

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In the Matter of )  
 )  
The Use of Computer Models for Estimating ) CCB/CPD Docket No. 97-2  
Forward-Looking Economic Costs -- )  
A Staff Analysis )

**COMMENTS OF  
SOUTHWESTERN BELL TELEPHONE COMPANY**

Southwestern Bell Telephone Company ("SWBT") files these comments in response to the Common Carrier's Public Notice released January 9, 1997,<sup>1</sup> requesting input on a Staff analysis ("Staff Analysis") of forward-looking economic cost proxy models being considered by the Commission for use in various pending proceedings<sup>2</sup> that have been referred to as the "Competition Trilogy."<sup>3</sup>

**I. A SIMPLE ANALOGY DEMONSTRATES THE INAPPROPRIATENESS OF THE PROPOSED FORWARD-LOOKING COST PROXY MODELS AND THEIR UNDERLYING METHODOLOGIES**

The inappropriateness of the use forward-looking costs premised on a perfectly efficient "scorched node" network design is demonstrated in the following analogy:

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<sup>1</sup> Public Notice, DA 97-56.

<sup>2</sup> These pending rulemakings were identified as Universal Service (*Federal-State Board on Universal Service*, CC Docket No. 96-45), Access Charge Reform (*Access Charge Reform*, CC Docket No. 96-262), and Interconnection (*Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98).

<sup>3</sup> *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, First Report and Order, paras. 6-9. That Order has been appealed and partially stayed. See Iowa Utilities Board v. FCC, No. 96-3321, and CompTel v. FCC, No. 96-3608, 8th Circuit.

The Telecommunications Act of 1996 ("Act") was adopted under the notion of ultimately allowing competition to effectively regulate the telecommunications marketplace. The Act is thus deregulatory in nature, eventually resulting in the need for fewer regulators.

Using the concepts and rationale advocated in the Staff Analysis and by the Commission itself, the FCC's budget, particularly the Common Carrier Bureau's budget, must be reconstructed premised on a "forward-looking *budget* proxy model" in anticipation of achieving a deregulated environment. Presumably, in light of the need for less oversight of the telecommunications industry, the budget required at that time would be much smaller.

However, this budget reduction must be effected immediately in accordance with the Commission view of forward-looking principles, regardless of the fact that reductions in regulatory staff have not yet occurred and will not occur for some time.<sup>4</sup> In fact, an immediate reduction in budget would provide the proper incentive for the Commission to reduce its staff commensurate with the anticipated environment. (This is analogous to the immediate shift by the Commission to forward-looking cost proxy models.)

In reality, the Commission and the Bureau could not effectively operate under such budgetary constraints. One would reasonably expect that *as* the need for regulation of the telecommunications industry subsides and *as* the Commission Staff addressing those matters is reduced, the necessary adjustments to the budget *will* indeed be implemented. The same realistic and reasonable expectation must be afforded incumbent local exchange carriers ("LECs").

More importantly, just as the budget of the Commission cannot be premised on an unrealistic, currently unachievable Bureau design, the costs appropriate for the delivery of

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<sup>4</sup> The Commission must recognize that budget needs are constantly evolving and rarely if ever match budget forecasts. A similar problem exists with networks. It is thus crucial that any model closely approximate the existing, known circumstances to yield a more reliable forecast.

telecommunications must not be premised on unrealistic network designs that are impractical today or absolutely unachievable. Rather, as anticipated by the Act, the market should be allowed to evolve, permitting it to ultimately effect economically efficient costs and prices.

## II. THE COMMISSION SHOULD FOCUS OF THE APPROPRIATE USE OF COSTS

This proceeding was initiated by the Commission Staff to stimulate discussion focusing on the development of an appropriate cost proxy model and the potential use of the resulting cost estimates for determining universal service support mechanisms, cost-based access charges, and prices for interconnection and unbundled network elements. Prior to assessing the usefulness and reliability of cost proxy models, the appropriate role of costs must be considered and the limited extent to which cost information can be used to assess the reasonableness of prices and establish investment incentives must be realized.

Forward-looking incremental cost is a relevant cost concept for examining pricing issues for only limited purposes. Incremental costs reflect the direct investment and expenses required to serve an additional increment of demand for a particular service. Expressed on a long-run basis (such that all direct costs of providing the service are variable) and reflecting a forward-looking network design, the incremental cost per unit typically establishes a floor beneath which prices might be predatory. Competitive firms do not set prices at incremental cost, and neither should regulators. Adopting such a methodology, for example, would deny the firm the opportunity to recover its joint and common costs. Simply stated, a cost model cannot and must not be used to

established prices. Assuming price is equal to incremental cost, the firm would either exit the market or risk financial disaster by continuously operating at a loss. Moreover, simply adding an arbitrarily allocated portion of a firm's joint and common costs to incremental cost for a service does not yield a rational price.<sup>5</sup> Such formula-driven, prescribed prices will only by happenstance be equal to prices which market forces would produce. For example, with an arbitrary mark-up, the firm would lose sales to competitors if its price exceeds the prevailing market price.<sup>6</sup>

Rather than narrowly and inappropriately focusing on possible methods for deriving prices from costs, regulators must instead focus on important characteristics regarding the appropriate relationship between prices and costs. Prices must provide suppliers with contribution toward the recovery of joint and common costs (including a contribution toward earning a reasonable return on investment). Ultimately, markets will effectively develop the most efficient prices.

No convincing argument has been provided that demonstrates that the results produced by the proposed cost proxy models will enable the FCC to improve upon these fundamental principles. Incremental cost information does not permit regulators to set prices more efficiently than competitive market forces. Similarly, cost proxy model results (which purport to represent some measure of forward-looking costs) do not necessarily lead to appropriate prices either.

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<sup>5</sup> Of course, under the Act prices for interconnection and unbundled network elements are to be negotiated and, only if no agreement is reached, subjected to arbitration. 47 U.S.C. Sections 251, 252.

<sup>6</sup> One of the assumptions of a competitive market is that consumers perceive all suppliers' services to be homogeneous with respect to function, quality, and other attributes.

designed to be deregulatory in nature and does not call for the creation of new, complex regulatory mechanisms to assess costs.

**III. THE COMMISSION'S EXISTING COST PROCESSES ARE APPROPRIATE AND REASONABLE FOR ANY COST ANALYSIS NECESSARY TO MEET ITS STATUTORY GOALS AND OBLIGATIONS, AND CONSTITUTIONAL REQUIREMENTS**

The Commission's existing cost processes, which rely on actual costs, have been put into place over an extended period of time as technology, the market, the environment and regulations have evolved. State regulations have been likewise adopted, with the States affecting plans that have melded with the federal processes. These cost processes have been validated over time through "real time" use and adaptation. The public and regulatory scrutiny to which these processes have been subjected have served to effect the only reasonable alternative for the Commission to adopt in its "Competition Trilogy." The models produced to date have not evolved in such a manner, or been subjected to such an extended period of trial, use, examination, and refinement.

As SWBT has previously stated, the Commission must consider and seek comment on the continued use of actual costs to meet its goals and to satisfy its statutory obligations.<sup>7</sup> The

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<sup>7</sup> See the following Commission submissions filed by either SWBT or its parent company, SBC Communications Inc.: CC Docket No. 96-45, *Comments of Southwestern Bell Telephone Company*, pp. 13-16, filed April 12, 1996; CC Docket No. 96-45, *Reply Comments of Southwestern Bell Telephone Company*, pp. 11-17, filed May 7, 1996; CC Docket No. 96-45, *Responses of Southwestern Bell Telephone Company to the Questions Posed by the Joint Board*, pp. 28-35, filed August 2, 1996; CC Docket No. 96-45, *Supplemental Comments of Southwestern*

Commission's current cost processes have proven to be readily adaptable to many uses. Absent a reasonable and rational explanation, the Commission cannot simply abandon its current rules and regulations prescribing the methods by which actual costs are developed and used.<sup>8</sup>

If any of the proponents of the currently proposed forward-looking cost models believe that their proposal represents a more viable and efficient alternative, they can certainly attempt to deploy the conceptual network envisioned by their models and to reconfigure those networks as necessary to continually ensure that "perfect" efficiencies are realized. Moreover, if the Commission truly believes that the network configurations upon which these proxy costs are premised are those which a new market entrant would construct to be more efficient than the incumbent provider, then the Commission should encourage those entrants to construct those new networks by allowing incumbents to continue to use their actual costs. Until those new networks

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*Bell Telephone Company on Cost Proxy Models*, filed August 9, 1996; CC Docket No. 96-45, *Comments of SBC Communications Inc. in Response to Public Notice of November 18, 1996*, pp. 23-31, filed December 19, 1996 ("*Recommended Decision Comments*"); CC Docket No. 96-45, *Comments of Southwestern Bell Telephone Company in Response to Public Notice of December 12, 1996*, filed January 7, 1997; *Reply Comments of SBC Communications Inc. in Response to Public Notice of November 18, 1996*, pp. 11-16, filed January 10, 1997. In addition SBC/SWBT has conducted numerous ex parte contacts in these proceedings seeking the continued use of actual costs as described within the Commission's current rules and regulations.

<sup>8</sup> The Commission first must demonstrate that its existing rules and regulations requiring the use of actual costs are no longer reasonable or no longer produce reasonable results. Secondly, the Commission must demonstrate that the merits of the proposed model or process exceed the merits of existing processes. Lastly, the Commission must demonstrate that the proposed model would not result in any undesirable consequences (e.g., insufficient cost recovery) or violate any principle delineated within the Act or elsewhere (e.g., the principle of competitive neutrality recommended by the universal service Joint Board).

are constructed, entrants could still interconnect with and obtain unbundled network elements from the incumbent LECs at rates reflecting the true underlying costs of existing networks.

In reality, the networks envisioned by the cost proxy models will never be constructed. The fact of the matter is that the real world precludes any actual network that duplicates those relied upon in the models, and it is simply unreasonable to use the unattainable to calculate costs. The universal service Joint Board itself recognized that competitive firms will provide service using an "approximately efficient level of resources" not optimized for current demand.<sup>9</sup> Consequently, the Commission cannot continue to pursue that which is undeniably unworkable and for which a reasonable alternative exists.

A review of the record to date in the interconnection and the universal service proceedings, as well as the Staff Analysis, clearly reveal that no serious consideration is being given to the actual costs of incumbent LECs. The universal service Joint Board, with three FCC Commissioners sitting, recommended the use of a forward-looking cost measure for universal service funding purposes.<sup>10</sup> In the Access Reform proceeding, the FCC has proposed two alternatives, neither of which account for the recovery of the actual costs incurred by incumbent LECs. Staff notes those actions and speaks very favorably of the use of forward-looking cost models. Staff precludes the use of actual costs or a model that uses actual costs when it

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<sup>9</sup> *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Recommended Decision, FCC 96J-3, para. 276 (November 8, 1996) and Erratum, FCC 96J-3 (November 19, 1996) ("Recommended Decision").

<sup>10</sup> Recommended Decision, paras. 268-282.

concludes that cost "models should not include sunk or historically incurred costs." Staff Analysis, para. 9.

Because incumbent LECs are pervasively regulated firms, care must be taken to ensure that they are not denied their constitutional right to a reasonable opportunity both to recover their prudently incurred investments and expenses and to earn a reasonable return.<sup>11</sup> Incumbent LECs incur real costs in the delivery of those regulated services and activities,<sup>12</sup> and cost mechanisms must be structured to provide and ensure a reasonable opportunity for recovery of those costs.<sup>13</sup>

The most recent *Economic Report of the President*, as transmitted to Congress this month, implicitly recognizes this standard:

One question in addressing universal service and access charges is whether, after deregulation, the earnings of incumbent telephone companies will suffice to cover the infrastructure costs mandated under prior regulatory regimes. As last year's Economic Report of the President argued in the context of "stranded costs" of electric utilities (which are discussed further below), recovery of costs legitimately incurred pursuant to regulatory obligations would be warranted. Such recovery should be limited, however, to investment expenses not already recovered through past earnings. It is also crucial that any such recovery be accomplished in a manner that is competitively neutral — for example, creating neither artificial price nor cost advantages for the incumbent carrier.

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<sup>11</sup> See Dusquesne Light Co. v. Barasch, 488 U.S. 299 (1989); FPC v. Hope Natural Gas Co., 320 U.S. 591 (1944); Democratic Central Committee of the District of Columbia v. Washington Metropolitan Area Transit Commission, 485 F.2d 786, 808 (D.C.Cir. 1973) (utility entitled to recover "the full amount of their investment in depreciable assets devoted to public service.").

<sup>12</sup> See NARUC v. FCC, 737 F.2d 1095 (D.C.Cir. 1984), cert. denied, 469 U.S. 1227 (1985).

<sup>13</sup> See also CC Docket No. 96-45, *Reply Comments of Southwestern Bell Telephone Company*, pp. 11-13, filed May 7, 1996; CC Docket No. 96-45, *Recommended Decision Comments*, pp. 23, 50-52.

The years of debate that preceded passage of the Telecommunications Act are likely to presage additional years of regulation and litigation to realize its goals. These complex issues will require active policy oversight to ensure a proper outcome. (February, 1997; pp. 204, 205.)

The report furthers with regard to regulated entities as follows:

Allowing utilities to recover prudently incurred investment and contract costs is important.

Investors in regulated enterprises need to be reasonably confident that the government will not renege on its commitments by arbitrarily denying the investors any opportunity to recover their upfront costs. At the same time, however, regulated firms may engage in wasteful investments if recovery is guaranteed unconditionally. To avoid creating this incentive, a presumption in favor of cost recovery should apply only for costs incurred to comply with specific regulatory mandates or before competition became a significant prospect. (February, 1997; p. 207.)

As the Act requires for universal service, support mechanisms must be "specific, predictable, and *sufficient*" to support universal service.<sup>14</sup> Similarly, for unbundled elements, the Act requires that the price be based on "the cost" to provide the element,<sup>15</sup> not some hypothetical cost based upon a theoretical network. It is not at all clear how the Commission expects to fulfill

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<sup>14</sup> 47 U.S.C. Section 254(b)(5) (italics added).

<sup>15</sup> 47 U.S.C. Section 252(d)(1)(A)(i).

its obligation to fulfill the constitutional right articulated in Hope and Dusquesne when the FCC refuses to even acknowledge those actual costs. The focus of this proceeding should be expanded to encompass the use of actual costs.

**IV. BEFORE ANY COST MODEL IS ADOPTED, IT AND ITS RESULTS MUST BE  
SUBJECTED TO CONSIDERABLE VALIDATION AND REVIEW**

Any model will inherently include certain assumptions which are supposed to be realistic and representative. The models proposed to date are based however upon unsustainable network configurations and designs and premised on assumptions that are fictitious and unachievable. Proponents of the currently proposed proxy models have demonstrated and even admitted that these models employ network designs and configurations not representative of existing networks.<sup>16</sup> The stacking of those assumptions and unrealistic expectations necessarily yields results with limited validity, if any at all.

Moreover, although the results produced by forward-looking economic cost models can be expected to differ from those produced by embedded cost analyses, this does not warrant a conclusion that the extent of these differences must be large or random or that a relationship

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<sup>16</sup> See, for example, the testimony at hearing of Robert P. Flappan, on behalf of AT&T, before the State Corporation Commission of the State of Kansas, In the Matter of the Petition by AT&T Communications of the Southwest, Inc. for Compulsory Arbitration of Unresolved Issues with Southwestern Bell Telephone Company pursuant to 252(b) of the Telecommunications Act of 1996, Docket No. 97-AT&T-290-ARB, January 17, 1997. During questioning Mr. Flappan acknowledged that the Hatfield Model 2.2.2 was not premised on the network design and configuration employed by the incumbent LEC. Mr. Flappan furthered acknowledged that the configurations and designs employed by and the results generated by this model had not generally been validated against the actual configurations, designs and results realized in the real world.

between the results does not and cannot exist. Such a conclusion, as expressed in arbitration proceedings,<sup>17</sup> results from a belief that a comparison of the two methodologies is equivalent to asking whether the future will be different from the past.

This belief could not be a more fundamental misconception. Neither an embedded nor a forward-looking cost analysis is static; both change as cost conditions change over time. Forward-looking costs are simply a restatement of current costs at some future point in time. Any proposed costs should thus be subject to a test of consistency with the independent evidence provided by embedded costs.

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<sup>17</sup> See, e.g., Direct Testimony of Robert P. Flappan, Kansas Docket No. 97-AT&T-290-ARB, at p. 86 ("Because Hatfield is a forward-looking model, there is no reason to expect Hatfield results to equal or in any way relate to embedded costs."); Rebuttal Testimony of Frederick Warren-Boulton, Kansas Docket 97-AT&T-290-ARB, at p. 12 ("Booked (i.e., historical) costs, however, are irrelevant in determining what prices are necessary in order for an [incumbent LEC] to maintain its local exchange network . . .").

**V. THE CURRENTLY PROPOSED MODELS, INCLUDING THOSE WHICH HAVE RECENTLY BEEN RELEASED, ARE NOT RIPE FOR ADOPTION**

**A. The models are based on numerous assumptions and hypothetical designs that do not reflect actual telecommunications experience**

The currently proposed models are riddled with fictitious assumptions, or assumptions which have been so modified that they no longer provide a reasonable representation of actual telecommunications experience:

- The Hatfield Models and Benchmark Cost Model (either version)/Benchmark Cost Proxy Model ("BCPM") rely on various Census Bureau data which has been modified to meet the modelers' use or purposes.
- Assumptions are made to translate factual data to adjusted information about the number of telecommunications lines and the shape and placement of the areas.
- The design of the network is based on a hypothetical rectilinear layout and a tree and branch architecture.
- Facility fill factors are set at values which would trigger additions to optimize the design, and structures are shared at unreasonable levels.
- Critical items such as cost of capital and depreciation lives do not reflect those expected of carriers fully subject to competition.

A further discussion and demonstration of these deficiencies is provided in detail in the next section.

**B. The currently proposed models are not capable of producing results that can be used to serve multiple objectives**

As indicated above, the intended use of the cost data will dictate the cost analysis necessary. Therefore, it is imperative that the cost process or model adopted must be flexible enough to produce the appropriate cost data. If an appropriately flexible and accurate process or model cannot be developed, the Commission should adopt multiple processes or models.

At the same time, the realities of network construction must be recognized. A network is not constructed to simply provide one category or class of service. A network is constructed in that manner which, at a given point in time and in light of numerous factors (e.g., quality of service standards, actual and projected customer demand), can efficiently serve the needs of its intended users. Any process or model must be flexible enough to permit the analysis of such complex networks.

None of the existing models could be employed to serve multiple objectives as contemplated by the Commission. In contrast, the Commission's existing cost processes can, and regularly have been, adapted for a myriad of purposes. In the various proceedings associated with the "Competition Trilogy," SWBT has developed accurate and reliable actual cost data demonstrating the appropriateness and reasonableness of the Commission's existing processes. The Commission's existing processes are already capable of satisfying multiple objectives, and should be used.

None of the proposed cost models should be employed to determine costs for individual network elements or services. The more conclusory a model attempts to be, the greater the potential for error. The results of the currently proposed models vary widely when compared to

one another and when compared to data being used in State arbitrations. While a model may portray a set of results on a rather global basis because of broad assumptions about functions and elements, and the structure of the model, it is less likely to accurately provide results for a discrete function or element.

**C. Recently released models and newer versions of previously introduced models do not appear, at first assessment, to fully address those deficiencies**

The latest Hatfield Model, Release 3.0 ("HM3"), and BCPM may attempt to address some of the items described above, but the modifications do not appear to eliminate these deficiencies. The Bureau should recognize that the new BCPM was only released on January 31, 1997, while HM3 was not available until February 6, 1997. Although SWBT has been able to process the BCPM and the HM3 for SWBT-Texas, both models have changed dramatically in terms of inputs, structure and operation. Even though SWBT was able to process the initial release of BCPM by SWBT-Texas, SWBT has since received and loaded the files for all fifty States. Since that loading, however, SWBT has been unable to process the model. For these reasons, it has not been possible to make a thorough and in-depth evaluation of the newly-released models. Before these models or any introduced in the future can be considered, all participants to this proceeding and to the proceedings associated with the "Competition Trilogy" must be afforded ample opportunity to fully evaluate the models.

**VI. COMMENTS ON SPECIFIC POINTS IN THE STAFF ANALYSIS**

**A. Existing Wire Center Approach (Paras. 18-21)**

The cost proxy models use the incumbent LECs' existing wire center locations, consistent with the Recommended Decision.<sup>18</sup> Using the locations of existing wire center makes sense in that they are the basic facilities from which local services are currently provided. While new entrants may chose to provision services from different locations, the vast majority of services and unbundled network elements will, at least for the near term, still be provided from existing wire center locations. Since these locations also represent a significant investment to the incumbent LECs, it is unlikely that many locations will be abandoned, or that many new locations will be created in the near term. Accordingly, using those locations will remain reasonable as long as these models are applied to incumbent LECs. Changes in this assumption should not be made until such time as it can be factually demonstrated that the number and/or placement of wire centers has significantly changed.

Staff believes that a switch need not be placed at each wire center.<sup>19</sup> Forward-looking does not mean that one can ignore reality. Only conditions that are likely to change should be considered, and it is not likely that switches will be removed from existing locations as the Staff apparently believes. Again, any such changes in basic assumptions need to be verified against actual experience, not simply incorporated into cost analysis on the basis of unsubstantiated, untested presumptions.

**B. Geographic Unit of Analysis - Census Block Groups (Paras. 22-24)**

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<sup>18</sup> Recommended Decision, para. 277 (with the use to continue "for the reasonably foreseeable future.").

<sup>19</sup> Staff Analysis, para. 20.

Regardless of whether Census Block Groups ("CBGs"), Census Blocks (up to 40 CBs per CBG), grids (an area 1/100th of a degree of latitude and longitude), or some other geographic unit is used, the primary consideration should be whether the mapping of the selected unit to existing wire centers produces results that are comparable to actual wire center data. The unit used should be able to replicate the serving area of the wire center; otherwise there is no way to validate the results for any of the models.

As shown in the *Recommended Decision Comments*,<sup>20</sup> CBGs cannot accurately replicate the serving area of the wire center. The Hatfield Model(s), the BCM2, and the BCPM are based on the use of the CBG as the basic unit of geographic analysis. These models assume that, for costing purposes, CBGs are square. This is obviously not the case -- CBGs are highly irregular in shape. This can be clearly demonstrated with the attached maps of Arkansas, Kansas, Missouri, Oklahoma and Texas. See Attachment 1. Only a few of the almost 30,000 CBGs even vaguely resemble squares. The CBGs for La Junta, Colorado are often used as an illustration of their irregular shapes. Of thirteen CBGs, represented either in whole or in part (i.e., those that are closest to the center of the map) in Attachment 2, only three are vaguely square and two others have a basic rectangular shape. The remaining eight (62%) are so irregular that they cannot easily be geometrically described or categorized.

For three areas, SWBT has overlaid wire center boundaries with the CBG boundaries associated with those wire centers and with squares whose areas are equivalent to the CBG area

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<sup>20</sup> See Recommended Decision Comments, pp. 32, 33 and Attachment C.

using the same centroid as the CBG. These areas (i.e., Corrigan, Texas; Mena, Arkansas; Smith Center, Kansas) are shown on the Attachment 3. Each of these maps shows a consistent pattern of overlaps and voids resulting from the assumption of square CBGs. As shown in the map for Arkansas, which focuses on Mena, Arkansas, one CBG alone (051139501002) is almost entirely overlapped by two other equivalent squares, while a void is created by the four CBG squares in the center (051139502008, 051139502007, 051139504005, 051139504006). Another CBG (051139502004), which is actually somewhat crescent shaped, has large portions not even covered by the square assumed by the proposed models. These marked and persistent discrepancies necessarily invalidate the use of CBGs, especially for determining universal service support levels.

The use of CBGs will also result in information deficiencies that would be difficult and costly to overcome. As stated in the *Recommended Decision Comments* at page 32, approximately 20% of SWBT's customers cannot be mapped to specific CBGs with available data. CBG information has yet to be collected in the normal course of SWBT's business due to an absolute lack of need, and the records and processes needed to perform such record keeping do not necessarily exist. For example, while SWBT does have the address of each customer, those addresses may not permit assignment to particular CBGs (whether based on its actual shape or assumed square shape). Mechanized processes using third party vendor mapping software may not have addresses or roads for new housing developments, or be able to distinguish some addresses, such as box numbers on rural postal routes. Manually "mapping" these customers in

order to accommodate the use of CBGs could place a significant expense burden on the process.<sup>21</sup>

While these record keeping and mapping problems are not a specific problem with a cost proxy model, they are significant problems in terms of implementation of any such plan based on CBGs.

### C. Specification of Demand (Paras. 25-28)

The current models use Census Bureau data to estimate line counts for the wire centers and, from there, other techniques are used to derive theoretical counts of business lines per wire center. Hatfield Model, Version 2.2.2 ("HM2.2.2") uses a count of business employees for each Census tract from Dunn & Bradstreet combined with the reported number of business lines for each Bell Operating Company to "guesstimate" the number of business lines in each Census Block. The same number of business lines is applied to a number of CBGs in HM2.2.2; presumably all CBGs included in the Census tract are subjected to a process which uses Dunn & Bradstreet data to evenly spread business lines across all CBGs within a Census tract. Although HM2.2.2 does use the reported number of business lines to adjust the total number to more realistic numbers, the process used for the distribution of those business lines remains highly

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<sup>21</sup> Assuming an average of 15 minutes per residence to be mapped (e.g., trip to the customer's location, identify the position with a global positioning system device, record the information, recognizing that a number of address may be covered in a common trip) and a labor rate of \$25/hour, SWBT's expenses for Texas only would be approximately \$10,000,000 (1,600,000 customers)(15 minutes/location)(\$25/hour). Even if one were to use maps and overlays instead of actual physical visits, it would take a comparable amount of time. Notably, these estimates do not include the cost of developing, changing, or implementing systems to accommodate this CBG reference.

suspect. SWBT has yet to completely analyze HM3, but it appears that business lines per CBG are now an input item to be normalized by the company.

In contrast, BCM2 assigns a number of business lines to each CBG based on third party information that provides employees by CBG. Again, this does not necessarily translate to the appropriate number of business lines. Additionally, BCM2 does not adjust its business line calculations back to actual numbers.

Even ignoring those computational problems, the estimated line counts for wire centers are significantly flawed. As a comparison of lines by wire center for SWBT's Texas operations demonstrated, the models' estimated line count was different by more than 10% for almost 50% of SWBT's approximately 500 Texas wire centers.<sup>22</sup>

**D. Fill Factors (Paras. 41-43)**

The assumptions regarding demand levels and fill factors inherent in the existing proxy models are flawed and produce erroneous results. First and foremost, the use of existing demand levels and "ideal" fill factors and cable sizes is fundamentally wrong. All of the cost proxy models being considered are static models, and the problem of network construction is a dynamic endeavor. Real networks are constructed over time, under conditions of demand uncertainty and uneven growth patterns.

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<sup>22</sup> See SWBT Comments on Proxy Cost Models, filed in CC Docket No. 96-45 on January 7, 1997, as Attachment G in response to question number 12.

For network elements that are regularly replaced, the optimal fill is the average fill over the life of the total resource. This optimal fill can be calculated with three parameters relating to the resource:

1. The final fill factor of the resource. In other words, what is the percentage utilization that warrants additional capacity? This allows the carrier to handle the churn of adds and disconnects in a timely and orderly manner.
2. The engineering interval for the type of resource involved. The engineering interval is the period of time between the relief of a resource and the time the next relief should go in service.
- 3) The forecasted growth rate of the resource to be used expressed as a percentage.

Once these three items about any resource are known, simple arithmetic can be used to calculate the average fill factor. The formula is as follows:

$$\text{Average Fill Factor} = \text{Final Fill Factor} - (\text{relief interval})(1/2 \text{ of the growth rate}).$$

For example, using the formula, the average fill factor for a resource that has a final fill of 85%, a ten (10) year relief interval, and a 6% growth rate is 55%. This calculation will by definition give the appropriate average utilization (i.e., appropriate fill factor) of any telecommunication resource.

Attachment 4 demonstrates that, for those network elements which are not regularly replaced (i.e., those with extended engineering intervals), either the fill or the cable size for distribution plant must vary over the construction period in a dynamic model. Attachment 4

shows that either the average fill or cable size will be one-half of the efficient level assumed in these models. While this is not an adequate substitute for construction of a dynamic model, at a minimum, static models should use average fill factors (allowing for growth over the life of the plant) to even come close to approximating dynamic results.<sup>23</sup> Moreover, competition initially will likely drive the attainable fill factor downward for any given provider until the network can be reconfigured to the competitive demand levels.

**E. Loop Plant - Cable and Structures (Paras. 44-47)**

SWBT agrees with the Staff that a model should be supported by independent evidence that the default prices chosen for cable, fiber, and other loop-related facilities (e.g., drops, pedestals, network interface devices) are equal to the actual, publicly available market prices of these inputs.

The models' assumptions regarding sharing of structure costs such as poles, trenching and conduit placement are inaccurate and not representative. The Joint Board's criteria specifies that the costs included in the model should be representative of those that a new efficient competitor would expect to incur. Unless one also assumes that in every location there are two other utilities, and that each would place its facilities at the same time as the carrier, it is not reasonable

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<sup>23</sup> In general, replacing or adding distribution cables will be more expensive than "overbuilding" plant to meet anticipated demand. If so, the efficient cable size would be used, but the fill factor would be determined by the realized demand over time. The use of average fill factors (which are one-half of the final efficient level) would approximate the results of a dynamic analysis. It is only an approximation, however, since a truly dynamic model would need to specify the nature of demand growth, uncertainty, and efficient engineering practice under such conditions.

to assume that sharing of all facilities can or will take place. Currently operating power companies or even cable television companies are not likely to remove facilities that it has already placed independently so that a sharing arrangement can be made to satisfy the presumptions of a proxy model cost calculation. For existing facilities of other entities, there are simply no sharing arrangements that can even be achieved by the most efficient entrant. Any use of the existing facilities by a new entrant would have to be accomplished through some sort of rental agreement, such as pole attachments contracts.

Sharing may have some limited practicality in the placement of new facilities, but even then it can be reasonably expected that such would be limited to the distribution plant and would not be a common practice for feeder plant. In a USTA paper released on February 5, 1997, Robert F. Austin reports that the *AT&T Outside Plant Engineering Handbook* states "joint trenching with peer facilities should be employed only for distribution cables and service wires, not for feeder or trunk cables."<sup>24</sup> Joint trenching requires special coordination and the added costs of providing a deeper/wider trench for several utilities tends to offset any efficiencies associated with joint trenching.<sup>25</sup>

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<sup>24</sup> USTA/Austin Paper, p. 12, filed as *ex parte* on February 6, 1997, and presented to FCC and State Joint Board Staff at a meeting on February 5, 1997, CC Docket No. 96-45.

<sup>25</sup> SWBT does not include sharing of trenching in its construction plan, except for a portion of the St. Louis, Missouri metropolitan area where there is a sharing agreement for trenching with a local gas utility. Other sharing arrangements have not been made with other utilities as the additional costs associated with coordination and the additional trenching costs to provide adequate separation for purposes of safety and any future maintenance generally are greater than any expected costs savings that may result from joint trenching.

The sharing of all structures with two utilities as envisioned by HM2.2.2 and HM3 is a wholly unreasonable assumption that should be discarded. Sharing should only be considered in a minority of the plant (e.g., the addition of new structures beyond the provision of facilities to meet the current demand).

**F. Switching Investment (Paras. 48-50)**

The Hatfield Models (HM2.2.2 and HM3) reference Northern Business Information as the source for the switching costs that are included in the models. Even that publication disclaims any ability to rely upon the information:

The information contained in this report has been obtained from sources we believe to be reliable, but neither its completeness nor accuracy can be guaranteed.<sup>26</sup>

While this disclaimer has been characterized as "legal protection" by AT&T witnesses in State arbitrations, its mere presence should disqualify the data from any possible use. After all, how can the Commission rely on data the reliability of which has been specifically disavowed?

**G. Capital Expenses (Paras. 53-63)**

The Staff acknowledges "that depreciation schedules specified in a proxy model should be based on forward-looking costing principles and should reflect projected economic lives of investments rather than physical plant lives." Staff Analysis, para. 61 (emphasis added). SWBT fully supports Staff on these matters, and further agrees that "inaccurate estimation of the

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<sup>26</sup> Copyright statement associated with Northern Business Information study; *U.S. Central Office Equipment Market: 1995 Database* (emphasis added).

expected economic lives of such facilities may result in a significant under or over estimation of the forward-looking cost of these facilities." *Id.* However, caution must be used in determining the proper economic lives.

Staff believes the depreciation rates used by the LECs for financial reporting may be appropriate for use in determining the appropriate economic lives. A potential pitfall is associated with Staff's use of those LEC rates in that the economic lives which underlie these depreciation rates are "remaining lives." Because forward-looking cost models should presume all plant is new, such models should use only economic "total lives."<sup>27</sup> The Staff should not simply use the LECs' financial depreciation rates directly in forward-looking costs models. LECs' financial depreciation rates apply only to the LECs' embedded, partially-depreciated plant.

With respect to return on equity, while incumbent LECs have historically operated in a less risky environment than most competitive firms, it is undeniable that future market conditions will be riskier than those of the past. In one important respect, future market conditions will yield an unprecedented risk. All of the cost proxy models evaluate capital costs over the economic life of the asset, differing only in their input assumptions for economic lives. However, in the case of unbundled elements and resold services, incumbent LEC investments are to serve competitors that are not obligated to purchase over this economic life. Indeed, their oft-stated purpose is to eventually build their own facilities, and then abandon the existing networks. This results in a substantial risk of stranded investment. Unregulated competitive capital markets cannot be

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<sup>27</sup> Total lives of new plant are often referred to by the Commission as "projection lives."

evaluated to assess such risks since no other competitive firm is forced to undertake long-term investments at the direction of and for the benefit of its competitors with no assurance of recovery. The risk being imposed upon the incumbent LECs is thus qualitatively different from, and demonstrably higher than, those faced historically.

A cost model must also reflect a forward-looking equity/debt ratio. According to William E. Avera, in his initial testimony filed on behalf of SWBT before the Arkansas Public Service Commission, observes that the current capital structures of the LECs are not reflected in the forward-looking ratios expected by investors. Mr. Avera states that the LECs "current mix of debt and equity reflects past decisions" and that "current capital structures are inherently backward looking" while "a forward-looking capital structure would contain much more equity."<sup>28</sup>

For these reasons, the currently authorized rates of return must be accepted as the absolute lowest bound for the forward-looking cost of capital. The current interstate authorized rate of return reflects a capital structure of 55.8% equity and 44.2% debt with an 8.8% debt cost and a 13.2% return on equity ( $[(.442 \times .088) \div (.558 \times .132)] = 11.25\%$ ). The cost of capital used should not be lower than what has been authorized in CC Docket No. 89-624.<sup>29</sup>

#### H. Operating Expenses (Paras. 64-69)

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<sup>28</sup> Initial Testimony of William E. Avera, Ph.D., CFA, before the Arkansas Public Service Commission in Docket No. 96-395-U, filed December 20, 1996, p. 14.

<sup>29</sup> *Represcribing the Authorized Rate of Return for Interstate Services of Local Exchange Carriers*, CC Docket No. 89-624, Order, 5 FCC Rcd. 7507 at paras. 1, 8, 9, 12, 13 (1990).