LOCAL SERVICES AND BROADBAND TELECOMMUNICATIONS COMPETITION IN TEXAS, MISSOURI AND KANSAS

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Executive Summary

The report investigates the status of competition in voice and broadband services in Texas, Missouri and Kansas. Our review focuses on the unbundled network element platform (UNE-P) services, and with respect to broadband, on cable and DSL services. Insofar as numerous states, including these three, currently have bills to curtail state regulatory roles over Internet and broadband services and to limit their purview in the UNE arena, data on the status of competition in these states is essential. Each of these states has allowed the dominant RBOC, SBC, to enter into Inter-LATA regional services, having decided the telecommunications services were sufficiently competitive to allow the dominant incumbent into new lines of business. However, competitors have relied heavily on UNE-P as a vehicle of competition, and it is unclear if they will be able to continue to offer a choice to the RBOC incumbent if UNE-P is phased out. The FCC's February 2002 Triennial Review underscores the important role of state regulators in deciding how to proceed with reviewing UNE-P and competitive circumstances in their regions.

Our primary findings on competition include the following:

Recent FCC statistics put CLEC lines at 8% in Missouri, 12% in Kansas and 15% in Texas.

UNE-P is the clear choice for CLEC competition. This is true throughout the U.S. The discounts available under UNE-P attract about 51% of CLECs nationally to that entry strategy. About 44% of CLEC line capture from SBC in Texas uses UNE-P, compared to 56% in Kansas and 32% in Missouri. SBC is the dominant carrier in each state.

Urban regions attract far more local exchange service competition activity than do rural areas. CLECs serving rural areas in Texas account for about 20% of UNE-P use across SBCs lines, compared to 6% in Missouri and 4% in Kansas.

Missouri and Kansas fall below national averages in broadband services and competitive providers for broadband generally. Missouri and Kansas exceed the national averages in percentage of zip codes *lacking* any broadband provider (24% for Missouri and 38% for Kansas) as well as percentage of zip codes with no competitive broadband provider (24% for Missouri and 22% for Kansas).

In Texas,

- **competition is less robust in rural than in metro areas, and**
- **services cost more in rural than in urban regions;**

- **facilities-based competition appears to be more common in rural areas, whereas UNE-P is the preferred mode of CLEC entry in suburban and urban areas;**
- **most residential/small business broadband services are delivered via cable (55% v. 35% xDSL);**
- **CLEC activity occurs predominantly in the Houston-Dallas-Austin triangle and at locations near the major highways in the eastern portion of the state;**
- **Cable-DSL competition occurs primarily in the Houston, Austin, San Antonio and Dallas areas; however,**
- **several providers offer cable broadband in rural Texas.**

In Missouri,

- **the spare amount of CLEC activity occurs in just a handful of medium and high density cities also served by the largest telco incumbents;**
- **56% of CLEC activity uses UNEs;**
- **cable and telecommunications companies offer broadband services in several dispersed rural areas, and**
- **there is cable-DSL competition in about a dozen cities located near the major East-West highways crossing the state;**
- **most competition between cable and DSL occurs in high population density areas;**
- **reported UNE-P costs are higher than in Texas or Kansas;**

In Kansas,

- **75% of CLEC lines use UNEs;**
- **CLEC activity occurs in about nine independent or coop telco markets and in about seven dominant ILC territories;**
- **some CLEC competition occurs in low population density areas in the northwestern portion of the state (Goodland);**
- **cable and DSL broadband services are available in numerous small and dispersed rural areas, but**
- **cable and DSL compete in very few markets, primarily located in the Wichita, Kansas City and Topeka areas;**
- **UNE-P costs are presented as being higher in Kansas than in either Texas or Missouri.**

Consumer price data suggests that a rural location may be less important in determining broadband prices than is the presence of competition. As the data suggest, prices will be lower where there is choice. Although our data are incomplete on this point, it appears that the locational costs associated with rural service are outweighed by competitive pressures when it comes to how much consumers are charged for broadband services.

I. Background

The FCC, Congress, and several states are carefully scrutinizing telecommunications infrastructure as they grapple with issues of both competition and problems around broadband deployment and use. Ever since the 1996 Telecommunications Act promised to open up the bottleneck of local networks for competition in local services, the logistics of precisely how that "opening up" would occur have occupied regulatory and policy bodies around the country. Although the Act did not identify competition in broadband services as a specific goal, the rapid growth of Internet use and widespread interest in broadband networks intersected the broader move toward enhancing new carriers' opportunities to develop the marketplace.

However, amid the widespread enthusiasm for broadband, lower-than-expected subscription or "take" rates have prompted some policy scrutiny. Likewise with respect to more competitors offering local phone and data services, although many states have recorded growing numbers of competing local exchange carriers ("CLECs"), and although the FCC has authorized many former RBOCs to provide interstate and data services after they met state Section 271 requirements,[1] the economic vitality of competitors in the local service market is uncertain. The situation in rural markets is of special concern. Lacking population densities and facing higher service costs, the likelihood of competition developing there appears dim.

Various notions are propounded for why the penetration rates for high speed Internet services and competitive local services are not greater. The first theory is that consumer demand for broadband is not yet strong enough to stimulate infrastructure build-out. Indeed, national statistics suggest that broadband services are available to roughly 80% of the population's households, yet subscription rates hover at about 15%. Consumer demand for broadband and competitive telephone service has grown, despite a dramatic economic slowdown that began to be felt nationwide in 2000. In a report entitled, "U.S. Mass Market Loves Broadband More Than Ever," Gartner reports "the rate of broadband Internet use in the U.S. has nearly tripled over the past two years—growing at a rate of nearly 9 percent each month. Survey results also indicate that the number of U.S. households accessing the Internet via either broadband or dial-up grew at a one percent monthly average during the same time period…. Broadband uptake in the U.S. is bucking current economic trends" (Internet News, November 20, 2002). However, the broadband growth is on a very small base, and thus does not replicate the explosive growth of the Internet itself.

Electronic equipment vendors have suggested an opposite notion: citing a strong customer demand for broadband (see Table 1) that is not being met with supply from carriers, manufacturing CEOs lobbied Congress in November, 2002 for relieving their customers, the dominant incumbent carriers, of obligations to provide more competitive

[1] The 1996 Telecommunications Act permitted Regional Bell Operating Carriers entry into long distance markets, once they successfully petitioned state regulators based on a "competitive checklist" of re-entry criteria. Key among the re-entry criteria is the requirement that incumbents use cost-based formulae for calculating tariffs and rates for competitive network access and service. Incumbents must also show that they are making progress in providing access to their networks by competing providers.

access to their networks (Communications Daily, November 15, 2002). The former RBOCs are entirely supportive of this argument, and have requested that same "regulatory relief" on numerous occasions. The argument has been that it was too expensive for incumbents to share their facilities under the current regulatory provisions. The large incumbents share this view, and have successfully persuaded the FCC that they cannot invest in new fiber-based networks if they are to share them with competitors at below-cost rates (FCC decision, Feb. 20, 2003).

Table 1. Internet Subscriber Summary (thousands)

	2001	2002E	2003E	2004E	2005E	2006E
DSL	4,419	6,448	8,200	9,732	11,107	12,349
Cable Modem	7,381	11,663	16,874	21,974	27,145	32,148
Total Broadband	11,800	18,101	25,074	31,706	38,252	44,497
Dial-Up	45,908	47,831	47,710	46,261	44,143	42,040
Internet Subscriptions	57,708	65,932	72,785	77,967	82,395	86,536
Dial-Up Overlap	(5,900)	(9,050)	(11,491)	(13,149)	(14,786)	(16,347)
Total Paid Subs	51,808	56,882	61,294	64,818	67,610	70,190
Year-over-Year Growth	23%	14%	10%	7%	6%	5%
5 year Fwd. Growth	8%	6%	5%	4%	4%	3%
Total Residential Subs	50,748	55,447	59,485	62,691	65,205	67,541
U.S. Households	108,391	109,909	111,447	113,008	114,590	116,194
Internet Penetration	47%	50%	53%	55%	57%	58%
Broadband Penetration	**10%**	**15%**	**21%**	**26%**	**31%**	**36%**

Source: Morgan Stanley, 2002, p.3.
Notes: DSL figures include both business and residential subscribers

Competitors to the large incumbents and consumer groups argue a third point, namely that the former RBOCs are trying to backtrack on pro-competitive interconnection obligations incurred through the 1996 revision of the Telecommunications Act in order to maximize their own profitability. (Incumbent rural carriers are not subject to the same unbundling burdens as dominant carriers (Section 251(f)(1), Telecommunications Act of 1996). The incumbent telcos, primarily SBC and Verizon, are pressing for reforms to the terms and conditions placed on them to provide access to their network services by competing telcos. Intense lobbying by many parties of state and federal legislators in 2002 and 2003 asked for review and possible changes to the pro-competitive elements of the 1996 Act. The Tauzin-Dingell (House Resolution 1542, also known as the Internet Freedom and Broadband Deployment Act) and Breaux-Nickels (SB 2430, the Broadband Regulatory Parity Act of 2002) bills introduced in the US Congress in 2002 would roll back important pro-competitive requirements of the 1996 Act. "Broadband parity" bills supported by the regional Bells have also been introduced in several states to achieve similar goals. "Broadband parity" bills include those in Texas, introduced in March 2003 as HB 1658 and SB 377; Kansas, where it was rejected by legislators in February, 2003; Oklahoma (SB 2796), where it passed on a 90-2 vote in 2002; Indiana, where it has passed in the House in February 2003 and at this writing is in the state Senate; South

Carolina, now awaiting the governor's signature;[2] and bills in Illinois (passed in its legislature and awaiting the governor's signature at this writing), Connecticut, and Missouri, where SB 221 passed a House Committee but died in a Senate committee at this writing. North Carolina, Alabama and Nevada also may entertain similar bills in 2003.

Competition in the local loop grows in three ways: by investing and building entirely new facilities (facilities-based competition); by reselling lines that are purchased or leased from an incumbent provider; and by using unbundled network elements that are packaged in a platform (UNE-P), a variant on resale. UNE-P has been the mass market entry vehicle of choice for many companies serving small businesses and residences. AT&T and COVAD are among its biggest advocates because UNE-P forestalls the need to sink large sums of capital into new networks and enables companies to gain a toehold in the market to initiate cash flow. Facilities-based competitors more often serve large business users.

The research presented here evaluates how competition has developed in the states of Texas, Kansas, and Missouri, focusing especially on rural regions.[3] Our goal is to trace the locations and the ways the telecommunications competition has unfolded, both for broadband services (primarily DSL and cable modems) as well as for local services. Because xDSL providers compete in many areas with cable companies offering broadband data services via cable modems, and also to some degree with wireless broadband ISPs, we also evaluate the level of competition offered by the companies using these technology alternatives.

A special focus is competitors' use of the unbundled network elements platform (UNE-P) provisions as a way of using existing networks.[4] Incumbents worried about costing standards have contested UNE-P provisions. On Feb. 21, 2003, in its Triennial Review the FCC left in place rules that were meant to foster local telephone competition by requiring the lease of local networks to would-be competitors at prices established by state regulators. However, the FCC exempted the incumbents' new high-speed fiber-based networks from that requirement, effectively allowing the RBOC companies to establish their own broadband networks without allowing competitors' access to those facilities. Two companies, SBC and BellSouth, already have filed suit against the FCC decision, but at this juncture establishing a fair price for competitors' use of the incumbents' networks remains a state regulatory function.

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[2] A bill advanced by BellSouth and introduced in the South Carolina legislature in January, 2003 would deregulate all broadband services capable of transmitting information at rates exceeding 144 kb/s in at least one direction, or services that combine wire routing and transmission to allow users to access the Internet.

[3] The study's methodology focuses on two-wire analog telephone lines operated by Southwestern Bell Telephone (SWBT). These kinds of wires dominate the networks in Texas, Missouri, and Kansas, and most telephone customers receive service from SWBT in these states.

[4] The UNE provisions grew out of the 1996 Telecommunications Act to encourage competition in providing local exchange services. Echoing a successful approach used in facilitating access to incumbent networks by long distance carriers after the AT&T divestiture, the '96 Act requires that incumbents make certain elements of their bottleneck facilities available to would-be competitors.

The largest incumbent telecommunications providers in our target states include Southwestern Bell or SBC and Verizon; Sprint and Sprint United also serve a large number of lines (see Table 2). The facilities of these incumbents have been subject to unbundling provisions. DSL (xDSL) broadband data service is provided over the copper telephone lines to many, but not all, areas of the three states. Both competitive telcos and Internet service providers ("ISPs") currently offer DSL to Southwestern Bell customers, but the terms by which competing telcos and Internet service providers may provide DSL to customers using lines from an incumbent carrier are currently in dispute in many areas.

In the first years of formally competitive telecom markets in Texas, Missouri, and Kansas, new players without infrastructure of their own (such as switches and transmission lines) entered the market for local services by either reselling incumbents' lines or sharing the built infrastructure under the unbundled network provisions as laid out by the FCC and the state regulators. A few new competitors have built entirely new networks of their own, shouldering the huge costs; however, most competition relies on using incumbents' facilities. UNE-P has been the entry vehicle of choice for the new non-facilities based voice carriers for two reasons. First, ordering lines using UNE-P from incumbents requires no capital expenditure for infrastructure, such as lines and switches, on the part of the CLEC. Second, UNE-P is a less expensive alternative than resale of bulk lines bought at wholesale rates from an incumbent. If a new competitor provides its own switches, it still requires other network services from the incumbent. In such cases, UNE-L ("L" is for "loop") is a market entry strategy.

Table 2. Total Access Lines (in thousands)

	Total access lines	Service Areas
SBC	57,628	13 states
Subtotals		
SWBT	25,588	AR, **KS, MO, TX**
TX	10,369	
MO	2,749	
KS	1,454	
Verizon	60,373	37 states
Subtotals		
Southwest	2,630	**TX**
Midwest	467	**MO**, **TX**
Sprint		
Subtotals		
Sprint		
MO	497	IA, **KS, MO**
Central Tel.	321	**TX**
United Tel.		
TX	219	**TX**
ALLTEL		

Nebraska	328	IA, **KS**, NE

Sources: LaBarba, 2002; FCC 2002c; Gregg, Appendix 3, 2003.

In the next section, we review the key policy questions under review that could influence the scope of competition. We also identify cost inputs for would-be competitors in Texas, Missouri, and Kansas. Finally, we present the results of a pricing survey for certain services in the three states.

II. Key Issues

Several questions comprise the background of our competition analysis. They include the following.

A. Can competition flourish with cost-based interconnection?
Cost-based pricing for SBC and Verizon's competitors may or may not cover the incumbents' current operating expenses. Uncertainties about the wisdom of cost-based interconnection policies, but more fundamentally about the availability and accuracy of real cost information pervade telecom policy literature and proceedings. Although states are required to base their pricing decisions on cost information, it is not often available from the carrier, or it is considered proprietary, or is packaged in ways that discourage equitable decisions. In 2003, the US Congress may remove the states' powers to define UNEs and the UNE platform for incumbent carriers, although with the FCC's recent Triennial Review decision that course seems unlikely. Alternatively, states may initiate more specific requirements of dominant carriers, in furtherance of pro-competitive and cost-based policies on rates and tariffs.

B. What should be the states' regulatory authority over UNEs?
Presently states can negotiate with SBC and Verizon over UNE rates, requiring disclosures about the operational costs of making new services available. This authority, affirmed in the FCC's triennial review in February, 2003, may be temporary if Congress passes a version of the Breaux-Nickels "broadband parity" or the "Tauzin-Dingell" broadband bill. On the other hand, the language in the Triennial Review may make Tauzin-Dingell style reforms less necessary or viable since it gives states nine months to conduct UNE reviews and a three-year transition for companies to move to facilities-based services if a state decides to phase out UNE-P.

The "Tauzin-Dingell" bill would remove state regulatory authority over ILEC provided xDSL and remove unbundling obligations for providing network access at remote terminals (typically located in rural areas).[5] The objectives of Breaux-Nickels and Tauzin-Dingell were twofold: to "deregulate DSL and relieve the ILECs of their DSL-related network sharing requirements, introducing regulatory parity among seemingly equivalent and competing services," and "to eliminate the regulatory distinction and requirements between DSL and cable modem high-speed Internet access" (Barden, Bender, and Dezego, 2002, p.5).

The National Association of Regulatory Utility Commissioners (NARUC) and the National Association of State Utility Consumer Advocates (NASUCA) argue that state commissions, and not the FCC, are in the best position to evaluate UNE requirements

[5] "Except to the extent that high speed data service, Internet backbone service, and Internet access service are expressly referred to in this Act, neither the Commission, nor any State, shall have authority to regulate the rates, charges, terms, or conditions for, or entry into the provision of, any high speed data service, Internet backbone service, or Internet access service, or to regulate any network element to the extent it is used in the provision of any such service; nor shall the Commission impose or require the collection of any fees, taxes, charges, or tariffs upon such service." … "An incumbent local exchange carrier shall not be required to provide unbundled access to the high frequency portion of the loop at a remote terminal" (HR 1542).

based on local information about markets (Communications Daily, November 14, 2002, NARUC, 2002). The NASUCA and NARUC position is to maintain the requirements of the 1996 Telecom Act.

Rural states, competitive telcos, and would-be entrants all lobbied federal legislators to preserve state-level authority to regulate the details of network element unbundling. A state with many rural customers such as Texas, Missouri, and Kansas, has an economic development interest in telecom competition if it reduces the cost of service to the customer and expands the infrastructure into areas previously not accessible. Rural customers generally pay higher costs for telephone service, and for broadband data services, where they can get them, since lower line density and large service regions increase the costs of providing both "plain old telephone service" or POTS and xDSL service to rural customers.

C. What is the definition of "UNE-P?"

It is widely agreed that "UNE-P," or the UNE platform, is comprised of core unbundled network elements required for any standard commercial offering or the minimum elements necessary to provide local service to a retail customer. UNE-P is a necessary and sufficient combination of loop (access to the copper portion of the telephone line), transport (data backhaul), and switching, elements. As discussed below, the basic UNE-P used in this survey includes only loop, port and switching (Gregg, 2003). Some definitions also include network interface device, signaling systems and databases, and operation support systems (Frost and Sullivan, 2002).

However, UNE-P has no single, explicit definition in legal code or negotiated tariffs in the three states studied here. This definitional problem creates serious problems in specifying the units of analysis in all cost studies. Various parties have developed models for UNE-P pricing, and these models produce different UNE-P pricing values for the same services. The relative merits and weaknesses of the various models are debated before every public utility commission reviewing new interconnection proposals. Some models are discussed in more detail below.

D. Who benefits from UNE-P?

Creating competitive telecommunications services can entail investing in entirely new facilities or leasing elements of the incumbents network in order to reach customers. The most popular mode of entry into local service competition occurs initially through using extant facilities of the formerly rate-based incumbents. However, the amounts charged for using elements of the network have been contentious.

Encouraging the elimination of UNE-P, SBC has petitioned for a new, flat wholesale rate of $26 per line across its service areas to competitive telcos in lieu of UNE-P. SBC also has lobbied the FCC to have UNE-P removed as an interconnection requirement. The former RBOCs argue that UNE-P rates do not recover all the current costs of providing service, and discourage future expenditures for network build-out.

The record of evidence demonstrates that SBC acknowledges a lower average cost for POTS than the newly proposed rate of $26. SBC's Chief Financial Officer has stated, "in the State of Texas it's about a $20 [to] $21 UNE-P. In the State of Texas you have a … rational model; … at $20 to $21 you have good vibrant competition, and it's not at such a level where we cannot earn money or are disincented to invest" (in Beard and Klein, 2002). The telecom research group, Phoenix Center, has reported, "with $20 to $21 in UNE-P revenues per line, the BOC is fully compensated for its wholesale operating costs and depreciation/amortization expenses. So, our estimates are consistent with the statement that 'at $20 to $21' the BOC can 'earn money' and is not 'disincented to invest'" (Beard and Klein, 2002). WorldCom points out that the $26 rate is a 33 percent increase over average UNE-P rates set by state commissions in the SBC region (Communications Daily, November 26, 2002).

CLECs consider the contemporary wholesale discounts offered by ILECs to be too low to break-even or for profitability. CLECs have discovered UNE-P to be, in most cases, a lower-cost alternative to reselling lines leased at wholesale rates by incumbents. Table 3 illustrates the SBC discounts to competing local exchange carriers as well as the UNE discounts available to CLECs in the three states.

Table 3. SWB and UNE Discounts for CLEC Resale

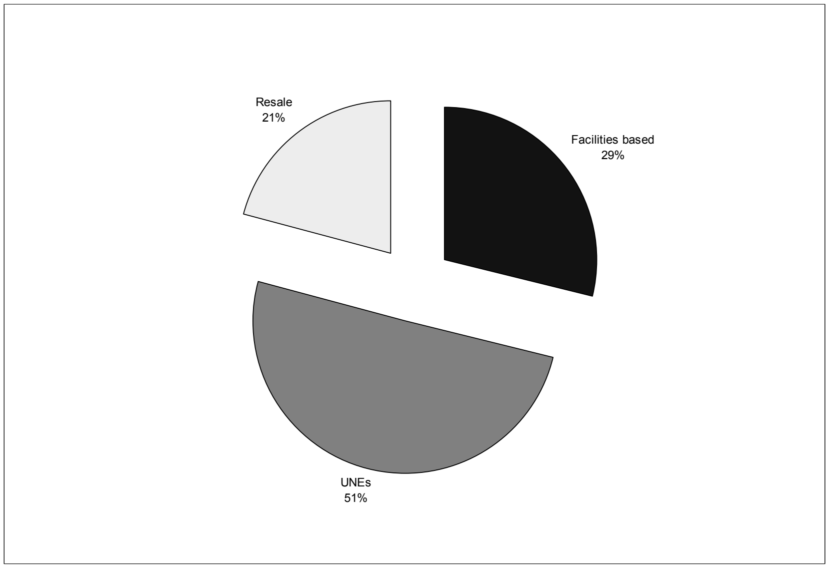
	Residential	Business	UNE Rate residential	UNE Rate Business
Texas	21.6%	21.6%	$20.42	$40.10
Missouri	19.2%	19.2%	$20.60	$47.54
Kansas	21.6%	19.5%	$19.57	$31.87

Sources: T2A, M2A, K2A agreements; UNE data from Gregg, 2003, Tables 3 and 4.

Competitors and would-be competitors have argued in favor of retaining and strengthening the regulatory tradition of UNE-P. "The UNE-P allows competitive local exchange carriers to provide local phone service using primarily the ILECs' network, thereby reducing the sizeable up-front and sunk investment typical of facilities-based entry into the local exchange market. UNE-P is the most successful and highest growth mode of competitive entry for residential consumers in the industry today and, as such, is the mode of entry most under attack by the BOCs" (Ford and Beard, 2002).

Incumbents argue that a phase-out of UNE-P could prevent competitors from using UNE-P for "cherry-picking" high revenue customers without making infrastructure expenditures. Verizon's Senior VP Tom Tauke has said that "incumbents didn't want to invest in new network capabilities that would be used against them by their competitors at discount prices while CLECs didn't want to invest because it was cheaper to lease incumbents' networks" (Communications Daily, November 13, 2002). ILECs argue that federal UNE-P relief would stimulate infrastructure build-out. However, a financial study by UBS Warburg projects only a 2.35 percent increase in Bell capital spending through UNE-P relief. Warburg indicates Bells might increase capital spending further to "'make the FCC look good' since Bells have been arguing that UNE-P deters investment. However, it's doubtful spending could rise enough to cause significant improvement in outlook of telecom equipment vendors" (Communications Daily, January 8, 2003). **Figure** 1 underscores the popularity of the UNE strategy.

Figure 1. CLEC National Entry Strategies as of June 2002



Source: Public Utilities Commission of Texas, 2003a, Figure 3.

One study argues the relative losses to incumbents by different modes of competition.

Table 4 Comparison of incumbent carriers' margins, per POTS line (territory averages)

documents some of those trade offs. For SWBT, "losing a customer to a UNE-Loop provider (-$23 [per month]) has a larger effect on profits than losing a customer to the UNE-Platform provider (-$14). *Most harmful to Bell Company profits is a loss to facilities-based provider* (-$37). Migration from a UNE-Platform competitor to a UNE-Loop competitor reduces profits by $9 per month. The expected loss in margin from a lost retail customer is $15.35, but that expected loss is reduced to $3.45 per lost customer by eliminating UNE-Platform as a viable entry strategy. Thus, eliminating the UNE-Platform increases Bell Company profits" (Ford, 2002, p. 7, original italics). The Phoenix Center, a telecom think tank, estimates wholesale operating costs at "about $10 per line across the BOCs (Beard and Klein, 2002, p. 3)." Earnings before interest, taxes, depreciation and amortization (EBITDA) margins are "positive and average over $14 per line per month. Operating margins (or EBIT, earning before interests and taxes) are also positive, and average 40 percent of revenues" (Ford, 2002, p. 3).

Table 4 Comparison of incumbent carriers' margins, per POTS line (territory averages)

UNE-P	**Wholesale** Revenues	**EBITDA** Costs	**EBIT/** Margin	Operating Margin
Verizon	24.43	10.42	14.00	9.42
BellSouth	32.80	9.46	23.33	18.75
SBC	20.57	9.91	10.67	6.08
Qwest	24.63	9.93	14.70	10.12
BOC-Wide	24.43	9.99	14.43	9.85

Source: Beard and Klein, 2002, p. 3.

E. Should line sharing be included in an UNE?

Line sharing occurs when a competitive telco or ISP provides DSL service to the voice customer of an incumbent carrier. For example, in some areas Birch provides DSL to the same customer who orders local phone service from Southwestern Bell. New competitors have presented line sharing requests to ILECs, state regulators, and the FCC, and the FCC required incumbents to lease the high frequency portion of the local loop spectrum to competitive providers of DSL. With the FCC's 1999 Line Sharing Order, ILECs became obliged to lease the high frequency portion of the copper loop's spectrum to competitive providers of DSL.[6] However, in 2002, the US Court of Appeals for the DC Circuit remanded the 1999 FCC line sharing order, which had been the basis for state regulation of line sharing agreements between carriers. The Texas market has operated under an interim line sharing arrangement imposed by the Public Utility Commission of Texas (PUCT) until the US-FCC (or the US Supreme Court) acted on the DC Circuit decision. The February FCC decision presumably obligates incumbents to lease that portion of the local loop spectrum that states decide falls under their authority.

F. Should SWBT line share on its Project Pronto network?

Project Pronto is the name of Southwestern Bell Telephone's digital network overlay within its 13 state territory. It was designed to extend DSL access into rural areas. Pronto uses next generation digital loop carrier ("NGDLC") architecture with fiber optic cable connecting network facilities. Competitive telcos have argued before the Texas PUCT that SWBT network upgrades via Project Pronto should permit equitable line sharing for POTS. PUCT ordered SWBT to provide UNEs for the Project Pronto architecture in its Revised Arbitration Award (Docket No. 22469, September 21, 2001). However, PUCT abated proceedings on this docket in October, 2002, and UNE pricing for Project Pronto was left unresolved. The Texas PUCT estimates that it will complete all its work to "establish rates, terms, conditions, and related arrangements for 'line

[6] "Without this sharing of loops, the Commission concluded a new entrant that did not provide voice service would be impaired –indeed, precluded—from providing the DSL services that 'it seeks to offer'" (WorldCom, Inc., AT&T Corp., and Covad Communications Company, 2002, p.10Petition v. USTA, 2002, p. 10).

sharing'" by Q2, 2003 (PUCT, 2002). Whether this architecture qualifies as 'old lines' or 'new lines' for regulatory and price setting purposes will probably fall to state regulators.

G. Should PUCT pursue structural separation of SWBT?

Structural separation would formally eliminate cross-subsidies between wholesale and retail operations of an incumbent telco such as SWBT. Birch Telecom has asked the PUCT to address structural separation and alternative regulation of ILECs. Birch's argument is that "any expectation that SWBT could on its own create effective, internally-enforced incentives to promote competition against itself was overly optimistic" (Birch Telecom, 2002, p. 4). Texas regulators acknowledge the problem: "Currently, incumbent local exchange carriers (ILECs) are structured so that they have both retail and wholesale operations together in one company. An ongoing debate in the industry is the issue of whether the ILECs (or, specifically the Regional Bell Operating Companies (RBOCs) such as Southwestern Bell Telephone Company (SWBT) and Verizon) should be required to separate their wholesale and retail operations into separate companies in the interest of competitive neutrality" (PUCT, 2003a, p. 111).

The PUCT agreed to hear the structural separation petition in a new docket (26817), writing, "the wholesale operations of an incumbent local exchange carrier (ILEC), such as SWBT, have strong incentives to treat their own retail operations better than customer-competitor CLECs" (PUCT Staff, 2002, p. 4). PUCT notes that Pennsylvania, Florida, and New Jersey have considered structural separation, and that although no state has yet made the reform, "this concept of divestiture or structural separation in the telecommunications industry has been the topic of discussion, on and off, for the last fifty years" (PUCT, 2002, p.110).

H. Can cable and wireless become substitutes for DSL?

Wireless broadband technologies, using both licensed and unlicensed spectrum, increasingly will affect the supply side of broadband markets. "Cable modem service currently dominates the residential broadband market and is not likely to be threatened by DSL or wireless broadband Internet access service in the foreseeable future" (Cooper, 2002, p. 3).

Standard and Poor proposes that while cable modem access to broadband Internet is strong now, market saturation and growth drop-off could begin within three years. Then, "cable will look for a new growth candidate, and cable telephony may well be it" (Communications Daily, November 27, 2002). Cable telephony –telephone service offered through the same coaxial cables that carry cable TV to subscribers– will dramatically change the competitive dynamics of local phone service where it is introduced.

Wireless broadband platforms such as WiFi and UNII (Motorola's "Canopy" service) utilize unlicensed spectrum, paying no fees to operate interactive broadband networks with Internet gateways. These systems are starting to proliferate. For example, major computing and networking companies such as AT&T, IBM, and Intel are completing projects to deploy a national network using interconnected WiFi "hot spots." Boingo Wireless, a prominent WiFi industry player, recognizes that WiFi users need a national footprint and roaming capabilities between the small areas of coverage ("hot spots") before a mass market can materialize (Communications Daily, December 2, 2002). Wireless broadband platforms will also support third generation ("3G") mobile broadband handsets, which can send and receive audio and video streams.

Wireless broadband can enhance broadband competition in at least two ways. First, it offers consumers an alternative to a wired broadband connection via DSL or cable modem. Second, it can become an "intermodal" platform for transferring data streams–of voice telephony, of streaming media, or other streams, from one broadband platform to another. Some analysts envision mobile devices similar to cell phones that will support voice telephone service using the inexpensive Voice over Internet Protocol (VoIP), rather than using expensive, tariffed long distance. However, Moody's does not identify significant opportunities for wireless substitution for ILEC services in the near term (Communications Daily, November 22, 2002), and wireless technologies do not constitute a present-day competitive threat to broadband cable providers.[7]

Fixed wireless providers use licensed broadband spectra such as Multi-channel Multi-point Distribution Service ("MMDS") and Instructional Fixed Television Service ("ITFS") to provide broadband service. New mobile wireless broadband services, including 3G, are allocated in the MMDS and ITFS bands.

With these questions as background, in the next section we present data illustrating the market structure of basic phone service and broadband in TX, KS and MO. The results provide a gauge of UNE-P's significance as a launching point for competition. They also provide some indication of the extent to which broadband services in all regions of these states has materialized, which may lead in turn to an assessment of the efficacy of the FCC's recent actions regarding incumbents' investment in new high speed Internet facilities.

[7] Senators Allen and Boxer sent "Dear Colleague" letters promoting the expansion of the unlicensed "WiFi" band (Communications Daily, November 21, 2002).

III. Competition in Texas, Missouri and Kansas

A. Local Service Overview

This section will present data on CLEC competition and UNE-P in Texas, Missouri, and Kansas. The data suggest that competition is strongest in Texas, and considerably weaker in both Kansas and Missouri (Table 5). The UNE-P findings parallel national statistics illustrating the strong advantages of using UNE-P as a mode for competitive entry.

SBC refers to line "capture" as the loss of a line to a rival carrier. The rate of line "capture" by competitors is one indicator of the state of competition in POTS.

Table 5. Total SBC Lines Captured (includes resale)

	CLEC lines from SBC	SWBT lines In state	Capture from SBC	UNE-P as a % of capture
Texas	3,194,997	10,128,429	32 %	44
Kansas	259,614	1,390,959	19 %	56
Missouri	408,000	2,679,499	15%	32

Sources: Tebeau, 2001; Gregg, 2003; and Missouri, 2002

Overall CLEC end-user switched access penetration for Texas at the close of 2002 was 16%, compared to Missouri's rate of 8% and Kansas' rate of 12%. The national average for CLEC end-user lines was 11.4% in 2002 (FCC, 2002d). The Texas SBC telephone market is one-third captured by competitive local access carriers (CLECs). SBC in Kansas is one-fifth captured, and Missouri is 15% captured. Resale of SWBT lines leased at wholesale rates, UNE-Loop, and UNE-P all contribute to the total capture figures.

The percentage of lines delivered with UNE-P is a good indicator of the general state of competition in POTS (Figure 2). Texas leads the three states in UNE-P penetration rates, and has been used as a benchmark for state regulators who have considered SBC's entrance into their states.

Figure 2. UNE-P as a Percent of Total SBC Lines

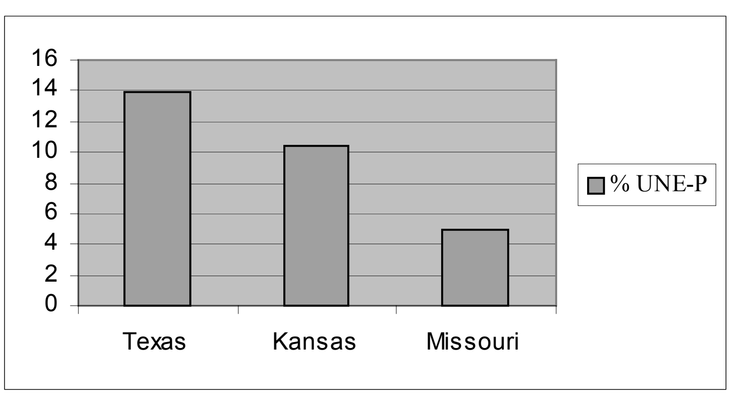
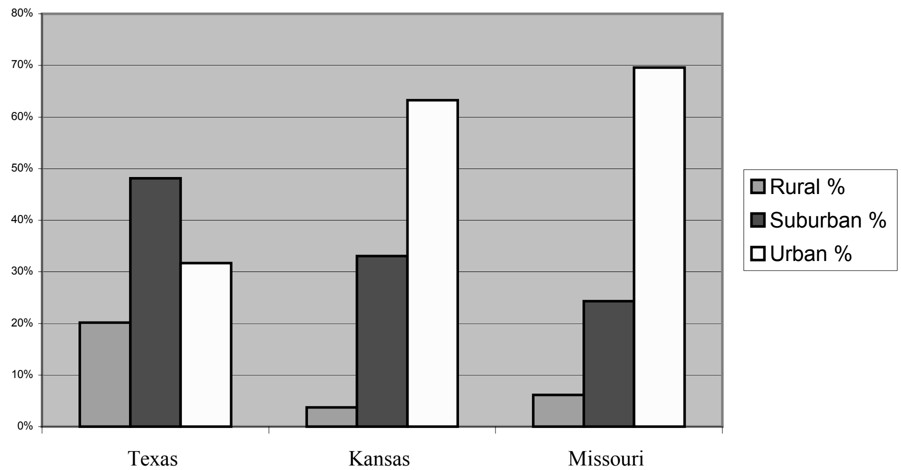


Figure 3. UNE-P by Geography



	Rural	Suburban	Urban	Total	% total SBC lines
TX	20%	48%	32%		13.9%
	284,506	678,015	447,076	1,409,597	
					10,128,429
MO	6%	24%	70%		4.9%
	8,101	32,195	92,130	132,426	
					2,679,499
KS	4%	33%	63%		10.4%
	5,391	47,889	91,698	144,978	
					1,390,959

Sources: CompTel, 2002, and Gregg, 2003

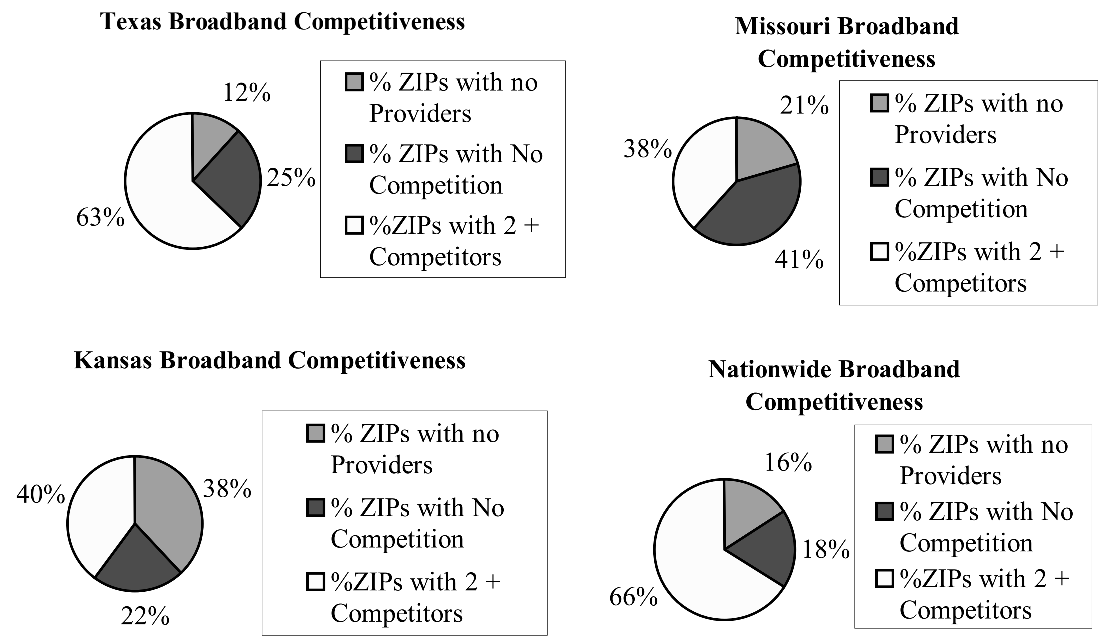
As Figure 3 illustrates, competitive local exchange carriers have deployed UNE-P to urban and suburban areas in greater proportion than to rural areas, perhaps unsurprisingly, given business and population densities. UNE-P has been most successful in Texas, but even in Kansas, the platform has contributed to improved competition. The very low rural figures in MO and KS are a striking comparison to Texas, although all rural regions lag behind suburban and urban areas, duplicating national trends.

B. Broadband Overview

In 2002, the FCC counted the numbers of providers of high speed Internet access lines with DSL and cable modems. Their use of ZIP codes as a geographical unit of analysis biases the study by skewing toward urban areas: urban areas have more ZIP codes than suburban areas, and suburban areas have more ZIP codes than rural areas. Nevertheless, as indicators of competition, they provide another basis for comparison.

Figure 4 and Table 6 show the ZIPs with no providers, the ZIPs with no competition, and the ZIPs with competition. Of the three states, Kansas has the greatest number of zip codes with no providers, and it lags the other two states in percentage of zip codes with two or more providers. Missouri and Kansas exceed national averages of ZIP codes that lack any high speed provider.

Figure 4. Broadband Competitiveness Comparison



Source: Source: FCC High Speed, 2002.

Table 6 Broadband Competitiveness by Zip Code

	% ZIPs with no Providers	% ZIPs with No Competition	%ZIPs with 2 + Competitors
Texas	13	15	72
Missouri	24	24	52
Kansas	38	22	41
Nationwide	16	18	65

Source: Source: FCC High Speed, 2002.

Table 7 Percentage of Zip codes by Number of Providers

	Zero	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10+**
Texas	13	15	15	11	8	7	6	4	3	3	15
Missouri	24	24	18	13	5	4	3	2	4	3	0
Kansas	38	22	15	6	5	5	5	3	1	1	0
Nationwide	16	18	16	13	19	7	5	3	3	2	6

Source: Source: FCC High Speed, 2002.
Note: The FCC's Kansas and nationwide percentages add up to 101 and 99, respectively.

Table 7 shows that Texas has more robust competition, with numerous alternative providers, in many zip codes. However, there are 13% of the zip codes that have no provider and another 15% that have only one source of broadband connectivity.

Broadband cable subscriptions in Texas far exceed subscriptions in Missouri and Kansas. There are 246,500 cable modem subscribers in Texas, 68,400 subscribers in Missouri, and 41,350 subscribers in Kansas (Table 8).

Table 8 High-Speed Data Cable Subscribers, Per Capita

	Cable 'b'band accounts	Households	Penetration by 'h'hold
Texas	246498	7,393,354	3.33%
Missouri	68399	2,194,594	3.12%
Kansas	41352	1,037,891	3.98%

Sources: US Census (2001). Households and Families: 2000. September, 2001. http://www.census.gov/prod/2001pubs/c2kbr01-8.pdf

C. State Focus: Texas

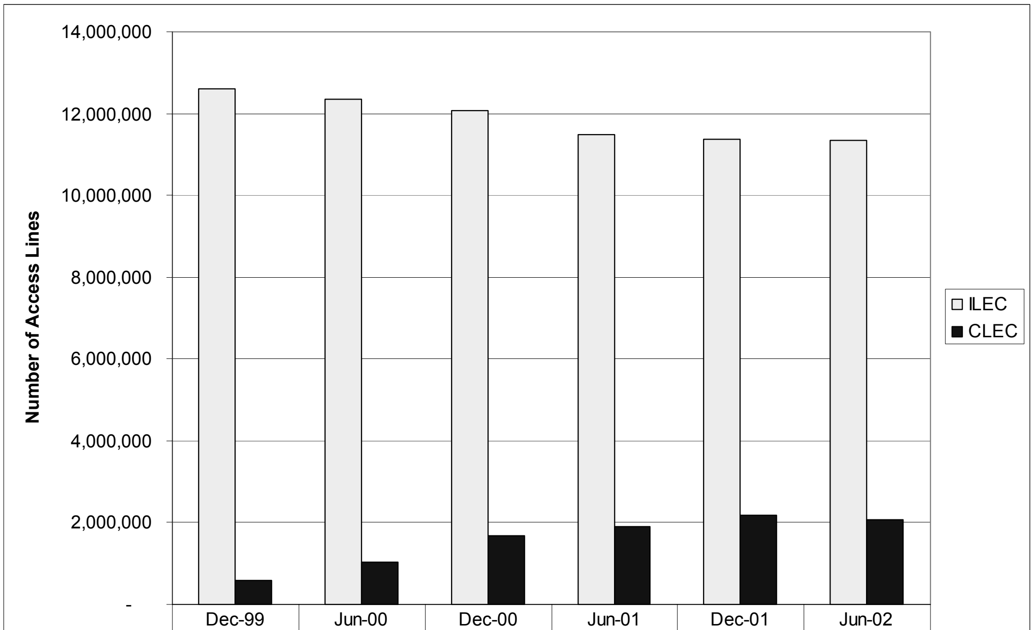
1. Local service

Texas is widely regarded as a success story in telephone deregulation. The Public Utilities Commission of Texas has adhered to a cost-based model for tariffs, as required by the Telecommunications Act of 1996, and it initiated deregulation ahead of the federal legislation in 1995. In the interconnection negotiations nicknamed the "Mega-Arbitration" by the PUCT, the Commission ordered SWBT to provide the complete UNE-P. Southwestern Bell's interconnection agreement for its Texas territory is a model for other states such as Kansas and Oklahoma (Sparks, 2001), where the company had its "271 applications" for competing in the long-distance market approved in January, 2001.

SBC claims that its Texas market for local competition is robust: "340 competing companies have been certified by the Texas PUC to provide local service in Texas and 180 are actively passing orders to SBC Southwestern Bell. In 2001, SBC processed more than 6.86 million orders from competitors for access to its Texas network. More than 16.6 million telephone numbers have been assigned to CLECs in Texas. To carry traffic between SBC and CLEC locations, SBC has provisioned more than 580,811 interconnection trunks in Texas. Since January 1, 1997, SBC Southwestern Bell and its competitors in Texas have exchanged more than 12.89 billion minutes of use over interconnection trunks" (SBC Regulatory Affairs 2003).

Figure 5 presents some current statistics on incumbents and competitors providing local services.

Figure 5. ILEC vs. CLEC Lines in Texas



	Dec-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02
ILEC	12,601,936	12,349,899	12,063,098	11,496,247	11,365,441	11,350,694
CLEC	586,111	1,042,606	1,687,586	1,891,131	2,166,033	2,078,465

Source: PUCT (2003a), Figure 7.

PUCT reports significantly fewer CLEC lines (1.1 million) in service in 2000-2001 than did SBC in 2001 (Tebeau, 2001, p. 3), and its statistics indicate that line capture growth by CLECs appears to have reversed beginning in 2002. The figures in Table 9 draw on an SBC filing (with the larger CLEC statistics) showing some indicators of competition in Texas, with the last column coming from the FCC June 2002 data. The FCC identified far fewer CLEC-owned, facilities-based lines than did the PUCT or SBC. No matter whose figures one believes, this table reveals that recent UNE-Loop growth was high between 2000-2001.

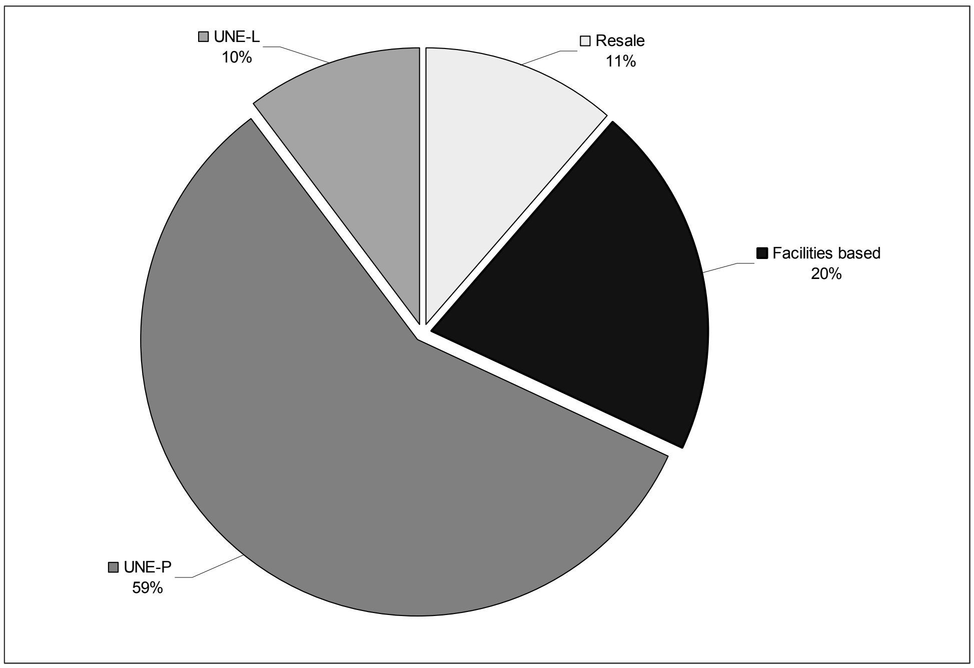
Table 9. Growth in Competitive Indicators from Texas 271 Approval July 2000 to June 2001

	Jul-00	June-01	% Growth	FCC data 2002
Facilities Based (FB) Lines Captured by FB CLECs	1,838,004	2,910,525	58%	405,593
Total Lines Captured (includes resale)	2,224,508	3,194,997	44%	2,170,914
Interconnection Trunks	496,361	618,288	25%	
Unbundled Stand-Alone Loops	86,402	143,446	66%	223,433
UNE Loop/Port Combinations	472,249	1,210,233	156%	1,541,888
E911 Listings	398,957	580,173	45%	

Source: Smith, 2001 p. 15; FCC 2002d. Note FCC UNE data is for UNE-P.

The PUCT's 2003 survey of carriers confirms that UNE-P is the most popular mode of market entry in Texas (Figure 6). However, in many rural regions that are served by ILECs not subject to UNE-P provisioning requirements, CLECs are not able to purchase UNE-Ps for rural customers. The level of competition is much lower in rural areas, and the cost of UNE-P is much higher (Figure 7). Competitive carriers use UNE-P to deliver local telephone service to almost two-thirds of their urban and suburban customers. In rural areas, facilities based provisioning is used most frequently, followed by UNE-P, total services resale, and UNE-Loop (Figure 7 and Table 10).

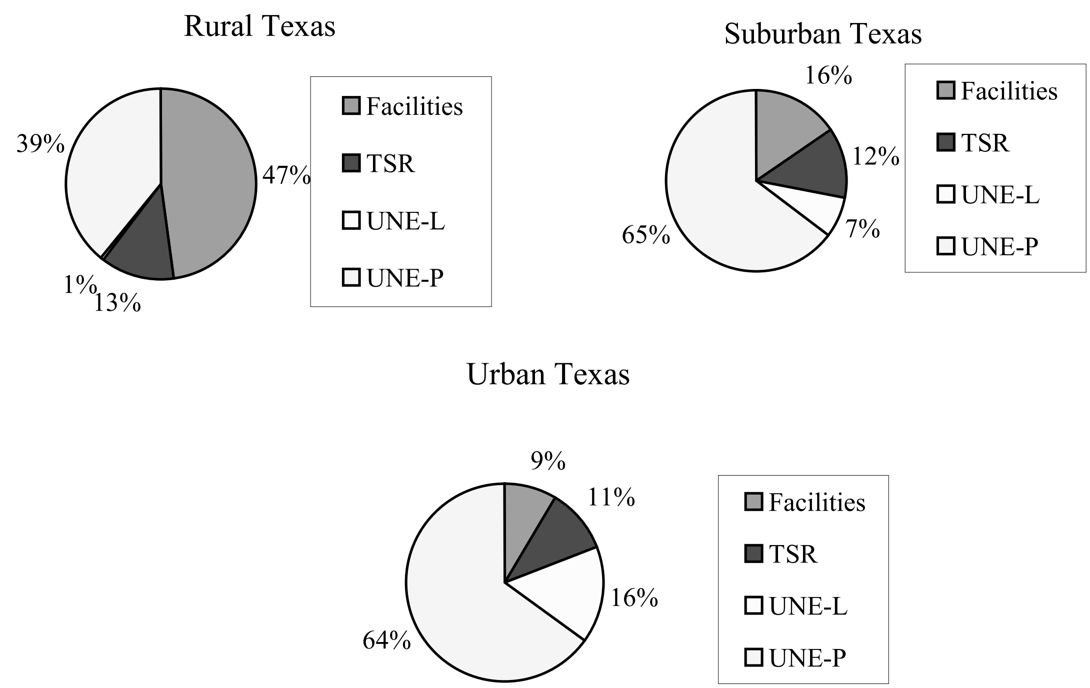
Figure 6. CLEC Lines by Entry Strategy in Texas, as of June 2002



Source: PUCT 2003a, Figure 9.

Although the PUCT figures do not reflect it, one study by competitive carriers insists that UNE-P has been especially successful in the smallest rural Texas markets. "In the 50 largest wire centers in Texas (where the average central office serves more than 100,000 access lines), the UNE-P penetration is 8 percent, while at the other end of the spectrum (in the bottom tier of Texas CO's that serve, on average, only 485 lines), UNE-P's penetration is even greater (over 20 percent)," (PACE, 2002, p. 3), and "UNE-P is only capable of *extending* urban competition to rural markets, however, if it is *universally* available. The reason competitive choice is enjoyed in rural Texas is because UNE-P is also able to compete in urban markets. Significantly, more than one-half of the total UNE-P lines in Texas are located in the top two tiers (i.e., the 100 largest wire centers), providing the market foundation that enables UNE-P to be offered across the rest of the state" (PACE, 2002, p. 4). In other words, because UNE-P is available in many Texas markets, non-facilities based competitive carriers are also able to compete in the smallest rural communities, even with a small number of potential customers.

Figure 7. Texas Availability



Source: PUCT, 2003a, Table 6

Table 10 Geographic area by entry strategy

	Facilities	TSR	UNE-L	UNE-P	Total
Rural	269,300	71,684	3,036	220,393	564,413
Suburban	51,681	40,877	23,615	214,311	330,484
Urban	102,741	124,401	186,345	769,272	1,182,759

Source: PUCT, 2003a, Table 6

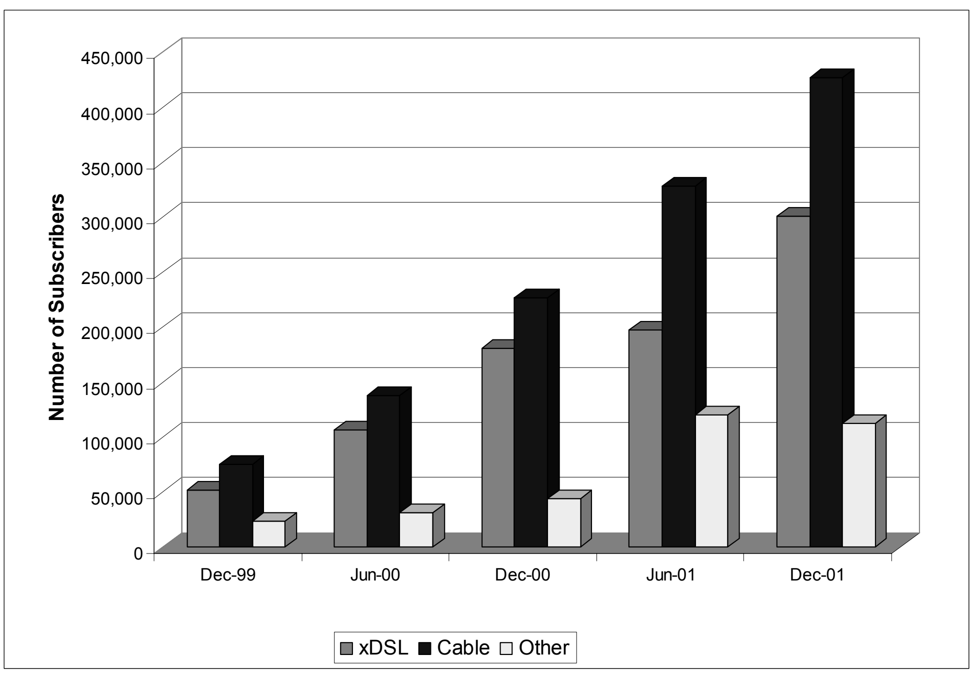
No descriptive statistics have been released by the PUCT that relate to UNE-P pricing. The TIPI UNE-P pricing study is included in this report for the purpose of evaluating the cost basis for competitive provision of POTS in Texas, Missouri, and Kansas.

2. Broadband

Most of the roughly one million Texan households, businesses, and public access points with broadband Internet access use cable modems. Of the broadband lines in Texas, 89 percent connect residences and small businesses, and the remaining 11 percent connect medium and large business, institutional, or government end-user customers. Fifty-five percent of high-speed services are delivered via cable, 35 percent are delivered over asymmetric digital subscriber line (ADSL), and 10 percent are delivered via another means (including, optical fiber to the subscriber's premises, satellite, and terrestrial, and fixed wireless systems) (FCC, 2002b, Tables 7 and 8). Figure 8 illustrates the growth in broadband subscribers over time in Texas.

The state's Broadband Policy Forum's Report to the 78th Legislature (Texas House Committee on State Affairs, 2003) demonstrates that there is a dearth of telecom infrastructure information available to citizens, regulators, and legislators. Broadband maps could help policymakers determine competitiveness levels across the state and identify areas at risk of monopolistic pricing practices or the emergence of a "digital divide." "Some participants identified the lack of information about Texas' telecommunications infrastructure as an issue. These participants stated that this limits the efforts of local communities to secure broadband services, ultimately hindering community and economic development. These participants suggested that ensuring public availability of maps or databases of Texas' telecommunications infrastructure would help spur deployment. Others suggested that national security concerns may be a limiting factor on the type of specific information that could be made available to the public. An additional drawback to developing a comprehensive inventory is that the universe of relevant technologies includes those provided by entities not subject to regulatory oversight by the state and/or the federal government" (Texas House Committee on State Affairs, 2003, pp. 15-16).

Figure 8. Number of Subscribers

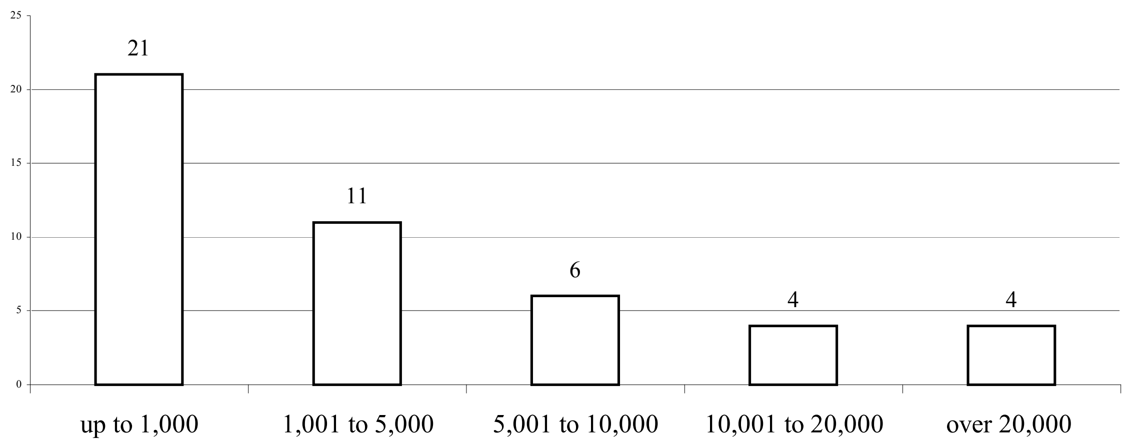


Source: *PUCT*, 2003a, Figure 19

Indeed, much information about infrastructure availability—for both basic and advanced services—is redacted from public record in PUC dockets, withheld as "trade secrets," or derived from private, third party datasets. The information that does exist and that is of value to policy makers is restricted by commercial licenses. The basic knowledge about competitiveness that could help decision makers is too expensive, too restricted by third party data services, or both.

TIPI's data indicate that 46 cable companies serve Texas' 246,500 cable modem subscribers (Figure 9). Statewide, 21 providers currently serve 1,000 or fewer subscribers, and 4 serve 20,000 or more subscribers.

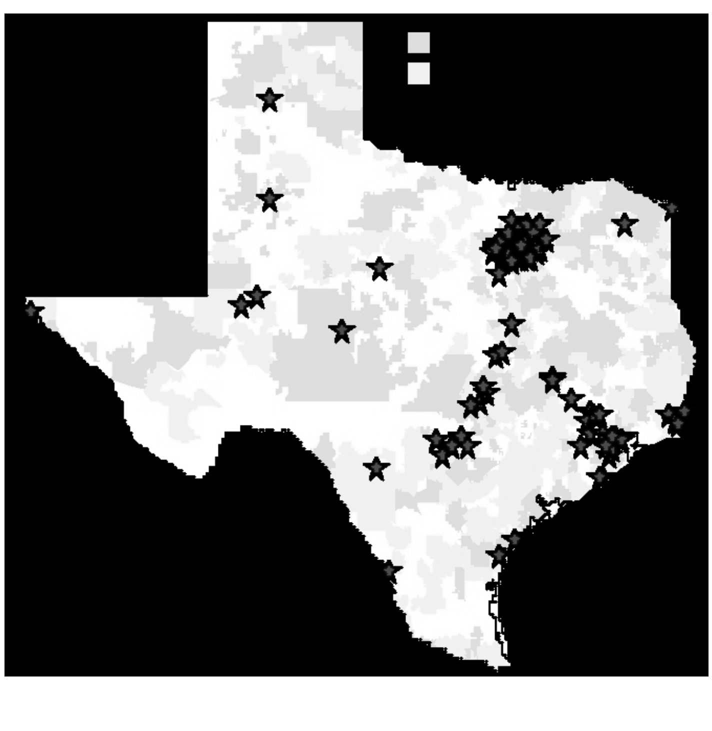
Figure 9. Texas High Speed Cable Data Providers, by Subscribers Served



Source: TIPI

The PUCT released a map of DSL availability by ZIP code based on the 2002 FCC broadband study that shows predictable concentrations in Dallas-Fort Worth, along the Austin-San Antonio corridor, and in the Houston area (Perlman, 2002). Our own maps confirm this (see appendix D).

Figure 10. DSL Availability



This map provides a “50,000 foot view” of the state (
Figure 10). Its level of detail is insufficient to identify communities within the stars, which may still not have DSL-ready infrastructure throughout their borders. This map also does not identify broadband competitors to SWBT or Verizon.

Our maps in Appendix D present composite data on cable and DSL availability, as well as locations of local loop and cable/DSL competition in Texas. The third map in the series plots voice and broadband competition against low, medium and high population density regions in the state. It is evident that there is competition both in the dominant ILEC regions as well as in some regions served by smaller independent or cooperative telephone companies. Cable/DSL competition occurs primarily in larger metropolitan regions, although there is at least some availability of cable broadband services in rural regions. The population density map qualifies the level of competition by illustrating that it is occurring generally in areas of higher population density. Low population density regions have far fewer choices.

D. State focus: Missouri

FCC statistics for Missouri report CLEC penetration at 8% although SBC, the provider of most of the state's lines, reports a higher figure. Competition is not proceeding as quickly in Missouri as in either of the other two states, and it tends to be highly localized in the population centers of Columbia, Springfield, Columbia, St. Louis and Kansas City. There is little direct competition between cable broadband and DSL providers, although we note that there are small pockets of broadband service in many additional rural locations in the state. The top three ILECs in the state face CLEC competition almost entirely in urban regions. Prices charged to competitors for use of incumbents' networks are higher in Missouri than in Kansas, and many question its legitimacy.

1. Local service

Competitiveness figures in Missouri are difficult to ascertain. SBC releases widely varied line totals, and public sources of information also demonstrate significant discrepancies. Missouri's Public Service Commission writes that, "as of July 2001, it is estimated that competitors provide service over 408,000 telephone access lines in Missouri, or approximately 12 percent of Missouri's approximately 3.4 million access lines" (Missouri PSC, 2002). This estimate is more generous than SBC's own figure on CLEC market share, which is 267,000 lines, or 9.4 percent (Tebeau, 2001, p. 3), compared to the FCC's 2002 figures at 8%. Line growth and non-uniform reporting may contribute to the discrepancies.

Based on an analysis of all available SBC filings, estimates of UNE-P as a percentage of all competitively provisioned lines in Missouri fall between 32 and 57 percent (Tebeau, 2001; Smith and Tebeau, 2001; CompTel, 2002).

The breakdown of UNE-P penetration rates by geography suggests that very little rural competition exists in Missouri, with only 6 percent of UNE-P lines serving rural regions. Suburban and urban areas enjoy substantially higher rates of competition, with 24 and 70 percent of the UNE-P market, respectively (CompTel, 2002, Table 3). Our Missouri maps in Appendix D appear to confirm this finding and further illustrate the strong effect of population density.

SBC's 271 petition to provide long distance service in Missouri was accepted at the state level, but was subsequently withdrawn in 2001. "After a thorough and extensive investigation, the Missouri Commission on March 15, 2001, recognized SWBT's market opening efforts and approved SWBT's application to provide long distance service in Missouri. After receiving this approval, SWBT filed its long distance application with the FCC on April 4, 2001. Due to federal court rulings and other circumstances that occurred after SWBT's application was evaluated by the Missouri PSC and after the DOJ requested the FCC conduct an independent appraisal of SWBT's Missouri prices, SWBT withdrew its FCC long distance application on June 7, 2001. In recognition of the concerns expressed by the DOJ and other parties, as well as to re-evaluate more recent federal court rulings, SWBT agreed to reduce certain prices it charges to competitors for the use of portions of SWBT's network" (Missouri PSC, 2002). SBC re-filed its petition in August, 2001, and was permitted to provide long distance service in November, 2001.

SBC claims that the local market is competitive in Missouri. "Competitors in Missouri are serving as many as 465,000 facilities-based and resold access lines or, between 10.2 percent and 15.3 percent of the access lines in Southwestern Bell territory in the state. SBC has more than 110 approved interconnection and/or resale agreements with CLECs in Missouri. SBC has installed more than 114,000 interconnection trunks to send calls to and from CLEC customers in Missouri. Approximately 27 CLECs are currently providing facilities-based local voice service in Missouri. As of July 1, 2001**,** SBC had processed more than one million orders from competitors for access to its Missouri network. Local competition is increasing: between June 2000 and June 2001, CLEC UNE loop/port combinations grew 146 percent while stand-alone loops grew 184 percent" (SBC, 2001). Although SBC's total line figures are higher than the Missouri PSC's, the incumbent and the utility commission both estimate capture at about 15 percent.

Missouri's high rates for UNEs and UNE-P have been researched by the US Department of Justice. A comparison of Universal Service Fund costs for Missouri with those of Texas and Kansas suggests that the difference in the tariffed prices among the states exceeds any real cost differences between the states. "The comparison of Missouri and Kansas is particularly telling as these are adjacent states with nearly identical costs, according to the USF model. Despite this apparently close cost relationship, Missouri average loop rates exceed Kansas rates by 20 to 25 percent, and Missouri switch usage rates exceed those in Kansas by more than 50 percent. This significant price differential … is greater than the apparent cost differential" (DOJ, 2001b).

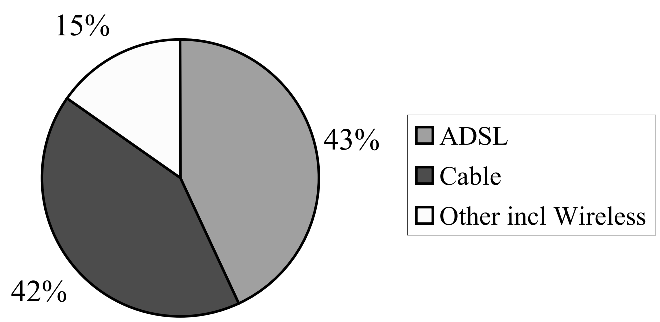
SBC-Missouri's switching usage and loop rates are "unreasonably high" compared to the rates in the three nearby states in which SBC has received long distance authority under Section 271 of the 1996 Act [Kansas, Oklahoma, and Texas]: "The relationship among both the switching and loop rates in Missouri, Kansas, Oklahoma, and Texas is also inconsistent with the relationship among the unbundled network element ("UNE") costs for these states" (Frentrup, 2001, p. 2).

Complicating the UNE-P picture in Missouri is the problem that "SBC has not submitted all the cost studies it used in Missouri to determine its rates. Absent these cost models, and the full sets of inputs used in the models, SBC has not met its burden to show that its rates are cost based" (Frentrup, 2001, p.2). Also, "the methodology used to set UNE rates in Missouri is not TELRIC based. Even though WorldCom has not been able to see all the models and inputs, there are several issues with the models used, as well as with the inputs used in those models, that suggest that the Missouri Public Service Commission did not follow TELRIC principles" (Frentrup, 2001). SBC responded to the criticisms in its 271 filings.

2. Broadband

The FCC's 2002 high speed Internet access survey found almost 124,000 broadband lines in use in the state (Figure 11).

Figure 11. Missouri High Speed Lines

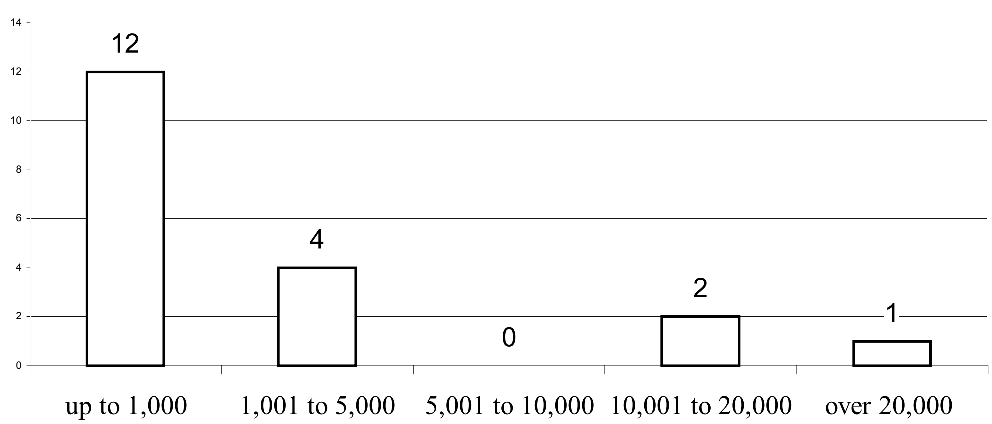


ADSL	Cable	Other incl. Wireless	Total
53,250	51,733	18,932	123,915

Source: FCC High Speed, 2002

Missouri's 68,400 cable modem subscribers are served by 19 cable providers statewide. Of these providers, 12 service fewer than 1000 subscribers, and one services over 20,000 households (
Figure 12).

Figure 12. Missouri High Speed Cable Data Providers, by Number of Accounts Served



Source: TIPI

Missouri's "broadband parity" bill, HB 142, would "prohibit the Public Service Commission from regulating high-speed Internet access or broadband service. The bill also requires incumbent local exchange telecommunications companies to provide unbundled access to network elements only to the extent required by federal regulations" (Missouri legislature, 2003). Its companion, SB 221, "Prohibits the PSC from imposing any restrictions on high-speed Internet or broadband services" (Missouri legislature, 2003).

E. State focus: Kansas

1. Local service

FCC 2002 statistics show that CLECs serve 12% of all end-user lines in Kansas, just slightly above the national 11.4% average. Figures from SBC's 2001 "Growth in Competitive Indicators" (Smith, 2001, **Error! Reference source not found.**) illustrate once again growth in competitors using unbundled elements. FCC statistics from 2002 for the entire state report a total of 176,322 lines served by CLECs, 131,846 or 75% using UNEs.

Table 11 Growth in Competitive Indicators for Kansas

	Feb-01	June-01	% Growth
Facilities Based (FB) Lines Captured by FB CLECs	151,662	182,043	20%
Total Lines Captured (includes resale)	233,100	259,614	11%
Interconnection Trunks	37,784	46,760	24%
Unbundled Stand-Alone Loops	5,785	8,390	45%
UNE Loop/Port Combinations	47,684	53,453	12%
E911 Listings	26,783	29,012	8%

Source: Smith, 2001, Table 8.

As with Missouri and Texas, the UNE-P picture gives an indication of competitiveness in local service. Again, rural areas exhibit a lower level of competitiveness than suburban and urban areas. Nearly two-thirds of the lines serviced by UNE-P are for urban customers, and one-third of UNE-P lines service suburban customers. One source indicates that only four percent of UNE-P lines in service are in rural areas (CompTel, 2002, Table 3). Our maps confirm relatively sparse local loop competition in Kansas (see Appendix), although there is some CLEC activity in both the dominant (SBC, Alltel, Sprint/United) and some non-dominant ILEC territory.

SBC has argued before the Kansas Corporation Commission (KCC) that there is strong competition in Kansas. "Competitors are doing business in 100 percent of Southwestern Bell's wire centers and in 100 percent of the counties served by Southwestern Bell in Kansas. 135 companies had been certified by the KCC to provide local service in Kansas. 92 companies have signed interconnection agreements with SWBT, with 51 actively passing orders to Southwestern Bell in Kansas…. More than 1.5 million telephone numbers have been assigned to CLECs in Kansas" (SBC, 2000). However, our investigation shows that competition is not geographically widespread; rather, it is arrayed largely along the Interstate running east-west through Kansas except for the Dodge City location. We find nine locations of CLEC activity in the non-dominant carrier regions, and about seven regions of CLEC activity in dominant carrier territory (see Appendix D).

2. Broadband

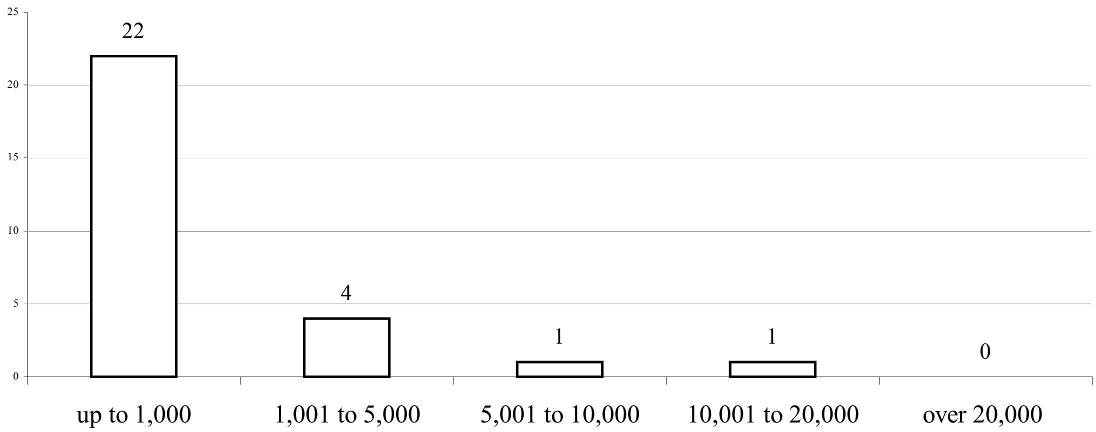
In 2002, the FCC reported that 74,337 cable modem lines were operating in Kansas the previous year (FCC, 2002b). Twenty-eight cable providers serve cable modem subscribers, twenty-two serve 1,000 accounts or fewer, and none serve over 20,000 accounts (Figure 13). Our investigation (see map in Appendix) shows cable broadband services in many rural areas, particularly in the southwest corner of the state. Cable modem opportunities are by no means ubiquitous, but they do appear in the least populous markets.

The FCC also reported a total of 101,734 high speed lines active in the state. However, the agency redacted the figures counting the number of ADSL and other broadband lines. The Kansas Corporations Commission's ("KCC") study on DSL availability in 2000 (Kansas, 2002) estimates there would be 34,515 xDSL lines in service in 2002. Through a negotiation with the KCC, SWBT, the dominant ILEC in Kansas, is required by August, 2003 to deploy xDSL with "near ubiquity" throughout its territory in Hays, Hutchinson, Kansas City, Lawrence, Manhattan, Salina, Topeka and Wichita. The Commission reported "SWBT has made DSL available to 56 percent of its [Kansas] customers. SWBT reports that it has 27,379 DSL lines in service with a subscribership rate that ranges from 1.22 percent to 8.69 percent depending upon the wire center in question" (Kansas, 2002). The KCC is also requiring Sprint/United to deploy ADSL service to four rural communities on a timetable.

Our voice and broadband data competition map (Appendix) illustrates that there is some competition in low population density regions of Kansas, although far more occurs in the high population density markets.

ISDN (often not considered broadband) is available to all Sprint/United customers. The Commission also noted "ISDN is not available in all independent rural telephone company territories. But in those territories where it is available, it is predominately available to all customers" (Kansas, 2002).

Figure 13. Kansas High Speed Cable Data Providers, by accounts served



Source: TIPI

In the next section, we discuss the relationships between UNE-P availability, pricing, and competition in local phone service.

IV. UNE-P costs and pricing

The *cost* of providing a UNE by an ILEC is a different unit of analysis than the *price* charged a CLEC by a UNE-providing ILEC. Between the actual UNE cost to the incumbent for facilities, capital, and labor, and the price offered a competitor in the market, is an unknown—and unknowable—value. The costs of providing service for an ILEC are protected as trade secrets by the incumbents and by the administrative courts hearing cases about UNE costs and pricing. Costing methods vary from company to company, and from market to market, and present formidable challenges to state regulators attempting to evaluate the fairness of prices charged to CLECs. The 1996 Telecommunications Act and FCC regulations grant state regulators the obligation to regulate disputes regarding UNE prices. Consequently, the costs and prices of UNEs are central to state regulatory actions, and their terms have been scrutinized in several states.

UNE cost models are based on "TELRIC" ("total element long run incremental cost") rules that calculate forward-looking costs to the network as a whole. The TELRIC cost model "simulates the prices for network elements that would result if there were a competitive market for the provision of such elements to other carriers" and "will result in the creation of the 'right' investment incentives for competitive facilities-based entry, rather than distorting the entrant's 'make or buy' decision with respect to the network element" (DOJ, 2001a, footnote 19). "Prices that are set either above or below the element's true economic cost can distort entry decisions and may impede the development of competition on the merits" (DOJa, 2001, footnote 19). TELRIC cost models have been hotly debated, and with the FCC's recent Triennial Review are clarified in two ways. First, the Review states that the risk-adjusted cost of capital used in calculating UNE prices should reflect the risks associated with a competitive market, and second, the Review does not mandate that companies use any particular set of asset lives for depreciation but rather states that using an accelerated depreciation model may present more accuracy in calculations.

Competing cost models include the Hatfield (or "HAI") models, used by competitive carriers including AT&T and MCI, and the Universal Service Fund model, used by the FCC. Private companies, including Pacific Bell and GTEC, have adopted their own cost models, such as GTEC's Integrated Cost Model. These cost models define hundreds or thousands of cost inputs, and apply an algorithm to the matrix of inputs to derive cost-based prices.

TELRIC based models are what the FCC has used to evaluate cost bases of UNEs, and also earn the approval of state regulators. "Both [HAI and GTEC] methodologies are sound on an overall basis, as each attempts to cost UNEs based on some approximation of optimal loop configuration and deployment and of averaged actual switching costs. No model determines actual costs, but the more accurate models use appropriate assumptions and specifically derived data to feed a model representative inputs and sound assumptions to create outputs which should track with average overall costs over time" (California, 1998, p. 15).

Since 1998, the FCC has evaluated Section 271 application disputes over UNEs with reference to its own "synthesis" model, which has evolved over the years. This model has also been called the “USF” and the “hybrid cost proxy model.” The model determines TELRIC compatibility. It uses “elements of both of the industry models and a set of new loop design and customer location clustering algorithms developed by the FCC staff” (Maine, 2000).

In the next section, we present our own representation of UNE-P costs in the three states, discuss its usefulness and advantages, and present another data set for comparative purposes. Because neither state nor federal laws require accessible information about the costs of providing service, and because incumbent carriers themselves do not provide cost figures voluntarily in any comprehensive way, cost modeling is the last resort for competitive telecom analysts.

A. The TIPI UNE-P Cost model

The TIPI model of UNE-P pricing presents the cost differentials to CLECs by providing information related to local phone service to rural, suburban, and urban customers. It identifies the higher costs CLECs incur to provide UNE-P to rural areas in Texas, Missouri, and Kansas. The higher costs to CLECs for providing service in rural areas are reflected in consumer prices for local service.

For our analysis of UNE-P, we select the same UNE components as did Southwestern Bell Telephone in its 2001 petition to the FCC to provide long distance service in Kansas and Oklahoma under Section 271 filings. These include loop, port, switching, and transport costs. SWBT does not include daily usage files for billing (“DUF”), SS7 switching, E911, and other UNEs in its enumeration of necessary and sufficient UNEs for the UNE-P. For reference, and as a rule of thumb, UBS Warburg presents a figure for a nationwide average UNE-P rate of $16 per month (UBS Warburg, in Communications Daily, November 22, 2002). Gregg (2003) presents a current UNE-P national average UNE-P figure of $16.12, based on combining rates for loop, switching, and line port. The TIPI UNE-P cost study finds an average UNE-P rate of $21.97 for Texas, Missouri, and Kansas.

The TIPI model computes the UNE-P price by geographical region for each state (rural, suburban, and urban, in Table 12). This comparison includes the primary UNE-P rate elements as identified in Interconnection filings by SBC. It adds recurring (monthly) loop and port costs to arrive at a subtotal. To this subtotal, it adds switching and transport costs calculated at 1,000 minutes of use. We adopt the list of UNEs presented in SBC's Kansas/Oklahoma Interconnection filings. However, it explicitly excludes SS7 signaling and unidentified "other" UNEs. We use Gregg's benchmark of 1,000 minutes for switching fees (Gregg, 2003). In keeping with the SBC model, we include minutes of uses for transport and facility UNEs. (We attach our UNE-P calculation worksheets to this report.)

Using this model, the statewide UNE-P averages for Texas, Missouri and Kansas illustrate the lowest costs in Texas ($20.65), followed by Kansas ($21.24) and then Missouri ($24.02). Missouri’s high costs for urban and suburban UNE-P are particularly striking. On the face of it, there are few reasons why such costs differentials should exist.

Table 12.TIPI UNE-P costs for Loop, Switching, and Transport

	Texas	Missouri	Kansas	3-State Average
Rural	$24.73	$27.20	$28.95	$26.96
Suburban	$19.38	$24.67	$18.50	$20.85
Urban	$17.84	$20.20	$16.28	$18.11
State Averages across geographies	$20.65	$24.02	$21.24	$21.97
Rural/Urban Differential	+ 28 %	+ 26 %	+ 44 %	+ 23 %
Rural/Suburban Differential	+ 22 %	+ 9 %	+ 36 %	+ 23 %

Sources: T2A, M2A, K2A Interconnection Agreements, SBC 2001

We compare our UNE-P prices by geographical region to prices computed by Mr. Billy Jack Gregg, Director, Consumer Advocate Division for the Public Service Commission of the state of West Virginia. The Gregg study is the only publicly available source of information on comparative UNE-P pricing across the United States. In order to highlight the basic problem of higher telecom costs for rural areas, we examine findings by comparing the rural / urban and rural / suburban UNE-P price differentials for the three states (Table 13).

Table 13.UNE-P costs for Loop and Switching (Gregg's Model-no transport)

	Texas	Missouri	Kansas	3-state Average	US
Rural	$25.31	$25.02	$27.48	$25.94	$29.28
Suburban	$18.24	$22.56	$16.94	$19.25	$19.06
Urban	$15.84	$18.56	$14.78	$16.39	$14.75
State Averages Across geographies	$20.42	$20.60	$19.57	$20.20	$16.12
Rural/Urban Differential	+ 37 %	+ 26 %	+ 46 %	+ 37 %	+50 %
Rural/Suburban Differential	+ 28 %	+ 10 %	+ 38 %	+ 26 %	+35 %

Source: Gregg, 2003.
Notes: TIPI averaged the 50 states' and DC's rural, suburban, and urban rates separately for the "US" column, and took an average of Springfield-Missouri and Missouri-Urban rates.

The transport difference highlighted in the TIPI model underscores the cost differences among the three states, particularly Missouri's high rates. The Gregg study positions the three states' UNE-P costs as more similar although Missouri's urban and suburban costs are still higher than those in Texas or Kansas. Gregg uncovers a striking statistic—a fifty percent differential between the cost of UNE-P in rural and urban areas of the US. (The Gregg study does not include the cost of transport in most of its calculations. Because transport is an essential UNE, it has been included in our definitions and calculations of UNE-P.) Table 14 illustrates the differences in the TIPI model and the Gregg model with respect to rural cost differentials (computed as rural minus urban costs divided by rural costs). Both report cost differentials of similar magnitude, although the TIPI finding for Texas rural/urban differences is considerably lower.

Table 14. Comparison of Findings: Rural Cost Differentials

	Texas		Missouri		Kansas	
	Rural/Urban	Rural/Suburb	Rural/Urban	Rural/Suburb	Rural/Urban	Rural/Suburb
TIPI	28	22	26	9	44	36
Gregg	37	28	26	10	46	38
Diff.	24%	21%	0%	10%	4%	5%

*Differential computed as Gregg-TIPI differential divided by Gregg figure.

We believe both of these reports to be based on reliable sources, although their accuracy may be compromised by a range of factors, including missing or proprietary cost data and lack of access to computer-based costing software such as HAI. We attribute the differences between our findings and the Gregg findings to missing transport costs in the Gregg model. The key finding of both models is that they suggest substantial differences among three states that are rather similar in terms of terrain and population densities and dominant RBOC.

In the next section, we present price points for voice and broadband services in the three-state area, collected in a TIPI competitiveness survey during December 2002 and January 2003.

V. Consumer pricing data

In order to identify price points and patterns of availability or non-availability of competitive local phone and broadband service, TIPI conducted a study of consumer pricing for local and broadband services in a sample of cities and towns in Texas, Missouri, and Kansas. We sampled 20 localities in Texas, ten localities in Missouri, and ten localities in Kansas. For geographic representativeness, we selected localities from north, south, west, east, and central regions of each state. For all three states, we used a systematic sampling technique within a sample frame generated by the GIS software platform, ArcView. For Texas, we added a non-systematic sample of five additional, small towns that were not part of the ArcView localities sample frame. For each locality (town or city), we identified a telephone number and physical address for one public school or public school administration building in order to gather broadband availability information.

The results show:

- competitive provisioning of POTS in ten of 25 Texas localities;
- in four of ten Missouri localities;
- six of ten Kansas localities;
- business rate POTS was more frequently available on a competitive basis than was residential rate POTS in Kansas; and
- higher prices for rural customers of competitive providers of POTS.

The last finding is in line with our UNE-P cost findings, which show higher input costs for provisioning in rural zones. SBC rates for POTS in these rural areas were frequently less expensive than competitive rates for POTS, indicating a potential "price squeeze" for competitors who cannot respond with competitive rates for voice service since their charges by the incumbent are so high.

Broadband availability among our sample of localities is varied:

- seven of 25 Texas localities in the sample had no broadband Internet availability via DSL, cable modem, or wireless and only three of the other 18 broadband markets sampled (17 percent) are competitive;
- two of ten Missouri localities had no broadband capabilities and six of the other eight (75 percent) are formally competitive, with a choice of providers;
- three of ten Kansas localities did not have broadband Internet access available, and six of the other seven (86 percent) are formally competitive.

These figures diverge from FCC broadband competitiveness averages for each state (Texas 63 percent, Missouri 38 percent, and Kansas 40 percent competitive), but sampling bias may account for the discrepancies.

Our pricing data illustrate that in Texas, competitive markets do offer less expensive broadband alternatives than do noncompetitive markets. The same holds true for Missouri. Insofar as the markets sampled in Kansas either entirely lacked broadband or represented a competitive environment, our data cannot comment on price effects there. In general, wherever DSL competes head-to-head with *cable*, whether in a high, medium, or low population density market, broadband prices are generally lower than prices in areas without head-to-head competition (Table 15). We find, however, that DSL prices from competitive local exchange carriers (such as Birch) generally are higher than SBC's DSL prices. Interviews with sales representatives for companies selling broadband Internet access revealed existing and planned wireless broadband coverage for rural markets in all three states.

Table 15 Average Competitive and Noncompetitive Broadband prices, 2003

	Competitive business	Competitive residential	Noncompetitive business	Noncompetitive residential
Texas	$55.95	$43.04	$58.52	$51.22
Missouri	$58.19	$41.70	$64.64	$44.95
Kansas	$75.91	$44.92	---	----
3-state average	$64.34	$43.31	$58.52	$51.22

Source: TIPI

*Note: Monthly residential recurring rates were used for tabulating averages. Sample sizes for Texas =25, Missouri and Kansas = 10 each.

VI. Conclusion

Each of the states examined here has allowed the dominant RBOC, SBC, to enter into Inter-LATA regional services, having decided the telecommunications services were sufficiently competitive to allow the dominant incumbent into new lines of business. However, competitors have relied heavily on UNE-P as a vehicle of competition, and it is unclear if they will be able to continue to offer competition to the RBOC incumbent if UNE-P is phased out. The FCC's February 2003 Triennial Review underscores the important role of state regulators in deciding how to proceed with reviewing UNE-P and competitive circumstances in their regions.

The data reviewed here underscore the heavy use of UNE-P among the competitors. Recent FCC statistics put CLEC lines at 8% in Missouri, 12% in Kansas and 15% in Texas, and UNE-P is the clear choice for CLEC competition. This is true throughout the U.S., the national statistic on use of UNE-P being about 51% of CLEC lines.

Urban regions attract far more competitive activity in local exchange service than do rural areas. CLECs serving rural areas in Texas account for about 20% of UNE-P use across SBCs lines, compared to 6% in Missouri and 4% in Kansas. The maps in Appendix D illustrate the strong geographical association of CLEC activity with population densities. The lower amounts of competition in rural areas raise troubling issues about how a deregulated telecommunications market will deliver services to those regions that are comparable in terms of quality and cost.

Missouri and Kansas exceed the national averages in percentage of zip codes lacking any broadband provider (24% for Missouri and 38% for Kansas) as well as percent of zip codes with no competitive broadband provider (24% for Missouri and 22% for Kansas). The maps illustrate that there is some broadband service in rural areas, although very little competition among providers. The significance of limited competition may be underscored by consumer price data that suggest the presence of competition accounts more for price differentials than does a rural/urban location. We suggest that this is a fruitful area for additional research by utility commissions and researchers.

Appendix A. Texas Customer Retail Pricing, in dollars

	Telecom provider	Residential Service (Monthly + Setup)	Business Service (Monthly + Setup)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP (res / bus)	Cable Broadband Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
Athens	Sprint	24.45 + 22.25	27.95 + 25	39.95 + 49.99	44.95	38.30 + 8.65	164.99 + 2,500	n/a	n/a	n/a	n/a
	Cox	n/a	n/a	n/a	n/a	n/a	n/a	n/a	29.95 + 19.39	69.95 + 19.39	n/a
Belton	Texas Teleconnect	48.88 + 68.88	58.88 + 68.88	n/a	n/a	*	*	n/a	n/a	n/a	n/a
	Time Warner Cable	n/a	n/a	n/a	n/a	n/a	n/a	n/a	49.95 + 4.95	49.95 +4.95	n/a
	Internet Service of Texas	n/a	n/a	n/a	n/a	n/a	n/a	17.95	n/a	n/a	n/a
Big Spring	AT&T	31 + 0	n/a	n/a	n/a	n/a	2,886.97	21.95 / 24.95	n/a	n/a	n/a
Brenham	AT&T	31 + 0	n/a	n/a	n/a	n/a	2,886.97	21.95 / 24.95	n/a	n/a	n/a
	SWBT	15 + 6	26.85 + 74	74.95 + 250	74.95 + 250	53.94 + 78.60	*	21.95	n/a	n/a	n/a
Brownwood	Verizon	15 + 41	31.10 + 61	n/a	n/a	70+ 50	980 + 395	22.95	n/a	n/a	n/a

	Telecom provider	Residential Service (Monthly + Setup)	Business Service (Monthly + Setup)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP (res / bus)	Cable Broadband Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
Carthage	SWBT	16 + 40	27.17 + 74.25	n/a	n/a	53.94 + 78.60	941.50 + 1214	21.95	n/a	n/a	n/a
Copperas Cove	Sprint	10.90 + 22.65	21.84 + 26.60	39.99 + 22.65	79.99	59.50 + 200	1,200 + 1,000	n/a	n/a	n/a	n/a
Crowell	Santa Rosa Telephone Co-op	16.50 + 25	30.90 + 25	n/a	n/a	n/a	*	15.95	n/a	n/a	n/a
Donna	AT&T	25 + 0	n/a	n/a	n/a	n/a	2,886.97	21.95 / 24.95	n/a	n/a	n/a
Dumas	NTS Communi-cations	n/a	n/a	n/a	n/a	n/a	n/a	9.95 / 12.95	n/a	n/a	n/a
	Valor Telecom-munication	16.80 +41	43 + 41	n/a	n/a	110	700	n/a	n/a	n/a	99 + 555
	Cable One	n/a	n/a	n/a	n/a	n/a	n/a	n/a	39.95	39.95	n/a
Eagle Pass	SBC	39.95 + 38.35	70 + 75	29.95 + 0	42.95	*	*	18.95	n/a	n/a	n/a
	Western Communi-cations	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	49.95 + 75
	Hilconet IP	n/a	n/a	n/a	n/a	n/a	n/a	19.95			
El Paso	AT&T	25 + 0	n/a	n/a	n/a	n/a	n/a	21.95 / 24.95	n/a	n/a	n/a

	Telecom provider	Residential Service (Monthly + Setup)	Business Service (Monthly + Setup)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP (res / bus)	Cable Broadband Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
	SWBT	15 + 6	29.58 + 74	74.95 + 250	74.95 + 250	53.94 + 78.60	*	21.95	n/a	n/a	n/a
	Birch	23+45	18+70	n/a	n/a	n/a	399 + 600	12	n/a	n/a	n/a
Gatesville	Stefek Enter-prises	50 + 50.95	n/a	n/a	n/a	n/a	n/a	n	n/a	n/a	n/a
Henderson	East Texas Telephone Co-op, Inc.	20 + 46.13	30 +46.13	49.95	49.95	*	*	*	n/a	n/a	n/a
	Verizon	*	*	*	*	*	*	*	n/a	n/a	n/a
	Cox Cable	n/a	n/a	n/a	n/a				29.95	59.95	
	Network IP	n/a	n/a	n/a	n/a	n/a	n/a	19.95	n/a	n/a	n/a
	East Texas Satellite	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	69.95 + 99
Kerrville	Kerrville Telephone Company	13.96 + 9	24.42 + 15	49.90 + 0	49.95	*	*	19.95	n/a	n/a	n/a
Levelland	Verizon	20 + 50	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lufkin	TXU	15.45 + 30	24.69 + 30.10	49.95 + 0	79.95 + 199	*	*	*	n/a	n/a	n/a
	Cox Cable	n/a	n/a	n/a	n/a	n/a	n/a	n/a	29.95	59.95	n/a
Marshall	SBC	17 + 38.35	27.16 + 74.25	39.95 + 0	39.95	*	*	*	n/a	n/a	n/a

	Telecom provider	Residential Service (Monthly + Setup)	Business Service (Monthly + Setup)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP (res / bus)	Cable Broadband Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
	Charter Communi-cations	n/a	n/a	n/a	n/a	n/a	n/a	n/a	34.95 + 149.95	34.95 + 149.95	n/a
Midland	AT&T	25 + 0	n/a	n/a	n/a	n/a	2,886.97	21.95 / 24.95	n/a	n/a	n/a
Plano	Verizon	16.75	*	n/a	n/a	*	*	22.95 + 9.95	n/a	n/a	n/a
	AT&T	n/a	n/a	n/a	n/a	n/a	n/a	n/a	55.95 + 44.95	55.95 + 44.95	n/a
San Benito	SWBT	16 + 40	27.17 + 74.25	39.95	42.95	53.94 + 500	523 + 1214	21.95 / 21.95	n/a	n/a	n/a
San Saba	Central TX Telephone Co-op Inc.	19 + 86.50	29 + 86.50	54.95	54.95	n/a	1,000 + 400	18.95 + 25	n/a	*	*
Seguin	SBC	39.95 + 44	26.85 + 74.25	39.95 + 0	39.95	53.94 + 78.60	535.90 + 1,214	21.95	n/a	n/a	n/a
	Time Warner	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	44.95	n/a
Terlingua	Big Bend Telephone Co.	15.46 + 10	23.96 + 15	$32.95	32.95	n/a	1,652.53 + 387	n/a	n/a	n/a	n/a
Uvalde	AT&T	31 + 0	n/a	n/a	n/a	n/a	2,886.97	21.95 / 24.95	n/a	n/a	n/a
	SWBT	15 + 6	26.85 + 74	74.95 + 250	74.95 + 250	53.94+ 78.60	*	21.95	n/a	n/a	n/a

	Telecom provider	Residential Service (Monthly + Setup)	Business Service (Monthly + Setup)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP (res / bus)	Cable Broadband Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
	Hilconet IP	n/a	n/a	n/a	n/a	n/a	n/a	19.95	n/a	n/a	n/a
	Western Communi-cations	n/a	n/a	n/a	n/a	n/a	n/a	19.95	n/a	n/a	n/a

Source: TIPI telephone survey, 12/02 to 1/03.

Notes: Price information does not include taxes, hardware or equipment, or promotions. "*" signifies missing data. "n/a" signifies "not available." City names in bold signify the presence of broadband competition.

Appendix B: Kansas Consumer Pricing, in dollars

	Telecom provider	Residential Service (Monthly + Set up)	Business Service (Monthly + Set up)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP	High-Speed Internet Access Residential (monthly + Set up)	High Speed Internet Business (Monthly + Set up)	Wireless Internet
Atchison	SBC	22 + 39	33.95 + 51	n/a	n/a	*	*	*	n/a	n/a	n/a
Dodge City	Cox	n/a	n/a	n/a	n/a	*	*	*	49.95+ 80	*	*
	SBC	17 + 39	35.72 + 51	39.95	39.95	*	*	n/a	n/a	n/a	n/a
	Birch	n/a	22.75+ 57	n/a	149 + 400	175 + 400	499 + 1,400	15	n/a	n/a	n/a
	Hubris Communications	n/a	n/a	49.95 + 125	84.95 + 125	*	*	21.95		*	*
Garden City	Cox	n/a	n/a	*	*	*	*	*	49.95 + 80	*	*
	SBC	23 + 39	36 + 51	39.95	39.95	*	*	n/a	n/a	n/a	n/a
	Pioneer Communica-tions	n/a	n/a	59.95	*	*	*	*	*	*	*
	Birch	n/a	22.75 + 57	n/a	149 + 400	175 + 400	499 + 1,400	15	n/a	n/a	n/a
	Hubris Communica-tions	n/a	n/a	49.95 + 125	84.95+ 125	*	*	21.95	*	*	49 + 1,600

	Telecom provider	Residential Service (Monthly + Set up)	Business Service (Monthly + Set up)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP	High-Speed Internet Access Residential (monthly + Set up)	High Speed Internet Business (Monthly + Set up)	Wireless Internet
Great Bend	Cox	n/a	n/a	*	*	*	*	*	*	*	*
	SBC	39.95 + 39	35 + 51	39.95	39.95	*	*	n/a	n/a	n/a	n/a
	Hubris Communica-tions	n/a	n/a	49.95 + 50	84.95 + 50	*	*	*	*	*	*
Hays	Eagle Cable	n/a	n/a	n/a	n/a	*	*	n/a	32.34 + 159.95	*	n/a
	SBC	17+ 39	26 + 54	39.95	39.95	*	*	n/a	n/a	n/a	n/a
	Nex-Tech	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	29.95
Hutchinson	SBC	25 + 45	45 + 60	39.95	74.95	92.32	*	n/a	n/a	n/a	n/a
	Birch	26.50 + 36	22.75 + 50	n/a	149 + 400	175 + 400	499 + 1,400	*	*	*	*
	Hubris Communica-tions	n/a	n/a	49.95 + 50	84.95 + 50	*	*	*	n/a	n/a	n/a
	Cox	n/a	n/a	n/a	n/a	n/a	n/a	n/a	49.95+ 199.95	*	n/a
Liberal	SBC	23 + 39	34 + 51	39.95 + 149	39.95	158.32	800	*	n/a	n/a	n/a
	Adelphia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	56.95 + 24.95	69.95 + 99	n/a

	Telecom Provider	Residential Service (Monthly + Set up)	Business Service (Monthly + Set up)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP	High-Speed Internet Access Residential (monthly + Set up)	High Speed Internet Business (Monthly + Set up)	Wireless Internet
	Hubris Communica-tions	n/a	n/a	49.95 + 125	84.95 + 125	*	*	21.95	*	*	49 + 1,600
	Southwest Kansas Online	n/a	n/a	49.95	99	n/a	n/a	n/a	*	*	*
Manhattan	SBC	30 + 38.90	35.73 + 57.40	n/a	n/a	92.32	*	*	n/a	n/a	n/a
	Birch	26.50 + 36	22.75 + 57	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ottawa	SBC	22 + 39	35 + 57.40	n/a	n/a	21.95	1014 + 1214	*	n/a	n/a	n/a
	Birch	n/a	21 + 50	n/a	n/a	n/a	399 + 600	*	n/a	n/a	n/a
Overland Park	Birch	27+ 36	24 + 57	n/a	149 + 400	175 + 400	499 + 1,400	12	n/a	n/a	n/a
	Hubris Communica-tions	n/a	n/a	49.95 + 50	84.95 + 50	*	*	*	*	*	*
	SBC	20+ 39	35 + 51	39.95	39.95	*	*	n/a	n/a	n/a	n/a

Source: TIPI telephone survey, 12/02 to 1/03.

Notes: Price information does not include taxes, hardware or equipment, or promotions. "*" signifies missing data. "n/a" signifies "not available." City names in bold signify the presence of broadband competition.

Appendix C. Missouri Retail Pricing, in dollars

	Telecom provider	Residential Service (Monthly + Set up)	Business Service (Monthly + Set up)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP	Cable Broadband Internet Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
Bridgeton	SWBT	20+35.89	42.81+51.86	39.95	49.95	*	*	21.95	n/a	n/a	n/a
	Birch	24.50+50	28+51	n/a	99 +200	145 + 200	399+ 600	12	n/a	n/a	n/a
	Charter Communica-tions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	39.95 + 49.95	49.95 + 49.95	n/a
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Columbia	Century Tel	17.85 + 20.25	26.21 + 38.35	49.95 + 35	49.95 + 35	420 + 500	634 + 965	*	n/a	n/a	n/a
	Socket Internet	n/a	n/a	49.99 + 60	*	39.95/mo	*	*	n/a	n/a	n/a
	COIN (Community Network)	n/a	n/a	n/a	n/a	n/a	n/a	10	*	*	*
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Florissant	SBC	18 + 36.18	40 + 51.84	39.95 + 150	49.95 + 150	*	*	21.95	n/a	n/a	n/a
	Birch	24.50+ 36	28.50+51	n/a	99 +200	145 + 200	399 + 600	12	n/a	n/a	n/a

	Telecom provider	Residential Service (Monthly + Set up)	Business Service (Monthly + Set up)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP	Cable Broadband Internet Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
	Charter Communica-tions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	39.95 + 49.95	49.95 + 49.95	n/a
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Hannibal	Socket Internet	n/a	n/a	49.95 + 160	*	*	*	n/a	n/a	n/a	n/a
	AreaTech	n/a	n/a	n/a	n/a	n/a	n/a	17.95 + 40	n/a	n/a	n/a
	Caldwell Wireless Internet	n/a	n/a	n/a	n/a	n/a	n/a	19.95 + 29.95	n/a	n/a	*
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Independence	SBC	17 + 36.21	38.64 + 51.84	39.95	49.95	*	*	21.95	*	n/a	n/a
	Comcast	n/a	n/a	n/a	n/a	n/a	n/a	n/a	39.95	39.95	n/a
	Birch	24.50+36	27+51	n/a	99 +200	145 + 200	399 + 600	12	n/a	n/a	n/a
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Kennett	SBC	19.95 + 36.21	42.81+51.86	39.95	49.95	*	*	21.95	n/a	n/a	n/a
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Maryville	Sprint	35 + 41	*	*	55	*	*	*	n/a	n/a	n/a
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Raytown	Charter Communica-tions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	39.95 + 49.95	49.95 + 49.95	n/a
	Birch	24.50+36	27+51	n/a	99 +200	145 + 200	399 + 600	12	n/a	n/a	n/a

	Telecom provider	Residential Service (Monthly + Set up)	Business Service (Monthly + Set up)	DSL Residential (Monthly + Set up)	DSL Business (Monthly + set up)	ISDN	T1	ISP	Cable Broadband Internet Access Residential (monthly + Set up)	Cable Broadband Internet Business (Monthly + Set up)	Wireless Internet
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Sedelia	Charter Communica-tions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	39.95 + 49.95	49.95 + 49.95	n/a
	SBC	19.95 + 36.21	42.81+51.86	39.95 + 150	49.95	*	*	21.95	n/a	n/a	n/a
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
Springfield	McLeod USA	n/a	29.95+51.35	n/a	n/a	*	*	14.95	n/a	n/a	n/a
	SBC	19.95 + 36.21	42.81+51.86	39.95 + 150	49.95	*	*	21.95	n/a	n/a	n/a
	Verizon	n/a	n/a	n/a	n/a	n/a	n/a	22.95+9.95	n/a	n/a	n/a
	NuVox Communica-tion	n/a	*	n/a	*	*	*	*	*	*	*
	MediaCom Cable	n/a	n/a	n/a	n/a	n/a	n/a	n/a	40.95	40.95	n/a

Source: TIPI telephon*e* surv*ey, 12*/02 to 1/03.

Notes: Price information does not include taxes, hardware or equipment, or promotions. "*" signifies missing data. "n/a" signifies "not available." City names in bold signify the presence of broadband competition.

Appendix D: Telecommunications Maps of Texas, Missouri and Kansas

Texas – CLEC and ILEC Facilities-Based Competition in Local Loop
Texas-Cable Broadband and DSL Competition
Texas – Voice and Broadband Data Competition by Population Density
Missouri - CLEC and ILEC Facilities-Based Competition in Local Loop
Missouri - Cable Broadband and DSL Competition
Missouri - Voice and Broadband Data Competition by Population Density
Kansas - CLEC and ILEC Facilities-Based Competition in Local Loop
Kansas - Cable Broadband and DSL Competition
Kansas - Voice and Broadband Data Competition by Population Density

Appendix E. TIPI UNE-P Worksheet

TIPI Model for Current SBC PRICING for CLECs: Recurring UNE and UNE-P Rates

	Texas regional rates (TELRIC based)
UNE-P	
Zone 1 Urban	$ 16.20
Zone 2 Suburban	$ 17.92
Zone 3 Rural	$ 24.35
Source: Florida	

UNE	Texas rate	Missouri rate	Kansas rate	Average rate	
2 wire analog loops, xDSL capable					
recurring	$ 14.15				
nonrecurring initial	$ 15.35				
additional nonrecurring	$ 6.22				
Cross Connect, Standard					
recurring	$ 1.24				
nonrecurring initial	$ 4.72				
additional nonrecurring	$ 4.72				
2 wire analog loops					
Rural Zone					
recurring	$ 18.98	$ 19.74	$ 23.34	$ 20.69	
nonrecurring initial	$ 15.03	$ 19.55	$ 23.06	$ 19.21	
additional nonrecurring	$ 6.22	$ 8.32	$ 10.88	$ 8.47	
Suburban Zone					
recurring	$ 13.65	$ 18.64	$ 13.64	$ 15.31	
nonrecurring initial	$ 15.03	$ 19.55	$ 23.06	$ 19.21	
additional nonrecurring	$ 6.22	$ 8.32	$ 10.88	$ 8.47	
Urban Zones					
recurring	$ 12.14	$ 14.56	$ 11.86	$ 12.85	
nonrecurring initial	$ 15.03	$ 19.55	$ 23.06	$ 19.21	
additional nonrecurring	$ 6.22	$ 8.32	$ 10.88	$ 8.47	

Analog Switch Port					
Rural Zone	$ 2.83	$ 2.47	$ 1.61		
Suburban Zone	$ 2.83	$ 1.97	$ 1.61		
Urban Zone	$ 2.83	$ 1.74	$ 1.61		
Analog Loop to Switch Port Cross Connect					
Rural Zone	$ -	$ -	$ -	$ -	
Suburban Zone	$ -	$ -	$ -	$ -	
Urban Zones	$ -	$ -	$ -	$ -	
Local Switching - Per MOU					
Rural Zone	$ 0.001438	$ 0.002807	$ 0.002530	$ 0.002258	
Suburban Zone	$ 0.001438	$ 0.001949	$ 0.001690	$ 0.001692	
Urban Zones	$ 0.001438	$ 0.001620	$ 0.001310	$ 0.001456	
Urban - Springfield MO Zone 4		$ 0.002391			
Urban averages, MO		$ 0.002006			
Termination, per MOU					
rural	$ 0.0001440	$ 0.0002460	$ 0.0001960		
Suburban	$ 0.0001350	$ 0.0002320	$ 0.0001710		
Urban	$ 0.0001230	$ 0.0001550	$ 0.0001570		
Urban Springfield MO zone 4		$ 0.0001320			
Urban averages, MO		$ 0.0001435			
Facility, Per MOU, Per mile					
Rural	0.000144	$ 0.0000117	$ 0.0000060		
Suburban Zone	0.000135	$ 0.0000057	$ 0.0001710		
Urban Zone	0.000123	$ 0.0000016	$ 0.0001570		
Urban Springfield MO zone 4		$ 0.0000008			
Urban averages, MO		$ 0.0000012			
Blended Transport, Per MOU					
Rural Zone	$ 0.0003990	$ 0.0006970	$ 0.0004750	$ 0.0005237	
Suburban Zone	$ 0.0003990	$ 0.0006410	$ 0.0004290	$ 0.0004897	
Urban Zone	$ 0.0003990	$ 0.0005350	$ 0.0004010	$ 0.0004450	
Urban Springfield MO Zone 4		$ 0.0005070			
Urban averages, MO		$ 0.0005210			

Tandem Switching, per MOU					
Rural Zone	$ 0.0007940	$ 0.0012310	$ 0.0007890	$ 0.00	
Suburban Zone	$ 0.0007940	$ 0.0012310	$ 0.0007890	$ 0.00	
Urban Zone	$ 0.0007940	$ 0.0012310	$ 0.0007890	$ 0.00	
	Texas	**Missouri**	**Kansas**	**3 - State Average**	
TIPI UNE-P Subtotals: Loop, switching, and transport					
Rural	$ 24.73	$ 27.20	$ 28.95	$ 26.96	
Suburban	$ 19.38	$ 24.67	$ 18.50	$ 20.85	
Urban	$ 17.84	$ 20.20	$ 16.28	$ 18.11	
State Averages (across geographies)	$ 20.65	$ 24.02	$ 21.24	$ 21.97	
Gregg Subtotals (do not include transport)					**US Average**
Rural	$ 25.31	$ 25.02	$ 27.48	$ 25.94	$ 17.48
Suburban	$ 18.24	$ 22.56	$ 16.94	$ 19.25	$ 17.48
Urban	$ 15.84	$ 18.56	$ 14.78	$ 16.39	$ 17.48
State Averages (across geographies)	$ 19.80	$ 22.05	$ 19.73	$ 20.53	

TIPI Sources: T2A, M2A, K2A Interconnection Agreements, SBC 2001 "UNE-Platform Rate Comparison"

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