

**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 Line-Up)	WC Docket No. 03-109
)	
Universal Service Reform – Mobility Fund)	WT Docket No. 10-208
)	

To: The Commission

**COMMENTS OF THE
BLOOSTON RURAL BROADBAND CARRIERS**

Benjamin H. Dickens, Jr.
Mary J. Sisak

Blooston, Mordkofsky, Dickens,
Duffy, & Prendergast, LLP
2120 L Street NW, Suite 300
Washington, DC 20037
Tel: 202-659-0830
Fax: 202-828-5568

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Executive Summary

The Blooston Rural Broadband Carriers respectfully submit the following comments on subsections A-K of Section XVII of the Commission's *Order and FNPRM*.

First, the Commission should not use quantile regression analysis ("QRA"), or any other single statistical approach, to limit high-cost loop support. The Commission's suggestion that the QRA take retroactive effect is a violation of well-settled administrative law precedent. Furthermore, the information upon which the QRA relies is neither readily available nor readily discernable. The Commission must provide, at a minimum, critical information such as which algorithm steps are more frequently capped, the distribution of data and error terms of the QRA model, the selection of the 90th percentile as the cut-off, coefficient estimates for alternative percentiles, and details supporting cut-offs at different values. This lack of information notwithstanding, the Blooston Rural Broadband Carriers also question the Commission's reliance on the QRA, and on benchmarking in general, as grounds to reduce support. .

Second, the Commission's proposal to use forbearance to allow an ETC to not provide service in all or part of its designated service area, even if there is no other ETC designated for that area, is contrary to the Act. Section 214(e) of the Act confers upon state commissions the primary authority to designate ETCs and to designate their service areas. The Commission may not act by itself to change ETC service requirements or service areas. The forbearance procedures in Section 10 of the Act are limited to Commission reduction of federal statutory or regulatory requirements imposed on individual carriers, and do not permit the Commission to modify the jurisdiction of state commissions or to reduce state statutory or regulatory requirements. The Commission's proposal would pre-empt state commission authority and

expose consumers to the risk of having no entity obligated to provide supported service, and is therefore contrary to section 214(e) of the Act.

Finally, the Commission's proposal to require a letter of credit from rate-of-return high-cost recipients should not reflect or include the recipient's provision of broadband services. Since rate-of-return ETCs are required to provide broadband service only upon "reasonable request", it is not possible to determine an amount applicable to such service, and any attempt to set an amount would be arbitrary. Furthermore, to allow the Chief of the Wireline Bureau to draw on a letter of credit based on the mere suspicion of non-compliance is a violation of due process. Compliance with due process requires that a recipient be provided an opportunity to challenge or refute any such suspicion, and that the Bureau issue a formal order finding non-compliance before drawing on a letter of credit.

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The law firm of Blooston, Mordkofsky, Dickens, Duffy & Prendergast, LLP, on behalf of its clients listed in Attachment A (the “Blooston Rural Broadband Carriers”), submits these comments on subsections A through K of Section XVII of the Commission’s *Report and Order and Further Notice of Proposed Rulemaking*, FCC 11-161, released November 18, 2011 (“*Order*

and FNPRM”),¹ in the above-captioned proceedings. The Comments demonstrate that the Commission’s proposed QRA is flawed and should not be used; the Commission’s proposed use of forbearance in connection with section 214 obligations is contrary to the Act; and the Commission’s proposed letter of Credit (“LOC”) process is a violation of due process, and any LOC should not include broadband service for rural rate-of-return carriers.

I. The Commission Should Not Use Quantile Regression Analysis to Limit High-Cost Loop Support

The rural rate of return companies listed in Attachment A to the Comments are directly and substantially affected by the Commission’s novel benchmarking methodology adopted in the recent *Order and FNPRM*. The companies will be similarly affected by the QRA methodology illustrated in Appendix H to the *Order and FNPRM*, which is the subject of these comments.

By way of background, most if not all of these commenters serve rural areas with some or many of the following characteristics: very sparsely populated areas; long loop lengths, hostile outside plant conditions, subject to flooding, extreme heat and/or frost; rocky and mountainous terrain and consequent outside plant construction expense. All of these companies have been subject to the audit procedures of the Rural Utilities Service, the National Exchange Carrier Association, Inc., this Commission, and state regulatory authorities. Such has been the case for several decades.

¹ *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing a Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link Up; Universal Service Reform – Mobility Fund; Report and Order and Further Notice of Proposed Rulemaking*, WC Dockets No. 10-90, 07-135, 05-337, 03-109; CC Dockets No. 01-92, 96-45; GN Docket No. 09-51; WT Docket No. 10-208, released November 18, 2011.

Based upon initial information from the Commission’s regression analysis model, it appears that many problems exist with the QRA approach or, Commenters would submit, with any other single statistical approach which aims to disallow significant costs. These Commenters collectively stand to lose tens of millions of dollars of previous investment, simply from the output of what is, at present, a non-transparent model. Commenters respectfully submit that, if the Commission is to use statistical models at all, it should exercise as referred to by one benchmarking expert, “humility”² when trying to understand the factors that may not be captured by modeling.

The Commenters here rely upon an analysis and critique of both the Commission’s decision to rely on modeling and the QRA proposed specifically, by Janice A. Hauge, Ph.D.³ These concerns are discussed below.

A. Retroactive Application of Quantile Regression Analysis Is Unlawful

The *Order and FNPRM* leaves no doubt that the regression analysis will be applied retroactively. The *Order and FNPRM* defends this retroactive application of modeling results, based on the assertion that:

Even today, companies can only estimate whether their expenditures will be reimbursed through HCLS. In contrast to the current situations, the new rule will discourage companies from overspending relative to their peers.⁴

² See, Attachment B, Declaration and Report of Janice Hauge, PhD. (“*Report of Dr. Hauge*”).

³ Dr. Hauge is an empirical economist in the area of utility regulation. Dr. Hauge currently teaches economics, as an associate professor, at the University of North Texas, and is currently a Senior Research Associate at the Public Utilities Research Center, University of Florida, in Gainesville, Florida.

⁴ *Order and FNPRM* at ¶220.

In the same vein, the *Order and FNPRM* says: “Second, this methodology also will help to identify these study areas where past investments may have been excessive and caps their reimbursement.”⁵

The statements fail to persuade that the retroactively applied QRA results are business as usual or benign. For example, Dr. Hauge has calculated that “approximately 40 percent (280 out of 707) of rural rate of return cost study areas would receive lower payment. [fn. omitted]”⁶

While Dr. Hauge’s analysis draws from this fact the possibility that the model’s 90th percentile is pre-determined and seemingly arbitrary, the data also illustrate that the proposed regression analysis is hardly comparable to today’s high cost loop mechanism, where 100% of the study areas considered receive high cost loop support. Likewise, today’s high cost mechanism is at least predictable,⁷ not being dependent, as is the QRA, upon 11 capped algorithms, and how one’s company stacks up against its peers, without further analysis.

In any event, and whatever other meager support the *Order and FNPRM* might draw from the current, soon to be obsolete, mechanism, it is almost black letter law that new agency regulations must have prospective effect.⁸ In sum, the retroactive application of the QRA, as proposed, would be unlawful. It is not predictable as required by statute, and it contravenes well-settled principle of agency law and precedent. As discussed following, Dr. Hauge discusses

⁵ *Id* at n. 351.

⁶ *See, Report of Dr. Hauge* at p. 1.

⁷ Section 254(b)(5) of the Communications Act of 1934, as amended, requires universal service support to be “specific, predictable, and sufficient”.

⁸ *Marie v. Securities and Exchange Commission*, 374 F 3d 1196, 1207 (DC Circ. 2004); *Landgraf v. US Film Products*, 511 U.S. 244 (1994); *Retail, Wholesale and Department Store Union, AFL-CIO v. NLRB*, 466 F2d 380, 388 (DC Circ. 1972).

the probable result that, eventually, the proposed mechanism will seriously curtail rural operations. In that event, the mechanism is not “sufficient” as required by the Act.⁹

B. Critical Information is Missing from the Quantile Regression Analysis Model and the Commission’s Proposed Use of the Model Should Change

As previously discussed, a critical analysis of the proposed QRA model, prepared by Dr. Janice A. Hauge, is attached to these Comments. The analysis identifies several areas of concern which warrant, at a minimum, the release of data related to the model and, should the model ultimately be adopted, its use in a more circumspect fashion.¹⁰ These points are discussed in order.

Dr. Hauge observes that the dearth of information provided in Appendix H leaves much to be desired in substantiating the model’s results and any conclusions that may be drawn from it. Importantly, she observes that the consecutive application of the model across time will ultimately reduce high cost loop receipts, causing them to approach zero. As such, “[f]ew carriers will be able to continue operating as their payments are increasingly reduced.”¹¹ The public policy implications of this result are discussed later in these comments. This result has important implications for the model itself, however. Dr. Hauge urges that the Commission indicate the algorithm steps that are more frequently capped; that is, the Commission “should indicate the number of study areas falling outside the 90th percentile for each algorithm step.”¹²

⁹ 47 USC 254(b)(5).

¹⁰ The Blooston Rural Carriers also note that due process requires disclosure of the information that forms the technical basis for proposed rules in time to allow for meaningful commentary, and that the failure to do so is a serious procedural error. *See, e.g., See Owner-Operator Independent Drivers Ass’n, Inc. v. Federal Motor Carrier Safety Admin.* 494 F.3d 188 (D.C. Cir. 2007); *citing Connecticut Light & Power Co. v. NRC*, 673 F.2d 525, 530-31 (D.C. Cir. 1982).

¹¹ *Report of Dr. Hauge* at p. 4.

¹² *Report of Dr. Hauge* at p. 2.

This would illustrate whether some steps are more prone to being capped than others, and would be useful in understanding whether high costs in a particular study area seem justifiable.

Another category of information that should be provided concerns the selection of independent variables. Dr. Hauge observes that the only independent variable which is consistently significant for the 90th percentile is loops. Housing units in non-urban area and land area in non-urban area also appear somewhat significant (respectively, 58 percent of the steps and 67 percent of the steps). This raises two related questions: first, are the independent variables selected useful in predicting costs in each step of the algorithm? Second, would these variables be more useful in predicting costs at each algorithm step for a different percentile, such as 85 percent or 50 percent? This information was not provided in Appendix H and appears critical. Dr. Hauge observes that it appears that the Commission is simply selecting a cost cut-off, rather than using the data to determine an appropriate cost cut-off of study area “outliers” with unjustified high costs.

Finally, on the subject of insufficient information, Dr. Hauge concludes that, so far, insufficient information exists with respect to the distribution of data and error terms of the QRA model, the selection of the 90th percentile as the cut-off, coefficient estimates for alternative percentiles, and details supporting cut-offs at different values. Dr. Hauge concludes that the public’s ability to verify whether the quantile cut-off is appropriate “is slim” without running the model independently. Commenters submit that it would take an unreasonable amount of time, running to several months, for any member of the public to independently verify the data, which has not yet been supplied.

As previously discussed, Dr. Hauge also questions the novel application of the model, as proposed, in order to consecutively reduce HCLS for all rural study areas. She observes that, as a

matter of public policy and in the professional literature on benchmarking, this is at odds with its use. She cites economic literature on the subject that firms “must have a reasonable assurance of cost recovery of prudently incurred costs, must continue to invest, and must not diminish service quality to cut costs[fn omitted].”¹³ The Commission’s plan includes none of these important benchmarking tools, she finds. Instead the Commission’s methodology simply reduces HCLS receipts in all study areas across time. This is not a proper use of benchmarking.

Dr. Hauge lastly discusses alternative policies that should be included in the Commission’s toolbox. According to one well known expert in the field, Dr. Sandford Berg, “[i]n practice, benchmarking has been subject to a number of difficulties, which means that it is never likely to be more than one tool in the regulator’s armory.”¹⁴ Dr. Hauge lists a number of other techniques that should be considered and concludes that, instead of using the proposed benchmarking to automatically reduce payments, it should be used to trigger a harder look, such as the HHI used by the Department of Justice in market concentration cases.

In addition to the issues raised by Dr. Hauge, the Commission’s model does not appropriately reflect significant cost drivers for rural carriers. For example, the model does not accurately account for differences in population density and terrain, both of which are proven drivers of cost. As mentioned above, the rural areas which the Blooston Rural Broadband Carriers serve are often sparsely populated and subject to harsh geographic and natural elements such as mountainous terrain, extreme heat or cold, various soil types, and more. The factors proposed by the Commission, including loop count and percent land,¹⁵ simply do not take into account the costs these factors add to rural operations. For instance, one Commenter has only 6

¹³ *Report of Dr. Hauge* at p. 4.

¹⁴ *Report of Dr. Hauge* at p. 5.

¹⁵ *Order and FNPRM*, Appendix H at ¶¶23, 26, and 27.

customers per square mile, and must employ a rock cutter to place buried loop plant. This limits construction to 200 yards per day. This type of expense and limited economic scale is not captured by the Commission's model.

In sum, critical data necessary to evaluate the effectiveness of the QRA is lacking and, even if it were provided, would prove time consuming to properly integrate and evaluate. Such in-depth evaluation notwithstanding, the QRA model appears to dictate a reduction in HCLS support for all ETCs over time toward zero, which is contrary to the policies established in the Act.

II. The Commission's Proposed Use of Forbearance is Contrary to the Act

After having found that in some cases ETCs will no longer receive federal universal service support, the Commission now seeks to find a way to eliminate the service obligations under the Act of such ETCs. To achieve this purpose, the Commission proposes the use of the "existing ETC relinquishment and service area redefinition procedures, backstopped by the availability of forbearance from federal requirements."¹⁶

Section 214(e)(2) of the Act confers upon state commissions the primary authority to designate ETCs and to designate their service areas. Section 214(e)(5) defines the "service area" of an RLEC as its study area unless and until both the Commission and the state, after taking into account recommendations of a Section 410(c) Federal-State Joint Board, establish a different definition of "service area" for such RLEC. Section 214(e)(6) gives the Commission the authority to designate common carriers that are not subject to state commission jurisdiction as ETCs, and to designate their service areas in a manner consistent with applicable federal and

¹⁶ *Order and FNPRM* at ¶ 1097.

state law. Finally, Section 214(e)(3) grants the Commission with respect to interstate services, and state commissions with respect to intrastate services, the authority to designate an ETC for an unserved community or portion thereof.

As the Commission has recognized, these statutory allocations of jurisdiction preclude it from acting by itself to change the ETC service requirements and/or the service areas of ETCs that have been designated pursuant to Section 214(e)(2) by state commissions. For example, “neither the Commission nor the states may act alone to alter the definition of service areas served by rural carriers,” and proposed redefinitions do “not take effect until the Commission and the appropriate state commission agree upon a new definition”.¹⁷ It is also clear that the forbearance procedures in Section 10 of the Act are limited to Commission reduction of federal statutory or regulatory requirements imposed upon individual carriers, and do not permit the Commission to modify the jurisdiction of state commissions or to reduce state statutory or regulatory requirements.

Section 214(e)(4) requires a State commission (or the Commission, if the ETC is not subject to state jurisdiction) to permit an ETC to relinquish its designation “in any area served by more than one eligible telecommunications carrier.”¹⁸ However, the statute further states that “[p]rior to permitting a telecommunications carrier designated as an eligible telecommunications carrier to cease providing universal service in an area served by more than one eligible telecommunications carrier, the State commission (or the Commission in the case of a common carrier designated under paragraph (6)) shall require the remaining eligible telecommunications carrier or carriers to ensure that all customers served by the relinquishing carrier will continue to be served, and shall require sufficient notice to permit the purchase or construction of adequate

¹⁷ *Order and FNPRM* at ¶¶1092-93.

¹⁸ 47 U.S.C. §214(e)(4).

facilities by any remaining eligible telecommunications carrier."¹⁹ This section clearly shows that Congress sought to ensure the continuation of service to consumers by ensuring that at least one ETC, obligated to offer the supported services throughout a service area, is designated for all areas and by placing such service relinquishment decisions primarily in the hands of state commissions.

This interpretation is further supported by Section 214(e)(3) of the Act, which directs the State commission or the Commission, in connection with their respective jurisdictions, to order a common carrier or carriers to serve an unserved area that requests service. This section further requires that any carrier or carriers ordered to provide service "shall be designated as an eligible telecommunications carrier for that community or portion thereof" and offer the supported services throughout the designated service area.²⁰

The Commission proposes to use forbearance to allow an ETC to not provide service in all or part of its designated service area even if there is no other ETC designated for the area. This would pre-empt state commission authority over ETC designations and service areas, as well as expose consumers to the very real possibility that no entity would be obligated to provide the supported services to them. Even if there is an unregulated, non-common carrier broadband provider serving the area, service would not be guaranteed to consumers because non-common carrier broadband providers have no obligation to provide service throughout any particular area or to serve all.²¹ Thus, the Commission's proposed use of forbearance not only creates tension

¹⁹ 47 U.S.C. § 214(e)(4).

²⁰ See, 47 U.S.C. §214(e)(3), "Any carrier or carriers ordered to provide such service under this paragraph shall meet the requirements of paragraph (1) and shall be designated as an eligible telecommunications carrier for that community or portion thereof."

²¹ In this case, it is questionable whether the ETC could meet the forbearance standard and demonstrate that the section 214(e)(1) requirement to offer supported service throughout its

with section 214(e), but also contravenes both section 214(e)'s public policy prescriptions and its grants of jurisdiction over ETCs to the states.

III. The Commission's Proposed LOC Process Should not Include Broadband Service for Rural Rate-of-Return Carriers and is a Violation of Due Process

The Commission proposes to require entities receiving high-cost support to provide a standby irrevocable letter of credit (LOC), which the Commission would draw upon when the recipient fails to meet its public interest obligations, such as "failing to meet deployment milestones, to provide broadband at the speeds required by the *Order and FNPRM*, or to provide service at reasonably comparable rates."²² The Commission seeks comment on how to determine the amount of the LOC necessary to ensure compliance with the public interest obligations. The Commission also proposes to allow the Chief of the Wireless Bureau or Wireline Bureau to draw on the LOC after issuing a letter to the recipient.

In the *Order and FNPRM*, the Commission does not impose a specific obligation to provide broadband service on rural rate-of-return carriers. Rather, such carriers are required to provide broadband service only "on reasonable request." It is not possible to determine the amount of an LOC necessary to ensure compliance with this requirement and any attempt to set an amount would be arbitrary. Accordingly, to the extent an LOC is required of rural rate-of-return carriers, it should not apply to or include broadband services.

In addition, the Chief of the Wireline Bureau should not be allowed to draw on an LOC based on a letter of suspected non-compliance. Rather, in compliance with due process

service area "is not necessary for the protection of consumers" and is "consistent with the public interest." 47 U.S.C. § 160(a).

²² *Order and FNPRM* at ¶1104.

requirements, the high-cost support recipient should be provided an opportunity to challenge or refute any such letter from the Wireline Bureau and the Bureau should be required to issue an order finding non-compliance before drawing on the LOC.²³

IV. CONCLUSION

The Commission should not rely on the proposed Quantile Regression Analysis because very little information is available to the public to independently justify or otherwise verify the usefulness and validity of the method. Furthermore, the use of the Quantile Regression Analysis appears to dramatically reduce high-cost loop support for all rural areas, based on variables that do not adequately account for the variety of challenges rural areas present. Rather, the Blooston Rural Broadband Carriers suggest a much broader set of tools is necessary for the task.

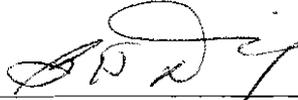
The Commission's proposal to forbear from ETC requirements should likewise be rejected, as it is flatly contrary to the Act. To do otherwise would be to pre-empt state jurisdiction in determining the requirements and service areas of ETCs.

Finally, the Commission should exclude broadband services from the scope of its letter of credit proposal for rate-of-return carriers because it is not possible to determine the amount of an LOC necessary to ensure compliance with the broadband requirement of these carriers. . . Further, the Commission cannot draw upon any such letter of credit based on a suspicion of non-compliance; rather, due process requires that recipients have an opportunity to refute any charge of non-compliance first.

²³ See 5 USC 553; 5 USC 554.

Respectfully submitted,

**BLOOSTON RURAL
BROADBAND CARRIERS**

By 

Benjamin H. Dickens, Jr.
Mary J. Sisak

Blooston, Mordkofsky, Dickens, Duffy
& Prendergast, LLP
2120 L Street, NW, Suite 300
Washington, DC 20037
Phone: (202) 659-0830
Facsimile: (202) 828-5568

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The Blooston Rural Broadband Carriers

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The Blair Telephone Company
Butler-Bremer Communications
Cameron Telephone Company, LLC
Clear Lake Independent Telephone Company
Custer Telephone Cooperative, Inc.
Eastern Nebraska Telephone Company
Elizabeth Telephone Company, LLC
Holway Telephone Company
Interior Telephone Company
KLM Telephone Company
Midvale Telephone Exchange, Inc.
Moultrie Independent Telephone Company
Mukluk Telephone Company, Inc.
Northern Arkansas Telephone Company
Penasco Valley Telephone Cooperative, Inc.
The Ponderosa Telephone Co.
Public Service Telephone Company
Rock County Telephone Company
Strata Networks
Table Top Telephone Company, Inc.
Townes Telecommunications, Inc.
Triangle Telephone Cooperative Association, Inc. (d/b/a Triangle Communications)
Walnut Telephone Company, Inc.
West River Cooperative Telephone Company

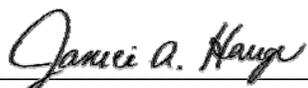
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DECLARATION AND REPORT OF JANICE A. HAUGE

I, Dr. Janice A. Hauge, do hereby, under penalty of perjury, declare and state as follows:

1. My name is Janice A. Hauge. I am an Associate Professor of Economics at the University of North Texas, Department of Economics, in Denton, Texas. I have been retained by the carriers listed in Attachment A of the Comments to study the economic topics discussed in these Comments and prepare the forgoing Report, and that I am familiar with the facts of the relevant Commission rulemaking proceedings upon which my Report is based.
2. I have reviewed the factual assertions set forth in my Report, as follows, and hereby certify that such factual assertions are true and correct to the best of my knowledge.



 Janice A. Hauge

Dated: January 18, 2012

I. Executive Summary

This comment addresses the validity of the quantile regression analysis methodology in FCC 11-161, “Report and Order and Further Notice of Proposed Rulemaking” (adopted October 27, 2011 and released November 18, 2011), for determining carrier-specific limits on High Cost Loop Support (HCLS) payments to rate-of-return carriers. As shown herein, the FCC has not provided evidence that the methodology, specifically with respect to the appropriateness of the proposed plan and the incentives that would derive from it, is supported by economic theory. Following are the four main issues that suggest the FCC’s proposed rule is not appropriate.

Point 1: The 90th percentile as a cut-off is not supported in the FCC's explanation of the methodology. The FCC has estimated the amount that payments for HCLS must be reduced, and has estimated that by the proposed methodology, approximately 40 percent (280 out of 707) of rural rate-of-return cost study areas would receive lower payments.¹ This means that for one or more steps of the currently-applied algorithm, 40 percent have at least one category of costs greater than the 90th percentile of similarly situated companies and therefore HCLS payments would be reduced. Given that there is nothing in the FCC’s chosen econometric method that identifies the 90th percentile as having greater significance than any other percentile, it is unclear whether the methodology identifies carrier study areas that are unjustifiably costly in some (or multiple) categories of costs.

Point 2: The FCC’s application of its econometric method turns the method on its head.

The chosen regression methodology is designed to focus on characteristics of observations that are determined to be outliers *a priori*. The FCC appears to be implementing the model in essence backwards, by using it to designate certain operators as outliers to be subject to cost cut-offs rather than by evaluating the data in order to determine why service providers who are truly outliers have high costs.

Point 3: The FCC has not shown evidence to support its rejection of other regression approaches.

The FCC states that it rejects a suggested ordinary least squares method because the rural rate-of-return carriers’ data do not follow a normal distribution, as is assumed in ordinary least squares; however, the FCC has provided no data or analysis in support of that argument.

Point 4: The FCC’s method does not provide the economic incentives it claims. The FCC’s method cuts off support for costs above the 90th percentile in each cost category. This discourages companies from engaging in cost minimizing activities that would increase costs above the 90th percentile in one category in order to decrease costs even more in another category. Also, because the costs above the 90th percentile are not reimbursed, operators have an incentive to cut the costs even if there are negative impacts on customers, such as lower service quality. Finally, the method does not provide incentives for operators below the 90th percentile to improve their efficiency.

¹ Point 1084, page 397, FCC 11-161: “Based on 2010 NECA data filed with the Commission, we estimate this proposed methodology would reduce HCLS payments to about 280 rural rate-of-return cost study areas by an estimated \$110 million, with approximately \$55 million redistributed to approximately 340 cost company study areas whose unseparated loop cost is not limited by operation of the benchmark methodology.

Each of these points is addressed more fully in the following section.

II. Explanation of points 1 through 4.

Point 1

Arguing that any cost study area that is not within a certain quantile in a certain cost category (in this case the 90th percentile) is by definition ‘too costly’ is flawed. All one can really say from the statistics is that the model does not capture everything that is true about this cost study area - it just falls outside the quantile. Further, there is little justification for the quantile being set where it is.

A large percentage of cost study areas will receive lower payments as a result of the implementation of the proposed methodology. If most have payments reduced at some point, the FCC should indicate the algorithm steps that are more frequently capped; i.e., the FCC should indicate the number of study areas falling outside the 90th percentile for each algorithm step. Such information would illustrate whether some steps are more prone to being capped than others, which might indicate either greater dispersion or greater skew among study areas for that step than others. This more granular detail would improve understanding of whether high costs in a given area are potentially justifiable. In the interest of full transparency of the effects of the newly proposed methodology, evidence of the implications of the model for each step of the algorithm should be provided.

This leads to Point 2.

Point 2

The FCC has chosen to use quantile regression analysis (QRA) to develop a model by which inordinately high high-cost study areas can be identified and payments to such areas capped. In other words, the FCC appears to be using QRA in part to identify what “high” is. This is an incorrect use of QRA. QRA is designed to explain the observations that appear to be outliers; i.e., those that appear to be either high cost relative to peers, or low cost relative to peers.

The FCC's methodology seeks to determine whether certain study areas are more costly than they “should be” – in other words whether costs are higher for a given study area than they are for similarly situated peers. To analyze this question one might ask how, on average, various factors affect costs for a given study area. The FCC has chosen to utilize US Census data to model factors that influence various categories of costs. QRA asks whether these factors (such as terrain, density, urban housing units, loops, etc.) influence costs differently for carriers with high cost than they do for carriers with average costs. QRA predicts the effect of these aforementioned independent variables (terrain, density, urban housing units, loops, etc.) on cost. In effect, QRA shows that many factors influence costs; once those factors are accounted for, the dispersion of carrier study areas at various levels of cost can be seen.

QRA allows one to model the relationship between the independent variables and specific percentiles of cost (where these percentiles are the quantiles). This means, for example, that the

effect of urban housing units on median costs can be compared to the effect of urban housing units on other quantiles of costs; so, we can compare how some percentiles of costs may be more affected by these independent variables than other percentiles. With QRA, we might find that study areas with very low costs are unaffected by the number of urban housing units, whereas study areas with very high costs are greatly affected by the number of urban housing units. In more strict terms, with QRA, the effects of independent variables can be variable, which is a key value of this methodology.

Given the above, it appears that selecting the 90th percentile as the cut off for determining whether costs are inordinately high must be justified. In the FCC's order 11-161, Appendix H, some results of the QRA model are provided. Among those results, the only independent variable that is consistently significant for the 90th percentile is *loops*. *Housing units in non-urban area* is statistically significant for 58 percent of the steps and *land area in non-urban area* is statistically significant in 67 percent of the steps. Little else is significant. We should then question two things. First, are the independent variables chosen useful in predicting costs at each step of the algorithm? Second, would the independent variables chosen be more useful in predicting costs at each step of the algorithm for a different percentile, i.e., 85 percent, or even 50 percent? The FCC has not provided the information to determine this. The FCC appears to be selecting a cost cut-off rather than evaluating the data in order to determine an appropriate cost cut-off for study areas that are truly outliers with unjustified high costs. This leads to point 3.

Point 3

With respect to the applicability of the model and the subsequent use of the model, we find two main causes of concern. First, FCC 11-161, Appendix H, outlines the rationale for selecting the chosen methodology. This rationale is based on explaining why QRA was chosen rather than ordinary least squares, or OLS, which implies that these models are the only two models that might suffice, which is not true. Appendix H explains that the important explanatory variable *loops*, exhibits a characteristic making OLS "complicated". In making this statement, the Appendix states: "it complicates efforts to deal with other problems such as outliers and non-Gaussian error terms" (page 624). In this statement, the FCC refers to characteristics of the data (that there are outliers and non-Gaussian error terms) that they have not shown to exist. For the QRA methodology to be strictly better than OLS these characteristics are important (but not necessary) and therefore it is relevant to show their existence. Because the FCC states a concern with OLS's inability to deal with outliers "that requires exercise of judgment as to which observations are truly outliers" (page 224), the determination of such outliers should be shown.

For econometricians, the normal distribution assumption is not required in OLS. Also, if there is the characteristic of heteroskedasticity, one can model the variance function using a weighted least squares or generalized least squares model. Furthermore, the Gauss-Markov assumptions do not include the assumption of normality of the error term, and under the Gauss-Markov assumptions, the OLS estimator is the best linear unbiased estimator. The FCC has not provided the data they used within the model. In the interest of full disclosure regarding the methodology and transparency of the process by which HCLS payments are determined, the FCC should provide summary statistics (including median and mean within the QRA model) regarding the relevant data.

In layman's terms then, in order for the FCC to select its methodology over these other methodologies, the FCC should provide full information on the distribution of the data and the error terms in the model; at this point, the FCC has not included evidence that the distribution of rural rate-of-return carriers is other than normal (i.e., that the methodology chosen fits the data).

Finally and perhaps most importantly with respect to the choice of QRA: The purpose of the FCC's proposed methodology essentially is to locate outliers; however, the FCC assumes outliers by its adoption of QRA. If the data do exhibit characteristics that show that the QRA model is appropriate, the choice of quantile must be addressed. The FCC has not provided evidence to support the selection of the 90th percentile as the cut-off. The FCC requests comments on the percentile chosen; however, to make this determination the FCC must provide full results at various quantiles. Typically with quantile regression models, results (i.e., coefficient estimates) are provided for a number of possible quantiles. Often an analysis will report the 5th, 10th, 50th, 90th, and 95th percentiles. These additional results in this case must be provided to determine an appropriate threshold. The FCC should provide details of cut-offs at different values, and regression coefficients at those different values. The choice of any quantile is by definition somewhat arbitrary; but there could be more evidence in support of the validity of the given cut-off and the significance of same. Without such results the public's ability to verify whether the quantile cut-off is justified given the methodology selected without running the model independently is slim.

Point 4

FCC 11-161 states: "This framework will create structural incentives for rate-of-return companies to operate more efficiently and make prudent expenditures."²

The methodology proposed by the FCC uses benchmarking to determine which cost study areas will receive lower HCLS payments than in the past. It does not create incentives for rate-of-return companies to operate more efficiently and make prudent expenditures. For effective benchmark regulation, firms must have a reasonable assurance of cost-recovery of prudently incurred costs, must continue to invest, and must not diminish service quality in order to cut costs.³ According to Berg (2008, page 31), benchmarking is not sufficient for sound regulatory decisions. "It is only a means to an end, and is worthless if not accompanied by a plan to change."⁴ The FCC's proposed plan does not include additional changes in incentive regulation policy; instead, it applies the benchmark consecutively, which must ultimately result in consecutively reduced HCLS for most rural rate-of-return cost study areas. Few carriers will be able to continue operating as their payments are increasingly reduced. This is a key result of the proposed methodology.

Additionally, some companies are at an inherent disadvantage: Through no fault of their own, they face higher operating costs. Good regulatory policies typically do not hold firms responsible for factors beyond their control.

² FCC 11-161, Point 210, page 79.

³ Tremolet and Binder (2010).

⁴ Nayab (2010).

With respect to the econometric methodology for determining effective benchmarking, the appropriate inputs (or for the FCC's purposes, the appropriate independent variables) must be used. Additionally, those variables must be correct.⁵ If accurate and appropriate variables are not used, benchmarking risks punishing companies that have made prudent investments and rewarding those that have cut costs to consumers' detriment. Comparisons must be robust in order to be credible.

Yane (2011) summarizes with respect to a benchmarking analysis in Japan:

“This analysis ... reminds us that the decision-relevance of technical benchmarking studies depends on sensible use of the efficiency scores and rankings (Berg, 2010, p. 115). In addition, it underscores the importance of utilizing multiple methodologies for evaluating utility performance (Zschille and Walter, 2012). When real money is on the table, model specification still seems to be an art, rather than a science. Finally, a regulator should... establish catch-up times for utilities which seem to be lagging in performance—that decision requires judgment and awareness that rules for groups of firms make better sense than the use of scores for individual utilities.... These observations are not meant to detract from efforts to refine and improve benchmarking—just to remind analysts that humility is called for when so many factors remain beyond managerial control (and outside analytical models)” [pages 25-26].

III. Alternatives to the proposed methodology

Benchmarking can be a useful regulatory policy when conducted correctly and when used in conjunction with other complementary regulatory policies. According to Berg (2008), “in practice, benchmarking has been subject to a number of difficulties, which mean that it is never likely to be more than one tool in the regulator's armory.” Such accompanying policies might include, among others, an analytic hierarchy process, data envelopment analysis, total factor productivity analysis, or stochastic frontier analysis to determine efficiency of a given carrier.

Such models would help to better understand why the study areas fall into the highest cost segment for one or more of the steps used in the FCC's HCLS algorithm. Rather than using the results of the benchmarking analysis to automatically reduce payments, the FCC should instead use the results of its analysis as a trigger to prompt further study, as the Department of Justice uses the HHI when adjudicating market concentration cases. Multiple analytical tools along with an incentive compatible mechanism for carriers deemed to be high cost to efficiently and prudently lower their costs would be a more appropriate regulatory path to pursue. Putting the burden of proof on a carrier to justify being beyond the FCC's benchmark quantile, by contrast, is questionable.

⁵ According to Kevin Bartley, the Chief Financial Officer of Penasco Valley Telephone Cooperative, Inc., the FCC map and data is materially incorrect for PVT. FCC's regression analysis shows that PVT's service area is 2331.13 square miles while the actual service area is 4651 square miles – approximately a 100 percent error

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