Before the
Federal Communications Commission
Washington, D.C.20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51
	)	
Establishing Just and Reasonable Rates for Local Exchange Carriers	)	WC Docket No. 07-135
	)	
High-Cost Universal Service Support	)	WC Docket No. 05-337
	)	
Developing an Unified Intercarrier Compensation Regime	)	CC Docket No. 01-92
	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
	)	
Lifeline and Link-Up	)	WC Docket No. 03-109
	)	
Universal Service Reform – Mobility Fund	)	WT Docket No. 10-208

REPLY COMMENTS OF THE NEBRASKA RURAL INDEPENDENT COMPANIES IN RESPONSE TO SECTIONS A THROUGH K OF THE FURTHER NOTICE OF PROPOSED RULEMAKING

Dated: February 17, 2012

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SUMMARY OF COMMENTS

The Nebraska Rural Independent Companies ("NRIC") hereby file these Reply Comments in response to comments submitted by interested parties regarding Sections A through K of the "Further Notice of Proposed Rulemaking" section ("*FNRPM*") of the Report and Order and Further Notice of Proposed Rulemaking, WC Docket No. 10-90., *et al*., FCC 11-161 (the "*Report and Order*"), released November 18, 2011.

In Part I of these Comments, NRIC expands and clarifies the position set forth in the *NRIC Comments*[1] that the Federal Communications Commission ("Commission") should abandon its proposed regression methodology as described in Appendix H attached to the *Report and Order*. While NRIC still supports the general concept of using regression analysis to determine reasonable going-forward constraints for federal Universal Service Fund ("USF") recovery, NRIC specifically recommends that the following methodological flaws in the Commission's current regression analysis should be corrected, and provides the supporting basis for such corrections in these Reply Comments:

1. The eleven separate cost caps in the Commission's regression analysis should be replaced by a single cost cap;
2. The Commission's flawed input data should be corrected;
3. The Commission's failure to utilize cost per loop as the dependent variable in its regression analysis; and
4. The Commission's inclusion of insignificant input variables.

Not only should the Commission proceed to make the recommended corrections in its regression analysis, but further, a multistage comment process should be utilized to develop regression-

[1] NRIC's January 18, 2012 Comments are referred to in these Reply Comments as the "*NRIC Comments*."

based cost caps. In this process, the first public notice would provide a list of alternative input variables and alternative regression equations. A second notice would publish a database and the regression results. To allow sufficient time to accomplish these steps, the Commission should delay any cap implementation date to at least January 1, 2013.

In Part II of these Comments, NRIC reaffirms the need for the Commission to include the middle mile transport costs of an ROR ETC in its Connect America Fund ("CAF") disbursement levels, once those costs are properly defined. This requirement is necessary to avoid a mismatch between the obligations to provide certain broadband speeds, with the cost recovery for the network necessary to provide that speed. Any contrary result would ignore the fact that middle mile transport is an integral component of the costs incurred to reach the public Internet.

Finally, in connection with the Commission's efforts to identify remote areas as census blocks in which no existing wireline or wireless broadband service is currently available, the Commission should not rely on the flawed information contained in the National Broadband Map. Rather, the Commission needs to obtain more accurate mapping information and to consult with state commissions to secure such information in order to properly identify remote areas.

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REPLY COMMENTS OF THE NEBRASKA RURAL INDEPENDENT COMPANIES IN RESPONSE TO SECTIONS A THROUGH K OF THE FURTHER NOTICE OF PROPOSED RULEMAKING

The Nebraska Rural Independent Companies ("NRIC"),[2] which provide telecommunications and broadband access services to some of the most-rural, sparsely populated parts of America, appreciate the opportunity to submit these Reply Comments

[2] The Companies submitting these Comments are: Arlington Telephone Company, The Blair Telephone Company, Cambridge Telephone Company, Clarks Telecommunications Co., Consolidated Telephone Company, Consolidated Telco, Inc., Consolidated Telecom, Inc., The Curtis Telephone Company, Eastern Nebraska Telephone Company, Great Plains Communications, Inc., Hamilton Telephone Company, Hartington Telecommunications Co., Inc., Hershey Cooperative Telephone Co., K. & M. Telephone Company, Inc., The Nebraska Central Telephone Company, Northeast Nebraska Telephone Company, Rock County Telephone Company, Stanton Telecom Inc., and Three River Telco.

in response to comments filed in response to the Further Notice of Proposed Rulemaking issued by the Federal Communications Commission (the "Commission").[3]

PART I – REGRESSION ANALYSIS

I. WHILE THE COMMISSION'S PROPOSED REGRESSION AND CAPPING METHODOLOGIES ARE SERIOUSLY FLAWED, SPECIFIC PROBLEMS CAN BE CORRECTED IN A NEW REGRESSION PROPOSAL.

A. Other Commenting Parties Agree that Significant Flaws Exist in the Proposed Regression Proposal; NRIC Submits the Methodological Flaws can be Corrected in a New Analysis.

The initial comments from NRIC and other parties identify serious flaws in the input data, in the regression methodology, and in the cap design set forth in the *FNPRM*. Parties in addition to NRIC identified the same or related serious problems in all three areas. As described in the following sections, comments by several parties identified problems with the scope and accuracy of the Commission's use of geographic data, the Commission's regression methodology, and in the design of the capping mechanisms.

Nevertheless, NRIC believes that the commenters have not identified insurmountable problems in ultimately developing proper regression methodologies that achieve policy objectives. NRIC continues to believe that, after discarding the proposal

[3] *See*, Report and Order and Further Notice of Proposed Rulemaking, Public Notice, WC Docket Nos. 10-90, 07-135, 05-337, 03-109, CC Docket Nos. 01-92, 96-45, GN Docket No. 09-51, WT Docket No. 10-208, released November 18, 2011. In these Comments, references to paragraphs 1 through 1011 will be noted as sourced from the "*Report and Order"* and references to paragraphs 1012 through 1403 will be noted as sourced from the "*FNPRM*. For simplicity, NRIC will use the name of the filing entity and "comments" when referencing the submissions of other parties that were filed on or before January 18, 2012 in response to the *FNPRM*. NRIC's January 18, 2012 Comments are referred to in these Reply Comments as the "*NRIC Comments*."

contained in the *FNPRM*, the Commission can develop a sufficiently reliable regression-based model to support a cap that limits support for the outlier investments and expenses of a small number of companies based on reasonable peer group comparisons, while at the same time providing sufficient and predictable support to all eligible telecommunications carriers ("ETCs"). To achieve this end, the Commission will need to:

- Identify and use more diverse data sources that better reflect true cost drivers;
- Develop a transparent and more-predictable regression tool based on these data sources; and
- Design the cap or caps in a way that harmonizes with the level of reliability achieved by its regression model.

The contents of filed comments do not demonstrate that these tasks are impossible for the Commission to accomplish if it is willing to make significant revisions to its initially released regression model.

Other parties appear to agree with this assessment. The National Association of State Utility Consumer Advocates *et al*. ("NASUCA") provided support, in principle, for a capping approach based on statistical regression techniques.[4] Also, Moss Adams, LLP *et al*. ("Moss Adams") commented that the Commission "may be able to modify its proposed regression calculations to develop much more reasonable limitations for rate-of-

[4] *See,* NASUCA Comments at 44.

return carriers that are based on both sound statistical principles and network deployment realities."[5]

The Rural Associations' statistics expert, Professor Roger Koenker, offered criticisms of the Commission's application of quantile regression modeling and cap design. As discussed below, Dr. Koenker criticized the use of separate caps for cost variables that are mutually correlated,[6] and he recommended a more parsimonious selection of independent variables.[7] The *Koenker Paper* implies, however, that the Commission would be able to solve these problems.[8]

B. Methodological Flaws that Require Correction.

1. Methodological Correction 1: One Cost Cap Is Preferable to Eleven Separate Caps.

The *NRIC Comments* indicated that eleven separate caps will not encourage efficiency and may create unintended consequences.[9] NRIC initially recommended two separate caps, one for capital investment, and one for operating expense.[10] NRIC notes

[5] *See,* Moss Adams Comments at 20.

[6] *See,* National Exchange Carrier Association, Inc. *et al*. Comments (referred to herein as "NECA Comments" or "Rural Association Comments"), Appendix E (Assessment of FCC Quantile Regression Methods for Estimation of Reimbursable Cost Limits, by Dr. Roger Koenker (the "*Koenker Paper*") at 1, 5.

[7] *See, id.* at 6.

[8] *See, e.g., id.* at 1 (a preferable, and simpler, approach would be to develop one conditional quantile model for aggregate costs); and *id.* at 7 (regression analysis avoids reliance on explicit distributional assumptions and possesses an inherent robustness to extreme observations).

[9] *See, NRIC Comments* at 55.

[10] *See, id.* at 58.

that Dr. Koenker essentially agrees. Dr. Koenker's primary point criticized the proposal to establish 11 separate caps:

> Extravagant expenditure on one cost category . . . is not necessarily a sign of poor overall management, or general carrier inefficiency. . . . [T]here are many examples in the NECA data of carriers that exceed estimated quantile limits for one or more cost categories, and yet have perfectly respectable aggregate costs per loop.[11]

NRIC agrees with Dr. Koenker that the proposed 11 caps would be "unduly stringent in some cases, and unduly lenient in others."[12]

As Dr. Koenker also demonstrates, it is statistically incorrect to limit overall support based on 11 separate cost caps when using quantile regression. The harm that arises from any system of multiple caps is exacerbated when those caps were themselves calculated using quantile regression techniques. As stated by Dr. Koenker in Appendix H to the Rural Associations' comments:

> Unlike means, for which the mean of the sum of random variables is simply the sum of the means of the variables, $\mathbb{E} \sum Y_i = \sum \mathbb{E} Y_i$, it is *not* the case that sums of marginal quantiles equal the quantiles of the sum of those random variables. . . .[13]

Dr. Koenker further illustrates the problem of capping individual cost components by showing how two substitutable cost components would be affected by separate caps rather than an overall cap. He concludes by stating:

> Thus, if we are really interested in evaluating quantiles for the sum of the two cost components, it is not the cases that have extreme values of

[11] *Koenker Paper* at 5-6.

[12] *See,* NECA Comments at 70; and *Koenker Paper* at 1.

[13] *Koenker Paper* at 5 (emphasis in original).

> one of the two components that we should most worry about, it is those cases that are *near the limits in both cost components*.[14]

Compared to a similar 11-part system based on Ordinary Least Squares ("OLS") Regression or any other mean-based regression, the 11-part quantile regression proposal in the *FNPRM* would be more likely to misclassify carriers, both by applying caps to carriers that have reasonable overall costs, and by failing to apply caps to carriers that have high overall caps. This additional misclassification effect is likely because of the inherent mathematical properties of any quantile regression that divides the population at the 90th percentile level.

Dr. Koenker recommended a simpler approach, performing one regression study on a dependent variable representing aggregate costs.[15] The Commission would be well advised to follow the recommendations of Dr. Koenker, whose expertise in regression analysis the Commission cited prominently in the *FNPRM,* and who the Commission described in Appendix H to the *FNPRM* as the developer of quantile analysis which the Commission describes as a "good solution" to the "bias" that the Commission attributes to OLS.[16]

NRIC's initial proposal for two caps was, in part, a reaction to the *FNPRM*'s proposal for 11 separate caps. On further consideration, NRIC agrees that a single cost cap can work as well as or better than the two caps NRIC originally suggested, a result fully consistent with the public interest for the following reasons.

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[14] *Id.* (emphasis in original).

[15] *See,* NECA Comments at 70-71, *Koenker Paper* at 1.

[16] *See,* Appendix H to the *FNPRM,* at paras. 8-9.

First, and most importantly, a single cap would appropriately recognize that carriers often face tradeoffs between operating and capital expenses. Different carriers can reasonably make different choices in resource allocation. For example, a more costly investment often can reduce maintenance expense. As indicated above, Dr. Koenker correctly observed that high capital or operating expenses are not necessarily indicators of poor management or inefficiency. To the extent that the Commission's interest lies in conserving universal service resources, there is no policy reason to constrain cost components, only total cost.

Second, a single cap can be easily integrated into NECA's "algorithm line" process. AL25 aggregates numerous total cost categories, including various capital and operating expense categories. AL26 then divides this total cost by total loops. The resulting quotient, called "study area cost per loop," is a suitable dependent variable for a regression study and a cap. No redesign of NECA's "AL" process would be required.

Finally, the *NRIC Comments* observed that there were fundamental and unexplained design differences between the corporate operations cap and the proposed new 11-part caps. NRIC assumes that Dr. Koenker's recommendation would include all expense categories under the single cap, including corporate operations, which the Commission is capping separately from the regression-based caps. A single cap based on AL26 would be easier to merge with the corporate operations cap, and the result would be a rationally designed cap that is consistent with Dr. Koenker's recommendations. To the extent that a single cap exists for AL26, the amount of a carrier's corporate operations

would be included, and there would be no need to cap a single expense so long as the carrier's total costs remain reasonable.[17]

2. Methodological Correction 2: The Commission's Input Data Regarding Density and Mapping Are Deeply Flawed and Require Correction, As Does its Combination of Independent Variables.

a. Density should be a major input factor.

The *NRIC Comments* maintained that density should be a major input factor in any regression of cost.[18] NRIC explained that density (especially route density) had figured heavily in its previous work with capital expense modeling.[19] NRIC also suggested that the Commission's inability to identify density to be significant could have been caused by two factors: failure to apply density before adding other insignificant variables,[20] and the use of scale-sensitive dependent variables.[21]

NRIC criticized other aspects of the Commission's regression methodology, including use of logarithms, inclusion of insignificant variables and the use of quantile regression rather than OLS regression. The *NRIC Comments* explained that using the Commission's own data, NRIC was able to create an ordinary least squares regression of

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[17] Alternatively, even if the Commission decided to retain some kind of separate corporate operations cap, it could still constrain factor AL19, which is corporate operations expense, and the result would flow through automatically into the overall cap calculation for AL26.

[18] *See, NRIC Comments* at 47, n. 103. ("One only needs to consider what areas that are unserved by broadband to conclude that density is a significant cost driver. Densely populated cities and town have broadband, and may have multiple broadband providers, but sparsely populated rural areas are frequently unserved or underserved.")

[19] *See, id.* at 21.

[20] *See, id.* at 17; and 39, n. 80.

[21] *See, id.* at 49.

AS1, each carrier's gross investment in Cable and Wire Facility used for Category 1.3 services, which had an R-squared statistic of 0.8. In that analysis, "weighted housing density" as defined in the *FNPRM* was a significant independent variable.[22] This finding was further evidence for the importance of density as a predictor of cost.

State regulators in Nebraska have reached the same conclusion in designing that State's current universal service support mechanism. In an order released in 2004, the Nebraska Public Service Commission (the "Nebraska Commission") found that density was the most significant factor in determining "loop costs" and 78 percent of the variation in average loop cost could be explained by the variation in density, as evidenced by an R-squared statistic of 0.78.[23] Indeed, the Nebraska Commission established the Nebraska Support Allocation Methodology ("SAM") around that central concept, using density and regression techniques to predict cost and thereby to determine the distribution of support.[24] Using the SAM method, 98% of support was directed to areas with fewer than seven households per square mile, and support continues to be distributed based on density.[25]

Other parties in this docket were also troubled by the view that unit cost is not predicted by subscriber density. Moss Adams, for example, conceptually supported

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[22] *See, id.* at 45-46.

[23] *See, In the Matter of Nebraska Public Service Commission, on Its Own Motion, Seeking to Establish a Long-Term Universal Service Funding Mechanism,* Nebraska Public Service Commission, Docket No. NUSF-26, Order, (Nov. 13, 2004) at 15, para. 58 (available at http://www.psc.state.ne.us/home/NPSC/usf/orders.php).

[24] *See, id.* at 14, para. 53.

[25] *See, id.* at 15, para. 56.

linear density, such as subscribers per mile of loop plant.[26] Similarly, comments by the Washington Independent Telecommunications Association *et al*. ("WITA") noted that the *FNPRM*'s analyses "did not address density in sufficient detail" and did not take into account at all the effect of "terrain and loop lengths. . . ."[27]

Other parties generally commented that route density was the most relevant variable, even more significant than area density. As explained above, NRIC's own work supports these views. Nevertheless, the Commission likely would encounter substantial difficulties in collecting route mile data directly from carriers[28] or in attempting to estimate route miles from GIS technology and road network input data. However, NRIC believes that the marginal improvements in R-squared results from the use of route density are insufficient to justify the difficulties in collecting route mile data. Therefore, area density (expressed as households per square mile, locations served per square mile or loops per square mile) is the best data that is reasonably available for determining density.

Indeed, NRIC's own analysis supports this conclusion. Using the Commission's data, NRIC evaluated the use of loops per square mile (actually the inverse thereof, square miles per loop) to predict study area cost per loop. NRIC found an extremely low R-squared, only 0.096. Nevertheless, density was a highly significant single variable[29] in the regression equation.

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[26] *See,* Moss Adams Comments at 11.

[27] *See,* WITA Comments at 8.

[28] In addition to the costs that such a data collection would impose directly on carriers, verification of the submissions would require additional steps and impose additional costs.

[29] The t-statistic for inverse density was 8.75, far above the usual standard for significance.

NRIC continues to believe that the Commission should further investigate the reasons that density seems to be such an important cost driver but shows up so weakly in the Commission's own data. NRIC's analysis of density creates substantial doubt as to the reliability of the Commission's regression model (or perhaps the underlying data). Specifically, NRIC believes that the Commission should investigate how density should be defined, how raw density data should be transformed for regression purposes, and the level of R-squared statistics that should be obtainable from existing data.

b. Other problems with the Commission's independent variables.

NRIC conducted further analysis of the Commission's data and found it possible to predict per loop cost when the appropriate variables and correct functional forms were used. Even with the incomplete and often inaccurate Commission data, NRIC was able to construct equations with R-squared values above 0.5. NRIC believes that with further data refinements and additional data sources, the predictive power of an equation to predict cost per loop could be substantially improved. NRIC's data analysis leads to the following observations regarding independent variables:

- Density, either defined as loops per square mile or the Commission's Weighted Density variable, is significant in predicting per loop cost when used in the inverse functional form.
- Company Size, as measured by loop count, was a significant determinant of per loop cost. The variable, Company Size, performed best in its inverse functional form.

- Service Area Size, measured in square miles, proved to be an important predictor of per loop cost. Service Area Size had an inverse relationship to the dependent variable, per loop cost.
- Non-urban Service Area Indicator, either defined as the ratio of the service area's Census blocks in non-urban areas to the service area's total Census blocks or the service area's non-urban land area in square miles, was a significant factor in predicting per loop cost. The positive relationship between either form of the Non-urban Service Area Indicator and the dependent variable, per loop cost, shows that, on average, it is more expensive to serve non-urban (or rural) areas.
- Regional Dummy Variables, related to the four large standard Census regions of the United States, were important predictors of per loop cost. This finding shows that the determinants of cost are not uniform across the United States. NRIC can only speculate as to what factors contribute to the regional cost differences. Among the factors could be differing terrain and soil conditions, cost of living differences or weather patterns. One may find, for example, that density is more important in areas without challenging soil types, but in areas with challenging soil types, a terrain variable might have an increased importance relative to the other variables. Ideally, factors specific to each region should be tested, but if such testing is too cumbersome or the data too difficult to obtain, a regional variable based on a smaller geographic area (*e.g.* smaller regions,

individual states or portions of a state) could be used to account for the regional cost differences.

- Water Area, measured in square miles, was consistently significant, regardless of what combination of the other independent variables were included in the regression.

c. Mapping Issues Must be Addressed by the Commission.

The *NRIC Comments* observed that mapping errors are so serious that the Commission should not proceed further with caps until these errors are resolved.[30] Other parties reached a similar conclusion. NASUCA's study of Maine exchange areas shows many census blocks were assigned to the wrong study areas. NASUCA concluded that an "impartial observer [would] be skeptical regarding the outcome of the regression analysis because the independent variables are not related to the investments and operating expenses of the carriers."[31]

Similarly, Moss Adams reported one case in which a study area's actual area of 1,010 square miles was reported at 30.5 square miles, omitting 97% of the actual area.[32] In another case involving a study area of 4,651 square miles, the model recognized only 2,331 square miles, omitting 50% of the actual area.[33]

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[30] *See, NRIC Comments* at 27.

[31] *See*, NASUCA Comments at 48.

[32] *See*, Moss Adams Comments at 10. This case involved Accipter Communications Inc. Moss Adams reported that the model had an error of 3,211%. As noted above, NRIC calculates the error at 97% using the actual area as the denominator.

[33] *See, id.* at 10. This case involved Penasco Valley Telephone Cooperative, Inc. Moss Adams reported that the model had an error of 99.5%. NRIC calculates the error at 50%.

NECA's comments identified other potential errors in the Commission's mapping procedures, including some errors in assigning customers to wire centers and association of wire centers to study areas.[34] NECA concluded that the geographical mapping data underlying the models are substantially inaccurate.[35] NECA reported that of 357 study areas for which it had actual boundaries, 144 were not accurate within 5%, and 80 were not even accurate within 20%.[36] NECA also commented on an additional layer of errors arising from mapping census block data to study areas, a process that NECA concluded "generates significant inaccuracy."[37]

In light of this record, NRIC respectfully submits that a consensus exists that the Commission's mapping errors are so serious as to constitute a threshold barrier to an effective regression study. In the absence of correcting this critical error, NRIC respectfully submits that no basis exists to find that using the current maps would result in the adoption of a cap that produces sufficient and predictable support as required by Section 254 of the Communications Act of 1934, as amended. Accordingly, the mapping issues must be addressed by the Commission.

3. Methodological Correction 3: The Dependent Variable In Any Regression Analysis Should Be Cost Per Loop.

NRIC argued in the *NRIC Comments* that the Commission's reported regression results, weak as they are, were inflated by the fact that the variables are not scale-

[34] *See*, NECA Comments, Appendix D at 3.

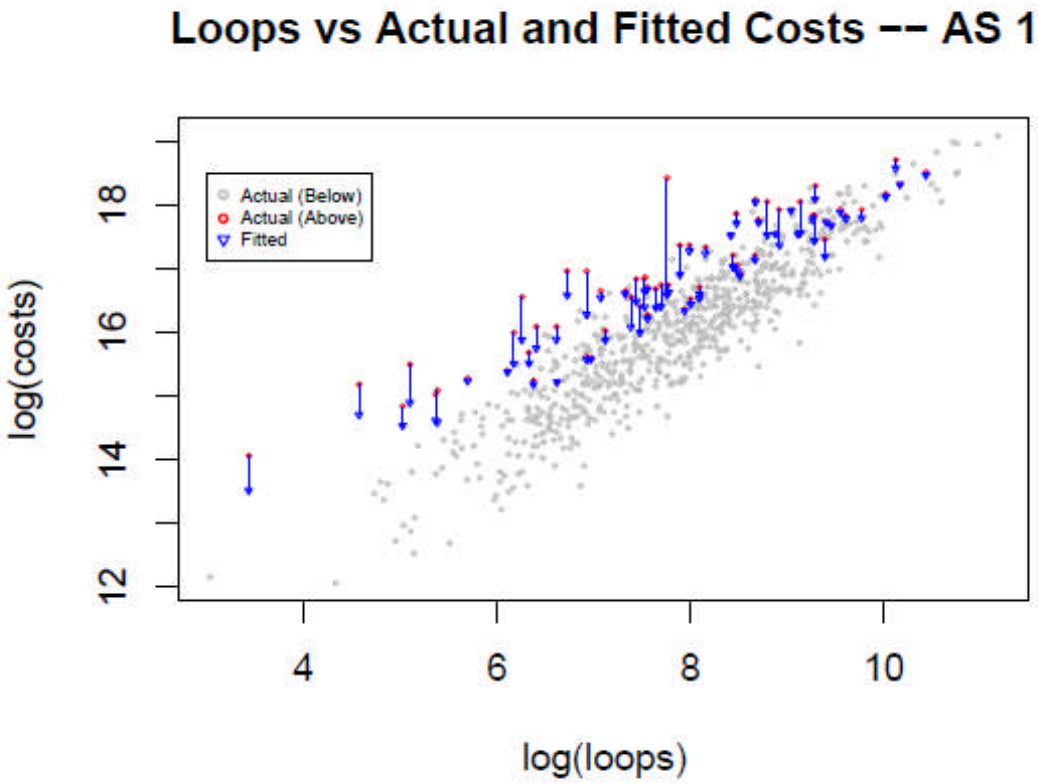
[35] *See, id.* at 65.

[36] *See, id.* at 3.

[37] *See, id.* at 4.

independent and that the pseudo-R-squared values reported in the *FNPRM* were largely an artifact of the obvious proposition that study areas with a large number of loops also have high total cost.[38]

Dr. Koenker's work, filed by the Rural Associations, supports this view. Figure 1 of the *Koenker Paper* consists of the following scattergram:



This graph visually demonstrates the strikingly strong ability of loop count alone to predict total cost.[39] But the new caps would not apply to total cost; they would apply to cost per loop. If the dependent variable (total cost) is so obviously and strongly influenced solely by scale, it is difficult to see how the Commission's already weak R-squared results can have any meaning at all. The results are inflated to an unknown

[38] *See, NRIC Comments* at 47-48.

[39] In the *Koenker Paper,* Figure 2 even more emphatically shows the same effect for cost factor "AS2."

degree by the irrelevant fact that areas that are more populous have more loops and, therefore, higher total cost. A regression model that serves as the basis of a per-line cost cap is arbitrary if it cannot reliably predict per-line costs, and the Commission has not demonstrated that its model meets this standard.

4. Methodological Correction 4: The Regression Methodology Must Exclude Insignificant Input Variables.

The *NRIC Comments* noted that a regression analysis should seek to shorten the list of independent variables, thereby obtaining a parsimonious model, while also seeking to make reliable predictions.[40] NRIC criticized the procedures set forth in the *FNPRM* for including 110 variable-result connections when only 26 were significant, asserting that this was a substantial error.[41]

NRIC was pleased to see that the Rural Associations' statistical expert, Dr. Koenker, agrees. Dr. Koenker characterized the selection of independent variables – what he called "conditioning covariates" – as a "crucial aspect of any modeling exercise" of this type. He also reported that to include "seemingly irrelevant covariates can be damaging to the validity of the model predictions because their inclusion tends to inflate the variability of those predictions."[42]

Thus, NRIC respectfully submits that the record demands that the Commission exclude insignificant input variables in its revised regression methodology. As Dr.

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[40] *See, NRIC Comments* at 38.

[41] *See, id.* at 40.

[42] *Koenker Paper* at 1.

Koenker states, absent such action, inflated variability of the predicted results will occur, undermining the reliability of the analysis.

II. THE COMMISSION SHOULD ESTABLISH A TRANSPARENT AND MEANINGFUL PROCESS WITH PUBLIC INPUT FOR RE-DESIGN OF THE REGRESSION MODEL

NRIC explained above that while the Commission's first effort at regression-based caps has serious problems, there is still hope a reliable regression model can be created that will produce a meaningful cap that prevents support from becoming insufficient and unpredictable. NASUCA made a specific procedural suggestion to further develop the issues that merit attention.

NASUCA suggested a multistage comment process to develop regression-based cost caps. Additional multiple technical public notices would be issued, followed by comments and reply comments. The first technical public notice would provide a list of alternative input variables and alternative regression equations.[43] A second notice would publish a database and the regression results.[44] To allow sufficient time for these notices and statistical work, NASUCA recommends that the Commission delay any cap implementation date to at least January 1, 2013.[45]

NRIC respectfully submits that NASUCA's two-phase notice process and the suggested implementation date of January 1, 2013 appears reasonable at this time and should be adopted as the tentative time frame by the Commission for the re-development

[43] It would also provide the entire set of statistical results associated with the equations in Appendix H to the Order and the new regressions, such as, but not limited to, the F-test results, or homogeneity test statistics. NASUCA Comments at 44-45.

[44] *See, id.* at 45.

[45] *See, id.*

of the regression analysis in a manner consistent with the record and the *NRIC Comments*. Although the January 1, 2013 date is a reasonable target, given the many data and statistical challenges ahead, NRIC also respectfully requests that the Commission view this date as only that – a target. In any case, a series of notices and comments, each building on the previous comments, seems a useful suggestion for a topic as complex as the present one.

PART II – DISCUSSION OF OTHER POLICY ISSUES

III. THE RECORD SUPPORTS RECOVERY OF ROR ETC'S MIDDLE MILE COSTS FROM THE CAF

In the *NRIC Comments*, NRIC stated that middle mile costs are a significant and integral component of the broadband service for which rate-of-return ETCs ("ROR ETCs") are responsible. Accordingly, middle mile costs should be recoverable from the Connect America Fund ("CAF"), and the cost recovery for such costs should be in addition to the current CAF budget.[46]

Five parties in addition to NRIC commented on one or more of the middle mile issues raised in the *NRIC Comments*.[47] The commenting parties agreed that middle mile facilities and costs are necessary in the provision of broadband service and should be recoverable from the CAF. NECA noted that middle mile costs appear to be included in the costs of the broadband-capable networks to be supported by the models applicable to

[46] *See, NRIC Comments* at 81-83.

[47] Comments on middle mile were submitted by: Alaska Rural Coalition, NASUCA, the Rural Associations (also referred to previously as NECA), WITA and General Communications, Inc. ("GCI").

price cap-regulated areas.[48] Even GCI, which supports a market-based approach to determining the provider of middle mile transport, recognizes that middle mile costs should be treated as expenses in determining support levels so that ROR ETCs can procure necessary middle mile capacity.[49]

Both the Alaska Rural Coalition and the WITA noted the variability in middle mile costs. Costs ranging from $21.66 per Mbps per month to $316.20 per Mbps per month were identified.[50] Moreover, these parties properly note that compounding these extremely variable – and high – costs is a limited or complete lack of availability of middle mile transport in many rural areas.[51]

NRIC agrees with NASUCA that middle mile transport as provided by special access is a critical input to broadband availability.[52] NASUCA's concern that "[t]he FCC's inaction in the special access proceeding is thwarting efforts to achieve a national broadband network",[53] must be addressed. NRIC also agrees with NASUCA that it is necessary to include middle mile and Internet transport costs in any CAF rate-of-return mechanism adopted by the FCC.[54]

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[48] *See,* NECA Comments at 24, n. 44.

[49] *See,* GCI Comments at 31.

[50] *See,* WITA Comments at 12.

[51] *See,* Alaska Rural Coalition Comments at 5; WITA Comments at 12.

[52] *See,* NASUCA Comments at 9.

[53] *See, id.*

[54] *See, id.* at 27.

As the comments demonstrate, middle mile costs are a key component in providing reliable broadband service that meets the Commission's performance standards. While there are many factors that drive middle mile costs and create variability among broadband providers, these costs should be recovered by ROR ETCs from the CAF. Since middle mile connectivity is a new, fast growing component necessary for the provision of broadband, the recovery of middle mile costs should be in addition to the current CAF budget. Accordingly, for all of these reasons and those provided in the *NRIC Comments*, the Commission should provide for recovery of middle mile through the CAF.

IV. WIRELINE BROADBAND COVERAGE IN NEBRASKA IS GROSSLY UNDERSTATED, WHICH WILL LEAD TO ERRONEOUS CONCLUSIONS FOR THE REMOTE AREAS FUND

In the *NRIC Comments,* NRIC enunciated five guiding principles that will advance the public interest with respect to considerations for addressing remote areas within a ROR ETC's service area in connection with establishing the Remote Areas Fund ("RAF"). One such principle was necessary because of the Commission's interim proposal to identify remote areas as census blocks in which no existing wireline or wireless broadband service is currently available. Specifically, in light of this interim proposal, NRIC urged the Commission to improve its mapping efforts and to consult with state commissions to properly identify remote areas.[55] NRIC demonstrated that serious flaws in the maps thus far proposed for use by the Commission existed, including whether and to what extent broadband service is available in areas served by ROR

[55] *See, NRIC Comments* at 72.

ETCs.[56] Consequently, the use of the National Broadband Map (the "NB Map") "as is" and without consultation with state commissions will very likely lead parties to falsely conclude the degree to which certain areas are either unserved or served by broadband, which in turn would lead in misidentification of remote areas for purposes of the RAF.[57] These concerns and the need for better mapping have now independently been confirmed in the record.

The Wireless Internet Service Providers Association ("WISPA") recommended the Commission rely on the NB Map to identify "remote areas." Relying on the NB Map, WISPA concluded that wireless Internet Service Providers are perhaps best positioned to provide broadband service to remote areas.[58] WISPA based its conclusion on information derived from the NB Map.[59]

WISPA specifically included the Nebraska portion of the NB Map showing the purported availability of terrestrial fixed broadband in the State.[60] WISPA's comments

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[56] *See, id.*

[57] *See id*. at 72-73. Other commenting parties have expressed similar concerns relating to the use of the NB Map to identify areas of competitive overlap. For example, the Vermont Public Service Board ("VPSB") urges the Commission not to determine areas of competition based upon existing broadband mapping data. *See,* VPSB Comments at 4. According to the VPSB, the existing mapping data obtained through the broadband mapping initiative provides a very inaccurate picture of broadband availability and speeds. *See, id.* at 5. The California Public Utilities Commission ("CPUC") expressed its concern regarding the longevity of the NB Map, or whether it will remain current after 2014. *See,* CPUC Comments at 4. NASUCA recommends that states should have the option to substitute geographic databases that they have created with their own resources and information, where doing so would yield more accurate and up-to-date information than the FCC's broadband map. *See,* NASUCA Comments at 42.

[58] *See* WISPA Comments at 11.

[59] *See, id.*

[60] *See, id.* at Exhibit 1. A copy of the Nebraska portion of the NB Map cited by WISPA is

and its analysis and conclusions regarding the NB Map are a perfect example of why the Commission must not rely on the NB Map for determining which areas of the country are unserved and eligible for purposes of administering the RAF. The NB Map fundamentally misrepresents the degree to which certain areas are either served or unserved with broadband.

For example, the majority of the land area in Nebraska appears to be unserved (those areas shaded in blue), while in fact, NRIC contends there is widespread evidence that much of those areas are currently served with broadband. For example, much of the areas served by the Consolidated Companies in Nebraska are located within these blue shaded areas, represented as unserved on the map submitted by WISPA. In fact, the vast majority of the Consolidated Companies service areas are served with broadband.[61] NRIC further contends that other areas in the Consolidated Companies' service areas that appear to be served exclusively by fixed wireless services are also served by wireline service.

NRIC also respectfully submits that wireline coverage is grossly understated on the NB Map due to the manner in which data was requested and reported to NTIA. For example, NTIA requested that wireline data for census blocks greater than two square miles be reported either by address, longitude and latitude coordinates, or by street

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attached hereto as Exhibit 1.

[61] As an example of these errors, attached hereto as Exhibit 2 is a map of areas served by Consolidated Telephone Company, Consolidated Telco, Inc., Consolidated Telecom, Inc., and The Curtis Telephone Company (the "Consolidated Companies"). The areas served by the Consolidated Companies with wireline broadband are indicated by the green shading. The areas in the Consolidates Companies' service areas that are uninhabited are indicted by white shading. The areas in the Consolidated Companies' service areas that are underserved or unserved are indicated by pink shading.

segments. In these large census blocks, the NB Map shows broadband availability by discrete customer locations or road segments. These locations are shown on the NB Map as dots or lines with no shading between the dots or lines, even in those cases in which wireline broadband service currently exists throughout most, if not all, of the census block. As a result, the NB Map represents the area shaded in blue as unserved.[62]

Even if these issues are properly addressed, however, that does not resolve the issue. Rather, NRIC respectfully submits that the NB Map overstates the areas covered with wireless broadband. Wireless carriers were asked to report their broadband coverage by area. If any wireless provider reported an area as served, the wireless carrier was listed as a broadband provider on the map's output regardless of the extent of service availability in the entire area. NRIC also contends that the NB Map indicates that many areas of Nebraska are entirely served with wireless broadband when, in fact, they are not.

To address errors in the NB Map in advance of establishing the RAF, NRIC urges the Commission to work with state commissions to validate any mapping of remote areas based on real world facts. This position, amply supported by the record, must occur before any RAF areas are identified.

V. CONCLUSION

For all of the reasons provided in the foregoing Reply Comments, the Nebraska Rural Independent Companies respectfully submit that the Commission should adopt and incorporate the positions set forth in the foregoing Reply Comments, as well as those set

[62] *See,* Exhibit 2 attached to these Comments.

forth in the *NRIC Comments,* into the Commission's efforts to modernize the federal universal service cost recovery system.

Dated: February 17, 2012.

Respectfully submitted,

Arlington Telephone Company, The Blair Telephone Company, Cambridge Telephone Company, Clarks Telecommunications Co., Consolidated Telephone Company, Consolidated Telco, Inc., Consolidated Telecom, Inc., The Curtis Telephone Company, Eastern Nebraska Telephone Company, Great Plains Communications, Inc., Hamilton Telephone Company, Hartington Telecommunications Co., Inc., Hershey Cooperative Telephone Co., K. & M. Telephone Company, Inc., The Nebraska Central Telephone Company, Northeast Nebraska Telephone Company, Rock County Telephone Company, Stanton Telecom, Inc., and Three River Telco

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EXHIBIT 1

TAKEN FROM EXHIBIT 1 ATTACHED TO WISPA COMMENTS

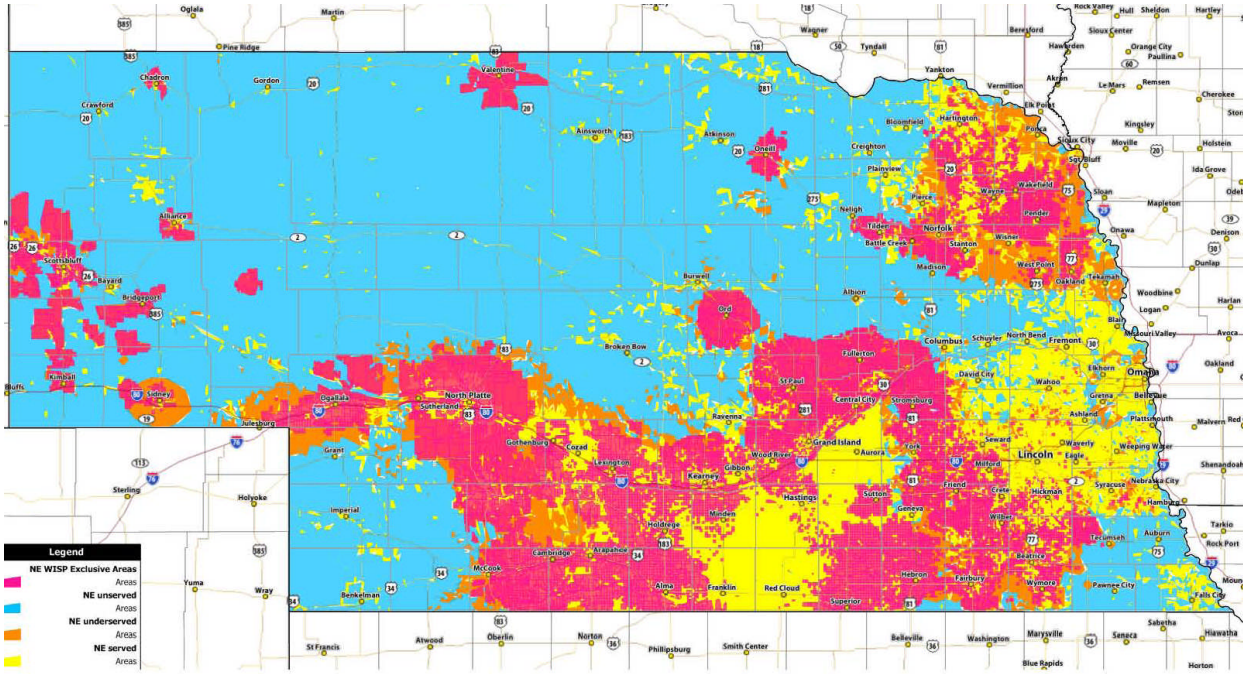

EXHIBIT 2

NRIC-PROVIDED CORRECTED NEBRASKA MAP FOR CONSOLIDATED COMPANIES' SERVICE AREAS