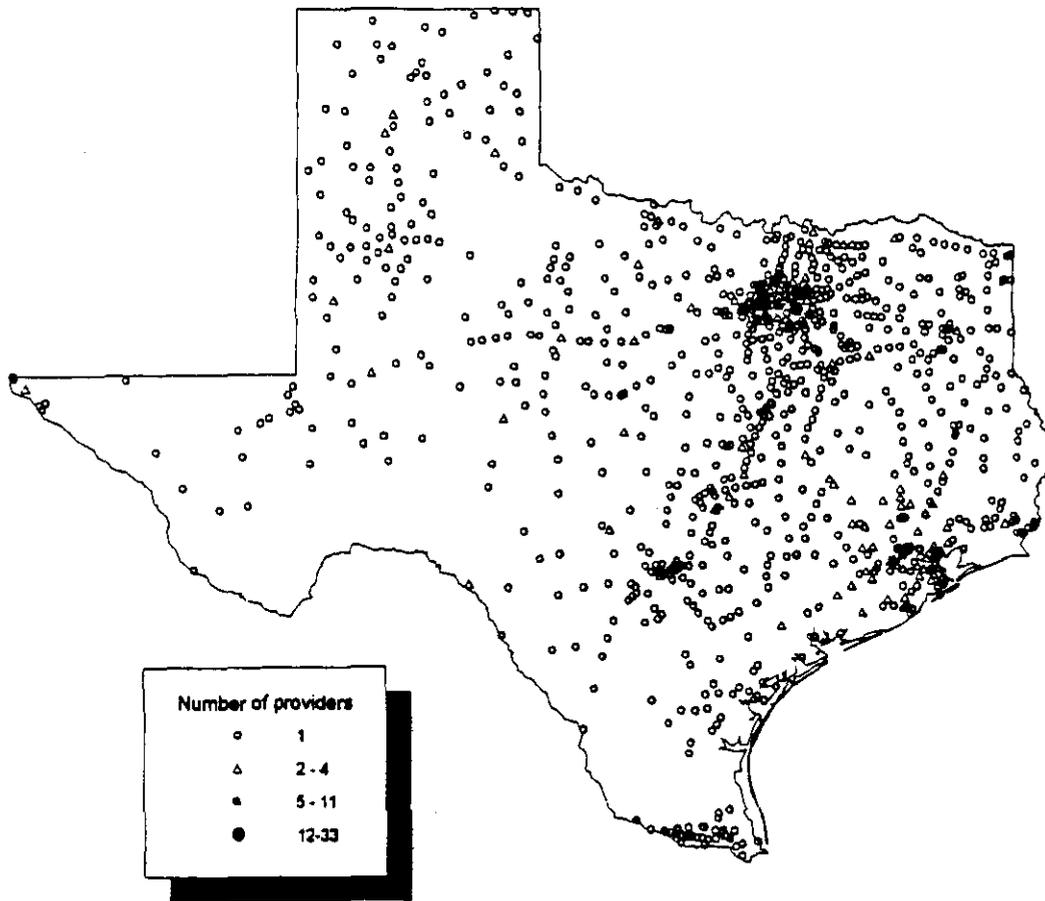


Figure 3 – Data Service Providers



Source: Public Utility Commission HB 1777 Data Collection Instrument

### Analysis of the Histogram Data

The histogram data that supported the above figures is shown in the table below and reveals a few more insights.

**Table 2 – Number of Providers for Texas Towns**

Number of providers in a given town	Number of Texas towns with that many providers, by type of service		
	Residential Services	Business Services	Data Services
1	257	554	843
2	229	273	77
3	178	133	27
4	143	65	3
5	92	43	3
6	58	30	0
7	53	23	3
8	42	8	0
9	30	12	1
10	32	11	0
11	25	7	0
12	18	9	1
13	14	4	1
14	12	1	0
15-19	29	5	0
20 or more	10	5	0

Source: Public Utility Commission of Texas HB 1777 Data Collection Instrument

This data set shows that residents in a good number of cities have a very sizeable number of choices of CLECs. Data show that ten cities have twenty or more CLECs serving residential customers, and residential customers in 130 towns and cities have ten to nineteen CLECs from which to choose. In contrast, residential customers in 257 towns<sup>45</sup> have no CLECs, and another 407 towns have only one or two CLECs from which to choose.

The trend of limited choice in providers for more specialized services can be seen in the point-to-point data. Ninety percent of all municipalities surveyed do not have competition in data services. Residents in 263 cities have no certificated providers of data services.<sup>46</sup> Residents in 843 towns (69 percent of all municipalities surveyed) only have one choice of provider for such services, while residents in 104 towns have a choice of two or three providers for these services.

<sup>45</sup> This table is based on the same 1222 data points that were the basis for the maps. However, an additional 209 cities reported data to the Commission that did not have the necessary census codes to be included in the map, and therefore are not included in the map data set. Most of them had only ILEC service available and no choice of CLECs for any of the service types.

<sup>46</sup> There may be providers offering point to point data services that are not required to report to the Commission because the reporting requirement is made only of certificated providers, and it is not technically necessary to obtain a certificate from the Commission in order to provision point-to-point services.

### **CLECs IN TEXAS BY METRO SIZE AND GEOGRAPHIC REGION**

Another measure of geographic availability may be seen in the responses of the CLECs that responded to the data request for this report. Table 3 shows the number of competitive local carriers that are providing service to customers in each of the geographic areas.

Factors of population growth, economic growth, and population density appear to be important in the decisions of CLECs to invest in or resell voice telephony facilities in a given area of Texas, as a sizeable number of competitors are available to Texas residents in counties with populations over 100,000. The Large Metropolitan areas, which comprise nearly half of the Texas population and have high population densities, have by far the heaviest concentrations of CLECs. The Suburban and Small and Medium Metro counties have about the same numbers of choices in providers as each other, even though the former group has twice the population.

Even in the smallest Rural counties, the responses show that at least one competitive provider is available to at least one county in that Council of Government. Many Rural areas have two, three, or more CLECs in addition to an ILEC. Some of these Rural competitors, however, may be aimed at customers with poor credit histories and are not vying for the average local customer's business.

Table 3 – CLECs in Texas by Size and Region

Regional Group	Population Category	Number of CLECs (1999)
Large Metro (Group 1)	Over 600,000	40
Suburban (Group 2)	Near Metros	22
Small and Medium Metro (Group3)	Other Over 100,000	23
Alamo Area Council of Governments	20,001-100,000	10
Ark-Tex Council of Governments	20,001-100,000	7
Brazos Valley Council of Governments	20,001-100,000	8
Capital Area Planning Council	20,001-100,000	7
Central Texas Council of Governments	20,001-100,000	8
Coastal Bend Council of Governments	20,001-100,000	6
Deep East Texas Council of Governments	20,001-100,000	7
East Texas Council of Governments	20,001-100,000	7
Golden Crescent Regional Planning Commission	20,001-100,000	7
Heart of Texas Council of Governments	20,001-100,000	6
Houston-Galveston Area Council	20,001-100,000	10
Middle Rio Grande Development Council	20,001-100,000	7
North Central Texas Council of Governments	20,001-100,000	10
Panhandle Regional Planning Commission	20,001-100,000	6
Permian Basin Regional Planning Commission	20,001-100,000	5
South Plains Association of Governments	20,001-100,000	6
South Texas Development Council	20,001-100,000	4
Texoma Council of Governments	20,001-100,000	7
West Central Texas Council of Governments	20,001-100,000	5
Alamo Area Council of Governments	5,001-20,000	6
Ark-Tex Council of Governments	5,001-20,000	4
Brazos Valley Council of Governments	5,001-20,000	5
Capital Area Planning Council	5,001-20,000	5
Central Texas Council of Governments	5,001-20,000	6
Coastal Bend Council of Governments	5,001-20,000	7
Concho Valley Council of Governments	5,001-20,000	4
Deep East Texas Council of Governments	5,001-20,000	7
East Texas Council of Governments	5,001-20,000	6
Golden Crescent Regional Planning Commission	5,001-20,000	7
Heart of Texas Council of Governments	5,001-20,000	8
Houston-Galveston Area Council	5,001-20,000	8
Middle Rio Grande Development Council	5,001-20,000	4
North Central Texas Council of Governments	5,001-20,000	6
North Texas Regional Planning Commission	5,001-20,000	7
Panhandle Regional Planning Commission	5,001-20,000	7
Permian Basin Regional Planning Commission	5,001-20,000	7
Rio Grande Council of Governments	5,001-20,000	3
South Plains Association of Governments	5,001-20,000	6
South Texas Development Council	5,001-20,000	5
West Central Texas Council of Governments	5,001-20,000	8
Ark-Tex Council of Governments	1-5,000	3
Central Texas Council of Governments	1-5,000	4
Coastal Bend Council of Governments	1-5,000	3
Concho Valley Council of Governments	1-5,000	7
Middle Rio Grande Development Council	1-5,000	6
North Texas Regional Planning Commission	1-5,000	6
Panhandle Regional Planning Commission	1-5,000	9
Permian Basin Regional Planning Commission	1-5,000	5
Rio Grande Council of Governments	1-5,000	4
South Plains Association of Governments	1-5,000	5
South Texas Development Council	1-5,000	2
West Central Texas Council of Governments	1-5,000	6

Source: Public Utility Commission Data Request 2000 Responses

## NUMBERING CODE INDICATORS OF COMPETITORS

One measure of competitive availability can be found in the numbering prefixes (NXX codes) acquired by competitive carriers. Numbering codes are used to route and rate the switched telephone traffic within the nationwide network and ensure that a call is delivered to the telephone switch serving the customer being called. According to FCC data, Texas had 80 local service competitors holding numbering codes in mid-2000, up from 32 local service competitors in mid-1999. Those codes were geographically dispersed within Texas LATAs, as shown in Table 4.

Table 4 – Local Service Competitors by LATA

LATA	4th Qtr 1997	4th Qtr 1998	2 <sup>nd</sup> Qtr 1999	3 <sup>rd</sup> Qtr 2000
Abilene	0	1	1	6
Amarillo	2	4	4	10
Austin	9	13	13	29
Beaumont	0	1	2	8
Brownsville	0	1	1	7
Corpus Christi	2	4	5	8
Dallas	14	25	24	48
El Paso	1	3	3	5
Hearne	0	1	1	4
Houston	13	19	19	43
Longview	1	2	3	9
Lubbock	0	3	4	8
Midland	0	1	1	4
San Angelo	0	1	1	3
San Antonio	8	11	11	28
Waco	1	3	3	8
Wichita Falls	0	1	1	6

Sources: *Local Competition: August 1999*, Federal Communications Commission, Industry Analysis Division, Common Carrier Bureau; Analysis of Local Exchange Routing Guide.

The largest four metro areas in Texas have been the favorite destinations of CLECs. Dallas and Houston had between 40 and 50 CLECs in their markets, and Austin and San Antonio had about almost 30 CLECs in their markets. El Paso, despite being a Large Metro area, had only five CLECs in its market, fewer than cities such as Beaumont, Longview, or Waco, which have a fraction of El Paso's population. Lower *per capita* income and mediocre business prospects might be responsible for this lack of interest in El Paso. The data indicate that a large number of CLECs burst onto the scene in 1998 and again in the first half of 2000.

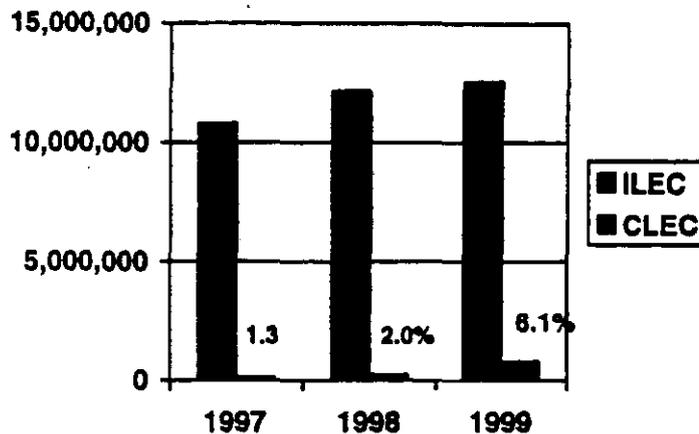
## Market Penetration by Competitive Providers

Fifty-nine ILECs responded to the Commission's data request. Out of the 311 CLECs certificated to provide service in Texas during at least some part of the 1998-1999 calendar period, 128 responded to the Commission's data request. Of the CLECs responding, 36 indicated that they were not providing any local exchange services during the period in question. The data in this analysis therefore represent the reporting of 92 CLECs providing local exchange services in Texas at year-end 1999. Not all of these carriers provided services in 1998.<sup>47</sup>

### **CLEC ACCESS LINES AND REVENUES**

Texas has seen the beginnings of competition in local exchange service, shown by the growth in the number of lines and the revenues for CLECs. Starting from a very low level, CLECs have been increasing market share in Texas in the past three years. Market share of CLECs for access lines rose from 1.3 percent in 1997 to 6.1 percent in 1999, and in revenues the market share for CLECs rose from 1.6 percent to 9.0 percent.

**Figure 4 – Number of Lines Provided by ILECs and CLECs**



<sup>47</sup> It should be noted that while the CLEC data are good for illustrative purposes in this report, they do not appear to be precise. In some instances, it is clear that the CLECs provided incomplete or incorrect information in their geographic reporting. Secondly, the method of aggregating the data may lead to an invalid conclusion concerning competition throughout the entire aggregated region, and any analysis must recognize that telephone exchanges were merged into counties, and counties into larger groupings, based on size and region. As for the number of CLECs reporting, however, the data set does achieve critical mass. While 183 of the 311 CLECs certificated for at least part of the data period did not report, 65 of those do not have interconnection agreements and can therefore be assumed to not have sizeable operations, if any. Forty-two more of those did not get their interconnection agreement until after June 1999, and can therefore be assumed to not have had sizeable operations before the end of the data period. That leaves 76 CLECs failing to report that potentially had operations in the data period, based on their certification and interconnection agreement dates, while 92 CLECs with operations in the data period did report. Within the data set of 128 CLECs that did respond, 43 CLECs had both their certificates and interconnection agreements in order by end of 3<sup>rd</sup> quarter 1998, while a total of 76 CLECs had these items in order by 3<sup>rd</sup> quarter 1999.

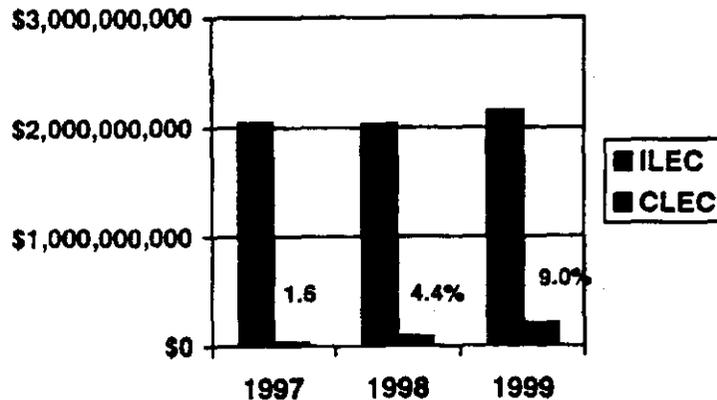
Table 5 – Comparison of ILEC and CLEC Lines and Revenues

	1997	1998	1999
ILEC Access Lines	10,767,173	12,135,113	12,532,003
CLEC Access Lines	146,185	248,166	810,259
Total Access Lines	10,913,358	12,383,279	13,305,884
CLEC Percentage of Lines	1.3%	2.0%	6.1%
ILEC Local Revenues	\$2,044,664,321	\$2,160,771,998	\$2,287,287,649
CLEC Local Revenues	32,735,793	99,364,239	227,326,666
Total Local Revenues	\$2,077,400,114	\$2,260,136,236	\$2,514,614,315
CLEC Percentage of Revenues	1.6%	4.4%	9.0%

Source: 1999 Scope of Competition Report; Data Request 2000 Responses

Similarly, the CLEC share of revenues has more than doubled in 97-98, and doubled again by year-end 1999, as shown in Figure 5.

Figure 5 – Comparison of ILEC and CLEC Local Revenues



Displayed in Table 6 are the number of residential and business lines provided by CLECs, categorized by geography and county size. In terms of lines in 1999, CLECs captured 8.2 percent of the Large Metro market, 11.4 percent of the Suburban market, and 5.3 percent of the market in Medium and Small Metro areas. This table clearly reveals the emergence of local exchange competition, first in the Large Metropolitan areas in 1998, followed by the beginnings of competition in counties with under 100,000 population.

Table 6 – CLEC Lines

County Size	1998		1999	
	CLEC Lines	% of Total State Market	CLEC Lines	% of Total State Market
Large Metro (Group 1)	179,921	3.0	530,393	8.2
Suburban (Group 2)	27,136	3.1	115,644	11.4
Small/Medium Metro (Group 3)	25,491	1.4	102,685	5.3
Rural; 20,001 – 100,000	10,015	0.3	36,359	1.2
Rural; 5,001 – 20,000	3,712	0.5	14,864	1.9
Rural; 1 – 5,000	1,891	1.5	10,314	7.6
Total CLEC	248,166	2.0	810,259	6.1

Source: Public Utility Commission of Texas Data Request 2000 Responses

While the four largest ILECs in Texas – SWBT, Verizon, Sprint/Centel and Sprint/United – have signed significant numbers of interconnection agreements with competitive carriers under the FTA, the remaining ILECs have entered into relatively few agreements. The agreements involving the smaller ILECs, which would be predominately in Rural areas, are strictly resale agreements, usually with no wholesale discounts. The limited number and extent of these agreements results from two factors: (1) relatively little interest on the part of other carriers to compete in less urbanized areas, and (2) the partial exemption of rural telephone companies from the interconnection requirements of FTA § 251(c).

Table 7 displays the revenues from residential and business customers by ILECs and CLECs, categorized by geography and county size. (For a breakdown of each of the 69 areas listed in the data collection instrument, see Appendix J.) CLECs appeared to be providing higher-value local service in the Large Metro and Suburban areas of Texas than in the state as a whole. In terms of revenues in 1999, CLECs captured 11.7 percent of the Large Metro market, 15.4 percent of the Suburban market, and 5 percent of the market in Medium and Small Metro areas. CLEC revenues comprise less than 4 percent of all revenues by local exchanges in Rural areas.

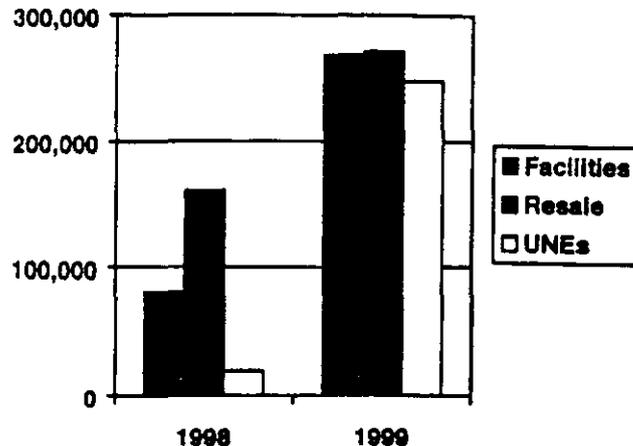
Table 7 – CLEC Revenues

County Size	1998		1999	
	CLEC Revenue	% of Total State Market	CLEC Revenue	% of Total State Market
Large Metro (Group 1)	56,098,286	4.7	156,742,378	11.7
Suburban (Group 2)	13,636,940	8.9	27,280,185	15.4
Small/Med. Metro (Gr. 3)	10,539,058	3.3	17,779,208	5.0
Rural; 20,001 – 100,000	17,925,710	3.8	22,833,530	4.4
Rural; 5,001 – 20,000	1,106,643	1.1	2,332,361	2.2
Rural; 1 – 5,000	57,602	0.4	359,007	2.4
Total CLEC	99,364,239	4.4	227,326,666	9.0

Source: Public Utility Commission Data Request 2000 Responses

The FTA envisioned the entry of local exchange competitors through three avenues: facility-based, resale, and the purchase of unbundled network elements (UNEs). Figure 6 shows the manner in which CLECs provided service in Texas in 1998 and 1999. In 1999, CLECs appeared to use each of the three methods of entry in equal proportions.

Figure 6 – CLEC Method of Service Provision (Number of Loops)



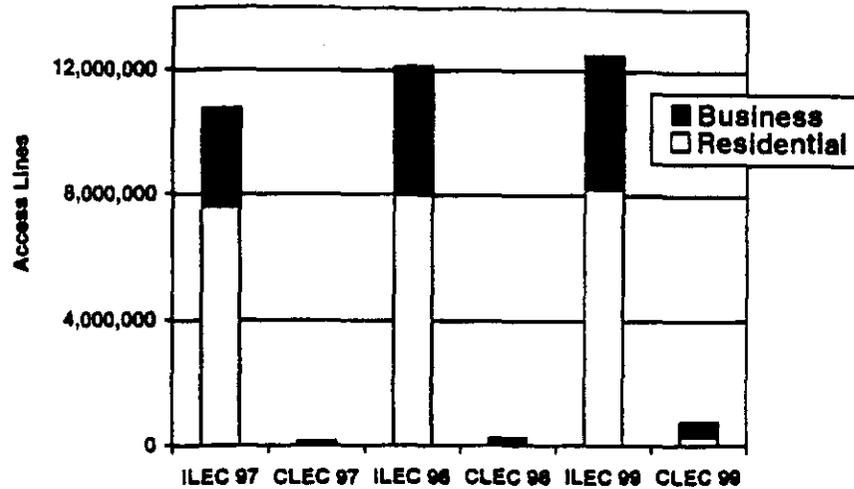
### **COMPETITIVE ENTRY INTO TEXAS MARKETS**

While CLECs have increased market share statewide, the data showed that CLECs were more successful in gaining market share in Large Metropolitan areas than in small metro or Rural areas. The comparison of the business and residential markets below indicates that CLECs penetrated business markets faster than residential markets in 1998 and 1999.

#### **Business/Residential Comparisons**

CLECs have been much more aggressive in gaining market share in local service for businesses than for residential customers. CLECs have twice the number of business lines than residential lines, as shown in Figure 7. While CLECs showed strong growth rates in both markets, by 1999 CLECs had ten percent of the lines that served business customers compared to only three percent of lines that served residential customers, as can be seen in Table 8 and Table 9. CLECs had a six percent market share of residential revenues, indicating that their revenues per residential line were much higher than that of ILECs, as shown in Table 10 and Table 11.

**Figure 7 – Comparison of Residential and Business Telephony Services in Texas by Local Access Lines**



**Table 8 – Residential Lines**

	1997		1998		1999	
	Lines	%	Lines	%	Lines	%
ILEC	7,619,269	98.4	8,009,450	99.0	8,216,074	96.7
CLEC	122,450	1.6	79,114	1.0	280,826	3.3
<b>Total</b>	<b>7,741,719</b>		<b>8,088,564</b>		<b>8,496,900</b>	

Source: Public Utility Commission Data Request 2000 Responses

**Table 9 – Business Lines**

	1997		1998		1999	
	Lines	%	Lines	%	Lines	%
ILEC	3,147,904	99.3	4,125,663	96.1	4,315,929	89.7
CLEC	23,735	0.7	169,052	3.9	493,055	10.3
<b>Total</b>	<b>3,171,639</b>		<b>4,294,715</b>		<b>4,808,984</b>	

Source: Public Utility Commission Data Request 2000 Responses

Figure 8 – Comparison of Residential and Business Telephony Services in Texas by Revenues

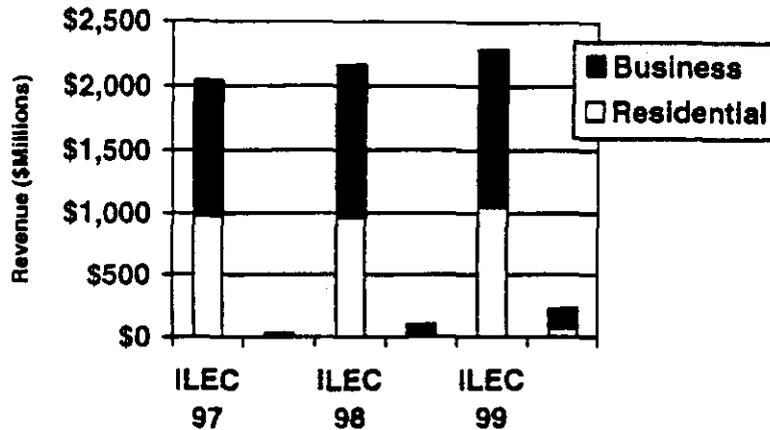


Table 10 – Residential Revenues

	1997		1998		1999	
	Revenue	%	Revenue	%	Revenue	%
ILEC	976,178,035	98.5	962,972,235	96.6	1,048,862,155	93.9
CLEC	14,375,823	1.5	34,019,358	3.4	67,632,535	6.1
Total	990,553,858		996,991,593		1,116,494,691	

Source: Public Utility Commission Data Request 2000 Responses

Table 11 – Business Revenues

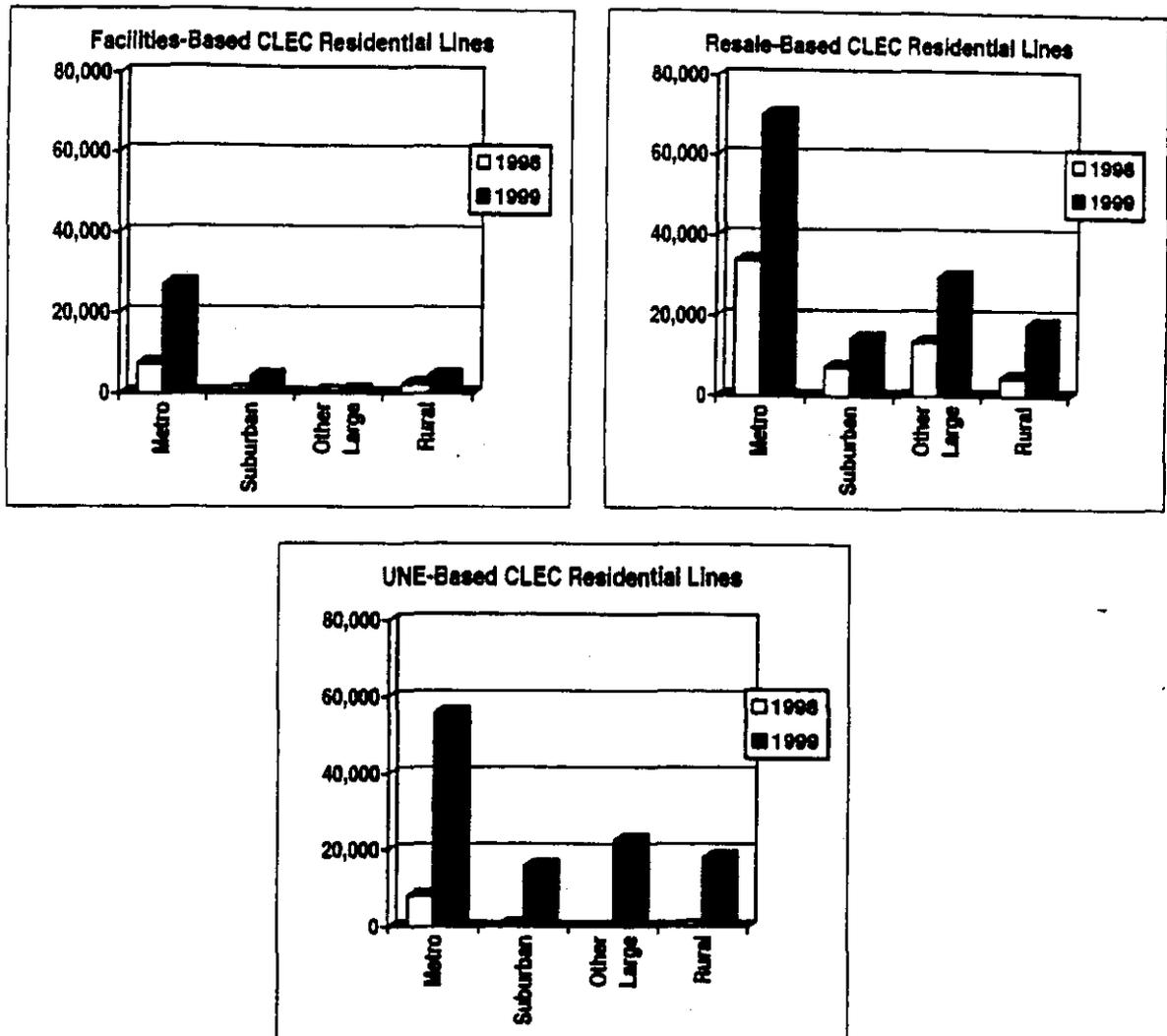
	1997		1998		1999	
	Revenue	%	Revenue	%	Revenue	%
ILEC	1,068,486,286	98.3	1,197,799,762	94.8	1,238,425,494	88.6
CLEC	18,359,970	1.7	65,344,881	5.2	159,694,131	11.4
Total	1,086,846,256		1,263,144,643		1,398,119,624	

Source: Public Utility Commission Data Request 2000 Responses

Facilities-based CLEC lines were almost exclusively in Large Metro areas. Eighty percent of all facilities-based CLEC lines in Texas served business customers in Large Metro areas, with another 10 percent serving Large Metro residential customers. Resale and UNEs were both popular outside Large Metro areas and with residential customers. See the charts and tables in Figure 9 and Figure 10.

The mix of business and residential customers varies significantly by population of a region. In Large Metro and Suburban areas, CLECs had 70 percent of their lines serving business customers and 30 percent of their lines serving residential customers. Medium and Small Metro areas of Texas saw a roughly 50-50 mix between business and residential lines. In Rural areas, CLECs served only 40,148 customers, with 30 percent of these being business customers and 70 percent being residential customers.

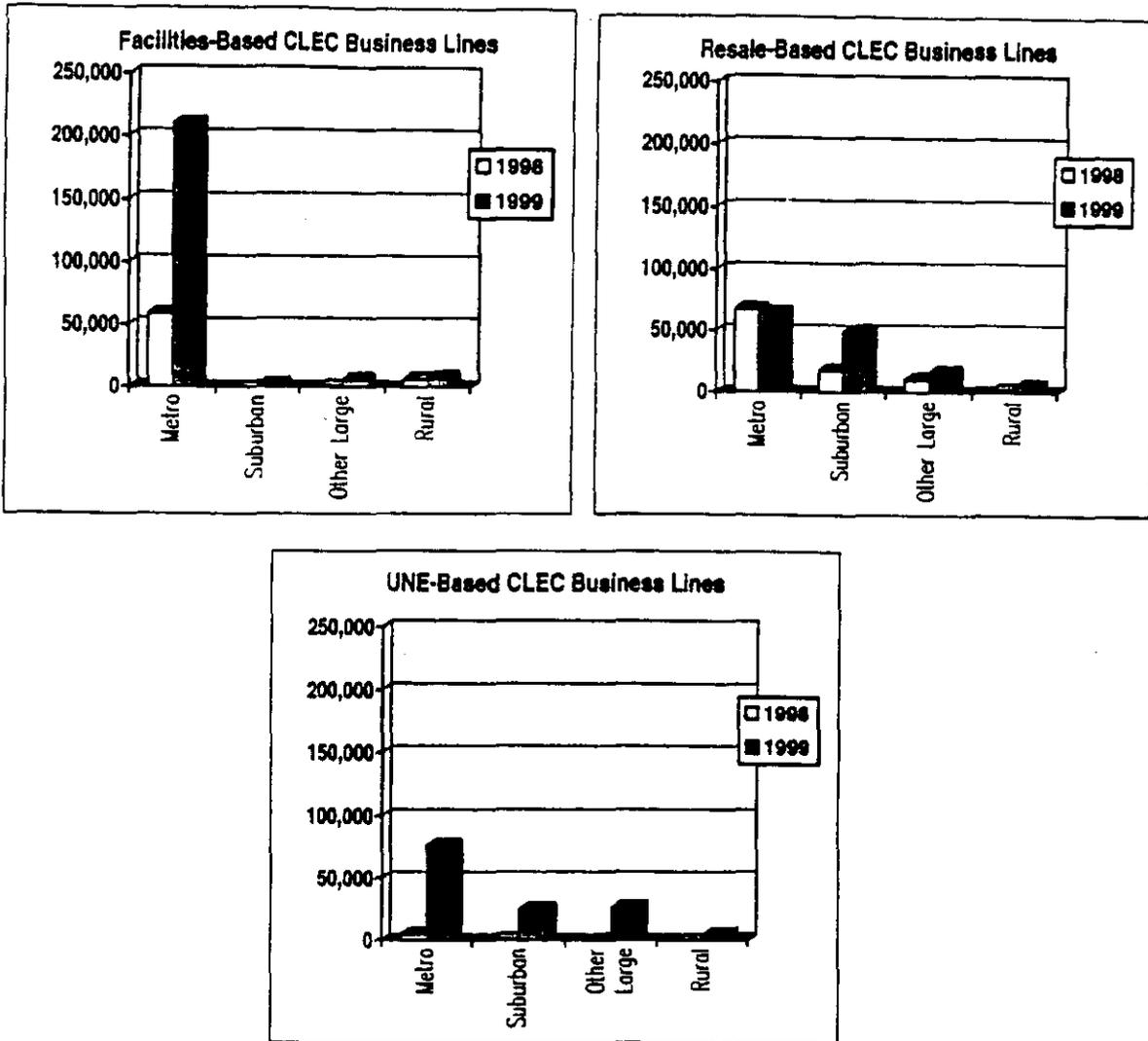
Figure 9 – CLEC Residential Lines by Provision Type and Region



	Facilities		Resale		UNEs		Total	
	1996	1999	1996	1999	1996	1999	1996	1999
<b>Residential - Lines</b>								
Large Metro (Group 1)	7,509	27,052	33,822	70,101	8,067	55,737	49,398	152,890
Suburban (Group 2)	658	4,309	7,240	14,549	713	15,837	8,611	34,695
Small and Medium Metro (Group3)	480	750	13,604	29,758	6	22,585	14,090	53,093
Rural	2,216	4,267	4,600	17,899	199	17,982	7,015	40,148
<b>Total</b>	<b>10,863</b>	<b>36,378</b>	<b>59,266</b>	<b>132,307</b>	<b>8,985</b>	<b>112,141</b>	<b>79,114</b>	<b>280,826</b>

Source: Public Utility Commission Data Request 2000 Responses

Figure 10 – CLEC Business Lines by Provision Type and Region



Business - Lines	Facilities		Resale		UNEs		Total	
	1998	1999	1998	1999	1998	1999	1998	1999
Large Metro (Group 1)	58,303	209,837	67,427	64,324	4,793	76,290	130,523	350,451
Suburban (Group 2)	32	2,537	17,560	49,306	933	24,797	18,525	76,640
Small and Medium Metro (Group3)	1,020	6,252	10,377	16,239	4	26,351	11,401	48,842
Rural	6,108	7,403	2,281	5,155	214	4,564	8,603	17,122
Total	65,463	226,029	97,645	135,024	5,944	132,002	169,052	493,055

Source: Public Utility Commission Data Request 2000 Responses

## Retail Prices and Cross Subsidies

In 1998 and 1999, the business sector attracted telecommunications competition at a far greater rate than the residential sector. Entrants, seeking the larger revenue streams, flocked into high subscriber-density areas rather than into low-density areas. This phenomenon, described by incumbents as “cream-skimming,” is hardly surprising given the economics and the status of current telecommunications regulation.

Regulation tends to encourage “cream-skimming” by imposing cross-subsidies. The current retail rate structure contains implicit subsidies designed to achieve universal service. To subsidize basic services, regulators allow the telecommunications industry to assess a high mark-up on vertical services.<sup>48</sup> Business services typically have tariffed retail rates set at a much higher level than their costs to subsidize residential services. Urban customers tend to pay rates that are above cost, while rural customers tend to pay rates that are below cost.<sup>49</sup>

The practice of imposing cross-subsidies is incompatible with the goal of promoting fair competition (*i.e.*, based on real economic costs) via the construction of new facilities by new competitors. Cross subsidies also are inconsistent with fair competition via the purchase of UNEs, especially when the TELRIC-based pricing for UNEs is based on regional differences, rather than by customer class. Specifically, cross-subsidy regulation imposing retail prices inconsistent with the associated UNE rates encourages competitors into UNE-based “cream skimming” for services with overly high retail prices, and unduly discourages competitors from UNE-based provision for services that are under-priced.

In Texas, competitors can, under certain circumstances, take advantage of cross-subsidy regulation to offer service to business customers in high-density areas for a better rate than the ILEC can offer. The sum of TELRIC-based UNE rates for business services in urban areas is often less than the tariffed retail prices charged by the ILEC, which contain implicit subsidies for residential telephone service. Therefore, if a competitor’s retailing costs plus the sum of UNE rates owed to the ILEC is below the ILEC’s tariffed retail price, the competitor can turn a profit by purchasing a business phone’s underlying UNEs, allowing it to offer various optional calling features at a total rate below the ILEC’s retail price.<sup>50</sup> This opportunity is reinforced when the targeted customers spend relatively large amounts on long distance and other optional services without causing the competitor to incur substantial additional costs.

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<sup>48</sup> Actually, it is the flat-rated *access* to the telephone network (and hence to all services) via the customer’s “local loop” that tends to be subsidized.

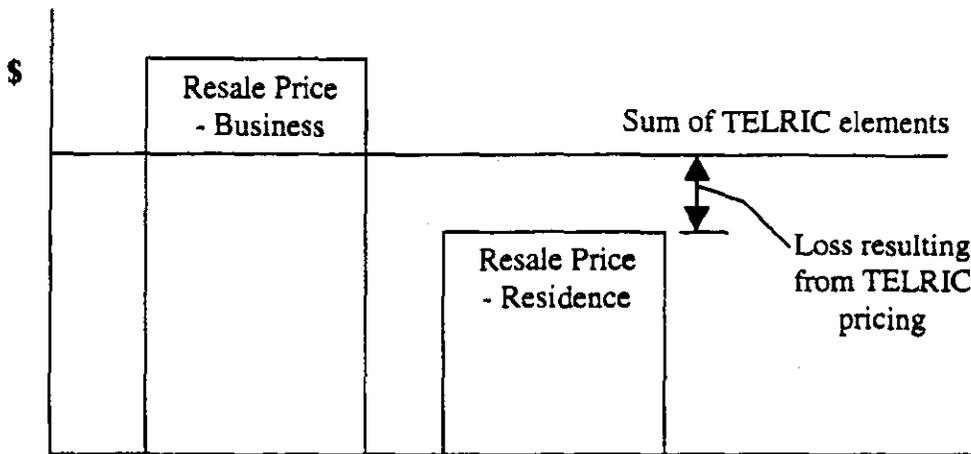
<sup>49</sup> Some of these cross-subsidies were diminished in the Commission’s universal-service project (*Compliance Proceeding for Implementation of the Texas High Cost Universal Service Plan*, Project No. 18515), which provided for larger-scale, more systematic subsidies to providers serving customers in high-cost areas by means of a substantially increased Texas Universal Service Fund surcharge assessed on all taxable telecommunications receipts.

<sup>50</sup> David Sibley, Declaration for SWBT in *Interim Process for New Services and Promotional Offerings, and Pricing and Packaging Flexibility Tariffs, Pursuant to PURA Chapters 52, 58, and 59*, Project 20956, (Oct. 21, 1999).

On the other hand, providing services using UNEs to residential customers (at least those who use long-distance sparingly and purchase few if any optional services) may not be profitable for competitors because the revenue the competitors can recover from the retail rate could be below the sum of the UNE rates needed to provide such service. Consequently, competitors are much less likely to provide UNE-based service to such residential customers.<sup>51</sup>

This inconsistency of retail rates and UNE rates for residential and business is illustrated below.<sup>52</sup>

Figure 11 – TELRIC-based UNE Rates vs. Retail Rates



## Long Distance Competition

Although Texans enjoyed a wide selection of long distance carriers (also known as interexchange carriers, or IXCs) at the end of 1999,<sup>53</sup> the long distance market continued to be dominated by three carriers: AT&T, WorldCom (which merged with MCI in September 1998), and Sprint. Economists refer to this phenomenon as a “tight oligopoly,” meaning that the dominant competitors possess a level of market power that enables them to use significant discretion in setting prices. A market may be considered a “tight oligopoly” if its four largest firms serve at least 60% of the market. In 1999, the

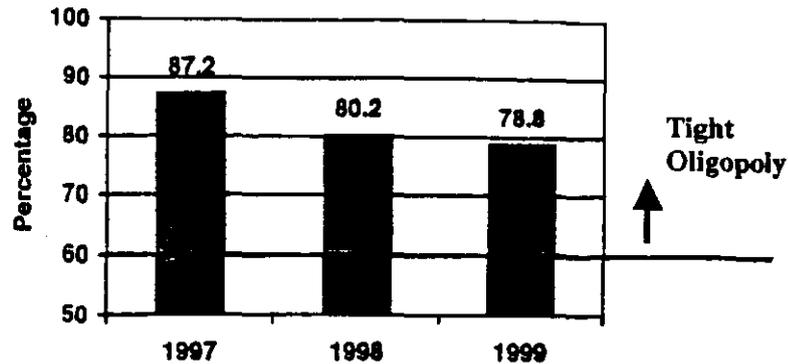
<sup>51</sup> The ability to resell the ILEC's services at a discount offers an additional avenue for competitors to provide service. The availability of universal-service subsidies for providing facilities- or UNE-based service to customers in high-cost areas also provides an incentive for competitors to serve some customers in less urbanized areas.

<sup>52</sup> David Sibley, Declaration for SWBT in *Interim Process for New Services and Promotional Offerings, and Pricing and Packaging Flexibility Tariffs, Pursuant to PURA Chapters 52, 58, and 59, Project 20956*, at 6 (Oct. 21, 1999).

<sup>53</sup> As of September 2000, 1550 long-distance carriers were registered with the Public Utility Commission of Texas. The commission's list of registered long-distance carriers can be found at <http://www.puc.state.tx.us/telecomm/directories/ixc.xls>.

market share in Texas of the largest three IXCs was 78.8% compared to 80.2% in 1997 and 87.2% in 1995 for the same three firms.<sup>54</sup>

**Figure 12 – Long Distance Market Share of AT&T, WorldCom, and Sprint Combined**



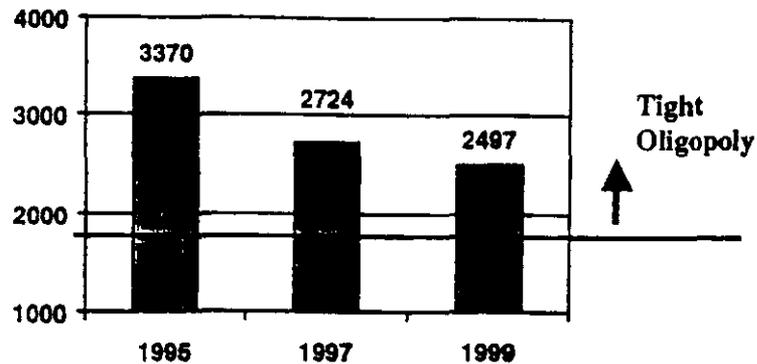
Another widely recognized measure of market power is the Hirschman-Herfindahl index (HHI).<sup>55</sup> This index ranges from a theoretical minimum of just above zero (meaning no firm has a meaningful market share) to a maximum of 10,000 (meaning a complete monopoly exists). An HHI at or above 1,800 indicates that a market is tightly oligopolistic, *i.e.*, highly concentrated. While the HHI was 3,370 in 1995 and 2,724 in 1997, it declined to 2,497 in 1999.<sup>56</sup> The last HHI suggests that the Texas intrastate long distance market was still highly concentrated at the start of 2000, though the market power of the three largest IXCs was continuing to decline.

<sup>54</sup> These market-share percentages are based on originating access minutes of use. The 1995 and 1997 percentages are for AT&T, MCI, Sprint, and Worldcom combined. The 1999 percentage is for AT&T, Worldcom and Sprint; Worldcom purchased MCI in 1998. Market share also may be measured using revenues, presubscribed lines, customers, or some other measure.

<sup>55</sup> The HHI is calculated by summing the squares of each firm's market share expressed as a percentage.

<sup>56</sup> These indices are actually lower-bound estimates, derived by adding the sums of the squares of the shares of the top four long-distance carriers in 1995 and 1997 and the top three in 1999. The 1999 estimate was calculated using only access minutes of use purchased from SWBT, Verizon, and the Sprint ILECs. Staff was not able to obtain data on an IXC-specific basis due to the reluctance of companies to provide company-specific data. The problem of obtaining data to calculate the HHI is discussed in Chapter 7 of this Report, under Legislative Recommendation No. 3 (*Clarify and Ensure Commission Authority to Protect proprietary Information*) as one of several examples of companies' refusal to provide information due to concerns about the Commission's ability to protect commercially sensitive information.

**Figure 13 – Hirschman-Herfindahl Index (HHI) of Three Largest Long Distance Carriers (AT&T, WorldCom, and Sprint)**



A significant change in the long distance arena occurred on July 10, 2000, when SWBT's affiliate SBC Long Distance entered the interLATA long distance market.<sup>57</sup> Unlike other long distance carriers, as of late 2000 SBC Long Distance offered interLATA long-distance service only to SWBT's local exchange telephone customers. Given SBC Long Distance's initial success in attracting long distance customers combined with customer enthusiasm for one-stop shopping, the erosion of the interLATA dominance of AT&T, WorldCom, and Sprint appears to be accelerating. As of December 5, 2000, SBC reported to the Commission that 1.2 million residential customers and more than 300,000 business customers had signed up for its interLATA long distance. The associated access line total represents more than 12% of SWBT's access lines in Texas.

As a result of a restructure of the Texas Universal Service Fund and the implementation of PURA § 58.301, *Switched Access Rate Reduction*, between September 1, 1999, and July 1, 2000, switched access rates charged to IXCs for originating and terminating long distance calls were reduced significantly. The reductions were flowed through to retail customers in the form of lower long distance rates. On average, a standard long distance call that previously was priced at \$.15 - \$.25 per minute of use was decreased to \$.10 to \$.20 per minute of use. Generally, long-distance rates charged by large IXCs were reduced by five cents (\$.05) per minute of use. These reductions memorialized an important goal of the last legislative session – to make certain that retail customers benefited from significant reductions to access charges paid by IXCs.

## **Conclusion**

CLECs entered Texas in large numbers, particularly in Dallas and Houston, which had over 40 CLECs by mid-2000, and in Austin and San Antonio, which each had nearly 30 CLECs. CLECs gained market share in local telephony, particularly in the Large Metro and Suburban areas of those four cities.

<sup>57</sup> SWBT's entry into the long distance market is discussed in detail in Chapter 2 of this Report.

CLECs had stronger market penetration among business customers than residential customers. CLECs entered Large Metro markets by building infrastructure and entered other regional markets by using a combination of resale of services and purchase of UNEs. Even rural areas of Texas were found to have multiple CLECs, but questions remain as to whether these CLECs serve a small niche market or the broader range of residential customers. Market penetration in rural areas overall was limited but increasing over time.

## CHAPTER 4: COMPETITIVE DEVELOPMENTS IN 2000

The data in Chapter 3 show that, in 1998 and 1999, a number of well-financed CLECs appeared poised to provide ILECs with competition for local exchange service in large and Suburban markets in Texas and to slowly but steadily increase market share in Rural areas. In 2000, however, some CLECs fell on hard times, forcing some into bankruptcy, restructuring, and mergers. A number of these CLECs announced plans to reduce their efforts in local voice service in Texas. At the same time, SWBT strengthened its financial position relative to CLECs, gained substantial market share in long distance markets, and raised the prices of various non-competitive telecommunications services.

### CLECs

CLECs entered Texas in large numbers in 1998 and 1999. A number of the startups were well financed, and the three largest long-distance carriers had announced their intentions to compete in local voice telephony in Texas. In the past year trends in the stock market and in the telecommunications industry have dramatically changed the dynamics of competition in local service.

### *FINANCIAL SIZE AND STRENGTH IN THE LATE 1990s*

The financial size and strength of CLECs relative to ILECs can influence the quality and intensity of competition in local telephone service in various areas of Texas. While a large number of CLECs have entered the Texas market, if their capitalization is thin or if they are not affiliates or subsidiaries of well-capitalized firms, CLECs may not provide substantial competition to entrenched ILECs, particularly if financing for start-up firms proves difficult.

If a number of CLECs have deep pockets or are affiliates of companies with deep pockets, these firms can fight long and hard for market share if the prospects for solid profits are good. They would be in a position to finance the installation of lines, to purchase long-term contracts for UNEs, to market their services effectively, and to maintain a presence in a local market if the incumbent decided to undercut prices in an attempt to retain market share.

The survey reveals that by the end of 1999, 90 CLECs had entered the Texas market for local exchange service, as shown in Table 12.<sup>58</sup> The vast majority of CLECs

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<sup>58</sup> Due to the Commission's limitations on acquiring competitively sensitive information, the number of CLECs actually providing service to paying customers at the end of 1999 is not known, and

were private companies. Of the remaining CLECs, the survey showed comparable numbers of telephone cooperatives and publicly traded firms.<sup>59</sup> These CLECs were competing with fifty-nine ILECs. Telephone cooperatives and small, private companies accounted for more than 80 percent of the ILECs.

**Table 12 – Texas ILECs and CLECs by Type of Organization**

Type of Entity	ILECs		CLECs	
	Number	Percent of Total	Number	Percent of Total
Public Companies	10	16.9%	10	11.1%
Private Companies	25	42.4%	72	80.0%
Telephone Cooperatives	24	40.7%	8	8.9%
<b>Total</b>	<b>59</b>	<b>100.0%</b>	<b>90</b>	<b>100.0%</b>

Source: Public Utility Commission Data Request 2000 Responses

Table 13 lists the CLECs by size of their capitalization, defined in this case as the value of debt and equity of the CLEC's parent in its most recent financial statement, which in most cases was year-end 1998 or year-end 1999.<sup>60</sup> Financial data on 52 CLECs were not available for this analysis. Most of these 52 CLECs were private companies, many of which do not publish their financial statements. Most of these firms likely were small with limited financial resources. They may have been niche players, gambling on quick, rapid growth, or eventually merging with another CLEC when the market consolidates.

therefore the percentage of those replying to the Commission's data request cannot be known. Several perspectives are available on the response rate to the Commission's data request and are detailed in Appendix H. Because it is nearly impossible for a CLEC to provide services without an interconnection agreement with an ILEC, the Commission believes that a critical mass of competitive providers submitted data, based on the 73 responses that were received from the 150 companies that had interconnection agreements in place by the end of 1999, which was the close of the period for which data were requested.

<sup>59</sup> One of the cooperatives, Denton Electric Cooperative, is an electric, not a telephone, cooperative.

<sup>60</sup> Staff in the Commission's Financial Review section made a determination of which subsidiary of a company was the parent based on financial statements and experience in the industry. Staff did not contact or ask the firm directly for this information, so the Commission does not claim that the identification of the parent companies is exact. Nor did staff make an attempt to determine the market capitalization of the publicly traded companies in this survey. Thus, the figures presented in this analysis should be considered illustrative rather than definitive.

**Table 13 – Capitalization of CLECs: Debt and Equity Listed in Financial Statements**

Size of CLEC	Number	Percent of Total
More than \$10 billion	10	11.1%
\$1 billion - \$10 billion	11	12.2%
\$100 million - \$1 billion	7	7.8%
Less than \$100 million	10	11.1%
Unknown	52	57.8%
<b>Total</b>	<b>90</b>	<b>100.0%</b>

Source: Public Utility Commission Data Request 2000 Responses

In 1999 the Texas market had CLECs with a wide range of capitalizations, some of which are very large electric or telephone utilities. Twenty-one firms, or a quarter of all CLECs, had parent companies with \$1 billion or more. Almost 70 percent of all CLECs, however, had less than \$100 million in capitalization or did not publish their financial information.

The two largest ILECs listed were SWBT and GTE/Verizon, ILECs subject to customer choice. These two ILECs each had capitalizations of over \$10 billion, as shown in Table 14. Almost 90 percent of all ILECs in Texas, however, had capitalizations of less than \$100 million. State and federal law and regulations allow small ILECs to forgo the implementation of standard interconnection agreements. This exemption hinders customer choice in many service areas of Rural Texas.

**Table 14 – Capitalization of ILECs (Debt and Equity)**

Size of ILEC	Number	Percent of Total
More than \$10 billion	2	1.7%
\$1 billion - \$10 billion	1	3.4%
\$100 million - \$1 billion	3	5.1%
Less than \$100 million	50	84.7%
Unknown	3	5.1%
<b>Total</b>	<b>59</b>	<b>100.0%</b>

Source: Public Utility Commission Data Request 2000 Responses

### **CLECs' INVESTMENT IN INFRASTRUCTURE**

The flood of financial capital that CLECs had at their disposal in the late 1990s allowed them to be aggressive in investing in new plant and equipment in Texas in 1999, as shown in Table 15 and Table 16. While ILECs had considerable construction expenditures in the late 1990s, many of these expenditures appear to have been offset by depreciation of existing equipment. CLECs, in contrast, increased their construction expenditures in 1999 by more than three times their 1998 expenditures, accounting for

one out of every four dollars of new investment in 1999. As a result, CLECs' share of infrastructure, as measured by net plant investment, doubled in one year to nearly ten percent in 1999.

**Table 15 – Net Plant Investment**

	1998		1999	
	Net Plant Investment	%	Net Plant Investment	%
ILEC	13,678,746,833	95.0%	13,849,642,077	90.5%
CLEC	713,529,978	5.0%	1,457,917,966	9.5%
Total	14,392,276,810		15,307,560,043	

Source: Public Utility Commission Data Request 2000 Responses

**Table 16 – Construction Expenditures**

	1998		1999	
	Construction Expenditures	%	Construction Expenditures	%
ILEC	2,396,430,541	90.8%	2,282,189,742	74.0%
CLEC	243,005,792	9.2%	800,765,765	26.0%
Total	2,639,436,333		3,082,955,507	

CLECs also invested in switching offices, as shown in Figure 14. Growth was most rapid in switching offices serving 31,000 or fewer lines. Table 17 shows that CLECs doubled the number of switching offices that served over 300,000 lines from eight in 1998 to sixteen in 1999.

**Figure 14 – Comparison of ILEC and CLEC Switching Offices**

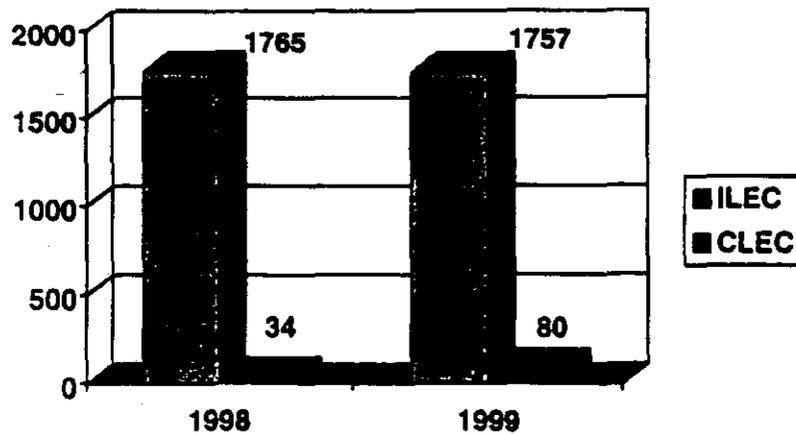


Table 17– Comparison of Switching Offices by Size of Office

Size of Switching Office	1998		1999	
	ILEC	CLEC	ILEC	CLEC
Fewer than 3,000 Lines	928	17	914	45
3,000 to 31,000 Lines	360	8	363	16
31,000 to 100,000 Lines	100	1	103	1
100,000 to 300,000 Lines	42	0	42	2
Over 300,000 Lines	335	8	335	16
Total Switching Offices	1,765	34	1,757	80

Source: Public Utility Commission Data Request 2000 Responses

### FINANCIAL STRUGGLES IN 2000

The capitalization of firms in 1998 and 1999, while consistent with the timeframe of the information in the data collection instrument, no longer presents an accurate picture of the financial condition of many CLECs.

The FTA and the increased market penetration of the Internet stimulated substantial investment in the telecommunications industry in the past two years. Capital spending by telecommunications companies in the United States is projected to exceed \$100 billion in 2000, almost three times the level in 1995.<sup>61</sup>

According to analysts in the telecommunications industry, investment in telecommunications lines and equipment has greatly outpaced growth in revenues in 1999 and 2000. The American telecommunications industry had a negative cash flow of \$20 billion in the first half of 2000, on top of a negative cash flow of \$11 billion in 1999.<sup>62</sup>

The industry turned to capital markets to finance this investment, issuing tens of billions of dollars in stock and bonds. The telecommunications industry became a major source of investment funds. Since year-end 1998, slightly more than 50 percent, or about \$10.3 billion of the \$20 billion in private equity that firms poured into minority investments in public companies, went to telecommunications firms. In 1998 and 1999, telecommunications companies issued over \$50 billion in high-yield bonds.<sup>63</sup>

This sharp increase in investment has led to a boom and bust in share prices of CLECs. Table 18 shows the performance of the NASDAQ Telecommunications Index for the period January 1, 1998 to December 5, 2000. The index rose from 306.1 in December 31, 1997 to a peak of 1,230.1 on March 10, 2000. By early 2000 this rise in the stock market provided CLECs with large capitalizations.

<sup>61</sup> "One Analyst's Grim Telecommunications View," *New York Times* (October 5, 2000).

<sup>62</sup> *Id.*

<sup>63</sup> "Telecom Sector Has Become a Black Hole for Investors," *Wall Street Journal* (October 13, 2000).

**Table 18 – Performance of the NASDAQ Telecommunications Index (January 1, 1998 – December 5, 2000)**

Date	NASDAQ Telecommunications Index	Increase from Previous Period	Cumulative Increase from December 31, 1997
December 5, 2000	534.4	-56.6%	74.3%
March 10, 2000	1,230.1	21.1%	301.2%
January 1, 2000	1,015.4	102.7%	231.2%
January 1, 1999	500.9	63.4%	63.4%
January 1, 1998	306.6	NA	NA

Source: National Association of Securities Dealers website, <http://www.nasdaq.com>, 10/31/00.

According to various reports in the financial press in the fall of 2000, investor sentiment turned sharply negative towards the telecommunications sector when CLECs were unable to convince investors that prevailing and projected profits were large enough to justify the prevailing level of investment and high share prices. In the nine months after its March 2000 peak, the NASDAQ Telecommunications Index fell 57 percent.

In the second half of 2000, CLECs found that access to capital, in the form of bank loans, issuance of debt, or initial public offerings of equity, was much more limited than it had been in the previous 18 months. The spread between telecom high-yield bonds and U.S. Treasuries (the safest debt instrument in the market) rose from 4.72 percent at the beginning of 2000 to 8.26 percent in mid-October, dramatically increasing the cost of raising venture capital for the typical small CLEC.<sup>64</sup>

The fall in the share prices of telecommunications companies strongly impacted some promising CLECs that had entered the Texas market. For example, four CLECs that once had a capitalization listed in Table 13 as \$800 million or more in 1998 or 1999 – Covad, ICG, Rhythms, and Teligent - saw their share prices fall more than 95 percent from their 2000 peaks, as shown in Table 19. In contrast, the stock price of the leading ILEC in Texas, Southwestern Bell, was less than 10 percent off its peak in 2000.

<sup>64</sup> *Id.*

**Table 19 – Fall in Share or Index Prices of Telecommunications Providers in 2000**

Category	Peak Price in 2000	Price on December 5, 2000	Percent Change in Stock Price
NASDAQ Telecommunications Index	1,230.1	534.4	-56.6%
ILEC			
Southwestern Bell	59.0	53.4	-9.5%
Large CLECs which are Long-Distance Carriers			
AT&T	61.0	20.4	-66.6%
Sprint	67.0	23.9	-64.3%
Worldcom	51.9	14.7	-71.7%
Selected Small CLECs			
Allegiance	110.1	17.6	-84.0%
Covad	66.6	1.9	-97.1%
ICG	39.2	0.3	-99.2%
Rhythms	50.0	0.9	-98.2%
Teligent	100.0	3.5	-96.5%

Source: Yahoo! webpage, <http://finance.yahoo.com>; *Wall Street Journal*, December 5, 2000

Larger CLECs that are long distance carriers also faced a difficult set of problems in 2000. A significant change in the long distance arena occurred on July 10, 2000, when SWBT's affiliate SBC Long Distance entered the interLATA long distance market. Given SBC Long Distance's initial success in attracting long distance customers, combined with customer enthusiasm for one-stop shopping, the erosion of the interLATA dominance of AT&T, WorldCom, and Sprint appears to be accelerating.

By the end of October 2000, stock prices for the three largest long distance carriers fell by two-thirds from their calendar year 2000 highs. These events led long-distance carriers to reconsider their business strategies in the Texas local telephone market.

### **CLECs RECONSIDER THE TEXAS MARKET**

Table 20 presents a recent snapshot of the actions that key CLECs have taken with regards to the Texas local voice market. Some of these CLECs were the largest, most capitalized CLECs in the Texas in 1998 and 1999 and were considered the "shining examples" of competitors to Texas ILECs for residential customers in Texas