



601 South Harbour
Island Boulevard
Suite 220
Tampa, FL 33602
[p] 813 273 6261
www.z-tel.com

November 21, 2001

EX PARTE – Via Electronic Filing

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
The Portals
445 12th Street, S.W.
Washington, DC 20554

Re: The Availability of Unbundled Local Switching and Competition
for Mass Market, Residential and Small Business Customers,
CC Docket 96-98

Dear Ms. Salas:

The attached letter and its accompanying White Paper were sent to Chairman Powell today.

In accordance with FCC rules, a copy of this letter and its attachments are being filed electronically in the above-captioned docket.

Sincerely,

A handwritten signature in black ink, appearing to read 'Thomas M. Koutsky'.

Thomas M. Koutsky

/krs
Attachments



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Ex Parte

Hon. Michael K. Powell
Chairman
Federal Communications Commission
445 12th St., S.W., Room 8-B201
Washington, DC 20554

Re: The Availability of Unbundled Local Switching and Competition
for Mass Market, Residential and Small Business Customers,
CC Docket 96-98

Dear Chairman Powell:

In the coming months, the Commission will review its unbundling rules, to ensure that those rules advance the public interest and the purpose of the Telecommunications Act of 1996. As the Commission does so, Z-Tel believes that it is critical that the Commission focus particularly on promoting choice for residential and business consumers served in the mass market. We are confident that when the Commission conducts its triennial review, it will verify what has been our experience – that unbundled local switching and the UNE-Platform remain critical to delivering a choice in local telecommunications for ordinary consumers.

Recently, the National Association of Regulatory Utility Commissioners (“NARUC”) also recognized the importance of the UNE-Platform method of entry and adopted a resolution noting the role that UNE-Platform plays in bringing competition to residential and small business consumers. The real world experience in the states of delivering choice for residential and small business consumers must be a critical focus of the upcoming triennial review.

The two years since release of the *UNE Remand Order*¹ ratify the importance of unbundled local switching to competition and choice for these mass-market customers. In fact, the attached Policy Paper demonstrates – through a rigorous economic analysis of the Commission’s FCC Form 477 data and the *Local*

¹ In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, CC Docket No. 96-98 (rel. Nov. 5, 1999) (“*UNE Remand Order*”).

*Competition Report*² – that mass-market consumers in states in which entry by means of unbundled local switching is fully available enjoy more competition than other states. This study confirms what state commissions across the country know well – that entry by means of the unbundled network element platform combination (“UNE-Platform”) is a critical component of bringing competition to mass-market residential and small business consumers. This study is the first of several analyses that Z-Tel will provide the Commission in the upcoming weeks as it prepares for the triennial review of its unbundling rules.

Empirical Results: There is More Competition Where ULS is Available. The results of the attached study fundamentally undermine the Commission’s rationale for limiting access to unbundled local switching in the top 50 MSAs. The Commission’s rationale for this restriction was that entry by means of “self-provisioning” of switching could occur in the restricted MSAs as robustly and as timely as entry by means of unbundled local switching. The empirical analysis in the attached shows this not to be the case: in fact, the *entire* level of competition for residential and small business consumers in states where the restriction applies lags *significantly* behind states where the restriction does not apply.

The study shows that if unbundled local switching were fully available, CLECs would serve **60% more mass-market customers** in restricted states than today. The study vividly demonstrates that, without access to unbundled local switching, the competitive environment for *all* new entrants is dramatically altered for the worse. The impact is more pronounced in many states – for example, the study predicts that CLECs’ market share of mass-market consumers in the state of Maryland would be **175% greater** if the restriction did not apply. In short, the evidence is in: in areas where unbundled local switching is not available, CLECs are **clearly impaired** in their ability to serve mass-market, residential and small business consumers.

Only the UNE-Platform Can Support Mass Market Entry. This study verifies what Z-Tel and other UNE-P providers have found to be true: as a method of entry, unbundled local switching – a critical component of the unbundled network element platform combination (“UNE-Platform”) – clearly works.

The reality is that there is no entry method other than UNE-Platform that is capable of serving the mass market, and there is no prospect that a facilities-based entry method will be able to do so even in the medium-term future. According to ARMIS data, there are over **160 million** simple, analog access lines in the United States. To support a level of vibrant competition and entry for these lines, incumbent LEC systems must be able to process and provide literally millions of customer conversions and changes. No provisioning system today can provide sufficient manual "hot cuts" for the volumes needed to support competition.³

Conclusion: Focus on the Customer, not the Carrier. From the consumer's perspective the UNE-Platform is a success. Z-Tel offers its competitive and innovative local services in 35 states – a rapid deployment possible only because of the availability of unbundled local switching and UNE-Platform. Without

² Federal Communications Commission, Common Carrier Bureau, Industry Analysis Division, *Local Telephone Competition: Status as of December 31, 2001* (May 2001) (“*Local Competition Report*”).

³ In particular, residential and small business subscribers undergo considerable “churn,” meaning that in serving this market, a carrier must expect that a substantial percentage of customers will naturally disconnect service. For example, Census data shows that over 20% of American households move every year. Assuming a mass market, carrier systems must be able to process over **3.2 million changes per month**. Only UNE-Platform can support that level of OSS activity.

access to unbundled local switching, many, if not most, of these mass-market consumers would, two years after the *UNE Remand Order*, still be waiting for competitive choice. The attached analysis confirms that experience. Rather than relying on unsubstantiated claims, the attached analysis of the Commission's local competition data shows that residential and small business consumers benefit from vastly more competitive options – from all types of carriers – in states where access to unbundled local switching has been fully implemented. Conversely, the study shows that in states where the Commission's rules have restricted access to unbundled local switching, mass-market consumers are still waiting for competitive choices.

Z-Tel looks forward to the Commission's upcoming review of its unbundling rules. In the coming weeks, Z-Tel will provide the Commission a set of rigorous legal and economic analyses that will assist the Commission in this important proceeding. These submissions will provide a status update on UNE-Platform entry, the requirements of serving the "mass market," the role UNE-Platform entry has played in the Section 271 process and State commission efforts to promote competition, and debunking the myths extolled by the BOCs in their campaign to eviscerate this one method of entry that has brought a substantial competitive choice to the mass market. The record will clearly demonstrate the important and critical role that unbundled local switching and the UNE-Platform play in bringing competition to mass-market residential and small business consumers.

Sincerely,



Thomas M. Koutsky
Vice President – Law and Public Policy
Tel: (202) 955-9652

Attachment

c: Commissioner Kathleen Q. Abernathy
Commissioner Michael Copps
Commissioner Kevin J. Martin
Dorothy Attwood
Jeffrey Carlisle
Kyle Dixon
Paul Jackson
Jordan Goldstein
Samuel Feder
Matthew Brill
Chris Libertelli
Brent Olson
Jonathan Reel



Communications, Inc.

An Empirical Exploration of the Unbundled Local Switching Restriction

**Z-Tel Public Policy Paper No. 3
Z-Tel Communications, Inc.
601 S. Harbour Island Blvd., Suite 220
Tampa, Florida 33602**

November 2001

An Empirical Exploration of the Unbundled Local Switching Restriction

Abstract: In this paper, we examine empirically the impact of the ULS restriction on the realization of competition for residential and small business consumers in the United States. Econometric analyses suggest that the ULS restriction reduces both the absolute and relative level of competition for residential and small business telecommunications consumers. Our estimates indicate that the ULS restriction has reduced CLEC market share of residential and small business customers by 60%.

I. Introduction

Nearly six years after the passage of the Telecommunications Act of 1996 and two years after the FCC's *UNE Remand Order*, competition for mass-market, residential and small business customers remains elusive in many, if not most, states. In the *UNE Remand Order*, the FCC ordered access to unbundled local switching ("ULS") in order foster competition for these mass-market consumers, but the FCC simultaneously placed a significant restriction on the availability of ULS in the Top 50 metropolitan statistical areas ("MSAs").

This Z-Tel Public Policy Paper shows that where the availability of ULS is restricted, there is substantially *less* competition for residential and small business customers. In fact, an empirical examination of the FCC's own data shows that residential and small business customers benefit from significantly *more* competitive entry in regions where the ULS restriction does not apply than in regions where the restriction applies.

These results undermine the fundamental rationale for the FCC's rule. Nearly two years have passed since the *UNE Remand Order*, and entry strategies based on the patchwork availability of ULS have had sufficient opportunity to develop. The FCC's rationale for the restriction was that entry via "self-provisioning" of switching could occur in the restricted areas as robustly and timely as entry by means of ULS. This empirical analysis shows that not to be the case: competition for residential and small business customers in states where the restriction applies lags behind competition in areas where ULS is unrestricted. In short, residential and small business consumers in restricted areas face considerably less competition and are still waiting for choices.



II. Background on the Unbundled Local Switching Restriction

Unbundled local switching is a key component of the UNE-Platform, which new entrants utilize to provide competitive local service to mass-market, residential and small business customers. In the *UNE Remand Order*, the Federal Communications Commission ("FCC") reiterated its position that CLEC access to unbundled local switching ("ULS") is necessary to bring competition to the mass market. Specifically, the FCC concluded, "that, in general, lack of access to unbundled local switching materially raises entry costs, delays broad-based entry, and limits the scope and quality of the new entrant's service offerings."¹ Primary motivators for the FCC decision include the desire "to encourage the rapid introduction of competition in *all* markets, including residential and small business markets";² to allow CLECs "to serve the *greatest number* of customers";³ and "to benefit *all* Americans by opening *all* telecommunications markets to competition."⁴

But despite those findings, the FCC restricted access to unbundled local switching under certain conditions. Specifically, the FCC chose to remove the unbundled switching obligations of the ILECs for customers with more than three switched access lines in the densest portions (density zone 1) of the fifty largest Metropolitan Statistical Areas ("MSA"), as long as the ILEC provided access to enhanced extended links ("EELs") in these areas. The rationale for this exclusion was that in these regions, sufficient alternatives to ILEC-provided switching (namely, self-provisioning of switching) existed so that entrants could serve in a "timely" manner residential and small business consumers at levels of comparable scale and scope as access to unbundled local switching would allow.

This Z-Tel Public Policy Paper evaluates empirically the effect of the ULS restriction on the extent of competition in the residential and small business markets and finds that the restriction is hampering competitive entry. We first consider the impact of the switching restriction on the share of residential and

¹ In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, THIRD REPORT AND ORDER AND FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING, CC Docket No. 96-98, ¶253 (rel. Nov. 5, 1999) ("*UNE Remand Order*").

² *Id.* at ¶9 (emphasis added).

³ *Id.* at ¶10 (emphasis added).

⁴ *Id.* at ¶2 (emphasis added).



small business consumers served by CLECs. Using CLEC market share statistics supplied by the FCC, we find that the absolute level of competition for residential and small business customers is lower in states where the switching restriction applies to large portions of the state population. Thus, the econometric analysis suggests that the switching restriction reduces the overall level of competition for residential and small business telecommunications consumers.

Second, we evaluate empirically the effect of the switching restriction on the level of CLEC entry in the residential and small business consumer group relative to larger telecommunications consumers. Because the size of the residential and small business markets vary by state, it is sensible to account for this variation in measuring the intensity of CLEC entry into the residential and small business market.⁵ Our regression analysis, using FCC and Census data, indicates that the switching restriction reduces the relative level of competition for residential and small business consumers.

III. Empirical Analysis

The empirical analysis to test the incumbent hypothesis is straightforward. Data from publicly available sources are utilized and empirical models are generated to test whether the ULS restriction plays any role in the level of CLEC market share in a state. Our approach differs from existing analysis on the ULS restriction. Specifically, we employ econometric methods to evaluate any systematic effects of the ULS restriction on competition. Earlier "studies" of the ULS restriction have used, at best, anecdotal evidence, and most consist of little more than public policy propaganda and rhetoric.

The FCC's *Local Competition Report* (Tables 6 and 8) provides CLEC and ILEC access lines by state and the percentage of CLEC and ILEC lines serving residential and small business customers.⁶ The *Local Competition Report* also

⁵ For example, if 50% of CLEC lines serve residential and small business consumers, this share has a very different meaning if 80% of the total lines in the market serve residential and small business consumers versus 30% of the total lines. In the former case, CLECs appear to pursue residential and small business consumers with less intensity than in the latter.

⁶ Federal Communications Commission, Common Carrier Bureau, Industry Analysis Division, *Local Telephone Competition: Status as of December 31, 2001* (May 2001) ("Local Competition Report").



provides the total number of lines in the state. Data on these variables is provided for 35 states. The U.S. Census Bureau's website (www.census.gov) provides median household income and population data for these 35 states. The percentage of the state's population residing in the fifty largest MSAs where the ULS restriction applies also is computed from Census data.

It is important to note that because of proactive actions by many States, the FCC's ULS restriction is not applicable in all of the fifty largest MSAs. For example, in Texas, the "T2A" interconnection agreement assured unrestricted access to ULS.

The variables employed in the empirical analyses include:

<i>CLECSHR</i>	Market Share of CLECs for residential and small business consumers;
<i>TARGET</i>	Percentage of CLEC lines serving residential and small business customers divided by percentage of state lines serving residential and small business customers;
<i>LINES</i>	Total access lines in the state serving residential and small business customers;
<i>CITYPOP</i>	Population of state living in city centers of metropolitan areas;
<i>INC</i>	Median household income in the state;
<i>RESTRICT</i>	Percentage of state population in restricted, Top 50 markets.

The variable *CLECSHR* measures the absolute level of competition in the state for residential and small business consumers. *TARGET* captures the intensity with which CLECs target residential and small business consumers relative to other, larger consumers. This variable exceeds (is below) 1.00 if the CLECs have a greater (smaller) percentage of residential and small business customers than the market as a whole. To illustrate the meaning of the variable *TARGET*, consider a state where the share of residential and small business lines is 60%. If CLECs acquire customers in a random fashion or target all consumers equally, then the expected percent of residential and small business lines is 60% (the market's distribution of such lines). If the CLEC's share of residential and small business lines is 20%, alternately, then CLECs are pursuing larger customers more aggressively. If 80% of CLEC lines are serving residential and



small business consumers, then the CLECs are targeting the residential and small business consumers with greater intensity than larger customers.

1. THE ULS RESTRICTION AND THE LEVEL OF COMPETITION

This section describes the empirical test designed to measure the impact of the ULS restriction on CLEC market share of residential and small business customers. The absolute level of competition for residential and small business customers in a state is defined as the percent of residential and small business access lines in a state served by CLECs.⁷ The level of competition is specified as a function of state market size in terms of residential and small business access lines, household income, and the ULS restriction. The econometric equation therefore is:

$$CLECSHR = \alpha_0 + \alpha_1 RESTRICK + \alpha_2 LINES + \alpha_3 INC + \alpha_4 CITYPOP + \varepsilon \quad (1)$$

where the α 's are the estimated coefficients and ε is the econometric disturbance term. If CLECs favor markets with greater telecommunications demand, more densely populated markets, and large household incomes, then the signs of the estimated coefficients on *LINES*, *CITYPOP*, and *INC* should be positive ($\alpha_2, \alpha_3, \alpha_4 > 0$). A positive sign on *RESTRICK* indicates that the ULS restriction is conducive to competitive choice for residential and small business consumers. Alternately, if the ULS restriction limits opportunities for competitive entry for residential and small business customers, a negative relationship between the restriction and CLEC market share is expected. Because the ULS restriction is designed to limit the opportunities for competitive entry by UNE-P CLECs, our a priori expectation is that the sign on *RESTRICK* will be negative.

⁷ This is the "mass market" market definition that the FCC utilized in the *UNE Remand Order* regarding ULS.



Equation (1) is estimated by the Minimum Chi-Square method.⁸ The Minimum Chi-Square Method is essentially a weighted least-squares technique, where the weight is the inverse of the square root of the variance of the dependent variable.⁹ This weighting scheme corrects for the heteroscedastic errors endemic to models with dependent variables expressed in percentage terms (i.e., dependent variables that are based on grouped data).¹⁰

The results from the estimation of Equation (1) are provided in Table 1. All of the explanatory variables are statistically significant except for the constant term and *INC*, and the fit of the regression is good for cross-sectional data (the R^2 is 0.85 for the transformed/weighted data, and 0.48 for the untransformed data). The F-statistic of the Ramsey RESET test is 1.01, which is not statistically significant at standard levels. RESET is a rather general test for specification errors related to omitted variables, incorrect functional form, and correlations between the explanatory variable and the error (e.g., caused by endogenous variables).¹¹ The insignificant RESET F-statistic indicates our model does not suffer from these major types of specification error.

Not surprisingly, the regression model indicates that CLEC market share is higher in larger, more densely populated markets with relatively high median household incomes: the signs on *LINES*, *CITYPOP*, and *INC* are all positive.

Table 1. Results

Variable	Equation (1): CLEC SHR	Mean [St. Dev.]
Constant	-0.02 (0.43)	...
<i>LINES</i>	8.22E-09 (2.55)*	3,196,208 (3,064,878)
<i>CITYPOP</i>	0.07 (2.73)*	0.29 (0.156)
<i>INC</i>	1.53E-06 (1.43)	42,435 (5,977)
<i>RESTRICT</i>	-0.077 (4.08)*	0.37 (0.29)
<i>CLECSHR</i>	...	0.04 (0.03)

* Statistically significant at the 5% level or better.

⁸ Jack Johnston and John DiNardo, *Econometric Methods*, 4th ed., McGraw-Hill: New York (1997), pp. 433-4.

⁹ For the linear specification, the variance for state j is $p_j(1 - p_j)/n_j$, where p_j is the dependent variable and n_j the denominator of p_j (in this case, the state total of residential and business access lines).

¹⁰ See Johnston and DiNardo (1997), pp. 434.

¹¹ James Ramsey (1969) "Tests for Specification Errors in Classical Linear Least Squares Regression Analysis," *Journal of the Royal Statistical Society*, Series B, Vol. 31, pp. 350-371. While able to detect a wide array of specification errors, the RESET test only indicates specification error is present. The RESET test provides no guidance as to the particular source of the specification error.



LINES and *CITYPOP* are statistically significant at the 5% level or better, but *INC* is not statistically significant at standard levels.

The negative and statistically significant coefficient ($z = 4.08$) on *RESTRICT* indicates that *the ULS restriction substantially reduces competition for residential and small business consumers*. The coefficient on *RESTRICT* indicates that a 10 percentage point increase in the percent of population living in the restricted markets reduces, on average, the CLEC market share for residential and small business customers by 25%. In other words, the larger the restricted market, the more impact the restriction has on CLEC market share.

Table 2. Increase in Competition for Residential and Small Business Customers from Removing ULS Restriction

State	Percent Increase in Competition	State	Percent Increase in Competition
AZ	97%	MN	31%
CA	99%	MO	101%
CO	42%	NJ	62%
CT	45%	NC	52%
DC	86%	OH	65%
FL	48%	OR	116%
GA	39%	PA	47%
IL	51%	TN	20%
IN	33%	UT	51%
LA	17%	VA	45%
MD	175%	WA	45%
MA	41%	WI	24%
MI	58%	Avg	60%

The econometric model (Equation 1) can be used to estimate the increases in CLEC market shares if the ULS restriction is eliminated. For each relevant state, Table 2 summarizes the increase in the percentage of residential and small business lines served by CLECs if the ULS restriction is eliminated. The increased level of competition for residential and small business customers ranges from 20% in Tennessee to 175% in Maryland. On average, eliminating the ULS restriction increases CLEC market share by 60% in states where the ULS restriction is relevant.

2. THE ULS RESTRICTION AND THE INTENSITY OF COMPETITION FOR RESIDENTIAL AND SMALL BUSINESS CUSTOMERS

The econometric results above indicate that the ULS restriction reduces the absolute level of competition for residential and small business consumers. It is also important to understand the impact the ULS restriction may have on the *intensity* of CLEC competition for residential and small business customers. In this second model, we evaluate the intensity with which CLECs target the residential and small business markets within a state by examining the share of CLEC access lines serving residential and small business lines in a state relative



to the total share of the residential and small business access lines in the state (*TARGET*).

This second model is similar to the first, except the dependent variable has changed:

$$TARGET = \beta_0 + \beta_1 RESTRICT + \beta_2 LINES + \beta_3 INC + \beta_4 CITYPOP + \varepsilon \quad (2)$$

where the β 's are the estimated coefficients and ε is the econometric disturbance term. Also, Equation (2) can be estimated with ordinary least squares. Our expectation is that CLECs target markets with larger, more densely populated markets with larger incomes ($\beta_2, \beta_3, \beta_4 > 0$). If the coefficient on *RESTRICT* is positive ($\beta_1 > 0$), then the ULS restriction promotes competition for residential and small business customers. If the coefficient is negative ($\beta_1 < 0$), however, then the restriction reduces competition in the residential and small business markets, directing CLECs to pursue alternative business plan. Given that the restriction precludes entry by particular CLECs, the a priori expectation is that the restriction will reduce competition for residential and small business market customers.

The results from the estimation of Equation (2) are provided in Table 2. All of the explanatory variables, except for *LINES* and the constant term, are statistically significant at the 5% level or better. The fit of the regression is good for cross-sectional data with an R^2 of 0.30. The hypothesis of no specification error cannot be rejected: the F-Test from the Ramsey RESET test is 0.26, which is not statistically significant. The White test suggests that the null hypothesis of homoscedastic errors cannot be rejected.¹²

¹² The F-Statistic for the White test is 0.92, having a probability level of 0.51.



As with the absolute level of competition evaluated in the previous section, the *TARGET* regression model indicates that CLECs target residential and small business customers more intensely in larger, more densely populated states with relatively high median household incomes. The negative and statistically significant coefficient on *RESTRICT* again indicates that the ULS restriction reduces competition for residential and small business customers. The z-statistic on

RESTRICT is 2.79, having a probability level lower than 0.01. The coefficient on *RESTRICT* indicates that a 10 percentage point increase in the percent of population living in the restricted markets reduces, on average, the CLEC's pursuit of residential and small business customers by 11%. If the ULS restriction were removed, the proportion of CLEC lines serving residential and small business customers would increase by 16 percentage points (at the sample average of *RESTRICT* for states where the restriction applies).

Table 3. Results

Variable	Equation (1): CLECSHR	Mean [St. Dev.]
Constant	-0.49 (1.52)	...
<i>LINES</i>	6.3E-09 (1.10)	3,196,208 (3,064,878)
<i>CITYPOP</i>	0.54 (2.09)*	0.29 (0.156)
<i>INC</i>	2.13E-06 (2.95)*	42,435 (5,977)
<i>RESTRICT</i>	-0.44 (2.80)*	0.37 (0.29)
<i>TARGET</i>	...	0.45 (0.23)

* Statistically significant at the 5% level or better.

IV. Conclusions

The FCC's unbundling policy should be properly focused upon advancing the introduction of competition for all consumers, including mass-market residential and small business customers. In the *UNE Remand Order*, the FCC ordered unlimited access to unbundled local switching in many regions but placed substantial restrictions on ULS in the top 50 MSAs. The FCC's rationale was that in large cities, CLECs could serve the entire mass market as intensely without access to ULS as CLECs could serve with access to ULS.

Our empirical analysis suggests that the FCC's policy of favoring one type of competition over another in those larger markets is in fact harming residential and small business consumers in those areas. Consumers in states where there is unrestricted availability of ULS enjoy a considerably more robustly competitive environment than their compatriots in restricted states. Business-focused, downtown CLECs are not serving mass-market, residential and small business consumers in states where the ULS restriction applies to the same extent that



UNE-Platform and other entrants serve mass-market consumers in unrestricted areas.

Those harmed by the ULS restriction are residential and small businesses in states where the restriction applies. Even conservative estimates regarding the potential cost savings mass-market consumers would enjoy from competition indicates that millions of dollars of consumer welfare are being sacrificed by operation of this industrial policy. The empirical evidence shows that contrary to the FCC's conclusion in November 1999, entry by means of self-supplied switches (for residential and small business customers) is simply not as robust and timely as entry by means of unbundled local switching. The empirical evidence shows that CLECs of all types that seek to provide service to residential and small business customers are most definitely impaired in their entry efforts by the ULS restriction.



The Z-Tel Public Policy Paper Series is designed to arm policymakers and the public with a rigorous set of analytical tools and analyses regarding the development of local telecommunications competition. For more information, contact any of the following members of Z-Tel's Strategic Policy Department.

George S. Ford, Chief Economist	gford@z-tel.com
Thomas M. Koutsky, V.P., Law and Public Policy	tkoutsky@z-tel.com
Peggy Rubino, V.P., Eastern Region	prubino@z-tel.com
Ron Walters, V.P., Midwest-West Region	rwalters@z-tel.com

Other Z-Tel Public Policy Papers

Putting the Cart before the Horse: The History and Future of the UNE Platform, Z-Tel Public Policy Paper No. 1 (February 2001)

The TELRIC Test: Determining the "Zone of Reasonableness" for UNE Rates, Z-Tel Public Policy Paper No. 2 (November 2001)

An Empirical Exploration of the Unbundled Local Switching Restriction, Z-Tel Public Policy Paper No. 3 (November 2001)

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