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November 5, 2001

VIA HAND DELIVERY

Blanca S. Bayo, Director
Division of Records and Reporting
Betty Easley Conference Center
4075 Esplanade Way
Tallahassee, Florida 32399-0870

Re: Docket No.: 000121-TP

Dear Ms. Bayo:

On behalf of Z-Tel Communications, Inc., I am enclosing the original and 15 copies of Z-Tel's Comments on the Methodology for Assessing Penalties Contained in BellSouth's Proposed Performance Plan.

Please return a date stamped copy to me. Thank you for your assistance in this matter.

Yours truly,

Joseph A. McGlothlin

JAM/mls
Enclosure

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BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In re: Investigation into the Establishment of Operations Support Systems Permanent Performance Measures for Incumbent Local Exchange Telecommunications Companies

Docket No.: 000121-TP

Date: November 5, 2001

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Z-TEL'S COMMENTS ON THE METHODOLOGY FOR ASSESSING PENALTIES CONTAINED IN BELLSOUTH'S PROPOSED PERFORMANCE PLAN

Z-Tel Communications, Inc. hereby submits its comments on the penalty portion of BellSouth's proposed performance plan.

On September 10, 2001, the Commission issued Order No. PSC-01-1819-FOF-TP (the "Order"), in which it directed BellSouth to prepare and submit a performance plan that would conform to the decision memorialized in the Order.

In the Order, the Commission authorized the Staff to approve a conforming plan administratively. However, the Commission recognized that aspects of the Order would require interpretation. The Commission established a procedure whereby parties would have an opportunity to respond to BellSouth's proposed plan by submitting written comments and by participating in workshops on the subject. In this manner, the Commission provided the parties with opportunities to object to non-conforming aspects of BellSouth's proposed plan and to participate in the development of alternative, conforming provisions.

On October 4, 2001, BellSouth distributed to Staff and parties a partial draft of its proposed plan. The partial draft contained no information concerning the penalty methodology that BellSouth intended to incorporate.

Staff conducted an initial workshop on BellSouth's first, partial draft on October 15, 2001.

Based on the ALECs' need for an opportunity to review the entire plan prior to submitting comments, at Staff's suggestion BellSouth and certain ALECs filed a joint motion to revise the procedural schedule to allow written comments to be filed following BellSouth's submission of a complete proposal on October 25, 2001.

Also during the initial workshop of October 15, 2001, Z-Tel and the other ALECs learned that they and BellSouth hold vastly different interpretations of the provisions of the Order governing the penalty calculation methodology that BellSouth is to develop. Z-Tel and the other ALECs believe the Order requires BellSouth to prepare a plan incorporating a measure-based penalty provision that would be adjusted to calculate varying penalties for different measures, reflecting the relationships in the penalty mechanism that BellSouth supported at hearing, but that also would increase the levels of penalties as a function of increasing severity, as in the measure-based plan that the ALECs supported throughout the case. BellSouth was interpreting the Order to require BellSouth to develop a penalty mechanism that would not increase monetary penalties as a function of increasingly severe violations of the standards in the plan–thereby yielding a "flat fee" schedule of penalties. On October 29, 2001, Z-Tel, AT&T, MCI WorldCom and Covad filed a Motion for Clarification/Alternative Suggestion for Reconsideration on the Commission's Own Motion, in which Z-Tel and the other ALECs brought the differing interpretations to the Commission's attention.

On October 25, 2001, BellSouth distributed its "proposed final" performance plan.

Concurrently with the filing of these comments, AT&T, WorldCom and Covad are submitting joint comments on BellSouth's proposed plan. Z-Tel concurs in, adopts, and supports the comments of these ALECs as they relate to the portion of the BellSouth plan that addresses the measures that should be incorporated in the plan.

The purpose of Z-Tel's separate comments is to provide Z-Tel's position on the penalty calculation component of BellSouth's proposal. Consistent with the position articulated in the pending Motion for Clarification, the premise underlying Z-Tel's comments is that the Commission intended to require BellSouth to develop a penalty mechanism under which penalties would increase with increased severity of BellSouth's poor performance. Z-Tel's comments are in the form of an analysis prepared by Dr. George Ford, Z-Tel's Chief Economist, which is attached to this document and incorporated by reference. In the analysis, Dr. Ford identifies the deficiencies of BellSouth's penalty proposal; amplifies on a non-statistical test-based "severity methodology" involving adjustments to the quadratic equations in the Joint ALECs' plan (which methodology was described approvingly by BellSouth's witness in exhibits that were admitted into evidence); and illustrates an alternative manner of incorporating the concept of "severity" while meeting the other criteria articulated in the Order.

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An Analysis of BellSouth's Proposed Performance Plan

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In the remedy plan Order of the Florida Public Service Commission, a specific remedy plan was not set forth.[1] Rather, the Commission "directed [BellSouth] to develop a remedy plan which includes certain features (Order, p. 164)." BellSouth's proposed, order-compliant remedy plan was issued October 11, 2001. BellSouth's proposal is not compliant with the Order in a few respects, some of which are evaluated here. Specific proposals that bring BellSouth's remedy plan into compliance with the Order are suggested.

Of primary interest in this document are the following guidelines listed in the Order: 1) remedies should be "measure-based"; 2) the relationships between the various measure-based remedy payments should be consistent with the relative relationships between the various BellSouth proposed, transaction-based remedy payments; 3) Tier 1 remedies should be set such that the average Month 1 remedy approximates the $2,500 minimum payment recommended by the ALEC Coalition. These guiding principles are followed in the proposals contained herein.

Additionally, BellSouth's proposed implementation of the Delta Function, where Delta is computed at the cell-level rather than the sub-measure level, seems to be inconsistent with the purpose of the Delta Function and the computations of the truncated z-score proposed by BellSouth. Delta should be calculated at the sub-measure level using the aggregate of ALEC transactions for that measure. The computed Delta for that measure is then used to perform the cell level calculations that are aggregated using the truncated z-score – the same approach used in BellSouth's SEEM plan.

I. A Measure-Based Remedy Plan

A measure-based remedy plan is characterized by penalty payments that are independent of the number of ALEC transactions. The record in this proceeding consists of measure-based remedy plans that include minimum and maximum penalty payments for each measure, with penalty payments between these two

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[1] In re: Investigation into the establishment of operations support systems permanent performance measures for incumbent local exchange telecommunications companies. DOCKET NO. 000121-TP, ORDER NO. PSC-01-1819-FOF-TP, ISSUED: September 10, 2001 ("Order").

levels being paid depending on the difference between BellSouth and ALEC performance levels.[2]

BellSouth's proposed remedy plan has *only* a minimum payment, and is therefore inconsistent with a measure-based remedy plans considered in this proceeding (or any other remedy plan proceeding for that matter). To correctly implement a measure-based remedy plan, the remedy plan must contain some method by which to escalate the penalty amount as the disparity between ALEC and BellSouth service quality levels increases. Because BellSouth has failed to incorporate this necessary feature in their proposal, two such severity methods are described below.

1. THE ALEC COALITION'S SEVERITY MEASURE

Commission staff noted "both the BellSouth remedy plan and the ALEC Coalition remedy plan appear to do a poor job of estimating the extent of any discrimination in staff's opinion (Order, p. 162)." Staff's opinion that the ALEC Coalition's severity measure does a "poor job" because it "confuses statistical certainty with severity" appears to be based on the testimony of BellSouth Witness Dr. William Taylor, where Dr. Taylor asserts that a statistical decision rule cannot determine the relative severity of a failure (Order, p. 161). While Dr. Taylor's observation that statistical certainty does not translate directly to severity is correct in principle, his observation has no relevance to the ALEC Coalition's remedy plan and measure of severity. While Dr. Taylor's observation that "a z-score that is twice as distant from a critical value than another could easily be fore reasons other than simply that one of the performance means is twice as large as the other (Order, p. 161-2)" is relevant to the BellSouth SEEM plan, which computes severity as one-fourth the *difference* between z-scores, this observation does not accurately characterize the ALEC Coalition remedy plan.

The ALEC Coalition remedy plan measures severity as the *ratio* of the modified z-score to the balancing critical value. While both of these inputs to the severity calculation are used as part of a statistical decision rule, the ratio of these two numbers simplifies to an accurate indicator of means differences and the division removes the "statistical" components of the z-scores. This fact can be illustrated as follows. The modified z-score is

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[2] Z-Tel provided, as a late filed exhibit, a hybrid measure/transactions based remedy plan.

$$MODZ = \frac{X_C - X_B}{S_B\sqrt{1/N_B + 1/N_C}} \quad (1)$$

where X are the means for the ALEC (C) and BellSouth (B), S is the standard deviation of the BellSouth data, and N are the respective sample sizes. The balancing critical value is

$$BCV = 0.5 \cdot \delta\sqrt{1/N_B + 1/N_C} \quad (2)$$

where δ is the "Delta" parameter for the balancing statistical technique. The ratio of these two values is

$$\frac{MODZ}{BCV} = \frac{X_C - X_B}{0.5 \cdot \delta \cdot S_B}. \quad (3)$$

Observe that the sample sizes cancel, making the ratio of the two numbers independent of sample size. Because the denominator of the ratio is a constant for any given measure, this index of severity increases only as the means difference increases.[3] Letting this constant equal k, the ALEC Coalition's severity index can also be written as

$$\frac{MODZ}{BCV} = \frac{1}{k}(X_C - X_B). \quad (4)$$

Equation (4) shows clearly that the ALEC Coalition's severity index is simply a $1/k$-scale of the means difference. Thus, if one ratio MODZ/BCV is twice as large as another, then it is correct to infer that the means difference is twice as large as well. Consequently, the severity index of the ALEC Coalition plan satisfies the requirements for a severity index as set forth by BellSouth's Witness Dr. Taylor.

2. THE ALEC COALITION REMEDY CALCULATION

Recognizing that the severity index of the ALEC Coalition plan does not "confuse statistical certainty with severity," we are forced to consider the reasonableness of the ALEC Coalitions penalty calculation algorithm. In the

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[3] Both S_B and δ will vary by measure, and δ will vary also by ALEC. Nevertheless, for any given ALEC, the ALEC severity index correctly measures the difference in performance means.

ALEC Coalition plan, the payment level is determined using a quadratic formula where the value of the formula depends on the severity of the performance failure (MODZ/BCV). The quadratic formula for parity measures is

$$Penalty = 8125 - 11250 \cdot \frac{MODZ}{BCV} + 5625 \cdot \left(\frac{MODZ}{BCV} \right)^2, \qquad (5)$$

where the minimum penalty computed by this formula is $2,500 (when MODZ/BCV = 1.00), and the maximum penalty is set at $25,000 where MODZ/BCV is equal to 3.00.

It is easy to adjust the ALEC Coalition's penalty function to satisfy the Order; the quadratic penalty formula in equation (5) is linearly homogeneous. In other words, if Equation (5) is multiplied by 2, then the *Penalty* will be twice as large. If Equation (5) is divided by 2, then the *Penalty* will be half as large. The importance of the linear homogeneity of the quadratic penalty function becomes apparent when considering the statements of BellSouth Witness Dr. Taylor and the "relative relationships" requirement of the Order. Dr. Taylor observes,

> ... if you were to adjust the level of the penalties [of the ALEC Coalitions quadratic formula] using something like the BellSouth numbers for different measures to reflect BellSouth's or somebody's judgment about what measures are important and what measures aren't, then I think you've probably got something that would work. ... So, if you can tie [the quadratic structure] back, as the BellSouth plan does, to measure specific penalty levels ... then I think you might have - if not the best of both, you'd have something which has the structure of both in a consistent way. (Exhibit 7, at page 32).

Thus, it appears that BellSouth's expert witness believes that with a simple adjustment to the ALEC penalty function, the ALEC's remedy calculations represent perhaps the "best" of either the measure-based or transactions-based remedy plans. Because of the linear homogeneity of Equation (4), the adjustment to the ALEC penalty calculation described by BellSouth witness Taylor is very easy to accomplish. Specifically, the "relative relationships" of penalty levels from the BellSouth remedy plan can be used to scale the quadratic function of the ALEC Coalition remedy plan – as recommended by BellSouth witness Dr. Taylor and the Order (Order, p. 163).

Let the relative relationship for measure type i be w_i, where w_i is based on the relative relationships of payment levels in the BellSouth plan. The scale parameter w_i is computed as follows:

$$w_i = \frac{p_i}{\sum_i p_i / M} \tag{6}$$

where p_i is the payment level for measure i in the BellSouth plan and M is the number of measure types. Note that denominator is simply the average payment level of the M measure types.[4] For Tier 1, BellSouth proposes four transactions-based penalty levels: $40, $100, $150, and $400. The average penalty level is $172.50. Thus, any measure with a $40 penalty level has a w_i value of 0.23 (= 40/172.50). This calculation is very similar to that performed by BellSouth, and the implied scale of remedies are identical across proposals.

The Order-compliant payment function is then

$$Penalty' = w_i \left[8125 - 11250 \cdot \frac{MODZ}{BCV} + 5625 \cdot \left(\frac{MODZ}{BCV} \right)^2 \right], \tag{7}$$

where *Penalty'* from Equation (7) is equal to w_i multiplied by the *Penalty* from Equation (5). is now just the ALEC proposed penalty level scaled by w_i as directed in the Order. For example, the penalty function for Ordering measures with a $40 transactions based payment level is

$$Penalty' = 0.23 \cdot \left[8125 - 11250 \cdot \frac{MODZ}{BCV} + 5625 \cdot \left(\frac{MODZ}{BCV} \right)^2 \right], \tag{8}$$

or just 23% of the payment level computed by the ALEC Coalition's remedy function. The respective weights for each measure type are provided in Table 1 below. Because the minimum payment level of the ALEC Coalition plan is $2,500, simply multiplying the ALEC's quadratic function (Eq. 5) by the scale w_i produces the minimum payment of the ALEC quadratic function. This fact is illustrated in Table 1, where the average minimum and maximum payments are provided.

Because of the linear homogeneity of the penalty function, adding a duration element to the ALEC Coalition's remedy calculation is also straightforward. If

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[4] The scale for the ALEC payment function is simply the BellSouth SEEM payment level divided by the average BellSouth SEEM payment level. To maintain the relative scale of the payment levels, as intended by the Order, only unique payment levels are used (i.e., the $100 payment enters only once in computing the average).

the desire is to escalate the payment level by 50% for each repeated month of non-conformance, then all that is required is to multiply the quadratic function (or, more simply, its computed value) by 1.5. For generality, let the duration factor be r and the number of repeated months non-conformance is observed be m,[5] so that the ALEC's payment function is now

$$Penalty'' = r \cdot m \cdot w_i \left[8125 - 11250 \cdot \frac{MODZ}{BCV} + 5625 \cdot \left(\frac{MODZ}{BCV} \right)^2 \right]. \qquad (9)$$

Equation (9) is clearly consistent with the Commissions Order: a) it is measure-based; b) it increases payments with duration; c) it varies the payment by measure; d) it does not confuse statistical certainty with severity. Tier 1 payments are summarized in Table 1. Escalation for duration is 50% per month of repeated non-conformance.

Table 1. Payments for the ALEC Coalition Payment Function*

(Minimum/Maximum)

	w_i	Month 1	Month 2	...	Month 12
LNP	0.87	2175/21750	6525/65250	...	35888/358875
Maintenance and Repair	0.58	1450/14500	4350/43500	...	23925/239250
Maintenance and Repair (UNE)	2.32	5800/58000	17400/174000	...	95700/957000
Ordering	0.23	575/5750	1725/17250	...	9488/94875
Provisioning	0.58	1450/14500	4350/43500	...	23925/239250
Provisioning (UNE)	2.32	5800/58000	17400/174000	...	95700/957000
IC Trunks	0.58	1450/14500	4350/43500	...	23925/239250
Billing	0.23	2175/21750	6525/65250	...	35888/358875
Colocation		5000			
Change Management		1500			

* Colocation and Change Management are not transactions-based penalties, so the Order does not mandate a change in these penalty levels.

II. An Alternative Proposal

A nearly infinite number of reasonable penalty functions and severity measures can be defined. For severity, all that is required is an index that is a reliable indicator of the difference in performance levels (i.e., means). The penalty

5 The term m equals 1.00 in the second month of failure, or the first month of repeated failure.

function must be measure-based, and track from a minimum payment to a maximum payment as severity increases. In this section, an alternative to the ALEC Coalition's severity index and remedy calculation is presented. The severity index proposed in this section is a more substantial departure from the statistical analysis than that of the ALEC Coalition (e.g., the Delta parameter is no longer relevant to the penalty). Simulations of all the various approaches to penalty calculation and severity (including SEEM, BellSouth's new plan, the ALEC plan, and the Texas Plan) are provided in the companion spreadsheet (FL Remedy Plan.xls) available at www.egroupassociates.com.

1. ALTERNATIVE REMEDY CALCULATION

In a measure-based plan, a minimum and maximum penalty level are specified, with the disparity or severity level determining what penalty is paid in the intermediate range. A very simple and general specification of the penalty function is

$$Penalty = p_{\min} + (p_{\max} - p_{\min}) \cdot d \tag{8}$$

where $p_{\min}$ is the minimum penalty, $p_{\max}$ is the maximum penalty, and d is the disparity level. Note that $p_{\min}$ is paid when disparity exceeds zero and $p_{\max}$ is reached when d = 1. Including duration escalation is again a straightforward process:

$$Penalty'' = r \cdot m \cdot \left[p_{\min} + (p_{\max} - p_{\min}) \cdot d\right] \tag{9}$$

where r and m are defined as before. The value for $p_{\min}$ and $p_{\max}$ are provided in Table 1. Proposed payment levels, consistent with the Commission's Order, are provided in Table 2. Maximum payments are simply ten-times the minimum payment as specified in the ALEC Coalition plan (if $p_{\min}$ = 500, then $p_{\max}$ = 5,000). The payments in Table 2 are based on the factors provided in Table 1 (rounded for aesthetic reasons). The average payment level of the former transactions-based remedies is $2,500 as required by the Order (the average of $500, $2000, $1500, $6,000 is $2,500).

Table 2. Proposed Minimum Payments for the Alternative Payment Function

(Maximum = 10×Minimum)

	Month 1	Month 2	...	Month 12
LNP	2000	3,000	...	33,000
Maintenance and Repair	1500	2,250	...	24,750
Maintenance and Repair (UNE)	6000	9,000	...	99,000
Ordering	500	750	...	8,250
Provisioning	1500	2,250	...	24,750
Provisioning (UNE)	6000	9,000	...	99,000
IC Trunks	2000	3,000	...	33,000
Billing	500	750	...	8,250
Colocation	5000			
IC Trunks	1500			

2. ALTERNATIVE DISPARITY CALCULATION

In this formulation of the penalty function, the disparity level must be defined on the unit interval ($0 \le d \le 1$). The ALEC Coalition's severity measure works easily with the alternative remedy formula, and consistency with the ALEC plan's severity index is accomplished by dividing the index, MODZ/BCV, by 3.00 (i.e., the maximum relevant value of the severity index for the ALEC Coalition's penalty function).[6] By dividing the ALEC severity index by 3, the relevant range of the index is contained in the unit interval. Any measure of disparity can be re-defined to the unit interval by dividing the severity index by its largest relevant value.

An alternative measure of severity, with the required properties described by BellSouth Witness Dr. Taylor, is the difference in means divided by the standard deviation:

$$d = \frac{X_C - X_B}{S_B} \tag{10}$$

This severity index reliably measures the difference in performance levels (i.e., means). For benchmarks, there is no standard deviation, so the denominator equal to the benchmark:

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6 Other maximum relevant values of the ALEC Coalition's severity measure could be specified.

$$d = \frac{X_C - B}{B}, \tag{11}$$

where B is the interval benchmark.[7] For both measures of disparity for interval measures, the disparity level is 1.00 when the means-difference is equal to the standard deviation or the benchmark. Thus, if the BellSouth mean is 3 and the standard deviation is 4.5, then the maximum penalty is paid when the ALEC mean is 7.5 (3 + 4.5).

For percent measures, severity is computed by scaling the percentage point difference between BellSouth and ALEC performance levels:

$$d = SCALE \times (X_C - X_I) \tag{12}$$

For example, if we want a 10 percentage point difference to be the maximum payment, then SCALE = 1/0.10 = 10. If we want a 5 percentage point difference (e.g., 0.05 - 0.10), then SCALE = 1/0.05 = 20.[8]

Ideally, the scale would differ by the relevant performance standard (e.g., a 99% standard versus a 60% standard).[9] A twenty-five percentage point difference on a 0.99 benchmark (very reliable service) is much different than on a 0.60 benchmark (a virtual coin toss as to whether you get compliant service). This result is both intuitively appealing, and compatible with the sensitivity of the statistical test (the standard deviation shrinks as the performance standard gets closer to 0 or 1).

In nearly all cases, the disparity level in Equation (12) is a less strict measure of severity than is the Parity Gap.[10] Importantly, unlike the Parity Gap, the disparity level in Equation (12) is not related in any way to a statistical decision rule

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[7] This is equivalent to assuming that the coefficient of variation (the standard deviation divided by the mean) is 1.00.

[8] For consistency with severity for interval measures, severity for percent measures could be specified as the $(X_C - X_B)$ divided by the square root of $X_B(1 - X_B)$, i.e., the means difference divided by the standard deviation. The measured proposed here is not as strict as the means difference divided by the standard deviation.

[9] If the means difference divided by the standard deviation is used to measure severity for percent measures, the severity measure becomes more strict as the performance standard gets closer to 1.00 or 0.00.

[10] The parity gap is affected by sample size, whereas the severity measure proposed here is not. The Parity Gap is very sensitive at large sample sizes, but less so at small sample sizes.

(except in the sense that severity is irrelevant if the statistical test does not indicate a failure). To illustrate the reasonableness of the proposed severity measure, Table 2 illustrates at what difference in service levels the maximum payment of the SEEM plan would apply [i.e., (MODZ - BCV)/4 = 1.00]. Using the Parity Gap calculation, the maximum payment in BellSouth's SEEM plan would occur with a 0.015 difference on a 0.01 performance standard if the ALEC sample size is 10. This difference calls for a *SCALE* of 64 (= 1/0.015). For an ALEC sample size of 1000, the maximum payment applies for a means difference of 0.002 (implying a scale of nearly 500). For a 0.50 performance standard and ALEC sample size of 10 (1000), the 100% difference in the Parity Gap is reached with a performance level of 0.89 (0.55).

Table 3. The Implicit SCALE of the Parity Gap

	Performance Standard 0.01			Performance Standard 0.5		
NALEC	Parity Gap = 100% at	Percentage Point Difference	Scale	Parity Gap = 100% at	Percentage Point Difference	Difference
10	0.026	0.016	64	0.89	0.39	3
100	0.015	0.005	183	0.64	0.14	7
500	0.013	0.003	366	0.57	0.07	15
1000	0.012	0.002	483	0.55	0.05	19

Z-Tel recommends the following specification of the disparity index for percent measures:

$$d = (5 + 92 \times |X_I - 0.50|) \times (X_C - X_I); \tag{13}$$

$$d = (5 + 92 \times |B - 0.50|) \times (X_C - B). \tag{14}$$

This specification sets the SCALE equal to 50 for performance standard close to 1.00 (e.g., a 99% or 1% standard), and 5 for a performance standard of 0.50. Thus, at a 50% benchmark, the maximum payment is rendered for a 20% performance level (a twenty percentage point difference). For a 99% benchmark, the maximum payment is rendered for 97% ALEC performance level (which is four times more lenient than even the SEEM plan at an ALEC sample size of 100). Comparing the maximum *SCALE* of 50 to the levels indicated in Table 3 for a 0.01 performance standard reveals that the disparity level is considerably less strict than is BellSouth's own Parity Gap (implying *SCALEs* of 67, 200, 400, and 500). More examples of severity and penalty calculations can be produced with the companion spreadsheet "Z-Tel Remedy Plan Comments Nov 5-01.xls" (also available for download at www.egroupassociates.com on the download page).

III. Tier 2 Penalties

Tier 2 Penalties apply to aggregate ALEC data, which is a very important fact when establishing penalty levels in a transactions-based remedy plan. The number of transactions in Tier 2 is much greater than Tier 1 due to the aggregation of all ALEC transactions. Thus, converting Tier 2 transactions penalties to measure-based penalties must account for the fact that the transactions-based payment levels are based both on the relative "importance" of the measure and on the larger inherent sample sizes found in Tier 2 (and in some cases, the larger sample sizes for particular measures such as Billing). The $2,500 minimum payment of the ALEC remedy plan was the payment level for individual ALECs, not the aggregate of ALECs. For Tier 2, the penalties do not apply to individual ALECs, but the aggregate of ALECs. Thus, the payment levels must be "aggregated" to reflect this fact. Notably, BellSouth's proposal does not account for this detail.

Tier 2 transactions-based payments are provided in Table 4. The relative scale of the payments is provided in the second column, with the adjusted per-ALEC, per-measure payment levels (averaging $2,500) are provided in the third column. There are approximately 92 active ALECs in Florida. The Tier 2 scales (w_i) for the ALEC Coalition's quadratic penalty function are provided in column four. Multiplying the per-ALEC payment levels to attain the aggregate ALEC payment level, the minimum and maximum Tier 2 payments are computed for the alternative penalty function in Equation (8).

Table 4. Tier 2 Payment Levels for the Measure-Based Plan

SEEM Tier 2 Payment Level	Relative to Mean Payment Level	Per-ALEC Implied Payment ($2,500 avg)	w_i for Tier 2 (for 92 CLECs)	p_{min}	p_{max}
1	0.003	8.54	0.31	786	7,859
20	0.07	170.84	6.29	15,718	157,175
60	0.21	512.53	18.86	47,153	471,526
300	1.03	2,562.64	94.31	235,763	2,357,631
500	1.71	4,271.07	157.18	392,938	3,929,385
875	2.99	7,474.37	275.06	687,642	6,876,424
Average		2,500			

Payment levels for each type of measure are summarized in Table 5. Clearly, the penalty levels in Table 5 are more suitable for aggregate performance than the small payments offered in the BellSouth proposal.

Table 5. Tier 2 Payments

	Minimum	Maximum
Billing	$1{,}000 \cdot T_B / T_O$*	$10{,}000 \cdot T_B / T_O$
LNP	400,000	4,000,000
Maintenance and Repair	200,000	2,000,000
Maintenance and Repair (UNE)	600,000	6,000,000
Ordering	50,000	500,000
Provisioning	200,000	2,000,000
Provisioning (UNE)	600,000	6,000,000
IC Trunks	400,000	4,000,000
Pre-Ordering	15,000	150,000
Colocation	15,000	
IC Trunks	1,000	

The computation of Billing payment levels is discussed below. Billing payments must be adjusted to account for the difference in the way Billing measures account for transactions.

Some measures, such as Billing, are transactions-based but in an odd way. For example, Billing measures often measure transactions as "dollars billed" rather than actual CLEC orders. In BellSouth's SEEM plan, the Tier 2 billing measures payment level of $1 is based on the fact that the "transactions" are defined in this perverse way. To convert Billing penalties from SEEM to a measure-based penalty requires a few calculations.

By definition, billing transactions typically will exceed transactions in other measures by a sizeable amount (e.g., dollars billed will generally exceed the number of orders). There are ways to adjust for this fact and convert the $1 billing payment to a measure-based payment. For example, let the (average) number of billing transactions (measured in dollars) be T_B and the number of provisioning transactions be T_P (using aggregate data). The most representative billing and provisioning measures, using data over a few months, should be used to estimate these two values (T_B, T_P). The properly scaled billing minimum payment level is

$$\text{Billing Minimum Payment} = \frac{T_B}{T_P} \cdot 1000, \qquad (15)$$

or $660 \cdot T_B / T_P$. Z-Tel does not have access to the BellSouth data required to compute T_B / T_P. BellSouth should compute this figure and specify the billing minimum payment. For illustrative purposes, assume that the aggregate Billing transactions exceed the aggregate provisioning transactions by 500 transactions to one. Then, the minimum payment for the billing measure will be 500,000

(= 500 · 1000). Given the importance of the ratio T_B/T_P, BellSouth's computations of that ratio should be made available to Commission Staff and CLECs for evaluation.

IV. Implementation of the Delta Function

In Appendix D of BellSouth's October 25 filing, a detailed description of the statistical methodology is provided. On page D-17, BellSouth describes its implementation of the Delta Function. In BellSouth's proposal, the Delta Function is computed at the cell level, rather than the sub-measure level. Since Delta is a decreasing function of ALEC sample size, the approach taken by BellSouth increases Delta, allowing for larger levels of unsanctioned discrimination. The high level of disaggregation proposed by BellSouth and the Order leads, necessarily, to small sample sizes in the cells, even if sample sizes at the sub-measure level are larger.

Because the statistical decision is made at the sub-measure level, not at the cell level, Z-Tel proposes that the Delta value be computed using the Delta Function at the sub-measure level. Thus, computing Delta at the sub-measure level is more consistent with the statistical decision methodology described in the Order. Also, computing the value of Delta at the sub-measure level leads to a uniform Delta value across cells, which is consistent with the approach of the SEEM plan where the truncated z-statistic was proposed.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of Z-Tel Communications, Inc.'s Comments on the Methodology for Assessing Penalties Contained in BellSouth's Proposed Performance Plan has been furnished by hand delivery(*) or U.S. mail on this 5th day of November, 2001 to:

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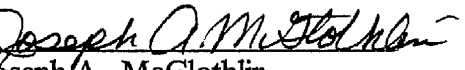
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