

Chapter 5

AMERICA'S BROADBAND PROBLEM:

ACCESS

ACCESS: THE FCC'S FLAWED UNIVERSAL SERVICE POLICY

Communications technologies hold a unique place in American social policy. Unlike with other services such as housing or food, America has a policy structure that not only subsidizes communications services for low-income populations, but also subsidizes the costs of telecommunications for *all* Americans living in rural areas. This is a legacy of the American social contract that utility services like telephones and electricity would be universally available and reasonably affordable, regardless of where you live.²⁴³

As technology advances, the commitment to universal service remains more important than ever. Communications technologies like broadband have the potential to erase the distances between rural and urban communities. They have the power to breathe economic life back into areas that have suffered from decades of manufacturing industry decline and urban flight. And they have the power to be the great information and opportunity equalizer for low-income Americans.

But our universal service policies have not evolved along with technology. We're still throwing billions of dollars away each year supporting a legacy technology supplied by companies that have become wholly dependent upon subsidies. Meanwhile, the digital divide between rural and urban America grows wider.

This failure to modernize our universal service policies is not the fault of the law. It is the fault of the Federal Communications Commission. When Congress established the current universal service regime under the 1996 Act, it directed the FCC to treat universal service as an "evolving level of telecommunications

²⁴³ However, while rural electrification was an explicit federal priority dating back to the Rural Electrification Act of 1936, universal telephone service grew out of a bargain between the government and AT&T for allowing Ma Bell to run a legal private monopoly. It wasn't really until 1996 that the mechanisms for achieving the goal of universal communications access became an explicit part of the law.

services” that it should periodically update to “account [for] advances in telecommunications and information technologies and services.”²⁴⁴

But instead of being good stewards of our nation’s universal service policies, the FCC has stood by while the system has been overtaken by waste and inefficiency. The Commission and the Federal-State Joint Board that oversees the Universal Service Fund (USF) have largely become captives of the rural companies that thrive off its subsidies. Consequently, the fund has nearly doubled in size since 2001, largely as a result of subsidizing wireless companies. This waste threatens our underlying commitment to universal service, right at the time when it is needed to bring the benefits of broadband to rural America.

There is no shortage of calls to reform the USF. The problem is that most of those calling for change are self-interested actors that simply want to tilt the subsidies away from their competitors and into their own pockets. Any time an idea is floated that might reduce the level of pork for the pigs at the trough, an army of lobbyists pushes scare tactics warning of the complete destruction of rural America. Despite radical changes in the communications marketplace, and despite the Act’s directive for the FCC to promote an efficient and evolving universal service system, politics have saddled us with the status quo.

Getting robust next-generation broadband services into the home of every American, rich or poor, urban or rural, will require a radical change in thinking. Achieving the goals of the Communications Act will require the complete abandonment of outdated technologies and regulatory structures. We must completely upend the status quo and confront some difficult and politically challenging choices.

Achieving the goal of universal broadband can happen in a relatively short period of time without an added burden on consumers whose monthly bills support the fund. But these goals cannot be reached by tinkering around the edges or by small, incremental changes. We need a leap forward in policy. In this chapter, we discuss how we arrived at our current problem and propose a path forward.

Universal Service Policy at a Crossroads

Though the debate surrounding the USF is often contentious and seemingly intractable, we must not lose sight of a salient fact: The USF is responsible for delivering essential communications services to low-income households, rural areas, schools, libraries and rural health clinics — services that would likely not exist or be prohibitively expensive absent support from the fund.

The goal of universal service is a cornerstone of our nation’s communications policy dating back to the 1930s. Though the communications landscape has

²⁴⁴ 47 U.S.C. 254(c)(1).

undergone a series of radical changes since then, the importance of achieving universal service has not. The challenge facing policymakers is determining the mechanisms and policies best suited to achieve this goal in the most efficient and equitable manner possible.

There is little doubt that the USF is in trouble, facing a potential fiscal crisis of falling receipts and expanding expenses for essential but not technologically advanced services. But while the present predicament poses a serious threat, it also offers an opportunity to modernize the fund and close the digital divide.

In 1996, when the current universal service regime was created, few fully grasped how the phenomenon of convergence would radically transform the underpinnings of all telecommunications. But some in Congress did see change on the horizon and had the foresight to establish in the law the principle that as communications technologies evolve, so must universal service.

At the time, Internet access was an application that used telephony as an infrastructure. Today, telephony is one of many applications supported by broadband infrastructure. Yet tens of millions of Americans cannot purchase a broadband connection at any price, and millions more are only offered third-rate broadband service at exorbitant prices. The staggering rural-urban digital divide and the lack of affordable broadband offerings are the exact outcome that Congress intended to prevent. This disparity has real-world economic and social consequences for millions of American families and businesses.

Broadband is the essential communications infrastructure of the 21st century. In our interconnected, digital world, it makes no sense to support 19th-century technology. The principal goal of the USF should be to support the deployment of, and consumer access to, next-generation, future-proof, high-speed Internet infrastructure. But reaching that goal requires the complete upending of the status quo and direct confrontation with difficult and politically challenging choices.

The development and administration of universal service policy in the United States is an interest-group-driven, politically charged process. It is also path dependent, limited by past decisions even though those past circumstances may no longer be relevant. The USF as currently administered inefficiently supports redundant legacy technologies and enables private companies to become wholly dependent on the continuance of the old model. This mix of disparate interests, entrenched business models, outdated legislative directives, artificial policy distinctions, and billions in annual funds makes it extremely difficult for legislators and regulators to enact even modest incremental changes, much less sweeping reform.

But it is imperative that policymakers act to change this broken model. The fact that the digital divide persists in the face of a \$4.6 billion annual fund to support

rural telephony is a glaring testimony to the failures of the current universal service model and the need for modernization. However, when reforming the USF, policymakers must also recognize that these billions are collected mostly from urban consumers who only realize indirect benefits. These consumers' money should be spent in the most efficient manner possible.

To maximize the benefits of universal service policies for all Americans, the size of the USF must be disciplined through careful oversight and accountability, market incentives, and strategic investment in infrastructure. Since the implementation of the 1996 Act, we've learned that support for redundant infrastructures, which is intended to promote competition, may in some cases actually harm consumers. Viewed through this lens, the appropriate role for the USF is to support a single infrastructure, while using open access policy to promote competition. This approach will ultimately benefit consumers in rural areas by lowering service prices and enticing more customers to subscribe. All consumers will benefit in turn by lowering the amount of support that is necessary to build and maintain the critical broadband infrastructure.

Congress and the FCC must maintain the remarkable and progressive commitment to universal service that is the foundation of U.S. communications policy. Transitioning the USF to broadband is an essential step on the path to reforming the system by maximizing the return on public investment and regaining America's position as a global leader in technology and communications.

Defining Universal Service: History and Rationale

The current federal universal service program traces its roots to AT&T's nationwide monopoly on telephony services. As the first patents held by the Bell Company began to expire at the turn of the 20th century, many local telephone markets began to see new entrants and competition. Some rural areas that the Bell monopoly had previously refused to serve got their first exposure to telephony using crude systems set up and operated by community cooperatives.²⁴⁵ Though prices dropped as a result of this new competition, the nation's telecommunications system was in disarray. The Bell companies refused to interconnect with many of their competitors (and vice versa), creating a system whereby customers had to be on the same network as those they wished to call. AT&T (the parent company of local Bell exchanges) began dramatically expanding its national reach (at the local and long-distance levels) by building new exchanges and acquiring smaller independent local companies. It is in this context that the concept of "universal service" arose. In 1907, AT&T President Theodore Vail used

²⁴⁵ Some of these systems were just multi-party lines operating on barbed wire. However, after the markets opened to competition, rural areas exceeded urban areas in telephone penetration, a trend that continued until the Great Depression. This suggests that although economies of density are important in network industries, rural users highly valued the time saved by the telephone. For a detailed history of the early telephone industry, see Claude S. Fischer, *America Calling: A Social History of the Telephone to 1940* (University of California Press, 1994).

the term to describe his company's business plan to establish a single telephone system that served all customers.²⁴⁶

This aggressive move resulted in the 1913 Kingsbury Commitment between the Justice Department and AT&T. This agreement required that AT&T sell its stake in Western Electric, cease acquisition of independent exchanges, and interconnect its long distance network with other local exchanges. However, by 1921, many in Congress had begun to view telephony as a natural monopoly, and with the passage of the Willis-Graham Act, moved toward granting AT&T monopoly status. Three years after passage of this act, the Interstate Commerce Commission approved AT&T's acquisition of 223 of the 234 remaining independent exchange companies.²⁴⁷ Though Willis-Graham went a long way toward establishing Vail's vision of "universal service," this legislation bore no resemblance to modern universal service policy and practice. For example, though artificially high business rates are currently levied as a method for cross-subsidizing residential service, the Willis-Graham Act specifically prohibited this practice.

1934 to 1996: Monopolies and Cross-Subsidies

The Communications Act of 1934 contains the first example of federal universal telecommunications service policy. Though universal telephony service is not mentioned specifically, the 1934 Act did create and direct the Commission "to make available, so far as possible, to all the people of the United States a rapid, efficient ... wire and radio communication service with adequate facilities at reasonable charges."²⁴⁸ But the newly created Commission initially did little to enforce this vision, just intervening to regulate the rates AT&T charged in certain markets. It was not until the 1950s that the FCC began to allocate an arbitrarily high amount of AT&T's costs to the "interstate" jurisdiction, effectively creating a system whereby overpriced long-distance service was used to subsidize underpriced local service (at rates set by the Commission).²⁴⁹

But this cross-subsidy,²⁵⁰ along with advances in microwave technology, opened the door to the demise of the "natural monopoly" view of AT&T's system. By the mid-

²⁴⁶ Milton Mueller, "Universal Service in Telephone History: A Reconstruction," 17, *Telecommunications Policy*, 352-356, 1993.

²⁴⁷ Mark Lloyd, "Whatever Happened to Antitrust?" Center for American Progress, April 5, 2006.

²⁴⁸ The Communications Act of 1934, as enacted. 47 USC § 151.

²⁴⁹ This shifting of cost burden to the interstate jurisdiction began in the 1950s, but was not explicitly intended as a method of increasing local subscribership. It was not until 1971, with the implementation of the "Ozark Plan" that the Commission explicitly stated that this was the goal of their rate plan. See "Prescription of Procedures for Separating and Allocating Plant Investment, Operating Expenses, Taxes and Reserves Between the Intrastate and the Interstate Operations of Telephone Companies," Report and Order, 16 F.C.C.2d 317, 1969.

²⁵⁰ The term "cross-subsidy" used here is informal, and generally means that some set of services are priced below their long-run incremental cost, offset by some other service priced above cost. This is not necessarily the same thing as the more rigorous economic definition put forth by Faul-

1970s, MCI had gained regulatory approval (albeit begrudgingly) to compete with AT&T in certain segments of the long-distance market. Also around this time, the Justice Department filed its antitrust suit against AT&T, seeking to break up its half-century-old protected monopoly.²⁵¹ AT&T's response to these legal and competitive pressures was to modernize and formalize the definition of "universal service."

Put simply, AT&T's view was that any threat to its monopoly status (and the implicit system of cross-subsidies), would destroy its ability to provide service in all areas of the country, to any consumer that requested it, at prices comparable to those charged in other areas of the country. AT&T argued that competition would cause the nation's telephone penetration level, which at that time was around 91 percent, to fall dramatically. Though AT&T lost the battle (and was broken up in 1984), this notion of universal service was permanently ingrained in the regulatory paradigm.

The 1982 consent decree between AT&T and the Justice Department to break up the company established competitive markets in long-distance and special access services, but maintained monopolies in local residential services. AT&T became a long-distance company, spinning off its local exchanges into seven independent Regional Bell Operating Companies (RBOCs), each with protected regulated monopoly status. The separation of the local and long-distance markets, and the presence of long-distance competition, meant that the old system of implicit subsidies (where AT&T just "balanced the books" with high long-distance charges) was no longer viable. A new subsidy had to be created to maintain a "universal service" system of generally low-cost local rates.²⁵²

To address this issue, the FCC established a system of "access charges" paid by long-distance carriers to the local exchange companies that originated and terminated calls. These access charges artificially elevated the cost of long distance and allowed local companies to remain solvent even though local rates were set in many cases below cost by the Commission.

Any system of cross-subsidies designed to offset the cost of providing universal service is problematic from an efficiency standpoint, even under a monopoly regime like the old AT&T. This type of pricing artificially inflates demand for some services, while depressing it for others. For example, to facilitate universal service, the old AT&T would levy 100 percent markups on business lines, even though the costs to provide business and residential service were essentially identical.²⁵³ The system of cross-subsidies (via long-distance access charges and geographic rate averaging) was

haber. See Faulhaber, "Cross-Subsidization: Pricing in Public Enterprises," *American Economic Review*, 65, 966-977, 1975.

²⁵¹ See *United States v. American Tel. & Tel. Co.*, 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983).

²⁵² Rates were actually below cost in some areas, while above cost in others.

²⁵³ This process, though weakened by competition post-1996, persists somewhat today.

sustainable in the local monopoly environment because captive customers had no other options. But if competition were allowed at the local level, the entire system would collapse. This was the precise burden that Congress faced as it sought to “deregulate” the telecommunications sector in the mid-1990s.

At the time, Congress believed that changing technologies would end the need to view local telephony as a natural monopoly. Congress wanted to open up local markets to competition, giving new “facilities-based” providers (i.e., those who would extend services to residents and businesses using their own infrastructure), and “non-facilities-based” providers (i.e., those leasing capacity from the local incumbent at wholesale rates) the right to compete with the incumbents. Non-facilities providers were given access rights because Congress recognized that rollout of completely new networks would be too costly, and that temporary wholesale access would help get new competitors off the ground.

But if local markets were open to competition, it would be impossible for the incumbents (or new entrants) to provide below-cost service in certain high-cost areas. Under full competition, local access rates would undergo a natural rebalancing, where, on average, rural rates would rise as urban rates drop.²⁵⁴ No one in Congress was willing to “deregulate” to such a degree. So to keep local rates low, Congress created an explicit subsidy system known as the “Universal Service Fund.”

Universal Service and the Telecommunications Act of 1996

A principal goal of the 1996 Act was to foster the creation of competitive markets in all sectors of the telecommunications industry. The Act was envisioned as a way to transition to this vision without shocking the industry or allowing the previously protected local monopolies to abuse their market power. The Act allowed new competitors at the local level (the so-called competitive local exchange carriers, or CLECs), but the incumbent carriers, or ILECs, were temporarily barred from participation in markets other than local telephony service. Once an ILEC’s local market was deemed sufficiently competitive (by a state board), the company was then free to enter other markets, such as long-distance service.

As indicated above, maintaining universal service in a competitive market was an inherently difficult problem for Congress to solve as it overhauled the 1934 Act. But this was made even more complex by two arbitrary distinctions left over from the AT&T monopoly era — distinctions that remain to this day.

²⁵⁴ This is a result of the economies of density involved in deploying telecommunications infrastructure, an industry with high fixed costs and low marginal costs. Deploying to rural areas is often far more expensive on a per-line basis than deploying in urban areas. However, the full result of rate rebalancing is not quite so clear. Remember that long-distance rates are held artificially high even in the presence of competition by the imposition of access charges (this is the case in rural areas served by “rural” carriers, a regulatory distinction explained below), but due to access charge reform, such fees are closer to being cost-based in areas served by non-rural carriers. Thus, it is very likely that a rural customer who makes a significant amount of long-distance calls would fare better under full-rate rebalancing.

The first distinction arises in the different regulatory treatment of Bell company ILECs and rural ILECs. Most rural ILECs (as measured by size of customer base, not geography) are subject to rate-of-return regulation, while most “non-rural” ILECs are subject to price-cap regulation.²⁵⁵ This distinction creates problems for universal service, as rate-of-return carriers have little incentive to hold down costs or to innovate. In addition, there are different methodologies used to calculate the level of support for rural and non-rural carriers (rural carriers are inefficiently reimbursed for historical costs, while non-rural carriers receive support based on forward-looking costs). Because of this, the per-line USF support distributed to rural ILECs is much more generous than that provided to the RBOCs.

The second distinction stems from how federal and state regulators have historically divided up the costs of the “local loop” between intrastate (state) and interstate (federal) jurisdictions.²⁵⁶ For the purposes of universal service cost recovery, 25 percent of the loop’s costs are (somewhat arbitrarily) allocated to the interstate jurisdiction, with the remainder falling under the intrastate jurisdiction. On the federal side, the FCC generally allows the service provider to recoup the interstate portion of its costs through access charges levied on long-distance carriers, and by imposition of monthly subscriber-line charges on consumers. The intrastate portion of costs is recovered through intrastate access charges, fees on caller ID and call waiting, and monthly rates for basic local service (and in the case of high-cost carriers, via other USF programs). While the majority of these charges are above-cost (and thus are implicit “taxes”), the flat-rate subscriber charges are often listed on a consumer’s bill as a “regulatory recovery fee.”

²⁵⁵ Under rate-of-return regulation, carriers report their historical cost, and service prices are set such that the carrier earns a pre-defined return on that investment (currently, this stands at 11.25 percent). In the cases of carriers receiving universal service support, the subsidies are set at a level that allows the carrier to earn its rate of return. Under price-cap regulation, the regulator sets the price, and the carrier is free to earn any rate of return, which encourages the carrier to be more efficient. This is why price-cap regulation is a form of “incentive regulation” because, in theory, carriers that operate at maximum efficiency can earn short-term returns far higher than what would be allowed under rate-of-return regulation. When the regulator reviews the price caps, these increased efficiencies are supposed to be accounted for and the prices adjusted downward over time. Thus, this regulatory structure is supposed to mimic behavior that would be expected in a competitive market, and can act as a transitional regime until actual market competition forms. However, the system also has risks for the carrier. Since there is no guaranteed rate of return, it is possible that external factors such as competition could act to keep returns below what the carrier would have earned under the old system. A price-cap carrier may petition the FCC to raise the price caps if they can demonstrate that the authorized price would produce earnings that are so low as to be confiscatory. Price-cap carriers used to be required to return to their customers earnings above specified levels, but the FCC eliminated this requirement in 1997. See *Price Cap Performance Review for Local Exchange Carriers*, Fourth Report and Order in CC Docket No. 94-1 and Second Report and Order in CC Docket No. 96-262, 12 FCC Rcd 16642 (1997).

²⁵⁶ The local loop is the portion of the public switched telephone network (PSTN) that runs from the central switching office to the customer’s premises. This portion of the network is generally regarded as the “bottleneck” of the system, due to its natural monopoly features. The local loop is sometimes referred to as the “last mile.”

This artificial separation of costs is problematic, as it bears no actual resemblance to how an individual loop is used. Furthermore, new-generation telephony that is carried partly or fully over the Internet has allowed some carriers to disguise where a call originates — a quasi-legal practice that has created new arbitrage opportunities that frustrate collection of universal service revenues. Congress could have jettisoned these regulatory artifacts and created a universal service mechanism that better reflected marketplace realities. However, the entrenched interests of certain players, as well as the path-dependent nature of telecom regulatory policy resulted in Congress' paradoxical attempt to make big changes while not changing too much at all.

Competition and Universal Service: Congress Moves to Explicit Subsidies

Section 254 of the 1996 Act established the current universal service system. In this section, Congress outlined seven principles of universal service, some containing elements of the post-1984 notion of universal service, and some embodying new goals.²⁵⁷ These are:

- 1) **QUALITY AND RATES.** Congress directed that “quality services... be available at just, reasonable and affordable rates.”
- 2) **ACCESS TO ADVANCED SERVICES.** Congress established the principle that “access to advanced telecommunications and information services should be provided in all regions of the Nation.” This is important, because this principle embodies not just traditional telephony, but “advanced” services such as high-speed Internet.
- 3) **ACCESS IN RURAL AND HIGH-COST AREAS.** This principle embodies the decades-old practice of providing service in rural and other high-cost areas that is “reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable” to rates charged in urban areas. This principle also maintains the notion that “low-income consumers” should also have access to these services, effectively embracing the FCC’s practice of subsidizing poor customers, which began in the mid-1980s.
- 4) **EQUITABLE AND NONDISCRIMINATORY CONTRIBUTIONS.** This principle makes it explicit that universal service will be paid for by “all providers of telecommunications services” in an “equitable and nondiscriminatory” manner. The language is important, because — under the current interpretation of the law — “telecommunications services” does not include companies that just provide information services, such as ISPs.
- 5) **SPECIFIC AND PREDICTABLE SUPPORT MECHANISMS.** This principle simply embodies the notion that whatever mechanism for support the Federal-State

²⁵⁷ 47 U.S.C. 254, established by P.L. 104-104, § 254 (b).

Joint Board on Universal Service chooses, it should not inhibit any business' ability to plan fiscally for the future.

- 6) **ACCESS TO ADVANCED TELECOMMUNICATIONS SERVICES FOR SCHOOLS, HEALTH CARE AND LIBRARIES.** This principle was completely new in universal service policy. No longer would universal service just be a program that kept local rates commensurate across the country, but it would also subsidize telecommunications for very specific public service entities — schools (elementary and secondary — not colleges), public libraries, and health care facilities.
- 7) **ADDITIONAL PRINCIPLES.** The Federal-State Joint Board was given the freedom to determine other principles that were “necessary and appropriate for the protection of the public interest.” When adopting the Joint Board’s initial recommendations, the FCC affirmed that the principle of “competitive neutrality” should apply. This principle was defined as meaning “universal service support mechanisms and rules neither unfairly advantage nor disadvantage one provider over another, and neither unfairly favor nor disfavor one technology over another.”²⁵⁸

Section 254 goes on to fully define certain terms and provides guidance for schools, libraries and health care providers. However, Congress left the implementation details to the Joint Board and the Commission. The first and third principles above precluded any move toward fully rebalancing rates and set the stage for the creation of subsidies to support high-cost providers. Although most commentators agree that Congress wanted to move to a system of *explicit* subsidies, nowhere in the Act is this intent made clear.²⁵⁹

Implementing the 1996 Act

The 1996 Act was signed into law on Feb. 8, 1996. Fifteen months later, the FCC released its final implementation rules for Section 254, adopting virtually all of the recommendations offered by the Joint Board six months earlier.²⁶⁰ The Commission created four programs to implement the Act’s vision of universal service.

- **HIGH COST FUND.** This program ensures that all consumers have access to and pay rates for telecommunications services that are reasonably comparable to those in urban areas. The High Cost Fund is composed of seven separate funds designed to cover the various loop, switching,

²⁵⁸ *In the Matter of Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Report and Order*, 12 FCC Rcd 8776 (1997) (*First Universal Service Order*).

²⁵⁹ Congressional intent for explicit subsidies is mentioned in the conference report. See H.R. Conf. Rep. No. 104-458, 1996.

²⁶⁰ See *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Recommended Decision*, Nov. 8, 1996.

upgrade, and access-charge offset costs (see below). The High Cost Fund received approximately 62 percent of all USF disbursements in 2007, up from 43 percent in 1999.

- **LOW INCOME FUND.** This program provides discounts that make basic local telephone service affordable for more than 7 million low-income consumers. It consists of three components: Lifeline, Link Up and Toll Limitation Service. Lifeline support reduces eligible consumers' monthly charges for basic telephone service. Link Up support reduces the cost of initiating new telephone service. Toll Limitation Service support allows eligible consumers to subscribe to toll-blocking or toll-control at no cost. The Low Income Fund received approximately 12 percent of all USF disbursements in 2007.
- **RURAL HEALTH CARE.** This program provides reduced rates to rural health care providers for telecommunications and Internet services, bringing their costs in line with their urban counterparts. The Rural Health Care fund received approximately 0.5 percent of all USF disbursements in 2007.
- **SCHOOLS AND LIBRARIES.** This program (also known as E-rate) provides affordable telecommunications services and Internet access to schools and libraries. This support goes to service providers that give discounts on eligible services to eligible schools, school districts and libraries. The Schools and Libraries Fund received approximately 26 percent of all USF disbursements in 2007, down from 43 percent in 1999, due in part to the fact that the total size of this program is capped at \$2.25 billion annually. Though very successful in achieving its stated aim, the fund has been plagued with accusations of waste, fraud and abuse.²⁶¹

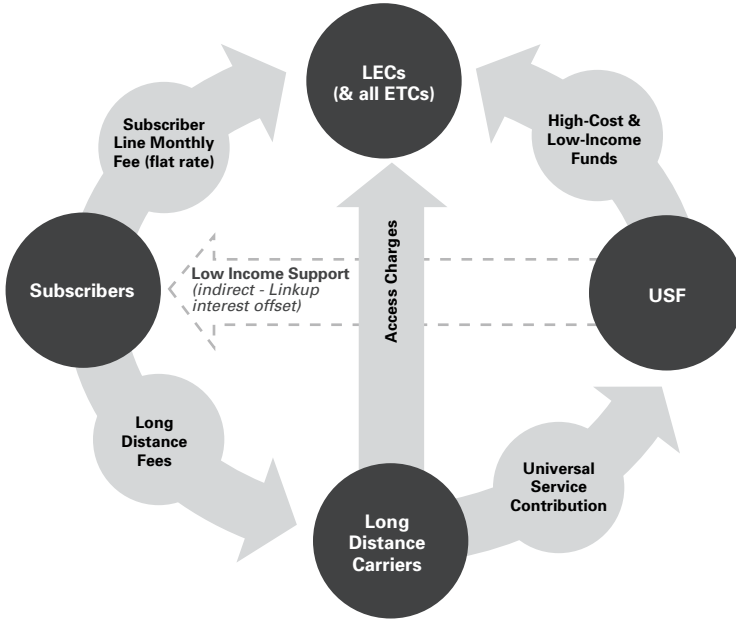
Figure 32 illustrates the current universal service support model. First, there is the so-called "three-legged-stool" support structure for carriers operating in high-cost areas. These Incumbent Local Exchange Carriers and other Eligible Telecommunications Carriers (ETCs, which include wireless and other non-incumbent competitors) receive High Cost Fund support, collect monthly subscriber line charges from their residential and business subscribers, and impose access charges on long-distance or other carriers that terminate traffic on the LEC's network.

Users supported by the Lifeline and Link Up funds receive indirect support from the USF, as these subsidies flow to LECs, which then offer the low-income subscriber a reduced monthly rate. And all users support the fund via an assessment on their interstate exchange services. Technically, this is an assessment on the total interstate revenues of all telecommunications companies, but it is

²⁶¹ Randy Dotinga, "Fraud Charges Cloud Plan for 'Wired' Classrooms," *Christian Science Monitor*, June 17, 2004.

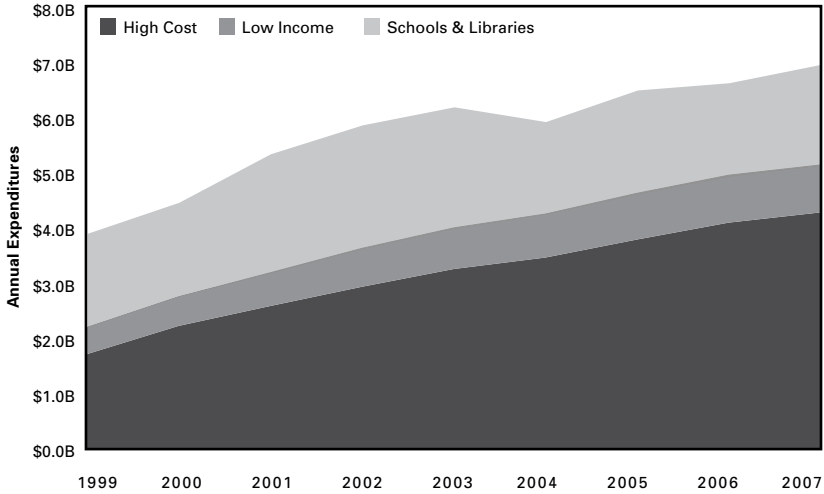
passed down to subscribers in the form of a below-the-line charge on monthly bills. Determining whether a call is “interstate” has become increasingly difficult in today’s era of number portability and widespread cell phone use. Thus the FCC allows wireless carriers either to submit traffic studies, or to use a “safe harbor” assumption that 37.1 percent of their minutes consist of interstate calls.

Figure 33: The Current USF Support Model



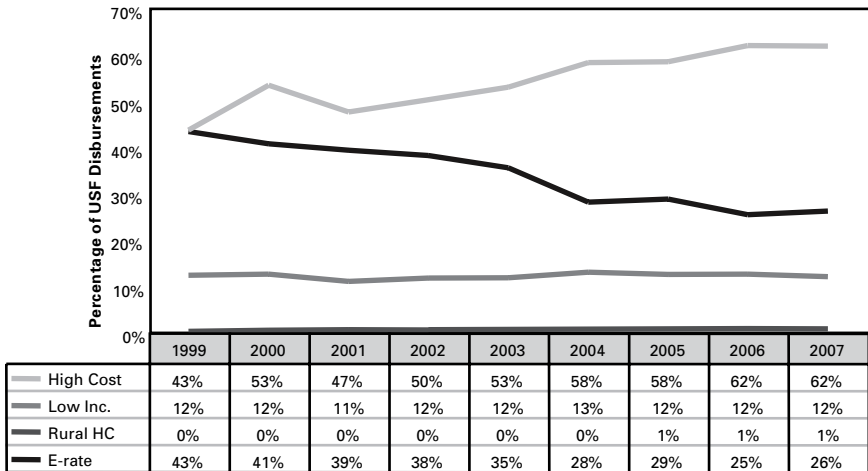
The USF has nearly doubled in size over the past decade, and much of this increase is due to growth in the High Cost Fund (see Figure 34). The amount of the USF allocated to the Rural Health Care and Low Income programs has increased only modestly since inception, and these two funds account for just over one-tenth of the total fund. The Schools and Libraries program does receive a substantial amount of money, but its annual allocation is capped at \$2.25 billion, which means that it accounts for a declining proportion of the total USF (see Figure 35).

Figure 34: USF Disbursements by Program
1999-2007



Source: Universal Service Administrative Corporation filings

Figure 35: Percentage of USF by Program
1999-2007



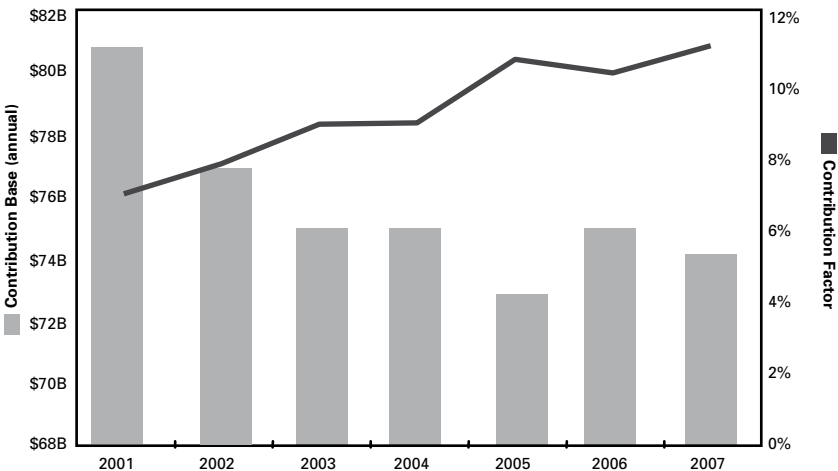
Source: Universal Service Administrative Corporation filings

Current Status of Universal Service and Impetus for Reform

The calls for USF reform center around the growth in the overall fund and the apparent shrinking of the contribution base. The majority of universal support funds come from carriers that are operating in the most competitive sectors of the market (wireline long-distance service and wireless telephony). Though contributions to the fund are made in a predictable and nondiscriminatory manner (as per the Act), the way in which the contribution burden is distributed among the different sectors of the industry (and, in turn, paid by consumers) raises equity concerns. Furthermore, taxing services that consumers are most likely to drop is problematic from an economic efficiency standpoint.

Currently, the amount telecom carriers pay into the USF is determined by a “contribution factor” assessed on their total interstate and international revenues. Each quarter, the Universal Service Administrative Corporation (USAC) calculates this contribution factor based on the expected needs of the fund and the expected revenues of contributors. Since 2001 (after the collection methodology was retooled following a court decision that limited the total pool of funds), the contribution factor has grown while the base of contributions has dropped (see figure 36).²⁶²

Figure 36: USF Contribution Base vs. Contribution Factor
2001-2007



Source: Universal Service Administrative Corporation filings

²⁶² The FCC initially based contributions for the schools and libraries and rural health care programs on interstate, international and *intrastate* end-user telecommunications revenues, while contributions for high-cost and low-income support mechanisms were based on interstate and international end-user telecommunications revenues. However, this method was contested in court, and the intrastate portion was ruled invalid by the United States Court of Appeals for the Fifth Circuit. The Commission then established a single contribution base for all universal service support mechanisms based on interstate and international revenues. See *Federal State Joint Board on Universal Service, Access Charge Reform*, CC Docket No. 96-45, Sixteenth Order on Reconsideration and Eighth Report and Order, 15 FCC Rcd 1679 (1999) (*Fifth Circuit Remand Order*).

These trends are likely due to several factors. First, the total size of USF disbursements increased from \$1.7 billion in 1999 to \$4.3 billion for 2006.²⁶³ Second, the available pool of funds (contribution base) has decreased as consumers move away from wireline long-distance and paging services toward e-mail, wireless long distance, and Internet telephony (“Voice over Internet Protocol,” or VoIP). Third, there has been an increase in “phantom traffic,” calls whose location of origin cannot be identified, and thus cannot be adequately assessed as interstate or intrastate traffic. Fourth, while wireless/cellular use has increased over this time period, wireless companies do not contribute in the same manner as traditional long-distance exchange carriers. These companies use the FCC-created “safe harbor,” which allows them to arbitrarily allocate 37.1 percent of their revenues to the interstate jurisdiction, regardless of the actual amount of interstate calls conducted. This is in contrast to long-distance companies, which contribute based on their actual amount of interstate-traffic-related revenues.

The current problems with USF can principally be attributed to two design aspects of the system — the continued reliance on *implicit* rather than explicit subsidies, and the fact that most of the burden of universal service contributions is placed on services that consumers are most likely to abandon for new technologies or use less of when prices are high. Reforming the program in a manner that addresses these concerns, focusing on both economic efficiency and distributional concerns, should be a priority. But political realities may make this an unrealistic constraint. Politicians favor implicit subsidies over explicit “taxes” for obvious reasons.

Universal Service and Broadband

The phenomenon of convergence is shifting the old paradigms of telecommunications policy, creating practical pressures on the old regulatory structure. Whereas just 20 years ago it seemed that the titles of the 1934 Communications Act were quite appropriate in their separation of technologies into “bins” (i.e., Title II for telephony, Title III for broadcasting and Title IV for cable), the digital age has eroded these once-sensible boundaries. Advanced telecommunications and information services — in particular, broadband Internet technologies — are driving this movement toward regulatory obsolescence. The Internet makes it possible for telephony, television and data services to be delivered via twisted copper pair lines (of the traditional telephone), coaxial cable (of traditional cable television), and broadcast airwaves.

Congress anticipated the proliferation and importance of advanced services when it crafted the 1996 Act. The legislation was built to provide the FCC with flexibility in its ability to encourage growth and adoption of these technologies. This is made clear in Section 254, which states: “Universal service is an evolving level of telecommunications services that the Commission shall establish periodically

²⁶³ The 2006 estimate can be found at <http://www.universalservice.org/about/universal-service/fund-facts.aspx>

under this section, taking into account advances in telecommunications and information technologies and services."²⁶⁴

While the 1996 Act recognized the immediate importance of broadband for schools, libraries and rural health care centers, it clearly took a wait-and-see attitude as to whether broadband should also receive high-cost and low-income universal service support.²⁶⁵ Congress established arguably vague criteria governing how the Joint Board and the Commission should determine if advanced services like broadband qualify for universal service support. Section 254(c), states:

Universal service is an evolving level of telecommunications services that the Commission shall establish periodically under this section, taking into account advances in telecommunications and information technologies and services. The Joint Board in recommending, and the Commission in establishing, the definition of the services that are supported by Federal universal service support mechanisms shall consider the extent to which such telecommunications services-

- a) are essential to education, public health, or public safety;
- b) have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers;
- c) are being deployed in public telecommunications networks by telecommunications carriers; and
- d) are consistent with the public interest, convenience, and necessity.

²⁶⁴ § 254 (c)(1)

²⁶⁵ Though Congress did not at the time choose to explicitly mandate general universal service for advanced information services, it did create two new programs that specifically support advanced services for schools, libraries and rural health care centers. Of course, nowhere in this section of Act is "broadband" mentioned, but the FCC, acting on the recommendations of the Joint Board, interpreted § 254 (h)(2)(A) as including "high-speed services" of greater than 1.544 Mbps, at the time the speed of a T-1 connection. Thus, these two programs explicitly provide subsidies for broadband services, albeit in a narrowly targeted manner. The Schools and Libraries program had by 2001 brought broadband service to nearly 90 percent of schools and 95 percent of libraries. This program is viewed by many of its congressional supporters as critical, as it is often the only method of broadband access offered to some rural populations. Furthermore, there is a clear need for efforts in this area, as a recent Organization for Economic Co-operation and Development (OECD) study demonstrated that the United States has the fourth-highest level in the OECD of 15-year-old students who have never had access to a computer. See "Are Students Ready for a Technology-Rich World?" OECD, January 2006.

The language of a “substantial majority of residential customers” certainly seems to apply to broadband, as more than 55 percent of residential households currently subscribe to broadband services.²⁶⁶ Yet it should be noted that broadband-capable networks are already supported by universal service funds. Many of the local exchange carriers in rural and non-rural high-cost areas have built converged networks that carry both voice and broadband data, which more efficient when investing in network upgrades. The fixed costs incurred constructing and maintaining these networks are currently offset by universal service funds.

Leaping Forward: A New Approach to Universal Service

The problems with the current universal service system are numerous and daunting, but they are not insurmountable. Policymakers must take advantage of the window of opportunity created both by the consensus that USF reform is long overdue and by the recent appropriation of more than \$7 billion in broadband stimulus funds in the American Recovery and Reinvestment Act.²⁶⁷ Congress and the FCC should avoid trying to balance the interests of the various industry factions and instead focus on developing a policy framework that is guided by the principle of serving the public interest and maximizing the availability, affordability and adoption of communications technology in all regions of the nation.

But we must also recognize that the billions of USF dollars are collected for the most part from urban consumers, who only realize indirect benefits from the fund. Their money must be spent in the most efficient manner possible, and the gains in added rural subscribers should not come at the expense of losses in urban ones. There is no reason to allow the USF to grow any larger than its current level. It is possible to achieve the goals of the 1996 Act without saddling consumers with an even greater financial burden.

Thus, a USF reform policy should begin with the assumption that the High Cost Fund will be fixed at 2008 levels (approximately \$4.6 billion).²⁶⁸ Capping high-cost funding is not as politically unpopular as it was just a few years ago, given the Commission’s slow clamping down on the largest sources of growth.²⁶⁹

²⁶⁶ See e.g., John Horrigan, “Home Broadband Adoption 2008,” Pew Internet and American Life Project, July 2008.

²⁶⁷ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009).

²⁶⁸ All data herein are based on the Universal Service Administrative Corporation’s Second Quarter 2008 Filing Appendices, available at <http://www.universalservice.org/about/governance/fcc-filings/2008/quarter-2.aspx>.

²⁶⁹ In 2008, the Commission acted on the Joint Board’s recommendation to cap at the state-level the funds that are distributed to CLECs. For 2008, this support is projected to account for approximately \$1.52 billion of the \$4.62 billion spent on the High Cost Fund, or one-third of the entire program. Though this cap is only temporary, and only applies to one-third of the total monies in the High Cost Fund, growth in the funds apportioned to incumbents has been largely stable since 2003, according to the Joint Board. Furthermore, the High Cost Loop program is subject to an annual index cap and the Interstate Access Support program has an annual target. Together, these two programs account for \$1.52 billion of the total \$3.1 billion in projected 2008 support for

The High Cost Fund

Because of its steady growth, the High Cost Fund is the primary subject of most USF reform proposals. The High Cost Fund itself is further divided into seven separate programs, the first five of which mostly benefit rural rate of return carriers (or the competitive carriers operating in their service territories, or “study areas”)²⁷⁰, and the last two benefiting the larger non-rural price-cap carriers (or the competitive carriers operating in their study areas).²⁷¹

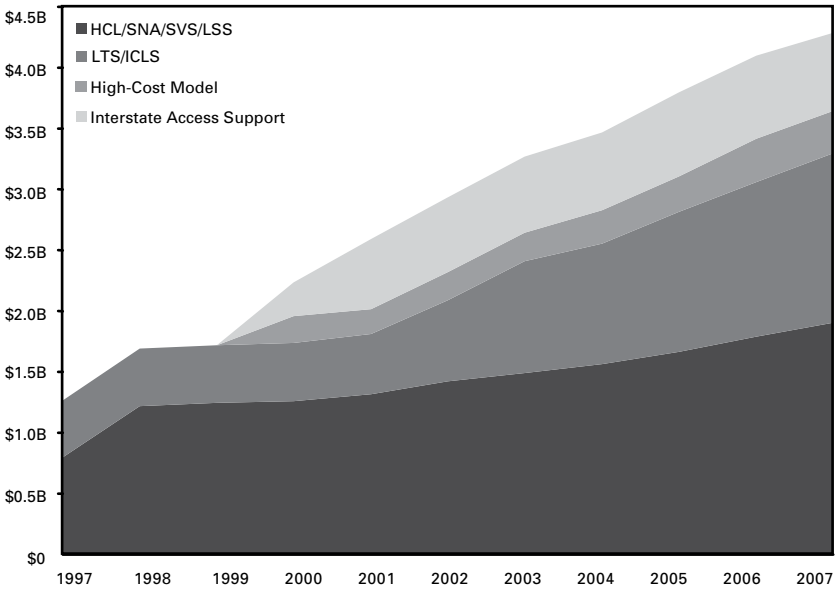
incumbent carriers. There is no indication that this Commission or Congress is willing to let the High Cost Fund grow larger than the current level, which is nearly 170 percent higher than the 1999 level. See In the Matter of *High-Cost Universal Service Support; Federal-State Joint Board on Universal Service*, WC Docket No. 05-337, CC Docket No. 96-45, Recommended Decision, 22 FCC Rcd 8998 (Fed.-State Jt. Bd. 2007) (*2007 Recommended Decision*). See also In the Matter of *High-Cost Universal Service Support; Federal-State Joint Board on Universal Service*, WC Docket No. 05-337, CC Docket No. 96-45, Order, FCC 08-122, (released May 1, 2008).

²⁷⁰ A study area is an artificial boundary that represents a given incumbent’s service footprint within a particular state. They range from very small geographic areas to the size of entire states, depending on the carrier. There are nearly 1,900 study areas.

²⁷¹ These are the seven High-Cost Fund programs: 1) *High-Cost Loop (HCL)*. This program supports the so-called last-mile infrastructure in areas served by “rural” telephone companies, where the cost of providing service exceeds 115 percent of the national average per-line cost. Monies from this fund are available to all rural incumbents, be they price-cap or rate-of-return regulated, and funds are also available to Competitive Eligible Communications Carriers (CETCs) serving in a rural carrier’s territory (though a CETC’s per-line subsidy is based on the ILEC’s per-line cost, not their own; this practice and its associated problems are discussed in detail in the next section). The HCL program comprises approximately 33 percent of the High Cost Fund (\$1.4 billion of the total \$4.3 billion in High Cost Fund program support distributed to carriers in 2007), and is subject to an annual index cap. 2) *Safety Net Additive (SNA)*. This program is a sub-component of the High-Cost Loop program that provides additional support to carriers that make substantial infrastructure investments that are above the HCL cap. The program is intended to create incentives for network investment, but is subject to a trigger that is tied to increased demand on the carrier’s local network. Like HCL, it is available to rural carriers and the CETCs operating in those areas. In 2007, SNA accounted for \$31 million, or less than 1 percent of the total High Cost Fund. 3) *Safety Valve Support (SVS)*. Like SNA, this program is a sub-component of the HCL program and provides additional support (above the HCL cap) to carriers that purchase local exchanges and make “substantial post-transaction investments to enhance network infrastructure.” In 2007, just \$1.5 million in SVS funds were distributed to carriers in five states. 4) *Interstate Common Line Support (ICLS)*. Support from this program offsets declining interstate access charges, permitting each rate-of-return carrier to recover its common line revenue requirement. In 2007, ICLS accounted for one-third of the High-Cost Fund, or nearly \$1.4 billion. 5) *Local Switching Support (LSS)*. Carriers with less than 50,000 lines receive support from this program to recoup the high fixed costs incurred from deploying switching services. This program accounted for just under \$500 million in 2007, or about 10 percent of the High-Cost Fund. 6) *High-Cost Model (HCM)*. This program for non-rural carriers is designed to keep the cost for telephone service comparable in all areas of a particular state. Support is determined by comparing the statewide average cost per line to the national average cost per line. If the statewide average cost per line exceeds two standard deviations of the national average cost per line, the state qualifies for HCM support. This program has been the subject of much controversy and litigation, with non-rural carriers claiming the HCMs’ statewide averaging model penalizes carriers in states that have very high-cost rural areas, but where the statewide average does not exceed the national benchmark. The HCM current accounts for about 8 percent of the total High Cost Fund. 7) *Interstate Access Support (IAS)*. This program supports companies operating in price-cap carrier study areas (mostly non-rural carrier areas) and is designed to offset FCC-mandated reductions in interstate access charges. Support is capped at \$650 million annually and is targeted to certain “density zones.” This fund bears no relation to actual costs and was due to be revised or phased out in 2005, something the FCC has failed to do. IAS accounts for about 15 percent of the total High Cost Fund.

The massive increases seen in the High Cost Fund are largely due to growth in support for rural carriers. The HCL program accounts for nearly 29 percent of the \$1.7 billion in fund growth since 2001, while increases in the ICLS program account for more than half of the total High Cost Fund growth since 2001 (see Figure 37).²⁷²

Figure 37: High Cost Fund Disbursements 1999-2007



Source: Universal Service Administrative Corporation filings

As mentioned, the old cross-subsidy method of universal service was unsustainable in a competitive market. This is because new market entrants can “cherry-pick” low-cost customers — those living in areas cheaper to serve. This in turn lowers the total pool of funds available to an ILEC for subsidizing the high-cost, universal service-qualifying customers.

The Commission’s implementation of Section 254 of the Act attempts to deal with the potential cherry-picking problem with the creation of the High Cost Fund. ILECs are usually the recipient of subsidies from the High Cost Fund, as they are usually the “carrier of last resort.”²⁷³ However, these funds are available to any

²⁷² Increases in ICLS actually account for 83 percent of High Cost Fund growth since 2001. When the decline in Long-Term Support (LTS) is considered, the combined increase in ICLS as well as the decrease in LTS account for 53 percent of High Cost Fund growth since 2001. This figure is based on both ICLS and LTS, given that LTS was phased out and replaced by ICLS.

²⁷³ “Carrier of last resort” (or COLR) is a regulatory distinction granted to certain telecommunications providers that agree to provide service at affordable rates to any customer requesting it, and also to advertise the availability of these services. In exchange for assuming COLR status, the

carrier that is willing to serve all customers (within a defined area) and that is also designated as an ETC by a state regulatory agency.²⁷⁴ ETCs can include both wireless providers and CLECs, which can ultimately compete head-to-head with the ILECs for low-cost customers. Therefore, the high-cost subsidy is portable.²⁷⁵ ETCs other than the incumbent are referred to as competitive eligible telecommunications carriers, or “CETCs.”

This attempt to encourage competition in local markets comes with a trade-off. An increase in competition translates into the need for increased funds to subsidize the competitive carriers and reimburse the ILEC for its revenue loss. This is because as the ILEC’s customer base shrinks in the face of competition, it must recover its fixed costs from fewer lines. This increases the ILEC’s overall per-line cost. In turn, this translates into a higher per-line subsidy, which is also available to the competitors — because *their subsidy is based on the incumbent’s costs*, not their own costs (another design flaw of the USF system). Further exacerbating the problem is the fact that a single customer can subscribe to both wireline and wireless service, each from a carrier receiving the high-cost subsidy.

Not surprisingly, both the amount of funds going to CETCs and the total size of the program have increased significantly since the fund’s inception. The share of the High Cost Fund going to CETCs was just 1 percent in 2001, but had skyrocketed to 27 percent by 2007 (see Figure 38). This represents an increase from just \$17 million in 2001 up to \$1.13 billion in 2007.

carrier is allowed to earn a “reasonable rate of return” on its overall investment, something not guaranteed to new entrants or long-distance providers.

²⁷⁴ See 47 U.S.C. 214(e) for a full explanation of this designation.

²⁷⁵ A subsidy is considered “portable” if it is paid to any firm that provides services. The need for portable subsidies stems from the fact that in some areas, the retail service price is held (by regulators) below actual costs. If a new market entrant were only as efficient as the incumbent, then competition would not be possible. The portable subsidy covers the deficit between cost and price, though the subsidy is currently based on the incumbent’s, not the competitor’s, cost — a very problematic distinction that will be discussed further.

Figure 38: High-Cost Support: ILECs vs. CETCs
1999-2007

	High-Cost Support, 1999-2007 (millions)								
	1999	2000	2001	2002	2003	2004	2005	2006	2007
ILECs	\$1,717.4	\$2,233.3	\$2,574.7	\$2,888.9	\$3,135.6	\$3,152.6	\$3,168.6	\$3,116.4	\$3,153.6
CETCs	\$0.5	\$1.5	\$16.9	\$46.1	\$129.6	\$315.8	\$627.7	\$979.9	\$1,137.0
Total	\$1,718.0	\$2,234.8	\$2,591.6	\$2,935.0	\$3,265.2	\$3,468.4	\$3,796.2	\$4,096.3	\$4,290.6

	ILEC vs. CETC: Share of High-Cost Support, 1999-2007								
	1999	2000	2001	2002	2003	2004	2005	2006	2007
ILECs	100.0%	99.9%	99.3%	98.4%	96.0%	90.9%	83.5%	76.1%	73.5%
CETCs	0.0%	0.1%	0.7%	1.6%	4.0%	9.1%	16.5%	23.9%	26.5%

	ILEC vs. CETC: Percent Change in High-Cost Support From Prior Year, 2000-2007							
	2000	2001	2002	2003	2004	2005	2006	2007
ILECs	30.0%	15.3%	12.2%	8.5%	0.5%	0.5%	-1.6%	1.2%
CETCs	179.9%	1033.9%	171.9%	181.3%	143.6%	98.8%	56.1%	16.0%

Source: Universal Service Administrative Corporation filings

The Current Distribution of High Cost Funds

Given a fixed amount of available funding and the desire to see the High Cost Fund restructured to facilitate universal access to next-generation broadband networks, we must look at how funds are currently distributed to assess how best to reallocate resources.

The High Cost Fund is divided into seven separate programs, distinctions drawn primarily for the purposes of distinguishing between the fiscal demands of rural and non-rural incumbent carriers.²⁷⁶ Funds are apportioned at the “study area” level, an artificial boundary that represents a given incumbent’s service footprint within a particular state. Carriers operating in “rural” study areas account for all of the monies apportioned to the High Cost Loop (HCL), Safety Net Additive (SNA), Safety Valve Support (SVS), and Local Switching Support (LSS) programs, and 83 percent of the Interstate Common Line Support (ICLS) program funding. The two remaining programs, Interstate Access Support (IAS) and High Cost Model (HCM), support carriers operating in “non-rural” study areas (though approximately 25 percent of IAS support goes to carriers in rural study areas). Figure 39 summarizes

²⁷⁶ The Act defines “rural telephone company” as “a local exchange carrier operating entity to the extent such entity: Provides common carrier service to any local exchange carrier study area that does not include either any incorporated place of 10,000 inhabitants or more, or any part thereof, based on the most recently available population statistics of the Bureau of the Census; or any territory, incorporated or unincorporated, included in an urbanized area, as defined by the Bureau of the Census as of August 10, 1993; Provides telephone exchange service, including exchange access, to fewer than 50,000 access lines; Provides telephone exchange service to any local exchange carrier study area with fewer than 100,000 access lines; or has less than 15 percent of its access lines in communities of more than 50,000 on the date of enactment of the Telecommunications Act of 1996.” See 47 U.S.C. § 153(37).

the distribution of High Cost Fund monies between programs and study areas. Competitive carriers receive \$1.5 billion in annual support, accounting for a third of the total High-Cost Fund. Nearly 60 percent of this support comes from the IAS and ICLS funds.²⁷⁷

Figure 39: High Cost Fund Support by Program and Study Area Type
(Projected 2008)

High Cost Program	Carriers in Rural Study Areas		Carriers in Non-Rural Study Areas		All Carriers	
	Annual Cost (est. 2008)	% of HCF	Annual Cost (est. 2008)	% of HCF	Annual Cost (est. 2008)	% of HCF
High Cost Loop (HCL)	\$1,477,563,492	32%	\$0	0%	\$1,477,563,492	32%
Safety Net Additive (SNA)	\$42,759,408	1%	\$0	0%	\$42,759,408	1%
Safety Valve Support (SVS)	\$1,021,668	0.02%	\$0	0%	\$1,021,668	0.02%
Local Switching Support (LSS)	\$475,096,980	10%	\$0	0%	\$475,096,980	10%
Interstate Common Line Support (ICLS)	\$1,323,918,276	29%	\$266,197,320	6%	\$1,590,115,596	34%
Interstate Access Support (IAS)	\$174,629,880	4%	\$511,944,624	11%	\$686,574,504	15%
High Cost Model Support (HCM)	\$0	0%	\$348,559,066	8%	\$348,559,066	8%
All High Cost Fund Support (HCF)	\$3,494,989,704	76%	\$1,126,701,017	24%	\$4,621,690,721	100%

Source: Free Press analysis based on USAC Second Quarter 2008 filing appendices

There are a total of 1,855 unique study areas participating in the High Cost Fund, with 1,798 receiving some amount of support in 2008. Approximately 150 million lines receive some type of HCF support, with nearly 100 million of these lines belonging to non-rural carriers receiving Interstate Access Support.

Overall, the average monthly cost per High Cost Fund-supported line is just \$2.58. For those lines in non-rural study areas, the support is less than a dollar per month per line, while it is above \$12 per month per line in rural carrier study areas. In

²⁷⁷ As discussed above, High Cost Fund support is available on a portable basis to any carrier designated by a state or the FCC to be an Eligible Telecommunications Carrier (ETC). CETC support is based on the incumbents per-line cost. This is problematic for numerous reasons, most importantly because it inflates the size of needed support in a manner completely divorced from cost. A prime example is the support CETCs receive from the IAS and ICLS programs. These two programs are designed to offset revenue losses from the reduction in interstate access charges, while also maintaining low subscriber line charges. This is a sensible subsidy, but only if the subsidized carrier levies tariff-based access charges and only if it is not permitted to recover from the customer via increases in subscriber line charges the “lost” revenues resulting from a reduction in access charges. However, most CETCs are not subject to caps on subscriber line charges, and thus can recover any losses from access charge reduction from the end user. Furthermore, the FCC has determined that wireless carriers cannot impose tariff-based access charges, noting that many already operate in a bill and keep manner. Thus, the need for competitive carriers to receive any support from IAS or ICLS is questionable at best. In addition, wireless CETCs also receive Local Switching Support, or LSS, which is based on the relatively high per-line switching costs incurred by small rural LECs. But wireless networks are not designed in a similar manner, and these carriers arguably have no demonstrated need for LSS support, certainly not at the same level as rural ILECs.

total, rural carrier study areas account for just 16 percent of all supported lines, but 76 percent of High Cost Fund support.

Though the Interstate Common Line Support program receives the most funding of the seven HCF programs, the High Cost Loop program is the costliest on a per-line basis. However, half of all HCL-supported lines receive less than \$7 support per month per line. In total, half of all lines receive less than 31 cents per month in High Cost Fund support, while 95 percent of all High Cost Fund-supported lines receive less than \$12 support per month per line (see Figure 40).

Figure 40: Per Line Monthly High Cost Fund Support by Program
(Projected 2008)

All Study Areas						
High Cost Program	Annual Cost (est. 2008)	Supported Lines*	Average Monthly Per Supported Line Cost+	Median Monthly Per Supported Line Cost+	95th Percentile Monthly Per Supported Line Cost+	99th Percentile Monthly Per Supported Line Cost+
High Cost Loop (HCL)	\$1,477,563,492	10,840,029	\$11.36	\$6.93	\$36.35	\$75.34
Safety Net Additive (SNA)	\$42,759,408	2,435,303	\$1.46	\$1.22	\$3.88	\$5.05
Safety Valve Support (SVS)	\$1,021,668	155,627	\$0.55	\$0.63	\$1.88	\$3.51
Local Switching Support (LSS)	\$475,096,980	10,669,574	\$3.71	\$2.58	\$9.14	\$18.32
Interstate Common Line Support (ICLS)	\$1,590,115,596	17,182,963	\$7.71	\$6.10	\$17.90	\$34.75
Interstate Access Support (IAS)	\$686,574,504	119,721,063	\$0.48	\$0.20	\$1.62	\$3.99
High Cost Model Support#	\$348,559,066	11,840,589	\$2.45	\$1.17	\$6.40	\$6.51
All High Cost Fund Support	\$4,621,690,721	149,423,648	\$2.58	\$0.31	\$11.49	\$34.52

* Supported Lines are those reported for study areas that received non-zero funding from each respective program. USAC reports some study areas with lines that receive zero funding for each respective program.

USAC reports High Cost Model Support by Study Area, but does not list the total number of supported loops. For this table, the number of HCM supported lines is the maximum total lines reported for a given study area receiving non-zero HCM support.

+ Weighted based on number of loops in each study area, reported for each program. For the monthly per line support values for the entire High Cost Fund, the maximum lines reported for each study area are used.

Source: Free Press analysis based on USAC Second Quarter 2008 Filing Appendices

For non-rural study areas, the per line monthly support is quite low, with half of all lines receiving less than 17 cents per month and 95 percent of all lines receiving \$5.15 or less in per line support per month. For rural study areas, half of all supported lines receive less than \$5 per line per month in HCF support. However, there are some relatively expensive rural study areas that bring up the average cost. In total, 95 percent of rural study area lines receive less than \$44 per month in per line support (see Figure 41).

Figure 41: Per Line Monthly High Cost Fund Support By Program and Study Area Type (Projected 2008)

RURAL STUDY AREAS							
High Cost Program (Carriers Operating in Rural Study Areas)	Annual Cost (est. 2008)	Supported Lines*	Average Monthly Per Supported Line Cost+	Median Monthly Per Supported Line Cost+	95th Percentile Monthly Per Supported Line Cost+	99th Percentile Monthly Per Supported Line Cost+	
High Cost Loop (HCL)	\$1,477,563,492	10,840,029	\$11.36	\$6.93	\$36.35	\$75.34	
Safety Net Additive (SNA)	\$42,759,408	2,435,303	\$1.46	\$1.22	\$3.88	\$5.05	
Safety Valve Support (SVS)	\$1,021,668	155,627	\$0.55	\$0.63	\$1.88	\$3.51	
Local Switching Support (LSS)	\$475,096,980	10,669,574	\$3.71	\$2.58	\$9.14	\$18.32	
Interstate Common Line Support (ICLS)	\$1,323,918,276	13,312,135	\$8.29	\$6.52	\$20.01	\$38.51	
Interstate Access Support (IAS)	\$174,629,880	9,774,769	\$1.49	\$0.98	\$4.52	\$9.27	
High Cost Model Support#	\$0	0	\$0.00	\$0.00	\$0.00	\$0.00	
All High Cost Fund Support for Rural Only Study Areas	\$3,494,989,704	23,800,599	\$12.24	\$4.85	\$43.75	\$99.72	
NON-RURAL STUDY AREAS							
High Cost Program (Carriers Operating in Non-Rural Study Areas)	Annual Cost (est. 2008)	Supported Lines*	Average Monthly Per Supported Line Cost+	Median Monthly Per Supported Line Cost+	95th Percentile Monthly Per Supported Line Cost+	99th Percentile Monthly Per Supported Line Cost+	
High Cost Loop (HCL)	\$0	0	\$0.00	\$0.00	\$0.00	\$0.00	
Safety Net Additive (SNA)	\$0	0	\$0.00	\$0.00	\$0.00	\$0.00	
Safety Valve Support (SVS)	\$0	0	\$0.00	\$0.00	\$0.00	\$0.00	
Local Switching Support (LSS)	\$0	0	\$0.00	\$0.00	\$0.00	\$0.00	
Interstate Common Line Support (ICLS)	\$266,197,320	3,870,828	\$5.73	\$6.10	\$6.32	\$6.89	
Interstate Access Support (IAS)	\$511,944,624	109,360,919	\$0.39	\$0.19	\$1.40	\$2.62	
High Cost Model Support#	\$348,559,066	11,724,175	\$2.48	\$1.17	\$6.40	\$6.51	
All High Cost Fund Support for Non-Rural Only Study Areas	\$1,126,701,017	126,215,134	\$0.74	\$0.17	\$5.15	\$7.04	

* Supported Lines are those reported for study areas that received non-zero funding from each respective program. USAC reports some study areas with lines that receive zero funding for each respective program.

USAC reports High Cost Model Support by Study Area, but does not list the total number of supported loops. For this table, the number of HCM supported lines is the maximum total lines reported for a given study area receiving non-zero HCM support.

^ 172 of the 1,801 study areas that receive non-zero support have some lines supported by IAS classified as rural, and some as non-rural. 171 of these are served by Competitive carriers, accounting for 99.33% of all lines in these 172 Study Areas.

+ Weighted based on number of loops in each study area, reported for each program. For the monthly per line support values for the entire High Cost Fund, the maximum lines reported for each study area are used.

Source: Free Press analysis based on USAC Second Quarter 2008 Filing Appendices

The per line monthly support data in Figures 40 and 41 seem to indicate that a substantial amount of lines that are supported by the USF receive relatively small amounts of per line support. This calls into question the need for such support given the Act’s requirement for “reasonably comparable” rates. It doesn’t seem that unreasonable for rates in rural areas to be a few dollars higher than in urban areas (and in fact, many state regulators keep rural rates *below* rates in urban areas). Furthermore, many of these supported lines are either located in markets with telephony service offered by multiple non-USF supported companies (such as VoIP over cable or non-USF-supported mobile wireless carriers), or they are USF-supported lines offered by carriers whose rates are not regulated in any fashion (such as wireless CETCs).

Thus it is possible that some USF-supported carriers are receiving small amounts of per-line support without any reduction in consumer prices. It is also possible that incumbent carriers are receiving USF support that enables them to hold their retail rates below cost in the face of competition from other unregulated technologies that offer a higher level of service (such as VoIP offered by cable companies or fixed terrestrial wireless companies). In the case of ILECs, their rates are often set at a fixed level by state authorities.²⁷⁸ However, as discussed below, more than a dozen states have almost completely deregulated retail rates charged by ILECs. Furthermore, the majority of incumbent USF funds are distributed to price-cap regulated carriers, which arguably under the price-cap incentive-regulation scheme have the ability to operate profitably without USF support.²⁷⁹

Given the nature of the converged marketplace that has emerged since the 1996 Act, and the essential nature of broadband infrastructure (which supports essential applications such as telephony and e-mail), it is worth investigating what portion of the fund goes toward telephony lines that require relatively minor amounts of per-line monthly support. Such funding could be diverted toward rural broadband infrastructure without significantly affecting telephony subscribers and maintaining the principles of reasonably comparable rates and competitive neutrality.

It turns out that a *substantial* amount of the HCF is used to offer marginal per line support. Half of the \$4.6 billion High Cost Fund goes to supporting lines that require less than \$15 per month in per line support. A full 70 percent of the fund goes to supporting lines that require less than \$30 per month in per line support (see Figure 42). Stated another way, 94 percent of all HCF lines receive less than \$10 per month in support, while only 1.3 percent of all HCF lines receive more than \$30 per month in support. In total, \$1.9 billion annually goes to support lines requiring less than \$10 per month each, while \$3.3 billion annually goes to support lines requiring less than \$30 per month each in funding. If we accept that broadband should be a universally supported service, and if the fund must be held at the current level, then the logical conclusion is that the funds going to lines with only marginal support needs would be better utilized for funding broadband infrastructure in unserved areas.

To put this data into perspective, consider that the average per-month cost of local exchange service is approximately \$36.²⁸⁰ Contrast that with the average per-month

²⁷⁸ The FCC also regulates rates in the case of the Subscriber Line Charge (SLC).

²⁷⁹ The Joint Board and the Commission rejected this notion when first establishing the High Cost Fund in 1996. See *1996 Recommended Decision*, paragraph 158; *1996 Universal Service Order*, paragraph 145. The Commission did so noting that “price cap regulation is an important tool for smoothing the transition to competition and that its use should not foreclose price cap companies from receiving universal service support.” It seems that now 12 years later, in a marketplace of convergence with many price-cap carriers offering non-rate regulated services (broadband and/or television) and some price-cap carriers relieved by states from rate regulation, now may be the time to revisit this decision.

²⁸⁰ See “Trends in Telephone Service,” Industry Analysis and Technology Division Wireline

cost of cable broadband Internet of \$41,²⁸¹ and the cost of unlimited-calling, full-featured VoIP service at \$25 per month.²⁸² Also consider that cable modem service is available to approximately 95 percent of all U.S. households, including many in USF-supported areas. Thus, for a total cost of \$66, a consumer who lives in a USF-supported study area that is also served by a cable modem provider could pay \$66 per month for unlimited broadband Internet access *and* unlimited local and long-distance calling; or, that same consumer could pay \$36 for local exchange service, subsidized by USF. Now assume the per-line USF support is \$30 per month (and 70 percent of supported lines receive less than this amount). In that case, if USF funds were not available, the cost of local-calling-only telephone service would be *equal* to the cost of high-speed broadband plus unlimited local-and-long-distance VoIP services.

Figure 42: Per Line Monthly High Cost Fund Support by Cost - All Carriers
(Projected 2008)

ALL CARRIERS				
Amount of High Cost Support Per Line is...	Number of Lines	Percent of All Supported Lines*	Total Annual High Cost Support	Percent of High Cost Fund
Less than \$10 Per Month	140,480,041	94.0%	\$1,851,907,533	40.1%
Less than \$20 Per Month	145,481,992	97.4%	\$2,678,263,068	57.9%
Less than \$30 Per Month	147,526,129	98.7%	\$3,275,332,660	70.9%
Less than \$40 Per Month	148,195,881	99.2%	\$3,549,867,485	76.8%
Less than \$50 Per Month	148,659,840	99.5%	\$3,797,848,493	82.2%
Less than \$60 Per Month	148,893,982	99.6%	\$3,952,949,669	85.5%
Less than \$75 Per Month	149,099,449	99.8%	\$4,118,967,737	89.1%
Less than \$100 Per Month	149,227,811	99.9%	\$4,252,282,001	92.0%
Less than \$500 Per Month	149,419,859	100.0%	\$4,565,940,761	98.8%
Less than \$1000 Per Month	149,420,550	100.0%	\$4,571,440,145	98.9%
Less than \$1433 Per Month	149,423,648	100.0%	\$4,621,690,721	100.0%

* Supported Lines are the maximum reported for study areas that received non-zero funding. There are 149,423,648 lines that received some type of high-cost funding.

Source: Free Press analysis based on USAC Second Quarter 2008 Filing Appendices

Competition Bureau, FCC, February 2007, Table 3-2. In 2005, the average monthly household expenditure for local exchange service was \$36, with long distance wireline service accounting for an additional \$8, though this survey counted bundled wireline local and long distance service as purely local. Wireless service accounted for an average of \$53 in monthly expenditures per household.

²⁸¹ See John B. Horrigan, "Home Broadband Adoption 2006," Pew Internet & American Life Project, May 28, 2006.

²⁸² Vonage's Residential Premium Unlimited VoIP plan offers the following for \$24.99 a month: Unlimited local and long distance in the United States, Canada, and Puerto Rico; free calls to land-line phones in Italy, France, Spain, the UK and Ireland; plus 25 additional calling features like call waiting, voicemail and caller ID.

This example illustrates exactly why the continued focus on telephony in a broadband era runs counter to the modernization principles of universal service as embodied in the 1996 Act, and counter to the principle of competitive neutrality adopted by the FCC in 1996. The continued support of lines that require less than \$20 per month in per line support (97 percent of all HCF-supported lines) arguably sends the wrong economic signals to the market, impeding the transition into the broadband era. Also consider the fact that 26 percent of all high-cost funding goes to support competitive carrier lines needing less than \$20 per month of per-line support based not on their own per-line costs, but on the ILEC's costs.²⁸³ Because there is no evidence to suggest these (mostly wireless) carriers would raise their prices or discontinue service without this support, as much as a billion dollars is wasted that could instead be used to build broadband in rural areas.

Moreover, the subscribers to the vast majority of these lines do not benefit from rate regulation. This last point is important, as the continued need for USF support should be tied in some manner both to actual costs *and* a tangible consumer benefit in the form of lower retail costs. In the case of non-rate-regulated carriers, it is not at all clear that this consumer benefit exists. There is no evidence that without support, rates would increase.

Questioning the need for USF support to maintain "reasonably comparable" rates is certainly justified for those carriers whose rates are not regulated and whose own costs are likely far lower than the subsidy received. But the data seem to indicate that the need for continued high-cost funding to keep non-rural carriers' rates "reasonably comparable" is also questionable. Non-rural carrier lines requiring less than \$10 per month in per-line support account for nearly 100 percent of all non-rural supported lines, and nearly 100 percent of the \$1.13 billion in high cost funding going to non-rural carriers (see Figure 43).

²⁸³ In total, \$797 million goes to supporting CETC lines that receive less than \$10 per month in support, and \$1.2 billion for lines receiving less than \$20. This accounts for 98 percent of all competitive carrier lines.

Figure 43: Per Line Monthly High Cost Fund Support By Cost and Study Area Type
(Projected 2008)

CARRIERS OPERATING IN RURAL STUDY AREAS						
Amount of High Cost Support Per Line is...	Number of Lines	Percent of All Supported Lines*	Percent of All Supported Rural SA Lines	Total Annual High Cost Support	Percent of High Cost Fund	Percent of All Rural SAS's Share of High Cost Fund
Less than \$10 Per Month	15,584,230	10.4%	65.5%	\$563,663,232	12.2%	16.1%
Less than \$20 Per Month	19,123,572	12.8%	80.3%	\$1,181,434,656	25.6%	33.8%
Less than \$30 Per Month	21,384,629	14.3%	89.8%	\$1,850,241,984	40.0%	52.9%
Less than \$40 Per Month	22,394,598	15.0%	94.1%	\$2,272,717,632	49.2%	65.0%
Less than \$50 Per Month	22,971,304	15.4%	96.5%	\$2,581,050,228	55.8%	73.9%
Less than \$60 Per Month	23,206,815	15.5%	97.5%	\$2,737,086,528	59.2%	78.3%
Less than \$75 Per Month	23,415,457	15.7%	98.4%	\$2,905,751,796	62.9%	83.1%
Less than \$100 Per Month	23,603,208	15.8%	99.2%	\$3,107,320,956	67.2%	88.9%
Less than \$500 Per Month	23,795,928	15.9%	100.0%	\$3,424,639,944	74.1%	98.0%
Less than \$1000 Per Month	23,796,619	15.9%	100.0%	\$3,430,139,328	74.2%	98.1%
Less than \$1433 Per Month	23,800,599	15.9%	100.0%	\$3,494,989,704	75.6%	100.0%

CARRIERS OPERATING IN NON-RURAL STUDY AREAS						
Amount of High Cost Support Per Line is...	Number of Lines	Percent of All Supported Lines*	Percent of All Supported Non-Rural SA Lines	Total Annual High Cost Support	Percent of High Cost Fund	Percent of All Non-Rural SAS's Share of High Cost Fund
Less than \$1 Per Month	105,397,072	70.5%	83.5%	\$279,337,987	6.0%	24.8%
Less than \$5 Per Month	119,700,529	80.1%	94.8%	\$625,255,977	13.5%	55.5%
Less than \$10 Per Month	126,205,575	84.5%	100.0%	\$1,124,833,040	24.3%	99.8%
Less than \$15 Per Month	126,210,574	84.5%	100.0%	\$1,125,546,490	24.4%	99.9%
Less than \$20 Per Month	126,210,574	84.5%	100.0%	\$1,125,546,490	24.4%	99.9%
Less than \$25 Per Month	126,215,134	84.5%	100.0%	\$1,126,701,017	24.4%	100.0%

* Supported Lines are the maximum reported for study areas that received non-zero funding. There are 149,423,648 lines that received some type of high-cost funding. 23,800,599 of these are lines in Rural Study Areas. 126,215,134 of these are lines in Non-Rural Study Areas.

Source: Free Press analysis based on USAC Second Quarter 2008 Filing Appendices

Figure 43 shows that the monthly per line cost burden is much higher for carriers operating in rural study areas compared to those operating in non-rural study areas. But even here the relative support burden is still quite small for the vast majority of lines. More than 65 percent of the lines in rural study areas receive less than \$10 per month in per-line high cost support. More than 80 percent of the lines in rural study areas receive less than \$20 per month in per-line high cost support, accounting for one-third of all funding going to carriers in rural study areas. The data in Figure 42 also indicates where the focus of the High Cost Fund could be directed: toward lines with monthly per-line support needs above \$20, or the 4.7 million lines in rural study areas that arguably meet a more reasonable definition of "high cost."

If policymakers are serious about implementing a USF reform plan that is truly modernizing, then funds will have to be shifted and short-term sacrifices will have to be made to achieve long-term benefits. However, we should make it clear that consumer rates for basic telephone service should not increase — indeed, because of convergence (and the additional revenue-earning potential of the network),

we'd fully expect telephone rates to be *declining* precipitously.²⁸⁴ This is why it is so important for the rate regulatory accounting models also to be reformed to account for convergence. If this is done (as discussed below), we believe that regulated telephone rates will not need to be adjusted upward, even as support for marginal-need lines is phased out.

Meaningful USF reform requires upsetting the status quo, leading to short-term discomfort all around. We recognize that the utility consumers derive from broadband services is far greater than that derived from telephony, and that given the choice between slightly higher telephony rates or new broadband service in unserved areas, most consumers would choose the latter. Though millions of Americans currently benefit from subsidized telephony, those subsidies are paid by millions more who reap very small indirect benefits from the fund. A shifting of funds toward broadband would greatly increase the direct benefits to those receiving the new services, and it would also vastly improve the indirect benefits to those paying for the bulk of the subsidy.

The path of universal service policy has reached a fork in the road, where there are difficult choices to be made. In the long run, the greatest level of social and consumer benefits can only be achieved by transitioning away from telephony support and increasing support for broadband infrastructure deployment.

Modernizing the High Cost Fund for Broadband

To figure out what the architecture of a modernized High Cost Fund should look like, we first must answer some key questions to define the scope of the problem and the funding needs:

- How many U.S. homes have no access to broadband service?
- What quality level constitutes a reasonably comparable and potentially future-proof definition of broadband service?
- How much will it cost to deploy this service to all unserved areas?
- What will be the expected level of ongoing support needed to ensure that infrastructure can be maintained?

While there is no definitive inventory of U.S. premises that lack the ability to subscribe to broadband service, there are a few data points that allow us to formulate a reasonable estimate of the true number of unserved households. First, the National Cable and Telecommunications Association (NCTA) estimates that 99

²⁸⁴ Indeed, in urban and suburban areas where there is more competition, ILECs are bleeding access line losses, and in some cases, finally seem to be lowering rates in response to this (though often these lower rates are packaged in introductory offers for bundled service packages).

percent of U.S. households are passed by cable television service.²⁸⁵ FCC Form 477 data indicates that 96 percent of homes where cable service is available have access to cable modem service.²⁸⁶ From this, we conclude that as many as 95 percent of all U.S. homes can purchase cable modem broadband service, though this figure is likely somewhat lower, perhaps 92 percent (based on estimates from NCTA). Thus, approximately 9 million of the nearly 118 million U.S. households cannot subscribe to cable modem broadband.²⁸⁷

It's possible some of these homes that lack cable modem access can purchase DSL service. Form 477 data indicates that 79 percent of ILEC lines are DSL-capable. But Form 477 provides no estimate of how the cable modem and DSL availability figures overlap. So while there may be DSL service available in areas without cable modem service (and vice versa), a reasonable estimate is that there are between 7 million and 9 million unserved homes.²⁸⁸

To answer the question as to what constitutes a minimal level of service quality to merit the definition of "broadband," we will rely on the statutory guidance laid out in Section 706 of the 1996 Act. The Act defined the term "advanced telecommunications capability" as "high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology."²⁸⁹ Currently, the best available compression technology requires approximately 5 Mbps (5 million bits per second) in bandwidth to transmit high-quality, high-definition video content.²⁹⁰ So the minimum level of broadband service quality for future USF

²⁸⁵ *In the Matter of Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, MB Docket No. 05-255, Twelfth Annual Report, 21 FCC Rcd 2503 (2006), para. 30.

²⁸⁶ *High-Speed Services for Internet Access: Status as of December 31, 2006*, Industry Analysis and Technology Division, Wireline Competition Bureau, Table 14.

²⁸⁷ The figure for the total number of U.S. households varies depending on the particular U.S. Census Bureau source used. The October 2007 Current Population Survey puts the total number of U.S. households at 117,840,000. The 2006 American Community Survey found an estimated 111,617,402 U.S. households, while the 2005 ACS found an estimated 111,090,617 U.S. households. Thus, it is unclear if the 2007 CPS number is accurate, as it seems high based on the 2005 and 2006 data.

²⁸⁸ We are explicitly excluding satellite broadband from this estimate, as the high latency and slow speed (particularly on the upload side) of this service render it arguably substandard for the purposes of facilitating VoIP service. We also exclude fixed wireless service, which constitutes a very small percentage of all U.S. broadband lines (0.75 percent of all residential advanced service lines). And we specifically exclude mobile wireless broadband service, as the carrier's deployment of 3G capable services has been almost exclusively limited to urban and suburban areas. Furthermore, 3G speeds are still slow enough (especially on the upload side) to arguably not meet a reasonable definition of true broadband.

²⁸⁹ See § 706(c) of the 1996 Act.

²⁹⁰ The MPEG-4 codec, version h.264 (used notably by IP video service provider Apple) transmits HD video with an approximate average bit rate of 4.5Mbps. DBS providers also use MPEG-4 with a similar bit rate. The older MPEG-2 codec still in use by cable operators requires between 12 and 20 Mbps. In general, the more "action" or motion in the video, the higher the bit rate needed to maintain a constant level of quality.

support will be defined as 5Mbps symmetrical, with latencies no lower than what's needed to enable real-time VoIP calls of superior quality. However, while a 5 Mbps symmetrical definition is adequate for 2008, it may not be enough for the world in 2018. Thus, service quality must also be capable of scaling much higher than 5 Mbps in the future with minimal additional cost.

Finally, we must estimate the initial and ongoing costs of providing quality broadband service to the 7 million to 9 million households that will be served under the reformed HCF. This is no easy task, as estimates depend completely on the particulars of each service area, as well as the type of technology used. While the High Cost Fund should support any broadband technology that meets the minimum standards of Section 706, for the purposes of estimation we will choose fiber-optic-to-the-home (FTTH) technology. First, FTTH currently is the only consumer technology deployed that is capable of offering dedicated symmetrical bandwidths approaching (or exceeding) 100 Mbps — a bandwidth that is arguably “future-proof.” Second, for the purposes of cost-estimations, it's prudent to be conservative and possibly to overestimate deployment costs. As a wireline technology, FTTH is likely to have initial deployment costs that exceed fixed wireless or 4G mobile wireless. FTTH is also likely to have higher initial costs than copper-based solutions like VDSL, but lower ongoing and maintenance costs.

Using FTTH as the proxy technology for cost estimates, we suggest that the 7 million to 9 million unserved homes can be connected at an average cost ranging between \$2,000 and \$5,000 per home.²⁹¹ Thus, the total funding needed to serve all currently unserved homes could be as little as \$14 billion or as much as \$45 billion, with the likely cost falling somewhere between \$25 and \$30 billion. We further assume the ongoing maintenance and operation (M&O) costs to be approximately 10 percent of the initial capital costs, or between \$17 and \$42 per month per home, with the likely M&O cost falling around \$30 per month per

²⁹¹ This estimate is arrived at by synthesizing several sources and then making a good-faith guess. A 2001 study estimated an average cost of \$1,000 to wire every U.S. home with fiber (see “Broadband: Bringing Home the Bits,” U.S. Computer Science and Telecommunications Board, November 2001). The Fiber to The Home Council now puts this at \$800 per home (see www.ftthcouncil.org/UserFiles/File/ftthprimer_feb.pdf). Telecom consultant John Widhausen Jr. puts the figure at \$1,000 per home (see net.educause.edu/ir/library/pdf/EPO0801.pdf). These estimates included the 21 percent of U.S. homes that are rural, as well as the 79 percent that are urban and suburban. The latter is where the country's largest provider of FTTH service, Verizon, has focused its deployment efforts. According to Verizon, their FTTH deployment costs continue to decline. In 2006, it cost Verizon \$850 per home to deploy FTTH, down from \$1,400 in 2004. By 2010, Verizon expects the FTTH deployment costs to decline to \$700 per home (see <http://newscenter.verizon.com/kit/nxtcomm/Product-sheet-FIOS-1Q07.pdf>). The costs per home will be higher in rural areas because of the lower densities. A recent estimate by a rural Vermont FTTH company put the cost per rural home for FTTH at \$2,900 (\$1,100 to pass each rural home and \$1,800 for the actual “hook up” of the home; see “Rural FTTP ‘Perfectly Economical,’ Says Muni Fiber Veteran,” *Telephony Online*, April 29, 2008). Of course, some rural homes are more “rural” than others, while some unserved homes lie in urbanized clusters inside rural areas. It is possible that some of the most extreme rural homes will not see FTTH, instead being served by a high-capacity wireless solution such as LTE. Considering all of these factors, we feel that a cost estimate range of \$2,000-\$5,000 per unserved home is a reasonable and conservative value.

home.²⁹² All or a portion of this cost will be offset by user subscription fees, meaning for some study areas, the M&O needs from the High Cost Fund will be minimal or non-existent. Thus, the move to a modernized USF under our model will require approximately \$30 billion for infrastructure deployment and a substantially smaller amount for ongoing M&O costs not recouped by end-user charges. This price tag may be even lower, given the \$7 billion allocated for broadband deployment and adoption in the American Recovery and Reinvestment Act.

The question is then, how do we pay for this? Where will the \$30 billion come from? Based on the analysis presented above, new broadband construction could be immediately funded via a redirection of the telephony funds that provide only “marginal” monthly support. This can be accomplished without “rate-shocking” the customers of these lines by recognizing that the owners of many of these lines are already receiving far more in subsidies than they actually require to earn a reasonable profit. Many of these marginal support lines already are equipped for delivery of DSL, and some are also delivering IPTV services. Yet the revenues earned from these unregulated services are not factored in when determining subsidies. This broken regulatory support structure must be modernized. We suggest a system that considers the total future cost of a line, as well as the potential revenue that line can earn. If the resulting difference is below a certain threshold, USF support is warranted. But we suspect that many currently supported lines would not require subsidies once all revenue opportunities are taken into consideration.

If the FCC adopts this new regulatory support determination model (which we call the “total cost/potential revenue model”), it could begin to phase out support for some lines, and redirect those funds to construct broadband networks in unserved areas. This phase-out process could take five years, after which there would be approximately \$3 billion in annual funds for a new “Broadband Deployment High Cost Fund.” Also, after the five-year phase-out period, there would be approximately \$1.6 billion in annual funds available to provide ongoing support in the “very high-cost” areas that would still require monthly subsidies.

The construction phase of the Broadband Deployment High Cost Fund would run 10 years. During this time, approximately \$25 billion in total funds would be reallocated from the old telephony fund to the new broadband deployment fund. This amount is roughly equal to the estimated cost to deploy next-generation broadband service to the 7 million to 9 million unserved homes. With perhaps as much as \$5 billion of the American Recovery and Reinvestment Act funds being used to bring broadband to unserved areas, this \$25 billion in the new Broadband Deployment High Cost Fund could close the gap in unserved areas altogether by the end of the 10-year transition period.

²⁹² This is a very rough estimate based on various financial details of other publicly funded FTTH deployments. See, for example, Uptown Services LLC, “Network Planning Study” (2002).

The phasing out of support will of course lead some carriers to raise end-user rates. Those carriers not subject to rate regulation (such as most wireless carriers) are already free to set rates at any level, and can freely incorporate any losses in funding into their retail charges. However, since many of these carriers already receive subsidies beyond their needs, they might simply absorb these losses and maintain rates at current levels. Similarly, the incumbents operating in the more than a dozen states with no intrastate rate regulation are already free to set rates at any level. Because these states' decisions to end rate regulation were based on the conclusion that markets are competitive, these carriers are also unlikely to hike end-user rates.

For rate-regulated carriers (either price cap or rate of return), there will have to be changes made, too. We suggest that as a part of the USF modernization and transition reform, the old accounting and regulatory structure be set aside and replaced with a system that recognizes the total cost and revenue-earning potential of the infrastructure. In such a regulatory system, the need for future ongoing support would be reduced, as the streams of unregulated and regulated revenues more than offset the forward-looking infrastructure costs.

However, if the rate regulatory and support structure is not modernized, a phase-out plan would require some adjustment of rate schedules. For price-cap incumbent carriers, either the FCC or state regulators may consider adjusting the price caps upward proportionally to the per line phase-out amounts. However, to reiterate, these carriers already have incentives under price-cap regulations to keep costs down to earn a healthy return absent USF support. Also, considering that the average monthly per-line HCF support for incumbent price cap carriers is just \$2.16 per line (see Figure 41), there may not be a need for regulators to make any adjustments to price caps for the majority of these supported lines. For rate-of-return carriers, the FCC or state regulators will need to adjust retail rates.

Distributing the Broadband Deployment High Cost Fund

Once a high cost fund for broadband deployment is established, the next issue is how to distribute the money. It is inefficient to fund multiple infrastructures in high-cost areas, but consumers in these areas must be able to enjoy the benefits of competition. Thus any infrastructure supported by the new Broadband Deployment High Cost Fund must be operated under open access obligations. This should not be controversial: It's unreasonable to expend taxpayer resources to establish monopolies. Open access is the best policy tool for creating competition in markets with high fixed costs that cannot support multiple facilities-based competitors. Open access for rural broadband is vital to ensuring that citizens in unserved areas enjoy the same benefits available in more competitive markets.

Open access policy in the context of universal service is well established globally. For example, the Organization for Economic Cooperation and Development

(OECD) recently recommended to member states that “governments providing money to fund broadband rollouts should avoid creating new monopolies,” further advising that any publicly funded broadband infrastructure “should be open access, meaning that access to that network is provided on non-discriminatory terms to other market participants.”²⁹³ In addition to mandatory open access obligations, all projects supported by the Broadband Deployment High Cost Fund must adhere to the FCC’s *Broadband Policy Statement*²⁹⁴ and also agree not to discriminate against any type of Internet content based on its source or destination.²⁹⁵ These fundamental consumer protections are needed to ensure that consumers have access to the same “open” Internet that is available to consumers in all free nations of the world.

Currently, broadband rates are not regulated in any fashion. However, in the selection process for granting funds (described below), we suggest that funds be awarded to those carriers willing to offer services at rates reasonably comparable to those available in urban areas. If ongoing USF support is needed to achieve this outcome, that would be considered in the awarding of funds. This structure will maintain adherence to the language of Section 254(b)(3) of the 1996 Act.

A key question is how best to determine who receives the subsidy to construct and operate the broadband infrastructure as a common carrier. We suggest that the best method for awarding support would be via a Request for Proposal (RFP) process, not a reverse auction. RFPs allow the funding entity to weigh alternative proposals on more dimensions than just cost (such as a FTTH proposal that also includes Wi-Fi zones). RFPs are superior to reverse auctions, avoiding pitfalls such as collusion, setting reserve prices, and other difficult aspects of auction design. We feel that RFPs are especially better than the reverse auction process proposed by the FCC in 2008, which seems to have a bias toward incumbent carriers. The concept underlying reverse auctions — only supporting a single infrastructure — is correct and should be pursued. But in the various reverse auction proposals presented to the FCC over the past several years, with their emphasis on per-line ongoing

²⁹³ <http://www.oecd.org/dataoecd/32/58/40629032.pdf>. The National Telecommunications Cooperative Association also made it explicit in its April 2008 FCC comments that USF broadband funding should come with Title II obligations. “However, given that broadband should be included in the future definition of universal service... it is appropriate to reclassify and regulate broadband/high-speed Internet access service under Title II of the Act.” See Comments of National Telecommunications Cooperative Association *In the Matter of High-Cost Universal Service Support and the Federal-State Joint Board on Universal Service*, WC Docket No. 05-337, CC Docket No. 96-45, Notices of Proposed Rulemakings (NPRMs), 23 FCC Rcd 1467 (2008) (*Identical Support Rule NPRM*), 23 FCC Rcd 1495 (2008) (*Reverse Auctions NPRM*), and 23 FCC Rcd 1531 (2008) (*Federal-State Joint Board NPRM*), Comments submitted April 17, 2008, (*April 2008 NTCA Comments*).

²⁹⁴ See *Internet Policy Statement*, *supra* note 190.

²⁹⁵ Specifically, this principle was detailed in the AT&T-Bell South Merger Conditions, which stated: “This commitment shall be satisfied by AT&T/BellSouth’s agreement not to provide or to sell to Internet content, application, or service providers, including those affiliated with AT&T/BellSouth, any service that privileges, degrades or prioritizes any packet transmitted over AT&T/BellSouth’s wireline broadband Internet access service based on its source, ownership or destination.” See *AT&T Dec. 28 Ex Parte Letter*, *supra* note 207.

support and lack of an explicit discussion of open access, are major shortcomings that perpetuate many of the broken features of the current USF.

To ensure competitive neutrality, the Commission should not use the current incumbent study areas as the market boundaries for the RFP process. Census geographies such as Blocks, Block Groups or Tracts are a more appropriate geographic designation for service areas. These Census geographies are small in size, but not so small as to raise transaction costs in program design and implementation. The use of Census geographies will also enable better targeting of support, as the FCC's Form 477 data collection efforts have now transitioned to a Census-based system.²⁹⁶

Each carrier supported by the new Broadband Deployment High Cost Fund should be required to offer a basic VoIP (or other comparable technology) local service package to those who request it, separate from broadband or video service, and at a cost in line with a statewide average price for telephone services. This is similar to the current "carrier of last resort" requirements. The key here is ensuring that those consumers who do not want (or cannot afford) broadband are not harmed by fund modernization.

Finally, the issue of high-cost data transport services must be addressed. There is little point in constructing next-generation, last-mile networks if the transport facilities that carry data back and forth to the Internet backbone are so overpriced that they erase all of the cost-savings made possible by the modernized local infrastructure. So the FCC must ensure that these transport facilities are "reasonably" priced. In the limited cases where transport subsidies are warranted, these costs can be supported by the fund.²⁹⁷

The transition proposal described herein would be conducted under a 10-year timeframe. In the tenth year, the FCC should undertake a complete forward-looking assessment of the continued need of the program. Ideally, the fund would be phased out, with monies used just to upgrade infrastructure to provide the best quality service, or to provide ongoing support to the "very high-cost" areas. We would recommend at this stage that if the goal of universal availability of affordable next-generation broadband infrastructure has been met, then the fund should be phased down to a \$1.5 billion or lower annual level.

²⁹⁶ *In the Matter of Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscriberhip Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscriberhip*, WC Docket No. 07-38, Report and Order, 23 FCC Rcd 9691(2008) (2008 Form 477 Data Order).

²⁹⁷ Special access reform can play a role here, but only marginally. Many high-capacity transport lines are not DS-1 or DS-3 TDM circuits, and thus (thanks to the FCC's misguided *Enterprise Broadband Forbearance* orders) fall outside of Title II dominant carrier regulations. It is therefore imperative that the Commission uses its remaining authority under Sections 201 and 202.

The Role of Mobile Wireless Telephony

The Commission should focus its USF modernization efforts on funding broadband infrastructure, making no preference for fixed or mobile technologies, so long as the minimum level of service is met. But there is a strong argument that consumers value “mobility” in addition to basic connectivity, and that this functionality should be supported by the USF. There is certainly no question that American consumers look at mobile voice services as an integral part of their lives, but the question remains if the USF is the appropriate vehicle (from a legal and practical standpoint) to fund mobile service *explicitly*.

In its 2008 *Recommended Decision*, the Federal-State Joint Board specifically that the FCC establish a \$1 billion annual “mobility fund” to support construction of infrastructure for voice-grade mobile wireless service. But there are several problems with the Joint Board’s proposal. First, there was no adequate definition of “mobility” in the Joint Board’s decision. This is problematic because without an explicit understanding of the meaning of “mobility,” it remains unclear how to define “unserved” areas (e.g., there are “drop zones” in many areas that are considered “served” already — should the USF be used to fund the construction of a tower in front of those homes that get spotty service)?

Second, there is no strong evidence that mobile wireless carriers would not maintain or deploy service in current high-cost areas if they didn’t get a subsidy. It is possible that some carriers may choose to deploy simply to have a nationwide footprint (certainly along highway corridors in rural areas). Third, mobile rates are not regulated, and carriers are not subsidized based on their own costs. It’s not clear that USF-supported mobile carriers would raise rates or abandon service areas without subsidies. Fourth, it is clear from the plain language of the 1996 Act that Congress did not intend to fund duplicate infrastructures for complementary services, instead envisioning the use of portable subsidies to fund substitutable services. Currently, though perhaps 10 percent of households are mobile-only, the vast majority of mobile customers maintain their subscriptions either to landline telephones or VoIP services.

Finally, the mobility fund envisioned by the Joint Board is for the construction of *new* mobile telephony infrastructure in unserved areas. Because of the lack of an adequate definition of mobility, it is hard for us to assess the scale of such a fund. The only guidance is the statement that grants could be prioritized based on “the number of residents of each state who cannot receive a strong and reliable wireless signal at their residence.”²⁹⁸

²⁹⁸ *Recommended Decision*, paragraph 17.

But recent FCC data shows that just 0.2 percent of the total U.S. population lives in Census Blocks where mobile voice service is not available from any provider.²⁹⁹ In other words, approximately 250,000 households are located on blocks where mobile voice service isn't available. According to the same data, approximately 99.3 percent of the U.S. population living in rural counties, or 60.6 million people, have one or more different operators offering mobile telephone service in the Census blocks within the rural counties in which they live. Furthermore, according to an industry-funded study, 98 percent of the customers living in study areas served by a subsidized wireless carrier also have service available from one or more unsubsidized wireless carriers.³⁰⁰

The USF is probably not the best vehicle to achieve universal mobility. Other options like D-Block spectrum (e.g., "Frontline")³⁰¹ or AWS-3 spectrum (e.g., "M2Z")³⁰² proposals may be better suited for achieving the goals of universal mobility. Finally, if technologies such as Wi-Max, Wi-Fi or Long-Term-Evolution ("LTE")³⁰³ can achieve the basic benchmark speeds and latencies set by the new Broadband Deployment High Cost Fund, then they certainly should qualify for support. In fact, when soliciting and awarding funds, the FCC could make the ability to deliver mobility a considered factor under the RFP process.

The FCC Must Not Place USF Contribution Burdens on Residential Broadband Connections

Policymakers should refrain from making broadband services subject to USF contributions for the foreseeable future, even if broadband services are the main recipient of USF funding. This may seem counterintuitive or unfair, but it is based on the fundamental need to further the goals of universal service.

It is important that policymakers recognize that broadband service is currently what economists call an "elastic" service, meaning that a 1 percent increase in price will result in a greater than 1 percent decrease in subscribership. (Contrast this

²⁹⁹ *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993: Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Twelfth Report, WT Docket No. 07-71, FCC 08-28, paragraph 5 (released Feb. 4, 2008) (*Twelfth Report*).

³⁰⁰ Nicholas Vantzelfde, "The Availability of Unsubscribed Wireless and Wireline Competition in Areas Receiving Universal Service Funds," Criterion Economics, (June 13, 2007).

³⁰¹ *In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, WT Docket No. 06-150; *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, PS Docket No. 06-229, Second Further Notice of Proposed Rulemaking, (released May 21, 2008).

³⁰² *In the Matter of Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band*, WT 07-195, Notice of Proposed Rulemaking, (released November 14, 2007).

³⁰³ LTE is the so-called "4G" successor to today's 3G mobile data communications standards. LTE will be able to transmit data at significantly higher speeds than today's 3G connections, provided there is ample backhaul transport capacity.

with telephony, which is an “inelastic” service.) Because broadband is a developing market, any USF assessment, no matter how small, would likely result in a net decrease in total broadband subscribership nationwide.

Lifeline/Link Up for Broadband: What Is the Likely Impact?

Broadband is no longer a luxury — it is a technology that is vital for any individual to effectively participate in today’s world. Yet less than one-quarter of low-income households have broadband, while broadband is in the homes of two-thirds of the rest of the population. Also troubling is that broadband adoption appears to have stalled in low-income homes. This digital divide has long-term social and economic costs.

The reasons that some low-income homes have yet to adopt broadband are just as complex as the reasons for non-adoption in the rest of the population. Obviously, price matters, but the lack of exposure to this technology means that low-income consumers don’t yet place a high value on broadband — unlike the high value they do place on services like cable TV and cell phones.

Therefore, policies should be focused not only on lowering the cost of broadband services for low-income consumers (including equipment costs), but also on programs that provide practical training to novice users. Extending the Lifeline/Link Up program to broadband can play a role in bridging the digital divide by lowering equipment and monthly subscription costs for low-income households. But we should not expect such a subsidy alone to be enough to close the digital divide. And we should also learn the lessons from the shortcomings on the current low-income telephone program.

Of the nearly 27 million low-income homes eligible to participate in the Lifeline program, more than 17 million — or nearly 65 percent of low-income homes — do not participate, yet still have a phone in the home (a phone in the home included landlines, mobile phones and VoIP phones). The overall take-rate of the program is about 25 percent (see Figure 44). In total, home phone adoption among low-income households is just above 90 percent, while those households not considered low-income have a telephone adoption rate of just under 99 percent.

Figure 44: Current Participation in the Lifeline Program

	Low-Income Households (Households With Income Below \$25,000)	Low-Income Households With Telephone in Home	Low-Income Households Without Telephone in Home	Lifeline Households	Lifeline Eligible Households NOT Participating	Lifeline Eligible Households NOT Participating BUT Have a Telephone in Home
Households	26,924,193	24,323,013	2,601,180	6,937,516	19,986,677	17,385,497
Percent of Low-Income Homes	100%	90.3%	9.7%	25.8%	74.2%	64.6%

NOTE: For this Table, Low Income Households are defined as Households with Incomes Below \$25,000. This is approximately equal to 135 percent of the Federal Poverty Guideline

Source: 2007 Current Population Survey; FCC

Thus, for home telephony, we have a situation where a substantial proportion of low-income homes that could participate in the subsidy program do not, yet they still purchase phone service. This suggests a few things that have been confirmed by other research: First, the awareness of the program remains suboptimal. Second, the low-income population — like the rest of the population — has very strong demand for telephone service, demand that is not very sensitive to price.³⁰⁴ Third, low-income households are increasingly solely reliant on mobile phones for telephone service, and the limited availability of mobility Lifeline carriers is reducing overall participation in the program. Fourth, low-income households have a strong preference for the flexibility of pre-paid mobile plans.

For broadband, the situation is likely very different, with the low-income population having weak demand for broadband service, and being much more price-sensitive. As of October 2007, there were approximately 6.3 million low-income homes subscribing to broadband, or fewer than 24 percent of the low-income population. This compares to 64 percent of non-low-income homes that had broadband. There were an additional 2.1 million low-income homes connected to the Internet via dial-up technology, or 8 percent of low-income homes (see Figure 45). This suggests that even among low-income homes, dial-up access is not viewed as a substitute for broadband.

³⁰⁴ However, there is evidence of increased telephone penetration in states with higher levels of subsidies, suggesting that either the very low-income population is more price-sensitive, or that these states have more successful program awareness campaigns.

Figure 45: Adoption of Internet by Low-Income Households

	Low-Income Households (Households With Income Below \$25,000)	Low Income Households With Dial-Up Internet in Home	Low Income Households With Broadband Internet in Home	Low Income Households Without Internet in Home	Low Income Households Without Broadband in Home
Households	26,924,193	2,181,134	6,355,487	18,387,572	20,568,706
Percent of Low-Income Homes	100%	8.1%	23.6%	68.3%	76.4%

NOTE: For this Table, Low Income Households are defined as Households with Incomes Below \$25,000. This is approximately equal to 135% of the Federal Poverty Guideline. Estimates for Households with Dial-up and Broadband are based on Oct. 2007 CPS, extrapolated to account for population not reporting income.

Source: 2007 Current Population Survey

So what is the likely response to a low-income broadband subsidy, and will the take-rate be lower or higher than the current Lifeline subsidy for telephone service? Also, how large should the subsidy be to encourage the highest level of participation at the lowest cost?

To answer the latter question, we must start with an estimate of the current effective subsidy level for Lifeline telephone service. The average total monthly Lifeline support in 2007 was \$11.23, while the average monthly basic local residential telephone rate was \$24.80.³⁰⁵ Thus, the effective Lifeline subsidy is approximately 45 percent. The current average monthly cost of broadband service is approximately \$35. Thus, a 45 percent subsidy would be \$15.75. We will base our estimates on a \$15 monthly use subsidy, as we feel that a higher subsidy will not produce appreciably higher levels of participation, but will only increase the overall size of the program.

Based on current data, the take-rates for a broadband Lifeline subsidy can be expected to be below that of the telephone subsidy. First, it is unlikely that the program would fully subsidize the cost of a broadband Internet access device, reducing potential program participation. Second, the overall demand for broadband among low-income households, and the perceived value of broadband, is not as strong as it is for basic telephone connectivity. Third, the various factors that keep participation low in the telephone Lifeline program (awareness, transient nature of the population, perceived costs of qualifying, etc.) would also affect a broadband subsidy program. Fourth, we expect interest in participating in the broadband program would be low among low-income elderly households, decreasing overall participation. Fifth, it is unlikely that all ETCs will be required to offer broadband Lifeline service, reducing the availability of the program.

³⁰⁵ This includes the Subscriber Line Charge as well as other taxes and fees — charges that are exempt under Lifeline, but which should be included for purposes of calculating the effective subsidy.

Participation by qualifying households would thus likely be less than 15 percent. Participation among households that currently have no Internet service will be very low, maybe 10 percent of such homes. Participation by households that currently have dial-up or broadband service can be expected to be somewhat higher, though still quite low.³⁰⁶

Though we understand the desire by some to target the subsidies only to those low-income homes that would not otherwise subscribe to broadband (and exclude those that currently do or that would subscribe without a subsidy from participating in the program), we feel the administrative complexity of administering such a program would be great. Further, recent data suggest that while adoption of broadband is increasing overall, it is decreasing among low-income households. This suggests that the low-income households with broadband may be highly susceptible to income effects from the current recession, and a Lifeline subsidy may help keep them on the network.

Based on the above assumptions, we estimate that there would be approximately 3.9 million homes participating in the program. We also estimate that nearly 2 million would participate in the first year in a broadband Link Up program that would subsidize the purchase of an Internet access device, up to \$150 (see below for further discussion). It is then likely that Link Up participation would decline in subsequent years to less than one million homes.

Thus, if there were no constraints on the overall program cost, we would expect the annual budget for the combined Lifeline/Link Up for Broadband program to be just under \$1 billion. This level of funding would lead to a significant increase in the percentage of broadband adopting low-income households, from 24 percent to 32 percent (see Figure 46).

³⁰⁶ A reasonable estimate of participation by current dial-up subscribing low-income homes would be 20 percent. A reasonable estimate of participation by current broadband subscribing low-income homes would be 25 percent.

Figure 46: Potential Cost and Impact of a Broadband Lifeline Program

Program/Year	FISCALLY UNCONSTRAINED FUND			FISCALLY CONSTRAINED FUND - \$500 MILLION ANNUAL		
	Estimated Participation (Households)	Per Household Annual Subsidy	Total Subsidy	Estimated Participation (Households)	Per Household Annual Subsidy	Total Subsidy
Lifeline For Broadband Program	3,863,856	\$180	\$695,494,040	1,960,784	\$180	\$352,941,176
Linkup For Broadband Program - Year 1	2,000,000	\$150	\$300,000,000	980,392	\$150	\$147,058,824
Lifeline For Broadband Program - Subsequent Years				2,298,851	\$180	\$413,793,103
Linkup For Broadband Program - Subsequent Years	1,000,000	\$150	\$150,000,000	574,713	\$150	\$86,206,897
Total Program Cost - Year 1		\$995,494,040			\$500,000,000	
Total Program Cost - Subsequent Years		\$845,494,040			\$500,000,000	
Percent of Low Income Homes with Broadband Before Program		24%			24%	
Percent of Low Income Homes with Broadband After Program		32%			29%	

Source: Free Press analysis

This level of funding would also lead to a substantial increase in the overall size of the USF, which is unwise under the existing support structure. Until wholesale USF reform occurs, a pilot Lifeline Broadband program should be established, with funding levels at or below \$500 million per year.

We also model the likely impact of a \$500 million annual fund, based on the above-mentioned constraints of a \$15 per month access subsidy and a one-time \$150 per household subsidy for an Internet access device.³⁰⁷ The results indicate that a \$500 million annual fund would increase the low-income broadband household penetration rate from 24 percent to 29 percent (see Figure 46). It may not sound very impressive, but it would make a substantial difference in the lives of the more than 2 million households that would be supported by the program.

Subsidies alone may only play a small role in closing the digital divide. Policymakers should therefore work to support programs — particularly those at a community level — that work to improve digital literacy and increase exposure to emerging technologies. Efforts targeting low-income families with children should be a top priority. But the most effective policies may be those that increase marketplace

³⁰⁷ We also assume that participation in the Link Up for Broadband program is proportional to the assumed participation under the fiscally unconstrained program.

competition, which in turn would lead to lower prices and greater adoption among all populations.

Ending the Stalemate at the Commission

Broadband is the dominant communications service of the 21st century. America's place atop the global economy for the remainder of this century requires a comprehensive policy commitment to closing our digital divide. Congress and the Commission must move expeditiously to enact reforms that make open access broadband networks the centerpiece of universal service policy.

Ultimately, enacting USF reform under the constraints of the 1996 Act is a challenging endeavor that need not be. The FCC's willingness to move forward with bold reform may be tempered by the perceived inflexibility of the law. Congress has the ability and the duty to step in and remedy this problem. But the need for congressional action does not preclude the FCC from acting, and should not be an excuse for enacting only moderate changes to the fund.

There are no easy solutions to correcting the problems of the Universal Service Fund. But policymakers must act judiciously, boldly and in a manner that adheres to the Act's commitment to ensuring universal, affordable access to the most important technologies of the era. Legislation or regulatory policies that try to please all constituencies by simply adding broadband to the already broken support structure won't solve the underlying problems and are doomed to fail. Congress and the FCC need to implement bold changes, even if this means angering the well-connected rural carrier industry. This is simply not a situation well-suited to compromise.