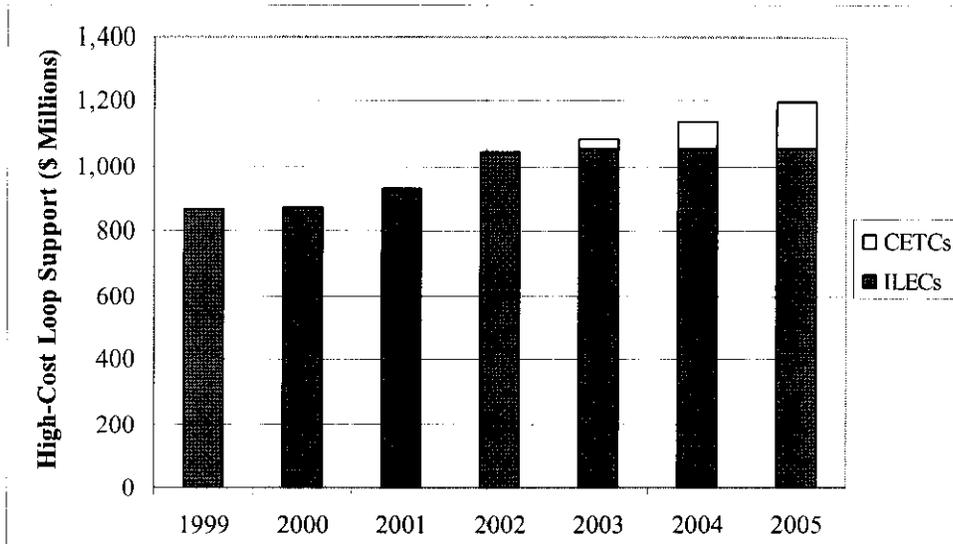
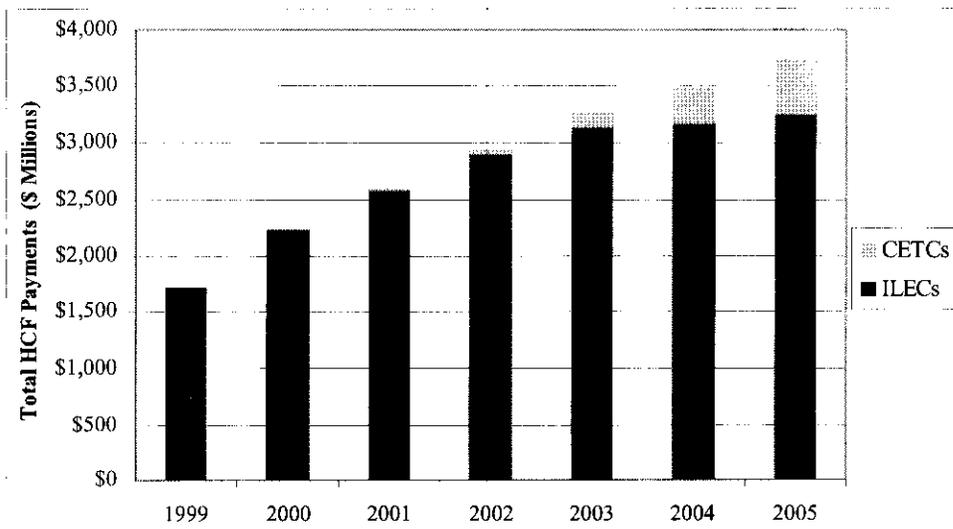


**FIGURE 4**  
**HIGH-COST LOOP SUPPORT EXPENDITURES BY CARRIER TYPE**



Source: 2005 Monitoring Report, Table 3.2.

**FIGURE 5**  
**TOTAL HIGH-COST FUND SUPPORT EXPENDITURES BY CARRIER TYPE**



Source: APPENDIX 9.

The danger posed by this incremental change opening HCF payments to additional operators is apparent. Portability of the subsidy *could be* a very positive policy

reform; if the per-line subsidy flowed with the subscriber, then firms would compete to enlist subscribers and claim subsidies. Alternatively, payments could be reduced were the entire universal service obligation auctioned to the service provider offering to provide basic services for the lowest dollar cost.<sup>47</sup>

But the plan now in place *adds* subsidies. The Joint Federal-State Universal Service Board recommended a single connection subsidy, but Congress tied the FCC's hands on implementation of so-called number portability.<sup>48</sup> Incumbent service providers continue to receive subsidies to cover their costs even when subscribers flee to wireless. Hence, payments made to CETCs duplicate subsidies and expand total spending. The outcome is that incumbents are subsidized at original levels, or higher on a per-line basis (given a loss of customers), while wireless operators cash in on the subsidies ostensibly initiated to establish a *first telecommunications network*, which they are now *competing* with. To take a stark example, consider the nation's most expensive per-loop HCF subsidy, which goes to the Sandwich Isles Communications Company in Hawaii. This system serves 1,238 customers at *\$13,345 annually per line*,<sup>49</sup> while Nextel provides wireless service in the same area to 717 subscribers, collecting the same "per-line" fees.<sup>50</sup>

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<sup>47</sup> See, for example, the remarks of FCC Chairman Kevin Martin at a Bank of America Conference on March 19, 2006. *Martin Likes 'Reverse Auction' Idea for Universal Service*, COMMUNICATIONS DAILY (Mar. 30, 2006), p. 6 ["COMM DAILY (Mar. 30, 2006)"].

<sup>48</sup> Federal-State Joint Board on Universal Service, *In the Matter of Federal-State Joint Board on Universal Service, Recommended Decision*, CC Docket No. 96-45 (Rel. Feb. 27, 2004), ¶3. In that Recommended Decision, the Federal-State Joint Board on Universal Service proposed both permissive rules on CETC designation and support for only a single connection. Congress prohibited consideration of the latter, leaving only permissive CETC designation, an outcome ballooning HCF payments. See Joint Board 2005, ¶16.

<sup>49</sup> See TABLE 4.

<sup>50</sup> Hao Sean, *Firms reap telcom bonanza*, THE HONOLULU ADVERTISER (June 19, 2005).

#### 4. Other (non-HCF) Sources of Increase in the USF

##### a. Low Income

Low Income support (via Lifeline and Link-up programs) increased significantly after the 1996 Act was implemented. In 1998, the first year the 96TA changes began taking effect, total payments were \$464 million, up from \$161 million the previous year.<sup>51</sup> See FIGURE 6. Most Low Income support is funneled through Lifeline, in which USF money pays a portion of the phone bills of low-income subscribers. Payments per beneficiary for the Lifeline program grew from \$28.88 in 1996, to \$79.11 in 1998, and to \$104.85 in 2003. States have some latitude in setting eligibility requirements, but federal default eligibility requirements exist in which one of the following must apply:

- Household income at or below 135% of the federal poverty level;
- Subscriber participates in Medicaid;
- Subscriber participates in Food Stamps;
- Subscriber participates in Supplemental Security Income (SSI);
- Subscriber participates in Federal Public Housing Assistance (Section 8);
- Subscriber participates in Low-Income Home Energy Assistance Program (LIHEAP);
- Subscriber participates in National School Lunch Program's free lunch program;
- Subscriber participates in Temporary Assistance for Needy Families (TANF);
- Subscriber participates in Bureau of Indian Affairs General Assistance (GA);
- Subscriber participates in Tribally-administered Temporary Assistance for Needy Families (Tribal TANF); or
- Subscriber meets the Head Start income-qualifying standard and lives on tribal lands.<sup>52</sup>

Lifeline support pays the Subscriber Line Charge and in some cases some additional portions of the subscriber's bill.<sup>53</sup> Low Income support payments, only about 12% of the USF, have a distinctive characteristic: they actually reduce costs for eligible residents.

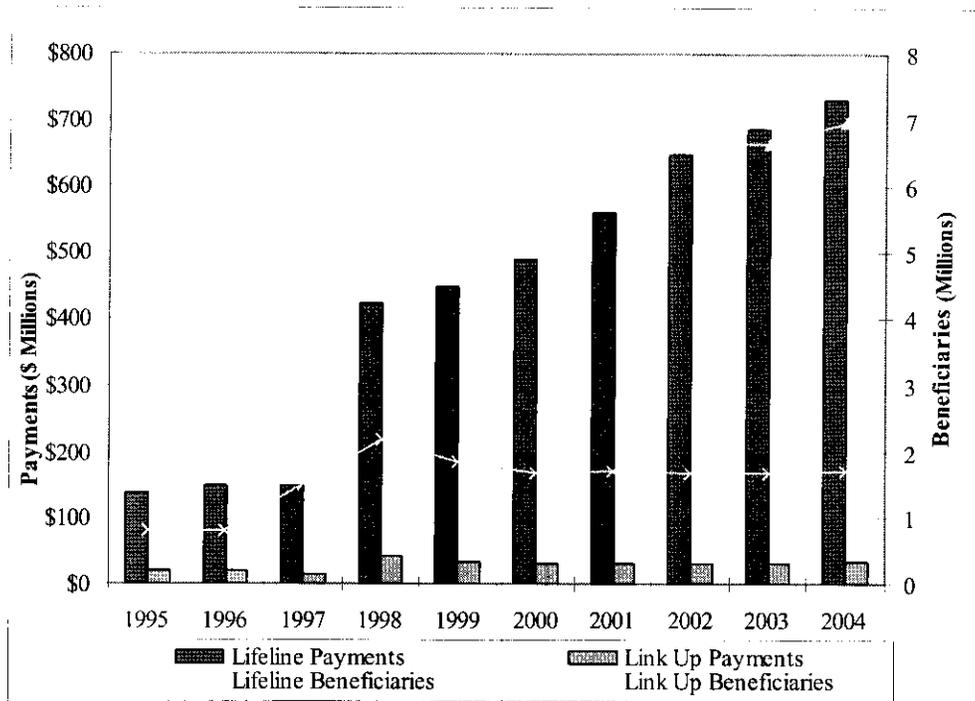
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<sup>51</sup> See APPENDIX 1.

<sup>52</sup> 2005 Monitoring Report, p. 2-3 (footnotes omitted).

<sup>53</sup> 2005 Monitoring Report, p. 2-3 – 2-4.

**FIGURE 6**  
**LOW INCOME SUPPORT PAYMENTS, BENEFICIARIES**



Sources: See APPENDIX 3.

**b. Schools and Libraries**

Schools and Libraries Support is described in federal documents thusly:

Eligible schools, school districts, libraries, and consortia that include schools and libraries, may receive discounts for eligible telecommunications services, voicemail, Internet access, and internal connections under the schools and libraries universal service support mechanism. The discounts range from 20 percent to 90 percent. The level of the discount is based on the percentage of students in the school or school district that are eligible for the national school lunch program (or a federally-approved alternative mechanism), and location in a rural area. By Commission rule, the Schools and Libraries mechanism is capped at \$2.25 billion annually.<sup>54</sup>

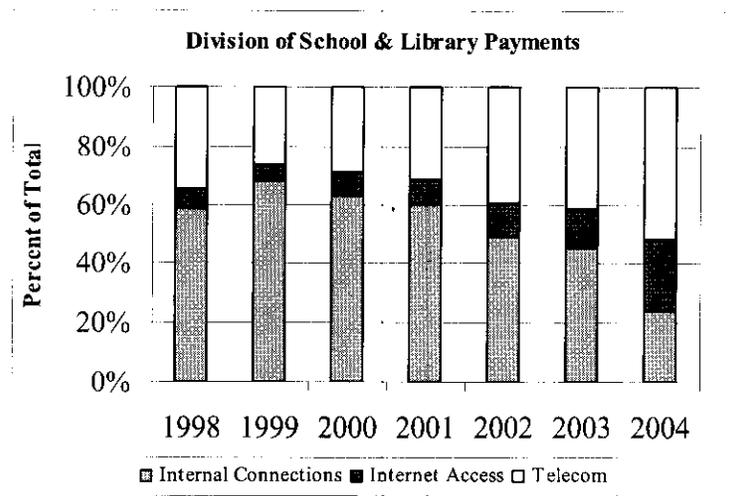
Budgeted outlays have stayed near the statutory limit since 1999.<sup>55</sup> Actual spending falls short of this level, however, due to the time lag between project approval

<sup>54</sup> 2005 Monitoring Report, p. 4-1 (footnotes omitted).

<sup>55</sup> See Appendix 1.

and project completion. Disbursements in 2003, for example, were just under \$1.4 billion, with an additional \$1.2 billion in pending commitments. The monies spent were primarily devoted to internal connections for schools and libraries in 1998-2001, but more than ¾ of all 2004 funds spent to date were for telecom services and Internet access. See FIGURE 7.

**FIGURE 7**  
**DIVISION OF SCHOOL & LIBRARY PAYMENTS**



Source: APPENDIX 4.

### c. Rural Health Care

Funds are also provided to supply telecommunications services “to any public or non-profit health care provider... at rates that are reasonably comparable to rates charged for similar services in urban areas in that state.”<sup>56</sup> This program was expanded to include certain for-profit health care providers in 2003, effective during the 2004-2005 funding cycle, and to fund additional Internet services.<sup>57</sup> Rules were also loosened to allow payments for satellite communications in instances where terrestrial network services are

<sup>56</sup> 2005 Monitoring Report, p. 5-1 (footnotes omitted).

<sup>57</sup> 2005 Monitoring Report, p. 5-1.

available.<sup>58</sup> The Rural Health Care Fund is capped at \$400 million per year,<sup>59</sup> yet expenditures have been substantially less. See TABLE 2.

**TABLE 2**  
**RURAL HEALTH CARE FUND EXPENDITURES BY TYPE OF SERVICE**

Funding Year	Narrowband	Broadband		Other Service or Speed Unknown	Total Expenditures
	56K to 199K	200k to 1.49Mb	1.5Mb and faster		
1998	\$202,778	\$880,375	\$2,292,252	\$0	\$3,375,405
1999	\$452,992	\$1,073,816	\$2,719,619	\$58,132	\$4,304,559
2000	\$613,595	\$3,015,004	\$6,685,573	\$0	\$10,314,172
2001	\$319,539	\$8,110,537	\$10,125,267	\$0	\$18,555,343
2002	\$423,522	\$10,614,090	\$10,342,844	\$0	\$21,380,456
2003	\$415,461	\$7,878,340	\$10,455,720	\$2,200	\$18,751,722
2004	\$83,859	\$534,105	\$1,491,558	\$16,300	\$2,125,823

Source: 2005 Monitoring Report, Table 5.1.

## 5. Summary

Explicit subsidies to phone carriers have more than doubled since 1998, yet their consumer benefits are illusory. Low-income phone users are subsidized directly with separate funds, and those payments total less than one-quarter of those sent to phone companies.<sup>60</sup> While the rationale is that such carrier subsidies help extend network coverage by lowering costs for phone users, particularly rural residents in high-cost areas, the argument is dubious.

First, while the HCF payments may enable some operators to offer prices as low as those paid by urban and suburban residents for service that is much less costly to supply, the lower prices are offered to all residents, rich and poor alike. This has led

<sup>58</sup> 2005 Monitoring Report, pp. 5-1 – 5-2 (footnotes omitted).

<sup>59</sup> 2005 Monitoring Report, p. 5-3.

<sup>60</sup> See APPENDIX 1.

many commentators to opine that it makes little sense to tax low-income telephone users to reward billionaires in Jackson Hole, Wyoming with lower-priced network services.<sup>61</sup>

Second, competition – which should offer new economies in providing universal service – is twisted into a *problem*, as subsidy payments balloon on twin fronts. On the one hand, new competitive wireless firms that offer nationwide service (internally or through roaming agreements) without subsidies are eligible to collect new payments. These firms often feature lower costs than carriers providing fixed line service, but are paid at the rate established by the higher cost firms. The loss of customers by the fixed line networks, which are ceding market share to mobile firms, means that accounting losses are increasing for high-cost networks. This raises subsidy levels, for both incumbents and *entrants*. Instead of competition increasing network access by reducing the cost of service, the regulatory system squanders the opportunities generated by technology and markets.

Third, the announced goals of the universal service system are unmet by these rising payments to carriers. Those goals are (a) extending networks to make connections available to more users; and, (b) helping low-income consumers pay for network services. By increasing taxes on phone users to fund the subsidies, lower prices for local access are more than offset by higher customer costs elsewhere, as has been noted in many economic studies.<sup>62</sup> The evidence is strong that universal service taxes and subsidies, on net, *reduce* network usage.

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<sup>61</sup> See, for example, Johna Till Johnson, *Universal Service Fraud: Bailouts for Billionaires*, NETWORK WORLD; <http://www.networkworld.com/columnists/2005/030705johnson.html>.

<sup>62</sup> Crandall and Waverman 2000, pp. 114-121; Kraemer et al 2005, pp. 125-128; Michael H. Riordan, *Universal Residential Telephone Service*, in Martin E. Cave, et al., eds., 1 THE HANDBOOK OF TELECOMMUNICATIONS ECONOMICS (Elsevier 2002) ["Riordan 2002"].

As for making telephone service more affordable for low-income households, the mechanism used – rate reductions across an entire ‘high cost’ area – is destined to fail. Because virtually every household desires and, in fact, subscribes to some telephone service, the benefits of lower prices are priced into housing costs. That is to say, where telephone rates in a rural area are reduced by \$50 per household per month, rents will simply increase by an offsetting \$50 per household per month by virtue of the in-kind subsidy. Houses will cost more to buy, apartments more to rent, and farms more to lease. On average, the cost savings in phone service will be wiped out by increased costs elsewhere. When the phone rate reductions were put into place (or, more precisely, when they were anticipated by investors), the owners of land benefited from this scheme, but today’s low-income consumers do not. This is analogous to the situation with respect to agricultural price supports, known to accrue to owners of farmland.<sup>63</sup>

#### IV. THE HIGH COST OF THE HIGH-COST FUND

*Summary: High-Cost Fund payments to phone carriers assure profits, and are distributed in a manner that encourages phone carriers to be inefficiently small. The results are predictable. Rural phone operators are, in general, extremely expensive to operate, yet highly profitable. Subsidies from the HCF are as much as \$13,000 per year per line, and corporate overhead is vastly inflated. Inefficiencies are funded by taxpayers; only 27% of RLEC revenues come directly from customers paying for local access – less than that contributed by USF monies. RLEC equities are capitalized at relatively generous multiples of cash flow, reflecting the high value placed on government-guaranteed profits.*

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<sup>63</sup> See, for example, Robbin Shoemaker, *Agricultural Land Values and Rents Under the Conservation Reserve Program*, LAND ECONOMICS, Vol. 65 No. 2, (May 1989) pp. 131-137; Charles B. Moss and Andrew Schmitz, *Government Policy and Farmland Markets: Implications of the New Economy – Part 2*, UNIVERSITY OF FLORIDA, INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES (Oct. 2002); <http://edis.ifas.ufl.edu/fe358>.

### 1. “Bad Business Models”

At a recent Aspen Institute conference, Professor Heather Hudson of the University of San Francisco opined that universal service policies should be made to “focus directly on rural consumers.” Another Aspen participant, Michael McKeehan, director of Verizon’s internet and technology policy, noted that “protecting Aunt Tillie [the proverbial small town telephone user advertised as the beneficiary of universal service policies] does not require us to protect bad business models.”<sup>64</sup>

There is widespread consensus that the effect of the subsidy regime currently in place is an extremely inefficient mechanism for protecting low-income consumers and residents in high-cost rural areas.<sup>65</sup> This consensus is generally correct – but does not go far enough. The standard view is that large subsidies to small rural fixed-line phone carriers waste most of the funds delivered, but yet reduce costs for phone subscribers in high-cost areas. The central issue in the standard analysis is that the benefits are very expensive to deliver, not only because they encourage waste and inefficiency on the supply side of the market, but also because they are not well targeted. To wit, a 2005 report from the Progress and Freedom Foundation criticizes universal service policies by saying that “High-Cost Support subsidizes high-income households, as well as low-income households.” It goes on to note that a subsidized rural carrier in Eagle County, Colorado receives HCF monies amounting to \$29 per line per month, while the service

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<sup>64</sup> Robert M. Entman, The Aspen Institute, *Reforming Telecommunications Regulation, A Report of the Nineteenth Annual Aspen Institute Conference on Telecommunications Policy*, (2005), p. 16.

<sup>65</sup> See, for example, Jerry Hausman, *Taxation by Telecommunications Regulation*, NBER Working Paper 6260 (Nov. 1997) [“Hausman 1997”].

area “has a median household income of \$61,706 with 18.9% of households having incomes over \$100,000.”<sup>66</sup>

Yet, as discussed in the previous section, when economic benefits are generally available to those living in a particular area, they raise the cost of living there. By paying rural phone companies to keep retail prices low, the issue is not whether the benefits are too generously distributed to middle class and affluent households, but whether consumers receive *any benefits at all*. As a general proposition, they will not: land prices and housing rents will be bid up to reflect the benefit of lower phone rates. On net, consumers are no better off. Landowners have experienced capital gains, but these gains have long since been imputed into land prices. Those purchasing real estate under the current policies expect to simply break even.

Over time, the potential for HCF subsidies to lower retail prices has dissipated, however. Because wireless phone networks, cable TV systems offering fixed phone service, and satellite links have become near-ubiquitous options for customers, subsidies passed to RLECs have a much reduced impact on the affordability of telecommunications services. The \$100 per month fixed line phone bill, which (through carrier subsidies) costs Aunt Tillie just \$50, may no longer represent a net gain of \$600 per year to be capitalized in her home price. Rather, she may disconnect next year altogether, relying on a \$40-per-month nationwide calling plan provided by a wireless carrier. While the amenities associated with rural occupancy remain, the effect of the universal phone service subsidies on land prices and housing rents evaporates.

Aunt Tillie is highly likely to have a phone with or without universal service programs. Whether or not she gains from subsidies to high cost carriers is, on the other

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<sup>66</sup> Kraemer et al 2005, pp. 111-12.

hand, a function of whether she owns shares in a rural telephone company. Phone company subsidies are not ill-targeted between rich and poor consumers, they miss *consumers as a class*. They are aimed at landlords and capitalists, not at residential users. The campaign to save sweet Aunt Tillie is, to be gentle, misleading.

## 2. High Costs Result from High-Cost Subsidies

The stated rationale for distributing HCF dollars is to compensate for the expense of serving sparsely populated areas. As one rural telephone trade association puts it, “[a]lthough urban and suburban areas typically have in excess of 40 customers per route mile, rural states have to support systems that can average less than two customers per mile. Even in states such as Pennsylvania, ... you’ll find rural providers averaging only 10 customers per mile.”<sup>67</sup> With densities varying widely, so do costs of capital infrastructure per subscriber.

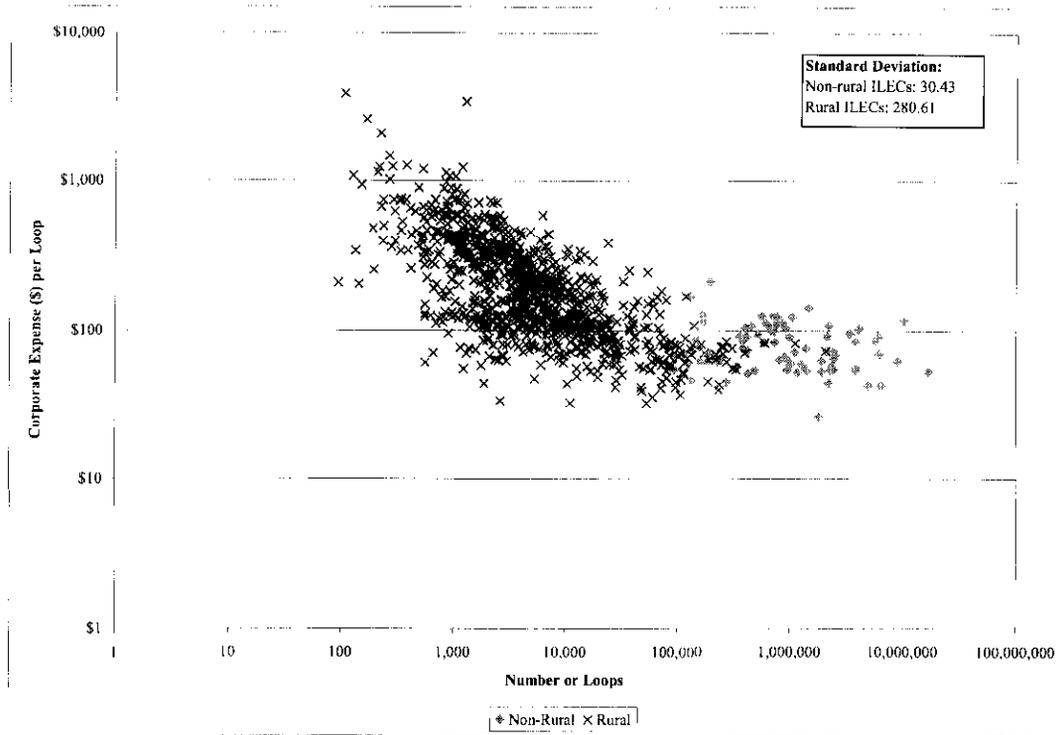
But management costs need not vary so widely. The low density that reduces the ability to share infrastructure costs does not impact corporate overhead expenses because managing networks in less densely populated markets should not be more expensive. Indeed, telecommunications service operators manage a wide variety of distinct operations, across highly variable markets and diverse physical conditions, all the while leveraging economies of scale and scope. But the universal service regime has encouraged just the opposite: efficiency-destroying fragmentation. This can be seen in the distribution of costs in general, which may in part be explained by the low densities in

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<sup>67</sup> Rob West, *Rural Carriers Should Strive to Profitably Broaden Revenue Mix for Continued Success*, OPASTCO ADVOCATE (Sept. 2004), p. 2.

the service territories of the RLECs, and in the distribution of corporate overhead costs, which cannot.

**FIGURE 8**  
**RURAL AND NON-RURAL CARRIERS CORPORATE EXPENSE**  
**PER LINE AND NUMBER OF LINES (LOGARITHMIC SCALE) (2004)**



Source: Data from NECA file USF2005LC05.xls; <http://www.fcc.gov/wcb/iatd/neca.html>.

Displayed in FIGURE 8 are data showing average corporate costs per line, against the number of lines served by the company.<sup>68</sup> The scale is logarithmic on both axes. Non-rural carriers (diamonds) have costs in the range of \$26 and \$211, averaging about \$75 per line per year. There does not appear to be a trend, meaning that larger carriers (serving more lines) do not have appreciably lower costs than smaller carriers. Markets tend to eliminate inefficiencies, so we are not surprised to see this result.

<sup>68</sup> See APPENDIX 6 for a more detailed summary of these data.

**TABLE 3**  
**HIGHEST ANNUAL CORPORATE EXPENSE PER LINE (2004)**

System Name	State	Corporate Expense \$/Loop
BORDER TO BORDER	TX	\$3,926
SANDWICH ISLES COMM.	HI	\$3,473
BEEHIVE TEL CO - NV	NV	\$2,640
ACCIPITER COMM.	AZ	\$2,113
SUMMIT TEL & TEL -AK	AK	\$1,473
GEORGETOWN TEL CO	MS	\$1,267
TERRAL TEL CO	OK	\$1,246
ZENDA TEL COMPANY	KS	\$1,231
RIVIERA TEL CO INC	TX	\$1,230
DELL TEL CO-OP - NM	NM	\$1,195
SOUTH PARK TEL. CO.	CO	\$1,138
DELL TEL. CO-OP - TX	TX	\$1,130
SCOTT COUNTY TEL CO	AR	\$1,082
BEEHIVE TEL CO - UT	UT	\$1,075
HEMINGFORD COOP TEL	NE	\$1,071
CHUGWATER TEL CO	WY	\$1,018

Source: Data from NECA file USF2005LC05.xls; <http://www.fcc.gov/wcb/iatd/neca.html>.

Among rural telephone carriers (Xs), however, a different picture emerges. While many RLECs feature costs in the \$26 - \$211 range, many are higher. Scores exceed the upper bound of the non-rural systems, and many spend extraordinary amounts – as much as *\$3,900 per year per line on corporate overhead*. A list of the sixteen costliest (overhead) systems is shown in TABLE 3. Each of them generates corporate expenses exceeding \$1,000 per line per year.

The average RLEC corporate overhead expense is almost \$99, *or a third more* than the non-rural ILEC level. Moreover, over one-third of rural telcos (301 of 892 total) have corporate expenses greater than \$250 per line per year. To put the dollar magnitude into perspective, the average residential telecommunications subscriber spends less than \$250 per year on local access.<sup>69</sup> Thus, more than one third of the rural telcos eat up as

<sup>69</sup> Bank of America Securities, *Wireline Service Pricing* (Sept. 22, 2003), p. 10.

much in corporate overhead expense, per line, as the average household spends for service. And this is prior to accounting for the costs of actually connecting customers to the network. Given the prevalence of extraordinarily high cost operations, there appears to be no mechanism in place to assure a wise use of taxpayer resources or to rein in even the most egregious inefficiencies. These data suggest that HCF subsidies reward high-cost carriers in rural markets.<sup>70</sup>

The expansion of the HCF only encourages such inefficiency, of course. And it results in subsidies per telephone line that are stunningly high, as seen in TABLE 4.

**TABLE 4**  
**TOP DOZEN HIGH-COST SUPPORT PER LINES RECIPIENTS BY STUDY AREA (2005)**

	Study Area	State	\$/Lines	Lines
1	SANDWICH ISLES COMMUNICATIONS, INC.	Hawaii	13,345	1,238
2	NPCR, INC.	Hawaii	13,065	891
3	BORDER TO BORDER COMMUNICATIONS	Texas	10,592	108
4	ACCIPITER COMMUNICATIONS, INC.	Arizona	6,927	219
5	TERRAL TEL. CO.	Oklahoma	6,515	282
6	SOUTH PARK TELEPHONE COMPANY	Colorado	3,958	201
7	CENTENNIAL CELLULAR TRI-STATE O.P.	Mississippi	3,929	166
8	SADDLEBACK COMMUNICATIONS COMPANY	Arizona	3,419	768
9	BEEHIVE TELEPHONE COMPANY, INC., NV	Nevada	3,229	140
10	ELSIE COMMUNICATIONS, INC.	Nebraska	3,063	232
11	SUMMIT TEL & TEL CO OF ALASKA	Alaska	3,039	250
12	DELL TELEPHONE CO-OP. INC. - TX	Texas	2,911	781

Source: Data from 2005 Monitoring Report from file 05t3-22to30.xls; <http://www.fcc.gov/wcb/iatd/monitor.html>. Universal Service payments from Spreadsheet "Total" and Loops from spreadsheets "HCLS" and "LSS." When the number of loops indicated in "HCLS" and "LSS" differed, the larger number was used.

<sup>70</sup> The structure of High Cost payments encourages RLECs to be inefficiently small. The larger the geographic coverage of a LEC, the more profits from lower cost areas are available to pay for higher cost areas. By isolating the high cost service areas, profits from low cost areas can be realized while subsidies ensure the profitability of high cost areas. The FCC recognizes this and is reluctant to create smaller "study areas" (over which HCF payments are determined, based on specific cost characteristics) from larger study areas. "The Commission froze all study area boundaries effective November 15, 1984. The Commission took this action to prevent the establishment of high-cost exchanges within existing service territories as separate study areas merely to maximize high-cost support." Federal Communications Commission, *In the Matter of Sandwich Isles Communications, Inc. Petition for Waiver of the Definition of "Study Area" Contained in Part 36, Appendix-Glossary and Sections 36.611, and 69.2(hh) of the Commission's Rules, Order*, CC Docket No. 96-45 (Rel. May 16, 2005), ¶6 (footnotes omitted).

The Federal Communications Commission has justified subsidies and favorable regulatory treatment for rural telephone companies due to their “higher operating and equipment costs, which are attributable to lower subscriber density, small exchanges, and a lack of economies of scale.”<sup>71</sup> But, as Professor Milton Mueller of Syracuse University pointed out over a decade ago, “under a subsidy mechanism, there is no way to distinguish between ‘high costs’ and obsolete or inefficient ways of doing things.”<sup>72</sup> Rural telephone companies have, in fact, gained a reputation among economists as the highly inefficient creatures of regulatory design.<sup>73</sup> News reports suggest that this expert view is increasingly gaining currency with others. As USA TODAY recently noted:

[C]ritics say the [universal service] system is laced with waste and inefficiency. They point to some rural phone companies’ high overhead, sumptuous earnings, rich dividends and, at least in one case, fraud. Oversight has been lax: Prosecutors say the Gambino crime family was able to fraudulently draw millions from the universal service fund from 1996 to 2003 by controlling a Missouri rural phone firm....

Regulators are paying closer scrutiny, launching a probe and expanding audits. They’re also preparing to revise the fee system. Those steps could erode the decades-old pillars of rural phone service.<sup>74</sup>

### 3. Being Inefficient Does Not Mean Being Unprofitable

From the vantage point of a subsidized rural carrier, federal payments provide at least two sources of benefit. First, high costs are compensated with HCF payments.

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<sup>71</sup> Federal Communications Commission, *Report and Order, Federal-State Joint Board on Universal Service, Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, 16 FCC Rcd 11, 244 (2001), ¶¶ 8-10, cited in Nuechterlein and Weiser 2005, p. 345.

<sup>72</sup> Milton Mueller, *Universal Service as an Appropriability Problem: A New Framework for Analysis*, in TOWARD A COMPETITIVE TELECOMMUNICATION INDUSTRY: SELECTED PAPERS FROM THE 1994 TELECOMMUNICATIONS POLICY RESEARCH CONFERENCE, Gerald Brock, ed. (1994), p. 227.

<sup>73</sup> Robert Litan and Roger Noll, *The Uncertain Future of the Telecommunications Industry*, BROOKINGS INSTITUTION, Policy Brief #129 (Jan. 2004).

<sup>74</sup> Davidson 2004.

Second, profits are not as variable as in the normal marketplace situation, reducing risk and increasing the market value of corporate shares. As Consolidated Communications (CCI), an RLEC issuing an Initial Public Offering, told investors in January 2004:

Favorable Regulatory Environment...

- CCI rate of return (“ROR”) (11.25%) regulatory option supports recovery of investments utilized in the provision of interstate network services
- CCI receives Federal USF in support of high cost areas.<sup>75</sup>

Investors place a higher value on RLEC earnings than on other ILEC earnings. In today’s market, the larger ILECs, which do not generate much of their revenues from federal subsidies, are valued much less highly per dollar of profit. APPENDIX 5 suggests that the ratio of Enterprise Value (the sum of equity and debt, at market prices for stocks and bonds) to EBITA (earnings before interest, taxes and amortization) is roughly 30% higher for RLECs than for large ILECs (9.43 v. 7.24). Likewise, the Price/Earnings ratio for RLECs exceeds the large ILEC P/E by about 25%. Other financial metrics such as the Price to Book Ratio, EBITDA Margin, and Dividend Yield show the same pattern.

While there are various factors in play, one would expect this result to obtain in a situation where risks were effectively lowered by virtue of profit guarantees. If so, this is reasonable evidence that – even assuming that every dollar expended on costs is efficiently spent – the government is paying far too much for the “universal service” it is buying. By guaranteeing compensation of costs, USF payments reduce risk and, consequently, increase valuation. Millions of dollars in extra wealth end up in the hands of private investors, courtesy of U.S. taxpayers.

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<sup>75</sup> Steve Childers, Consolidated Communications, Deutsche Bank High Yield Conference (Sept. 29, 2005), Slide 12.

This leads to perverse outcomes. First, the intended beneficiaries of universal service subsidies, low income rural dwellers, receive little or no benefit from retail price discounts, which are either rendered irrelevant by the availability of substitutes in the marketplace or (when they do offer preferred solutions) are bid into housing prices. Second, taxes imposed on telecommunications users to pay for the USF tend to discourage use of communications networks,<sup>76</sup> thus defeating the purpose of “universal service.”

Third, by massively overpaying established networks, the system discriminates against the emergence of more efficient technologies and providers. A fundamental rationale of high-cost support payments is that rural carriers would face financial difficulties without them, possibly abandoning certain markets or failing to expand into others. This is framed as an unmitigated problem, when in fact it forms part of an opportunity, raising the returns to wireless entrepreneurs, cable TV operators offering fixed-line phone service over VoIP, and satellite systems. By paying to keep century-old networks in place, we actively discriminate against the spread of emerging applications.

As former FCC policy maker Robert Pepper told the 2005 Aspen Telecommunications Conference, “[I]et’s make this explicit: You *don’t* need a wire. To be technology-neutral is to stop being wed to wires.”<sup>77</sup> The current system, which allows HCF subsidy payments to competitive carriers but continues to expend the same, or even higher payments, on incumbents, yields virtually the worst of two worlds: It expands subsidies, and so raises tax burdens, while leaving the incumbent operator with whatever funding is needed to cover costs and achieve a regulation-protected rate of return.

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<sup>76</sup> See, e.g., Kraemer et al 2005, pp. 4, 18.

<sup>77</sup> Aspen 2005, pp. 18-19.

Fourth, the economic gains that are produced go almost entirely to shareholders of rural telephone companies, thereby creating a constituency with an intense economic interest in favor of retaining the system's distributional features, inefficiencies and all. XIT, a rural telephone co-op, serves fixed-line telephone service to its 1,500 customer-owners in and around Dalhart, Texas. In 2003, it collected some \$2.6 million in HCF revenues, another \$650,000 in state universal service subsidies, and some \$2.9 million in access charges paid by long distance companies to reach XIT customers with their traffic.<sup>78</sup> These payment streams were set up to help companies like XIT break-even when faced with the high costs of building-out a network in remote areas.

Not only did XIT break even, it paid its members a dividend averaging \$375 – substantially more than the \$206 the typical member paid for local voice access.<sup>79</sup> What is more, XIT also markets wireless service, which is available throughout the area, obviating the basic rationale of support payments.<sup>80</sup> But with returns this generous at stake, it is predictable that shareholder-beneficiaries will act strategically to protect their interests.<sup>81</sup>

## V. COMPETITIVE EFFICIENCIES SACRIFICED

*Summary: Competitive alternatives to traditional fixed-line phone service are today available to more than 95% of U.S. households – the threshold level of coverage actually achieved by decades of universal service subsidies. Targeting universal service subsidies to those relatively few households lacking access to traditional or rival technologies*

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<sup>78</sup> Davidson 2004.

<sup>79</sup> XIT is one of at least four Texas co-ops that have paid dividends equal to, or exceeding, their members' local phone bills since 1999, while receiving in excess of \$1 million annually in HCF subsidies. Davidson 2004.

<sup>80</sup> XIT Wireless; <http://www.xit.net/wireless/index.html>.

<sup>81</sup> "Some doubt that a plan to sharply restrict rural funding could be enacted. 'There's a very strong rural lobby in America, and to bet against them historically has been a pretty bad bet,' says analyst Tavis McCourt of Morgan Keegan." Davidson 2004.

*produces substantial social savings, as would be expected from a system that spends more than \$5,000 per year for each incremental phone connection.*

Perhaps the most damaging aspect of the universal service subsidy system is that it protects incumbent fixed line phone networks – embedding century old technologies – from “gales of creative destruction.” In the famous phrase of the late economist Joseph A. Schumpeter, economic progress inherently involves displacement. When new technologies upset existing markets, established systems give way to more advanced forms of market organization. Or, as in this case, they are rescued by public policies that block social advance.

Because the current regime lavishly funds existing operators and technologies, it thwarts the process of “creative destruction.” Obsolete communications solutions, which would naturally be eclipsed, are propped up with tax funds. Moreover, the formula on which such funds are awarded does not reward, but punishes efficiencies prompting firms to operate at an uneconomically small scale. They pay generous management fees and salaries, gold-plate systems, and still capture supra-competitive profits.

Disentangling the complex system of subsidies and taxes constituting our “universal service” policy is no trivial matter. One way to approach this task, however, is to consider the competitive options that exist in today’s marketplace, estimating cost savings that are easily achievable via a technology-neutral approach to universal telephone service.

It is important here to note three vital facts. First, not all U.S. citizens live in areas where they currently have access to wireline phone service.<sup>82</sup> It has proven too

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<sup>82</sup> “If you want to get in touch with Mokha Laget at her home near Madrid, 30 miles south of Santa Fe, you can try her cell phone or send her an e-mail, but you can't call her on a land line. Laget's household is among the 5.7 percent in New Mexico that do not have phone service. Only Mississippi – with 6.5 percent

expensive – even after the expenditure of tens of billions of dollars (including cross subsidies<sup>83</sup>) – to run wires to every business or residential location nationwide. This implies that alternative policies cannot be rejected solely on the grounds that there may, potentially, be a household that does not receive service.

Second, no more than about 95% of U.S. households have ever subscribed to fixed-line phone service at a given time. This calibrates the meaning of *universal service* in a real-world context, offering a tidy empirical definition: as an operational matter, and by revealed preference of policy makers, *95% = 100%*. This is crucial for understanding how much coverage is enough to qualify as “universal.”

Third, household fixed line penetration is now down to approximately 89%, and *falling*.<sup>84</sup> About 6% of U.S. households have a wireless phone but no fixed-line connection, a ratio that is about the same in rural and non-rural areas.<sup>85</sup> Consumers are demonstrating, through their economic behavior, that they no longer consider fixed-line service a necessity, as they switch to wireless, broadband, or satellite links. Given the assumptions of the traditional system, this should change everything. It has not. The current regime responds to these realities by spending more tax funds and distributing a slice to CETCs, *increasing* burdens on taxpayers.

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– has a higher percentage, according to the 2000 census.” Wendy Brown, *Rural New Mexico Remains Unserved*, THE SANTA FE NEW MEXICAN (Apr. 2, 2006).

<sup>83</sup> These include access charges paid by long distance carriers to local exchange carriers, and rate averaging, where low cost customers are charged prices above the cost of their service such that high cost customers can be charged prices below the cost of their service.

<sup>84</sup> *Trends in Telephone Service 2005*, Table 16.5.

<sup>85</sup> *Trends in Telephone Service 2005*, Table 16.5.

### 1. Competitive “Universal Service” Networks Have Emerged

The U.S. marketplace has already evolved far beyond the “One System, One Policy, Universal Service” policy advertised by AT&T’s Theodore Vail in 1908 – some 98 years ago.<sup>86</sup> Today, multiple networks serve the nationwide U.S. market. In addition to the fixed-line phone system, competitive options have emerged.

Cable TV operators now pass about 99% of U.S. households with video distribution plant, according to National Cable & Telecommunications Association data.<sup>87</sup> This wired infrastructure can be used to deliver voice phone service, as well. Leichtman Research reports that virtually the entire universe of homes passed by cable – 98% – can purchase broadband service.<sup>88</sup> Combined with a voice-over-Internet application, this service is a substitute for POTS. Indeed, the leading applications vendor, Vonage, now has 1.4 million U.S. subscribers.<sup>89</sup> Other services, such as eBay’s Skype, offer non-subscription service for just about one penny per minute to phones worldwide (and free peer-to-peer voice service). A cable modem subscription, combined with a low cost VoIP application, delivers a voice/data service package to the great majority of rural households comparable to what is available to urban or suburban consumers. This package is increasingly displacing POTS subscriptions in either setting.

Wireless phone networks now compete vigorously to provide nationwide service and calling plans, and wireless is fast becoming the dominant form of voice

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<sup>86</sup> AT&T, *Milestones in AT&T History*; <http://www.att.com/history/milestones.html>.

<sup>87</sup> National Cable & Telecommunications Association, *Industry Overview*; <http://www.ncta.com/Docs/PageContent.cfm?pageID=86>.

<sup>88</sup> Leichtman 2006, p. 7.

<sup>89</sup> James Gaskin, *Some Vonage Thoughts*, O’REILLY EMERGING TELEPHONY; [http://www.oreillynet.com/etel/blog/2006/02/some\\_vonage\\_thoughts.html](http://www.oreillynet.com/etel/blog/2006/02/some_vonage_thoughts.html).

communications in the United States.<sup>90</sup> The World Bank charted 2004 wireless coverage as 95% of U.S. population.<sup>91</sup> The International Telecommunications Union estimates mobile telephony as available to 97%.<sup>92</sup> According to the mobile carriers' trade association, wireless coverage in 2005 extended to about 295 million, nearly 100% of U.S. population.<sup>93</sup> And satellite phone service – much improved in quality from its early days<sup>94</sup> – is available virtually everywhere.

Not only do wireless coverage projections match or exceed the “universal” standard of 95%, networks are still expanding, increasing quality of service, and enhancing available applications (to include wireless broadband, for example). Moreover, wireless reception can be improved in specific locations by the construction of additional cell sites or customer-premises antennae, targeting network-extending solutions generally far more cost-effectively than the current system of cost-plus subsidies.

Satellite television services now account for some 27 million subscribers, and have proven highly profitable.<sup>95</sup> Satellite telephone services have been less successful in mass-market applications. Yet, for remote locations and mission critical functions,

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<sup>90</sup> As noted, wireless subscribers now number in excess of 212 million, as against about 175 million fixed lines. Wireless minutes of use, for the typical household, are now about twice that for wired service. See footnote 12.

<sup>91</sup> World Bank, *ICT At a Glance: United States*; <http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20459133~menuPK:1192714~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>.

<sup>92</sup> International Telecommunications Union, *Digital Opportunity Index: DOI Ranking*; <http://www.itu.int/osg/spu/statistics/DOI/results.phtml>.

<sup>93</sup> Robert Roche, *What's Up With Wireless?* Presentation to NARUC, Michigan State University (Aug. 8, 2005), Slide 24. Census estimate of 2004 U.S. population = 285,691,501; [http://factfinder.census.gov/servlet/ACSSAFFacts?\\_event=&geo\\_id=01000US&\\_geoContext=01000US&\\_street=&\\_county=&\\_cityTown=&\\_state=&\\_zip=&\\_lang=en&\\_sse=on&ActiveGeoDiv=&\\_useEV=&pctxt=fph&pgsl=010&\\_submenuId=factsheet\\_0&ds\\_name=DEC\\_2000\\_SAFF&\\_ci\\_nbr=null&qtr\\_name=null&reg=&\\_keyword=&\\_industry=](http://factfinder.census.gov/servlet/ACSSAFFacts?_event=&geo_id=01000US&_geoContext=01000US&_street=&_county=&_cityTown=&_state=&_zip=&_lang=en&_sse=on&ActiveGeoDiv=&_useEV=&pctxt=fph&pgsl=010&_submenuId=factsheet_0&ds_name=DEC_2000_SAFF&_ci_nbr=null&qtr_name=null&reg=&_keyword=&_industry=).

<sup>94</sup> With the advent of Low Earth Orbit satellite systems, deployed by Iridium and Globalstar, reception delays are greatly reduced.

<sup>95</sup> Leichtman 2006, p. 7.

satellite voice services are relatively effective, and are provided by multiple networks. They are a viable alternative to wireless or fixed-line communications in high-cost situations.

Part of the difficulty encountered by satellite voice services in serving the consumer market stem from the universal service subsidy system. High-cost fund payments to wireline networks reduce demand for rival technologies, particularly those that are relatively useful where local infrastructure is expensive to construct. This, of course, defines many situations where satellite technology is the efficient option.

The emergence of these multiple rival networks allows us to plausibly consider capping, reducing, or even abolishing the \$3.7 billion per year high-cost fund. Given that phone users as a class do not benefit from subsidies, financial impacts would primarily fall on shareholders of subsidized rural telephone companies. Some landowners might also be adversely impacted, but given the array of competitive alternatives, the magnitude of loss is likely to be modest. Consumers as a whole would gain, as telephone taxes could be reduced commensurately with the fall in the size of the USF.

Focusing only on alternative technologies, and ignoring the fact that existing fixed line systems would continue to serve millions of rural telephone users, a number of efficient options reveal themselves. In general, there are many promising reform measures that have been proposed, including auctioning the “provider of last resort” duty to the low-cost bidder,<sup>96</sup> or distributing subsidies not to carriers (encouraging cost

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<sup>96</sup> COMM DAILY (Mar. 30, 2006).

inflation) but to consumers in the form of phone service vouchers (thus encouraging smart shopping).<sup>97</sup> Possible reform measures are unlimited.

It is not the purpose here to craft the ultimate policy solution, but to offer three “thought experiments” that illustrate the magnitude of the gains available from eliminating the economic inefficiency of the current regime. Collectively, they suggest that a well designed regulatory reform which opened the market to efficient technologies could save taxpayers billions of dollars in annual HCF payments.

## 2. Technological Substitution: Three Scenarios

*Scenario 1.* Suppose we consider the largest per-line subsidies, and constrain the service provider to use a high-cost substitute technology, which we assume to consist of a stand-alone satellite phone (with solar power energy source). This constitutes a near ubiquitous solution in virtually any location.<sup>98</sup>

Satellite pay phones are now being installed by World Communication Center, an Iridium satellite service provider, for a cost of \$3,000 each. “The phone booth is solar-powered and entirely self-sustaining,” and used to connect remote locations like “lodges, campgrounds and state transportation offices.”<sup>99</sup>

It is important to note that phone users in high-cost areas are not delivered free telephone service, but generally pay at least \$200 per year for local access.<sup>100</sup> Long

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<sup>97</sup> *Digital Age Communications Act: Proposal of the Universal Service Working Group* (The Progress & Freedom Foundation Dec. 2005) [“*Digital Age Communications Act 2005*”], pp. 23-24.

<sup>98</sup> The solution literally can be made ubiquitous by attaching an antenna in (the rare) situations where satellite reception is constrained.

<sup>99</sup> COMMUNICATIONS DAILY (Feb. 22, 2006), p. 12.

<sup>100</sup> Union Telephone, a telephone company serving Jackson, WY, charges \$40.95/month for local residential phone service. Union Telephone; <http://www.unionwireless.com/?page=telephone&subpage=2>. Border to Border Communications, a telephone company serving Zapata and Webb counties in Texas, charges \$19 per month for a residential line. Border to Border Communications; <http://www.border2border.com/services.htm>.

distance charges are additional. What is remarkable about the possibility of purchasing \$3,000 satellite pay phones is that this *one-time capital expense* is substantially less than what some rural carriers now receive in *annual subsidies* – which run as much as \$13,345 (see TABLE 4). This suggests that this *highest-cost* non-subsidized, private sector, retail-priced solution for remote area access is cheaper, by far, than what the current regulatory structure expends in many instances. This functions as a reality check, which the current system fails. The outcome underscores the lack of a rational feedback loop to constrain costs or, equivalently, to reduce burdens on taxpayers.

*Scenario 2.* Extending this concept, it is possible that the government could, instead of subsidizing rural fixed-line telephone carriers, help provide satellite phones to those citizens residing in areas where POTS, cable TV, or wireless phone networks are unavailable. This is unlikely to involve a large number of households. In a few instances, an antenna will be needed to provide adequate reception, but this involves a modest, one-time expenditure.

Satellite phone service is available, at retail prices, starting around \$864 per year. This includes handset rental, 600 minutes of domestic calling, and unlimited messaging service.<sup>101</sup> Remembering that local phone service typically costs at least \$200 per annum, a subsidy of \$664 per household per year would suffice to reduce household costs in remote areas (not reached by any other telecommunications network) to this threshold level.

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<sup>101</sup> See TABLE 5.