# The Next Three Years:
# Likely Revenue Scenarios for Rural Incumbent Local Exchange Carriers

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*"Everything is in a state of flux, including the status quo."*
Robert Byrne

## EXECUTIVE SUMMARY

Sound financial planning needs to be based on a realistic view of where the rural incumbent local exchange carrier (ILEC) industry is likely to be during the next three years. This paper attempts to quantify likely rural ILEC revenue scenarios by combining available historical data with a panel of expert judgments regarding key features of the industry environment. Using a dataset containing information on 921 small rural ILECs and opinions from a panel of industry experts, we conclude that rural ILECs face significant challenges during the next three years as the current regulatory environment remains in *status quo*.

The simplest assumption – but one that is both dangerous and incorrect – is that the next three years will look the same as today. By examining the underlying trends in the industry, this study attempts to quantify realistic scenarios for the rural ILEC industry as a whole, as well as for specific subgroups of the rural ILEC population based on their reliance on particular sources of revenue. Current rural ILEC revenues are disaggregated into components for local service revenues, USF, interstate access revenues, intrastate access revenues, subscriber line charges, and low income universal service payments. The data is collected or estimated at the study area level and then aggregated to the holding company level. Data for 921 small rural ILECs reveals that, on average, 21% of

[1] This work was conducted with the assistance of Tim Morrissey of Fred Williamson & Associates, Inc. We also acknowledge the assistance of Glenn Brown, Paul Cooper, Kent Larsen, Steve Meltzer, Jeff Reynolds, Jeff Smith, and Scott Reiter. While some of our assumptions are based on input from these experts, they bear no responsibility for any errors, views, or opinions expressed in this study.

regulated revenues come from local services, 29% from federal USF, 31% from interstate and intrastate access, and 8% from SLC and low income universal service payments.

Revenues driven by the number of lines are seen as vulnerable, as wireless, VOIP, and competition continue to erode the number of lines. Minutes of use are expected to continue to decline rapidly for the same reasons. Broadband and special access revenues are expected to continue to increase, although at more moderate rates. A monte carlo simulation model combines these trends to produce forecasts for the next three years. The distribution of companies in terms of reliance on different revenue sources was estimated and used to simulate the range of scenarios that are likely to be faced within the industry.

The major findings of the study are:

- Traditional revenue sources (local service revenues, USF, and access revenues) are unlikely to keep pace with costs over the next three years. Revenue shortfalls are predicted to be 5% in 2008, 9% in 2009, and around 13% by 2010 for the small rural ILEC industry as a whole.[2]
- Significant variation is likely across individual companies. Companies more reliant on local service revenues and intrastate access will fare worst, while those more reliant on USF and interstate access will experience more modest impacts.
- A minimal estimate of the range of revenue shortfall across companies is expected to be 5% to 20% (a 95% confidence interval for the revenue shortfall in 2010). This interval captures only a portion of the variability across companies, so this should be viewed as an underestimate of the range of revenue deficiencies across companies.
- While individual company circumstances are likely to vary more than the model is able to capture, almost all companies are likely to experience shortfalls from regulated services alone. Notably, the forecasts show that the worse the future

[2] These represent total *cumulative* revenue shortfall in each year. Thus, the 13% shortfall for 2010 includes the 5% for 2008 and the 9% for 2009.

scenario, the more similar company fates become. It is the relatively optimistic scenarios that show the largest variation across companies.

- The models only attempt to estimate the likely scenarios over the next three years. Longer term, it is clear that the uncertainty increases, as well as the potential size of the gaps between revenues and costs. Competition for lines and minutes is likely to increase, exacerbating declines in traditional revenue sources. At the same time, since access policies and USF are likely to be reformed in the longer timeframe, the potential ways to mitigate the current forces will also increase.

The challenge that this poses to rural ILECs is both short-term and long-term. Declining revenue streams need to be replaced by *contributions* from unregulated services (that is, the difference between the revenues from these services and the incremental costs of providing them). This must take place in an increasingly competitive and technologically changing environment. The policy-governed revenue sources will need to be stabilized if this is to be successful.

While the study does not forecast imminent disaster facing rural ILECs, it is likely that the status quo will continually worsen. We expect a modestly worsening financial situation and our forecasts suggest that the longer term trends may be more severe. Beyond 3 years, there is no assurance that USF will be sufficient, or that it will even keep pace with inflation. Access revenues will become increasingly challenged and local service revenues will face even greater competitive threats.

## I Introduction and Purpose

The purpose of this study is twofold: first, to evaluate the likely *overall* financial health of the rural ILEC industry over the next three years; and second, to explore the likely financial changes experienced at the individual company level *within* the sector. This report is a little different than most – rather than analyzing proposed policy changes, it attempts to analyze the *lack* of any policy change. Its purpose is to describe what the next three years will look like for the rural ILEC industry, absent any major policy shifts. This provides a benchmark against which policy changes may be evaluated, and avoids the potential dangers of comparing any proposed change with the way the world looks today. It is likely that there will be no major policy changes for at least 3 years. This assumption results from the glacial pace of universal service regulatory reform and national political forces. But, while the policy environment is likely to remain stalled,[3] the technological and market environment is certain to evolve. By forecasting the likely changes over the next 3 years, proposed policies can viewed in the context into which they are likely to be enacted.

The focus is on the small rural ILEC industry. There is no universal definition of this sector. "Rural" has a particular regulatory meaning. "Small" does not, but companies are broken into tiers, which to a large extent, reflects size.[4] We have chosen to look at only rural tier 2 ILECs, with less than 100,000 lines; thus, removing the largest non-representative companies.[5] Only some of these companies are members of the NECA pool – for the most part, we have ignored the difference and included companies regardless of their membership in the pool. Most of the analysis focuses on 921

[3] This is not to say that the policy front will be quiet – indeed, major policy changes with universal service, intercarrier compensation, and competition are certain to be considered. However, the time required to proposed changes, solicit comments, and enact the changes is likely to take 3 years, at a minimum.

[4] The FCC separates companies into tier 1 and tier 2, distinguished by whether annual revenues exceed $100 million or not. The definition of "rural" is based on the number of lines (and size of communities served). This report only considers tier 2 rural companies.

[5] Specifically, we omit Century Tel, Citizens, TDS, Windstream, Consolidated, FariPoint, Commonwealth, ACS, Concord, Rock Hill, and N.St. DBA N. St. It is not that these companies are unimportant – in fact, they are *too* important. They would skew any average or total data. Since our focus is on individual companies, these 11 companies are a small number relative to the 921 companies we use in this analysis, and likely are not representative of the other companies. Also, much public data is available on these 11 companies compared with the 921 we analyze, so our methods of estimation are probably unnecessary for these 11 companies.

companies (467 companies that file cost information, plus 454 average schedule companies). This is not quite the complete set of rural ILEC companies, but it represents a set for which the data is complete and consistent, and it broadly represents the sector. Overall, the 921 companies include 993 study areas. The NECA common line pool covers 1249 study areas and the traffic sensitive pool includes 1129 study areas. So, our data covers the vast majority of the rural ILEC sector. These companies serve just over 5 million loops and have total annual regulated revenues of just over $5.5 Billion.

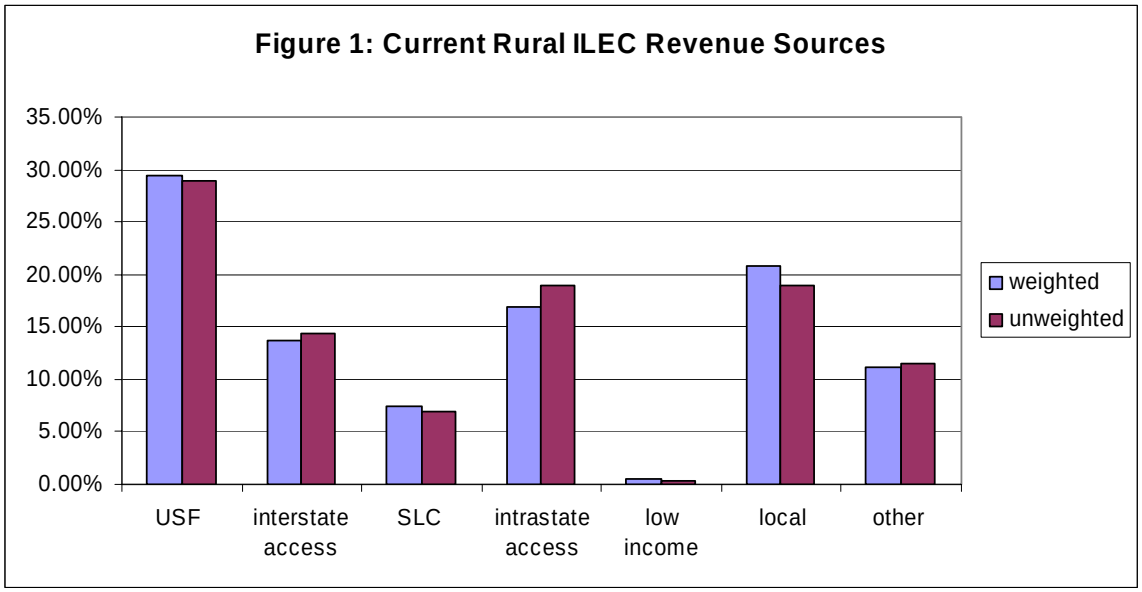
The report has two main analytical sections. The first analyzes the sector as a whole. Considering the sector as if it were one large company, what are the likely cost and revenue trends over the next 3 years? This analysis provides a view of the overall health of the sector. Within this group of companies, however, there are myriad differences between companies. They vary in size, cost characteristics, competitive pressures, reliance on support mechanisms, traffic patterns, location circumstances, and diversification into non-regulated enterprises. Given these large differences between individual companies, and absent a complete dataset for company revenues, we estimate the distribution of companies in the important revenue dimensions. i.e., what range of company revenues come from local services, USF, access, and low income support. So, our second analytical section provides an attempt to estimate what fraction of companies are likely to experience different revenue trends over the next 3 years. The final section contains the conclusions.

## II The Aggregate Rural ILEC Sector

### The Current Situation

For the rural ILECs we assumed that current regulated rural ILEC revenues are equal to current regulated costs (including a return on capital). Current cost estimates are based on current reported loop costs (from USF filings) with an addition for customer operations expense and capital costs for support assets. On average, 29.4% of their revenue comes from high cost national USF programs, 31% from access revenues, 7.5% from subscriber line charges, 0.5% from low income federal USF programs, and 20.7% from local service

revenues. The remainder, other revenues, account for around 11%. Figure 1 shows the current revenue sources in the sector:




The weighted numbers reflect the overall percentage of revenues from each source, while the unweighted numbers show the averages across all companies in the sector (ignoring the different sizes of the companies). These estimates are reasonably comparable to the only published data for the sector: NTCA filed 2003 data based on a survey of 331 of its members.[6] Our data shows comparable revenues from USF and local services, slightly lower revenues from SLCs (and lines have been declining since 2003), and somewhat higher revenues from access. 11% of revenue comes from other sources, compared with 17% in the NTCA survey.

To estimate the evolution of these revenue sources over the next three years, a combination of trends from the historical data plus professional judgment is used. The trends are based on standard statistical extrapolations of the recent data. The judgments are based on a targeted survey of 6 key industry consultants. The estimates reflect a

[6] NTCA, FCC Docket No. 01-92, ex parte presentation on intercarrier compensation, January 6, 2004. They found 30% of revenues came from federal and state USF, 16% from intrastate access, 10% from interstate access, 8% from SLCs, 19% from local revenues, and 17% from other sources. Their number should be compared with our unweighted averages.

synthesis of these different sources and do not reflect the judgment of any individual panel member.[7] Our panel consisted of:

- Glenn Brown, President, Telecommunications Consulting, McLean & Brown Telecom Consultants
- Paul Cooper, President, Fred Williamson & Associates, Inc.
- Kent Larsen, Senior Vice President, CHR Solutions
- Steve Meltzer, Vice President, John Staurulakis, Inc.
- Jeffrey Reynolds, Principal, Reynolds Schultheis Consulting, Inc.
- Jeff Smith, Vice-President, Division Manager, and Chairman of the Board of Directors, GVNW Consulting, Inc.

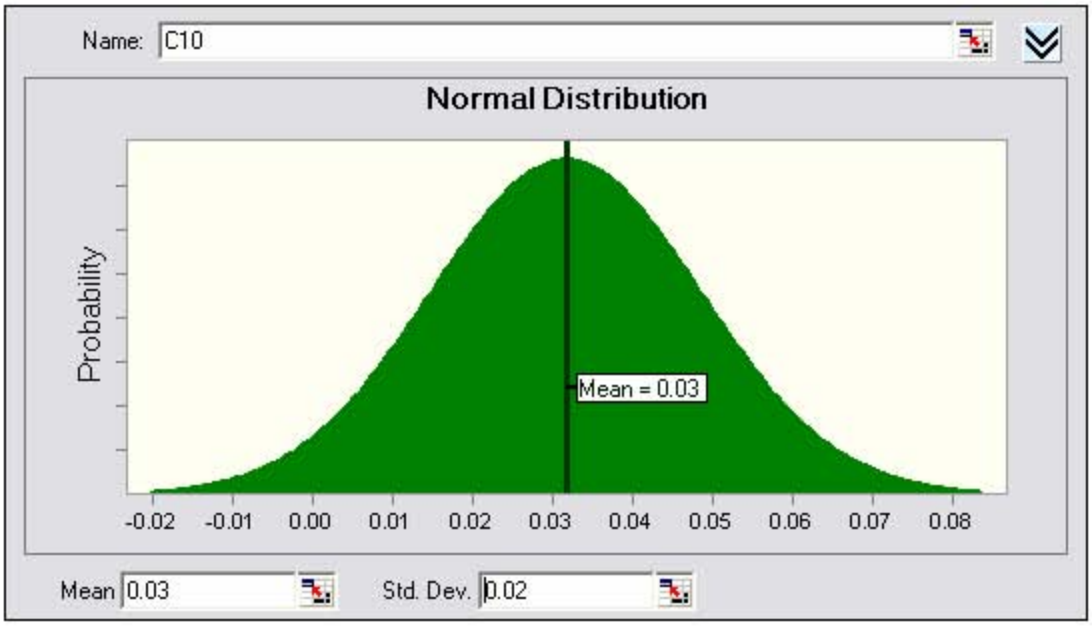
Based on the historical trends and survey responses, probabilistic assessments for the evolution of the key revenue drivers over the next three years were made. All of the estimates are in terms of percentage changes.[8] The total dollars are not particularly meaningful since the 921 companies are not an exact match of the rural ILEC sector. So, the estimates examine expected percentage changes in each of the revenue sources over the next three years, and this is combined with the current assessment of the percentage of total revenue that comes from the various sources.

*Costs (Revenue Requirement)*

Total rural ILEC costs have been rising modestly at a rate comparable to the rate of inflation. A double exponentially smoothed trend shows an average annual increase of 3.17%, with a standard deviation of 1.69%. We envision no dramatic change in this pattern over the next three years. While significant changes in cost structures may be possible with new technology and/or company restructuring, it is likely that these changes will take longer than 3 years to implement. Further, in mature networks, annual costs have a great deal of inertia – the embedded network's capital cost comprises a great deal of the overall cost structure and little can be done to change this in the short term. Broadband capability will continue to be deployed and old assets continue to depreciate. Our assumption for the annual cost change for the next three years is assumed to follow a

[7] A couple of panelists submitted individual statements that are appended to this report. The opinions expressed in the report, however, should not be attributed to any of the panel members.
[8] All of the charts will show fractions, but are interpreted as percents: so, .02 = 2%, etc.

normal distribution (bell-shaped) with a mean increase of 3% and a standard deviation of 2% (essentially this means that there is a 95% chance that costs will increase between -1% and 7%):



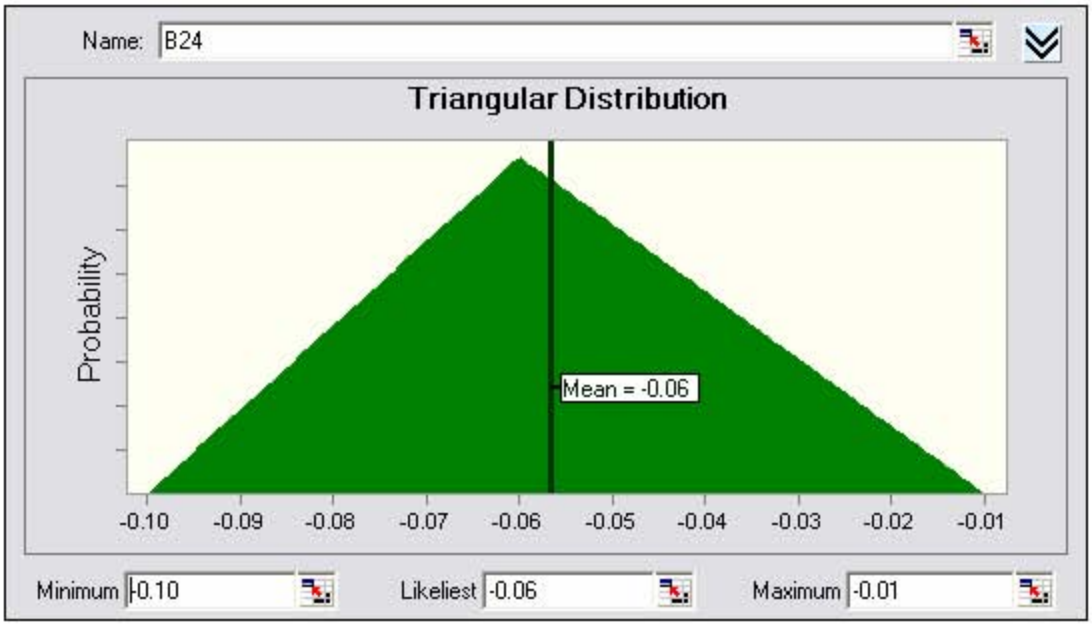

*Lines*

It is expected that lines will continue to fall over the next three years as competition from VOIP service, wireless substitution, cable telephony, and substitution of broadband services for second lines continue to take their toll.[9] The number of lines is a direct driver of SLC revenues, local service revenues, and low income USF revenue.

The trend in total lines in the NECA pool since 2002 shows an average decline of around 2.5% per year, but the decrease has been accelerating. Overall, line loss for the Tier 2 cost companies has reached 6%/year. Most forecasts of line loss predict greater decreases in the future. A Balhoff & Rowe study in Texas predicts an average decrease of 6%/year. An investment report from Conversent predicts rural ILEC line losses of 4%/year and accelerating. We assume that line losses are uncertain, but that there will be losses of at least 1%/year, with 6% as the most likely annual loss, and potentially ranging

[9] If regulators mandate the offering of "naked DSL," then there will be enhanced substitution of broadband for *primary* voice lines. Such a mandate is unlikely within the next three years, but increasingly likely after that.

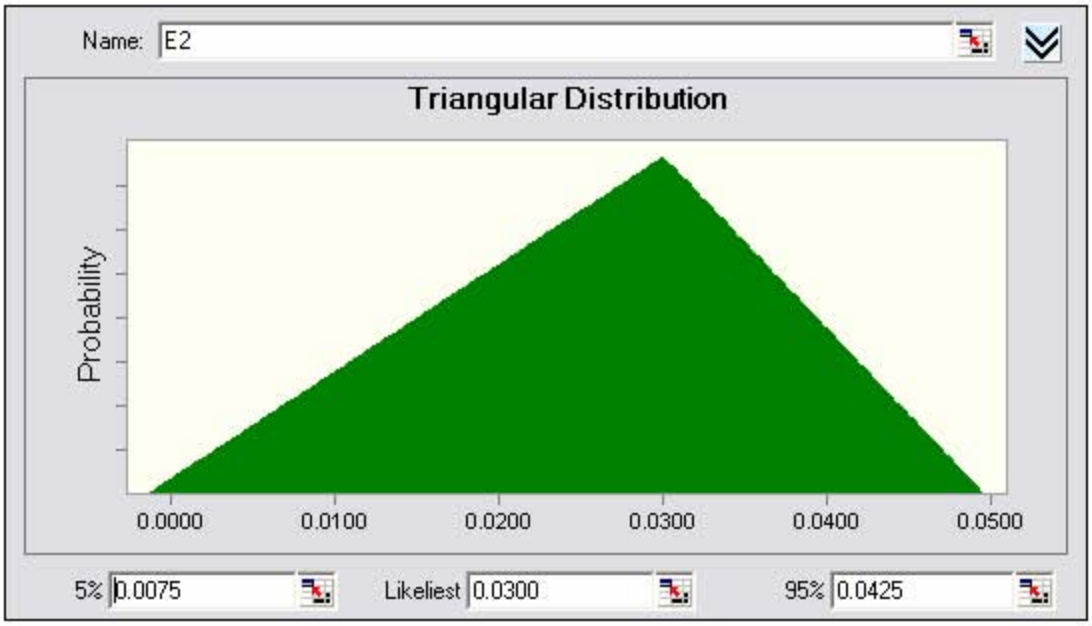
as high as 10% annually. These assumptions are represented in the following distribution for annual percentage changes in lines[10]:




*USF*

Federal high cost USF received by rural ILECs has also been tracking with inflation. The actual estimate from the past 6 years of data shows a normal distribution with a mean annual increase of 4.44% and a standard deviation of 2.05%. Our panel viewed USF as relatively flat over the next three years with a somewhat smaller range of variation than this forecast. The only caveat is that this assumes that ICLS remains uncapped for the next three years. There is some possibility that the FCC will cap the entire fund (including ICLS) within the next three years (but not within the next one year). Thus, we forecast the first year's total USF as tracking the total cost forecast (with a standard deviation of 0.5%), but year 2 and year 3 as triangular distributions with some additional downside risk and somewhat larger standard deviations. Year 3 changes in USF change are modeled by:

[10] The triangular distribution is commonly used to characterize uncertainty that is more subjective than empirical. It requires only judgments about the most likely value and the minimum and maximum values that might occur. Thus, it is easily adaptable for describing subjective judgments about future scenarios.



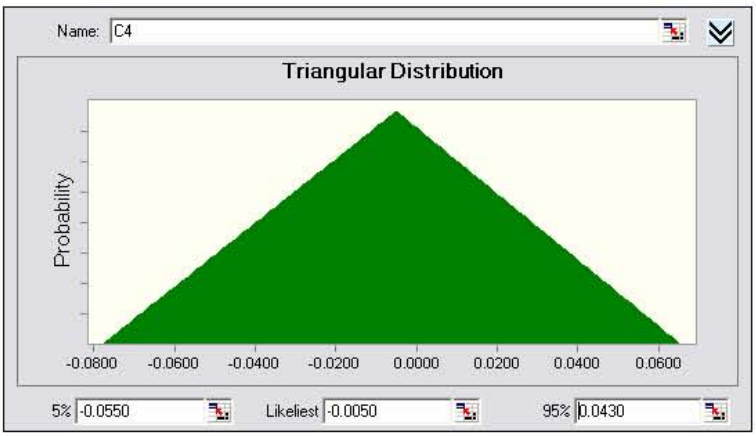

The likeliest change in USF is 3%, matching the expected cost increase. A 95% confidence interval shows that the increase in year 3 could be as high as 4.25% but as low as .75% - the skewness reflects some possibility that ICLS could be capped within this time period.

*Interstate Access*

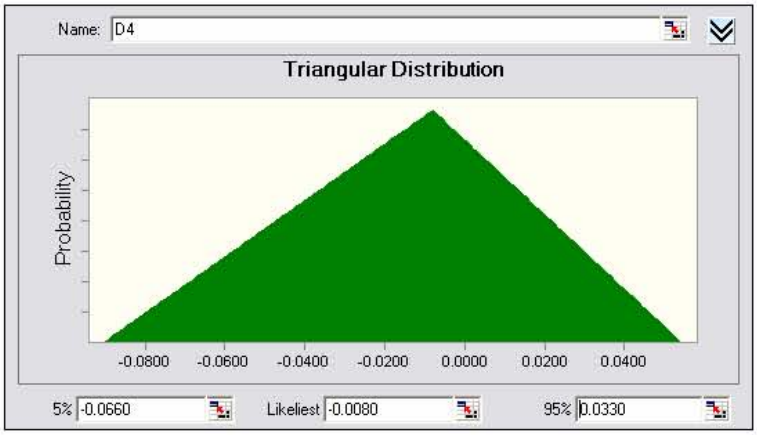
Interstate access is a bit more complicated due to the presence of the NECA traffic sensitive pool. The pool is discussed further in the next section on changes within the sector – here, we focus on the overall revenues derived from interstate access, regardless of membership within the pool. Given that the data from the NECA pool is more complete than for non-pool members, we include three revenues sources under the umbrella of "interstate access." These three sources are the revenue sources included within the traffic sensitive pool: switched access minutes, special access (high cap), and DSL (wholesale).

Our panel provided 95% confidence intervals for each of these components of interstate access revenues. There was broad consensus that DSL growth would continue, but gradually slow; that high cap special access would continue to grow, but slow, and that

switched minutes of use would rapidly decline. Given that special access is roughly half of the traffic sensitive pool (and evenly split between high cap special access and wholesale DSL), we aggregated the three components of interstate access, weighting the switched minutes of use for half of the total and the other two sources one quarter each. The resulting assumed probability distributions for the *total* interstate access revenues from the three components are:

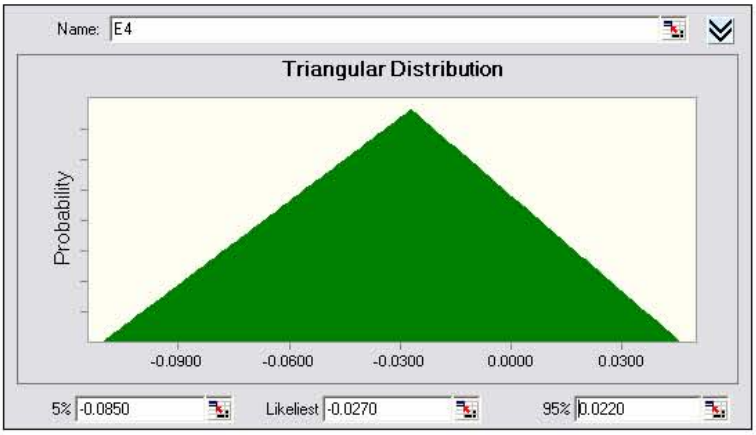



for 2008




for 2009

and



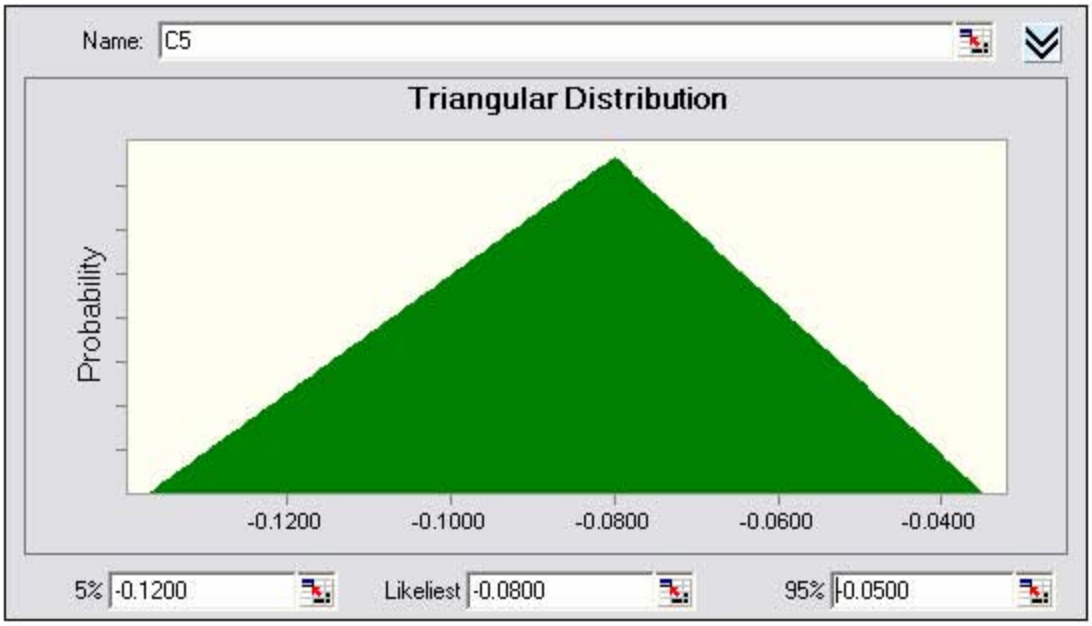

for 2010.

So, the net effect is more likely a decrease than an increase, with gradually increasing uncertainty over time (all derived by averaging the responses from the panel).

*Intrastate Access*

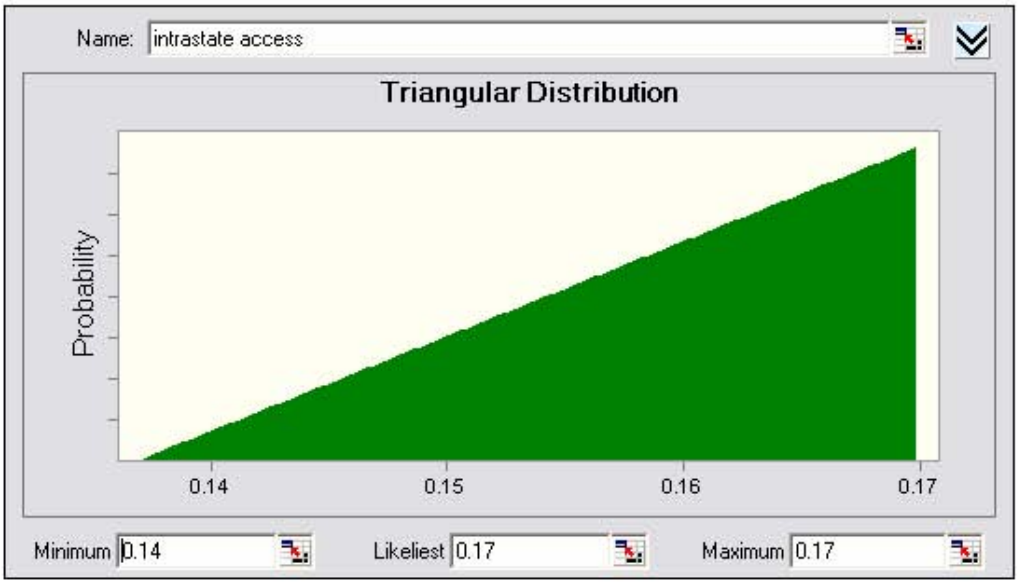
Interstate access minutes have been dropping since 2000 for the tier 1 carriers and have begun to drop dramatically for the tier 2 carriers. We expect the drop in intrastate access revenues to be at least as great, for a couple of related reasons. Since intrastate access rates generally exceed interstate rates, there will be a substantial incentive for substitution of VOIP and wireless minutes for switched access minutes. To the extent that intrastate access rates drop in order to reduce this substitution, the minutes may remain but the revenues will still be reduced.

We use the trend estimates from the panel for interstate minutes of use (one of the three components of interstate access revenues) to model the trend for intrastate minutes of use. This yielded the probability distribution:



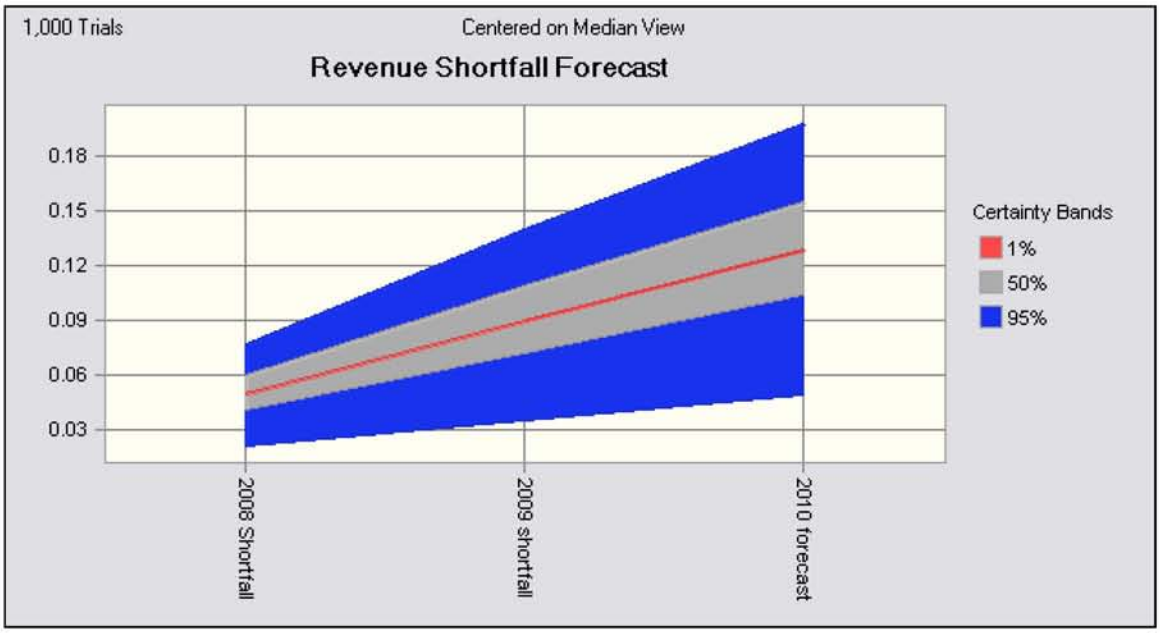
The 95% confidence shown is that intrastate access revenues will decline by between 5% and 12% per year (with 8% as the most likely annual decline).

There is significant uncertainty about the current portion of revenues deriving from intrastate access. We view our current estimate of 17% as the high end of the range of possible values and use the current interstate component, 13.69% as the low end. So, the current intrastate portion of total revenue is assumed to follow this distribution:

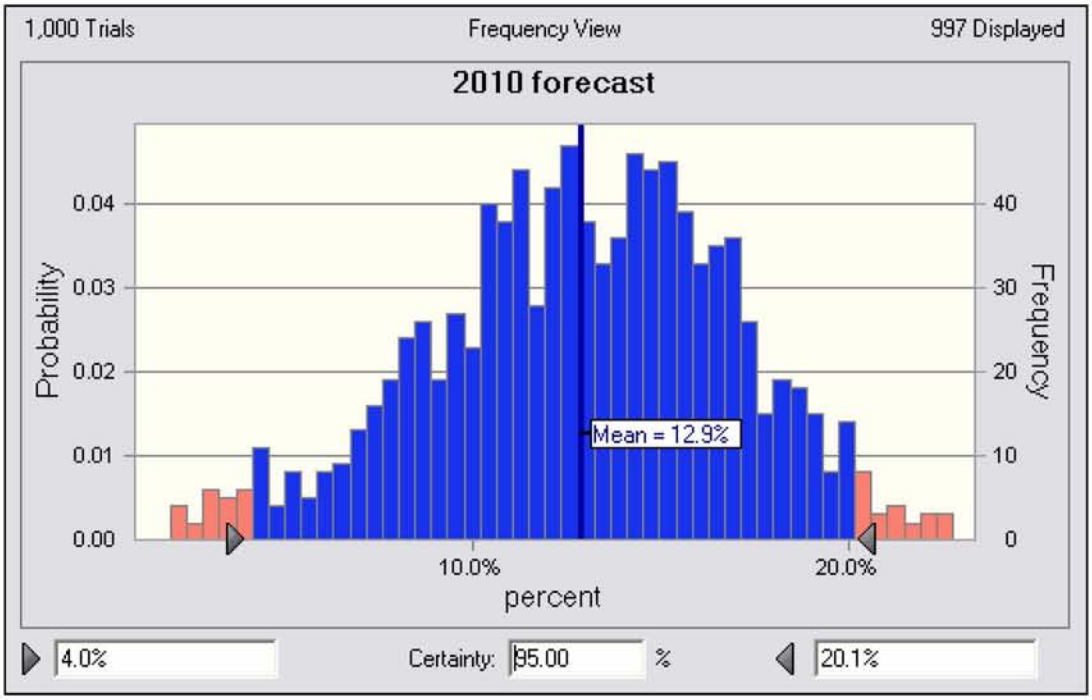



Putting It All Together

We do a monte carlo simulation, using the previously described distributions. This involves taking repeated random selections (simultaneously) from each of the distributions previously described. From these simulations of how different revenue components may evolve, and how total costs may change, we derive estimated distributions for the projected revenue shortfalls over the next three years. This forecast is summarized in the following chart:




Shown are the median forecast, along with 50% and 95% confidence bands. The expected revenue shortfalls are 5.1% for 2008, 9% for 2009, and 12.9% for 2010.[11] The uncertainty increases over time, with a 95% confidence interval for the 2010 forecast shortfall ranging from 4% to over 20%, as shown in the 2010 forecast chart:




[11] These are cumulative revenue shortfalls, so the 2010 estimate includes both the 2008 and 2009 estimates.

The panel estimated the ability for unregulated revenues to grow over the next three years. The mean growth was expected to be 13.1%, perhaps enough to cover the expected revenue shortfall predicted by the model. These were projected unregulated *revenue* increases, not *contributions* to profits. Unregulated costs would need to be incurred to support this growth in unregulated revenues, so it is unclear whether unregulated services can *contribute* 13.1% to the profitability of rural ILECs. Further, since most rural ILECs have less unregulated revenue than regulated revenue, a shortfall of 13% in regulated revenue would need to be offset by *more* than a 13% increase in unregulated contributions. So, an overly optimistic view may be that unregulated contribution margins *may* be sufficient to cover the expected declines in other categories of revenue.[12] The needed revenue replacement ranges between 4% and 20% by 2010, so unregulated services will need contribution margins that large in order to offset the projected revenue shortfall.

This aggregate forecast shows that there is reason for concern about the rural ILEC sector, but no imminent disaster for the sector as a whole. This picture may mask significant differences within the sector, however. We now attempt to analyze this.

## III Within the Rural ILEC Sector

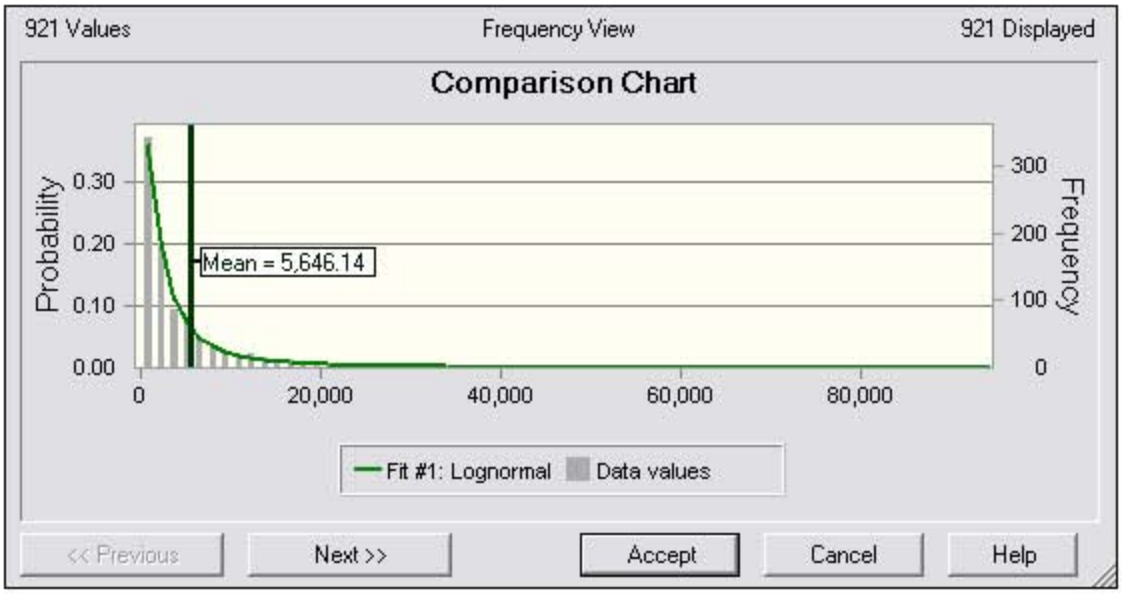
If there is one thing true about rural ILECs, it is that nothing is true for all rural ILECs. They vary in myriad dimensions that make their revenue sources and opportunities unique to each of them. This diversity reflects the diversity of the communities they serve. The goal in this section is to quantitatively describe the potential revenue shortfalls that different portions of the rural ILEC sector may experience over the next three years. Using estimates from the previous section of how the major revenue sources

[12] We only asked the panel about unregulated revenues, so it is unclear the extent to which they were taking costs into account when they responded.

will evolve, combined with estimates of how rural ILECs vary in their dependence on different sources of revenue, provides a disaggregated view of the sector.

There are no consistent publicly available comprehensive data sources for rural ILEC regulated revenues. The 2003 survey by NTCA did not cover all companies, is now dated, and cannot be independently verified. Rather than attempt to collect the voluminous data required to accurately measure rural ILEC revenues, we have chosen to estimate the distribution of key revenue drivers across our 921 rural ILECs. In most cases, we are able to fit a distribution quite well to the actual data.

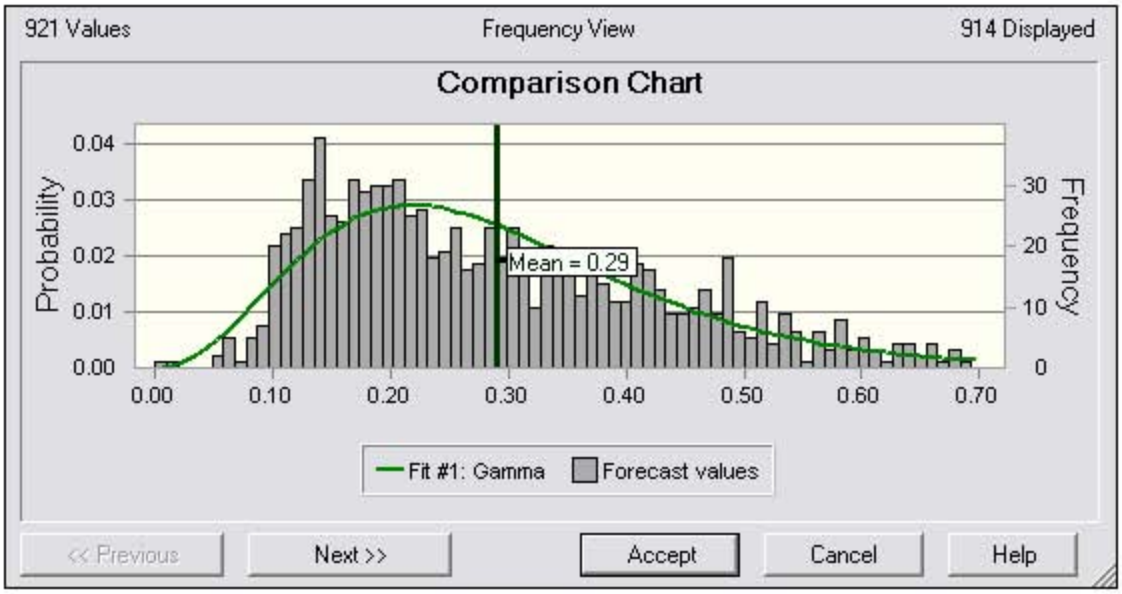
For loops, a lognormal distribution fits the data quite well:



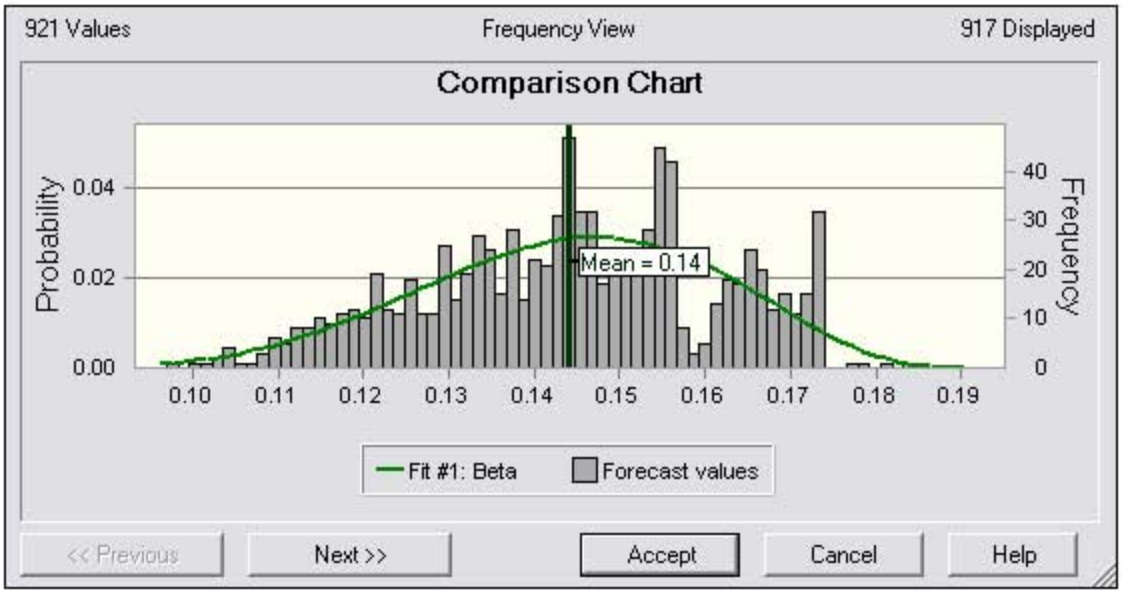

The chart shows a histogram (the bars) for the actual number of loops for the 921 companies and the smooth curve is a lognormal distribution fit to this data. The estimated mean is 5,646 lines and the distribution describes the data very well.

SLC revenues and local revenues are driven by the number of lines, so these distributions will be quite similar to the line distribution. Low income USF is also mainly driven by number of lines, although will also be impacted by macroeconomic conditions. The model assumes that all three of these revenue sources will follow what happens to the number of lines.

The fraction of revenues deriving from high cost USF is close to a gamma distribution (similar to the lognormal):




For the fraction of revenues from interstate access, a commonly used skewed distribution, the beta distribution, fits best:



It is important to note that no attempt was made to separately model the NECA pool members and non-members. The ability to sustain revenues within the pool will be impacted by the number of companies entering and leaving the pool, and their particular characteristics. The companies likely to exit the pool will look different than those that remain in the pool, so the evolution of revenues for these two groups should differ. However, our models do not capture this difference. The primary reason is that we have little data available concerning the entry and exit of companies from the pool – NECA clearly has better data, and is closely analyzing it. The implication of our caveat here is that the variation across companies that we *do* model will underestimate the true variability across companies.

Intrastate access is quite similar to the interstate access because we derived our intrastate access revenue estimates from the interstate access revenues (with an adjustment to provide a larger component of intrastate access for the smaller companies). The intrastate access revenues are the least verifiable aspect of our estimates. The 2002 NTCA survey showed intrastate access revenues roughly twice as large as interstate: we do not find this a credible estimate any more (it may be due to changes in intrastate minutes of use and intrastate access rates since that time). Intrastate access varies widely across states, particularly dependent on what type of state USF program (if any) exists. 19 states have functioning high cost universal service programs, four states with contribution factors above 5%. Thus, the nature of intrastate access revenues depends on the particular state in which a company operates.

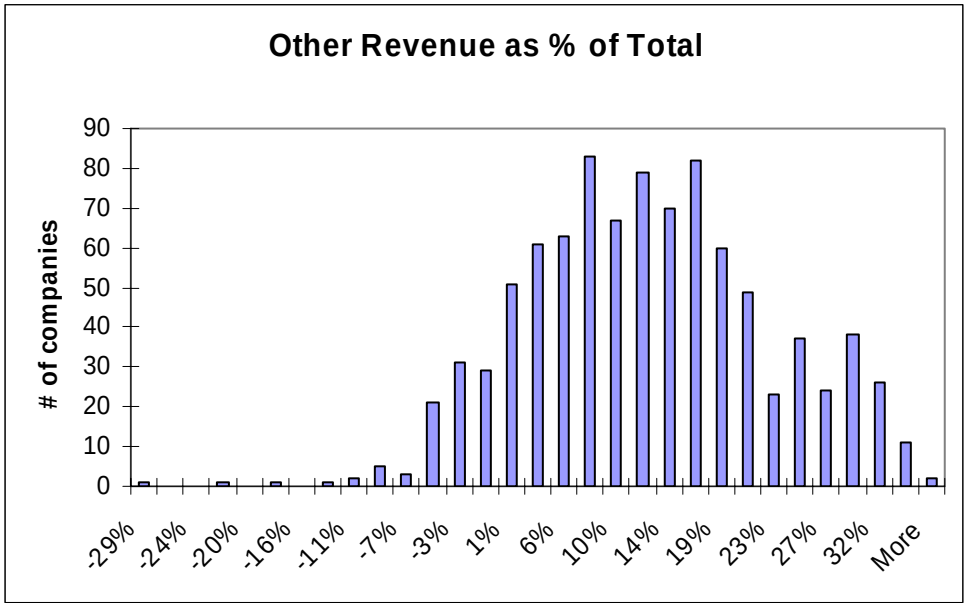
The model was calibrated to a small group of companies for which we had actual intrastate revenue data. We assumed that intrastate access revenues were 50% higher than interstate access revenues for companies with less than 1000 lines, 25% higher for companies between 1000 and 50,000 lines, and equal to interstate access for companies larger than this. We find the results realistic for our companies, but the intrastate access revenue distribution should be viewed with some caution.

Correlations between these distributions are also important. Smaller companies are generally more reliant on USF and access and less reliant on local service revenues. The correlations among these distributions are shown in the following table:

| **Correlations** | loops | USF | interstate access | SLC | intrastate access | low income | local |
|---|---|---|---|---|---|---|---|
| loops | 1.0000 | -0.0695 | -0.4379 | 0.6186 | -0.6182 | 0.4096 | 0.6186 |
| USF | -0.0695 | 1.0000 | -0.6684 | -0.4683 | -0.5264 | -0.1025 | -0.4683 |
| interstate access | -0.4379 | -0.6684 | 1.0000 | -0.0557 | 0.9211 | -0.1169 | -0.0557 |
| SLC | 0.6186 | -0.4683 | -0.0557 | 1.0000 | -0.2173 | 0.3903 | 1.0000 |
| intrastate access | -0.6182 | -0.5264 | 0.9211 | -0.2173 | 1.0000 | -0.2041 | -0.2173 |
| low income | 0.4096 | -0.1025 | -0.1169 | 0.3903 | -0.2041 | 1.0000 | 0.3904 |
| local | 0.6186 | -0.4683 | -0.0557 | 1.0000 | -0.2173 | 0.3904 | 1.0000 |

Loops, SLC, low income, and local revenues are positively correlated, while loops, USF, and access are negatively correlated. These correlations are used in the simulation analysis that follows.

Other revenues are derived as the *residual* after subtracting the specific revenue types from total revenues. There is a wide range of reliance on other revenues among rural ILECs:




A very few companies show negative other revenues. Our estimates for some of the revenue sources could be mistaken or, equally plausible, these companies may be earning above their regulated rate of return (their regulated revenues exceed their regulated costs,

including their authorized return on capital). Most companies, however, fall in the range of 5% to 20% of their revenues coming from other sources.

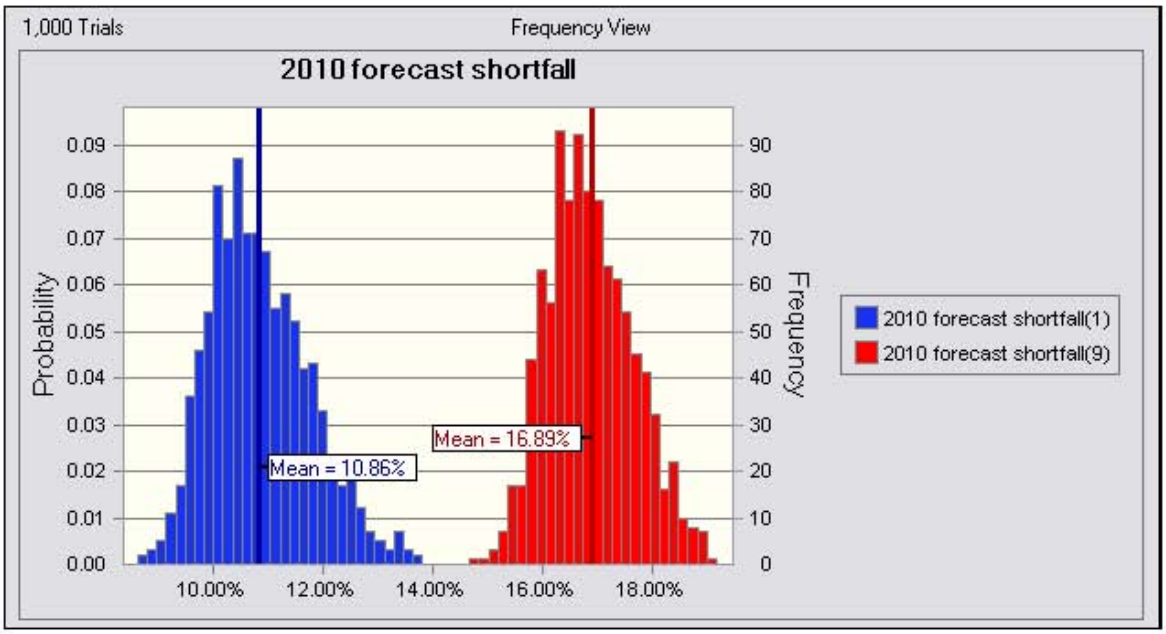
A check on the reasonableness of this distribution can be made by estimating that 80% of the companies fall within the range (5%, 29%) for the fraction of revenues coming from "other" sources. Our panel provided estimates of this range of (2.5%, 39%). The panel estimated somewhat higher variability, which is consistent with the fact that our assumptions underestimate the variability in intrastate access revenues. It should be noted that all of the panelists' estimates for the upper end of the range were between 25% and 35% except for one outlier at 63%.

These distributions are used to model the range of differences among rural ILECs. Absent actual data for individual ILECs (other than the number of loops, USF receipts, and estimates for access revenues), these distributions should be viewed as describing the variation across rural ILECs, even if no particular company is accurately represented.

The simulation distinguishes between *uncertainty* and *variability*. Uncertainty reflects that some aspects of the world are unknown; e.g., the growth rate for lines, MOU, etc. The variability reflects that companies vary in their reliance on the various revenue sources. No amount of information can reduce the variability, while more information can reduce the uncertainty.

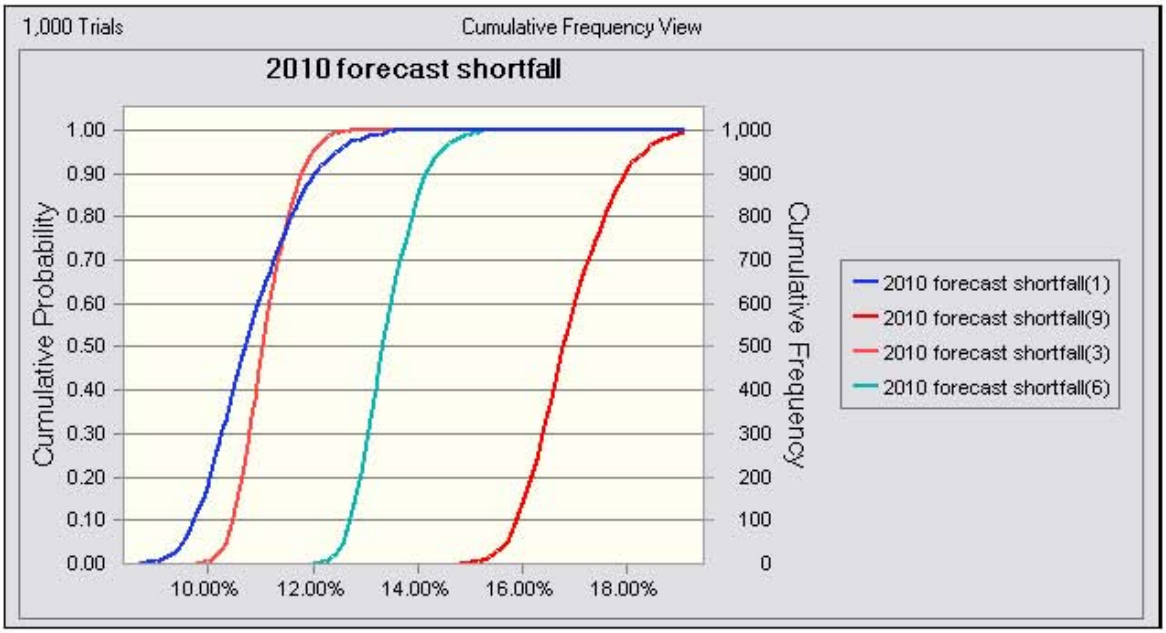
By separating uncertainty and variability, we can look at how individual companies may be affected by the uncertainty in revenue sources. Clearly, companies more reliant on local revenues (lines) and intrastate access will experience greater shortfalls than those more dependent on USF and interstate access. This stage of the analysis attempts to quantify these differences between companies.

The following figure compares the distribution of revenue shortfalls in 2010 varies across the companies:



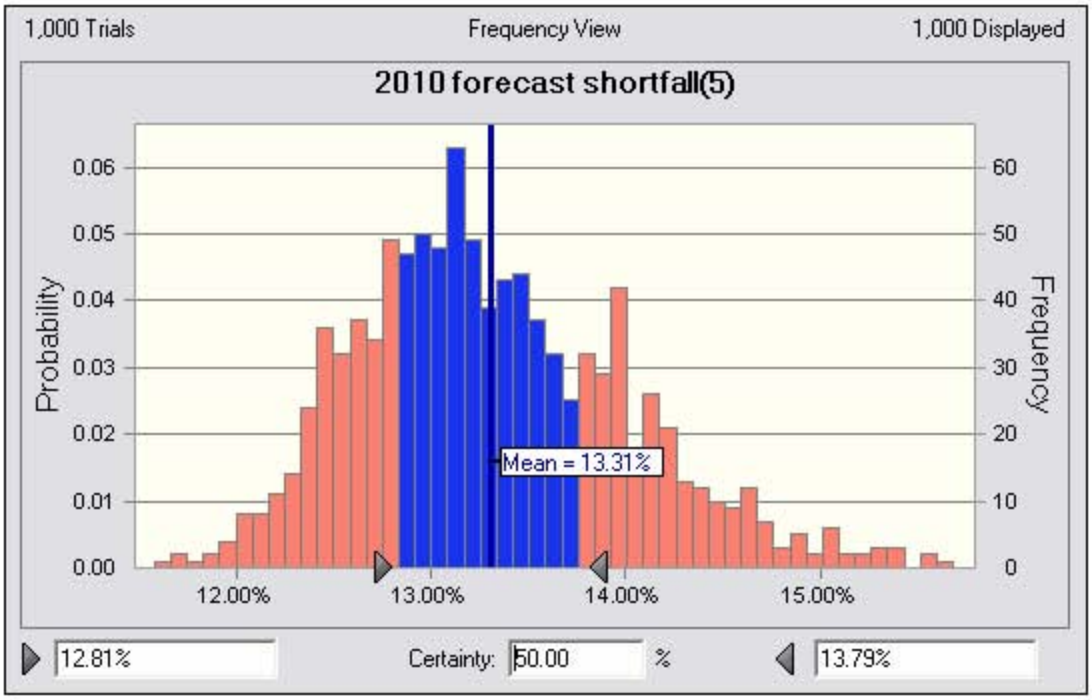

The blue distribution reflects the 10th percentile of uncertainty: the (optimistic) state of the world that there is only a 10% chance of getting a lower average revenue shortfall in 2010. While the average shortfall is 11% under these circumstances, the companies will experience revenue shortfalls ranging from 8% to 14%. The red distribution reflects the 90% percentile, where there is only a 10% chance of getting a larger average shortfall in 2010 (a pessimistic scenario). Here, the average is 17%, and the companies range from 15% to 19%.

Another indication of how companies will vary can be seen by looking at several cumulative distributions describing the range of uncertainty for 2010:




Each curve shows the percent of companies with revenue shortfalls below any given level, for a particular state of uncertainty about the future. Thus, the blue curve, showing the 10$^{th}$ percentile (in terms of lowest average shortfall) shows virtually all companies have shortfalls of less than 12%, while the 60$^{th}$ uncertainty (indicated by the red (6)) percentile shows virtually no companies with shortfalls below 12%. The 90$^{th}$ percentile (the red (9)) shows that over half of the companies have shortfalls in excess of 17%.

Consider the 50$^{th}$ percentile, representing sort of the "average uncertainty" about the year 2010. The distribution of the revenue shortfall across companies shows a mean of 13.3%, with half of the companies between 12.8% and 13.8% and half outside this range.




The revenue shortfall will range from 12% to 16% under these circumstances. Interestingly, the range of variation across the companies decreases in "bad" states of the world, and is actually greatest when the future scenario is most optimistic. In other words, the worse the state of affairs, the more similar the companies' predicaments become.

If anything, we have underestimated the variability across companies. Our assumptions regarding the intrastate access do not fully reflect the enormous variation among state access charges, state universal service funds, and individual company pricing plans and wholesale service offerings. At the interstate level, we have not accounted for the differences between companies in the NECA pools and those outside. We have also assumed the same uncertainty will affect line growth for all companies, though there will certainly be differences, depending on company bundled offerings, competitive alternatives, etc. We have only begun to scratch the surface of inter-company variability. Our results should be viewed as solely reflecting the variability that results from differential reliance on different revenue sources. The differences between companies are large, even recognizing only this single dimension of variation.

## IV Conclusions

These are challenging times for rural ILECs. Much of their traditional revenue sources are threatened due to technology, competition, and politics. As they plan for the future, it is important to have a realistic assessment of what is likely to happen in the absence of any particular policy change. Alternatives should be compared to the likely baseline, not the one that happens to exist today.

Our forecasts show that things are not likely to stand still, even in the near future (3 years) during which policymakers are not likely to make major changes. In fact, our forecasts consistently show that there is likely to be a revenue shortfall, and that it is likely to grow each year. By 2010, it is expected to be on the order of 13%, although the variability across companies (which is underestimated in this study) means that there will be a significant range of revenue shortfall across individual companies.

In order to continue to provide the level of service demanded by the communities these companies serve, they will need to find replacements for this revenue. The potential to obtain additional contribution from unregulated services is real, but it is our belief that the contribution margins on most unregulated services are quite small. The challenge is to increase these margins so that they can replace the regulated revenue deficiency. The longer-term goal is also to alter the regulatory environment to produce a more sustainable financial future for rural ILECs.

Based on these estimates, there is no imminent financial collapse forecast for the next three years. We expect a modestly worsening financial situation and our forecasts suggest that the longer term trends may be more severe. Beyond 3 years, there is no assurance that USF will be sufficient, or that it will even keep pace with inflation. Access revenues will become increasingly challenged and local service revenues will face even greater competitive threats.

We can envision a scenario in which the financial health of the rural ILEC sector is sustained. These companies must become broadband providers of choice for most of their customers. They must diversify their revenue sources, provided that they can earn contribution margins from these unregulated services. They may provide a number of value added services, but they must collect sufficient revenue from the broadband capability that they provide to offset their costs of providing universal access to their networks. This will require adequate pricing for broadband access, and a regulatory compact in which they are compensated for the costs associated with providing ubiquitous access to the communities they serve.

Separate Statement from Jeffry H. Smith, Vice-President and Division Manager, Chairman of the Board of Directors, GVNW Consulting, Inc.

With all the changes facing the rural industry in 2008, this study provides a needed empirical quantification of what carriers may face in the near term with respect to "status quo" revenue forecasts. I offer my compliments to John Rose, his staff and the entire OPASTCO Board for their leadership in sponsoring the study.

My praise also extends to Professor Dale Lehman and Tim Morrissey for their cogent analysis of a disparate set of data that covers a broad range of geographies and competitive environments.

In the current Notices of Proposed Rulemaking on federal USF, AARP suggested that over 50% of customers currently reside in the bottom three tiers of the FCC's latest broadband classification scheme. As customers continue the transition toward the faster speeds, the traditional revenue streams for ILECs will evolve to a new paradigm. The question is not if, but when this will occur.

So what does this all mean? One conclusion that is reinforced from this latest OPASTCO-sponsored study is the continued importance of an active rural carrier advocacy at both the state and federal level. Perhaps heightened by the probable changes at the Federal Communications Commission after a Presidential election, the challenges regarding which public policy choices legislators and regulators may select are as important as they have ever been.

From an OPASTCO perspective in this Olympic year, the regulatory contest facing our industry is both a sprint (e.g., filing reply comments on three USF Notices in a thirty day period) and a marathon (e.g., three more years of debating the issues that have been debated actively the last five years). The question we must all answer is simple: Will we summon both the speed and endurance to prevail?

Separate Statement from Jeffrey Reynolds, Principal, Reynolds Schultheis Consulting, Inc.

The rural telecom sector is rapidly beginning to realize the effects that have been experienced by the larger companies. This study is an important – and objective – look at examining the indisputable trends. What is significant is not particularly the magnitude of the change (although this cannot be ignored) but the direction of the trends.

Dr. Lehman's paper is a "stake in the ground" from which to measure the rate and vector of change. I was extremely pleased to participate in the study.