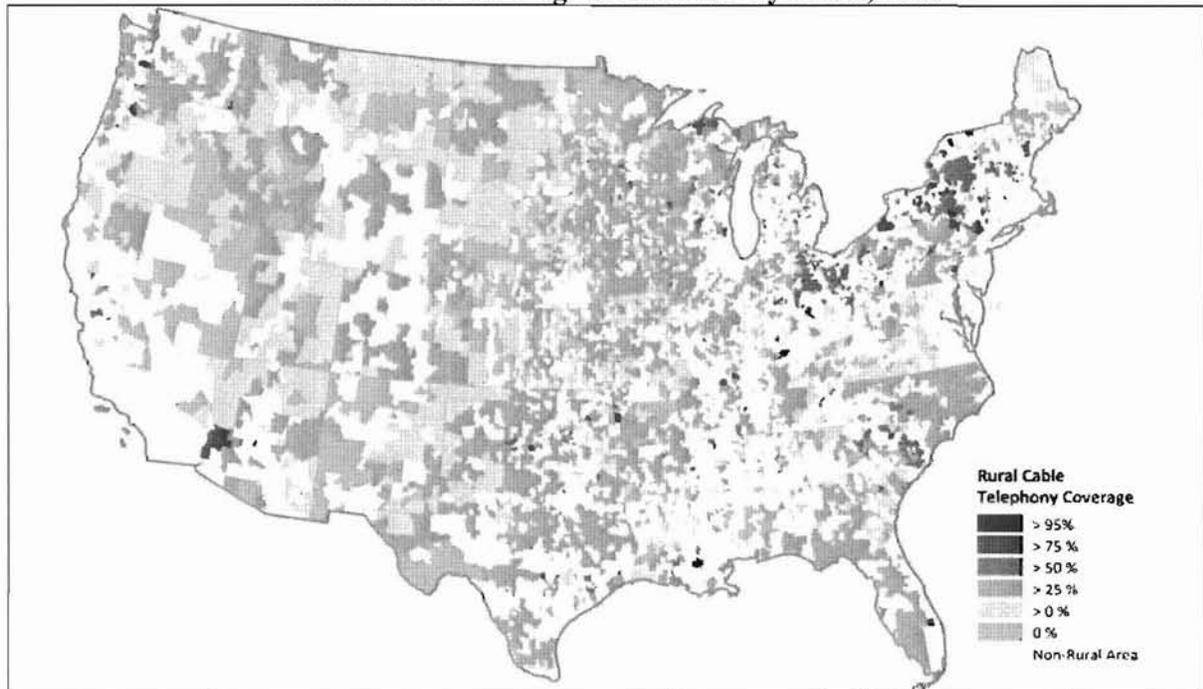


**Figure 5:
Cable Voice Coverage in Rural Study Areas, 2008**



	Number of Rural Study Areas	Percentage of Rural Study Areas	Percentage of Rural Population
Total RLEC Study Areas	1,314	100%	100%
Study Areas w/Any Cable Voice Coverage	743	57%	87%
Study Areas w/Cable Voice Coverage > 25% of HHs	418	32%	68%
Study Areas w/Cable Voice Coverage > 50% of HHs	277	21%	45%
Study Areas w/Cable Voice Coverage > 75% of HHs	165	13%	14%
Study Areas w/Cable Voice Coverage > 95% of HHs	83	6%	4%

The amount of USF support paid to RLECs in regions where cable telephony is available can be assessed based on data on USF subsidy payments for each study area reported in the FCC's 2008 *USF Monitoring Report*,³⁹ which contains projections of full-year subsidy payments

³⁹ See 2008 *Monitoring Report*. Table 3.30 of the 2008 *Monitoring Report* contains detailed information on USF subsidies by study area.

by study area for 2008.⁴⁰ Data from the National Exchange Carrier Association (NECA) were also compiled for each incumbent carrier.⁴¹ NECA's 2008 USF data submission contains additional information at the study area level, including loop data, holding company information, and a rural/non-rural indicator variable.

Combining the USF subsidy data with the data on cable voice availability discussed above shows that, of the \$2.36 billion in HCF support paid to RLECs in 2008, \$1.62 billion (or 69 percent) was paid to RLECs serving the 743 study areas with cable voice coverage. As shown in Table 2, hundreds of millions of dollars in subsidies went to RLECs where cable coverage was widely available: \$504 million went to the 277 study areas where cable voice was available to more than half of all households; and, \$109 million went to study areas where cable voice availability was virtually ubiquitous (i.e. available to 95 percent of households or more).

**Table 2:
USF Subsidies to RLECs Study Areas with Cable Voice Coverage, 2008**

	Number of Rural Study Areas	USF Subsidies (\$millions)	Percentage of USF Payments to RLECs
Total RLEC Study Areas	1,314	\$2,358	100%
Study Areas w/Cable Voice Coverage	743	\$1,618	69%
Study Areas w/Cable Voice Coverage > 50% of HHs	277	\$504	21%
Study Areas w/Cable Voice Coverage > 75% of HHs	165	\$229	10%
Study Areas w/Cable Voice Coverage > 95% of HHs	83	\$109	5%

B. Cable Voice is Often Available in “High Cost” Areas

As noted above, RLECs argue that, even in areas where other carriers are providing unsubsidized coverage, USF subsidies are still necessary because other carriers only cover “low-

⁴⁰ See 2008 *Monitoring Report* at 3–1.

⁴¹ See National Exchange Carrier Association, 2008 USF Data Submission (available at <http://www.neca.org/>).

cost” areas, leaving the RLECs to serve the most expensive customers.⁴² The evidence presented below demonstrates otherwise.

First, the data presented above show that the RLEC’s “cherry picking” argument is *prima facie* invalid for more than 80 study areas: If unsubsidized cable companies are serving 95 percent or more of the households in a study area – meaning that a subsidy can be justified for, at most, five percent of households – it is difficult to understand why the USF should continue paying subsidies on 100 percent of the RLEC’s lines. Put differently, barring evidence that the five percent (or less) of homes not passed by cable are *significantly* more costly to serve than the other ninety-five percent, it is clear that telephone service can be provided without subsidy in such study areas.

Second, a comparison of the portions of study areas covered by cable voice service with the portions not covered shows that, in many cases, cable companies serve the “high-cost” portions. If a cable company can provide unsubsidized wireline voice service in the high-cost portions of an RLEC study area, the RLEC should be able to provide unsubsidized service in the entire study area; that is, no subsidies should be required.

In the wireline telecommunications business, most of the geographic variation in cost is the result of some combination of population density and topography: densely populated flat regions are cheap to serve; sparsely populated mountainous regions are expensive. Comparing

⁴² One study that appears to support the RLEC’s position is Michael J. Balhoff, Robert C. Rowe, and Bradley P. Williams, *Universal Service Funding: Realities of Serving Telecom Customers in High-Cost Regions, Implications for the Texas Universal Service Fund* (Summer 2007) (available at <http://www.ballhoffrowe.com/pdf/USF%20Funding%20Realities%20of%20Serving%20Telecom%20Customers%20in%20High%20Cost%20Regions%207-9-07.pdf>). The findings below suggest Balhoff *et al*’s conclusions (i.e., that cable voice deployments are largely limited to high-density “town center” areas) are incorrect or, perhaps, simply obsolete, as the Balhoff study appears to rely on data from 2006, when cable voice deployment was still limited, as shown in Figures 3 and 4 above..

these variables for the areas with and without cable voice coverage in each RLEC service territory shows that, in many study areas, the portion of the study area served by cable has lower population density, more severe topography, and/or lower teledensity than the area served only by the RLEC.⁴³

Specifically, as shown in Table 3, there are 148 study areas in which the area served by cable voice has lower population density (and thus is presumptively more costly to serve) than the area served exclusively by the RLEC. In 2008, as shown in the third column from the left, RLECs received approximately \$276.9 million to provide service in these 148 study areas. Similarly, RLECs received \$226.1 million in 112 study areas in which the severity of the topography (measured by the difference between maximum and minimum elevation) in the area not covered by cable voice was less than the severity in the area covered by cable voice. Finally, based on an alternative measure of density, the average distance from each household to the nearest wire center,⁴⁴ RLECs received \$598.2 million in 332 study areas in which density was lower (distance from the wire center was greater) in the area served by cable voice in than in the area not served.

⁴³ These are the three main characteristics used in the FCC's Hybrid Cost Proxy Model (HPCM) to estimate the costs of local telephone service. The HPCM is a bottom-up, engineering/economic model of modern telephone networks, which takes geo-coded locations, constructs a (theoretically) optimal telecommunications network, and uses this information to estimate the cost of providing telephone service. In the HPCM, population density, terrain, and distance to wire center interact with algorithms for loop and network design to produce cost estimates. See <http://www.fcc.gov/wcb/tapd/hcpm/welcome.html>. In addition, population density is the standard relied upon by the FCC for determining whether a CETC is "creamskimming" if it seeks to serve a subset of a rural study area. See 47 U.S.C. 54.202 (c) ("In instances where an eligible telecommunications carrier applicant seeks designation below the study area level of a rural telephone company, the Commission shall also conduct a creamskiimming analysis that compares the population density of each wire center in which the eligible telecommunications carrier applicant seeks designation against that of the wire centers in the study area in which the eligible telecommunications carrier applicant does not seek designation.").

⁴⁴ The distance from the population-weighted centroid of each area to the wire center is used to estimate the average distance from customers to central offices.

The table also shows the impact of including study areas in which the difference between the cost characteristics in the areas served by cable and not served by cable areas is inconsequential, i.e., less than 10 percent. In those cases, the excess subsidies are even larger, ranging from \$325 million to \$660 million.

**Table 3:
RLEC Funding in Study Areas Where Cable Voice Serves "High Cost" Regions**

	Study Areas	RLEC Subsidies	Total Subsidies (RLEC + CETC)
Cable Service Area Population Density			
- Less Than Area Not Covered by Cable Voice	148	\$276,945,024	\$398,013,552
- Within 10% of Area Not Covered by Cable Voice	179	\$325,048,800	\$453,697,232
Cable Service Area Topography			
- More Severe Than Area Not Covered by Cable Voice	112	\$226,071,872	\$282,858,344
- Within 10% of Area Not Covered by Cable Voice	166	\$378,894,016	\$516,636,000
Cable Service Area Distance to Wire Center			
- Greater Than Area Not Covered by Cable Voice	332	\$598,220,288	\$808,308,752
- Within 10% of Area Not Covered by Cable Voice	359	\$659,623,744	\$904,989,408
Note: Study Areas Where Cable Voice Covers 95% or More of HHs	83	\$109,299,776	\$137,202,878

Thus, in study areas that account for between \$226 million and \$598 million in RLEC subsidies, cable companies are serving what appear to be the *more expensive* portions of the study area; and, in study areas that account for between \$325 million and \$660 million in RLEC subsidies, there is *no significant difference* between the characteristics of the area served by cable voice and the area served only by the RLEC. The fact that the cable company is able to

provide unsubsidized service in these areas is thus *prima facie* evidence that no subsidy is needed *throughout* the area.

These figures, of course, do not include the \$109 million in subsidies flowing to the 83 study areas where cable coverage is ubiquitous (and hence the “overlap” and “non-overlap” areas are essentially identical). Including these subsidies brings the total amount of unnecessary subsidies to between \$434 million (\$325 million + \$109 million) and \$769 million (\$660 million + \$109 million).

To capture fully the impact of eliminating the unnecessary subsidies on the USF fund, it is also necessary to account for subsidies to competitive eligible telecommunications carriers (“CETCs”), which are based on the subsidies paid to incumbents in study areas where the CETCs operate – hence, eliminating unnecessary subsidies to incumbents would also eliminate subsidies to CETCs in the same study areas. As shown in the right-hand column of Table 3,⁴⁵ including these corresponding reductions in CETC subsidies brings the total to between \$591 million (\$454 million + \$137 million) and \$1.042 billion (\$905 million + \$137 million).

C. Examples of Areas Where Cable Voice is Available and Subsidies Appear Unjustified

The evidence presented above suggests that a combination of economic change (i.e., growth in once-rural areas) and technological change (i.e., the spread of cable voice service) has eliminated or significantly reduced the need for continuing USF subsidies in a significant

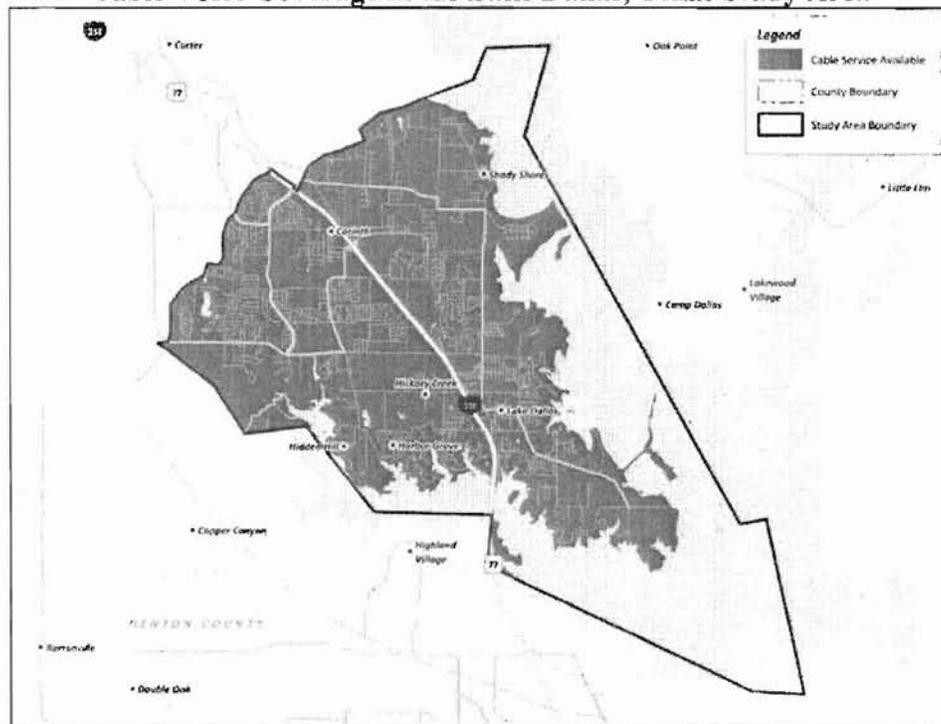
⁴⁵ CETC funding data were derived from Table 3.30 of the 2008 *Monitoring Report*. CETC study area codes were matched to ILEC study area codes based on USAC filings from Q4 2008. See USAC FCC Filings, Fourth Quarter Appendices (2008), file HC18 (available at <http://www.usac.org/about/governance/fcc-filings/2008/>). Because CETC study areas sometimes overlap multiple ILEC study areas, CETC funding was allocated across ILEC study areas based on each CETC's reported lines in each ILEC study area. If a CETC code could not be matched with an ILEC code based on USAC filings, CETC funding was allocated evenly across ILECs within a given state.

number of RLEC study areas. Below are two examples of areas where it is difficult to imagine that continued subsidies are needed to provide “reasonably comparable” telephone service at “reasonable” prices – indeed, areas where ubiquitous or nearly ubiquitous telephone service is available from cable providers which receive no subsidies. Yet, the two RLECs described below collectively receive over \$4 million annually to serve less than 30,000 lines, an average of over \$11 per line per month.

- **Centurytel of Lake Dallas, Texas**

Study area 442101 (“Lake Dallas”) is located in Denton County, Texas, approximately 30 miles north of downtown Dallas, Texas on Interstate 35. The incumbent telephone company, CenturyTel, received \$1.8 million in 2008 for serving just over 10,000 lines, an average subsidy of about \$181 per line served.

**Figure 6:
Cable Voice Coverage in the Lake Dallas, Texas Study Area**

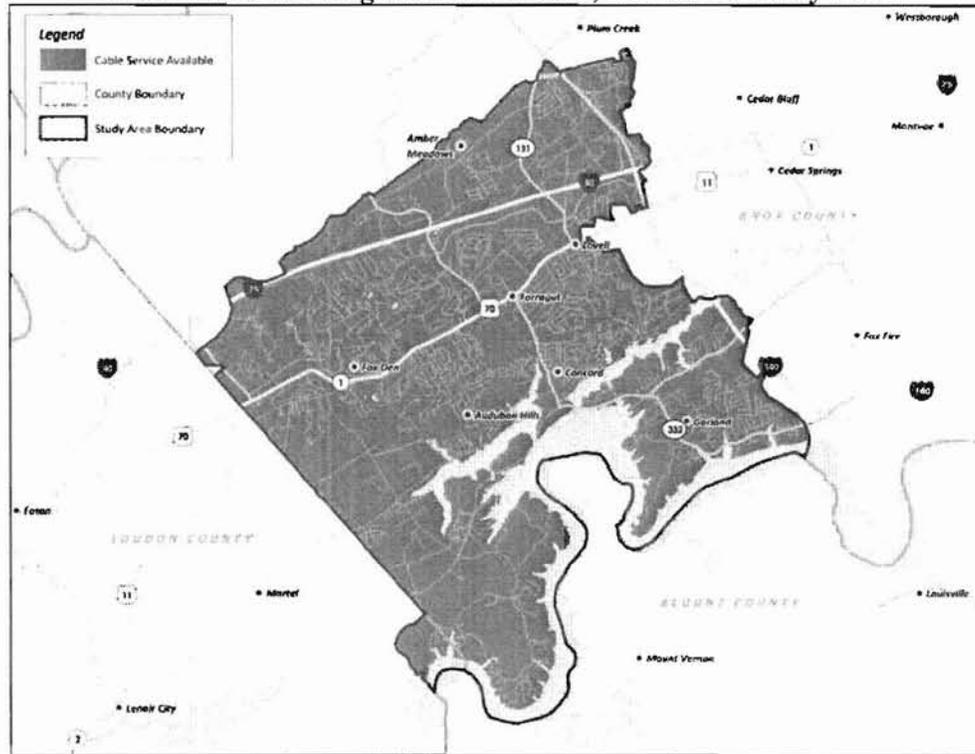


Though once a resort community, Lake Dallas is now a rapidly growing commuter community for the Dallas-Ft. Worth metroplex, and is part of the Dallas-Ft. Worth-Arlington Metropolitan Statistical Area. It is part of Denton County, where the census bureau reports the population grew by nearly 50 percent between 2000 and 2008. The population density in the Lake Dallas study area is over 900 persons per square mile, and the median household income is approximately \$82,000, well above the U.S. average of about \$50,000. Virtually all of the households in the Lake Dallas study area are served by Charter Communications, and cable voice service is available throughout the area.

- **Concord Telephone Exchange, Tennessee**

Study area 209559 (“Concord”) is located approximately 15 miles west of Knoxville, Tennessee along Interstates 40 and 75. The incumbent telephone company is the Concord Telephone Exchange, a subsidiary of TDS. In 2008, Concord Telephone received \$2.2 million for serving approximately 18,000 lines, an average of \$117 per line.

**Figure 7:
Cable Voice Coverage in the Concord, Tennessee Study Area**



The median income in the Concord study area is nearly \$92,000, reflecting of the area's growth into what its main town, Farragut, describes as an "upscale residential" area with "beautifully designed parks, great recreation opportunities and lovely residential subdivisions."⁴⁶ The population density in the study area is 875 persons per square mile. Virtually all of the homes in the Concord study area are served by either Charter or Comcast, and cable voice is available throughout the area.

⁴⁶ See www.townoffarragut.org.

IV. EXCESS SUBSIDIES TO RLECs HARM CONSUMERS AND REDUCE ECONOMIC WELFARE

An important consequence of providing excess subsidies to RLECs is the cost of the subsidies themselves – that is, the cost, both directly and in terms of deadweight loss, of the taxes used to support them. These costs are real, despite the fact that the “taxes” are called “contributions” and do not show up as expenditures in the Federal Budget. As the Congressional Budget Office explained in 2006,

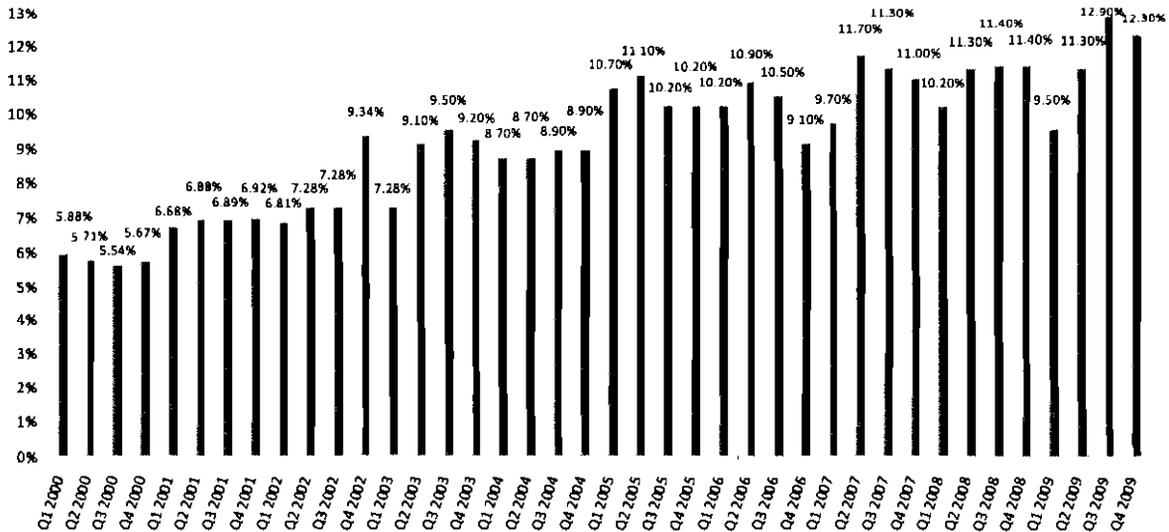
The benefits provided by the USF’s programs impose a cost on the economy, regardless of how those programs are treated in the budget. Both consumers’ purchasing decisions and providers’ investment decisions are influenced by the way the USF collects its receipts and spends its resources.⁴⁷

As noted above, USF “contributions” are collected through a pro-rata assessment on interstate and international telephone services, including those provided by cable operators. As shown in Figure 6, the “contribution factor” (i.e., tax rate) in long distance telephone bills more than doubled between 2000 and 2008, and in the last two quarters of 2009 has exceeded 12 percent for the first time. Both the Federal-State Board on Universal Service and the FCC itself have stated on multiple occasions that such high levels of taxation threaten the sustainability of the USF fund.⁴⁸

⁴⁷ See CBO at viii.

⁴⁸ See, e.g., Federal State Joint Board on Universal Service, *Recommended Decision*, CC Docket No. 96-45 and WC Docket No. 05-337 (Released May 1, 2007) at ¶4 and Federal Communications Commission, *Order*, CC Docket No. 96-45 and WC Docket No. 05-337 (Released May 1, 2008) (“We find that the continued growth of the fund at this rate is not sustainable and would require excessive (and ever growing) contributions from consumers to pay for this fund growth.”).

**Figure 9:
USF Contribution Factor (2000-2009)⁴⁹**



Economists have estimated that the welfare costs of such taxes are extremely high: One study, for example, estimates that economic welfare is reduced by about \$1.25 for each \$1.00 in universal service taxes collected.⁵⁰ Based on the range of estimates developed in Section III for total excess subsidies (between \$420 million and \$1 billion), the welfare cost – i.e., the reduced consumer surplus – associated with excess subsidies to rural LECs is between \$525 million and \$1.3 billion.

⁴⁹ Source: *Monitoring Report* (various years), and FCC Public Notices for various years, available at: <http://www.fcc.gov/omd/contribution-factor.html>.

⁵⁰ See Jerry Hausman, "Taxation by Telecommunications Regulation," *Tax Policy and the Economy* 12:1 (1998) 29-38. It also bears emphasis that cable telephony is a relatively new technology, and that taxation of new products is frequently associated with even higher efficiency losses. For instance, a study on the taxation of wireless service found that economic welfare was reduced by \$1.53 for each \$1.00 in revenue generated. See Jerry Hausman, "Efficiency Effects on the U.S. Economy from Wireless Taxation," *National Tax Journal* 53:2 (2000) 733-942.

V. POLICY IMPLICATIONS AND PROPOSALS FOR REFORM

The analysis above demonstrates hundreds of millions of dollars are being paid to subsidize rural telephone companies in areas where unsubsidized cable telephony is available, or where cable operators have demonstrated that subsidies are not necessary to provide affordable telephone service.

These results provide strong support for the proposition that the High Cost Fund is in dire need of reform, especially as it relates to subsidies to rural carriers. They also have implications for broadband policy, including the grant programs recently enacted under the American Recovery and Reinvestment Act (ARRA).

With respect to the High Cost Fund itself, the results above strongly suggest that the current approach of treating all “rural telephone companies” as if they were identical is, in practice, discriminatory, inefficient and wasteful.⁵¹ While there no doubt remain areas where subsidies are necessary to provide telephone service at prices reasonably comparable to those in urban areas, the evidence above demonstrates that there are also hundreds of study areas where, as a result of population growth, technological change and other factors, subsidies are no longer needed. Furthermore, the evidence that subsidies are no longer required does not depend on debates over complex accounting rules or cost allocation formulas: It is apparent from the fact that *unsubsidized wireline telephone service is actually being offered in these areas.*

⁵¹ The need to recognize diversity among rural carriers has been recognized for many years. See, e.g., Rural Task Force, *The Rural Difference* (2000) at 14 (“That is, ‘one-size-fits-all’ national universal service policy is unlikely to be successful in fulfilling the national universal service principles contained in the 1996 Act. To be successful, policies and mechanisms ultimately adopted must be flexible enough to accommodate a wide range of market and operational circumstances faced by telecommunications carriers serving rural populations.”)

One widely discussed approach to addressing the problems of the High Cost Fund is reverse auctions, under which potential providers would bid to serve as the provider of last resort in a given service territory.⁵² One challenge to a reverse auction approach, however, is how to define service territories for bidding purposes. As the analysis above suggests, an approach which defined service territories based on the boundaries of RLEC study areas would be highly problematic. First, a study-area based approach to reverse auctions would naturally discriminate against non-incumbents. As the FCC itself has explained, “Basing the geographic area on any particular carrier’s service area would likely give that carrier an advantage in bidding because competing carriers are unlikely to have the same service footprint.”⁵³ Second, the evidence above suggests that a study-area based approach would also be inefficient, as it would fail to distinguish between areas within study areas where subsidies are not needed (and competition may already be occurring), on the one hand, and areas where continued subsidies are necessary (and competition is unlikely).

The challenge of designing and implementing a reverse auction approach to high-cost support is a daunting one, and such a system is not likely to be implemented in the short run. In the interim, the Commission should recognize that the presence of significant facilities-based wireline competition in a study area is a clear signal that subsidies to the incumbent RLEC should be reduced or eliminated, and it should establish a process for making such reductions. For example, the Commission could create a rebuttable presumption that any RLEC facing facilities-based wireline competition for more than a certain percentage of the households in its

⁵² See e.g., Federal Communications Commission *In the Matter of High-Cost Universal Service Support, Federal-State Joint Board on Universal Service, Notice of Proposed Rulemaking*, WC Docket No. 05-337, CC Docket No. 96-45 (January 29, 2008) (hereafter *Reverse Auctions Notice*).

study area would lose HCF support, unless it can demonstrate that the costs of serving the remaining households exceed some threshold.

The results above also have significant implications for national broadband policy, including the grants recently authorized under the ARRA. Most importantly, the analysis here demonstrates the importance of distinguishing between areas where competition is economically viable, on the one hand, and areas where it is not, and limiting government support exclusively to the latter. Again, complex formulas and accounting exercises are not always required to tell the difference: The presence of an unsubsidized competitor is *prima facie* evidence that subsidies are not required; and, the entry of an unsubsidized competitor is *prima facie* evidence that subsidies should end.

VI. CONCLUSIONS

Reform of Federal universal service policies has proven to be extraordinarily difficult, with the FCC promising on numerous occasions that such reform would be forthcoming on an “expedited” and “timely” basis – and failing to deliver. In fairness, the issues are difficult ones, and the challenge of finding a solution which is both equitable and economically efficient is daunting. Comprehensive reform is certainly a desirable goal, but the evidence suggests it will be difficult to achieve.

The difficulties of achieving comprehensive reform, however, should not prevent the Commission for addressing obvious and unjustifiable inequities and inefficiencies in the current system on a case-by-case, issue-by-issue basis. Continuing to pay subsidies to RLECs which face unsubsidized competition from facilities-based wireline competitors is both inequitable and

⁵³ *Reverse Auctions Notice* at ¶19.

inefficient, and can easily be addressed in a targeted fashion. With as much as \$1 billion annually at risk, it should do so expeditiously.