

State USF White Paper: New Rural Investment Challenges

By Michael J. Balhoff and Bradley P. Williams

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Customers in rural high-cost areas rely on broadband networks for economic opportunity, education, health care, public safety, emergency management, and other social benefits.

Without sufficient policy-based investment support, the future is clear. Telecommunications companies will have no choice except to focus on economic clusters of population and withdraw from offering broadband and voice services to high-cost customers. Where broadband does not exist at present and will not be supported sufficiently, all terrestrial universal service—for voice and broadband—will cease. Universal Service, as legislated in the Telecom Act, appears to be at risk.

Federal and state regulators and legislators stand on the threshold of a new era as they survey their direct and complicated responsibility for the welfare of citizens who live in a vast expanse—most of the land mass—of this country.

Michael J. Balhoff and Bradley P. Williams

Reviews of *State USF White Paper: New Rural Investment Challenges*

Policymakers and civic leaders

“This White Paper provides a well-researched discussion of the various adverse consequences — especially for the smaller rural wireline incumbent local exchange carriers (rural ILECs) — that were predicted in advance by State regulators, including the State Members of the Federal-State Joint Board on Universal Service, consumer advocates, and various other entities, while the Federal Communications Commission (FCC) was engaged in the formulation of its November 18, 2011 Transformation Order for the federal universal service fund (USF) and intercarrier compensation (ICC). The White Paper underlines the importance of State USF mechanisms for supporting the redefined concept of universal service for all Americans that now includes retail broadband access services, and for meaningfully sustaining the carrier of last resort (COLR) obligations of wireline ILECs in general and rural ILECs in particular. Both the redefined concept of universal service and these COLR obligations need to function in an environment of financial uncertainty that may not be resolved any time soon because of the appellate litigation associated with the FCC’s Transformation Order and its implementation.”

(DISCLAIMER: The above opinions are those of Commissioner J.H. Cawley only. They do not represent the views of the Pa. PUC or of other State Members of the Federal-State Joint Board on Universal Service.)

Commissioner James H. Cawley

Pennsylvania Public Utility Commission (Pa. PUC)

State Chair and Member of the Federal-State Joint Board on Universal Service

“For the last decade and more, as public policy regarding intercarrier compensation and universal service has lurched in first one direction then another, Michael Balhoff and his colleagues have provided principled, objective, factually-grounded and detailed analyses of various attempts to solve this Gordian knot, which too often have devolved into efforts to choose winners and losers. Mr. Balhoff’s recent analysis of the FCC’s ICC/USF Transformation Order, “Lessons from Rebuilding the FCC’s Quantile Regression Analysis,” stripped bare the glaring deficiencies of the FCC’s QRA model which has created significant uncertainty and controversy for the viability of rural service in the wake of the Transformation Order. Balhoff & Williams’ new study on State USF raises important questions about the customer impact of the Transformation Order which has now been revisited by the FCC in an astonishing six separate Orders on Reconsideration. In addition to being a classic case of prescriptive industrial policy, the Order reflects the FCC’s pre-emption of both state authority and congressional intent through unilateral nullification of Sec 254(b)(3) among other statutory provisions of the Telecommunications Act of 1996, and blithely walks away from the FCC’s mandated obligation to rural America. The Order further creates a Hobson’s Choice for the states, between assuming what amounts to a multi-billion dollar unfunded state liability or watching the inevitable failure of many rural providers, as detailed in Balhoff & Williams’ latest work, which is must reading for all stewards of public policy.”

Commissioner Larry S. Landis

Co-Chair of Washington Action Committee, National Association of Regulatory Utility Commissioners

State Chair, Federal-State Joint Conference on Advanced Services [706 Joint Conference]

Former Member, Federal-State Joint Board on Universal Service

Member, Federal-State Joint Board on Jurisdictional Separations

Commissioner, Indiana Utility Regulatory Commission

Financial Community

“Mike Balhoff and Brad Williams consistently provide some of the best policy and financial analysis in the business. This white paper should be required reading as it carefully outlines the financial implications of telecom law and policy. With a full understanding that regulators and policy makers have a job to do, Mike and Brad outline here the many potential intended consequences that can and do often work against public policy goals. This white paper can help industry policy makers navigate these potential pitfalls and ultimately arrive at a better outcome for all.”

Frank Louthan

Managing Director - Equity Research

Raymond James

“The white paper from Balhoff & Williams, LLC combines a thorough understanding of the regulatory framework with a Wall Street grasp of the economics behind these issues. In the process, it raises practical questions regarding the long-term effects recent changes in policy will have on investment in fixed infrastructure and service availability in rural markets.”

John Hodulik, CFA

Managing Director, Telecommunications, Cable and Satellite Analyst

UBS Investment Research

“The Balhoff & Williams State USF White Paper highlights issues that are important to the rural wireline industry and to those that have a significant investment in that market. CoBank’s current assessment of the rural wireline market is cautious to negative. Many small rural wireline providers/companies have or will lose 50 to 100 percent of their capacity to access borrowed capital (when compared to previous periods), regardless of purpose, based on current and pending changes to support mechanisms.”

Robert F. West, Senior Vice President

CoBank, ACB, Communications Banking Group

Denver, Colorado

Corporate Executives

“This paper by Balhoff & Williams raises the question of whether telephone customers will continue to be served in the highest-cost regions of our country. Competitive and regulatory changes place tremendous pressure on the financial ability of incumbent providers to continue to serve these areas. Recent changes by the FCC will remove all existing federal universal support for the rural areas served by most carriers, leaving it to the states to determine whether certain rural customers will continue to have access to voice, much less broadband, services. Opponents of state universal service funding, who don’t want to contribute to this support and won’t provide it themselves, attempt to derail state funding initiatives with misleading sound bites. This paper carefully describes the realities of the current environment and is must reading for state legislators in virtually every state of the Nation.”

Paul Sunu

Chief Executive Officer, FairPoint Communications

Charlotte, NC

“Reading this document and evaluating how the recent federal reforms to Universal Service and Intercarrier Compensation will impact customers and economies in the highest-cost, most difficult-to-serve regions of our country is an important consideration for policymakers to understand and consider. Rural carriers will have

difficult choices to make on behalf of their unserved customers if funding proves insufficient to support rural customers' broadband needs, as Mike Balhoff and Brad Williams accurately outline in this paper."

David Wittwer

Chief Executive Officer, TDS Telecom

Madison, WI

Other commenters

"Mike Balhoff and Brad Williams have proven once again that they are thought leaders in an industry facing dynamic changes and significant challenges. Their state USF white paper takes a detailed look at historical state and federal roles with respect to universal service, and against that backdrop, provides constructive recommendations about how states should evaluate options to ensure consumer protection and fulfill the public-interest mission of universal service moving forward. I encourage policymakers at the federal and state level to think even more closely about these important questions, and lead vigorous debate about how best to promote and sustain a shared objective of universal service in a broadband-capable, IP-enabled world."

Shirley Bloomfield

Chief Executive Officer

NTCA–The Rural Broadband Association

"The Balhoff & Williams White Paper provides a clear and well-argued discussion of the impact of changes to the Federal USF program on the states and the carriers providing service in rural locations. The study should prove useful to regulators and legislators evaluating current state USF programs and determining whether to implement new ones."

Sherry Lichtenberg, Ph.D.

Principal for Telecommunications, National Regulatory Research Institute

Silver Spring, MD

"As usual, Balhoff & Williams have prepared a provocative discussion of issues that must be considered by state authorities, especially since they have been overlooked or disregarded by federal regulators. The quibbles I have with parts of the White Paper - and the more substantial disagreements with other parts - do not diminish this Paper's importance."

David C. Bergmann

Telecom Policy Consulting for Consumers

Columbus, Ohio

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Executive summary

- **State and federal obligation.** The Telecommunications Act of 1996 (Telecom Act) is clear that the obligation to achieve universal telecommunications service is shared, requiring both federal and state support for service to customers in uneconomic-to-serve areas.¹ The recent federal reforms effectively have shifted the full responsibility to fulfill universal service policy in many areas to the states.
- **States should understand and assess the impact from the elimination of intercarrier compensation and re-purposed Universal Service Fund (USF).** State legislators and commissioners should assess the costs, benefits, risks and alternative mechanisms of providing universal telecommunications service in their states. Notably, *where broadband does not exist at present and will not be supported sufficiently, all terrestrial universal service funding—for voice and broadband—will cease.* This means that carriers will have less—and possibly significantly less—ability to

Emerging Problems for Rural Customers

- **The state's policy challenge.** States must begin immediately to analyze policy, costs, and their willingness to supplement federal support that will be offered within the next six to nine months. Regulators and legislators stand on the threshold of a new era as they survey their direct and complicated responsibility for the lives and welfare of citizens who live in a vast expanse—most of the land mass—of this country. State policymakers will have to choose whether and how to support customers' communications needs in many high-cost, rural regions in the wake of sharp reductions in universal service and intercarrier compensation support for those areas.
- **Deep cash flow reductions.** USF/ICC support benefiting rural customers served by larger price-cap carriers could be reduced by an estimated 85%-90% in many areas from 2012 to 2020 and, for smaller carriers, by approximately 35%; cash flow percentage losses will be well higher. The analysis excludes CAF II funding due to the uncertainties surrounding the costly new obligations and the potential that a significant percentage of the funding, if insufficient, will be declined by carriers. The cumulative effect by 2020 could be a loss of customer-facing investment support of up to \$6 billion and \$5.2 billion available to larger and smaller carriers, respectively. The predictable result is reduced investment in many areas.
- **Investment is already collapsing in many areas.** The two largest rural lenders report sharply lower recent loans for infrastructure investment. The major cooperative bank, CoBank, reports no 2012 loans for network improvements. The Department of Agriculture's Rural Utilities Service (RUS) has annually loaned all its available funds . . . until 2012 when rural telcos tapped only 11.6% of the \$690 million available. In 2012, only 9.4% was borrowed of the \$736 million available for RUS broadband loans.
- **Critical telecom services.** Because traditional USF is terminated, the reforms could put at risk even terrestrial voice and 911 services if a carrier decides it cannot justify accepting federal support with the new broadband mandates. The potential loss of combined state and federal support could affect customers who likely need services the most. Carriers will have no choice except to focus on economic clusters of population and withdraw from offering broadband and voice services to high-cost customers.
- **Wireless broadband rate problem.** Wireless is not a replacement broadband service, not only due to reliability issues, but because wireless broadband pricing is increasingly volume-based and is expected to remain prohibitively high compared with far more affordable terrestrial services.

¹ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996) (Telecom Act), Section 254(b)(5).

maintain network services in high-cost regions. If rural communications networks fail or falter in the near term, it will be difficult to recover. The ultimate risk will be defined by the damage to local economies, emergency preparedness and social environments.

- **Major federal reform and reductions in support payments will affect customers in many high-cost rural regions.** The Federal Communications Commission's (FCC) 2011 reforms appear to impose new costly obligations while sharply reducing total federally-regulated support—USF and intercarrier compensation (ICC) payments—in large parts of most states. In many of these high-cost rural regions,

The new reforms terminate the former USF, which may be replaced by funding for new and costly obligations. We estimate that the funding available to price-cap carriers will fall far short—offering support for less than one-third—of the costs in meeting the new obligations, which will leave areas not covered by CAF II without sufficient support.

customers who rely on local exchange carrier networks for voice and broadband services will be affected by lower levels of investment. We estimate that between now and 2020, larger “price-cap” carriers, such as AT&T, CenturyLink, Consolidated Communications, Frontier, Windstream, and others should expect a possible reduction of 85%-90% in support revenues derived from the historical forms of USF and intercarrier compensation—revenues that formerly were used to invest in and provide services in high-cost regions at customer rates that are generally comparable with urban rates.² We note that the reductions for these areas will be offset in part by up to \$1.8 billion annually designated for the Connect America Fund (CAF)

II program that is in the process of being implemented and which is intended to provide support for only 25% of high-cost rural areas (albeit more fully in some areas compared with the previous mechanisms).³ The new reforms *terminate* the former USF, which *may* be replaced by funding for new and costly obligations and may flow to alternative providers. The likely impact in certain regions will be less or potentially no investment for voice and broadband in certain regions. We estimate that, even if the CAF II allocation is accepted in its entirety, the funding available to price-cap carriers will fall far short—offering support for less than one-third—of the costs in meeting the new obligations, which will leave areas not covered by CAF II without sufficient support for both terrestrial voice and broadband networks. For customers served by smaller rural carriers, the contraction in support (USF and ICC) is estimated to be approximately 35% of total regulated revenues over the same period and the cash-flow impacts will be far larger.⁴ Significantly, replacement CAF funding has yet to be defined for high-cost areas. By 2020, the

² The price-cap carriers are AT&T Alaska Communications Systems Group, CenturyLink, Cincinnati Bell, Consolidated Communications, FairPoint Communications, Frontier Communications, Hawaiian Telcom, Federated States of Micronesia Telecom, Puerto Rico Telephone, Verizon, Virgin Islands Telephone, and Windstream, which collectively serve large rural regions of all states and territories in the United States; the calculation of the shortfall is a Balhoff & Williams estimate of losses of intercarrier compensation and USF, excluding future uncertain CAF II funding and excluding end-user Access Recovery Charges (ARC) which is not a Subscriber Line Charge, since the FCC expects it to phase down; see Transformation Order, ¶ 36: the ARC is “a transitional recovery mechanism . . . that will phase down over time . . .”

³ The exclusion of CAF II from this analysis may at first appear extreme, as the FCC proposes to provide up to \$1.8 billion in CAF to price-cap carriers. The reality, however, is that the price-cap carriers only accepted about one-third of the one-time \$300 million in CAF I Incremental funding offered in 2012 for network investment; the rationale was that they judged the funding to be insufficient to meet the new obligations. An analysis that assumes the draw-down of \$1.8 billion is aggressive, in our judgment, in light of the indications from carriers that are signaling a careful assessment of funding and new costly obligations in high-cost regions. We believe that, like the CAF I funding, it is likely that a large percentage of the \$1.8 billion will be rejected. Our analysis is based on the best figures we have available and excludes funding that we must assume is going to be rejected in many regions.

⁴ Estimate by the National Exchange Carrier Association (NECA).

cumulative reduction of support made through price-cap carriers (excluding AT&T and Verizon) is approximately \$6 billion and the small-carrier cumulative reduction is expected to be about \$5.2 billion. The reform's effect, without incremental state support, is predictable. Where there is insufficient support, customers outside of regions that are economic-to-serve or funded adequately will risk losing access to critical services, including voice and broadband. This means that for many rural areas the result of the

The reform's effect is predictable. In the absence of sufficient support funding, customers will have fewer choices to subscribe to critical services, including voice and broadband, except in regions that are economic-to-serve or funded adequately. This means that for many rural areas the result of the FCC reforms appears to be precisely the opposite of the new investment predicted by the Commission, even if other rural areas benefit from the reforms.

federal reforms appears to be precisely the opposite of the new investment predicted by the Commission, even if other rural areas benefit from the reforms.⁵

- **Universal Service policy and law.** USF is federal policy and law. The policy is to assure investment and operation of telecommunications networks serving customers in high-cost regions. The FCC explains that the policy purpose is to provide services "crucial to our nation's economic growth, global competitiveness, and civic life."⁶

- **The challenge in serving uneconomic regions.** Policymakers may assume that consolidation will occur among small carriers and reduce the uneconomic burden, with the result that high-cost regions will be served more effectively by relatively larger carriers. The reality is different. While it is true that some efficiencies—capital and operating—can be achieved through consolidation, *uneconomic-to-serve areas generally remain uneconomic without supplemental support, regardless of*

the size of the carrier. Tangible, real-world evidence of this reality can be deduced from the fact that many cable companies choose to avoid serving in high-cost regions where there is no regulatory requirement that they provide such service. Further, AT&T—the largest wireline carrier in the U.S.—has stated that it cannot justify investing in 25% of its landline network because of high costs, presumably without support from USF.

- **States must begin their analyses immediately.** The FCC is working on a model for CAF II funding and will likely issue an order at the end of this year or possibly early next year. In that order, the FCC may start a 120-day clock for the carriers to accept or reject CAF II funding. If the costs of the obligations exceed the federal support, as is likely in many areas or possibly in most regions, the carriers will reject the federal support, as occurred in 2012 when nearly two-thirds of the CAF one-time funding was rejected. We assume that the states may be open to adding state funds to supplement inadequate federal funds and

⁵ See Statement of Chairman Julius Genachowski, November 18, 2011, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-161A1.pdf; "New wired and wireless broadband will be a lifeline for rural communities currently being bypassed by the Internet revolution. Young people who didn't see a future in their small hometowns will now be able to access a new world of opportunity. . . . Today's action has the potential to be one of the biggest job creators in rural America in decades. We estimate that the Order as a whole will unleash billions in private sector broadband infrastructure spending in rural America over the next decade,"

⁶ See *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing a Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform—Mobility Fund*; WC Docket Nos. 10-90, 07-135, 05-337, 03-109, CC Docket Nos. 01-92, 96-45, GN Docket No. 09-51, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC 17663 (2011) (USF/ICC Transformation Order); *pets. for review pending sub nom. In re: FCC 11-161*, No. 11-9900 (10th Cir. filed Dec. 8, 2011), ¶¶ 1-3.

combine with the carriers' qualifying dollars to assure terrestrial voice and broadband investment in rural areas. *If we understand this correctly, we cannot say strongly enough that the states have a very tight window to analyze the challenges.* State policymakers cannot wait until the FCC issues its CAF II Order to begin their analyses because 120 days will be too short. Further, the states will not want to wait until the carriers reject the funding, because the states are at risk of losing critical federal support.

- **“Support” is different from a “subsidy.”** Opponents of USF often use disparaging references to “subsidies” when arguing against the USF policy program. “Subsidies” are, in the strictest sense, assistance to a troubled business or to an economic sector to help the producers or the industry remain viable, including against other competitors, which are often foreign entities. However, USF is not fundamentally “assistance” to help a struggling carrier or sector, nor is it a protection for the carriers. In fact, wireline carriers can often have successful businesses if they are able to concentrate their operations on profitable services and customer clusters. If there is a “protection,” it is to assure that customers are served in regions where no provider—on its own—is able to offer an economic service. The “support” payments are part of a partnership—clearly established in federal legislation—between private carriers and policymakers who choose to “purchase” another “product-set” in high-cost regions, which is customer service that otherwise would not be provided in those regions. The distinction is important at the start of this White Paper, as USF is a policy commitment to customers not to companies. And companies will be compelled to drop high-cost services without that ongoing policy commitment.

Introduction

State support for universally available advanced telecommunications and broadband services has never been more important.

There are three primary reasons that state USF support is front and center today.

- **Broadband is a necessary service.** Broadband networks are increasingly vital for state citizens in terms of economic opportunity, education, health care, public safety, emergency management, and other social benefits.

Broadband networks are increasingly vital for state citizens in terms of economic opportunity, education, health care, public safety, emergency management, and other social benefits. . . . It is important that policymakers understand that these reforms appear to put at risk the voice as well as broadband investment in many regions, because a carrier that cannot accept broadband obligations at CAF funding levels will lose all universal service funding.

- **Federal support is declining.** Federal support—realized through federal USF in combination with all intercarrier payments—is declining at sharp rates and/or being re-defined as support for broadband in select high-cost areas, driven at least in part by FCC reforms ordered in 2011. It is urgently important that policymakers understand that these reforms appear to be putting at risk the voice as well as broadband investment in many regions, if a carrier cannot accept the new broadband obligations at CAF funding levels. The effect of rejecting CAF funding and obligations, presumably because the funding is insufficient, is the loss of *all universal service funding*. Thus, voice services and 911 services also may be lost if a carrier is unable to accept new uneconomic broadband build-out obligations, and no other carrier is willing to accept the obligations.⁷ State policymakers will be forced to confront the challenge of the funding shortfall in those

areas if the goal of universally available basic voice and 911 services and/or advanced communications infrastructure is to remain viable.⁸

⁷ The FCC has indicated its intention to sponsor auctions of support monies if the incumbent carrier is unwilling to build sufficient networks, but the auction process is unclear. Further, it is very possible that no carrier will be willing to accept policy obligations in certain regions and that, like the so-called D-Block auctions of wireless spectrum, no carriers will show up for the auction. If the investment case is insufficient, we expect that there will be no rational and capable bidders for many regions.

⁸ Transformation Order, ¶ 15: “We recognize that USF and ICC are both hybrid state-federal systems, and it is critical to our reforms’ success that states remain key partners even as these programs evolve and traditional roles shift. Over the years, we have engaged in ongoing dialogue with state commissions on a host of issues, including universal service. We recognize the statutory role that Congress created for state commissions with respect to eligible telecommunications carrier designations, and we do not disturb that framework. We know that states share our interest in extending voice and broadband service, both fixed and mobile, where it is lacking, to better meet the needs of their consumers. Therefore, we do not seek to modify the existing authority of states to establish and monitor carrier of last resort (COLR) obligations. We will continue to rely upon states to help us determine whether universal service support is being used for its intended purposes, including by monitoring compliance with the new public interest obligations described in this Order. We also recognize that federal and state regulators must reconsider how legacy regulatory obligations should evolve as service providers accelerate their transition from the Public Switched Telephone Network (PSTN) to an all IP world.”

- **Competition in other regions increases the need for greater support in high-cost regions.** The third reason is that, because of competitive pressures, it is no longer possible for companies to cross-support high-cost areas based on high rates in other more economic regions. The cross-support was once significant, but is no longer a policy goal or economic possibility in a competitive telecommunications market. For price-cap carriers, this former universal service approach with internal-company redistribution of funding has been unworkable since the implementation of the Telecommunications Act of 1996, and largely explains the gap in broadband deployment in high-cost rural areas served by price-cap carriers on the one hand and rate-of-return carriers on the other hand—the “rural/rural divide.”

The purpose of this White Paper is to provide state policymakers with the rationale behind supporting universal service. And a related purpose is to focus state legislators and commissioners on the fundamental

Telecom Act, §254(b)(3): “Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.”

problem so they can begin (or rededicate themselves) to address an emerging policy problem, which has the potential to affect voice and broadband services for many of the citizens of their states, according to an economic analysis performed in connection with the publication of a recent Department of Agriculture rule.⁹

Foundational to the discussion in this White Paper are certain tenets.

- First, *customer network-based services have always been the goal of universal service.* This point is important as this White Paper outlines issues related to funding received for the single goal of serving customers, not for the benefit of the companies. A related insight is that universal service is not support for individual customers, but for networks that serve those customers.¹⁰

⁹ US Department of Agriculture Executive Order 12866, effective February 6, 2013, available at <http://www.gpo.gov/fdsys/pkg/FR-2013-02-06/pdf/2013-02390.pdf>; “This rule [pertaining to the Rural Broadband Access Loan and Loan Guarantee Program (Broadband Loan Program)] has been determined to be economically significant and was reviewed by the Office of Management and Budget under Executive Order 12866. In accordance with Executive Order 12866, an Economic Impact Analysis was completed, outlining the costs and benefits of implementing this program in rural America. . . . Because rural systems must contend with lower household density than urban systems, the cost to deploy fiber-to-the-home (FTTH) and digital subscriber line (DSL) systems in urban communities is considerably lower on a per household basis, making urban systems more economical to construct. Other associated rural issues, such as environmental challenges or providing wireless service through mountainous areas, also can add to the cost of deployment. Notwithstanding these challenges and obstacles, a recent analysis by USDA’s Economic Research Service concluded that broadband investment in rural areas yields significant economic and socioeconomic gains . . .”

¹⁰ It is sometimes argued that, because of their wealth, certain customers in rural regions can afford to pay for their more costly services. The contention is that there should be a “means test” to evaluate whether, for example, an affluent rancher can pay more. However, universal service is not a funding directed to individual customers but to network infrastructure and operations that serve customers across a high-cost regions. A customer-focused support mechanism is unlikely to be predictable and sufficient for any carrier to deploy and operate in such high-cost regions. The conceptual theory does not involve estimation and supplement for individual customer services, but

- Second, industry experts point to a distinction related to the *concept of support rather than subsidies*, which is a corollary of the first tenet. “Subsidies” are, in the strictest sense, assistance to a troubled business or to an economic sector to help the producer. USF is not fundamentally an “assistance” to help a struggling carrier or sector. In fact, wireline carriers can often have successful businesses if they are able to concentrate their operations on profitable services and customer clusters. However, state and federal governments have chosen to “purchase” another “product-set” in high-cost regions, which is customer service that otherwise would not be provided in those regions.¹¹ As such, policymakers are “supporting” services in partnership with the carriers’ investments in uneconomic regions, and effectively purchasing/partnering to realize sufficient levels of network investment and the provision of services. The challenge is sizeable as small rural carriers account for about 5% of the U.S. telephone access lines but serve more than 40% of the land mass. In addition, other large carriers such as CenturyLink, Frontier and Windstream serve even larger geographic regions where the population density is low; and larger carriers serve as much as 80% of the households that today are without access to broadband according to FCC estimates.¹² In light of the legislative goal of ubiquitous services comparable to those in urban areas, policymakers have chosen for decades to “lower barriers to investment” so that customer networks and services can be supplied. The industry emphasizes that these are not classic “subsidy” payments to companies, but a policy decision about supporting or “purchasing” services in high-cost areas to realize customer benefits that include safety, economic stability, health care, emergency management, social goals and other reasons.

Rural carriers are quick to clarify terms because of the pejorative connotations associated with the term “subsidy.” As noted above, *USF support is not a subsidy to certain companies, but a partial payment for*

The pejorative connotations associated with the term “subsidy” strictly speaking suggest discretionary payouts for troubled industries or protectionism against foreign competitors. In contrast, USF “support” is not a subsidy to certain companies, but a payment for defined, regulated customer services to assure the realization of benefits that are nationally-mandated policy goals.

defined, regulated customer services to assure the realization of benefits that are nationally-mandated policy goals articulated in the Telecom Act, section 254(b)(3). If policymakers choose to eliminate the support, they are effectively directing carriers that are currently serving in high-cost regions to a different policy outcome and an alternative business model, which will be focused on customers and regions that can be served economically.

- Third, there is sometimes debate over *whether it is necessary to provide support to relatively larger carriers* that have the ability to “cross-support” services in uneconomic regions. The incorrect implication either is that large carriers do

not have the same costs in those high-cost regions, or that they should be compelled to absorb the uneconomic costs despite facing competition in their other service areas (and those competitors have no costly policy obligations).

the provision of a network in high-cost regions in such a way that rates and services are comparable to those in urban regions.

¹¹ Transformation Order, ¶ 5: “Today’s Order focuses on costly-to-serve communities where even with our actions to lower barriers to investment nationwide, private sector economics still do not add up, and therefore the immediate prospect for stand-alone private sector action is limited.”

¹² See, e.g., Commissioner Jessica Rosenworcel, Rural Telecom Industry Meeting & Expo, Orlando, Florida, February 4, 2013, available at <http://www.fcc.gov/document/commissioner-rosenworcels-remarks-rural-telecom-meeting-expo>.

AT&T quantified that 25% of its wireline network cannot be served without support revenues, and is alluding to wireless LTE “as it becomes available.” The point is that even the largest carriers cannot justify absorbing uneconomic investments in high-cost regions.

Refuting the theory that large carriers can and will absorb high costs in rural regions, AT&T provides a telling case study as the largest landline network-provider in the United States. In early 2012, AT&T reported that it had been unable to find an economic solution for deploying broadband in “underperforming” rural regions, even with wireless technologies.¹³ Since that time, the company announced in early November 2012 that it would focus on extending its wireless Long-term Evolution, which is a 4G service (LTE).¹⁴

However, “in the 25 percent of AT&T’s wireline customer locations where it’s currently not economically feasible to build a competitive IP wireline network . . . [AT&T] will utilize its expanding 4G LTE wireless network—as it becomes available.”¹⁵ In these candid announcements, AT&T quantified that 25% of its wireline network cannot be served without support revenues, and, without obliging itself to any service standards, is making general reference to wireless LTE “as it becomes available.” The point is that even the largest carriers cannot justify absorbing uneconomic investments in high-cost regions.

The financial commentary is straightforward. Policy support is directly related to customer networks and services, and the withdrawal of sufficient support by policymakers will determine the viability or failure of critical services in rural regions.

In a related development, AT&T and Verizon in particular, and other ILECs to a lesser degree, have been increasingly successful in a campaign to gain regulatory relief from their former carrier-of-last-resort (COLR) obligations.¹⁶ To date, COLR requirements have been reduced or potentially eliminated in 16 states, giving ILECs varying degrees of freedom to make the economic decision about whether to serve customers in the absence of universal service support.¹⁷ The message is that costs remain high in certain rural regions, and that carriers without

¹³ AT&T fourth quarter 2011 earnings report to analysts, January 26, 2012, transcript available at <http://seekingalpha.com/article/322378-at-t-s-ceo-discusses-q4-2011-results-earnings-call-transcript?part=qanda>; responding to a question from Morgan Stanley analyst, Simon Flannery, AT&T CEO Randall Stephenson commented that “So the other [underperforming asset] being rural access lines, we have been apprehensive on moving, doing anything on rural access lines because the issue here is, do you have a broadband product for rural America? And we’ve all been trying to find a broadband solution that was economically viable to get out to rural America and we’re not finding one to be quite candid. The best opportunity we have is LTE and we were obviously rather excited about the opportunity to use LTE to get it to rural America with the T-Mobile transaction. That having been set aside, now we’re looking at rural America and asking, what’s the broadband solution? We don’t have one right now.” Subsequently, AT&T disclosed that it was not going to divest rural lines, but the explanation appears to be that the company cannot find a satisfactory transactional exit.

¹⁴ AT&T to Invest \$14 Billion to Significantly Expand Wireless and Wireline Broadband Networks, Support Future IP Data Growth and New Services, November 7, 2012, available at <http://www.att.com/gen/press-room?pid=23506&cdvn=news&newsarticleid=35661&mapcode=corporate|consumer>; the company expects that over the next three years, approximately \$8 billion will be spent on its wireless network and \$6 billion on the wireline network.

¹⁵ *Id.*

¹⁶ See, e.g., Henry Lancaster, “How Far Will U.S. Regulators Bend to AT&T and Verizon?” November 14, 2012, CircleID, available at http://www.circleid.com/posts/20121114_how_far_will_us_regulators_bend_to_att_verizon/.

¹⁷ The states are Alabama, Florida, Georgia, Illinois, Indiana, Kansas, Maine, Michigan, Missouri, Mississippi, Nebraska, North Carolina, Ohio, Texas, Virginia, and Wisconsin. There is pending COLR-relief legislation in Arkansas, Connecticut, Kansas, and Kentucky.

appropriate support should not be compelled to meet legacy policy-based COLR obligations.

The predictable result, without sufficient support, is that carriers will sooner or later avoid investment and services in uneconomic regions and eventually withdraw from serving those customers. The financial commentary is straightforward. Policy support is directly related to customer networks and services, and the withdrawal of sufficient support by policymakers will determine the viability or failure of critical services in rural regions.

The main sections of this report are organized around key themes and data.

- The USF policy framework
- The financial problem that is emerging for the states
- The issues that must be addressed by states

I: The USF policy framework

Policymakers should understand the affirmative goals associated with USF policy, and how the FCC's Transformation Order has shifted the financial risks. Three key policy watershed events for USF are summarized briefly below:

- The Telecommunications Act of 1996;
- The universal service and intercarrier compensation reforms of 2000 and 2001; and
- The recent universal service and intercarrier compensation reforms ordered by the FCC in October 2011.

The Telecommunications Act of 1996

The Telecom Act provides the first explicit legislation of a national universal service policy, although the concept had roots in the practice and regulations over the previous century.¹⁸ The landmark Telecom Act legislation remains foundational in directing the specific practices and regulations spelled out in the orders of the FCC and the states since 1996.

Section 254 of the Telecom Act provides a concise and clear statement of the seven fundamental universal service "principles," of which the first three and the fifth specifically focused on funding network investment in high-cost regions.¹⁹ The statute mandates support for network investments that assure . . .

- Availability of reasonably comparable telecommunications services in urban and rural areas;
- Reasonably comparable rates for similar services in urban and rural areas;
- Access to advanced services for consumers in all regions of the country;
- Universal service support funding that is specific, predictable and sufficient; and
- Support mechanisms relying on federal and state collaboration.

The Telecom Act provided the legislative mandates to assure more competitive local markets, while also explicitly spelling out in section 254(b)(3) the "covenant" to support customers in high-cost areas. Prior to the Telecom Act, Universal Service goals were achieved through the monopoly carrier's ability to implicitly "cross-fund" certain regions, often described as business customers supporting residential customers, urban customers supporting rural customers and long distance services supporting local services (through switched

¹⁸ See, for example, the Communications Act of 1934, which sets the goal to make "available . . . to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges." 47 U.S.C. §151.

¹⁹ Telecom Act. Section 254(b): "Quality services should be available at just, reasonable, and affordable rates Access to advanced telecommunications and information services should be provided in all regions of the Nation Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas" The fifth principle required that universal service should be "preserved and advanced" through "specific, predictable and sufficient Federal and State mechanisms." The remaining three principles addressed how funding was to be collected, access to advanced services for schools and libraries, and the potential for adding new principles."

access payments among carriers). Since passage of the Telecom Act, such “cross-funding” is no longer possible as competitors have captured significant market share among business and residential customers in areas where no support is required. It is important to restate the insight that growth in competition creates pressures on the former implicit support structure because cross-funding is no longer possible, necessitating policy responses—a new formulation of the covenant—in the Universal Service model.

The systemic changes in the wake of the Telecom Act included reductions to intercarrier payments such as access charges paid to local telephone companies. To ensure cost-based competition and to assure sufficient funding to offset the “lost” support payments associated with serving high-cost areas, the FCC mandated increases in customer rates and the creation of new, explicit federal USF programs. The implementation of section 254 had varying success, however, as FCC implementation approaches relied on ongoing cross-funding, cost averaging, and implicit support through increasingly unstable intercarrier compensation. These issues were particularly acute in areas served by price-cap carriers, as evidenced, for example, by persistent, successful legal challenges by Qwest Communications.²⁰

Universal Service and Intercarrier Compensation Reforms of 2000 and 2001

After the Telecom Act, the FCC and many states relied on Section 254’s seven principles to order new systems implementing the federal universal service imperative, including reforms of support embedded in intercarrier compensation—payments among various carriers (wireless, long-distance and local telephone companies). It is noteworthy that these USF and intercarrier compensation reforms were adopted in unified orders, as the reforms required a holistic perspective of explicit and implicit support mechanisms.

This insight related to ICC as a support mechanism is important. Intercarrier payments, including those called “access charges,” may be significantly—and possibly primarily—“support” mechanisms to assure universally

intercarrier payments, including those called “access charges,” may be significantly—and possibly primarily—“support” mechanisms to assure universally available communications services, including in high-cost regions.

available communications services, including in high-cost regions. While there is some element of cost-based payment for services between the carriers, there is also important implicit “universal service” support funding in the intercarrier rates that ultimately benefits customers who rely on network investment.²¹ A key insight is that the “common costs”—not simply the variable costs—were effectively shared by the incumbent carrier and the other carriers using the network. Accordingly, the post-Telecom Act reform of intercarrier compensation was, at least in

part, a restructuring of implicit support into explicit universal service support. We will explain later that the recent reforms *eliminate* a large percentage of ICC, which is a major change in “support” revenues for carriers that have been committed to serving high-cost regions.

²⁰ Qwest Communication s Int’l Inc. v. FCC, 398 F.3d, 1222 (10th Cir. 2005); Qwest Corp. v. FCC, 258 F.3d 1191 (10th Cir. 2001).

²¹ It can be argued that the vast majority of intercarrier compensation is a support mechanism. Stated differently, if a local carrier loses all of its intercarrier revenues, its variable costs will apparently decline very little because there is minimal “intercarrier-specific cost” that is eliminated. When one evaluates the financial realities, a local telecommunications carrier invests in network that must generate an appropriate profit from monthly customer rates, intercarrier transport and some combination of “support” derived from USF and intercarrier policy-based rates. Those costs do not disappear for the most part when intercarrier revenues disappear. Importantly, the principle of access charges was to share “common costs” which are different from “marginal costs”; the financial effect in eliminating access charges is to leave the common costs with the incumbent wireline carrier.

Responding to market and political pressures, the FCC reduced intercarrier compensation rates, while reforming universal service in combined FCC orders, first for larger price-cap carriers in May 2000 (CALLS Order), and, then, for smaller rate-of-return carriers in October 2001 (MAG Order).²² Importantly, the FCC created new universal service fund mechanisms in the CALLS and MAG Orders to offset a portion of the support payments lost due to intercarrier rate reductions that could not be recovered from end-user rate increases at levels that were deemed reasonable.

FCC Reforms in October 2011

In October 2011, to build upon or replace the CALLS and MAG Orders, the FCC established in its *Connect America Fund, A National Broadband Plan for Our Future* (Transformation Order) a new reform of universal service and intercarrier compensation payments “to modernize” the systems and address long-standing concerns by recipients and payers alike that the system was “broken and unsustainable.” The FCC expanded the definition of universal service and stated the affirmative goal to . . .

“. . . ensure that robust, affordable voice and broadband service, both fixed and mobile, are *available to Americans throughout the nation*. . . . Networks that provide only *voice service, however, are no longer adequate for the country’s communication needs. Fixed and mobile broadband have become crucial to our nation’s economic growth, global competitiveness, and civic life.* Businesses need

Community anchor institutions, including schools and libraries, cannot achieve their critical purposes without access to robust broadband. Broadband-enabled jobs are critical to our nation’s economic recovery and long-term economic health, particularly in small towns, rural and insular areas, and Tribal lands.

broadband to attract customers and employees, job-seekers need broadband to find jobs and training, and children need broadband to get a world-class education. Broadband also helps lower the costs and improve the quality of health care, and enables people with disabilities and Americans of all income levels to participate more fully in society. Community anchor institutions, including schools and libraries, cannot achieve their critical purposes without access to robust broadband. Broadband-enabled jobs are critical to our nation’s economic recovery and long-term economic health, *particularly in small towns, rural and insular areas, and Tribal lands.*”²³ (Emphasis added.)

The key principles, as stated at the beginning of the Transformation Order, are to . . .

²² See *In re Access Charge Reform*, Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in [CC Docket No. 96-45, 15 FCCR 12962](#) (CALLS Order) and *Multi-Association Group (MAG) Plan for Regulation of Interstate Service of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, CC Docket No. 00-256, Second Report and Order, [Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Fifteenth Report and Order, Access Charge Reform for Incumbent Local Exchange Carriers Subject to Rate-of-Return Regulation, CC Docket No. 98-77, Report and Order, Prescribing the Authorized Rate of Return for Interstate Service of Local Exchange Carriers, CC Docket No. 98-166, Report and Order, 16 FCCR 19613 \(2001\)](#) (MAG Order).

²³ See *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing a Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform—Mobility Fund*; WC Docket Nos. 10-90, 07-135, 05-337, 03-109, CC Docket Nos. 01-92, 96-45, GN Docket No. 09-51, WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC 17663 (2011) (*USF/ICC Transformation Order and FNPRM*); *pets. for review pending sub nom. In re: FCC 11-161, No. 11-9900* (10th Cir. filed Dec. 8, 2011). (Transformation Order), ¶¶ 1-3.

- Preserve and advance universal availability of voice service;
- Ensure universal availability of modern networks capable of providing voice and broadband service to homes, businesses, and community anchor institutions;
- Ensure universal availability of modern networks capable of providing advanced mobile voice and broadband service;
- Ensure that rates for broadband services and rates for voice services are reasonably comparable in all regions of the nation; and
- Minimize the universal service contribution burden on consumers and businesses.²⁴

Several points might be made about the Transformation Order. First, there are valuable elements in the FCC’s reforms, particularly related to service in economic-to-serve regions and in some uneconomic areas served by carriers. Reform of the former intercarrier compensation system was important because the previous regime was complex and often resulted in costly distortions.²⁵ With respect to USF, there were obvious problems, including the need to revise support for wireless and other competitive carriers and to address certain underfunded service areas. And, the new reforms shifted the emphasis from investments in voice-centric, circuit-switched networks to investments in broadband that were appropriate for an increasingly IP world.

Second, the problems arising from the Transformation Order appear most significant in some of the more vulnerable, high-cost areas where support funding is most critical. State reform will apparently become more important, including for areas that will not receive sufficient federal support. As explained in more detail below, it appears that the Transformation Order ultimately will reduce support for certain high-cost rural areas,

“Reformed” support will be available only to carriers, if any, that are willing to accept certain new obligations, while there is no explicit commitment in the text or in the ordering clauses to provide mechanisms that ensure specific, predictable, and sufficient support for enabling the provision of comparable services in rural regions.

as well as impose new and costly obligations in some others. This modification of overall support funding and obligations will have a predictable effect as investment in some—or arguably many—rural areas is likely to be curtailed. In fact, reductions in investment are apparently already occurring, as will be explained below.

Third, the Transformation Order appears to have abandoned—or at least altered—a portion of the Telecom Act’s statutory language in some areas. While the Telecom Act defined a goal of “comparable services for comparable rates,” the Transformation Order focuses on comparable rates while effectively reducing (or, at a minimum, dramatically redefining) the commitment to the concept of “comparable services.” The Transformation Order first conspicuously omits “comparable services” when it specifies at the outset the goal of “comparable rates.”²⁶ Then “reformed” support will be available only to carriers, if any, that are willing to accept certain new obligations, while there is no explicit commitment in the text or in the ordering clauses to provide mechanisms that ensure specific, predictable, and sufficient support for enabling the provision of comparable services in rural regions.

Carriers such as AT&T, CenturyLink, Frontier, Verizon, and Windstream have long argued they did not receive specific, predictable and sufficient funding to ensure comparable services in high-cost service regions,

²⁴ Transformation Order, ¶ 17.

²⁵ Examples include mislabeled traffic (phantom traffic) and traffic pumping in which long-distance calling volumes were increased through various manipulative schemes.

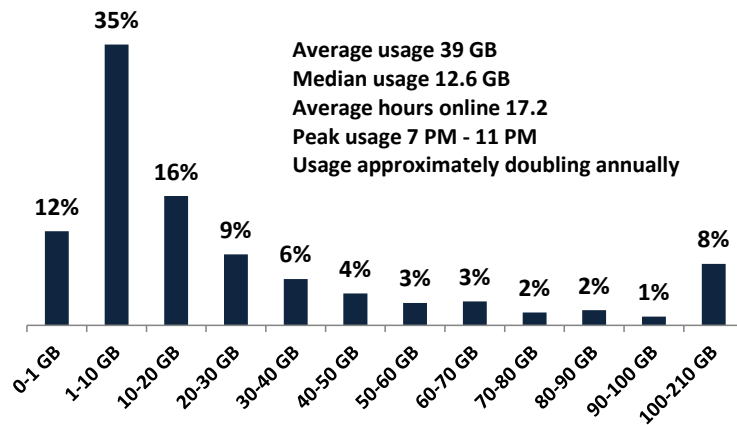
²⁶ Transformation Order, ¶ 17.

a point that appears to be borne out by service levels in the high-cost areas they serve. The change in the Transformation Order is that some high-cost areas served by those and other price-cap carriers will no longer receive support for terrestrial voice or broadband, while smaller carriers may also be compelled to evaluate where they can or cannot invest in comparable voice and broadband services in light of new obligations and funding restrictions. Effectively, the goal of comparable services appears to be diminished or abandoned in many areas by the Transformation Order.

And, notably, the Transformation Order defines “reasonably comparable” broadband services as those based on 4-6 Mbps download speeds and 1 Mbps upload speeds, in spite of the fact that most urban areas have cable operators and telecommunications companies that are supplying services at speeds that are faster by factors that generally range from 4 times to 20 times.²⁷ The Order stands in contrast to the FCC’s 2013 study which reported that the average subscribed speed for broadband in the United States is already 15.6 Mbps, which represents an annualized speed increase of 20%.²⁸ The effect of the Transformation Order’s definition is to *limit* the level of support funding, and “adjust” the statutory language to defined services that are no longer comparable with those in many or most urban areas.

A fourth important point is that the federal reforms apparently are focused on the cost efficiencies that *assume* increased reliance on, or substitution for, wireless broadband services. This appears to be the rationale for setting the 4/1 Mbps standard.²⁹

Figure 1: Rural broadband residential usage/mo. by subscriber



Source: Balhoff & Williams, LLC; confidential data of a rural carrier, June 2012

However, the assumption about the adequacy or the substitutability of wireless broadband should be tested. Currently, wireless coverage in rural regions is spotty and inconsistent. But even if one assumes that voice and data coverage can be achieved consistent with the redefinition of universal service in the Transformation Order reforms, there is another important problem.

²⁷ See Transformation Order, ¶¶ 76-108; the Order provides for an eventual “benchmark of 6 Mbps downstream and 1.5 Mbps upstream for broadband deployments in later years of CAF Phase II.” The FCC does state at Transformation Order ¶ 24 that it anticipates “that CAF obligations will keep pace as services in urban areas evolve, and we will ensure that CAF-funded services remain reasonably comparable to urban broadband services over time,” but the Order strictly limits funding to \$1.8 billion for price-cap carriers (¶ 158) and \$2 billion for rate-of-return carriers (¶ 195).

²⁸ 2013 Measuring Broadband America, A Report on Consumer Wireline Broadband Performance in the U.S., February 2013, available at <http://transition.fcc.gov/cgb/measuringbroadbandreport/2013/Measuring-Broadband-America-feb-2013.pdf>. The National Telecommunications and Information Administration reports that, based on data from June 2011, a significant gap exists in download speeds between rural and urban areas; see, NTIA, *Broadband Availability Beyond the Rural/Urban Divide*, May 2013, available at <http://www.ntia.doc.gov/report/2013/broadband-availability-beyond-ruralurban-divide>.

²⁹ Transformation Order, ¶ 98.

Wireless broadband services are *expensive*. This is particularly the case when broadband is consumed in volumes that are comparable with those used for wireline broadband, which are available at monthly rates between \$35 and \$60. Illustrating the problem, AT&T's wireless data plan is available for approximately \$120 month for 10 GB of data, with a price of \$15 monthly for each incremental GB of usage.³⁰ Verizon Wireless' rates for 10 GB start at \$100 and then increase at a rate of \$15 monthly for each incremental GB.³¹ However, Figure 1 illustrates a rural carrier whose actual June 2012 wired data usage *averaged* 39 GB monthly with a *median* subscriber usage of about 13 GB. These figures are consistent with those described in the Transformation Order.³² Further, total consumption of broadband is growing each year, reportedly 30%-100%.

If a customer subscribed at the AT&T or Verizon *wireless* data rates, the *monthly* charge for the *median* user in the example above would be approximately \$165 or \$120 using “shared” programs of the two carriers, respectively.³³ For the *average* user, based on 39 GB per month, the wireless data *monthly* rates for a consumer using Verizon would be approximately \$300 and for AT&T \$400.³⁴ Without even considering the quality of service, the wireless broadband rates are so high that few subscribers could pay the rates in urban or rural areas, and those price levels fail the standard of “rate comparability” required by the Telecom Act in section 254 (when compared to the rates for wired broadband services that allow for much higher usage limits). And, if the growth rates for data usage are as reported, the pricing disparity is expected to grow over the next years.

In summary, the Telecom Act's legislative language appears clear that universal service—comparable services for comparable rates—should be available for all regions in the United States. The Transformation Order enlarges that definition to include broadband services, but the federal support funding that is ordered appears to be far more restrictive as found in the limited definition of broadband (4/1 Mbps) in rural regions, new constraints on the amount of available support funding, and elimination of the intercarrier compensation payments that have historically been an integral universal service support component. To emphasize that last point, a concern remains that intercarrier revenues (at least

³⁰ See AT&T data plan, available at <http://www.att.com/shop/wireless/plans-new.html#fbid=vA-SKIw6SQy>; the plan calls for incremental charges depending on the number of devices that use the data service.

³¹ See Verizon Wireless data plan, available at <http://www.verizonwireless.com/wcms/consumer/shop/share-everything.html>; it is possible to subscribe to higher data plans at slightly lower rates so, for example, 20 GB are available for \$150 per month and 30 GB for \$225.

³² The FCC noted in its Transformation Order, ¶ 99, that 2009 wired broadband usage was 10 GB per month, and that “annual per user growth was between 30 and 35 percent. We note that AT&T's DSL usage limit is 150 GB and its U-Verse offering has a 250 GB limit. Since 2008, Comcast has had a 250 GB monthly data usage threshold on residential accounts.”

³³ Verizon Wireless also has plans set at 12 GB for \$110/month, 14 GB for \$120/month, 16 GB for \$130 month as well as higher volume plans; when a customer exceeds the plan, the charges are \$15 for each incremental GB.

³⁴ The analysis assumes the purchase of 40 GB monthly; see AT&T wireless data rates, available at <http://www.att.com/shop/wireless/plans/mobilesharedata.html> and Verizon Wireless data rates, available at <http://www.verizonwireless.com/wcms/consumer/shop/share-everything.html>.

terminating ICC) have been eliminated by the end of this decade with no replacement mechanism, except the potential to raise customer rates, possibly sharply.

Understanding the financial change

The Transformation Order freezes the overall budget for the new high-cost fund at \$4.5 billion, which is consistent with levels in effect at the time of the Order.³⁵ Setting aside smaller fund assignments, the FCC designated primary potential support of customer networks under three general categories: (i) funds directed through price-cap carriers (up to \$1.8 billion); (ii) funds directed through rate-of-return carriers (approximately \$2 billion); and funds directed through wireless carriers (\$500 million).

In Table 1, we summarize the FCC’s plan for support funds, as outlined in the Transformation Order. We will explain that aggregate funding is almost certainly insufficient for the wireline networks that provide new and more costly broadband services in all high-cost areas.

Price-cap carriers

The Transformation Order assigns up to \$1.8 billion annually to customer networks through price-cap carriers that agree to specific new customer service obligations in high-cost areas. The positive news is that the total allocated annual funds represent a potential increase of about \$700 million from \$1.08 billion provided through the pre-Transformation Order funding.

However, the previous USF did not allocate sufficient funding to so-called non-rural carriers, as the FCC implicitly affirmed when it highlighted that 83% of 18 million homes without access to residential fixed broadband at or above the FCC’s broadband speed benchmark were in areas served by price-cap carriers.³⁶ Notably, the historical failure to deploy network occurred in the service areas of very large carriers that did not have sufficient universal service funding or adequate implicit funding through ICC. The point was that large

Table 1: Summary of New Support Structures

	Price cap	Rate of return	Wireless
Pre-reform fund size	\$1.076 billion	\$2 billion	\$1.22 billion
Post-reform fund size	Up to \$1.8 billion	\$2 billion	\$0.5 billion
Reform fund name	CAF I and CAF II (Jan 2013)	CAF (HCLS/ICLS)	Mobility Fund
Funding plan	Initial CAF I (transition from past USF to CAF fund) one-time support of up to \$300 million plus frozen fund as of 2011 (obligated 4/1 Mbps buildout completed within three years); CAF II is five-year funding plan, based on forward-looking model (if incumbent) or competitive bidding if model results are rejected by ILEC; CAF II used exclusively for scalable broadband buildouts in areas substantially unserved by an unsubsidized competitor after 2014; after year 5, competitive bidding	Limitations on corporate operations expenses, capping per line funding at \$250/line/month (affecting 18 carriers), and adoption of a Quantile Regression Analysis to limit funding for capital and operating high-cost loop support (HCLS); a QRA is expected to be used for calculating Interstate Common Line Support (ICLS); elimination of local switching support as a separate mechanism; full phase-in by 2014; reductions in funding if CAF recipient's user rates are below benchmark levels	Mobility Fund Phase I provides one-time support through a reverse auction, with a total budget of \$300 million, plus an additional \$50 million for one-time support for Tribal lands. Phase II auction in 3Q13 with an annual budget of \$500 million for 2014 and afterwards; five-year gradual elimination of identical support rule
Targets	4 Mbps/1 Mbps CAF II service with 85% coverage of specified state study-area census blocks by year 3 and 100% by year 5; in select areas, required to have 6 Mbps /1.5 Mbps	To provide flexibility, upon the customers' request, carriers must provide 4/1 Mbps service capable of VoIP services; with no other buildout or speed requirements except that the network should be scalable	Unserved areas identified by census block and assigned to carriers through reverse auctions; threshold levels for speeds and buildouts depending on 3G or 4G standards, but requirements for buildout, latency, reporting apply

Source: Balhoff & Williams, LLC; Transformation Order.

³⁵ Transformation Order, ¶ 15.

³⁶ Transformation Order, ¶ 21.

carriers could not and did not make up the funding deficit in the past, and this was the pattern even before the new charge to deploy IP broadband-capable networks. The FCC, therefore, provides the evidence of the low/no investment scenario that transpires when insufficient funding is available to carriers, whatever their size.

Large carriers could not and did not make up the funding deficit in the past, and this was the pattern even before the new charge to deploy IP broadband-capable networks. The FCC, therefore, provides the evidence of what transpires when insufficient funding is available to carriers, whatever their size.

The first phase of CAF Incremental Support—part of the transition to CAF II—illustrates what is likely to occur if CAF II funding is insufficient. In the first phase, the FCC proposed one-time \$775 per-line funding for networks built by price-cap carriers in designated high-cost areas, but sharply limited where the support could be used. After evaluating the obligations and funds allocated, the price-cap carriers accepted only \$115 million, and rejected almost two-thirds of the CAF I monies because the CAF support was judged to be unrealistic and uneconomic for the eligible areas.³⁷ Seeking to reverse the shortcomings of the first round, the FCC released a new Order on

May 22, 2013, to provide a second round of CAF I Incremental Support to augment one-time funding; it is still too early to know whether and how much the carriers will draw down these one-time funds.³⁸

In preparation for the second phase affecting customers served by price-cap carriers, the FCC released in December 2012 an initial version of a forward-looking model for CAF II. The model is a key element of the Transformation Order’s mandate to “use a combination of a forward-looking broadband cost model and competitive bidding to efficiently support deployment of networks providing both voice and broadband service for five years.”³⁹ The model will identify high-cost areas that require ongoing support and a proposed level of support for a five-year period. The FCC signaled that it would impose “rigorous broadband service requirements” with “financial consequences in the event of non- or under-performance.”⁴⁰ If the carrier does

³⁷ Transformation Order, ¶ 22: “Any carrier electing to receive the additional support will be required to deploy broadband and offer service that satisfies our new public interest obligations to an unserved location for every \$775 in incremental support. Specifically, carriers that elect to receive this additional support must provide broadband with actual speeds of at least 4 Mbps downstream and 1 Mbps upstream, with latency suitable for real-time applications and services such as VoIP, and with monthly usage capacity reasonably comparable to that of residential terrestrial fixed broadband offerings in urban areas.” See Fierce Telecom, FCC Seeks Help to Revamp the Connect America Fund, January 3, 2013, available at <http://www.fiercetelecom.com/story/fcc-seeks-help-revamp-connect-america-fund/2013-01-03>. Only \$115 million of the \$300 million was accepted by the July 24, 2012 deadline, which means that approximately 148,000 new premises will be served compared with the 15.6 million Americans reported unserved by the FCC in regions served by large price-cap carriers. See Transformation Order, ¶ 28; the FCC reported 18.8 million Americans unserved, more than 83% of which were in regions served by large price-cap carriers (83% x 18.8 million = 15.6 million). Frontier, which might be considered a special case, accepted \$72 million, which was almost two-thirds of all of the accepted one-time support (the company is upgrading recently-acquired Verizon telephone lines in 14 states); CenturyLink accepted \$32 million of the \$90 million offered; Windstream accepted \$653,000 of the \$60.4 million offered; FairPoint accepted \$2 million of the \$4.8 million offered. AT&T rejected all of the \$47.8 million it was offered, while Verizon declined the proposed \$19.7 million.

³⁸ FCC, *In the Matter of Connect America Fund*, WC Docket No. 10-90, Released May 22, 2013, available at <http://www.fcc.gov/document/commission-adopts-connect-america-phase-i-second-round-funding>.

³⁹ Transformation Order, ¶ 23; see WC Docket Nos. 10-90, 05-337, released December 11, 2012, available at <http://www.fcc.gov/document/availability-version-one-connect-america-fund-phase-ii-cost-model>.

⁴⁰ Transformation Order, ¶ 24.

not accept the obligation, the FCC proposes to engage in competitive bidding for the network services in the eligible areas.

At this time, it is not possible to assess the full impact of the CAF II model and the new obligations because the model is still being developed. The FCC released potential support amounts and the number of supported locations, by carrier, by state, but the data are illustrative at this time.⁴¹ At the present, access to any version of the model requires parties to execute an acknowledgement of confidentiality, licensing, and nondisclosure documents released as attachments to the Third Supplemental Protective Order.

As noted earlier, we believe that it is aggressive to assume that the price-cap carriers will accept the obligations associated with CAF II funding in many regions. Our view is that the full \$1.8 billion in funding will not be drawn down, and the

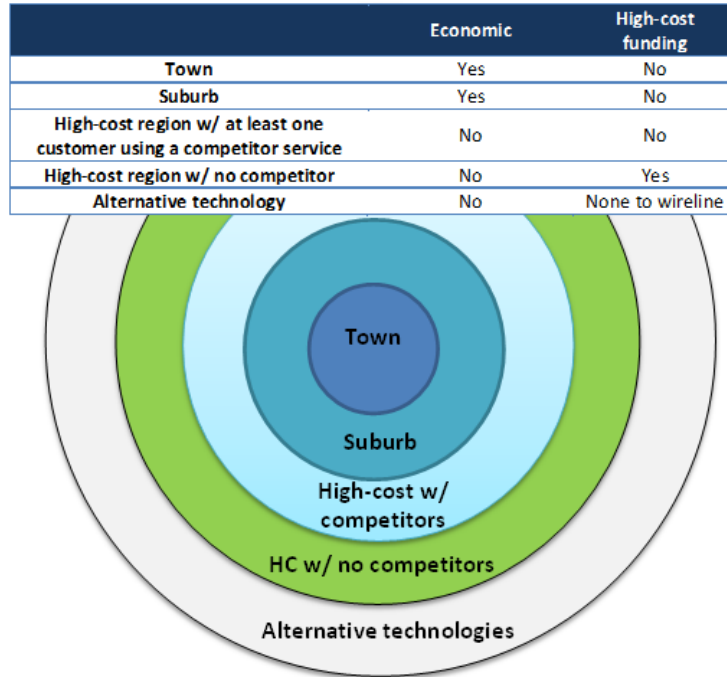
effect will be the loss of *all* universal service funding for both terrestrial voice and broadband in many regions, unless some other carrier is willing to accept the costly obligations.

Figure 2 provides an illustration of our expectation based on discussions with companies in the sector. Assuming the town center is the first circle, there are a total of five circles in the illustration. The concentric circles depict towns or clusters of population, surrounded by suburbs, then high-cost regions with at least one customer using the service of a wireline competitor, then more remote high-cost regions, and finally very high-cost regions where alternative technologies such as satellite service are likely to be the required solution. The table at the top of the figure summarizes profiles for the service regions.

We estimate that the annual \$1.8 billion in funding will not cover the total costs of approximately \$5.8 billion to serve the three “outside” rings of the figure.

The most significant insight is that the former federal/state

Figure 2: CAF II for customers of price-cap companies



Source: Balhoff & Williams, LLC.

⁴¹ Federal Communications Commission, Wireline Competition Bureau Releases Illustrative Results From Connect America Cost Model Version 3.1.2, And Methodology Documentation, June 4, 2013; available at <http://www.fcc.gov/document/release-cam-v312-illustrative-results-and-model-methodology>. Surprisingly, the illustrative support appears to be premised on estimated costs divided by total premises *passed* which would understate the costs associated with providing service in high-cost regions because not all customers will elect to use broadband services within the next five years.

allocation of high-cost funding, which shared responsibility for all high-cost areas, is being modified as part of the transition to investment support of broadband. Instead of the historical shared responsibility for all high-cost areas, the FCC appears to be designing an arrangement whereby federal support will be dedicated to the funding gap for certain high-cost areas and not to other high-cost regions. This arrangement would leave the states to address the remaining unfunded mandate for high-cost areas. The figure depicts our assessment that only the green region (circle 4)—high-cost regions with no competitor presence at all—will be federally funded for terrestrial services. We cannot say how adequate the federal funds will be.

We estimate that the annual \$1.8 billion in total federal funding, even if fully drawn down, will not cover the total costs of approximately \$5.8 billion to serve the three “outside” rings of the figure (we estimate costs for each of these three rings will be about \$2 billion annually).

It appears that the FCC is leaving the carriers and the states to fund—or reject to serve—the residual \$4 billion associated with the other two rings. Additional uncertainty surrounding CAF II is concentrated on whether and where carriers will accept funding and then commit capital.

It seems possible that the uneconomic, completely non-competitive ring (the green ring, second from the outside) will be served, but it is also possible that a large proportion of the annual \$1.8 billion will not be drawn down, as occurred when two-thirds of the funding in CAF I was rejected in 2012.⁴²

A related important point should be made. It is also possible that, if the incumbent carriers reject the funding levels, there will not be sufficient bidders at auction to meet the new broadband obligations.⁴³ This view is based on our conversations with investors who fear that the FCC does not understand the challenges associated with serving high-cost areas. The concerns arise from several data points.

- As explained previously, for CAF I, the carriers judged, at least in 2012, the majority of the FCC’s initial funding to be short of the obligations imposed by the Commission. The result was that the carriers’ preliminary “commitments” were to invest based on a mere \$115 million of the \$300 million offered. It is our understanding that the carriers may choose to decline some of the \$115 million as

It is also possible that, if the incumbent carriers reject the funding levels, there will not be sufficient bidders at auction to meet the new broadband obligations, based on our conversations with investors who believe that the FCC does not understand the challenges associated with serving high-cost areas.

they further assess the obligations, although there are indications that the FCC may not allow reassessments.

- The FCC originally expected to begin funding CAF II by December 2012 with higher allocations in 2013. At this point, the FCC has not announced a definitive model nor does it have an announced set of obligations and eligible locations, although it appears that these are in process.

- The CAF II funding is for only five years, after which the FCC can reassign the obligation to an alternative carrier through an auction. However, funding for networks generally requires

⁴² Again, the FCC released a new Order related to CAF I one-time funding on May 22, 2013. The Order provides some greater latitude to the carriers, but the effects, at best, are a short-term stimulus to building out unserved or underserved regions.

⁴³ In 2008, the FCC sponsored a failed auction of the so-called D-block public safety spectrum when investors apparently viewed the opportunity as unattractive; see Cecilia Kang, *FCC's Safety Spectrum May Not Get Buyer*, Washington Post Business, February 9, 2008, available at <http://www.washingtonpost.com/wp-dyn/content/article/2008/02/08/AR2008020803594.html>.

recovery over a longer horizon, as costs have typically been recovered over a period closer to 20 years. This disparity between funding and recovery mechanisms could cause the carriers to be more reluctant to accept the new obligations.

- Because the investment obligations could rise from 4 Mbps/1Mbps, according to the FCC, to 6 Mbps/1.5 Mbps, a rational carrier will assess a single network buildout so it will not have to return and upgrade the broadband plant. The analysis in the near term is likely to include assessing costs that assume the faster speeds, with the likelihood that the near-term CAF will not meet that higher cost threshold.

It is simply not possible at the present to know how much of the annual \$1.8 billion will be accepted and then invested by the carriers. At the same time, there are concentric circles adjacent to the green circle where no terrestrial support for voice or broadband is likely to be provided, which creates a major funding gap for states to address. That is, federal universal service funding may be unavailable in very high-cost regions which may be left to be served by non-terrestrial technologies, such as satellite, and there may be other high-cost regions where a terrestrial “competitor” serves some minimal number of households or businesses out of an entire census block. Effectively, customers in these regions will be disadvantaged because previous funding would then be disallowed. Thus, there is a greater likelihood that both voice and broadband networks will be uneconomical to deploy and operate in extensive high-cost areas served by price-cap carriers. It will fall to states to fill the funding gap in these areas, or, if the states fail to fund support in those regions, customers will experience reduced service-levels and may ultimately lose access to voice and broadband altogether.

Rate-of-return carriers

About 726 rate-of-return carriers provide incumbent telecommunications service to about five percent of the United States and to more than 40% of the U.S. land mass.⁴⁴ The Transformation Order effectively caps the high-cost support provided through those carriers to customer networks in rural areas, setting the figure at about \$2 billion, which was the level of support available in 2011. The service obligation rules are somewhat less stringent than for larger carriers, but the reform freezes the fund size in spite of new challenges in deploying broadband services.⁴⁵

Additionally, the FCC has also decided to use a Quantile Regression Analysis (QRA), which, since 2012, is calculated annually to “estimate” appropriate funding levels for the rate-of-return carriers. The QRA has been widely criticized as it caps returns for certain carriers and reallocates funding to other carriers based on a highly controversial and demonstrably imprecise model.⁴⁶

⁴⁴ See footnote 12 *supra*.

⁴⁵ Transformation Order, ¶ 26: “Rate-of-return carriers receiving legacy universal service support, or CAF support to offset lost ICC revenues, must offer broadband service meeting initial CAF requirements, with actual speeds of at least 4 Mbps downstream and 1 Mbps upstream, upon their customers’ reasonable request. Recognizing the economic challenges of extending service in the high-cost areas of the country served by rate-of-return carriers, this flexible approach does not require rate-of-return companies to extend service to customers absent such a request.”

⁴⁶ See Vincent H. Wiemer and Michael J. Balhoff, *Lessons from Rebuilding the FCC Quantile Regression Analysis*, February 2013, available at <http://www.balhoffwilliams.com/pdf/Lessons%20from%20Rebuilding%20the%20FCC%20Quantile%20Regression%20Analysis.pdf>, p. 4: “Of the sixteen independent variables used in the QRA, fourteen appear to have meaningful problems. The notable problems include (i) the use of inaccurate or outdated data in the source databases; (ii) questionable or clearly flawed assumptions; (iii) weak or no cost causation which make the use of certain variables

Rate-of-return carriers also receive intercarrier payments that have amounted to about \$1 billion annually, which, as the FCC explains, has provided an implicit support for their operations.⁴⁷ By 2020, terminating intercarrier revenues will be eliminated by virtue of the Transformation Order. The carriers might be able to raise consumer rates to offset some of the “lost” USF and intercarrier revenues, but the National Exchange Carrier Association (NECA) estimates that annual losses, including various factors such as ICC, for rate-of-return carriers will be \$1 billion annually by 2020. Because there are few avoided costs, the effect will be a sharp reduction, possibly the majority, of cash flows for the rate-of-return carriers. The result, as will be explained later, is that the sharply declining revenues, in addition to the QRA, have injected significant uncertainty into the investment environment. The net effect will be to raise the costs of capital and chill investment.

Wireless carriers

The FCC has established a \$500 million Mobility Fund for wireless carriers. Previously, the wireless carriers received \$1.22 billion, but the pre-Transformation Order funding was assigned with virtually no reporting requirements or build-out obligations. The payments to wireless service providers had burgeoned as multiple companies—as high as 14 wireless “competitive” carriers—received funding for the same service area in spite of having no COLR duties. Further, the funding level was determined as “identical support” based on the ILEC’s investment levels rather than any assessment of the wireless carriers’ investment or lack of investment. The Transformation Order corrected this system introduced by the FCC a decade earlier.

In Phase I, the Commission proposed \$300 million to fund, on a one-time basis, wireless services in uneconomic regions. The Commission allocated funds for one and only one wireless carrier in the supported regions, including certain protections against anti-competitive behaviors.⁴⁸ All of the funding was accepted in 2012.

The assignment of Mobility Funds was made and will continue to be made through reverse auctions which identify the lowest bids to provide service in unserved regions. It is too early and the historical data are not available by which to assess the value of the new Mobility Fund.

problematic in a predictive model; (iv) obvious errors in the results the variables generate; (v) too few source-data points for statistical reliance; and (vi) obviously low predictive values.”

⁴⁷ Transformation Order, ¶ 2.

⁴⁸ See, e.g., Transformation Order, ¶ 320.

II: The problem emerging for the states

A growing universal service problem is emerging for the states in the wake of the federal reforms of 2011. The FCC has capped universal service funding at \$4.5 billion while making significant changes to the funding criteria, and has mandated that terminating intercarrier compensation payments will disappear over the next five to seven years. As explained above, while some rural high-cost areas will be better funded than before, many others will receive less federal support and others will receive no support at all for terrestrial voice and broadband. Therefore, states must adjust their approach to funding service in high-cost areas (which historically have accounted for up to 75% of the total funding need) or risk leaving thousands of communities and millions of households without adequate broadband and voice services.

A quantification of the lost support payments makes it apparent that the ongoing provision of critical telecommunications services to many high-cost, rural areas is in jeopardy. The question arises, therefore, about whether the states have assessed the challenges and are prepared, in a timely manner, to supplement the financial void affecting millions of customers. Do the states have a plan to identify likely challenges, potential costs, and policy alternatives? Will the states adopt new support mechanisms, ignore the crisis, or, through state reductions in USF, take actions that further accelerate the demise of universal service for many customers outside of denser, lower-cost service regions?

Predictable Implications of the Transformation Order Reforms

The Transformation Order ensured that wireless carriers would benefit financially from the reforms as would large long-distance carriers, which, by 2020, will no longer be required to pay for completing calls on other carriers' networks. However, the loss of support for incumbent local exchange carriers—with intercarrier

The new reforms terminate the former USF, which may be replaced by funding for new and costly obligations. Our estimates are that the funding available to price-cap carriers will fall far short—offering support for less than one-third—of the costs in meeting the obligations that the FCC is proposing.

payments being eliminated and new constraints on universal services—is stunning. As explained earlier, we estimate that between now and 2020, larger price-cap carriers should expect a possible reduction of 85%-90% in support revenues, with the potential for an offset of up to \$1.8 billion annually for CAF II.⁴⁹ Again, our estimates are that, even with the full CAF II allocation, the funding available to price-cap carriers will fall far short—offering support for less than one-third—of the costs in meeting the obligations that the FCC will likely require. And, areas not covered by CAF II could suffer from insufficient or no terrestrial broadband or voice service.

Excluding CAF II, by 2014, we estimate that the price-cap carriers will have to absorb reductions of investment and operating USF that total slightly more than \$700 million in addition to another \$500 million in

⁴⁹ As noted above, the price-cap carriers are AT&T, Alaska Communications Systems Group, CenturyLink, Cincinnati Bell, Consolidated Communications, FairPoint Communications, Frontier Communications, Hawaiian Telcom, Federated States of Micronesia Telecom, Puerto Rico Telephone, Virgin Islands Telephone, Verizon and Windstream, which collectively serve large parts of all but a few states and territories in the United States; see Transformation Order, ¶ 36. The exclusion of CAF II, as noted earlier, is not for the purpose of creating a stronger commentary, but because of the problem in defining how much of CAF II will be accepted by the carriers.

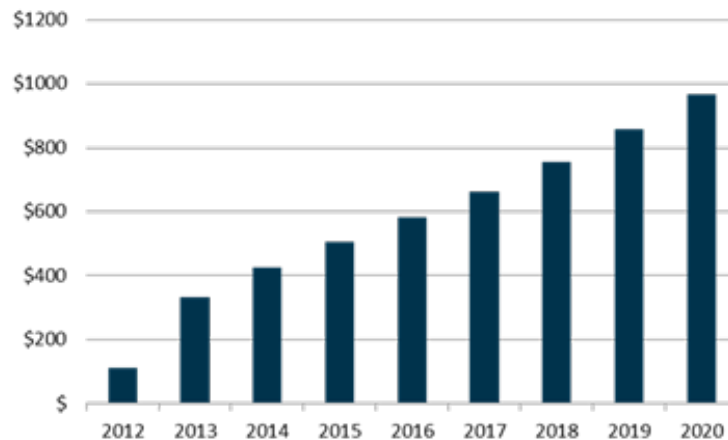
intercarrier compensation reductions.⁵⁰ The support reductions will grow over the next several years, further exposing the high-cost areas not covered by CAF II.

The smaller rural carriers also are expected to be impacted, as part of the emerging crisis.

Figure 3 illustrates the NECA-estimated annual revenue losses for small rate-of-return carriers. The annual industry-wide loss by 2020 is expected to be approximately \$1 billion annually, and the cumulative reduction through 2020 is \$5.2 billion.

Since telecom services require high upfront capital investments that are recovered over a number of years, there will be lesser and more sporadic investment in high-cost areas, due to the lower levels of support funding and increased uncertainty. In fact, today, there is compelling evidence of *decreased* investment, and there is no evidence anywhere to indicate *increased* investment in high-cost regions in the wake of the Transformation Order reforms.

Figure 3: NECA estimated revenue losses at rate-of-return carriers



Source: National Exchange Carrier Association (2012)

The startling discovery is that rural investment loan activity is down sharply in the wake of the new reforms, both because the companies are gravely concerned about their ability to repay debt and because the lenders are more cautious in lending due to their judgments about industry fundamentals.

In conversations with the major lenders to the rural communications industry, the startling discovery is that rural investment loan activity for smaller carriers is down sharply in the wake of the new reforms, apparently because the companies are gravely concerned about their ability to repay debt and because the lenders are more cautious in lending due to their judgments about industry fundamentals. For example, CoBank, which has been a major lender to rural wireline companies, reports that it is making few loans, almost none of which are principally for infrastructure improvements.⁵¹ Another important lender, the Rural Telephone Finance Cooperative in Herndon, Virginia, corroborates CoBank's comments.⁵²

⁵⁰ Data derived from price-cap company filings at the FCC, available at <http://fjallfoss.fcc.gov/cgi-bin/ws.exe/prod/ccb/etfs/webpublic/search.htm>; the intercarrier compensation losses assume 100% loss of terminating charges.

⁵¹ January 23, 2013, conversation between Michael J. Balhoff and Robert F. West, CoBank, Senior Vice President, Division Manager.

⁵² Conversations between Michael J. Balhoff and Lawrence Zawalick, Senior Vice President of Affiliate Organizations at National Rural Utilities Cooperative Finance Corp.

CoBank's Division Manager for telecommunications wrote a particularly direct commentary to the FCC:

"CoBank is concerned about the negative impact the Transformation Order (the Order) is having on investment in rural broadband. The various caps and limitations on universal service funding and inter-carrier compensation, especially for rate-of-return carriers, are making it increasingly difficult for us to extend credit for the purpose of deploying ubiquitous rural broadband networks. . . . It is a stated objective of the Commission to support the deployment of rural broadband. Unfortunately, we view many of the provisions of the Order, especially the use of QRA, as antithetical to that goal. Affordable broadband for all Americans cannot be achieved without increasing the funding spent to support broadband deployment. The rate-of-return regulated Rural Local Exchange Carrier has historically done the lion's share of the work in deploying truly robust broadband in rural America. Instead of trying to find ways to cut and curtail support to these carriers, we continue to believe the Commission's goals would be better served in finding ways to help these carriers continue to succeed in their decades-long mission of bringing modern telecommunications services to their subscribers."⁵³

Additionally, the Rural Utilities Service (RUS), which is part of the Department of Agriculture, has \$4.7 billion in principal outstanding for telecom infrastructure loans and the Farm Bill Broadband Loan Program.

The RUS has been able to place its full loan portfolio every year that we have been able to track . . . until 2012 when borrowers drew down only 11.6% of the \$690 million that was available.

Further, of another \$736 million available for RUS broadband loans, only 9.4% (\$68.9 million) was drawn down in 2012.

The RUS has been able to place its full loan portfolio every year that we have been able to track . . . until 2012 when borrowers drew down only 11.6% of the \$690 million that was available. Further, of another \$736 million available for RUS broadband loans, only 9.4% (\$68.9 million) was drawn down in 2012.⁵⁴

Confirming this commentary, the National Telecommunications Cooperative Association (NTCA) conducted a 2013 inquiry among its membership, which are small rural telecommunications companies (about half of which are cooperatives); the survey found that 69% of the respondent carriers were postponing or

⁵³ Letter of Robert F. West to FCC, Marlene H. Dortch, May 18, 2012, available at <https://prodnet.www.neca.org/publicationsdocs/wwpdf/0511cobank.pdf>.

⁵⁴ The United States Department of Agriculture / Rural Development, "The Telecommunications Program," presentation by RUS Deputy Administrator Jessica Zufolo to the National Association of Regulatory Utility Commissioners, Washington, DC, February 2, 2013, slide 5. See, also, "Vilsack, RUS Meet With Genachowski To Discuss The Need For More Changes In Implementation Of USF-ICC Transformation Order: Warn Of Unintended Consequences And Need For USF-ICC Support To Be Sufficient and Predictable," Independent Telecom Report, Volume 12, Issue 3 (February 18, 2013), pp. 3-5); "In the meeting [with FCC Chairman Julius Genachowski and his staff], [Secretary Vilsack and] USDA officials noted that demands for RUS loans dropped dramatically in 2012. RUS reported "demand" for only 37 percent of the funds that were actually appropriated by Congress. USDA cited the reductions in USF and ICC that will result from the implementation of the FCC's Transformation Order as the reason for the decline in loan applications. Rural carrier advocates have noted that the reduced loan activity reflects the adverse impact of the FCC Order on infrastructure investment and rural community economic development." The figures were also reported in an ex parte filed at the FCC on February 15, 2013. The reconciliation is that the "demand" for loans was reported as 37% according to Secretary Vilsack, but the RUS actually "obligated" the amounts reported by Ms. Zufolo.

cancelling “fixed network upgrades as a result of the uncertainty surrounding [the Transformation Order].”⁵⁵ The clear message is that investors—corporations or debt or equity investors—are not likely to increase capital investments in a time of sharply lower cost support and apparently unfocused public policy.

Are There Clear Winners and Losers?

The FCC has stated that customers in denser regions will benefit from reduced prices and, in the future, customers in the CAF II funded areas will see improved and more sustainable access to broadband and voice services. In the near term, however, the biggest winners are the large diversified carriers, such as AT&T and

The winners are the large diversified carriers, such as AT&T and Verizon. Customers in many high-cost regions, however, will be the ultimate losers, as traditional investment-focused support is reduced going forward.

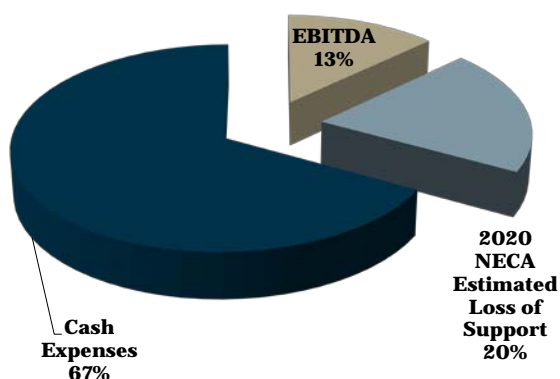
Verizon. Because those two carriers account for nearly 50% of the long-distance market share in the U.S. and serve nearly two-thirds of the wireless subscribers, they are net beneficiaries of the reforms with cost savings larger than revenue losses.⁵⁶ Sprint and T-Mobile are also clear beneficiaries as they have no local access revenues to lose but will benefit from lower intercarrier charges paid to local telecommunications companies.

Customers in many high-cost regions will be the ultimate losers, as traditional investment-focused support is reduced going forward. By 2020, the price-cap carriers will no longer have access to significant levels of the support funding previously dedicated to investment in many of their high-cost areas. By the same point in time, we estimate that rate-of-return rural carriers will lose an estimated one-third of today’s federally-regulated intercarrier compensation (and related embedded support monies) and USF explicit support.

At the same time, it is important to note that the revenue loss, as grave as it is, *understates* the financial problem. For large and small carriers, there are relatively few avoided costs when USF is reduced or

intercarrier revenues disappear. What this means is that the cash-flow effects will be worse, and likely *far worse*, proportionately than the revenue effects. As explained below, for carriers with long-distance and wireless operations—such as AT&T or Verizon—the result is uniformly positive. For CenturyLink, Windstream, FairPoint, Frontier and Consolidated Communications, there is some benefit from the intercarrier compensation reforms, but the overall effects of the new regime are still significantly negative outside of the areas that will be funded by CAF II.

Figure 4: Estimated loss of cash flows for rural carriers



Source: Balhoff & Williams, LLC projections.

Illustrating the cash-flow problem, the smaller

⁵⁵ National Telecommunications Cooperative Association, “Survey: FCC USF/ICC Impacts: Summary of Results,” February 2013, available at www.ntca.org.

⁵⁶ See, FCC, 2010 Trends in Telephone Service, Chart 9-2, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-301823A1.pdf; also Columbia Institute for Tele-Information, Long Distance Market Share, 2011, available at http://www4.gsb.columbia.edu/filemgr?file_id=739256.

carriers are expected to have a support-related *revenue* loss of 35%. However, with no cost avoidance related to the reform-based revenue reductions, we estimate, as depicted in Figure 4, that the *operating cash flow* margins of the “typical” rural, rate-of-return carriers will fall to around 13% of revenues (from about 33%) if they cannot make up the difference from increased customer fees. Even then, the funding will not be available for the high-cost areas they serve as internal company cross-support no longer is feasible. The effect is a contraction in operating cash flow margins of up to 62% (in the case of no increase in customer fees).⁵⁷ After paying interest charges—typically 4%-6% of today’s carrier revenues (the percentage loss will be greater as the revenue base declines)—we project minimal residual cash flow available for capital investment and repayment of debts.⁵⁸ Our analysis suggests that service will falter in certain regions or significant incremental costs will have to be borne by customers, unless new sustainable and predictable support revenues are made available.

With no cost avoidance related to the reform-based revenue reductions, we estimate that the operating cash flow margins of the “typical” rural, rate-of-return carriers will fall to around 13% of revenues (from about 33%). The effect is a contraction in operating cash flow margins of 62%. After paying interest charges—typically 4%-6% of today’s carrier revenues—we project minimal residual cash flow available for capital investment and repayment of debts

Thus, the cost reductions, which the FCC projects as \$1.5 billion, in intercarrier compensation payments will be an effective transfer of wealth and investment away from the customer base previously supported in many rural and high-cost regions, even as others may benefit.⁵⁹ As such, the longstanding policy of universal service and the customers served in those regions through USF and support implicit in intercarrier compensation appear to be clear losers in the most recent federal reforms. Therefore, state responses are necessary to fill the gap and ensure universal availability of broadband and voice services.

Will Post-Reform Support be “Sufficient” to Facilitate Statutorily-Defined Universal Service?

The FCC’s reductions in intercarrier payments, combined with pressures on support from the federal universal service fund, are being implemented, to the best of our knowledge, with no proof that the resulting lower cash flows will be sufficient for carriers to continue to serve in high-cost regions. In fact, data from past studies indicate just the opposite—that without critical support revenues, there will be no economic rationale or justification for carriers to continue to provide universally available advanced communications service to customers and communities in many high-cost areas.

Rural Task Force. Shortly after the passage of the Telecom Act, the FCC’s Federal-State Joint Board on Universal Service (Joint Board) appointed a Rural Task Force (RTF) that included representatives from regulatory commissions, government agencies, consumer advocacy groups, cost consultants, competitive carriers, a long-distance company (AT&T) and small rural carriers.⁶⁰ The RTF assessed the challenges of

⁵⁷ Some rates increases might be adopted but carriers are currently reporting a concern that rate increases put pressures on rural customers, whose income levels are often low.

⁵⁸ See, for example, Letter to FCC from Robert F. West, CoBank, May 8, 2012, available at <https://prodnet.www.neca.org/publicationsdocs/wwpdf/0511cobank.pdf>

⁵⁹ Transformation Order, ¶ 14.

⁶⁰ The Rural Task Force was created by the Joint Board on Universal Service to study potential reforms; its appointed membership included a wide range of industry interests and experts: Chairman William R. Gillis, Commissioner, Washington Utilities and Transportation Commission; Robert Schoonmaker, Vice President, GVNW

providing telecommunications services in rural regions and published its consensus findings in several reports, including its “White Paper 2” in January 2000. The RTF’s White Paper 2 highlighted the low-density, high-cost nature of 38% of the United States land area where there were approximately 13 households per square mile compared with 105 households per square mile in urban areas.⁶¹ The RTF found significant cost factors that illustrate the differences between providing wired telecommunications services in urban and rural areas. We have not found any indication in the Transformation Order or from any commenter in the process who suggests any reasons to believe that the major cost factors have changed in any material way since the White Paper 2 study twelve years ago.⁶² In that study, the RTF found . . .

- On average, plant specific expenses per loop were \$180 for rural carriers compared to \$97 per loop for non-rural carriers;
- Average rural carrier plant-specific expenses increase consistently as the number of lines served decreases, from approximately \$110 per loop for carriers with more than 20,000 lines to \$445 per loop for carriers with study areas having fewer than 500 lines;
- *Average* total plant investment per line ranges from \$3,000 for rural carriers with the largest study areas to over \$10,000 for rural carriers with the smallest study areas, and the investment costs per line for rural carriers can be as high as \$40,500 line compared with non-rural carriers where the *range* of investment costs is \$1,400 to \$4,350;
- The range of total plant specific expenses per loop for rural carriers (up to \$1,585) is substantially greater than for non-rural carriers (\$38 to \$163).⁶³

Consulting, Inc.; Thomas Beard, President, National Phone Company; Carol Ann Bischoff, Executive Vice President and General Counsel, Competitive Telecommunications Association; Jack Brown, Management Consultant Golden West Telecommunications Cooperative, Inc.; David R. Conn, Vice President Law and Regulatory Affairs, McLeod USA, Inc.; Gene DeJordy, Executive Director: Regulatory Affairs, Western Wireless Corp.; Billy Jack Gregg, Director, West Virginia Consumer Advocate Division; Joel Lubin, Regulatory VP-Law and Public Policy, AT&T; Joan Mandeville, Assistant Manager, Blackfoot Telephone Company; Christopher McLean, Deputy Administrator, Rural Utilities Service, USDA; Gwen Moore, President, GEM Communications; Jack Rhyner, President and CEO, Telalaska; Jack Rose; David Sharp, President and CEO, Virgin Islands Telephone Corp.; Stephen G. Ward, Public Advocate, State of Maine Public Advocate Office. The RTF relied upon the professional support services of the National Exchange Carrier Association; The National Telecommunications and Information Administration--U.S. Department of Commerce; The Rural Utility Service--U.S. Department of Agriculture and The Rural Policy Research Institute and the University of Missouri Office of Social and Economic Data Analysis.

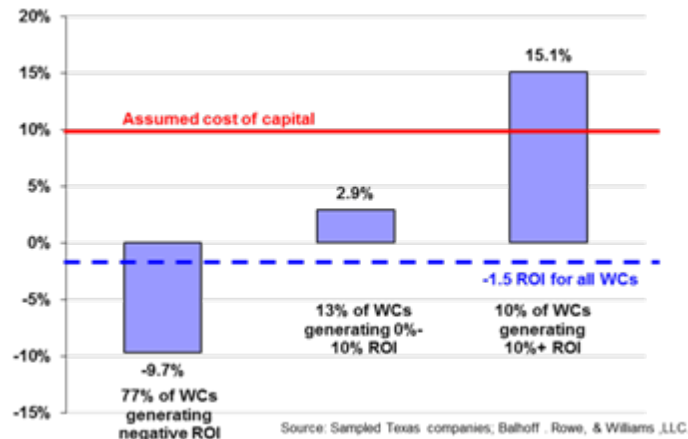
⁶¹ Rural Task Force, White Paper 2, January 2000, pp. 7-14 (RTF White Paper); available at [http://www.wutc.wa.gov/rtf/old/RTFPub_Backup20051020.nsf/e1b9e65978d9348b882567d2008318d3/4951d0c8d59b2d4d8825687000826423/\\$FILE/Rtfwp2.pdf](http://www.wutc.wa.gov/rtf/old/RTFPub_Backup20051020.nsf/e1b9e65978d9348b882567d2008318d3/4951d0c8d59b2d4d8825687000826423/$FILE/Rtfwp2.pdf)

⁶² Notably, the FCC is not proposing that wireless should replace wired services, and a case can be made that broadband consumer volumes will not be met at affordable rates using wireless networks.

⁶³ RTF White Paper, pp. 12-13.

Texas study of rural regions. In 2007, our firm—then Balhoff, Rowe & Williams—studied local telephone networks involving six carriers that served customers living in rural areas in Texas.⁶⁴ The six companies were all price-cap carriers, and included CenturyLink (then two separate companies—CenturyTel and Embarq), Windstream, and Consolidated Communications. The study evaluated the economics of service to 350,000 access lines, using confidential financial data, and found results consistent with the RTF findings published seven years earlier. More specifically, the report highlighted that, in

Figure 5: Texas study of wire centers



spite of the “economies of scale” associated with relatively larger carriers, most of the rural service areas would likely not have wired communications services without universal service support because investment and operational costs were high for sparsely-populated regions. Figure 5 makes this point, as 77% of the wire centers in the Texas study generated, on average, a negative 9.7% return on investment, while 13% of the wire centers generated an average 2.9% return, which was insufficient to justify investment, and 10% of the wire centers generated at least a 10% return. The conclusion was that, without universal service support funding, 90% of the wire centers are candidates to lose service. We did not study the effect of a potential loss of intercarrier revenues, but it is clear that the financial reality will be much worse than the results outlined above.

Our 2007 Texas study concluded that, without universal service support funding, 90% of the wire centers are candidates to lose service.

In addition, we were able to evaluate financial information of those price-cap carriers related to small rural communities (“town centers”) and the more lightly-populated out-of-town areas. We also found that outside of the Texas rural towns, without universal service support, all of the lines generated negative returns (averaging a negative 7% return on investment). The

percentage of total lines that generated negative returns, in this case, was 52% of those studied. Thus, the uneconomic lines in the study, without universal service support *but with intercarrier compensation revenues* (which are now being eliminated), totaled an estimated 70% of those studied—52% outside-of-town plus 18% of total lines in small towns where there was a negative return. To state the obvious, the loss of intercarrier compensation payments makes the business case even more difficult.

Clarifying the States’ Universal Service Conundrum

In the wake of the federal reforms resulting from the Transformation Order, the fundamental insights for state policymakers who believe universal service remains a critical policy objective are . . .

⁶⁴ Michael J. Balhoff, Robert C. Rowe, and Bradley P. Williams, Universal Service Funding: Realities of Serving Telecom Customers in High-Cost Regions, Summer 2007, available at <http://www.balhoffrowe.com/pdf/USF%20Funding%20Realities%20of%20Serving%20Telecom%20Customers%20in%20High%20Cost%20Regions%207-9-07.pdf>

- Terrestrial services in a significant percentage of unserved and underserved areas are uneconomic in the absence of sufficient explicit and implicit universal service support funding; significantly, wireless services do not appear to be a reasonable substitute, both because of insufficient data rates that are not

It is implausible—and likely confiscatory—to expect any company to accept an uneconomic responsibility that is driven by government policy as opposed to sound business principles.

comparable to wired services in urban areas and, most important, because of prohibitively higher volume-based fees as explained above in this White Paper;

- Rational businesses and investors will not commit capital to build or maintain a network for which there is no acceptable standalone business case without sufficient supplemental support funding;

- It is implausible—and likely confiscatory—to expect any company to accept an uneconomic responsibility that is

driven by government policy as opposed to sound business principles;

- Universal service support provided for serving customers in high-cost regions does not, as a rule, create outsized returns for carriers, but provides monies necessary to offset high investment and operating costs; and
- The new 2011 universal service goals—in attempting to expand deployment of broadband services—may result in some investment savings because of the change from circuit-switched to IP networks; however, the overall loop and electronics are generally more expensive as plant is upgraded, the life of the plant (electronics) is shorter, and additional investment is required as bandwidth demands continue to increase.

As a result, by sharply cutting rural-serving carrier cash flows, the Transformation Order appears to have shifted the obligation to the states to decide whether universal service is sufficiently important for the states' economic well-being that there should be supplemental replacement support to make service to many high-cost regions economically justifiable.

III. State assessment of policy options

What should state policymakers do in light of universal service goals and the potential financial shortfalls resulting from the Transformation Order reforms?

Urgency of the state analysis

The states should understand the urgency. The FCC is working on a model for CAF II funding and will likely issue an order at the end of this year or possibly early next year. In that order, the FCC may start a 120-day clock for the carriers to accept or reject CAF II funding. If the costs of the obligations exceed the federal support, as is likely in many areas or possibly in most regions, the carriers will reject the support, as occurred in 2012 when nearly two-thirds of the CAF one-time funding was rejected. Then the carriers will continue to receive frozen CAF I funding until the FCC is able to hold reverse auctions to determine if there are companies willing to accept the responsibility for serving the high-cost areas.

We cannot say strongly enough that the states have a very short fuse. They cannot wait until the FCC issues its CAF II Order to begin their analyses because 120 days will be too short. Further, the states will not want to wait until the carriers reject the funding, because the states are at risk to lose critical federal support.

The responsible answer is that the states must begin immediately to understand the policy issues, the economic problems, and the social risks associated with the choices that will have to be made in the next months.

The FCC will then sponsor “reverse” auctions to determine which carriers might accept the new obligations at the lowest cost. We cannot know what will occur, but we understand that many telecommunications companies are skeptical of the uncertain new regulatory environment. The indications are that most high-cost regions are at risk because carriers will not accept the new obligations unless the fund size is larger.

We assume that many of the states will want their rural residents to have broadband services because of the critical social and economic benefits, as well as the importance of a reliable voice system. We also assume that the states may be open to supplementing federal funds, if those funds prove insufficient.

If we understand this correctly, we cannot say strongly enough that the states have a very short fuse. They cannot wait until the FCC issues its CAF II Order to begin their analyses because 120 days will be too short. Further, the states will not want to wait until the carriers reject the funding, because the states are at risk to lose critical federal support.

The responsible answer is that the states must begin *immediately* to understand the policy issues, the economic problems, and the social risks associated with the choices that will have to be made in the next months. Governors, legislatures and commissions should have a clear understanding of the challenges and the possibility of a failure in the partnership involving carriers, new federal support systems and state support.

Perspective of the National Regulatory Research Institute

The challenge for state legislators and regulatory commissions is to understand and carefully define the goals, as well as the costs, benefits, risks and alternative mechanisms in support of universal service in their states.

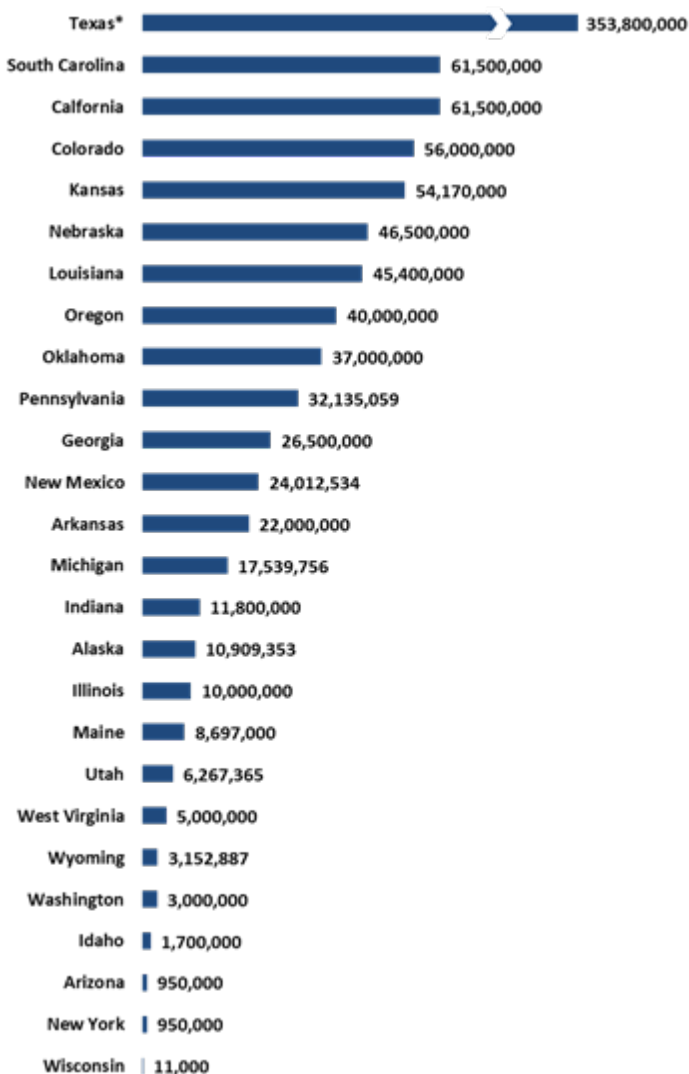
On the first page of its recent USF study, the National Regulatory Research Institute (NRRI) was direct in asserting how important it has become for the states to review state support for universal service.

“The Federal USF provides monies to wireline and wireless carriers to defray the increased cost of providing service to customers in high-cost, primarily rural, areas of the state. This fund is supplemented in many states by state funds that provide additional monies to carriers to support service in these areas. *The design of the state funds and level of funding provided is particularly critical given the changes to the Federal USF and ICC structure made by the FCC's recent [Transformation] Order. In some states, this order reduces carrier support for high-cost areas, both through reductions in federal USF support and through anticipated lost revenues from intrastate ICC rate reductions, and could result in the states making up the shortfall.*”⁶⁵ (Emphasis added.)

The issues are complex and are apparently under review in multiple states. The NRRI report provides some helpful initial data.

As illustrated in Figure 6, today twenty-six

Figure 6: High-cost funding in the states



Source: National Regulatory Research Institute 2012; * Balhoff & Williams, LLC (Texas)

⁶⁵ Sherry Lichtenberg, Ph.D., “Survey of State Universal Service Funds 2012,” National Regulatory Research Institute, Report No. 12-10, July 2012, Silver Spring, MD, (hereafter NRRI Survey), available at http://www.nrri.org/research-papers/-/document_library_display/3stN/view/0/7204?_110_INSTANCE_3stN_redirect=http://www.nrri.org/web/guest/home;jsessionid=8E2BAE7FB0E38281B29FBEC242C2DB85?p_p_id=nrriatestresearch_WAR_nrriatestresearchportlet_INSTANCE_F9Le&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-2&p_p_col_pos=2&p_p_col_count=5, p. 1.

states sponsor universal service funds for high-cost regions, and one state, Vermont, is in the process of initiating a universal service program. NRRI also reports that seven of the states with funds are evaluating their programs.⁶⁶

Of the states that do not have universal service funding to support investment in high-cost regions, it is noteworthy that seven are relatively more densely-populated and have few incumbent local exchange carriers. In six of those states—Maryland, Delaware, Rhode Island, Massachusetts, Connecticut, and Hawaii—and the District of Columbia, more than 98% of the lines are covered by one dominant incumbent, and in one state, New Jersey, the largest carrier covers more than 96% of the incumbent lines. With the exception of Hawaii, the other highly-concentrated states are all served primarily by Verizon or AT&T which are net payers into the

NRRI: “The design of the state funds and level of funding provided is particularly critical given the changes to the Federal USF and ICC structure made by the FCC’s recent [Transformation] Order. In some states, this order reduces carrier support for high-cost areas, both through reductions in federal USF support and through anticipated lost revenues from intrastate ICC rate reductions, and could result in the states making up the shortfall.”

Federal universal service funds (and presumably would not want to pay into a state universal service fund).⁶⁷ If we exclude those seven states and Vermont, 62% of the U.S. states provide high-cost funding (defined as high-cost funds, broadband funds or access replacement). Only six states have no funding of any kind (no high-cost funding, Lifeline/Linkup, Schools and Libraries, Telecom Access Equipment, Relay, Telemedicine, E911, etc.) The states with no funding of any kind today are Alabama, Delaware, Massachusetts, Montana, New Jersey and Tennessee.

NRRI recommends that states use the NRRI study to benchmark USF support against other regions, to aid in considering the implementation of a state universal service fund, or to help determine whether and under what circumstances incremental support funding might be adopted. The rationale is consistent with the data in this White Paper—universal availability of

advanced communications networks remains an important national goal that should be assessed in light of the recent federal reforms. As a result, states increasingly will need to assess whether, in order to maintain a credible universal service policy, supplemental support is required to offset the reduced federal support funding.

Clarification of universal service policy

States should recognize that there is an affirmative and consistent goal related to universal service—comparable telecommunications services for comparable rates in all regions of the country in order to achieve economic and social purposes. It is noteworthy that the Department of Agriculture has emphasized the economic importance of broadband services, including services in high-cost regions.⁶⁸

We also provide at the end of this study a side-bar entitled “Criticisms of Universal Service.” That brief commentary highlights that certain opponents to universal service have, in our opinion, distorted the debate, particularly in state legislatures, by the introduction of pejorative terminology for universal service that derives

⁶⁶ NRRI Survey, pp. 3-5.

⁶⁷ States in which one dominant incumbent carrier accounts for at least 98% of the incumbent lines in the state are Rhode Island, Delaware, Maryland, Massachusetts, and New Jersey, as well as the District of Columbia, all served by Verizon.

⁶⁸ See footnote 9, *supra*.

from concepts not intended by the policymakers. In the critics' parlance, universal service funding is sometimes referred to as a "tax" or a "subsidy" or an "anti-competitive" benefit for soon-to-be-obsolete technologies. The terminology—which is inconsistent with policy and reality—redirects the conversation away from established law and the FCC's stated goal of universal availability of communications services in

It is important to assess the policy more carefully and honestly, despite the rhetoric of the opponents, to recognize that, from the beginning, universal service was, and arguably still is, an investment in national network services in which all parties participate.

support of "economic growth, global competitiveness, and civic life" to a funding mechanism that, by the critics' implication, supports inefficient companies or redistributes wealth in a way that distorts competition. Of course, the policy is not to support companies, but to provide services to customers in high-cost areas. Further, the policy is not intended to redistribute wealth but to generate social benefits and economic growth that have wide-ranging positive effects. And, finally, the goal is not to invest in outdated technologies but to assure that modern technologies are more widely available.

It is important to assess the states' policy more carefully and honestly, setting aside the rhetoric, to recognize that, from the beginning, universal service was, and arguably still is, an investment in national network services in which all parties participate.⁶⁹ The foundational theory was that all parties benefit economically from a better and more robust nationwide network. This means that payment for network services is sometimes marginally higher in less-costly areas to assure that the overall network is strong across the nation or across a state. The original conceptual theory of "network externalities" was simpler when the network was monopoly-based throughout most of the last century, when carriers were expected to manage the economic cross-funding. Today, it is more complicated but no less important.

USF is a mechanism through which users of the network services that reach across the entire country actually pay for the costs of that comprehensive, interconnected network—common costs that are higher for networks in certain regions than in others.

Still, the Congressional mandate and the FCC's stated policy are clear. While supporting competition where possible, there is still a goal to create a national telecommunications infrastructure, including in uneconomic regions, and to assure that all parties support such a goal. Policymakers usually argue that payment for this ubiquitous network is not a tax nor is it a subsidy, which are redistributions of funds. Rather, USF is a mechanism through which users of the network services that reach across the entire country actually pay for the costs of that comprehensive, interconnected network—common costs that are higher for

⁶⁹ See, e.g., Steve Parsons and James Bixby, *Universal Service in the United States: A Focus on Mobile Communications*, 2010; available at http://www.law.indiana.edu/fclj/pubs/v62/no1/10-PARSONS_FINAL.pdf. The authors argue for competitive neutrality, but they note the long-standing logic of universal service based on the value of the integrated network; see pp. 134-135: "It is well known in telecommunications economics and the economics of networks, that the demand for telecommunications services is different from the demand for traditional products and services, like groceries, automobiles, or dry cleaning. A telecommunications customer's demand will depend, in part, on factors that are external to the customer's decision to purchase. Generally, there are two types of telecommunications positive externalities (also called, or closely related to, direct network effects or bandwagon effects). These externalities are (1) network externalities where the value of network subscription increases with the number of subscribers on a network or a set of interconnected networks and (2) call or use externalities, which recognize that, for most calls, one party obtains value from the call but generally does not pay for the call. It is also useful to recognize that the value of subscription is derived from the value customers expect to obtain from the calls they will make."

networks in certain regions than in others.

With federal support declining and shifting to selected locations, state legislators and other policymakers must evaluate as soon as possible whether economic and social welfare are improved or impaired when citizens in urban communities have superior services at lower prices compared with those in rural regions. As noted above, the Department of Agriculture study raises important economic questions about whether a state is in a superior or weakened position when citizens of rural regions are left without some semblance of a comparable telecommunications network.⁷⁰ The theory of network externalities has assumed that the value of the network to *all* subscribers is greater if there are more people on the network with the capabilities to support commerce and social exchanges.⁷¹ Historical policy has endorsed the concept of an advanced network available for the benefit of all citizens, with adequate support to enable networks to serve uneconomic, high-cost regions.

Assessment of costs, benefits and risks

Policymakers at the state level should understand the financial urgency related to the universal service challenge in telecommunications. Because the federal reforms are in the process of unfolding, state or regional

The Department of Agriculture study raises important economic questions about whether a state is in a superior or weakened position when citizens of rural regions are left without some semblance of a comparable telecommunications network.

commissions should be focused on understanding the impacts, developing financial options, and arriving at appropriate solutions regarding universal service.

Specifically, the states should assess immediately what it actually costs to provide broadband telecommunications services, particularly in more vulnerable high-cost regions that may or may not be funded by CAF II. This will require consultation with companies, including incumbent and competitive communications providers, about what the business model for

providing service in high-cost looks like now or should look like. It may be most appropriate to engage in town hall sessions with customers and other policymakers to understand the expectations going forward regarding such issues as quality of service, affordable customer rates, acceptable broadband speeds, etc. The fundamental financial question is about the realistic revenue and cost projections for providing service in unserved / underserved areas, so that legislators and commissions can better understand whether there will be

What will happen if the telecommunications networks are allowed to fail in rural regions? What happens to the economic base, the schools, the health care institutions, the public safety organizations, the emergency management systems, the social programs, and the wireless providers that require access to a landline network for backhaul?

problems in achieving the policy goal of universal availability of basic voice/911 and advanced communications services. Based on an improved perspective regarding the financial challenges and opportunities in serving high-cost areas, policymakers should have a clear-eyed view about whether economically rational companies and investors will invest scarce capital and operating resources to provide services in these areas.

It is our opinion that a state's process should be completed in time to work constructively with carriers at the time the CAF II support is made available later this year. The goal is to understand the policy and economic risks so that the state is ready

⁷⁰ See footnote 9, *supra*.

⁷¹ See footnote 69, *supra*.

to assess the CAF II challenges and opportunities. Such a state evaluation is not trivial, and will require focus and aggressive action.

A related question for policymakers is what will happen if the telecommunications networks are allowed to fail in rural regions? What happens to the economic base, the schools, the health care institutions, the public safety organizations, the emergency management systems, the social programs, and the wireless providers that require access to a terrestrial network for backhaul? Is it sound policy to assume that institutions and communities in higher-cost regions should pay more than their urban counterparts for less robust services? What are the benefits that flow from assuring adequate financial incentives for the deployment and operation of advanced telecommunications networks in rural communities so that there are robust statewide networks? And what is likely to occur to the terrestrial voice and 911 networks if all support is eliminated?

Summary

This White Paper attempts to sharpen the focus of states on a rapidly emerging and urgent set of challenges. Federal reforms of universal service and intercarrier compensation have shifted the focus of telecommunications services away from narrowband voice and toward broadband data services. The reforms also have migrated to the states many of the financial challenges related to providing advanced telecommunications services in many uneconomic-to-serve regions. States that wish to encourage and maintain universal access to voice and broadband services, therefore, will have to understand what is occurring related to support funding, as well as the policy issues when federal support is insufficient, and what realistic actions can be taken if universal service policy is to survive. The time is very short for those analyses, particularly if the states wish to partner with carriers and take advantage of the federal support programs.

Appendices

Biographies

Michael J. Balhoff, CFA, is a Senior Partner and co-founder of Charlesmead Advisors, LLC, and is Managing Partner at Balhoff & Williams, LLC, a professional services firm that provides financial-regulatory consulting and advisory services to companies, investors and policymakers in the communications and energy industries. Before founding Charlesmead Advisors and the predecessor firm to Balhoff & Williams, Mr. Balhoff headed the Technology and Telecommunications Equity Research Group at Legg Mason and, in the final seven of his sixteen years as a senior analyst at Legg Mason, he covered equities in the incumbent local exchange carrier industry. Mr. Balhoff has been named in six annual awards as a Wall Street Journal All-Star Analyst for his recommendations on the Telecommunications industry. His coverage of telecommunications, and especially rural telecommunications, was named by Institutional Investor magazine as the top telecommunications boutique in the country in 2003. Mr. Balhoff has four masters degrees and a doctorate, and is a Chartered Financial Analyst and a member of the Baltimore Security Analysts Society.

Bradley P. Williams is a Senior Partner and co-founder of Charlesmead Advisors, LLC and also is a Partner at Balhoff & Williams, LLC. Mr. Williams joined the predecessor firm to Balhoff & Williams in 2005 and became a Partner at Balhoff, Rowe & Williams in 2007. Previously, Mr. Williams was a member of the Strategic Planning & Business Development group at Lowe's Companies Inc., the Fortune 50 home improvement retailer. Prior to joining Lowe's, Mr. Williams worked with Mr. Balhoff in the award-winning Telecommunications Equity Research Group at Legg Mason, focusing on incumbent and rural local exchange carriers. Prior to joining Legg Mason, Mr. Williams was a co-founder of eSprocket / Beachfire, a venture-backed company that evolved into one of the pioneers in mediation technology solutions for the financial services sector. Previously, he served as a financial executive for a holding company that integrated, through acquisitions, a significant regional freight rail network. Mr. Williams received his law degree from the University of North Carolina.

Criticisms of Universal Service

1. **Largest carriers argue that USF/ICC reforms are appropriate.** Some of the major carriers in the telecommunications industry—AT&T and Verizon—endorse the recent Federal reforms. They are net payers into universal service and intercarrier compensation. Some cable and stand-alone wireless carriers, including Sprint, have argued that the reforms did not go far enough, and that USF/intercarrier support is not necessary. Their advocacy is driven in large part by their net financial benefits.
2. **Wireless is a more efficient solution.** While new wireless technologies *can* provide broadband solutions, they have yet to be deployed widely in rural regions and will remain subject to capacity and interference challenges. Universal services are now defined as *broadband data* services. Today's wired data volumes average more than 10 GB/month, growing at estimated 30% -100% annual rates. Using AT&T's broadband rates, the typical household that uses 13 GB per month would pay approximately \$165 monthly today, with overage charges at a rate of \$15 per GB per month. Verizon's rates are lower, but the typical customer, if electing flat-rated plans, would be paying \$120/month for up to 14 GB (overage \$15 per GB). 4G wireless broadband services—if available—fail the statutory mandate of *comparable rates* and comparable services.
3. **USF is growing uncontrollably.** Funding for incumbent ILEC networks has been *declining* virtually every year since 2004. The fund growth is due to other policy factors, including wireless support, the federal commitment to schools and libraries, aid to low-income customers and rural health care.
4. **USF is an anti-competitive support.** The incumbent carriers that receive universal service support have policy-based obligations to serve high-cost regions that other “competitive” carriers do not serve. USF is and always has been a financial recovery for assuming an uneconomic obligation—investment and operating—borne by certain carriers.
5. **USF is a tax or a subsidy that is out of place in a competitive world.** Critics of USF have altered the statutory terminology/logic when they talk about a “tax” or a “subsidy.” The traditional intention was that all parties who benefit from an integrated national network should pay for that nationwide service. There is no tax, subject to appropriations, but a payment for services across a network with significant common costs. Nor is USF a “subsidy” to aid parties or a troubled industry. It is a collaborative infrastructure commitment that is critical in assuring a broad range of economic and social benefits. Congress and the FCC have written about universal service in terms of a policy commitment that supports many benefits from which positive societal returns are generated.
6. **USF should not be used to pay dividends to shareholders.** Dividends are payments related to the use of equity capital. Meeting the cost of capital obligations is as critical as are wages for employees, payment of taxes, and maintenance of network. (See Balhoff & Williams, *Rural Carrier Dividend Perspectives*, available at www.balhoffwilliams.com).
7. **Carriers, and notably large carriers, should not be supported through universal service funding.** Universal service is about providing network-based services that are comparable in rural areas to those in urban centers, all at comparable rates. USF is not focused on carriers except as those carriers' investments are necessary to offer important services to customers. Further, large and small carriers report that, without support, they are unable to provide services economically in high-cost areas, which may be the reason that Verizon sold large blocks of its rural lines and that AT&T's CEO noted in January 2012—after the FCC's reforms—that the company still had no broadband solution in rural areas. In July 2012, AT&T and Verizon rejected federal aid in building rural broadband networks, presumably because it would be too costly, even after modest FCC-sponsored support allocations, for those large carriers to justify committing resources to high-cost customers and communities.

Glossary

- **Access:** Switched access permits the use of common terminating, switching and trunking facilities of a carrier to connect with various end-users; it has resulted in access charges that are supervised by the FCC for interstate traffic and by the state public utility commissions for intrastate traffic. Special access, which is usually large-volume transport provided by a carrier to a customer (usually another carrier) over dedicated wireline circuits that provide physical, point-to-point connections between customer locations and such as a wireless carrier's tower or an Interexchange Carrier's wireline network; there is pricing flexibility for special access rates at the present.
- **ICC or Intercarrier Compensation:** Payments between carriers for services such as terminating or originating long-distance calls; these payments are typically considered to include a payment to offset actual expenses incurred and to provide support for network investment; regulatory reforms of ICC have often included reductions in ICC rates accompanied by increases in end-user rates and some increases in explicit USF because it was judged that some implicit support was embedded in the original ICC rates.
- **Incumbent Local Exchange Carrier or ILEC:** An ILEC is a U.S. local telephone company, generally in existence at the breakup of the Bell System in 1982. Incumbents, by contrast with competitive LECs (CLECs), were part of the former Bell System or were among the independent telephone companies responsible for providing local telephone exchange services in a specified geographic area. Local telephone companies are subject to regulatory oversight by federal and state commissions, and have had historical responsibilities to provide carrier-of-last-resort services to customers, including other carriers such as competitors or wireless carriers.
- **Loop:** A wired connection between a telephone company's switch and the end-user's home or business; it is called a loop because there is a path into the end user and from the end user.
- **Price-cap:** Price-cap ILECs have been relieved of rate-of-return regulation and have some measure of freedom to set their prices in response to market conditions while still being limited to historical average revenue per customer and uniform pricing across geographies irrespective of cost. The price-cap carriers are usually the largest ILECs and are subject to FCC regulations that are different from those that apply to rate-of-return carriers.
- **Rate of return:** Rate-of-return ILECs that are usually small carriers (often serving 1,000 to 20,000 lines) and subject to more regulations; these carriers have previously been able to realize some better economic protections as they were generally assured a rate of return on investment that approximated 11.25%. Because of the recent reforms, this protection may be at risk, particularly with the phased elimination of intercarrier compensation funds.
- **Support:** Most often, support refers to funds provided to aid network investment and operations for benefit of customers of an ILEC whose service region is so costly that service could not be provided to customers at a rate that would be economic; support generally refers to USF but can include implicit support in intercarrier compensation.
- **Uneconomic-to-serve:** Geographic regions—often within exchanges or census blocks—in which expected revenues for services will not generate a sufficient return on invested network and ongoing expenses to provide those services.
- **USF:** Federal Universal Service Fund which is mandated in the Telecommunications Act of 1996, Section 254; states can also have state universal support mechanisms that work in concert with the federal USF as mandated in Section 254(b)(5): "There should be specific, predictable and sufficient Federal and State mechanisms to preserve and advance universal service."