (1) capital carrying costs, (2) network related expenses, and (3) non-

[30] *Id*. ¶ 116.

network related expenses. The starting point for calculating the expenses in the latter two cost categories is data from the FCC's Uniform System of Accounts ("USOA"), which Verizon provides as part of its annual reporting. This data is modified to exclude costs associated with Verizon's retail operations and to ensure that the cost figures represent the TELRIC-compliant expenses that Verizon will incur. Ex. 851T (AT&T Mercer Supp. Direct) at 25-29; Ex. 855 (HM 5.3 Model Description) at 61-71.

46. Verizon, on the other hand, proposes complex, interrelated calculations of expense factors that share the same fundamental flaws as other aspects of Verizon's cost models, as discussed in section V, *infra*. Indeed, Verizon's witness could not even quantify the additional amount that Verizon's expense factors add to the cost of UNEs in general or an unbundled loop in particular. Tr. at 816-19 (Verizon Jones). Nor has Verizon produced any evidence to quantify, much less justify, the adjustments that Verizon claims to have made to its embedded expense accounts to make them more "forward-looking." To the contrary, Verizon's figures are two years old and fail to reflect the increased efficiency and decreased costs that Verizon has been working to achieve during that time period. *E.g.*, *id.* at 831-35; Ex. 284 (WSJ Article). Additional defects in Verizon's expense calculations are discussed below and further demonstrate that the Commission should reject Verizon's expense calculations and adopt the expense factors that AT&T has proposed in HM 5.3.

A. Verizon's Forward-Looking Calibration (FLC) Factor

47. Verizon claims that it must apply a Forward-Looking Calibration factor ("FLC") to produce its expense factors, in order to correct a "mathematical anomaly" created by the expense factor calculation process. Tr. at 815 (Verizon Jones); Ex. 201TC (Verizon Panel Direct) at 151-52. The FLC fails for this purpose, and instead should be replaced by use of

[31] *Id.* ¶ 117.

current cost to book cost ("CC/BC") ratios, as was adopted by the FCC's Wireline Competition Bureau in the *Virginia Arbitration Order* to avoid inflating expense levels as the FLC would do. Ex. 1004TC (AT&T Lundquist Reply) at 6-11.

Verizon charges that "AT&T ignores that Verizon, before it applies the forward-looking calibration, has already calculated the forward-looking expenses." Tr. at 815 (Verizon Jones). Not only does AT&T not ignore that fact, but Mr. Lundquist highlighted it as a key Verizon admission. As Mr. Lundquist explained at hearing:

> [T]he forward-looking calibration factor does not do what Verizon intends it to do. What it actually does is divorce the calculation of its expenses from the network redesign that goes on within the investment side of the model. And Verizon essentially has admitted as much by saying that its network expense level is what it started with prior to the development of the factor, that that's what the forward-looking conversion does is get it back to that level.

Tr. at 876 (AT&T Lundquist).

48. Mr. Lundquist's prefiled testimony documented this point, by observing that Verizon's own illustrative calculation in Table B of the original Panel Testimony shows that its final "TELRIC" expense level is not affected by any changes in the magnitude of the associated investments as they are redesigned during the network modeling process. Ex. 1001TC (AT&T Lundquist Direct) at 10. As Mr. Lundquist explained, by restoring expenses to the levels Verizon calculated prior to the network redesign activity in its cost model, the FLC causes the cost-minimizing effects of redesigning the network to be forward-looking, a central feature of the TELRIC methodology, to be entirely bypassed. *Id*. at 6-7 & 10.

49. Verizon attempts to confuse the Commission with claims that AT&T "misunderstands" its expense factor methodology. Ex. 228 (Verizon Panel Rebuttal) at 94-95. Verizon's attempt to "clarify" its methodology, however, is nothing more than a repetition of its

illustrative calculation in a new Table B (albeit with slightly changed input values). *See id*. at 101, Table B. This illustration merely substantiates AT&T's point. When Verizon applies its FLC in the latter Table B, it entirely removes the impact of the reduction in the underlying switch investments from the booked level of $40,000 to its modeled forward-looking level of $10,000, without being able to distinguish between changes in the quantities or mix of switch components required in the forward-looking view, and changes in the unit prices of those switching investments.

50. In contrast, AT&T's approach is to apply a more narrowly-tailored adjustment, which uses industry-standard current cost to book cost ("CC/BC") ratios in place of the FLC factor. Ex. 1001TC (AT&T Lundquist Rebuttal) at 12. As Verizon's expense factor witness admits, those ratios specifically take into account changes in unit prices of investments over time. Tr. at 858 (Verizon Jones).[32] AT&T's adjustment thus corrects the problem that the FLC is intended to solve, but also allows changes in the quantities or mix of investments caused by the network redesign to be appropriately reflected in the final expense result. Ex. 1001TC (AT&T Lundquist Rebuttal) at 12; Tr. at 877 (AT&T Lundquist).[33] Accordingly, if the Commission uses Verizon's expense calculations, the Commission should reject Verizon's FLC factor and adopt AT&T's proposed CC/BC adjustment in its stead.

B. GDP v. CPI

51. Verizon's calculation of expense factors includes adjustments to reflect annual changes in inflation and productivity. Specifically, Verizon's inflation adjustments are based on

[32] Mr. Jones' claim that the use of CC/BC ratios "has not reflected the forward-looking changes of the forward-looking network" is spurious, because the latter changes (*i.e.* the effects of network redesign) are allowed to be reflected in the final expense result precisely because AT&T's adjustment is narrowly tailored to only remove the effects of price changes.
[33] The CC/BC ratios were drawn from Verizon's Workpaper 3.1 ("Verizon 2001 – CA Turner") contained in Verizon's June 2003 filing of its Expense Factor Development workpapers.

the Consumer Price Index ("CPI"), and its productivity adjustments reflect the labor productivity measure known as the Non-Farm Business (output per hour) index published by the Bureau of Labor Statistics ("BLS"). Ex. 201TC (Verizon Panel Direct) at 145; Ex. 1001TC (AT&T Lundquist Rebuttal) at 27-29. AT&T, however, has shown that both adjustments are flawed and do not fully account for the technology-driven net productivity gains being experienced by ILECs such as Verizon. AT&T has presented corrections to those adjustments, and in particular, evidence that the Gross Domestic Product – Price Index ("GDP-PI") published by the Bureau of Economic Analysis ("BEA") is a superior measure of inflation to apply when determining Verizon's expenses, and that the BLS labor productivity series for Wired Telecommunications Carriers is much more representative of Verizon's productivity experience than the BLS Non-Farm Business index. Ex. 1001TC (AT&T Lundquist Rebuttal) at 29-33.

52. Verizon's defense of the CPI does not withstand scrutiny. Verizon cites to the FCC's choice of the CPI in a 1986 decision addressing customer premises equipment ("CPE") detariffing, but glosses over the fact that for over a decade the FCC expressly chose to use the GDP-PI rather than the CPI as its preferred measure of general price inflation facing ILECs in the federal price cap regime. *Id*. at 30. Verizon also has no answer to the criticism that the CPI is constructed specifically to measure inflation as experienced by *retail consumers*, *id*. at 29, not multi-billion dollar corporations, and thus is inapposite for the purpose Verizon seeks to apply it. Similarly, Verizon does not contest that the CPI has risen faster on a cumulative basis than the GDP-PI in recent years (1996-2002), *id*. at 30,[34] which implies that by using the CPI series, Verizon would be overstating the impact of inflation on its expenses. For these reasons, the Commission should adopt the GDP-PI as the inflation index to apply in Verizon's expense factor

development, and specifically should adopt the corrections AT&T has proposed to Verizon's inflation adjustments. TELRIC and the public interest, however, would be far better served by adoption of the expense factors that AT&T has proposed as part of HM 5.3.

C. Other Issues

53. Perhaps the most basic flaw in Verizon's development of its expense factors is the assumption that Verizon would be a provider of exclusively wholesale products and services, without any retail operations at all. *E.g.*, Tr. at 820 (Verizon Jones). Nothing in the FCC's TELRIC methodology permits, much less requires, expense factor development based on such an assumption, which is neither realistic nor logical. Verizon has been in the forefront of the ILEC challenges to the FCC's unbundling rules and has consistently resisted any obligation to provide UNEs.[35] The idea that Verizon would suddenly become not only a willing wholesale provider but a provider of wholesale services exclusively is nothing short of preposterous.

54. Specific examples of Verizon's application of this assumption illustrate its absurdity. Verizon has produced no evidence that it advertises, much less incurs any costs to advertise, its wholesale services. *See, e.g.*, Tr. at 822 & 826 (Verizon Jones). Verizon nevertheless contends that it would incur the same advertising expenses that it incurs today if Verizon were a wholesale only company. Similarly, Verizon has produced no evidence of its product management expenses for UNEs. *E.g.*, *id*. at 822. Instead, Verizon maintains that it would incur the same product management expenses as a wholesale only provider that it incurs today as an integrated retail and wholesale company, even though Verizon would serve a few CLECs, rather than hundreds of thousands of end-users, and would offer far fewer products –

[34] Verizon's undocumented assertion that the two series' cumulative increases have been comparable over twelve years is largely irrelevant given that Verizon's planning period for its cost studies extends only through 2004-2006.

[35] *See, e.g., United States Telecom Ass'n v. FCC*, 359 F.3d 554 (D.C. Cir. 2004).

products, moreover, for which no development or pricing would be required outside of a Commission proceeding. *See id.* at 821 & 827-28.

55. Verizon's assumption of a wholesale only company is nothing more that a superficial attempt to justify Verizon's proposal to recover all of its current embedded expenses for its entire operations – retail, as well as wholesale – through UNE prices. Verizon has produced no evidence whatsoever of the forward-looking expenses that Verizon would incur to provide UNEs as part of an integrated retail and wholesale operation. *Id*. at 822. The Commission, therefore, has no evidentiary basis on which it could accept Verizon's proffered expenses, and the Commission should adopt the expense factors that AT&T has proposed.

V. MODEL OVERVIEW – CHOICE OF MODEL.

A. Is the Selection of a Model Important, or Just the Inputs?

56. To determine the appropriate prices for the unbundled network elements to be priced in this proceeding, the Commission should choose a cost model that best complies with the rules and precedent of this Commission and the FCC. It is appropriate to choose a single model platform that the Commission can use in this and later proceedings to provide consistency and predictability in the pricing of network elements.

57. Here, the Commission is faced with two strikingly different models. HM 5.3 is designed to "use the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of [Verizon's] wire centers" limited only by existing wire locations, as required by the FCC's rules.[36] Verizon's model, in contrast, takes as a given Verizon's entire existing network today – assuming not only the location of existing Verizon wire centers, but also Verizon's existing network between the wire centers and the customer. In essence, Verizon has asked the Commission to redefine TELRIC to

allow the recovery of embedded costs. Verizon, through the USTA, made the same proposal to the FCC when the FCC debated its TELRIC rules. The FCC rejected an approach relying on the incumbent's existing network design.[37] The Commission must do the same by adopting HM 5.3.

B. Openness and Flexibility of Model.

58. From the beginning this Commission has emphasized the need for both openness and flexibility in cost models for use in developing forward-looking costs.[38] AT&T agrees that these are appropriate considerations in choosing a cost model. After reviewing both of the models proposed in this proceeding, Staff witnessed Mr. Spinks testified directly that HM 5.3 best meets the Commission's criteria that cost models be transparent, rational, stable, consistent and have an understandable approach. *See* Ex. 1056T (Staff Spinks Supplemental Testimony) at 6. The record here fully supports Mr. Spinks' opinion. Verizon's model relies, in large measure, upon proprietary Verizon databases that reside on Verizon's main frame computers. Tr. at 1239 (Verizon Panel). The investment calculations for all elements other than loop elements are performed in preprocessing functions that are not part of the VzCost web-based model. *Id*. at 1236. As will be described in more detail below, even the loop investments are developed, in large measure, outside VzCost. The underlying basis for the costs developed by VzCost, therefore, cannot be reviewed within the model.

59. Verizon's reliance upon external proprietary databases undermines the Commission's goal that "models should be open in order for the public to have an opportunity to evaluate the information which is used to set rates."[39] As the FCC has noted, it is important that data used to estimate costs "should either be derived from public sources, or capable of

[36] 47 C.F.R. § 51.505(b)(1).
[37] *Local Competition Order* ¶ 684 (rejecting proposal by the USTA that a TELRIC model should be based on existing network design)
[38] *Eighth Supplemental Order* at 24-25.

verification and audit without undue cost or delay."[40] Because most of the information underlying Verizon's costs resides on mainframe computers not available to the public and available to the parties only with difficulty,[41] there is no ability for this Commission or the public to audit the results produced by VzCost.

60. In addition to failing to meet the Commission's requirement for openness, the model is far from flexible. As Mr. Turner described, VzCost is exceedingly complex and difficult to work with. The model is not one unitary model, but actually multiple cost models that loosely interrelate. *See* Ex. 751TC (AT&T Turner Rebuttal) at 11. Making simple changes, such as modifying material prices, requires multiple manual steps and hours to complete and run. *Id.* at 16-17. Many changes, moreover, cannot be made by any party other than Verizon. Because of the web-based nature of the model, Verizon will not permit other parties to modify the model code. *Id.* at 14-15. There is nothing at all flexible about Verizon's model, providing sufficient basis in itself to reject its use.

61. HM 5.3, in contrast, relies to the greatest extent possible, on publicly available data. Predecessors of the model have been scrutinized by this and other commissions and the current version of the model has benefited greatly from this review. As Mr. Spinks has testified, the principal objection by the Commission to the prior version HM 5.2 has been rectified in HM 5.3. *See* Ex. 1056T (Staff Spinks Supp. Direct) at 6. The model can be easily analyzed using functions available in Excel. 2100 user adjustable inputs, covering almost all relevant factors that play into the costs developed by the model are easily changed. *See* Ex. 851T (AT&T Mercer Direct) at 34. Verizon's experts have had no difficulty running numerous scenarios to test the accuracy of the model. *See, e.g.*, Ex. 601T (Verizon Dippon Reply) at 45.

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[39] *Id.*
[40] *Virginia Arbitration Order* ¶ 48.

C. Matrix for Evaluating Reasonableness of Model.

1, 2. Route Miles; Average Loop Length.

62. Both route miles and average loop length provide some measure of validation for the reasonableness of the costs resulting from a model's application. Of the two, route miles are a more meaningful comparison than average loop length. Any model established to discern Verizon's costs must take the location of Verizon's customers as a given. As a matter of mathematics, it will require a certain number of route miles to connect those customers to each other and to the wire center that serves them. *See* Ex. 861T (AT&T Mercer Reply) at 7-8. Loop lengths, on the other hand, are heavily influenced by the way the distribution areas within a wire center are configured within the model and by the placement of the serving area interface ("SAI") within a distribution area. Although Verizon's model ignores this fact, under TELRIC, efficient distribution areas may be established and structured differently than those in the existing network. The fact that a model demonstrates loop lengths close to those found in the existing network, therefore, may simply be a measure of the extent to which the model replicates the existing network, rather than the network an efficient provider would construct today. *Id.* at 7.

63. In the past, this Commission has expressed concerns about the route miles generated by prior versions of the HAI model based on the model's purported failure to provide sufficient distribution plant in certain density zones, as measured by the route miles required to connect customers under a straight line minimum spanning tree algorithm.[42] Changes to this model have ensured that the Commission's prior concern no longer exists. *See* Ex. 1056T (Staff

[41] Tr. at 1239 (Verizon Panel).
[42] *See Tenth Supplemental Order* ¶¶ 124-142.

Spinks Supp. Direct) at 7. In fact, HM 5.3 as filed in this proceeding conservatively provides more route miles than Verizon's VzLoop module. Tr. at 1392 (Verizon HAI Panel).

64. Although Verizon admits that HM 5.3 conservatively produces more route miles than its own VzLoop model, Verizon contends that HM 5.3 places insufficient cable in high-density areas, while placing more cable in lower-density areas, inappropriately reducing costs in the higher-density areas and raising costs in low-density areas. This is not the case. As AT&T's response to Bench Request 18 shows, HM 5.3 places more cable than VzLoop in all density zones, yielding a higher average loop length, as well, in all density zones. Adjusting the loop lengths of HM 5.3 to match Verizon's actual average loop lengths would, therefore, decrease the costs produced by HM 5.3 in all density zones.

3. Adhering to Current Location of Pedestals, Cabinets, Etc.

65. The FCC's TELRIC rules, codified at 47 C.F.R. § 51.505, require that TELRIC "should be measured based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the ILECs' wire centers." 47 C.F.R. § 51.505(b)(1). The rules go on to specify that embedded costs may not be considered in calculating forward-looking economic cost.[43]

66. Verizon's cost model assumes that all distribution areas, SAIs, digital loop carrier ("DLC") locations, and feeder routes replicate Verizon's current network. Tr. at 1241 (Verizon Panel).[44] In contrast, HM 5.3 is designed to group existing customer locations in an efficient and technologically reasonable manner. SAIs are placed where they can serve these distribution areas efficiently, rather than at the edges of distribution areas as may have occurred in the past.

[43] *Id.*, § 51.505(d)(1).
[44] VzCost uses all existing DLC locations. It departs from the existing network by also adding DLC locations based on criteria set in the model. Tr. at 1241 (Verizon Panel).

These distribution areas are served by efficiently placed feeder routes from existing wire center locations.

67. The Supreme Court has affirmed the FCC's TELRIC rules in *Verizon v. FCC*[45] and Verizon, therefore, offers lip service in claiming that its cost model follows these rules. TELRIC pricing principles, however, are designed to calculate the cost of the network that uses the most efficient technology available to meet current and reasonably foreseeable demand, constrained only by the location of that demand and Verizon's existing wire centers.[46] The purpose for these rules is to ensure that rates measure the costs an efficient provider would face in reconstructing a network today, unconstrained by decisions of the past. To presume, as Verizon's model does, that all distribution areas, SAIs, DLC, and feeder routes replicate its current network preserves the inefficiencies of the past, contrary to basis TELRIC principles. This assumption, which contorts TELRIC to cover every piece of Verizon's existing network, does not comply with the FCC's rules and should be rejected along with Verizon's models.

4. Number of Lines in a Serving Area.

68. As noted above, the Verizon model accepts as a given each existing distribution area, along with the location of the existing SAI for that distribution area.[47] HM 5.3, in contrast, was designed to group customer locations in an efficient and technologically reasonable manner. Use of this clustering approach results in distribution areas that, in general, tend to have more lines than those found in Verizon's existing network.

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[45] *Verizon v. FCC*, 535 U.S. 467 (2002).
[46] *See* 47 C.F.R. §§ 51.501-51.511, *Local Competition First Report and Order*, 11 FCC Rcd. at 15844-56, ¶¶ 662-703.
[47] In actuality, Verizon is unable to locate all of its SAIs. Ten percent of those interfaces are assumed to be located in the same spot as another interface – an assumption that Verizon admits does not occur in its real-world network. *See* Ex. 228TC (Verizon Panel Rebuttal) at 38-39.

69. Verizon contends that its existing distribution areas are based upon engineering guidelines that size distribution areas at between 200 and 600 households. Verizon's most recently proposed engineering guidelines do not contain such a restriction. *See* Ex. 265. In fact, these guidelines indicate that it is appropriate to "place larger [serving area] interfaces to serve in the area as opposed to establishing many smaller ones to serve the same area." *Id*. at 13, ¶ 3.2.2. These guidelines substantiate Mr. Fassett's testimony that forward-looking distribution areas are likely to be structured substantially differently than those in the existing embedded network. *See* Ex. 956TC (AT&T Fassett Reply) at 10-11. As Verizon's own experts have stated, a properly working cost model will balance the distribution plant length and feeder plant length as determined by the size of the distribution areas to determine the least cost plant design. *See* Ex. 551TC (Verizon Murphy) at 59-60. HM 5.3 undertakes this balance. Verizon's model, in contrast, ignores the need to determine the least cost approach in favor of simply adopting the present embedded model and assuming that it is the most efficient way to design the network.

70. The FCC has recognized that larger distribution areas represent a more efficient plant design.[48] Larger distribution areas permit the use of larger equipment than that assumed by Verizon in its model. *See* Tr. at 1258-59 (Verizon Panel). Such equipment is readily available today and is often more economical on a per line basis. *Id.*; *see* Ex. 956TC (AT&T Fassett Reply) at 11-13. The failure of Verizon's model to consider the use of SAIs and other equipment in readily available larger sizes is a critical failure of VzCost. Moreover, contrary to the implications of Verizon's criticisms of HM 5.3, that model does not produce oversized distribution areas. The median size distribution area in HM 5.3 as filed in Washington is 500 lines, well within the 200 to 600 household guideline cited by Verizon. *See* Response to Bench

[48] *See Virginia Arbitration Order* at ¶ 237.

Request 19. Seventy-eight percent are smaller than 1000 lines, also falling within Verizon's purported guideline. Tr. at 1600 (AT&T Fassett).

5. Maximum Length of Copper Cable.

71. The maximum length of copper cable can be adjusted in both cost models, and does not, therefore, provide an appropriate basis for choosing one model over the other. The Verizon model currently uses a maximum copper loop length input of 12,000 feet in its cost study, while the HM 5.3 assumes an 18,000 foot maximum copper loop length. Because this issue is a model input, it will be discussed below in Paragraph VIII.A.7.f.

6. Other.

72. One further factor that the Commission should consider in determining its choice of a model is the extent to which the models presented here have been used and analyzed in other proceedings. The HAI model has a long history with this and other Commissions. The model has benefited from this review and improved over time. The Verizon model, in contrast, has been filed in only two other states and no other Commission has yet issued an order based on a review of the model. As even Verizon's witnesses admit, it is unlikely that the parties will be able to identify all of the issues that are raised by a model the first time they review a complex cost model like that presented by Verizon here. Tr. at 1408 (Verizon Tardiff). Although the parties here have identified certain clear errors in the model, it is likely, then, that others remain to be found. *See, e.g.,* Tr. at 1359 (Verizon Panel). In fact, Verizon has already acknowledged additional errors in VzCost during the process of reviewing the model in the ongoing California Verizon cost proceeding.

73. Verizon's choice to present a web-based model in this proceeding should also be considered in choosing a model here. By using a web-based model, Verizon has precluded users from being able to modify the logic for computing investments used within the model. *See*

Ex. 751TC (AT&T Turner Rebuttal) at 20-21. In addition, the environment chosen by Verizon has made it difficult to change even those inputs that may be modified. Virtually any change that is made requires painstaking steps of uploading files, accepting those files for use, and waiting several hours to run the model with the change. In contrast, inputs to HM 5.3 can literally be made by changing a number and pressing a button. These and other examples demonstrate that use of a web-based model has no advantage to the Commission or the parties and creates difficulties that can be avoided by choosing HM 5.3 as the model for use in this proceeding.

VI. VERIZON'S COST MODEL

A. Overview.

74. Verizon touts its VzCost model as a step forward in model design. In fact, the model steps away from both the requirements of TELRIC and this Commission's emphasis on the need for costing models that are open and verifiable. The model design and inputs proposed by Verizon in this proceeding result in rates for unbundled network elements that are grossly inflated and designed to place a bulwark around Verizon's status as a monopoly provider in its service areas in Washington.

75. VzCost is not a unitary model. Rather, the model uses three separate investment modules to determine the investments associated with loops, switching and transport. *See* Ex. 751TC (AT&T Turner Rebuttal). Two of these investment modules, those associated with transport and switching, are not part of the web-based VzCost model. Instead, the investments for switching and transport-related elements are determined outside of VzCost and then input into the program. Tr. at 1236 (Verizon Panel). The loop investment module, VzLoop, is included as part of VzCost. Nevertheless, the information found in VzLoop is, itself, developed through extensive manual and automated preprocessing before the information is used as an input to VzLoop. *Id.* at 1239-41. As will be described in more detail below, most of the

significant detail used in establishing costs is developed in this pre-processing stage, hidden from analysis in VzCost.

76. The model relies on Verizon's existing network in developing investments. More specifically, the network design, fill factors, loading factors and other important drivers of cost are all based on Verizon's existing network. *Id*. at 1241. VzCost, therefore, for the most part simply reproduces Verizon's embedded network, depriving potential entrants of the efficiencies available under properly developed forward-looking TELRIC costs. *See* Ex. 751TC (AT&T Turner Rebuttal) at 6.

B. Outside Plant Network Design.

1. In General.

77. The Verizon loop investment module, VzLoop, replicates Verizon's existing network. Verizon collects data from its legacy systems during pre-processing regarding its existing feeder route locations, DLC systems, serving area interfaces, and the pedestals that serve customer locations. Verizon then engages in extensive data preparation, again all during the pre-processing phase before data is input into VzLoop. Tr. at 1289 (Verizon Panel). Verizon uses this information within VzLoop to recreate the fundamental characteristics of its existing network. To a large extent, therefore, the network and its costs are determined in the pre-processing phase based on what exists in Verizon's network today without consideration for what could exist in an efficient network without the constraints of existing network facilities.

78. To some extent, Verizon is unable to replicate its existing network because it lacks sufficient information regarding elements that exist within the network today. In these cases, Verizon has made assumptions that are likely to increase the costs of the network it models. First, because Verizon is unable to determine the location of certain distribution terminals (or the customer demand associated with those terminals), Verizon has grossed up the

investment derived from customer demand it was able to locate to account for the missing demand. Next, because Verizon could not identify the addresses associated with certain customer lines, most of which are non-switched private lines, Verizon assumed that each of these private lines would require both a drop and a network interface device ("NID"). For a number of these lines, Verizon also assumed that each would require its own distribution terminal. These assumptions, made for **BEGIN CONFIDENTIAL END CONFIDENTIAL** lines, are unreasonable and lead to overstated costs. Finally, Verizon has modeled 10% of its SAIs as if they were in the same physical location. As Verizon admits, this is not actually the case in its or any other forward-looking network. The result is an overstatement in distribution cable distance for feeder cable, likely leading to higher per unit costs. *See* Ex. 751TC (AT&T Turner Rebuttal) at 36-37.

2. Failure to Locate Customer Demand.

79. Verizon acknowledges that it has not been able to locate all of the distribution terminals in its network. In calculating loop investment, Verizon has included only those distribution terminal locations (and, hence, only the customer demand) for which it has location information. *Id.* at 46. Verizon then takes the investment it has developed to serve this known demand and multiplies the investment by an adjustment factor. For business lines, the weighted average adjustment factor is **BEGIN CONFIDENTIAL END CONFIDENTIAL**. The residential line, the adjustment factor is **BEGIN CONFIDENTIAL END CONFIDENTIAL**.

80. Verizon's use of the adjustment factor assumes that there are no economies of scale associated with serving additional lines. This assumption is incorrect. Given the inordinately low fill factors Verizon assumes in its loop model (which will be discussed in more detail below), the additional lines may permit Verizon to use spare facilities rather than adding

incremental investment. *Id.* at 47. Moreover, because the adjustment factors for business lines are much greater than the factors for residential lines, the potential for scale economies is much greater. Business lines are typically less costly because they are normally closer to the central office and part of larger cables, larger SAIs and larger DLC systems. The potential for scale economies in these larger pieces of equipment is actually greater than for the smaller equipment typically used to serve residential lines. As a result, use of adjustment factors for business lines has a greater effect because it misses scale economies on lines that are generally less costly to begin with. *Id.* at 48.

81. No party can make adjustments required to correct this problem with Verizon's modeling. The assumption is part of the model code that Verizon does not permit other parties to change. *Id.* at 47. Verizon's use of these assumptions, however, provides another basis for rejecting Verizon's model.

3. Improper Modeling of Private Line Demand.

82. Verizon's model assumes that each of its **BEGIN CONFIDENTIAL END CONFIDENTIAL** non-switched private lines will require its own drop and NID. Non-switched private lines, however, are almost invariably business lines. *See* Ex. 751TC (AT&T Turner Rebuttal) at 51. Business customers typically purchase more than one private line per location. *Id.* Contrary to Verizon's assumptions, there is no need for a separate drop and NID for each line purchased for a particular location.

83. For almost 32,000 of the private lines included within Verizon model, Verizon was also unable to locate a distribution terminal. For all of these lines, Verizon assumed that each would require a separate distribution terminal. *Id.* at 52. This inefficient assumption also does not correspond with the realities of Verizon's network. *Id.*

84. Verizon has essentially admitted that these modeling assumptions are incorrect. *See* Ex. 228TC (Verizon Panel Rebuttal) at 51-52. The assumptions result in increased costs and must be rejected.

4. Failure to Locate SAIs.

85. Finally, Verizon also acknowledges that it was unable to locate all of its existing SAIs in deriving the modeled network. *See id*. at 41. Ten percent of the SAIs in the modeled network are co-located with other SAIs. *Id.* As Mr. Turner has testified, incorrect placement of these SAIs is likely to lead to an increase in costs. Putting the SAIs in the same location, rather than where they actually occur in the network, overstates distribution cable distance. *See* Ex. 751TC (AT&T Turner Rebuttal) at 36. Distribution cable typically has a higher per unit cost than the feeder cable it replaces using Verizon's assumptions. *Id.* at 37. Nevertheless, there is no systematic way to correct these known errors in Verizon's model. *Id.*

86. Given these known problems with Verizon's network design, the Commission should reject it for use in this proceeding. If the Commission determines to review costs derived from Verizon's model, however, the Commission must recognize that these errors, along with the basic choice by Verizon to model its existing network lead to an overstatement in costs that must be reduced to lead to prices that comply with TELRIC.

C. Switching Model Issues.

87. Verizon has used Telcordia's Switching Cost Information System ("SCIS") model (for Lucent and Nortel switches) and COSTMOD (for GTD-5 switches) to feed Verizon's Switching Container program, which produces "Investment Elements" for use by VzCost, which yields the final switching cost results. Ex. 802TC (AT&T Gillan/Chandler Rebuttal) at 3. This process not only is complicated and unnecessarily complex, but "the calculations in the various model components used to produce switching costs are not readily visible, essentially making it

impossible to verify either the methods used to compute investment and cost or the correctness of the formulas that constitute these methods." *Id*. at 3-4. Indeed, Verizon refused to produce the source code for the SCIS modules until the week the evidentiary hearings began (Tr. at 956 (Verizon Mazziotti)) – far too late to be of any use in this proceeding. The endorsement of SCIS by the firm that Verizon has hired to provide some of its witnesses in this case is meaningless and fails to remedy these basic shortcomings. *See* Ex. 201TC (Verizon Switching Panel) at 77-78.

88. In addition, the switching sections of VzCost (a) are designed to produce a usage-based charge for unbundled local switching, which as discussed below, is inconsistent with the way that Verizon incurs switching costs, and (b) inappropriately include transport and signaling costs. Ex. 802TC (AT&T Gillan/Chandler Rebuttal) at 4-8. In light of these issues, as well as the Verizon models' complexity, difficulty, and inscrutability as discussed above, the Commission should reject the use of these models for determining Verizon's UNE rates in this proceeding.

D. Other Model Issues.

89. AT&T does not have any other model issues to address at this time.

VII. HM 5.3

A. Overview.

90. HM 5.3 is the most recent version of an economic costing model developed at the request of AT&T and MCI to be used to estimate the costs that an efficient firm would incur to provide UNEs, universal service and interconnection services. The Model estimates the costs that an efficient carrier would incur to provide narrowband, voice-grade telephone service, as well as high capacity digital services. The Model is a "bottom up" model, meaning that it

designs a network based on detailed and granular information as to demand, network component capabilities and costs, and expenses. Ex. 851T (AT&T Mercer Supp. Direct) at 9-13 & 29-30.

91. Consistent with TELRIC principles, the HM 5.3 determines costs to serve current demand, as reflected by the most up-to-date, publicly available line counts. Also consistent with TELRIC principles, the model assumes the use of forward-looking network architecture currently being deployed today. The model relies on publicly available information and subject matter expert opinion regarding the availability, capacities, and costs of equipment available in today's marketplace. HM 5.3 is easy to use and has over 2,100 user-adjustable inputs that make the Model very flexible and open to review and analysis. The HAI Inputs Portfolio and HAI Model Description provide thorough documentation and support for the model inputs and detailed description of model methodologies and assumptions. *Id*.; Ex. 855 (HAI Model Description); Ex. 856 (HM 5.3 Inputs Portfolio).

92. The HAI Model has received extensive scrutiny in proceedings before the FCC and before various state commissions, including several previous proceedings before this Commission. The Model developers have continued to refine and improve the Model in response to comments and criticism received in these proceedings. *E.g*., Tr. at ___ (AT&T Mercer). As a result, the state commissions in Arizona, Colorado, Minnesota, and Utah recently either have adopted or have used the HAI model to establish UNE rates. A growing consensus of state commissions that have been presented with the HAI model have found that it represents the most up-to-date product of an ongoing effort and is the best tool to most accurately estimate the costs that an efficient, forward-looking provider would incur to provide UNEs.

B. Outside Plant Network Design.

93. HM 5.3 is a bottom up cost model that constructs a network based on detailed and granular information, including the amount and location of local exchange services demand,

network component capacities and costs, and an estimate of the expenses needed to efficiently operate the network being constructed. The methodology employed by HM 5.3 is in marked contrast to Verizon's models, which use network designs and costs derived from the existing local exchange network. HM 5.3 models the entire local exchange network in order to ensure the model reflects appropriate synergies between different parts of the local exchange network and to assign shared and common costs in a consistent fashion.

94. HM 5.3 models network design in three major steps. First, the model determines the amount and location of current demand for Verizon's local exchange services, using geo-coded customer location data provided by Verizon, combined with a method of assigning surrogate locations when geocoded location information is not available for all customers. Second, the model groups, or "clusters," adjacent customers, and associates those clusters with serving areas that can be efficiently served by available local exchange technology. Finally, based on the forward-looking network architecture an efficient ILEC would deploy today, the model determines the amounts of various network components needed to support the known demand for the elements and services in question. In doing so, it employs numerous optimization routines that ensure: (1) the use of outside plant structures that are most technically and economically suited to particular local conditions; (2) the appropriate economic choice of feeder technology between copper cable and fiber-based digital loop carrier systems; and (3) efficient interoffice fiber optics transport rings based on the widely-utilized Synchronous Optical Network ("SONET") family of standards. Ex. 851T (AT&T Mercer Supp. Direct) at 7 & 12; Ex. 854.

95. Verizon has provided voluminous testimony taking issue with the network that HM 5.3 models. Verizon's major concerns are addressed elsewhere in this brief. Tellingly, Verizon makes little, if any, effort to quantify the impact of the "problems" that Verizon has

identified with the model. Nor has Verizon provided evidence on any HM 5.3 model runs Verizon has made using Verizon's inputs to determine if the model – as opposed to the inputs – produces results that are significantly lower than the results produced by Verizon's models. No doubt the reason is that such a model run, like comparable runs in prior cost dockets, would show that HM 5.3's network design actually ***overestimates*** the amount of network facilities required to serve anticipated demand. The Commission should not be distracted by Verizon's focus on the trees, rather than the forest. HM 5.3 conservatively designs the network and assumes more than enough outside plant.

C. Switching Model Issues.

96. AT&T has proposed that the Commission establish rates for unbundled local and tandem switching developed by HM 5.3. Ex. 851T (AT&T Mercer Supp. Direct) at 15-16 & 22-23. As discussed above, HM 5.3 is a superior model platform, and the model (or its predecessors) has been used in whole or in part by several state commissions to develop switching costs.[49] The switching investments used in HM 5.3 are based on switching investments calculated by the FCC for use in the FCC's Synthesis Model following an extensive review of data supplied by various local exchange carriers. *Id*. at 23-24.[50] The extensive efforts undertaken by the FCC to develop the switching cost investments used as inputs to the Synthesis Model are described in detail in the USF Input Order.[51] The information relied on by the FCC included information gathered on a nationwide basis from a variety of carriers regarding the cost

[49] *E.g.*, Utah PSC Docket No. 01-049-85, Report and Order, at 8 (May 5, 2003).
[50] *See also Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, 1oth Report and Order, 14 FCC Rcd 20156 (*"Inputs Order")* ¶¶ 286-323 (describing Synthesis Model switching investment calculations).
[51] *See Inputs Order* ¶¶ 296-314.

of switches of various sizes.[52] The Commission should rely on HM 5.3 and the FCC's comprehensive analysis to determine the appropriate UNE local and tandem switching rates.

D. Other Model Issues.

97. AT&T does not have any other model issues to address at this time.

VIII. MODEL INPUTS

A. Loops.

1. Plant Mix.

98. Costs assumed for placing outside plant cables depend, in large part on the structure used to place the cable. All else being equal, it is less expensive to place aerial cable than to bury cable in the ground. The most expensive cable structure is underground cable placed in conduit.

99. The Verizon model and HM 5.3 differ substantially in their assumed mix of aerial, buried and underground structures for both feeder and distribution cables. One of the key differences between the two models is that Verizon's outside plant mix assumptions are firmly routed in its embedded plant. Each plant segment modeled is assumed to be of the same structure type as the existing structure type that predominates on that segment today. The only exception to this rule is that if number of required cables in the modeled segment exceeds a certain maximum number established by Verizon, the model will assume that the structure is underground. Tr. at 1281 (Verizon Panel). Verizon assumes, then, that more plant will be placed using expensive underground structure than exists in the current network. The result of this exercise is an assumption that 18.6% of the plant placed by the Verizon model is aerial, 60.3% is underground and 21.08% is buried.

[52] *Id*. ¶¶ 299-303.

100. HM 5.3 assumes that the mix of aerial, buried and underground structure would vary depending on the density of a particular area. For example, in downtown urban areas, it is frequently necessary to install cable in underground conduit systems. Rural areas, however, typically consist almost exclusively of aerial or directly buried plant. *See* Ex. 856 (HIP) at 31. In the three highest density zones, HM 5.3 assumes, for example, that there will be between 5% and 35% underground distribution cable, while feeder cable is placed underground between 80% and 100% of the time. The values used in developing the structure mix inputs to the model are based upon public Verizon ARMIS data filed with the FCC. *Id.* at 34. The model contains an optimization assumption that shifts cable between aerial and buried depending on local terrain conditions. The user may adjust this shift to account for other local conditions. *Id.* In HM 5.3 as filed within this proceeding, the overall plant mix for feeder is 29% aerial, 27% buried and 44% underground. The plant mix assumptions for distribution are 43.3% aerial, 55.7% buried and 1% underground.

101. HM 5.3 correctly recognizes that underground placement is not often used outside dense, urban areas. Underground conduit is more expensive than buried or aerial structure. Working underground poses more hazards than working with aerial or buried cable. Because dense, urban environments consist of buildings and pavement rendering cable trenching operations costly and impractical, underground conduits are reasonable alternatives in these environments. However, given the high cost, safety issues and productivity time associated with underground structure, it would be counter-intuitive for any efficient firm to place the majority of its feeder or distribution cable in conduit anywhere other than dense areas. *See* Ex. 856 (HIP) at 31-34.

102. The plant mix assumptions Verizon has proposed here are substantially different from those it proposed (and this Commission accepted) in the Universal Service Docket.[53] There, even in the highest density zone, Verizon proposed that only 10% of the distribution plant would be placed underground. For a feeder plant, Verizon, in general, proposed that less underground plant would be placed than is assumed by the values used in HM 5.3 filed here.[54]

103. AT&T's proposal here, based on Verizon's own data, reflects an appropriate, forward-looking view of how an efficient provider would place outside plant. Verizon's proposal, in contrast, is based upon its embedded plant skewed to assume the plant would be placed in underground facilities ubiquitously throughout the Verizon network, even where it is not placed that way today. The proposal differs sharply from what Verizon has proposed in past proceedings. For this reason, the Commission should reject Verizon's proposals and adopt the plant mix assumptions used by HM 5.3.

B. Structure Sharing.

104. In a forward-looking environment, TELRIC communications providers like Verizon will have an opportunity to save costs by sharing structure facilities, such as poles, trench and conduit, with other entities. HM 5.3 as filed in this proceeding recognizes those opportunities. With the exception of some sharing of aerial cable, however, Verizon contends here that it would be able to share almost no costs with other providers.

105. Verizon claims that its sharing assumptions are based on current sharing within its network. This claim is false. Verizon has calculated the amount of sharing in its network without taking any consideration the amount of outside plant structure it has received for free under tariff regulations requiring developers to provide the plant structure to Verizon in growth

[53] *See In re Determining Costs for Universal Service*, Docket No. UT-980311a, *Tenth Supplemental Order*, Appendix C at 17 ("*Tenth Supplemental Order*").

areas. Tr. at 1289 (Verizon Panel). Verizon's choice to ignore the fact that it has incurred no structure costs for some portion of its network shows the extent to which Verizon is willing to ignore the real world to increase the costs that it advocates here.

106. HM 5.3, in contrast, accounts for the types of sharing opportunities that would be available in a forward-looking network. These include, for example:

(1) The sharing of cable support structures (such as poles, ducts and conduits), between Verizon and other entities such as power companies and cable TV. providers;

(2) The sharing of structure between feeder and distribution facilities; and

(3) The sharing between Verizon's in-office facilities and feeder.

See, e.g., Ex. 951TC (Fassett Reply) at 15-17. The parties, therefore, sharply diverge on the appropriate assumptions for sharing to be adopted by the Commission.

1. Should the Values Be Based on What Is Observed and/or Current Values or What Could Hypothetically Exist in a Competitive Market?

107. The Commission should look at what would exist in a competitive market rather than Verizon's claimed "actual" sharing. In the past, Verizon and other regulated monopolists had little incentive to participate in structure-sharing arrangements since such sharing would have reduced the underlying rate base upon which their rates of return were computed. Because Verizon has operated as a regulated monopolist with virtually no market pressure from competitors, it has not been compelled to eliminate the monopolistic inefficiencies in its system. In a forward-looking environment, however, an efficient new competitor would actively seek to reduce its outside plant costs by spreading such costs across users and other utilities. Verizon admits that this is the case. In its most recent proposed plant engineering guidelines, joint

[54] *Compare Tenth Supplemental Order* at. 21-22 *with* Ex. 856 (HIP) at 53.

trenching must be used wherever appropriate, making "every effort . . . to coordinate with other utility companies to accomplish this." *See* Ex. 265 at 16, ¶ 3.5.2.

108. This Commission reviewed the same proposal by Verizon that there would be no sharing of underground conduit or buried cable in the first cost proceeding. The Commission rejected this proposal there based, in large part, upon the testimony of Commission staff that a historical rate of sharing would not result in minimizing production costs. Commission staff in the first cost docket proposed a range of sharing "which reflects the balance between maximum achievable structure sharing and the amount of structure sharing achieved historically."[55] The FCC itself adopted the values proposed by staff and accepted by the Commission in its *Inputs Order*. In that Order, the FCC determined that

> a forward-looking mechanism must estimate the structure sharing opportunities available to a carrier operating in the most efficient manner. . . . The forward-looking practice of the carrier does not necessarily equate to the historical practice of the carrier.[56]

The Commission has, therefore, already rejected Verizon's proposal here and should continue to reject it in this proceeding.

2. If the Structure Sharing Should Be Based on What Could Occur In a Competitive Market, Is There a Need to Make an Adjustment to the Line Counts? If So, to What Degree?

109. TELRIC is designed to replicate the costs that would be incurred by a cost-minimizing, efficient firm serving the total network demand.[57] These rules do not permit any argument that the cost of current demand should be spread over fewer lines to count for those that might be lost to competition.[58] Neither TELRIC nor HM 5.3 assume that structure will be

[55] *Eighth Supplemental Order* ¶ 73.
[56] *Inputs Order* ¶ 247.
[57] 47 C.F.R. § 51.505(b).
[58] To the extent that Verizon actually has lost lines to competition, these lines have already been removed from consideration in developing costs, resulting in higher per-line rates. In that

shared with competitors. Rather, the purpose of TELRIC is to attempt to estimate the cost of a monopolist assuming that it behaves as though it is in a competitive market.[59]

3. Placement Costs.

110. Placement costs are the costs to install outside plant facilities. Placement costs vary depending upon the type of structure being placed and the way in which a model assumes that that structure is placed. Because HM 5.3 and Verizon's model assume that a substantial portion of the cable will be buried, this Brief focuses on placement costs for buried structure. Both HM 5.3 and VzCost develop placement costs by determining the costs that would be required to conduct various types of placement activities, such as trenching or boring, and then determining the frequency that each of these activities will be used in placing buried cable. There, however, the similarity between the two models ends. HM 5.3 assumes that buried cable will be placed efficiently as it would be in a large scale project. Verizon, in contrast, bases its placement assumptions, in part, on how cable would be placed in small scale repair and augmentation procedures. This assumption is directly contrary to TELRIC methodology and requires rejection of Verizon's placement costs.

a. Percent Boring and Hand Dug Cable.

111. The FCC in its Universal Service proceeding analyzed assumptions appropriate for use in calculating forward-looking costs of constructing a wire line local telephone network. The FCC's interpretation of TELRIC and description of appropriate TELRIC assumptions should influence this Commission in interpreting TELRIC here.[60]

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respect, the rates proposed by AT&T in this proceeding actually exceed those that would result from a strict compliance with TELRIC methodology.

[59] *Local Competition First Report and Order* ¶¶ 679, 685.

[60] *See Virginia Arbitration Order* ¶ 51.

112. Among the issues that the FCC reviewed in the Universal Service proceeding were the appropriate assumptions that should be made regarding the costs of installing cable in constructing a network on a forward-looking basis using current technology. The FCC determined that the costs of small scale projects or costs associated with maintenance type projects would not be appropriate. Rather, the FCC determined that the costs that would "best reflect the costs that a LEC would occur today to install cable were it to construct a local telephone network using current technology" would be reflected by the costs of "growth projects for which expenditures were at least $50,000."[61] The FCC determined that use of costs incurred for "additions to existing plant or new construction" best represented "the cost of building an entire new network using current technology."[62]

113. By focusing on "additions to existing plant or new construction," the FCC precluded assumptions like those made by Verizon that placing cable would require a substantial amount of hand digging and boring. Although Verizon contends that its model reflects real-world conditions, Verizon makes no attempt to determine how it originally placed buried cable in deciding whether boring or hand digging would be required. Tr. at 1285 (Verizon Tucek). Instead, Verizon looks at the percentage of boring and hand digging activities that have taken place over time for Verizon-owned trench, including repair and maintenance procedures. Id. at 1287. Using this assumption systematically ignores "additions to existing plant or new construction." New plant is typically placed in trenches owned by developers. Verizon's tariff in Washington requires a developer to pay for trenching in new development. *Id*. at 1287. New plant, therefore, is not included in Verizon's calculations of the activities used for Verizon

[61] *Inputs Order* ¶ 109.
[62] *Id.* at ¶ 118.

owned trench. As Verizon admits, including developer-provided trench would necessarily decrease the hand digging and boring assumptions used in Verizon's model. *Id*.

114. In contrast, the placement costs assumed by HM 5.3 comply with the FCC's standards. HM 5.3 assumes that excavation and restoration for buried cable and for placement of underground conduit will be significantly higher in high density zones to account for the need to work around existing facilities. *See* Ex. 856 (HIP) at 153, 156. In other areas, however, it is presumed that there will be substantially less need for high cost placement activities such as hand digging and boring. *Id*. at 156. This assumption is in line with the FCC's determination that the costs associated with placing plant under growth conditions thus complies with TELRIC.

115. This Commission has also considered the appropriate assumptions for use in deriving placement costs in the first cost proceeding, Docket No. UT-960369. In that case, US WEST made similar presumptions to Verizon here that 21% of all outside plant (50% of buried plant) would be placed using expensive boring techniques.[63] The Commission rejected US WEST's proposal, and found that it would be appropriate to assume that five percent of buried cable installations in developed areas would require boring. This determination is, again, in line with inputs used by HM 5.3 assuming higher placement costs in high density, developed areas. The model presumes that there will be some need to go around obstacles in all density zones, and provides for this by assuming that pushing pipe, a form of boring, will be required 2% of the time even in the least dense areas. *See* Ex. 856 (HIP) at 156. In highest density areas, the model assumes that hand trenching, boring and pushing pipe will be required 21% of the time. Because this is in line with the Commission's prior finding, the Commission should adopt the HM 5.3 assumptions regarding placement activities.

b. Verizon's Inputs Reflect the Cost of Small Jobs or the Cost of Major Undertakings? Which Is the Appropriate Standard?

116. As indicated above, the FCC determined in its *Inputs Order* that it is not appropriate to use the costs of small projects or maintenance type projects in developing placement costs. Instead, the FCC determined that large scale growth projects, those where the costs were at least $50,000, were the appropriate type of projects to use as a benchmark in developing costs.[64] The costs for each placement activity that Verizon proposes here are developed in a manner directly contrary to that required by the FCC.

117. The source of the placement costs for various placing activities used in the Verizon model is Verizon single source contracts for the State of Washington. Single source contracts are contracts that a telecommunications company enters into in advance with a contractor to ensure the contractor's availability for all types of work, including maintenance activities such as repair and augmentation. Tr. at 1273 (Verizon Richter). These contracts are not typically used for large projects. In fact, Verizon's latest proposed engineering guidelines specifically propose that new construction activities over **BEGIN CONFIDENTIAL** **END CONFIDENTIAL** should be put out to bid "to substantially reduce the average cost." *Id.* at 1276-77.

118. Placement costs per activity used in HM 5.3 are based upon information from outside plant experts and contractors. In comparing those costs to those found in large, competitively bid contracts, the assumptions by HM 5.3 are typically higher than those found in such contracts. Tr. at 1546-47 (AT&T Fassett). The HM 5.3 placement values are reasonable and should be adopted by the Commission.

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[63] *Eighth Supplemental Order* ¶ 45. U S WEST's model in that proceeding assumed that boring would be the procedure used to place plant around obstacles, and included no assumption that hand-digging would be used for that purpose.

c. Other.

119. Verizon adds to its costs for placing outside plant a 30% engineering factor. There is no support for Verizon's 30% factor in any materials Verizon has filed in this proceeding. Tr. at 1291 (Verizon Panel). Verizon's experts who testified in this proceeding had no knowledge of the source of this factor. *Id*. at 1295. This factor is substantially above that used in HM 5.3 and is also considerably above examples of Verizon's actual engineering costs found in the record.

120. Unlike the Verizon model, which simply assumes one inflated engineering factor to apply to all outside plant costs, HM 5.3 determines appropriate costs for engineering copper and fiber cable separately by determining the types of tasks that would be required in engineering the outside plant and the time required to perform those tasks. As Mr. Fassett has testified, these assumptions are supported by Verizon's own documents. *See* Ex. 956TC (AT&T Fassett Reply) at 8-9. Verizon has provided evidence of engineering costs in the range of **BEGIN CONFIDENTIAL END CONFIDENTIAL** of the total installed cost, far below the 30% it advocates here. The FCC adopted a similar assumption in its *Inputs Order*, finding that a 10% engineering load on cable structure was an appropriate assumption.[65] On this basis, Verizon's 30% loading factor must be rejected in favor of the HM 5.3 assumptions.

4. Material Costs.

121. For the most part, the material costs used by HM 5.3 in the Verizon VzLoop module are not strikingly different. In fact, in many cases, the materials cost used by HM 5.3 exceed those assumed by Verizon. For example, Verizon's proposed materials costs for SAIs,

[64] *Inputs Order* ¶ 109.
[65] *Inputs Order* ¶ 225.

conduit, fiber, and certain NIDs exceed those proposed by Verizon. *See* Ex. 956TC (AT&T Fassett Reply) at 26.

122. Verizon has proposed excessively high copper cable costs, driven in large part by its decision to use 24 gauge cable ubiquitously throughout its network rather than using 26 gauge cable where appropriate. This issue is discussed in more detail in Section VIII.A.7 below.

5. Fill Factors.

123. In designing outside plant, network engineers necessarily include a certain amount of spare capacity to accommodate functions such as testing and repair and some expected amount of growth. As the FCC explained in its *Inputs Order*:

> The percentage of the total usable capacity of cable that is expected to be used to meet current demand is referred to as the cable fill factor. If cable fill factors are set too high, the cable will have insufficient capacity to accommodate small increases in demand or service outages. In contrast, if cable fill factors are set too low, the network could have considerable excess capacity.[66]

124. For a TELRIC model, the FCC has expressly stated that the proper fill factors should be based on current demand rather than ultimate demand.[67] As the FCC has explained:

> If we were to calculate the cost of a network that would serve all potential customers, it would not be consistent to calculate the cost per line by using current customer demand. In other words, it would not be consistent to estimate the cost per line by dividing the total cost of serving all potential customers by the number of lines currently served.[68]

125. This Commission held in its Universal Service proceeding that fill factors must provide a level of spare capacity to meet current demand while allowing for growth. As the Commission recognized "[r]eliance on a company's actual fill factors . . . may not provide a

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[66] *Inputs Order* ¶ 186.
[67] *Id*. ¶ 197, 201.
[68] *Inputs Order* ¶ 58; *see also Local Competition First Report and Order* ¶ 682 (directing that fill factors reflect the total cost of the element divided by a reasonable projection of the actual total usage of the element).

good estimate of the economic cost production."[69] Under these standards, HM 5.3 adopts appropriate fill factors in all parts of the network model. The sizing factors used by the model are designed specifically to provide spare capacity for breakage, administration, and some amount of growth. *See, e.g.*, Ex. 856 (HIP) at 36. Verizon's model, in contrast, claims that it relies on actual network fill in, assuming fill factors even lower than those it proposed and had rejected by the Commission in the first cost proceeding. On this basis, the Commission should adopt the utilization factors used in HM 5.3.

a. Distribution.

126. Verizon's approach to distribution fill is that distribution plant should be built to meet ultimate demand. Verizon uses a sizing factor derived by taking 2.5 pairs per location – the midpoint between its engineering guidelines that require installation of between two and three pairs per location for residential customers – and dividing that 2.5 by the current demand for second lines in Verizon's records. The sizing factor, then, ensures that there will be 2.5 installed pairs modeled per working pair in Verizon's current network. *See* Tr. at 1306-07 (Verizon Tucek).

127. As Verizon admits, its engineering guidelines are designed to place distribution cable according to ultimate demand. *Id.* Under Verizon's approach to modeling, its sizing factor will increase (decreasing distribution fill) as demand on its network decreases. *Id.* The result of Verizon's approach, therefore, is that the cost per line will increase as demand decreases.

128. Both the FCC and this Commission have rejected this "pairs per location" approach in determining fill factors on a forward looking basis. Use of this assumption means that the purchaser of an unbundled loop today will be required to pay the cost of all growth that may occur in the future within the network. The FCC has determined that this is not an

[69] *Tenth Supplemental Order* ¶ 257.

appropriate assumption.[70] Instead, the FCC determined that distribution fill assumed by a TELRIC model should be sized to meet current demand, including an amount of excess capacity to accommodate short term growth.[71]

129. This Commission rejected a proposal by U S WEST in the first cost proceeding that fill factors should be calculated based on an assumption of three lines per household in suburban areas. The realized distribution fill of the U S WEST loop model filed in that proceeding was 33%. Verizon has proposed a similar figure here of a little over 38%, far below the 55% fill factor for both feeder and distribution it proposed in the first cost proceeding.[72] The realized distribution fill in HM 5.3 is 47.3%, close to the 50% distribution fill approved by the Commission in the first proceeding.[73] On this basis, the Commission should approve the sizing factors for distribution cable used by HM 5.3.

b. Feeder.

130. Feeder is designed to be relieved when demand increases and the standard practice in the telecommunications industry, therefore, is to use higher utilization levels for feeder than for distribution. Verizon's draft engineering guidelines, for example, state that its planners should "analyze a [feeder] route for possible relief . . . when that section of the route will achieve **BEGIN CONFIDENTIAL END CONFIDENTIAL** fill within the next 12 months". *See* Ex. 265, p. 8, ¶ 2.2. Even when a route is at this fill level, Verizon will not automatically increase capacity on the route. *Id.* Instead, this level of fill is only a "trigger for further investigation." *Id*.

[70] *Inputs Order* ¶ 197.
[71] *Inputs Order* ¶¶ 199-201.
[72] *Eighth Supplemental Order* ¶¶ 175-176, 182.
[73] *Eighth Supplemental Order* ¶ 178.

131. The copper feeder fill assumed by Verizon's model in this proceeding is 51.93%, far below the levels adopted by the FCC in the *Inputs Order* and the recent *Virginia Arbitration Order*.[74] HM 5.3, in contrast, appropriately assumes an 80% copper feeder sizing factor, resulting in a 76.5% realized fill. This is far below the fill level that will trigger a review by Verizon for relief under its engineering guidelines. The fill for cooper feeder adopted by HM 5.3 should be accepted by the Commission.

132. Fiber feeder cable is normally installed with 100% redundancy. As the FCC has recognized, for every fiber strand installed, a separate strand is installed to account for breakage. On this basis, even use of 100% fill factor provides substantial excess capacity. The FCC has twice approved 100% fill factors for fiber feeder. [75] AT&T has adopted this input assumption in HM 5.3

133. The Verizon model, in contrast, includes a realized fiber feeder fill of slightly more than 86% with 100% redundancy already built into the fiber feeder network, there is no need for the additional capacity Verizon's fill assumptions would require. Verizon's fill factor assumption should be rejected in favor of those used in HM 5.3.

c. DLC.

134. HM 5.3 uses a sizing factor of 90% for DLC equipment, resulting in an overall realized fill of 80.2%. The fill for common equipment is 72.8% while the fill for channel units is 89.5%. *See* Ex. 856 (HIP) at 88. The Verizon model does not allow separate fill factors for channel units and common equipment. The overall realized DLC fill in Verizon's model is 84.85%. HM 5.3 appropriately recognizes that fill levels are likely to be higher on channel units that can be more easily replaced. HM 5.3's assumptions for DLC fill should be adopted here.

[74] *See Inputs Order* ¶ 207; *Virginia Arbitration Order* ¶¶ 257-59.
[75] *Inputs Order* ¶¶ 92, 208; *Virginia Arbitration Order*,¶ 264.

d. Switching.

135. Verizon's switch fill factor and associated trunking utilization is substantially understated. HM 5.3, as proposed by AT&T, assumes a fill factor – *i.e.* the line capacity of the switch – of 94%, which recognizes the need for administrative fill and the ease speed with which switch additions can be placed, if necessary. Ex. 856 (HIP) at 96. Verizon, on the other hand, assumes a significantly lower factor based on the historic utilization in Verizon's existing network. As discussed more fully in subsection C below, Verizon's refusal to assume replacement and resizing of existing switches to more accurately accommodate anticipated demand results in an overstatement of Verizon's switching costs. The Commission should reject Verizon's proposed switching and associated trunking fill factors.

e. Interoffice.

136. Verizon uses an astonishingly low fill factor for fiber in its transport network. It derives its factor by taking the fiber investment per foot cost derived from VzLoop (which itself includes an assumed utilization factor for fiber of approximately 85%) and applying to that assumption two utilization factors. The first is based on the ratio of revenue producing fibers to total fibers in Verizon's current network and the second is based on the assumed fill factor of the circuit equipment on either end of the fiber. *See* Ex. 201TC (Verizon Panel Direct) at 118-19. The overall fiber utilization rate is **BEGIN CONFIDENTIAL END CONFIDENTIAL**.

137. Verizon has included four fibers per remote terminal system in its transport model. The reality is that only two of these fibers are equipped, providing 100% redundancy. As indicated above in the discussion of feeder fiber fill, a 100% fill factor for fiber, therefore, results in effective fill of only 50%. The appropriate fiber fill in a TELRIC model, therefore, is 100%, as recognized and adopted by the FCC.

6. DLC Assumptions.

138. A new entrant employing the least cost technology would deploy exclusively integrated digital loop carrier ("IDLC"). *See* Ex. 956TC (AT&T Fassett Reply) at 28. The cost savings of using this technology are substantial. *Id.* Verizon's own draft engineering guidelines recognize the overall economic advantages of IDLC and call it "the preferred design choice over the wholesale use of UDLC." *See* Ex. 265, at 11, ¶ 2.4.5.

139. Notwithstanding this admission, the Verizon model filed in this proceeding assumes that almost 10% of the DLC placed in the network will be universal digital loop carrier ("UDLC"). Verizon claims this is necessary to allow unbundling of individual loops. *See* Ex. 201TC (Verizon Panel Direct) at 46. This is incorrect. Both the Verizon model and HM 5.3 presume that the IDLC used in the network will use GR-303 technology. Using this technology, the most efficient method to unbundled loops is on a DS-1 level using the multiple interface group feature that exists in these next generation DLC systems. *See* Ex. 751TC (AT&T Turner Rebuttal) at 59-64. As Mr. Fassett has testified, at least one incumbent carrier is using this technology today to provide unbundled loops. *See* Ex. 956TC (AT&T Fassett Reply) at 30; Tr. at 1495 (AT&T Fassett). The FCC's Wireline Competition Bureau has also recognized that GR-303 technology can be used to provide access to unbundled loops.[76] Verizon's assumption that UDLC would be required in a forward looking network has no basis in fact and should not be adopted here.

140. There is a further significant problem in the manner in which Verizon develops the installed cost for DLC equipment in its cost models. Verizon develops these costs by taking the material investment and then applying a series of "linear loading factors" to estimate the cost of putting the DLC into place in its network. These linear loading factors are sometimes referred

to as "engineer, furnish, and install ("EF&I") factors." This modeling assumption substantially departs from the way Verizon realistically incurs costs in its network and also from the way Verizon derives the installed cost of all other loop elements in its cost study. The factors rely entirely upon Verizon's embedded network and activities and provide no basis for estimating costs in a forward looking network. *See* Ex. 751TC (AT&T Turner Rebuttal) at 24-27.

141. HM 5.3, in contrast, uses a bottom-up approach to determining the installation costs for network equipment. Under this approach, the model identifies the labor and other costs that it would actually be incurred in installing each piece of equipment. The FCC has expressed its preference for this approach, and its concerns with the use of linear loading factors:

> Our concerns stem from the fact that the EF&I factor for a specific piece of equipment is derived by applying to the equipment an unsupported pro rata share of the cost of installing all equipment associated with that account. As a result, the relationship between the actual installation costs associated with particular pieces of equipment and the installation estimates used to determine the EF&I factors is unclear. The actual costs may be less than or greater than the pro rata allocation. Verizon's claim that the lack of accuracy of the individual in-place factors is not relevant because the factors calculated on an aggregate basis may not resolve this issue because the pro rata allocation appears to bear no relationship to the EF&I costs associated with any particular type of equipment within an account.[77]

142. The FCC further determined that factors such as those used by Verizon may not be based on historical costs unless it can be demonstrated that those historical costs are relevant to the study of forward looking costs.

143. Verizon's linear loading factors are based on two years of data from 1999 and 2000. The data comes from Verizon's Detailed Continuing Property Record ("DCPR") system, a system that tracks Verizon's embedded investments. *See* Ex. 751TC (AT&T Turner Rebuttal)

[76] *Virginia Arbitration Order* ¶¶ 315-18.
[77] *Virginia Arbitration Order* ¶ 523.

at 27. From the information available in this system, Verizon develops a material cost for equipment placed at the central office or at remote terminals. Verizon then adds to the material costs its engineering costs and installation costs for materials in the same accounts, and divides by the material cost to derive the factor.

144. The material in the DCPR does not include all of the material costs that Verizon pays to its vendor for equipment placed in the central office or at the remote terminal. The cost included in the denominator of the factor calculation typically includes only major material costs. Minor materials costs are included in the numerator, along with the major material costs, installation, and engineering. This factor development results in a mismatch when it is applied in the cost model. Verizon applies the factor not only to major material, but also to minor materials costs, resulting in an overstatement of the total installed costs for DLC equipment. *Id.* at 28-29. Other incumbent carriers have admitted this systematic overstatement of installed costs. *Id.* This error makes Verizon's EF&I factors unreliable and these factors should be rejected.

145. Even if Verizon's factors were correctly derived, they are not appropriate for use in a TELRIC model. The FCC and the number of state commissions have rejected reliance on linear loading factors specifically because they are reliant on embedded costs and create distortions in the calculated rates for unbundled elements.[78] This Commission should also reject Verizon's embedded approach to determining DLC investment.

[78] *Florida Public Service Commission Order, Investigation into Pricing of Unbundled Network Elements*, Order No. PSC-01-1181-FOF-TP, May 25, 2001, at 187; *Georgia Public Service Commission Order, Review of Cost Studies, Methodologies, Pricing Policies, and Cost Based Rates for Interconnection and Unbundling of BellSouth Telecommunications, Inc.'s Services*, Commission Order, Docket No. 14361-U, March 18, 2003, at 13 (both found at Ex. 754C)

7. Other Inputs.

a. Cable Sizes.

146. HM 5.3 uses cable sizing factors in calculating cable investment. The model calculates the cable pairs required to serve current demand, taking into account the need to provide spare pairs for breakage, line administration, and some amount of growth. *See, e.g.,* Ex. 856 (HIP) at 65. Once the demand on the given segment is calculated, the model will place the appropriate size cable, given currently available cable sizes. For example, if the calculated demand were 26 pairs, this demand would be satisfied by installing a 50 pair cable, the next available size. *Id.* at p. 65, n.29. Verizon uses a similar approach to sizing cables for use in its model.

b. Cost of Obtaining Rights of Way.

147. Neither model explicitly includes costs associated with rights of way. Instead, the models assume that the plant will be placed in existing public rights of way and private easements.

c. Air-to-Route Mile Factors.

148. HM 5.3 does not use air-to-route mile factors in calculating the distance required to place loop plant. Rather, the model calculates the distances between customers using rectilinear routing. As the FCC has determined, use of this assumption provides a close estimate of the actual road distance required to connect customers.[79]

149. The Verizon model assumes a straight line distance between points in its network, except when those points exceed 500 feet. In those cases, Verizon applies a factor to increase the assumed distance. AT&T proposes no change to these factors.

[79] *Inputs Order* ¶ 81-82.

d. The Gauge of Copper Plant.

150. Verizon proposes that 24-gauge cable should be used ubiquitously throughout the network that it constructs. HM 5.3, in contrast, presumes that copper cable below 400 pairs in size will be 24 gauge and all copper cable of 400 pairs and larger will be 26 gauge. Because 24 gauge cable is significantly more expensive than 26 gauge cable, the assumption by Verizon that only 24-gauge cable will be used in the network leads to substantially higher loop costs. *See* Ex. 751TC (AT&T Turner Rebuttal) at 24-25.

151. The FCC has rejected Verizon's presumption that 24-gauge wire would be used ubiquitously in a forward-looking network. As the FCC determined in its Universal Service Proceeding, a significant amount of 24-gauge copper cable in larger pair sizes is currently being deployed.[80] Verizon itself argued in that proceeding that a forwarding-looking model should use both 24 gauge and 26 gauge copper in all available pair sizes.[81] The Commission should reject Verizon's proposal here to limit the modeled network to 24-gauge cable.

e. Length of Drop Wires.

152. Drop length is an input to Verizon's VzLoop module. The values vary by wire center and by whether the drop is aerial or buried. In its filing in Washington, Verizon assumes that aerial drops are 68 feet in length in 10 wire centers. In those same 10 wire centers, Verizon adopts a buried drop length assumption of 100 feet. In two wire centers, Verizon uses an aerial drop length of 138 feet and a buried drop length of 150 feet. In the remaining 87 wire centers, Verizon assumes an aerial drop length of 188 feet and a 200 foot buried drop length.

153. Although this Commission has expressed a desire for drop length studies to support drop length assumptions filed by an incumbent carrier, Verizon has filed no support for

[80] *Inputs Order* ¶ 94.
[81] *Id.* ¶ 95.

its drop length assumptions here.[82] The drop lengths are substantially longer than the range of 50 to 175 feet adopted by the Commission for Verizon in the Universal Service proceeding. *See Tenth Supplemental Order*, Appendix C at 5. In contrast, HM 5.3 uses drop lengths ranging from 50 feet to 150 feet depending on the density zone. These values are based upon a nationwide study of actual loops which produced results indicating that the average drop length is 73 feet. *See* Ex. 856 (HIP) at 19. In addition, AT&T has provided the Commission with evidence of a recent independent drop length study in Alaska that produced an average drop length of 61.3 feet. *See* Ex. 956TC (AT&T Fassett Reply) at 24. Because AT&T has provided evidence in support of the drop lengths it proposes, the Commission should adopt these links in this proceeding.

f. Other.

(1) Drop Sharing.

154. Drop wires in new developments are most often placed in conjunction with other utilities to achieve cost sharing advantages. For this reason, HM 5.3 assumes that the telephone company will bear 50% of the cost of buried drops. This assumption is supported by Verizon's own local exchange tariff. Verizon requires that customers be responsible for paying the cost of trenching, conduit or other structures required for placing drop wire for service extensions and other new construction. *See* Ex. 266 (Verizon General and Local Exchange Tariff) ¶ C.13.C. Nevertheless, Verizon assumes no sharing of the cost of buried drops. The assumption used in HM 5.3 is reasonable and should be adopted by the Commission.

(2) Copper/Fiber Breakpoint.

155. Verizon's model permits the copper portion of the loop to be as long as 18,000 feet, although it does attempt to minimize the number of loops where the copper portion exceeds

[82] *Eighth Supplemental Order* at ¶133.

12,000 feet. *See* Ex. 751TC (AT&T Turner Rebuttal) at 57. HM 5.3 also uses an 18,000 foot maximum copper loop length, but makes no attempt to hold the length of the copper portion of the loop to 12,000 feet. This copper/fiber breakpoint is an input to both models and the assumption can be changed if desired by the Commission.

156. There is no need to prohibit copper loop lengths from exceeding 12,000 feet. The reason to place an 18,000 foot break point on copper distribution lengths is that longer copper lengths require the use of load coils. Because the use of load coils prevents DSL service from being provided, use of longer copper loop lengths is not generally considered to be consistent with efficient, forward-looking engineering practice. *Id.* at 58.

157. Use of an 18,0000 foot copper/fiber breakpoint will permit both the HAI and Verizon models to select the most efficient alternative between all copper loops and fiber-fed DLC loops below this engineering threshold. In some cases, it will be more efficient to deploy DLC rather than copper, even where the total loop length may permit the use of all copper facilities. In other circumstances, however, it is efficient and appropriate to permit all copper facilities up to 18,000 feet. *Id.* at 58.

8. Geographic Deaveraging.

158. AT&T, Staff, and Verizon have proposed different approaches for geographically deaveraging unbundled loop prices. All three proposals, however, are similar in two ways: (1) they all arrange wire centers from low loop costs to high loop costs; and (2) they all group these wire centers into deaveraged zones by grouping wire centers with similar costs together. This is the same methodology the Commission used when it initially established deaveraged loop rates. These two steps are also the most crucial steps in ensuring that deaveraged loop rates are competitively neutral and representative of their underlying cost. Ex. 904T (AT&T Denney Rebuttal) at 2.

159. The deaveraging proposals of AT&T, Staff and Verizon differ in three respects: (1) each party applies its proposed methodology to its own proposed statewide loop rates, although any of the three proposals could be applied to any set of loop cost estimates; (2) Staff proposes five geographic zones, while AT&T and Verizon propose only three, although again any methodology could be used to establish three or five zones; and (3) most significantly the three proposals differ in the method for grouping wire centers into zones. AT&T proposes an algorithm that minimizes the overall weighted averaged deviation divided by the mean for the three deaveraged zones. Staff proposes an algorithm that minimizes the overall weighted "sum of squared errors" across all zones. Verizon proposes a hybrid approach, in which Verizon initially "eye-balls" the data and looks for significant break points in loop cost by wire center, then divides the remaining wire centers into two zones by minimizing the weighted "sum of squared errors," as is done by Staff. *Id*. at 2-4.

160. The AT&T approach results in rates that are more cost based than the approach offered by Staff or Verizon, because of two key differences in these approaches. First, the AT&T approach seeks to minimize absolute cost deviations rather than squared cost deviations across the deaveraged zones. Because the purpose of creating deaveraged rates is to ensure that loop costs are more reflective of the underlying cost in each wire center, minimizing these actual loop cost differences is superior to Verizon's nonmathematical method and Staff's method that seeks to minimize the square of the deviations. Second, the AT&T approach compares average deviations relative to the average zone loop cost, rather than simply relying on the deviation by itself. Because high cost wire centers have by their nature higher deviations (whether absolute or squared), taking into account this deviation dependency on underlying costs, will create deaveraged zone costs that more closely reflect the underlying wire center costs. The

Commission, therefore, should adopt the AT&T deaveraging optimizer for creating deaveraged zones for Verizon in Washington. *Id*. at 5-13.

C. Switching.

1. Appropriate Rate Structure.

161. HM 5.3 as filed by AT&T assigns all of the costs of local switching as a UNE to the port, on a flat-rated basis, rather than providing for recovery of a portion of switching costs on a per-minute-of-use basis. Setting of prices for unbundled local switching on a flat-rated basis is appropriate because this is the pricing structure that most closely reflects how Verizon incurs switching costs. It is undisputed that when Verizon purchases a switch, it pays for that switch and equipment on a flat basis; Verizon does not make ongoing payments to the switch vendor that depend on how much the switch is used. Given that Verizon pays once for its switches based upon the full capacity of those switches, there is no reason why CLECs should have to pay more, depending on how much their consumers use the switch, in order to obtain access to the same capacity. Indeed, the fact that local switching has usage-based price component is an historical artifact, held over from switching cost studies developed to justify rates under rate-of-return regulation. No technical justification exists for recovering UNE local switching costs on a per minute of use basis.[83]

162. The FCC's Wireline Competition Bureau agreed. In its *Virginia Arbitration Order*, the Bureau concluded that principles of cost causation and competitive neutrality required that UNE local switching costs be recovered on a flat-rated basis. According to the Bureau, these

> costs are incurred for capacity that is shared among subscribers. Verizon incurs these costs to be ready to provide service upon demand. Given the record evidence that modern switches typically

[83] *E.g.*, Ex. 801T (AT&T Gillan/Chandler) at 4.

> have large amounts of excess central processor and memory capacity, the usage by any one subscriber or group of subscribers is not expected to press so hard on processor or memory capacity at any one time as to cause blockage, or a need for additional capacity to avoid such blockage. Thus, no one subscriber or group of subscribers is any more or less causally responsible for the processor or memory capacity costs. Principles of cost causation, therefore, support a per line port cost recovery approach because, more than any other approach, it spreads getting started costs to carriers in a manner that treats equally all subscribers served by a switch.
>
> In addition, charging a per line port price for the central processor and memory recovers these costs from competitive LECs on a competitively neutral basis, thereby potentially extending to many different subscribers the benefits of competition. The incumbent LEC incurs central processor and memory costs in order to provide service to all of the subscribers served by the switch's line ports. A competitive LEC may serve some of these subscribers and the incumbent LEC may serve some of these subscribers. The incumbent LEC's central processor and memory costs do not vary with respect to whether a subscriber connected to its switch is a high or low volume user, a residential or business user, or a peak-period or off-peak-period user. A competitive LEC faces no advantage or disadvantage in competing against the incumbent LEC if it pays for use of the central processor or memory on a per line port basis. If the incumbent LEC chooses to recover relatively more or less of the central processor and memory cost from high volume business users or low volume residential users, for example, the competitive LEC is able to compete with the incumbent LEC (or another competitive LEC) by doing the same.[84]

163. The Utah Public Service Commission recently reached the same conclusion, finding that switching costs are incurred on a flat basis and should be charged to CLECs on the same basis:

> The Commission finds that where possible, ***costs should be billed to CLECs in the same manner as they were incurred by Qwest. To do otherwise sends distorted price signals that will artificially induce or retard the development of competition for the related services***. Certainly the experience the industry has gone through

[84] *Virginia Arbitration Order* ¶¶ 463-64 (emphasis added and footnote omitted); *accord id*. ¶¶. 471-72 & 475-77.

> with reciprocal compensation illustrates the futility and danger of devising artificial pricing structures.
>
> Qwest is charged a flat, fixed, per line price for switching once basic capacity and design issues have been accounted for. Given that a TELRIC network is designed to meet current demand, the capacity issues at stake in this issue will have been accounted for in the modeler's inputs and assumptions.[85]

164. The issue of whether switching costs are usage sensitive also was extensively litigated in Consolidated Illinois Commerce Commission ("ICC") Docket Nos. 96-0486 and 96-0569. Having reviewed the evidence, the ICC found that Ameritech incurs switching costs on per-line basis and not on a usage sensitive basis. Specifically, the ICC found:

> Based on a review of Ameritech's switching contracts, it is clear that the primary basis used by switch vendors to charge Ameritech for its switches is a price per line. Because Ameritech incurs switching costs on a predominantly per-line basis, we find it consistent with the fundamental principles of cost causation that the ULS [unbundled local switching] subscriber should also pay the ULS element primarily on a per line basis, ***without a usage charge***.[86]

The ICC required Ameritech to file a new ULS cost study that "establishes prices ***primarily based on the flat-rate terms of its vendor contracts***."[87]

165. The Indiana Commission also recently completed a proceeding in which it faced the same issues. Ameritech – like Verizon – was proposing to charge CLECs usage-based switching charges as if it incurred usage-based switching costs. Having reviewed a record that included all of Ameritech's switching contracts and an examination of switching costs, the Indiana Commission concluded:

> A flat rate switching charge is consistent with retail markets in Indiana. In a climate where flat rate local service is important for many customers, allowing Ameritech to collect usage costs from its CLEC competitor-customers would place CLECs at a

[85] Utah PSC Docket No. 01-049-85, Report and Order, at 16 (May 5, 2003) (emphasis added).
[86] ICC Docket Nos. 96-0486 and 96-0569, Order, Page 59 (emphasis added).
[87] *Id*. (emphasis added).

> disadvantage. In many cases, they would be forced to charge their own retail customers on a usage sensitive basis in order to recover usage sensitive costs imposed by Ameritech, while Ameritech's own local retail customers do not pay a separate local switching rate. This could have profound consequences on the ability of Indiana consumers to take part in a competitive marketplace.
>
> Accordingly, we find that Ameritech's request to assess a usage-sensitive switching charge for ULS-ST should be denied and that the switching costs (including usage costs, if any) for the ULS-ST offering should be recovered from CLECs on a flat-rate basis.[88]

166. In the Wisconsin proceeding, the Wisconsin Commission similarly found the following:

> Digital switches are essentially large computers, and as the cost of computer memory has declined, so has the cost of extra capacity on the switch. The net result is that switch manufacturers design ***enough switching fabric and processor capacity*** into their switches to serve the maximum lines that can be installed on the switch ***without blockage***, based upon the expected use per line. In its own contracts with its switch vendors, Ameritech agreed to pay for its switches on a per-line basis without any usage fees, but there are provisions that assess extra charges when Ameritech needs to order additional equipment to accommodate usage growth.
>
> . . . .
>
> The Commission finds that there would be some additional costs to Ameritech if it were to face a large increase in usage per line. The Commission also finds it reasonable to assume that the current switches were engineered with sufficient capacity so that the likelihood that Ameritech will actually incur significant additional costs because of increased usage per line ***is quite small***. Because of the way the switches are engineered and the way Ameritech pays for its switches, ***there is no compelling cost or engineering rationale for requiring a rate design that includes a minute-of-use charge***. …
>
> The Commission, while reluctant to go against the traditional rate structure for unbundled switching, finds that there are compelling policy reasons for the use of a flat per-line-port charge, and that the cost-based rationale for a per-minute charge is not strong enough to overcome these policy goals. The primary

[88] Indiana Utility Regulatory Commission, Cause 40611-S1, Pages 41-42.

> policy concern is that in order to compete with Ameritech, the CLECs need to pay for their unbundled switching in the same way that Ameritech pays for its switching.[89]

167. Verizon nevertheless contends that it must pay more for switching equipment when the switch is engineered to handle higher peak usage costs than when the switch is designed to service a lower peak traffic volume. This claim, however, says nothing about how the cost of the switch should be recovered. Again, regardless of the initial cost of the switch, unless there is evidence that Verizon must pay its vendors a separate charge for each minute that the switch is used, it is unreasonable to assess CLECs with such a charge. Verizon has presented no such evidence in this case. Indeed, the evidence – including Verizon's own switching vendor invoices – is precisely to the contrary.[90]

168. Verizon also contends that as subscriber usage increases, Verizon must purchase additional equipment and incur greater costs. This contention is unsupported and irrelevant. Verizon has presented no evidence that the traffic thresholds for which Verizon's switches in Washington have been designed have been, or are even likely to be, exceeded. To the contrary, Verizon conceded that none of its switches in Washington have reached exhaust, nor could Verizon's witnesses provide any details on the three switches that Verizon alleges reached exhaust in Virginia and New Jersey. Indeed, Verizon took issue with Mr. Gillan's usage calculations because they did not reflect recent *decreases* that Verizon has experienced since 2000.[91] That trend is likely to continue, given the increasing popularity of DSL, cable modems, and wireless which take traffic off of Verizon's circuit switches.

169. In short, Verizon has failed to distinguish the decision of the Wireline Competition Bureau – which apparently was based on a record similar, if not virtually identical,

[89] Wisconsin Public Service Commission, Docket 6720-TI-161, at 80-82.
[90] *E.g.*, Ex. 304C.

to the record before the Commission – or the decisions of other state commissions that ILECs incur switching costs on a flat basis and should charge UNE local switching rates to CLECs that reflect those flat costs.

2. Switching Inputs.

170. The inputs to the competing switching models, like the loop models, represent the greatest differences between the Parties' respective proposals. In addition to inputs addressed elsewhere in this brief, two switching inputs, in particular, account for most of the discrepancy: (1) the switch equipment investment, specifically the high level of Verizon's assumed investment and Verizon's erroneous contention that vendors offer lower discounts for growth additions than a new switch; and (2) Verizon's refusal to include the costs of *all* vertical switching features in the UNE local switching cost. As discussed in more detail below, the Commission should reject Verizon's proposed switching inputs.

Switching Investments

171. The switching investments used in HM 5.3, as proposed by AT&T, are based on switching investments calculated by the FCC for use in its Synthesis Model. Ex. 801T (AT&T Mercer Supp. Direct) at 23-24.[92] The extensive efforts undertaken by the FCC to develop the switching cost investments used as inputs to the Synthesis Model are described in detail in the USF Inputs Order.[93] The information relied on by the FCC included information gathered on a nationwide basis from a variety of carriers regarding the cost of switches of various sizes.[94] The resulting investments include the discounts that those carriers received from their switching vendors.

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[91] *E.g.*, Tr. at 1107 (AT&T Gillan).
[92] *See also Inputs Order* ¶¶ 286-323 (describing Synthesis Model switching investment calculations).
[93] *Inputs Order* ¶¶ 296-314.

172. Verizon, on the other hand, develops its switching costs by applying a calculation of the discounts it allegedly receives from its vendors to the list prices of equipment that Verizon has determined that Verizon will likely deploy in the future. Verizon's approach is unreasonable in several respects. As discussed above, Verizon's inputs are based on an erroneous interpretation of TELRIC principles. Verizon essentially proposes that its existing switches remain in place, and that future switch purchases will largely be growth additions. Such a proposal flies in the face of FCC requirements that the Commission estimate UNE costs based on the assumption that but for the wire center *locations*, Verizon's network is rebuilt using the least-cost, most efficient, forward-looking technology available. Such an assumption necessarily includes replacing most, if not all, existing switches with the most current models available that are sized to serve a reasonable estimate of anticipated demand. Verizon has refused to do so.

173. Not surprisingly, Verizon's calculations result in switch investments that are more than double the amounts that Verizon itself, as well as other ILECs, pay for switching on a per line basis. Ex. 802TC (AT&T Chandler/Gillan Rebuttal) at 9. Even Verizon agrees that switching prices are declining, yet Verizon proposes that the Commission adopt switching investments that are radically *higher* than current prices. *Id.* Such a proposal is unreasonable on its face.

174. More specifically, Verizon's assumption that switching investment will be largely comprised of growth additions, rather than new switches, artificially increases costs because Verizon assumes that it receives substantially lower discounts from its vendors for growth additions than the discounts available for new switches. Verizon's own witnesses and data refute such an assumption. One of Verizon's switching panel witnesses testified that Nortel, one of Verizon's three switch vendors, applies the *same* discount to *all* switching equipment, regardless

[94] *Id*. ¶¶ 299-303.

of whether it is a new switch or growth addition. Tr. at 965 (Verizon Mazziotti). Although the witness could not specifically identify the equipment included in the list of vendor equipment that Verizon has purchased, at least one item that could have been a growth addition had a discount that vastly exceeded the overall discount that Verizon assumed in its cost study. *Id*. at 961-64; Ex. 304C at 10 (top line) & 96. Verizon produced no contrary empirical evidence. The record thus demonstrates that Verizon's assumptions about the relative cost of growth additions are incorrect.

175. Verizon's engineering assumptions are also flawed. "The SCIS input assumptions for trunk occupancy, for example, lead to a severely over-engineered network," which results in "an increase in both switching and transport cost." Ex. 802TC (AT&T Gillan/Chandler Rebuttal) at 8. Verizon responded that the level of trunking assumed includes the trunking that Verizon provides to interconnecting carriers over which Verizon claims to have no control. CLECs, commercial mobile radio service ("CMRS") providers, and interexchange carriers ("IXCs"), however, purchase that trunking from Verizon. Tr. at 938 (Verizon Mazziotti). Including such trunks among the total trunking assumed to be used for switching results in double recovery of the costs of those trunks and artificially reduces Verizon's trunk utilization, correspondingly inflating Verizon's switching costs.

176. The Commission, therefore, should reject Verizon's proposed switching investment estimates as unsupported, contrary to law, and unreasonable.

Features

177. Consistent with the *Eighth Supplemental Order*,[95] AT&T's proposed rate for UNE local switching includes all features costs. Verizon, on the other hand, has proposed separate prices for a variety of switch features, including Call Waiting, Three-Way Calling,

Remote Call Forwarding, and Caller ID. Ex. 202 (Verizon Proposed Rates) at 4-6. Verizon's purported justification for this departure from the Commission's prior determination is that these features allegedly require separate hardware and corresponding additional cost. Neither the law nor the record support Verizon's allegations.

178. The FCC has expressly concluded that vertical features are "part of the functionality of the switch," and "allowing new entrants to purchase switching and vertical features as part of the local switching network element is an integral part of a separate option Congress has provided for new entrants to compete against incumbent LECs."[96] Indeed, the FCC expressly included Call Waiting, Three-Way Calling, Remote Call Forwarding, and Caller ID among the vertical features that are included in the local switching element.[97] Verizon's proposal to charge separate rates for these features thus is directly contrary to federal law.

179. Verizon's proposal also lacks factual support. Verizon's testimony does not even identify the unique hardware that Verizon contends is necessary to provide these features, much less justify the need for, or price of, such hardware. Tr. at 957-58 (Verizon Mazziotti). Nor was Verizon able to identify any "features" hardware or prices among the equipment included on the lists of switching equipment that Verizon has recently purchased from its vendors. *Id*. at 964-65. Apparently the only references to the hardware or its cost are in Verizon's SCIS model documentation, which lacks any empirical support. *Id*. at 958-59.

180. The FCC's Wireline Competition Bureau rejected the same Verizon proposal under virtually identical circumstances:

> We reject Verizon's proposed separate vertical feature prices. Verizon identifies values for the inputs in the SCIS/IN module, but it does not provide any justification for these input

[95] *Eighth Supp. Order* ¶ 281.
[96] Local Competition Order ¶ 816.
[97] *Id*. ¶ 410 & n.908.

> values. Verizon defends these input values against AT&T/WorldCom's criticism by arguing that they are based on the judgment of a product manager who has over 25 years of experience. It fails, however, to document or explain any of the data, assumptions, methodologies, calculations, formulas, or workpapers that might have been used by this product manager to develop these inputs.[98]

The Commission should reach the same conclusion.

3. Minutes of Use.

181. The Commission requested briefing on the Parties' dispute over minutes of use calculations, but AT&T believes that any such dispute has been resolved. Mr. Gillan had originally calculated Verizon's current switch usage per line based on the latest data that Verizon had filed with the FCC. Verizon correctly observed, however, that it had not updated some usage numbers in those reports since 2000. Accordingly, Mr. Gillan revised his testimony to use only data from the year 2000, which was the most recent year for which complete information is publicly available. Tr. at 1107 (AT&T Gillan). Verizon did not pursue this issue on cross-examination, and thus the issue no longer exists as far as AT&T is aware.

D. Transport.

182. Verizon's transport study uses the same linear loading factors it applies to digital loop carrier to estimate the costs for installing add/drop multiplexers and other equipment required to provide interoffice transport. As indicated above, use of linear loading factors rather than producing a bottom-up study of the costs fails to reflect the economies of scale that would be associated with reconstruction of the transport network. As with Verizon's approach to modeling DOC investment, use of linear loading factors should also be rejected in determining transport costs.

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[98] *Virginia Arbitration Order* ¶ 492 (footnotes omitted).

183. The most critical flaw in Verizon's transport study is its use of an astonishingly low fill factor for fiber. As discussed in Section VIII.A.5.e, Verizon has used a **BEGIN CONFIDENTIAL END CONFIDENTIAL** fiber utilization rate in calculating its transport costs. As the FCC has recognized, a 100% fill factor is appropriate for fiber and should be used in calculating transport costs here.[99]

E. Other Issues.

184. AT&T does not have other issues to address at this time.

IX. TAKINGS EVIDENCE

A. Legal Arguments.

185. Verizon has yet to disclose the legal theory on which it will contend that Commission adoption of any rates other than those that Verizon proposes will result in an unconstitutional taking of Verizon's property without just compensation. Based on the evidence that Verizon has presented, Verizon apparently believes that any UNE rate set below Verizon's calculation of its historic costs represents a taking. Well-established Supreme Court precedent, however, would not support any such claim. The Court long ago determined that a regulated entity must demonstrate that the company's operations as a whole – not a select few of its services – are unable to generate sufficient revenues to cover its prudently incurred costs.[100] Verizon presented no such evidence in this case and thus cannot legitimately claim that any Commission action in this proceeding would constitute an unlawful taking of Verizon's property.

B. Cost Evidence.

186. The cost "evidence" that Verizon presented not only fails to support any takings claim, it lacks credibility on its face. Verizon contends that it incurs costs of $42.16 per month to provide the elements that comprise UNE-P. Ex. 57T (Verizon Dye Reply) at 12. Those same

[99] *Inputs Order* ¶¶ 98, 208; *Virginia Arbitration Order* ¶ 264.

elements, of course, also comprise Verizon's basic local residential and business exchange service. Verizon's current retail rates for those services are $13.00 and $29.70 per month, respectively. Even with the addition of revenues for subscriber line charge, switched access, toll, and features, Verizon would be suffering a significant shortfall in its provisioning of retail services using these figures. Verizon would have filed its rate case long before now if that were true.

187. The overstatement of Verizon's "historic" costs is due to several major flaws in the study, including failure to disaggregate the costs of different types of loops (e.g., lumping two wire loops together with vastly more expensive DS3 loops to develop an average loop price), the use of higher FCC-prescribed cost of capital, rather than the cost of capital for intrastate services established by the Commission, and excessive allocation of land and support investments to loop costs. Ex. 1004TC (AT&T Lundquist Reply) at 8-17. Verizon also fails to produce any evidence that its "historic" costs were prudently incurred, rather than simply assigned to various ARMIS accounts. Verizon thus cannot make, or support, any takings claim.

X. CONCLUSION

188. For the reasons and as discussed above, AT&T urges the Commission to adopt HM 5.3 as the appropriate model for estimating Verizon's forward-looking costs to provide the UNEs at issue in this proceeding and to adopt AT&T's proposed recurring rates for those UNEs.

RESPECTFULLY SUBMITTED this 15th day of July, 2004.

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[100] *E.g., Duquesne Light Co. v. Barasch*, 488 U.S. 299, 102 L. Ed. 2d 646, 109 S. Ct. 609 (1989).