Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
The Role of the Universal Service Fund and Intercarrier Compensation in the National Broadband Plan	)	GN Docket Nos. 09-47, 09-51, 09-137
	)	

COMMENTS OF THE
NATIONAL EXCHANGE CARRIER ASSOCIATION, Inc.
ON NBP PUBLIC NOTICE #19

December 7, 2009

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INTRODUCTION AND SUMMARY

The Commission's *Public Notice* in the above-captioned proceeding seeks comments on ways in which the Commission's universal service and intercarrier compensation policies might be altered to further the goal of making broadband universally available to all Americans.[1] These issues arguably lie at the heart of the National Broadband Plan.

The National Exchange Carrier Association, Inc. (NECA) is a not-for-profit association of incumbent local exchange carriers established in 1983, pursuant to Commission rules and orders.[2] Approximately 1,200 rural rate-of-return carriers (RLECs) currently choose to participate in one or more of NECA's interstate access charge tariffs. These companies provide telecommunications services predominantly in rural high-cost areas of the country, and typically

[1] *Comments Sought on the Role of the Universal Service Fund and Intercarrier Compensation in the National Broadband Plan*, GN Docket Nos. 09-47, 09-51, 09-137, Public Notice, DA 09-2419 (rel. Nov. 13, 2009) (*Public Notice*).

[2] *See generally* 47 C.F.R. §§ 69.600 *et seq.*; *MTS and WATS Market Structure*, CC Docket No. 78-72, Phase I, Third Report and Order, 93 FCC 2d 241 (1983). While NECA's primary responsibilities involve preparation of interstate access tariffs and administration of related revenue pools, NECA is also responsible for collecting certain high-cost loop data from its member ILECs, and has served as administrator of the interstate Telecommunications Relay Services (TRS) fund since that fund's inception in 1993.

serve as the "carrier of last resort" (COLR) for telecommunications services in their respective service areas.

In its role as interstate tariff filing agent for these carriers, NECA has seen first-hand the dramatic shifts taking place in the rural telecommunications marketplace, as traditional circuit-switched services have steadily declined in importance compared to broadband-oriented special access services.[3] During this period NECA members have responded to the broadband revolution by upgrading substantial portions of their networks to accommodate a variety of broadband services, including Ethernet,[4] high-speed (up to 50 Mbps) DSL in some areas,[5] and most recently, IP Gateway service.[6]

NECA responds in this filing to the questions set forth in the *Public Notice* to the extent possible, given available data and time. While many of the Commission's questions relate to information outside the scope of NECA's interstate pooling mechanisms, a number of relevant

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[3] For example, while switched access services accounted for 61 percent of NECA TS pool revenues in the 2002-2003 test period (excluding Local Switching Support), they now represent only 34 percent of TS pool revenues in the 2009-2010 test period. The balance in the current period, 66 percent, is derived from special access services, where evolving broadband services are tariffed.

[4] Introduced in NECA's tariff in 2007. *See* NECA Tariff F.C.C. No. 5, Access Service, Trans. No. 1157 (filed Feb. 2, 2007) (effective Feb. 17, 2007).

[5] NECA has been continuously expanding its ADSL Access Service offering since it was first introduced in 1999. For example. NECA introduced an ADSL 5 Mbps upstream/50 Mbps downstream option filed under Transmittal No. 1222 (effective Oct. 15, 2008), and an ADSL 3 Mbps upstream/15 Mbps downstream option filed under Transmittal No. 1233 (effective Feb. 25, 2009). *See also,* NECA Comments, GN Docket No. 09-51 (June 8, 2009), at 4-7 (*NECA NBP Comments*).

[6] *See* NECA Tariff F.C.C. No. 5, Access Service, Trans. No. 1257 (filed Nov. 13, 2009) (to become effective Dec. 28, 2009). NECA's IP Gateway service enables IP voice network providers the option to terminate IP traffic on NECA member companies' networks using a telephone company-provided gateway. Availability of this service reflects the extent to which NECA pool participants' networks have been upgraded with IP-based equipment such as "softswitches."

observations about the role USF and ICC mechanisms play in RLEC broadband deployment may be made from analyses of information currently available to NECA. These observations include:

- The vast majority of high-cost funding paid under current programs to RLECs is used to deploy and maintain a single, multi-use, broadband-capable network reaching about 92% of customers in areas served by these carriers. However, upgrading facilities in remaining unserved areas, and improving broadband capabilities for existing customers, will be expensive and will likely require substantial additional funding.

- Universal Service reform efforts should focus on supporting the provision of broadband services over this multi-use network. To accomplish this in areas served by RLECs, the National Broadband Plan should seek to define a "Rural Broadband Network" encompassing broadband transmission capability from the end user to the Internet backbone. Funding should support the entire end-to-end network required to provide broadband services, including "second mile", "middle mile" and related Internet connectivity costs, and broadband-only last mile connections (*e.g.*, "naked DSL").

- As mechanisms are put in place to support broadband services, existing voice-based programs can be phased down and simplified so as to assure remaining voice-only customers are not subject to undue rate shocks.

- To maintain the viability of federal high-cost funding mechanisms, the current revenue-based contribution mechanism should be changed to a connections-based system that counts all telephone numbers and all other types of connections, including all broadband connections. As requested by the Commission, NECA provides information herein illustrating the impacts this approach would have on various groups of customers.

- Intercarrier compensation mechanisms remain important to rural rate of return carriers and should not simply be abandoned. Rather, the Commission and state regulators should work in partnership to enable carriers to charge economically-rational rates that are unified, by company or pool rate band, across all switched access services regardless of jurisdiction, service or technology. Switched access rates should not be set at zero or near-zero levels, as this approach sends wrong economic signals that will result in network customers preferentially sending traffic via "free" switched circuits, forcing rural providers to shift investment to these facilities and thereby undermine deployment of broadband networks and services.

In addition, NECA provides with this filing its newly-released *Trends 2009* Report (attached as Appendix A).[7] *Trends 2009* documents the continued progress NECA pool members are making in deploying broadband-capable networks in their rural service areas. The information contained in NECA's Trends report is relevant to many of the issues under

[7] *Trends 2009*, National Exchange Carrier Association, Inc. (2009) (*Trends 2009).*

consideration in the Commission's National Broadband Plan process, most importantly providing data confirming RLECs are not simply using existing funding to maintain "legacy" networks and voice services.[8]

DISCUSSION

1) Size of the Universal Service Fund

The first series of questions in the *Public Notice* seeks comment on whether the size of funding for each of the various support mechanisms in the Universal Service Fund is appropriate to achieve universal broadband service. To the extent commenters believe funding should be increased for any of the support mechanisms, the Commission asks whether the total size of the Fund should be increased or whether funding should be reduced in other mechanisms, and if so, how.

Cost estimates for universal broadband services vary substantially depending on a number of factors, especially minimum speed standards. Clear answers to questions about total cost, and required funding levels and mechanisms, must await determination of precise public policy goals as mandated by Congress and established by the Commission in the context of the National Broadband Plan and related implementation proceedings. It bears noting, however, that while current universal service mechanisms are often criticized for funding "legacy" voice networks, in fact, existing USF funding is being used by RLECs to deploy and maintain multi-use networks in rural areas of America, permitting these companies to offer advanced broadband

[8] NECA's comments in response to NBP Public Notice No. 11 (Middle Mile) explained efforts are currently underway to collect additional information from member companies intended to provide a representative look at broadband deployment issues among rural rate of return incumbent local exchange carriers. NECA Comments, GN Docket No. 09-47 (Nov. 4, 2009), at 1, n. 2. (*NECA Middle Mile Comments*). NECA also anticipates providing further information in the context of specific rulemaking proceedings intended to implement aspects of the National Broadband Plan in the coming year.

services across large portions of their service territories.[9] Further, the high-cost support rural RoR companies receive is based on the actual costs they incur for building and maintaining their rural broadband-capable networks.

Of the total $4.4 billion USF high cost support distributed in 2009, $3.1 billion went to incumbent local exchange carriers.[10] Of this $3.1 billion, $2.4 billion went to RLECs for High Cost Loop (HCL), Interstate Common Line Support (ICLS) and Local Switching Support (LSS).[11] HCL and ICLS support accounted for $2.1 billion, which directly supports loop distribution plant investment and maintenance vital to delivering broadband to rural consumers. This funding permits continuing deployment of fiber deeper into the distribution network, allowing for increased availability of higher speed broadband services. The remaining funding of $0.3 billion is for Local Switching Support, which helps maintain today's voice services and supports investments in next-generation IP-capable softswitches.[12]

As an example of RLECs' commitment to building the networks needed to meet future IP broadband service requirements, a sample of 723 out of 1,152 companies participating in the NECA common line pool added gross investment in their networks of $1.2 billion between 2006 and 2007, $1.6 billion between 2007 and 2008, and $2.1 billion between 2008 and the 2009/2010 tariff test period.[13] The vast majority of these investments in network upgrades are for fiber deployments and state-of-the-art softswitches. The evolution of the local switched network from

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[9] NECA's *Trends 2009* Report highlights, for example, the dramatic increases in the number of TS pool participants offering Ethernet Transport Service. *Trends 2009* at 8.

[10] The remaining $1.3 billion went to CETCs, primarily wireless carriers.

[11] These figures exclude amounts associated with the Commission's Safety Valve and Safety Net programs.

[12] *Trends 2009* at 10.

[13] *See* NECA Access Service Tariff FCC No. 5, Transmittal No. 1245 (June 16, 2009), at Vol. 2, Exh. 2.

circuit switching to packet routing technology is starting to accelerate as members modernize their local networks to meet their customers' future broadband service needs.

Broadband availability to customers served by NECA's TS Pool members is currently 92 percent.[14] NECA member companies use a diverse set of network technologies to meet the demand for advanced services, from copper-based DSL to fiber-based high-speed Internet access. While 92 percent broadband availability shows good progress, challenges associated with reaching the remaining 8 percent of customers without broadband availability at any speed, and upgrading broadband-capable lines to the higher speeds required by evolving services, are significant. Data also shows low overall average take rates in rural areas,[15] which can most likely be attributed to a complex set of social, education and economic issues.

Additional factors limiting broadband take rates in rural markets include:

- The high cost of last and second mile networks;
- Limited access to affordable middle mile transport;
- Lack of access to affordable video content.[16]

Many RLECs view deploying fiber loops as a way to increase broadband take rates and to "future proof" their access networks, since it is difficult to predict how much bandwidth future services will require or how much bandwidth end users will desire in the future. Fiber loops can also go greater distances at a lower overall cost than copper loops. Rural areas, however, face substantial challenges in deploying fiber further into their networks due to the many factors that make their service areas "high cost". As reported in a recent survey sent to NECA's TS Pool,

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[14] *Trends 2009* at 7.

[15] *Id.*

[16] Companies and affiliates offering DSL with a video component or option have a DSL take rate nearly 24 percent higher than companies offering DSL without access to any video services.

only about 3.8% of total loops are currently fiber to the home/ fiber to the premises (FTTH/FTTP).[17]

In addition to loop-related funding, new programs are needed to defray the high costs of second and middle mile transport and connections with Internet backbone facilities. In comments submitted in response to Public Notice #11, NECA used data currently available to demonstrate there is a wide variance in middle mile costs for RLECs.[18] For example, NECA found the inter-percentile range of the monthly cost per Mbps for a DS3 connection is between $50 and $375. The inter-percentile range of monthly costs per Mbps for 10 to 50 Mbps Ethernet connections is between $47 to $186, and the inter-percentile range of monthly costs per Mbps for 1000 Mbps Ethernet connections is between $2 and $18.[19]

NECA's 2006 study, "The Packet Train Needs to Stop at Every Door"[20], estimated the additional investment cost of upgrading 5.9 million access lines served by RLECs to 8 Mbps would be $11.9 billion, based on then-current technology prices. Adding operating, overhead, and depreciation expenses, plus a return on investment, yields a $3 billion annual revenue requirement to service this network upgrade.[21]

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[17] 2009 data submitted to NECA as part of its annual survey shows 183,000 FTTH/FTTP loops out of a total of 4.7 million loops provided by TS Pool participants. *See Trends 2009* at 7.

[18] *See NECA Middle Mile Comments.*

[19] *See id*. at 4-5.

[20] *See The Packet Train Needs to Stop at Every Door*, NECA (June 2006). https://www.neca.org/cms400min/NECA_Templates/ResourceInterior.aspx?id=105&terms=packet+trains (Executive Summary) (*NECA Packet Train Study*).

[21] At the FCC's September 2009 Open Meeting, staff presented an estimate of the cost to make broadband universally available across the U.S. Depending upon the type and amount of broadband required, staff estimated the cost would probably fall in the $20-350 billion range. To provide 3-10 Mbps universally, the estimate was approximately $35 billion. For rural areas, the estimated annual cost per subscriber of $507 was broken down as $300 for Capital Expenditures (CapEx), $57 for Operating Expenditures (OpEx), and $150 for transit and transport.

While specific required funding levels for universal broadband service cannot be fully understood until the broadband plan framework and provisioning requirements are fully defined, it appears clear that funding requirements for high speed broadband-capable networks in rural America will be significant in order to achieve the Congressional mandate for access to advanced services that are reasonably comparable in quality and price to those provided in urban areas.

As mechanisms are put in place to support broadband services, funding for existing voice-based programs can be phased down. NECA describes its proposed transition approach below that, if adopted, will automatically reduce funding under existing RLEC mechanisms as customers convert to broadband only services.[22] In any event, the Commission should not conclude what specific funding levels are needed before it has undertaken a proceeding to consider these issues fully, including adequate time for interested parties to gather and validate data submissions based on specific proposed rules.

2) **Contribution Methodology**

Noting that commenters have proposed several different ways to reform the USF contribution methodology, *e.g.*, based on telephone numbers and/or connections, or based on an expanded revenue-based methodology, or some combination of the two, the Commission asks commenters to explain how their preferred solution would impact end-users and how it would alter the relative share of contributions borne by residential consumers as opposed to business consumers. The Commission also asks commenters to address how different contribution methods would impact residential households with different consumption characteristics.

[22] One advantage of this approach is that it would enable the Commission to immediately implement a broadband funding mechanism while allowing adequate time to reevaluate existing programs. *See, e.g.*, *Remarks of Acting Chairman Michael J. Copps,* Pike and Fischer's Broadband Policy Summit, June 18, 2009, at 5 (describing need to fund broadband without abandoning voice customers).

The information provided in response to Item 1 above makes clear funding universal broadband services in rural areas will be expensive. Yet existing universal service funding mechanisms are already stressed by a combination of increasing demand levels and a declining interstate end user revenue base.

Some parties insist the current revenues-based mechanism can be maintained by broadening the revenue base beyond interstate end user telecommunications revenues.[23] Others insist the current mechanism should be replaced with a system that assesses working telephone numbers only.[24] Others, including NECA, support expansion of the funding base to include broadband services.[25]

NECA believes a compromise approach that bases contributions on a combination of telephone numbers and connections, including all broadband connections, may be a reasonable alternative for reform of the USF contributions methodology. A provider offering service utilizing a standard 10-digit NANP number would be assessed a charge for each such number, while a provider offering any other connection to the network, including a connection for broadband service, would be assessed for each such connection.[26] For example, a voice-only landline service would equal one billable unit based on its use of a NANP number; a voice landline service with broadband (ADSL) would equal two billable units (one for the NANP number and one for the broadband connection). Similarly, a voice-only cell phone service would

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[23] *E.g.*, Letter from Cavalier and XO, to Marlene H. Dortch, FCC, CC Docket No. 01-92 (Nov. 24, 2009); PA PUC Comments, WC Docket No. 05-337 (Apr. 17, 2008), at 21-22.

[24] *E.g.*, Letter from VON Coalition, *et al.* to Chairman Martin, FCC, WC Docket No. 06-122 (Nov. 3, 2006).

[25] *See, e.g.*, NECA Reply Comments, WC Docket No. 05-337 (Dec. 22, 2008) at 22-23; NTCA Comments, (Nov. 26, 2008) at 27; California PUC Comments (Nov. 26, 2008) at 12.

[26] Based on the recently released Broadband Report derived from FCC Form 477 data as of June 2008, adding broadband connections could result in an additional 132.8 million billable units. Of these, 33.1 million are ILEC, 38.2 million Cable Modem, and 61.4 million Satellite and Wireless.

equal one billable unit; a cell phone with a data plan (broadband connection) would equal two billable units; a cable broadband Internet service would equal one billable unit, adding cable digital voice service would make two billable units, etc.

This approach, if adopted, would expand the base of contributors to include those providing broadband or other types of transmission connections (under both Title I and Title II regulatory structures), while retaining contributions from those providing access to services utilizing traditional telephone numbers.

A key issue with a method that includes connections is how to keep it simple and yet help achieve the goal of making the contribution base as broad as possible. One approach would be to simply count all network connections, including all broadband connections (including cable and price cap Title I connections), as a billable unit equal to a telephone number. A somewhat more complex approach would attempt to recognize to a limited degree the capacity of the network connection, with a higher capacity connection assigned more billable units.[27]

In designing a revised contribution mechanism, the Commission should take care to avoid ambiguously-defined exceptions for "residential" connection, "enhanced" services or "private" network connections, as these will only incent providers to avoid USF assessments by artificially claiming their services qualify for exemption. As USAC's recent request for FCC guidance on USF contributions from ATM/Frame Relay and VPN services,[28] and the ensuing comments attest, [29] allowing exceptions of this type would likely add to the complexity and

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[27] *See, e.g.*, Letter from Mary L. Henze, AT&T, and Kathleen Grillo, Verizon, to Marlene Dortch, FCC, WC Docket No. 06-122, CC Docket No. 96-45 (Oct. 20, 2008).

[28] Letter from Richard A. Belden, Chief Operating Officer, USAC, to Julie Veach, Acting Chief, WCB, FCC, WC Docket No. 05-337 (filed Aug. 19, 2009); Letter from Richard A. Belden, Chief Operating Officer, USAC, to Julie Veach, Acting Chief, WCB, FCC, WC Docket Nos. 05-337; 06-122 (filed Aug. 21, 2009).

[29] *See, e.g.*, NECA Comments, WC Docket No. 05-337 (Oct. 28, 2009) at 2; AT&T Comments at 12; Verizon and Verizon Wireless Comments at 10-15; USTelecom Comments at 6-7.

uncertainty of the methodology by adding questions about where to draw the line between what is in and out of the assessable base and how to assess providers adopting new business models. The goal should be a simple, straight-forward definition of assessable billable units that distributes the contribution obligations over a broad base of network users with minimal "exceptions."

Attached as Appendix B is a table presenting an illustrative impact analysis of a number/connection approach on households with different consumption characteristics. The illustrative table is based only on telephone numbers and broadband connections from the Commissions' High Speed Services Report.[30] Adding additional network connections, as well as any 'weighting" of connections as described above, would increase the billing base and reduce the per unit charge illustrated in this table.[31]

3) **Transitioning the Current Universal Service High-Cost Support Mechanism to Support Advanced Broadband Deployment**

The *Public Notice* requests comments on ways existing high-cost USF support mechanisms can be transitioned to support broadband deployment.[32] It notes several options for doing so, including supplementing existing programs with one or more additional programs targeted at broadband support or by reducing existing program support and transitioning the funds into a redesigned mechanism that explicitly funds broadband. More specifically, the *Public Notice* asks what would be an appropriate transition path to a new broadband fund, what

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[30] *See* High-Speed Services for Internet Access: Status as of June 30, 2008, WCB (July 2009), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-292191A1.pdf.

[31] The calculations in Appendix B assume that broadband connections are not currently subject to universal service contribution requirements. In fact, under the Commission's *Wireline Broadband Internet Access Service Order*, broadband customers of RLECs are presently assessed contribution charges. *Appropriate Framework for Braodband Access to the Internet over Wireline Facilities*, CC Docket No. 02-33, Report and Order, and Notice of Proposed Rulemaking, 20 FCC Rcd 14853 (2005), at ¶ 112.

[32] *Public Notice* at 2.

percentage of existing support is already being used to upgrade infrastructure that can provide broadband, and what amount of high-cost support is currently being used to support the maintenance of legacy networks.[33]

a) Developing an appropriate transition path.

As noted above, existing USF funding is primarily being used by RLECs to deploy and maintain multi-use, broadband-capable networks in rural areas of America. The vast majority of rural carriers' investments in network upgrades are for fiber deployments and state-of-the-art soft switches. In fact, given available network technology, it is unlikely any significant portion of the billions of dollars invested by rural companies in the past few years has been spent on "legacy service only" plant or equipment.

Today's networks enable RLECs to offer various broadband transmission services to ISPs and other entities, and numerous other services such as wireless backhaul and Ethernet. While some portions of rural networks (typically, the most costly sections) still need to be upgraded, these facilities do not constitute a separate network absorbing dollars that might otherwise be used to support broadband. To the contrary, they constitute a relatively small and steadily-declining portion of RLEC multi-use networks. Consequently, it may not be practical or desirable to attempt to distinguish between upgraded "broadband capable" and non-upgraded "legacy" portions of networks for purposes of analyzing funding.

The challenge is to develop a plan to transition today's support mechanisms, which are focused on supporting voice services, to ones that explicitly support broadband services, without subjecting remaining voice consumers to undue rate shock.[34] NECA believes the Commission

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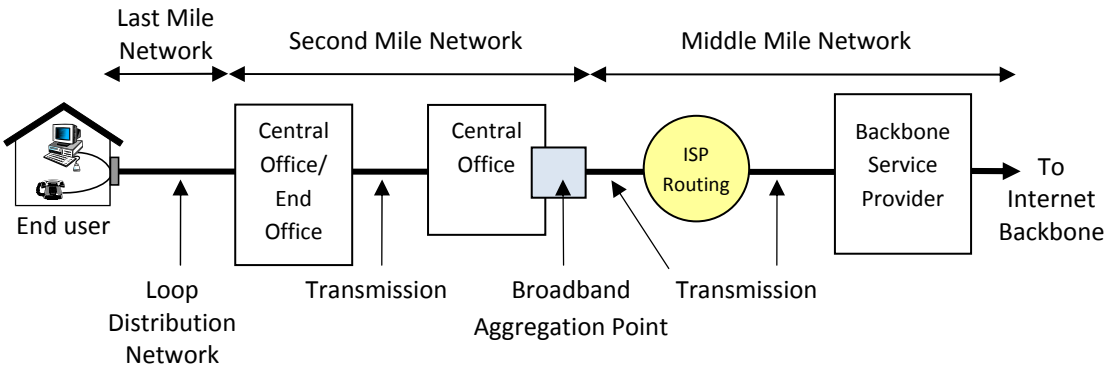
[33] *Id.*

[34] Over 130 million customers nationwide subscribe to voice service from ILECs. *See, e.g., Trends in Telephone Service*, FCC (Aug. 2008), Table 8.2, at 8-6. Based on information provided with NECA's September 2009 USF Data filing, *see* USF 2009 Data Submission of

can accomplish this result by developing a new benchmark-based support mechanism for RLECs that encompasses all broadband network transmission facilities needed to offer high-speed broadband Internet access services to rural end-users, including all major network transmission components from the end-user to the Internet backbone (*i.e.*, last mile, second mile, middle mile, and related Internet connectivity). These components are shown in the following diagram:

Broadband Network Transmission Facilities



Under a benchmark system, USF broadband funding could be determined by comparing the actual costs of regulated common carrier rural broadband network transmission services RLECs use to provide Internet access service (from the end user to the Internet backbone as defined above) to urban broadband network transmission cost benchmarks, established by the Commission. The benchmark system should include incentives for RLECs to deploy innovative broadband facilities in an efficient manner, and should take into account revenues generated by the provision of broadband services. Appendix C, attached to these comments, provides an illustrative example of how such a benchmark system could work.

Today's voice service-oriented common line loop distribution plant cost recovery methods would be transitioned to a "broadband end user connection" approach as customers

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2008 Study Results (Sept. 30, 2009), RLECs provide voice service to approximately 6.3 million customers.

adopt broadband service as their primary telecommunications link.[35] That is, when a customer chooses a broadband-only connection (*e.g.*, naked DSL), last-mile loop distribution costs would be included in the rural broadband support mechanism described above. For RLEC customers who continue to choose traditional local exchange voice services, with or without broadband (ADSL),[36] there would simply be no loop cost included in the rural broadband network transmission cost calculation described above. Such customers would continue to pay local exchange rates and subscriber line charges, and existing loop related high-cost support mechanisms would continue to apply for a reasonable transition period.[37] Finally, once the new broadband mechanism is in place and the Commission has actual data on its effectiveness and funding levels, the Commission could then consider ways to transition today's voice-centric programs to simpler mechanisms that incent (but do not force) customers to adopt broadband services for all their telecommunications needs.

It is critical to note this proposed transition approach is focused on *maintaining reasonable rates for services* needed by customers in RLEC serving areas. It is not intended to preserve "legacy" voice network facilities. Indeed, as noted above, the bulk of RLEC networks and virtually all new investments in facilities are devoted to IP-based, broadband capable facilities. Regardless of whether a particular customer orders broadband, voice-plus-broadband

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[35] Letter from Joe A. Douglas, NECA to Marlene H. Dortch, FCC, GN Docket No. 09-51 (Oct. 30, 2009), Attachment at 2 (*NECA October 2009 Letter*).

[36] 87% of broadband service in RLEC study areas is currently provisioned as a combination of voice services and ADSL over copper, and the remaining 13% is provisioned using other broadband technologies (FTTH/FTTP/FTTC/FTTN/HFC). *See Trends 2009* at 7.

[37] Under current rules for rate of return carriers, existing funds can be expected to transition to lower levels as customers increasingly adopt broadband. For example, when a customer elects to drop voice service and purchase only a broadband connection (*e.g.*, naked DSL) from an RLEC, existing Part 36 rules transfer loop costs away from voice service support funding (ICLS and HCL) to the special access rate element, which is not eligible for support under current mechanisms. This broadband connection would, however, qualify for funding under NECA's proposal as part of the new broadband fund.

or voice-only services from an RLEC, it is likely those services are already provided, or will soon be provided, over broadband-capable facilities. Instead, the point of the mechanism described above is to provide an administratively-simple approach for transitioning existing voice service support to broadband support in a way that furthers the Commission's broadband goals without harming current voice customers.

b) Funding Structure

The *Public Notice* also asks how a new broadband support mechanism should be structured, e.g., single or multiple funds (mobility and/or fixed, middle mile, last mile) and through what mechanisms or criteria should funding be awarded.

In this regard, NECA has suggested the Commission structure a new broadband fund that would provide support to only one fixed and one mobile "last resort" network in RLEC high cost areas.[38] Such support should be conditioned upon carriers' agreement to be the broadband Carrier of Last Resort (COLR) and offer broadband network transmission services as regulated common carriage Title II services (*i.e.*, require any recipients of federal funds to provide non-discriminatory interconnection and wholesale access services to all providers that wish to offer retail services over the network).[39] This represents a continuation of current COLR and common carrier requirements in place today for RLECs, but expands them to apply to all recipients of USF funding in RLEC areas.[40]

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[38] *NECA October 2009 Letter,* Attachment, at 1.

[39] Title II obligations in this context are intended to refer to traditional common carrier requirements imposed on interstate services under sections 201-205 of the Act, and do not extend to the interconnection requirements promulgated under section 251 of the Act, including any obligation to offer broadband services on an unbundled network element basis.

[40] The approach described herein is focused on RLEC areas and is not intended to address approaches that may apply in price cap areas.

The *Public Notice* also asks about the impact of designing a support mechanism so that a provider's competitive loss of a subscriber results in loss of associated funding.[41] Proposals for designing support mechanisms that somehow "subtract" support when a provider experiences line losses due to competition – including a recent petition for rulemaking filed by the National Cable & Telecommunications Association (NCTA)[42] -- assume incorrectly all providers bear equal regulatory obligations. In fact, some carriers bear "last resort" obligations and must stand ready to serve customers regardless of whether a competitor is willing or able to provide service.[43] While COLR obligations have traditionally been established for voice services, NECA believes these fundamental obligations are equally important in an all broadband world in order for rural high cost areas to achieve ubiquitous broadband service, and should be applied to the rural network provider receiving high cost funding.

COLR duties may be articulated in the "certificate of public convenience and necessity" or found in a state commission's administrative rules or orders.[44] States have imposed COLR policies on certain carriers to protect customers from unreasonable discrimination in the availability of service, ensure customers are provided service and line extensions at reasonable costs, and protect them from service abandonment.[45] COLRs also have carrier-to-carrier duties that make it possible for the entire network to function as a single network.[46]

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[41] *Public Notice* at 3.

[42] *See* NCTA Petition for Rulemaking, Reducing Universal Service Support In Geographic Areas That Are Experiencing Unsupported Facilities-Based Competition (filed Nov. 5, 2009) (*NCTA Petition)*.

[43] Some states (*e.g.*, California) even require COLRs to maintain a "warm line" to customers who have dropped service or chosen a competitive facilities-based provider, in case there is a need for emergency 911 calling capability. *See* California Public Utilities Code § 2883.

[44] Carriers of Last Resort: Updating a Traditional Doctrine, NRRI (July 2009), at 3, http://www.nrri.org/pubs/telecommunications/COLR_july09-10.pdf (*NRRI Study*).

[45] *Id.* at 1.

[46] *Id.* at 2.

Thus, the impact of designing a program that causes a COLR to lose funding simply because it experiences competitive losses is inconsistent with continuing COLR obligations to be ready to provide service, and also does not recognize there is little if any cost reductions experienced by the COLR when customers use an alternate provider's services.[47]

This is not to suggest a particular provider must be supported indefinitely regardless of the extent to which it suffers competitive service losses. It is possible, for example, a given provider could lose market share to the extent its "last resort" obligations are imposed on a marketplace successor.[48] In some urban areas, competition may progress to the point that there may be no need to impose such obligations on any provider. In rural areas served by a carrier bearing last resort responsibilities, however, it is essential the Commission's universal service program recognize the unique burden such obligations impose on the COLR.

c) Use of forward-looking costs vs. actual costs.

Commenters are asked if the size of any broadband fund would be appreciably different if support were calculated based on a forward-looking cost model, as opposed to individual provider submission of actual costs.[49]

As noted above, support for rate-of-return carriers should be based upon the actual costs of providing broadband services. This approach represents a sounder basis for developing policy and provides the stability necessary for making investment decisions in high-cost rural areas

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[47] One solution to this problem advanced by some commenters is to target support more narrowly to smaller geographic areas in which competitive services are not available. This approach is discussed below in connection with NECA's response to item 3(g).

[48] 47 U.S.C. § 251(h)(2). *See also, Petition of Mid-Rivers Telephone Cooperative, Inc. for Order Declaring It to be an Incumbent Local Exchange Carrier in Terry, Montana Pursuant to Section 251(h)(2),* WC Docket No. 02-78, Report and Order, 21 FCC Rcd 11506 (2006).

[49] *Public Notice* at 3.

served by RLECs. Attempting to project costs and revenues into the future is at best a risky proposition that can cause severe market disruptions when conditions change. In a period when financial companies collapsed because they manipulated the value of their assets, actual costs incurred are a prudent guide for evaluating companies and for policy making.[50] Ultimately, companies must recover the costs of deploying, maintaining and upgrading broadband-capable networks, and should not have to risk their futures on theoretical models that may have little relation to reality.

The record in this proceeding, as well as earlier proceedings, shows that costs of providing service in rural areas vary considerably. It is unclear whether any model can hope to produce funding results that do not significantly underpay, or overpay, providers in particular circumstances.[51] While it is possible modeling techniques may work well for larger carriers, who have the ability to "average out" inaccuracies in model results across larger service territories, the Commission should not attempt to apply such models to smaller carriers without careful consideration of the effects that deviating from actual costs would have on rural network deployment. And in any event, the Commission should not delay implementation of much-needed broadband funding mechanisms pending invention and validation of such modeling techniques.

d) Support for Capital vs. Operational Expenses.

The *Public Notice* points out that current high-cost mechanisms do not provide direct reimbursements for capital expenditures (CapEx), but do provide a return on net investment for

[50] Among other factors, actual booked costs are subject to audit and verification using both ordinary and forensic accounting methods – in marked contrast to costing methods based on theoretical studies or hypothetical models.

[51] *E.g.*, RICA Comments, GN Docket No. 09-51 (June 8, 2009), at 9; NTCA Comments at 14; ITTA Comments at 19-20; Comcast Comments at 57-59, 62.

RLECs, as well as support for operating expenses (OpEx).[52] It asks if high-cost broadband funding should support a direct one-time reimbursement for new capital expenditures only, or if it should support both capital and operational expenses?[53] If a new broadband fund did not support broadband operational expenses, the *Public Notice* asks how carriers would distinguish between legacy expenses and broadband expenses.[54] Commenters are also asked to identify technology and cost assumptions, the specific facilities that should be supported, and the types of operational expenses that should be eligible for support.

In rural, high-cost areas, not only is it difficult to get access to capital for the initial investment, but operational expenses are higher due to lower economies of scale and large distances between subscribers and to the Internet backbone. Cost calculations underlying existing support mechanisms, which provide indirect support for capital costs and direct support for operational expenses associated with relevant network components, appear to offer the best model for RLEC funding and these approaches should be applied to new support mechanisms for facilities required to offer broadband Internet access service.

e) Accounting for Revenues from Upgraded Plant.

Traditional universal service support mechanisms account for revenues derived from regulated services.[55] In a broadband environment, however, carriers may derive revenues from both regulated and unregulated services provided over supported plant. In this regard, the *Public Notice* asks what would be the impact if a new high-cost broadband mechanism takes into

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[52] *Public Notice* at 3.

[53] *Id.*

[54] *Id.*

[55] For example, Interstate Common Line Support (ICLS) is calculated as the residual of interstate common line revenue requirements minus revenues from common line-related rate elements including subscriber line charges. *See* 47 C.F.R. § 54.901, *et seq*.

account all revenues derived from upgraded broadband plant, and how should those revenues be used in the calculation of support?[56]

As discussed above, NECA proposes support be based upon a new cost benchmark calculation that compares the actual costs of an individual rural broadband network provider to an urban broadband network cost benchmark. Individual USF funding would be determined by comparing all actual regulated common carrier rural broadband network transmission costs to an urban network transmission cost benchmark established by the Commission. This mechanism can be adapted to take into account revenues as well, without necessarily attempting to re-regulate revenues from services that have been classified as non-telecommunication services (*e.g.*, IPTV).[57]

f) Treatment of Broadband Grants

The *Public Notice* asks how the Commission should take into account broadband grants and loans issued by NTIA or RUS in the calculation of high-cost support. [58]

Existing Commission accounting rules and procedures applicable to rural rate of return carriers appear to be adequate for handling such grants and loans. Under those rules, grant funds received by RLECs from either NTIA or RUS under the Broadband Initiatives Program (BIP) or Broadband Technologies Opportunity Program (BTOP) would be accounted for as

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[56] *Public Notice* at 3.

[57] It bears noting that any consideration of revenues from non-regulated sources would also need to take into account the costs of providing such services. Among its member companies, NECA has found the costs of providing "triple play" services high enough to render such activities unprofitable in many areas, primarily due to the high cost of obtaining content. *See NECA Packet Train Study*. For this reason NECA (and others) have strongly suggested the National Broadband Plan address ways of assisting small carriers to obtain content and interconnection to larger networks at reasonable prices, as this appears to be a key factor in broadband "take" rates. *E.g.*, *NECA NBP Comments* at 12-14; NTCA Comments, (June 8, 2009), at 38-39; OPASTCO Comments, (June 8, 2009) at 38. *See also NECA October 2009 Letter*, Attachment, at 3.

[58] *Public Notice* at 3.

reductions of allowed project expenses or a reduction of plant asset costs installed with the grant funds.[59] Assets installed with BIP loan funds would not be reduced by the loan proceeds because the BIP loan funds must be repaid just as any other external loan.

g) Targeting Funds to Narrower Geographic Areas

The *Public Notice* asks if a new broadband mechanism should more narrowly target high-cost support to smaller geographic areas and to unserved areas, and if so, what would be the appropriate geographic area for determining the amount of support.[60] The *Public Notice* also asks how this would impact the overall size of the high-cost fund, and whether the presence of any other broadband service provider should preclude support to any provider. [61]

During the course of the Commission's Universal Service reform proceeding, as well as in related proceedings, a number of parties have submitted proposals to target high-cost support at levels below existing study areas.[62] While some disaggregation proposals may warrant consideration for non-RLECs,[63] the Commission should nevertheless proceed with caution. Disaggregating support below the study area level will likely increase pressure on USF funding requirements,[64] and at least for RLECs will place undue reliance on proxy models, impose

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[59] *See, e.g.,* 47 C.F.R. § 32.2000(a)(2).

[60] *Public Notice* at 3.

[61] *Id.* at 3-4.

[62] *See e.g.,* Letter from David C. Bartlett, Embarq, to Chairman Kevin J. Martin and Commissioners Michael J. Copps, Jonathan S. Adelstein, Deborah Taylor Tate, and Robert W. McDowell, FCC, WC Docket No. 05-337 and CC Docket No. 96-45 (Sept. 8, 2008) (attaching Broadband and Carrier-of-Last-Resort Support (BCS) proposal).

[63] NECA's comments are focused on rural RoR carriers and are not intended to address proposals targeted at other carriers. Because rural RoR carriers face unique requirements, new USF broadband support mechanisms will need to be designed separately from support mechanisms for other carriers.

[64] For example, an analysis of support payments for the former Northwestern Bell-North Dakota study area based on 2001 data shows that while the study area as a whole does not qualify for

significant administrative burdens and be inconsistent with sound engineering practices for joint use plant.

Some disaggregation proposals assume, incorrectly, a network's costs can be split into two parts: a core network which recovers all switching and interoffice costs, and spokes or loops radiating from the core either out to lower cost areas or to noncompetitive areas.[65] In reality, there is only one network and its design depends upon the characteristics of the entire service area. For example, feeder cable and concentrator device locations will depend on customer locations within and outside the supposed core. The number of maintenance staff and trucks, and the number of truck rolls, will depend on the entire network design, not some artificially bifurcated design based upon USF costing and support calculations. Similarly, planned upgrades to plant and services become more costly if an RLEC has to plan separately for in-town (low cost) and remote customers (high cost).

Using either a competitive trigger or some cost-proxy model to determine with reasonable precision which parts of service areas no longer need support assumes carriers and regulators are able to break the network and supporting management systems apart and allocate costs by geographic region. Any competitive trigger would have to be more sophisticated and specific than simple geographic coverage maps.

Even assuming it is possible to identify with precision those areas with competition, or the specific costs of serving individual piece-parts of study areas, it remains highly questionable

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support under the Commission's hybrid cost proxy model, 21 of the 35 wire centers in the state would qualify under the model if treated separately, substantially increasing model-based support in that area. *See* "Wirecenter Support Spreadsheet" on FCC's Hybrid Cost Proxy Model website at http://www.fcc.gov/wcb/tapd/hcpm/welcome.html. Similar results can be expected in other areas with few low-cost cities and extensive rural coverage areas.

[65] NCTA's recent proposal to eliminate local switching support and interoffice transport costs for entire study areas when competition occurs in a portion of a study area, *see NCTA Petition* at 18-19, is a particularly egregious example of this approach.

whether support disaggregation techniques would be in the public interest for RLEC study areas. It is well-documented rural study areas typically encompass areas that are both relatively low-cost (e.g., small towns) and extremely high cost (remote farms, small villages in outlying areas, etc.).[66] Rural carriers of last resort must serve both the "hole in the donut" as well as the "donut" itself – the presence of cable or other types of facilities-based competition in the low-cost portion of a study area does not mean the entire area is competitive or that support should be reduced via disaggregation or other means.[67]

In this regard, the recent NRRI study on COLR responsibilities recommended adoption of relatively *large* rather than small COLR service areas that include some rural high-cost territory, specifically to realize the benefits that flow from averaging low-cost areas with higher-cost areas. In NRRI's view, service areas need not be congruent with those of large incumbent local exchange carriers, but larger service areas that include some high-cost territory "are likely to continue to benefit from rate averaging between high-cost and low-cost areas, reducing the demand on state universal service funds."[68]

h) Impact of Funding Caps

The *Public Notice* asks what would be the impact of imposing caps on broadband funding mechanisms, and how such caps should be calculated and applied.[69]

Under section 254 of the Telecommunications Act, funding for universal service must be "specific, predictable and sufficient" to preserve and advance universal service.[70] As NECA

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[66] *See supra*, n. 60.

[67] For example, to NECA's knowledge there are few cable companies who have sought ETC status, which carries an obligation to serve entire service territories. *See* 47 U.S.C § 214 (e)(1)(A).

[68] *NRRI Study* at 59.

[69] *Public Notice* at 4.

and numerous other parties have shown in prior comments, caps and/or freezes on high-cost USF support are fundamentally inconsistent with the Commission's broadband build-out goals. RLECs are willing to risk investment capital to provide advanced services to customers in high cost rural areas to the extent they have assurance necessary funding will be available via state and federal universal service programs to recover the costs of such investments. Absent this assurance, companies are unlikely to continue making significant financial commitments to reach remaining customers who lack broadband access, or be able to continue to upgrade existing broadband capable networks to accommodate increased bandwidth demands.

NECA recognizes there is not unlimited funding, and the Commission must balance competing goals in establishing funding policy. Given the extensive uncertainty surrounding broadband goals and funding mechanisms, it appears premature to address potential mechanisms to control the overall size of the fund or funding to particular areas or types of providers. Rather, the Commission should first identify its specific broadband goals, including speed requirements and time frames for universal broadband availability, and proposed rules for broadband deployment. Then commentors will be able to provide the Commission input necessary to determine potential funding requirements under such plans and rules. Only at that point would it be appropriate to consider whether mechanisms to limit or reduce available funding are necessary or in the public interest.

i) Revisions to Requirements for Eligible Telecommunications Carrier Status.

The *Public Notice* points out existing requirements for Eligible Telecommunications Carrier (ETC) status relate to the provision of voice services, and requests comment on whether ETC provisions should be revised to reflect a new high-cost support mechanism for broadband.[71]

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[70] 47 U.S.C. § 254(b)(1)(5).

[71] *Public Notice* at 4.

Comments filed in related proceedings make clear universal service is an evolving concept, particularly with respect to broadband.[72] In developing new ETC standards, therefore, the Commission needs to recognize differences among providers and establish reasonable support thresholds. In particular, rural carriers should not be disqualified from receiving support where it is infeasible to achieve broadband speeds comparable to those provided in urban areas.

Moreover, while a new broadband support mechanism should require the provision of broadband Internet access service, voice services should not be discarded. As information submitted to the Commission in this proceeding amply demonstrates, many end-users continue to subscribe to voice services both in conjunction with broadband and on a stand-alone basis. [73]

Finally, while it may be the case that a number of carriers might qualify as "eligible" for support based on provision of specific broadband and/or voice services, any new broadband mechanism should not attempt to subsidize multiple providers in particular areas.[74] The Commission has compiled an extensive record regarding flaws in existing mechanisms, including in particular rules governing the provision of identical support to multiple competitors in a single area. Numerous parties have argued support mechanisms should be focused on one COLR provider in high cost areas, rather than attempting to subsidize multiple providers in otherwise competitive areas.[75]

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[72] *E.g.*, NECA Comments, GN Docket No. 09-29 (Mar. 25, 2009), at 4.

[73] *Supra*, n. 34.

[74] *High-Cost Universal Service Support*, WC Docket No. 05-337, *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, *Alltel Communications, Inc., et al. Petitions for Designation as Eligible Telecommunications Carriers RCC Minnesota, Inc. and RCC Atlantic, Inc. New Hampshire ETC Designation Amendment*, Order, 23 FCC Rcd 8834 (2008), at ¶ 34.

[75] *E.g.*, *NECA NBP Comments* at 9; WTA Comments, GN Docket No. 09-51 (June 8, 2009), at 28.

In this regard, NECA has suggested support be provided to only one fixed and one mobile broadband provider per RLEC high cost area.[76] NECA believes this approach, in conjunction with placement of COLR responsibilities on providers of both types of service as a condition of receiving support, appropriately recognizes the important and complementary roles played by both fixed and mobile technologies in the provision of universal service.

4. Impact of Changes in Current Revenue Flows

The fourth section of the *Public Notice* requests factual analyses regarding the extent to which significant reductions in current levels of USF support or intercarrier compensation (ICC) would jeopardize the ability of carriers to serve customers and deploy broadband.[77] In particular, the *Public Notice* request comment on methods the Commission might use to test the validity of such arguments; the financial impact of reducing or eliminating high-cost support for carriers in geographic areas where they are facing competition; the extent to which current ICC and USF revenues are being used to pay debt obligations and whether carriers are securitizing high-cost support or ICC cash flows; data on revenues, earnings and CapEx for individual carriers and groups of carriers; the percentage of free cash flow (defined as EBITDA minus CapEx) represented by high-cost support and/or ICC; individual company capital structures, in particular information on debt obligations; and information on the manner in which ICC payment flows may impact broadband deployment.[78]

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[76] *NECA October 2009 Letter*, Attachment, at 1.

[77] *Public Notice* at 4.

[78] With respect to ICC cash flows, the *Public Notice* (at 5) requests information on total ICC minutes of use and payments for the last 3-5 years in the aggregate for intrastate access, interstate access and reciprocal compensation (separate for originating and terminating access); total ICC revenues as a percentage of total revenues; information regarding disputed traffic and amounts; costs that might be avoided if current rates were replaced with a unitary rate; data on transit traffic MOU, and potential impacts of ICC reform on transit voice or data rates.

In 2005, NECA determined its pool members receive on average about 29% of their revenue from intercarrier compensation (primarily inter- and intra-state access charges), and about 31% from Universal Service Funding – a substantial amount even on average. The extent to which these companies rely on intercarrier compensation can vary, however, depending upon a number of factors. For the group of pool members who relied most heavily on intercarrier compensation (*i.e.*, those in the top 10%), reliance on intercarrier access revenues was seen to increase to an average of 49% of revenue.[79]

NECA has strongly supported steps aimed at reducing today's disparate intercarrier compensation rates to lower, more economically rational levels,[80] and continues to recommend the following two-step approach to ICC reform:

- First, state switched access rates should be transitioned to capped interstate levels under voluntary state participation, in return for federal funding in conjunction with a federal benchmark rate;
- Second, all rates should be transitioned to a lower rate per minute of use that is unified per company or pool rate band.

The Commission should not, however, eliminate switched access rates or set them at unreasonably low levels, as this approach would send wrong economic signals and create even more severe regulatory arbitrage problems than exist under current mechanisms. Setting an uneconomically low (zero or near-zero) rate for switched access translates into "free access" for valuable network transport and termination of voice services. With low enough rates, companies utilizing the network to provide competitive services will have the incentive to reduce their transport costs by routing traffic over the "free" switched network, leading to higher maintenance costs, traffic congestion, increased pressure on universal service funding to maintain the

[79] NECA Comments, CC Docket No. 01-92 (May 23, 2005), at 4.

[80] *E.g.*, NECA Comments, WC Docket No. 05-337 (Nov. 26, 2008), at 5; NECA Reply Comments (Dec. 22, 2008), at 3.

switched network, and potential delays in the roll-out of packet-based broadband services. This result would obviously undermine the goals of the National Broadband Plan. [81]

A number of questions in the *Public Notice* seek information on the costs associated with billing switched traffic minutes, and costs of resolving disputes over bills.[82] As NECA has repeatedly explained,[83] however, most "disputes" surrounding ICC billings stem from claims that particular calls are exempt from access charges on the theory the traffic at issue is "enhanced." Even assuming, for the sake of argument, ordinary voice calls are enhanced service calls merely because they originate in IP format, in many cases carriers have demonstrated the traffic is mostly likely IP-in-the-middle, and thus unquestionably subject to access charges.[84] Yet, unscrupulous carriers have been successful in tying up the courts and PUCs for years by asserting the FCC has "yet to decide" the issue.[85]

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[81] Situations where one person's "free" use of a common good diminishes another person's ability to use it are colorfully described in classic economic texts as the "Tragedy of the Commons." *See, e.g.*, N. Gregory Mankiw, Principles of Microeconomics, Third Edition, Southwestern, 2004, p. 231-233. In medieval towns, residents grazed their sheep on public land. No one person accounted for the cost imposed on others by their herd's consumption of public grass. Eventually overgrazing occurred, making sheep-raising unprofitable. By extension, RLEC networks would likely fall into this category as well if rates for switched services are forced to uneconomically low levels.

[82] *Public Notice* at 5.

[83] *See e.g.*, Letter from Joe A. Douglas, NECA, to Marlene H. Dortch, FCC. WC Docket No. 04-36, CC Docket No. 01-92 (May 23, 2008); Letter from Joe A. Douglas, NECA, to Kevin J. Martin, Chairman, FCC, CC Docket No. Docket No. 01-92 (Nov. 13, 2007); Letters from Joe. A. Douglas, NECA, to Marlene H. Dortch, FCC, CC Docket No. Docket No. 01-92 (Oct. 16, 2007 and May 2, 2007); NECA Comments, WC Docket No. 05-337 (Nov. 26, 2008), at 12, 35.

[84] *See Petition for Declaratory Ruling that AT&T's Phone-to-Phone IP Telephony Services Are Exempt from Access Charges*, WC Docket No. 02-361, Memorandum Opinion & Order, 19 FCC Rcd 7457 (2004) (*IP in the Middle Order*).

[85] *E.g., Frontier Telephone of Rochester, Inc. v. USA DataNet Corp.*, 386 F.Supp.2d 144 (W.D.N.Y., 2005); *Complaint of TVC Albany, Inc. d/b/a Tech Valley Communications Against Global NAPS, Inc. for Failure to Pay Intrastate Access Charges*, Case No. 07-C-0059, Order Directing Negotiation (NY PSC, Mar. 30, 2008), *The Southern New England Telephone Company v. Global NAPS, Inc. et al*., 251 F.R.D. 82, (D.Conn., 2008); *Global NAPS v. Bellsouth*, 455 F.Supp.2d 447 (E.D.N.C.,2006); *Complaint and Request for Emergency Relief of*

Simplification of existing rate structures would go far in resolving many disputes regarding ICC billings. But the main problem generating expensive disputes is not solely the ICC system itself. A substantial proportion of such problems would be resolved far more simply if the Commission were to take action on one of a number of related matters that have been pending before it for years.[86] Most importantly, the Commission should confirm all entities using switched network services to terminate calls must pay for network usage on an equal basis, without regard to the technology used to originate the call. The Commission should also make clear carriers are entitled to deny or discontinue service to carriers sending traffic to their networks for termination who refuse to pay legally-rendered access charge bills.[87] These small, reasonable steps by the Commission would go far to resolve many so-called "disputes" raised by

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Global NAPS Georgia, Inc. against Bellsouth Telecommunications, Inc. d/b/a AT&T Georgia, Docket No. 12921, *Final Order*, GA PSC (Nov. 15, 2007); *Request for Expedited Declaratory Ruling as to the Applicability of the Intrastate Access Tariffs of Blue Ridge Telephone Company, Citizens Telephone Company, Plant Telephone Company, and Waverly Hall Telephone LLC tothe Traffic Delivered to Them by Global NAPS, Inc. and Blue Ridge vs GNAPs*, Docket No. 21905, Initial Order, GA PSC (Apr. 8, 2008); *Cox California Telecom v. Global NAPS California*, Case No. 06-04-026, Order Granting Complainant's Motion for Summary Judgment (CA PUC, Apr. 28, 2006); *Pacific Bell Telephone Company, d/b/a/ AT&T California v. Global NAPS California, Inc.*, Case No. 07-11-018, Modified Presiding Officer's Decision Finding Global NAPS California in Breach of Interconnection Agreement (CA PUC, Nov. 19, 2007); *3 Rivers Telephone Cooperative et al. v. CommPartners*, Docket No. 08-68, Complaint (D. Montana 2008); *Hollis Telephone Company, Inc, et al. Joint Petition for Authority to Block Traffic from Global NAPS, Inc.*, Case No. DT-08-028, Procedural Order and Order on Motion to Compel Discovery Response (NH PSC, Sept. 17, 2008).

[86] *E.g.*, NECA Petition for Interim Order, CC Docket No. 01-92 (Jan. 22, 2008); Petition of the Embarq Local Operating Companies for Limited Forbearance Under 47 U.S.C. § 160(c) from Enforcement of Rule 69.5(a), 47 U.S.C. § 251(b), and Commission Orders on the ESP Exemption (filed Jan. 11, 2008); Petition of Feature Group IP for Forbearance from Enforcement Pursuant to 47 U.S.C. § 160(c) from Enforcement of 47 U.S.C. § 251(g), Rule 51.701(b)(1), and Rule 69.5(b) (filed Oct. 23, 2007); *IP-Enabled Services*, WC Docket No. 04-36, Notice of Proposed Rulemaking, 19 FCC Rcd 4863 (2004).

[87] It should be noted that many of these carriers are wholesale transmission providers with no retail customers of their own. Discontinuing service to these entities would not prevent retail providers from re-routing their originating traffic to other termination service providers who pay for the services they use from RLEC networks.

unscrupulous carriers seeking to game the system to avoid payment of legitimate tariffed charges, without risking any of the public interest harms associated with abandonment or continued neglect of the Commission's current ICC rules.

5. Competitive Landscape

The *Public Notice* asks how COLR obligations impact the economics of broadband deployment in rural areas, and whether these obligations should be revisited in light of the changing competitive landscape.[88]

State legislatures and state commissions have been responsible for detailing Carrier of Last Resort obligations and designating which carriers will shoulder these additional obligations. A recent study on updating COLR obligations[89] by the National Regulatory Research Institute (NRRI) acknowledged that states still need COLR policies for most geographic areas[90] and recommends states directly applying COLR-like policies to broadband facilities and provide explicit compensation or universal service support to COLRs.

> COLR policies imposed costly duties on local exchange providers, but they produced a network that today gives nearly all customers the opportunity to purchase reliable and high-quality wireline voice service under nondiscriminatory terms.[91]

The NRRI study recommends explicit government support be provided because local exchange voice service competition has placed strains on COLR policies. "In the past, the

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[88] *Public Notice* at 6.

[89] *NRRI Study* at 34.

[90] The study also concludes "[a]ppointing a single wireline COLR to serve each area is not inconsistent with the federal ban on monopolies, while offering several advantages, including higher economies of scale in rural areas, minimized total economic cost of providing service, limited demand for universal service support, and continuity of essential carrier-to-carrier services." *Id*. at iv.

[91] *Id.* at iii.

regulatory compact created a rough balance between COLR duties and the opportunity to recover associated costs. Competition (and to some extent federal universal service policy) has eroded this balance, potentially leaving the COLR with an asymmetry between high costs and duties and little or no compensating benefit."[92] Competition in the provision of broadband Internet access service could result in the same asymmetry between the high cost of meeting COLR obligations and little or no additional compensation.

The study recognizes "Competitors may avoid serving areas that are high cost or filled with subscribers of limited means, while incumbent providers may seek to discontinue service in those same areas. COLR policies give regulators the tools to assure at least one carrier is in place to provide essential services in all areas and that necessary carrier-to-carrier services continue." As noted above, the NRRI study recommends assigning all Eligible Telecommunications Carriers (ETCs) relatively large service areas, thereby minimizing opportunities for cream skimming by new entrants.

NECA agrees COLR obligations should be extended to cover broadband Internet access service, but recommends also retaining the COLR obligation to provide voice telephone service. In particular, carriers receiving universal service support in high-cost RLEC areas should be required to carry COLR obligations for both voice and broadband service in their service areas,[93] and be required to offer broadband network transmission services as regulated common carriage Title II services. [94] Such obligations should adhere to both fixed and mobile broadband providers in any given service area.

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[92] *Id.* at 66.

[93] Since voice service can easily be provisioned over broadband networks (in many places this is the case today) a continued obligation to provide voice services imposes no additional burden on COLRs and does not require maintenance of a separate "legacy" network.

[94] *See supra* n.37.

6. High-Cost Funding Oversight

The *Public Notice* asks what appropriate oversight and accountability mechanisms should be adopted to prevent waste, fraud, and abuse of any broadband high-cost support mechanism.[95]

NECA continues to urge the Commission to apply common sense in developing methods for auditing and reviewing USF support expenditures, for both existing support mechanisms as well as any new broadband support mechanisms created, that are reasonable and effectively and efficiently target high-cost areas.[96] There seems to be no compelling reason for subjecting support under any new broadband high-cost support mechanism to audit and review procedures that are any different from those used for existing high-cost mechanisms.

NECA and others have suggested numerous ways in which the Commission's audit and review processes can be improved.[97] In particular, NECA recommends auditors be able to take into account the extensive audit and review requirements currently imposed on RLECs by other agencies including, for example, internal and external company auditors, state regulators, the Rural Utilities Service, and NECA. To avoid subjecting fund recipients to inefficient or multiple overlapping reviews and audits, NECA has also suggested the Commission establish audit thresholds that target auditing resources to high-risk categories, with companies below the threshold subject to audit based on statistical sampling techniques.[98] Similar approaches could reasonably apply to review of broadband funding amounts paid to RLECs.

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[95] *Public Notice* at 6.

[96] *See* Letter from Chairman Genachowski, FCC, to Honorable Jeff Merkley, U.S. Senate (Nov. 16, 2009). *See also* Universal Service Administrative Company Final Report and Statistical Analysis of the 2006-07 Federal Communications Commission Office of Inspector General High Cost Program Beneficiary Audits (Sept. 10, 2009).

[97] *See* NECA Comments, WC Docket No. 05-195 (Nov. 13, 2008).

[98] *Id.* at 4.

7. Lifeline/Link Up.

The *Public Notice* asks a number of questions about extending low-income support to establish a Broadband Lifeline/Link Up program.[99]

NECA supports expansion of current low income programs to support broadband Internet access services customers who need such assistance. As noted above, low "take" rates for broadband services in rural areas is a result of a complex mix of factors. To the extent that customers who desire broadband, but cannot afford initial installation charges (if applicable) or monthly service rates, programs that offer discounts based on reasonable means tests may help improve adoption of these services.

Low-income consumers in rural areas may benefit greatly from affordable broadband services, as high-speed access to the Internet can provide a wealth of information and potential economic opportunities unheard of only a few years ago. Support for such access under new Broadband Low Income programs could help RLECs offer such services at very reasonable rates, thus helping to overcoming at least one obstacle to broadband adoption rates in rural areas.

CONCLUSION

The issues raised in the NBP Public Notice #19 are critical to the development of a National Broadband Plan and deserve careful study and attention in the context of focused rulemaking proceedings. Based on information provided in the few short weeks since the *Public Notice* was issued, it appears clear that high-cost funding paid under current programs has enabled the deployment of a single, multi-use, broadband-capable network to reach a substantial

[99] *Public Notice* at 6.

majority of customers in areas served by RLECs. But much work remains to be done as new services continue to impose greater and greater demands on RLEC broadband networks.

NECA's comments outline a workable benchmark-based approach for a new end-to-end broadband funding mechanism, one that will help RLECs provide high-speed broadband services at reasonable prices throughout their service areas. NECA's proposal also provides for an administratively simple and efficient way to transition existing universal service funding mechanisms to the new broadband fund, without risking harm to customers who continue to subscribe to voice services. Further, as explained above, NECA's approach would not cause funding to be diverted to maintaining "legacy" circuit switched networks, as these facilities have already been upgraded in many areas to IP-based broadband systems.

To maintain the viability of federal high-cost funding mechanisms, NECA suggests the Commission change the current revenue-based contribution mechanism to a combination telephone numbers and connections-based system that counts all telephone numbers and all other types of connections, including all broadband connections. This approach, if implemented on a broad basis with minimal "exceptions", can be relied upon to generate secure funding levels with minimal disruption to end users.

Finally, NECA has shown intercarrier compensation mechanisms remain important to RLECs and should not simply be abandoned. Rather, the Commission and state regulators should work in partnership to enable carriers to charge economically-rational rates that are unified, by company or pool rate band, across all switched access services regardless of jurisdiction, service or technology. Switched access rates should not be set at zero or unreasonably low levels, however, as this approach sends wrong economic signals that will undermine further deployment of broadband networks and services.

NECA hopes the Commission will give careful consideration to the information described in these comments as it prepares to finalize its National Broadband Plan. The proposals described above, if included in the Plan, will provide a sound basis for improving both broadband deployment and customer adoption rates in areas served by RLECs. NECA also looks forward to providing further information to the Commission in the context of specific Plan implementation proceedings in the coming year.

Respectfully submitted,

December 7, 2009

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APPENDIX A

Trends 2009: A report on rural telecom technology

NECA

Trends 2009

A report on rural telecom technology

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INTRODUCTION

It's a broadband world and converging technologies are expanding the opportunities for traditional landline telephone companies. The 1,101 carriers in NECA's Traffic Sensitive (TS) pool are evolving the rural telephone network into an all packet broadband infrastructure that supports voice as well as transmission of high-speed Internet and delivery of video content.

Trends 2009 demonstrates how TS pool members continue to make progress in deploying broadband services to their customers. Overall broadband availability to customers served by TS pool members is 92 percent. Members use a diverse set of network technologies to meet the demand for advanced services. The evolution of the local switched network from circuit switching to packet routing technology is starting to accelerate as members modernize their local networks to meet their customers' future needs.

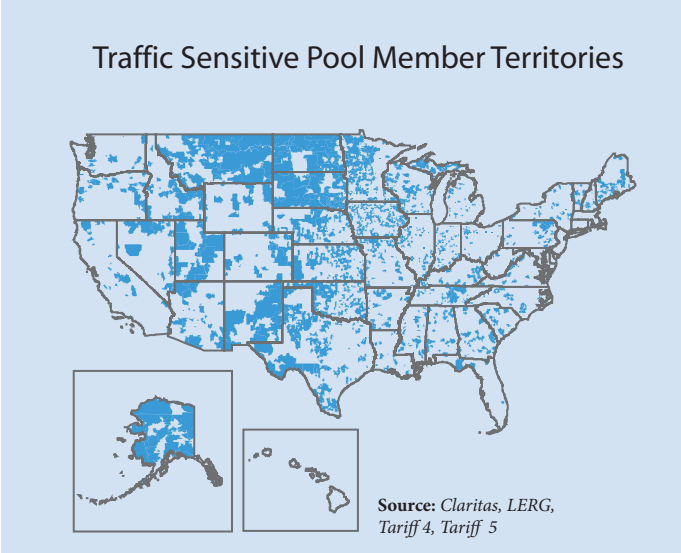

Figure 1
Traffic Sensitive Pool Member Territories (in blue)

For this report, we collected data from 1,101 TS pool members in 47 states, American Samoa and Guam. We gathered information from a variety of sources, including our interstate access tariff participants, our wire center tariff and settlement systems data, as well as periodic surveys targeting specific information. We update and maintain data in an industry database that tracks the progress of network technology deployment in rural America.

CHARACTERISTICS OF RURAL MARKETS

Each year incumbent local telephone companies can elect to participate in the NECA TS pool or to file their own tariffs. As of July 2009, there were over 4.7 million lines in the TS pool. TS pool members continue to serve a small percentage of total U.S. access lines (3.0 percent), but their service territories cover 37 percent of total U.S. land mass, or close to 1.3 million square miles (see Figure 1).

Pool members serve small populations over large geographic areas (see Figure 2). Covering these large areas requires extensive cable and wire facilities, additional transmission equipment and innovative technologies, driving up the cost per subscriber to deliver voice and high-speed broadband services such as DSL to rural customers.

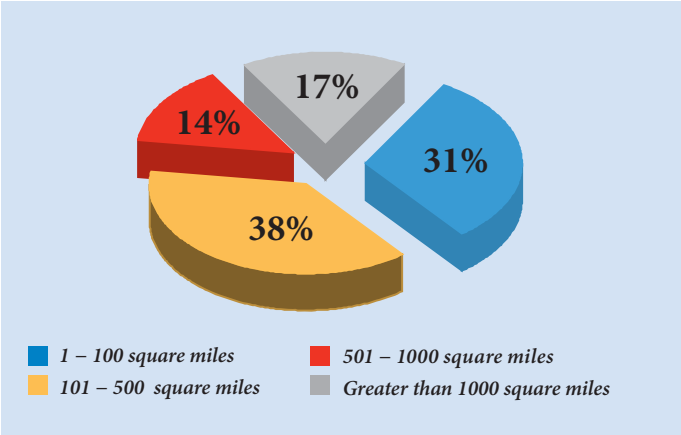

Figure 2
Company Serving Area by Square Miles

Most TS pool member service areas do not enjoy the economies of scale afforded their large, non-rural counterparts who operate in urban areas and serve many thousands of access lines per square mile (see Figure 3).

Customer bases are extremely small, averaging only 4,324 access lines per company (see Figure 4). In addition to the data shown in Figure 4, 28 percent or 312 companies have fewer than 1,000 access lines.

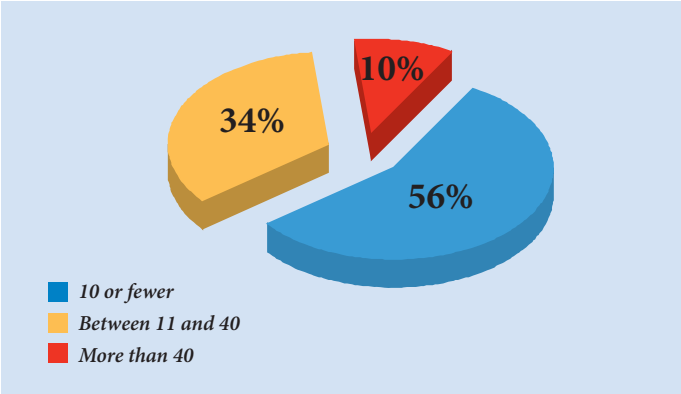

Figure 3
Customer Density per Square Mile

Competition in rural America

TS pool members experienced a loss of of 196,564 access lines, a 4.1 percent drop over last year.[1] This downward trend appears to be part of an industry-wide decline in access lines attributable to competition from cable operators offering Voice over Internet Protocol (VoIP) as well as customers replacing land lines with mobile service.[2] More than three-

[1] Comparison of NECA Traffic Sensitive pool data for 2008 and 2009.

[2] FCC Industry Analysis and Technology Division Wireline Competition Bureau. *Local Telephone Competition: Status as of June 30, 2008* (*July* 2009).

fourths of TS pool members report some competition in their service area. Typically, this competition is concentrated in the more densely populated portions of rural service areas. TS pool members report competition for services as shown in Table 1.

Table 1 – TS Pool Competition

Pool members report competition in 2009 for:	No. of companies	% of companies
Voice services (including VoIP and cellular providers)	824	75%
Video services	498	45%
Satellite services	746	68%
Broadband data services (from cable modem)	495	45%
Broadband data services (from wireless broadband)	538	49%

Rural carriers meet customers' needs despite challenges

As these statistics show, pool members serve small customer bases spread over vast geographical areas, requiring more resources than their larger counterparts. Pool members continue to meet the challenges, improving their networks to provide the high-quality voice and broadband services their customers demand. The following pages will show how members are deploying the latest technologies in their networks.

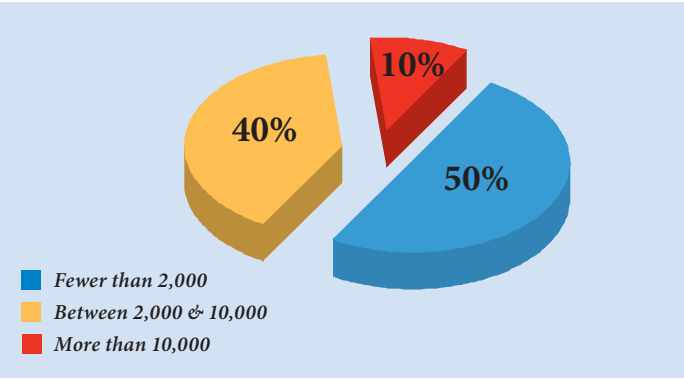

Figure 4 Companies by Line Size

RURAL TECHNOLOGY PROGRESS

Rural telephone companies continue to modernize their local communications networks to transport many services, including voice, Internet and video content. However, there are still issues unique to serving rural markets. Many members have found offering advanced services is not just a question of local broadband network availability, but also bandwidth capacity. The high cost of last mile and middle mile backbone connections is an obstacle to serving low-density rural markets. [3] Another concern is the more difficult issue of meeting customer expectations for access to content-rich high-speed Internet and entertainment sources, such as Internet Protocol television (IPTV), at affordable prices. Gaining access to and paying a premium for video content is an issue because of the low density of subscribers in rural markets.

DSL: 1.48 million lines and growing

DSL technology delivers low-cost, high-speed network access supporting many advanced communications capabilities. Virtually all small carriers use Digital Loop Carrier (DLC) systems and Digital Subscriber Line Access Multiplexers (DSLAMs) to provide broadband services to customers located great distances from network concentration points. Asymmetric Digital Subscriber Line (ADSL) makes use of existing copper phone lines and transmits voice, data, and (where sufficient bandwidth is available) video traffic at high speeds. [4] This transforms the rural public voice network into a broadband network capable of handling virtually all modes of telecommunications.

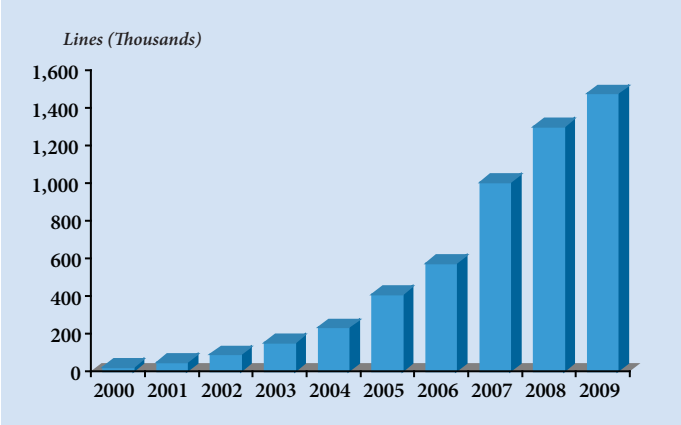

Figure 5
DSL Lines Deployed by TS Pool Members

NECA's tariff offers many varieties of DSL that adapt to the diverse needs of rural telephone company customers. From the basic voice-data ADSL to the high-speed service providing transport for multimedia content such as games and videos, TS pool members are embracing this technology (see Figure 5).

[3] National Exchange Carrier Association, Inc., *Middle Mile Broadband Cost Study* (2001), executive summary available at https://www.neca.org/cms400min/NECA_Templates/ResourceInterior.aspx?id=107
[4] International Telecommunication Union Standards: ADSL-up to 8 Mbps (ITU-T G.992.1), ADSL2 - up to 12 Mbps (ITU-T G.992.3), and ADSL2+ - up to 24 Mbps downstream (ITU-T G.992.5).

Virtually all TS pool members (97 percent) offer DSL services (see data chart on page 18) [5] . The average broadband availability for these companies in 2009 is 92 percent. In contrast, the 2005 average broadband availability was 79 percent. Rural companies often provide broadband services using multiple technologies: DSL, cable modem through a cable affiliate, and wireless. While 92 percent broadband availability shows continued progress, challenges persist. This is evidenced by the low overall average take rate of 31 percent. Contributing factors limiting broadband take rates in rural markets include:

- The high cost of last and second mile networks
- Limited access to affordable middle mile transport
- Lack of access to affordable video content

Fiber to the home aids broadband take rates

In addition to DSL, TS pool members are deploying fiber technology in their networks (see Table 2). This technology enables high speed broadband transmission over a fiber optic link between an optical terminal and the end user or a node close to the end user. Fiber loops allow two-way transmission bandwidths in the range of 10 to 100 Mbps to each end user, while supporting simultaneous voice, data and video services - the triple play.

Some companies view deploying fiber loops as a way to increase broadband take rates and to 'future proof' their access networks, since they know future bandwidth requirements will increase to meet new service needs. Fiber loops can also go greater distances at a lower overall cost than copper loops. While the distance limit without a need to add electrical devices is 18,000 feet for copper, it's up to 12 miles for fiber, making the fiber technology ideal for rural markets. Telephone companies deploying fiber loops have reported new installation costs for fiber equivalent to copper, however overall maintenance costs for fiber loops are lower. [6]

Table 2 – TS pool Members Fiber Loop Deployment Progress

Fiber Deployment*	2009	2008	% change
No. of members deploying fiber loops in their networks	479	429	12%
FTTP/FTTH loops installed in networks	183,000	152,000	20%

* (See Fiber to the Home definition in the glossary for acronym meanings.)

[5] The 1,066 TS pool members that offer DSL services include companies who do not participate in NECA's F.C.C. Tariff No. 5 for DSL services and offer DSL on a de-tariffed common carriage basis.
[6] M.K. Weldon and R.A. Metallo, *Ready, Aim, FIBER! Targeting FTTP for Last Mile Access*, (Lucent Technologies) (2004).

ATM helps rural telephone companies provide advanced communications

Asynchronous Transfer Mode (ATM) is a high-performance packet switching and multiplexing technology integrating voice, data, and video services. ATM technology is widely deployed in both public and private networks and has been the leading technology for integrating DSL services within the local exchange. ATM is an important advanced services technology deployed for DSL traffic aggregation by almost two-thirds of TS pool members (see Figure 6). However, companies are starting to replace ATM equipment with Ethernet equipment. In 2008, 278 companies or 25 percent offered ATM services while in 2009, 199 or 18 percent offer ATM services.

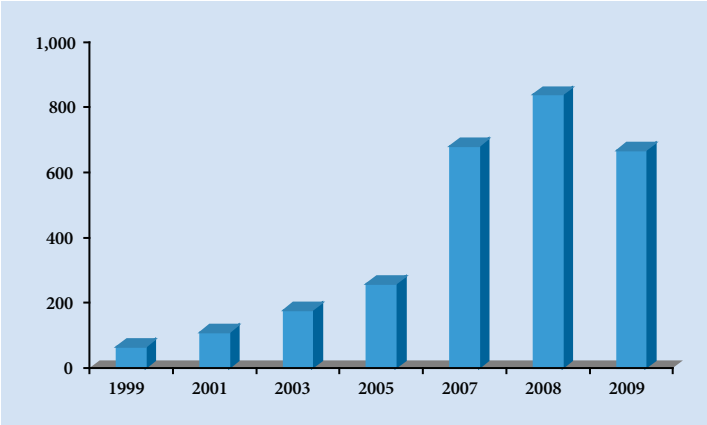

Figure 6
ATM Growth
1999-2009

IP and Ethernet improve connectivity and pave the way for higher speeds

Ethernet is a widely deployed, low cost packet technology that can be used to integrate voice, data, and video services. It is experiencing strong growth in both large service areas as well as smaller rural markets. Ethernet provides an alternative transmission technology for low-cost, high-speed broadband access to rural health care, education, government offices and small business customers. Ethernet is also used to provide DSL traffic aggregation and IP backhaul. IP routing using Ethernet transmission is becoming a strong technology alternative likely to replace much of the current legacy network over time. For 2009, 74 percent of pool members have deployed Ethernet technology in their networks (see Figure 7). NECA's Ethernet Transport Service (ETS) allows members to offer customers high speed (10 Mbps to 1 Gbps) broadband access service. This year 27 percent of TS pool members are offering ETS, an increase of 10 percent over 2008. Members report when Ethernet is available in the Middle Mile, costs are lower and bandwidths are higher. [7]

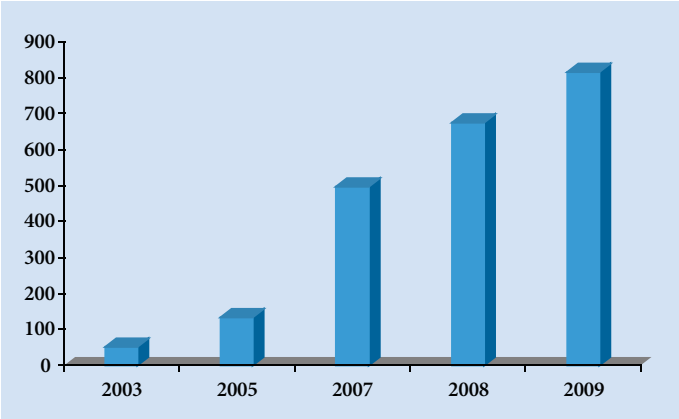

Figure 7
Ethernet Growth
2003-2009

[7] National Exchange Carrier Association's Comments on NSP Public Notice # 11 (November 4, 2009)

Wireless access technologies

TS pool members are increasingly using wireless-based services to provide exchange access and broadband services. A number of companies have implemented new licensed and unlicensed wireless technology to replace outdated legacy fixed Basic Exchange Telephone Radio Services (BETRS) and Rural Radio Services, which traditionally have been used to provide local exchange service in particularly inaccessible areas. Recent data from TS pooling members demonstrates the affiliates' use of mobile wireless capabilities and deployment of broadband wireless services to supplement fixed landline facilities, *i.e.*, DSL and fiber. Table 3 summarizes rural wireless access availability.

Table 3 – Rural Wireless Access

Rural Wireless Access	No. of companies
Provide fixed wireless loops in own study areas	65
Wireless broadband in own study areas	166
Wireless broadband outside own study areas	214
Mobile services (e.g., cellular)	309

Switching Technologies

Two-thirds of the companies in the TS pool use remote voice switches with connections to larger network concentration points such as host switches (see Figure 8). Remote switches are a cost-efficient method of serving geographically dispersed subscribers. TS pool members have installed 6,053 switching systems to handle voice communications in support of their business and residential customers, an average of 787 lines per switch. The average company has nearly six switches. These averages have varied little in the past 17 years.

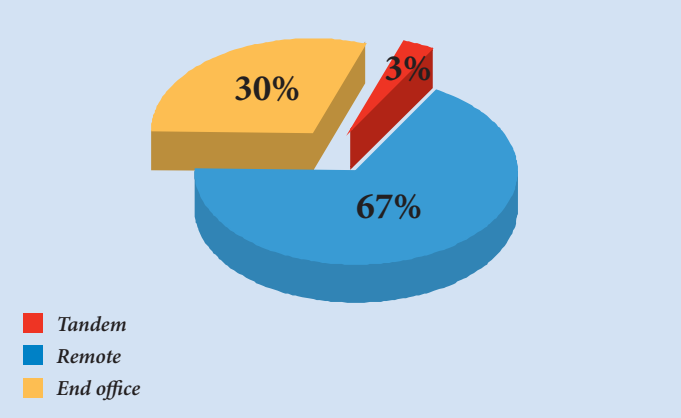

Figure 8 Switching Systems in Rural Areas

Rural telephone companies are upgrading legacy switching systems, replacing them with lower cost softswitch technology (IP enabled switches). They can also be used to provide integrated voice and broadband services to customers over a common network. Over 400 TS pool members have deployed softswitches. More than 120 pool members have plans to add a softswitch in 2010 (see Figure 9).

Most softswitches support Ethernet and IP interfaces plus legacy GR-303, ISDN PRI, SS7 and channelized T1 interfaces, making the technology ideal for the migration of rural networks from circuit to packet switching. Softswitch vendors have options for rural incumbent companies to consider, from completely replacing their switched network with packet devices to using a more seamless migration approach allowing selective replacement of legacy switches. The latter involves configuring the local network to support the packet network interfaces while maintaining the integrity of existing legacy switch network devices over a common IP enabled network platform.

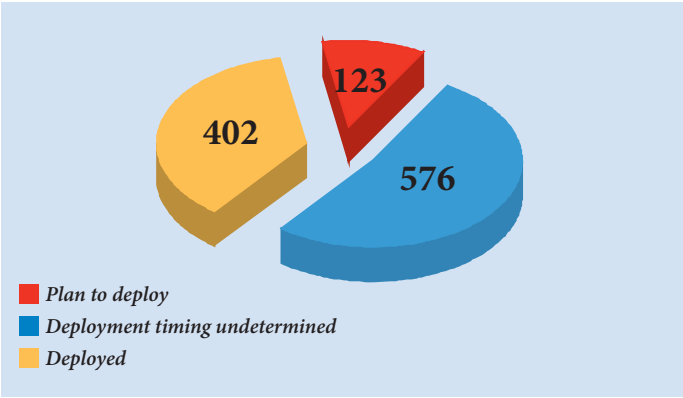

Figure 9 Softswitch Deployment by TS Pool Members

Migration from the legacy switch environment to packet switching requires an initial replacement of core devices such as the central processor and switch fabric of the legacy network switch, while leaving all the line units and other peripherals in place. Over time, as subscribers are transferred from legacy circuit switch peripherals to the new softswitch, legacy peripherals may be retired. In most cases, the transition is transparent to the end user. A softswitch typically supports legacy services and features including POTS, ISDN, Centrex, LNP, and CALEA, and it allows for the integration of broadband Internet, wireless, and wireline network transport over a common IP enabled network platform.

Affiliated operations: wireless, video, and data

In addition to traditional regulated operations, TS pool members use affiliates to provide non-regulated information, entertainment and mobile radio services to their end user customers. The same low density market issues with telephone operations make most rural markets unattractive to larger information and entertainment service providers. This often means the small rural telephone company and its affiliates are the sole or main provider of these services to their customers.

Wireless expansion in rural networks

Three NECA members participated in the FCC Wireless Auction of Broadband radio Service (BRS) Spectrum (Auction 86) in 2009. Two members were successful, provisionally winning four licenses. Previously, more than 500 companies, through affiliates, consortiums and partnerships, bid for spectrum in the FCC Auctions 73 and 78 in 2008. Winning bids went to 295 companies to serve customers located in their rural geographic serving areas. The bids represent 34 percent of the total licenses the FCC awarded in these two auctions. This adds to the more than 400 companies, through affiliates and partnerships, currently holding spectrum for services in cellular, PCS, broadband radio service, and C-Band 700 MHZ. See Table 4 for wireless expansion in rural networks.

Table 4 – Rural Wireless Activity

Wireless expansion in rural networks	No. of Companies
Pool member affiliates participating in 2009 & 2008 FCC spectrum auctions	504+
No. of licenses awarded NECA members 2008 & 2009	394
Affiliates offering Direct Broadcast Satellite video services and Internet Access service	197

Video technologies

More than 460 TS pool members are providing video services, with 210 companies also offering video services outside their study areas. IPTV is the next wave of video services delivery. Two hundred ten companies report IPTV deployment; 57 more companies plan to deploy IPTV in 2010. Companies and affiliates offering DSL with a video component or option have a DSL take rate nearly 24 percent higher than companies offering DSL without access to any video services. NECA members and affiliates are offering a variety of services over the broadband network to stimulate demand for broadband services and increase adoption. Video on demand, over-the-top video services, gaming, home networking and security are some examples of trials and experimental services.

Information Service Provider (ISP) services

Internet information access services are provided by 757 companies within their own serving areas. In addition, 288 also provide ISP services in other serving areas. More than 180 companies provide wireless broadband data services to customers, while 225 companies provide wireline broadband through an affiliate subsidiary outside their study area.

OUTLOOK

You've read in the preceding pages how NECA's TS pool members are providing a full range of voice and broadband services to meet their customers' needs. These companies are also looking out for their customers' future needs, designing the next generation network and planning for the additional bandwidth needed to provide advanced services.

Bandwidth requirements are increasing

Many industry sources project a long term need for 100 Mbps per subscriber in the U.S. to accommodate new services. [8] The practical bandwidth limit of DSL over copper technology (currently 25 Mbps) will be reached in 2010 or soon thereafter (see Figure 10). Absent any new DSL technology breakthrough, Fiber-to-the-Home (FTTH) solutions may likely be the only foreseeable technology capable of providing future required bandwidth. Yet FTTH deployment covers less than four percent of American households. In 2009, the FTTH Council reported 5.33 million FTTH households connected in the U.S. [9] About two thirds of FTTH deployments are provided by the largest telephone companies and the remainder by other companies, including rural ILECs, competitive local exchange carriers (CLECs) and other providers. FTTH deployment numbers lag well behind those of other technologies, which provide broadband services to over 85 million customers. Research indicates there are over 31 million customers served by DSL, 38 million served by cable systems, and more than 16 million served by satellite and wireless technologies.[10]

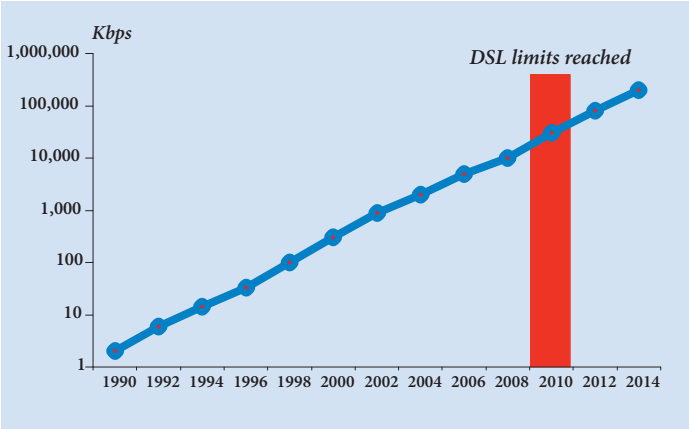

Figure 10 Bandwidth Requirements

[8] *The Future of Broadband 2008*, a seminar conducted by Light Reading. http://www.lightreading.com/live/event_information.asp?survey_id=399
[9] FTTH Council, *FTTH Growth Stays on Track as Connections Rise to 5.33 million North American Households*, at http://www.ftthcouncil.org/RVA LLC Market Research and Consulting.
[10] FCC Industry Analysis and Technology Division Wireline Competition Bureau. *High-Speed Services for Internet Access*: *Status as of June 30, 2008* (Released July 2009).

TS pool members deploy the next generation network

Members continue to deploy VoIP applications as part of their next generation network. Several vendors offer a hosted VoIP application to allow rural telephone companies to "start small." IP networks work best in a "bursty" mode, which gives file transfers and e-mail a higher probability of being successful. They do not work as well with continuous real-time data streams, such as voice and video. Because of this, quality of service (QoS) and packet traffic engineering are becoming increasingly important as the core network transitions from SONET, ATM, and TDM to Ethernet.

TS pool members continue to play a key role in providing wireline backhaul for wireless (mobile) carriers. Wireless carriers depend on the rural wireline network to provide state-of-the-art high speed data and packet networks to interconnect cell sites to mobile switching centers.

This report shows that TS pool members continue to make strong progress evolving their joint use networks to provide the services their customers want today, and also to meet the communication needs of tomorrow over a common IP enabled broadband network platform. In doing so, rural carriers face significant challenges serving customers in high-cost, low-density markets. Rural carriers also face significant issues with the high cost of middle mile transport, a critical component of broadband Internet connectivity.

ABOUT NECA

NECA is a not-for-profit association of all incumbent telephone local exchange carriers. We have administered the Federal Communications Commission's interstate access charge plan for more than twenty-five years. Interstate access charges are the fees paid by other telecommunications providers to local telephone companies for the use of their networks to originate and terminate interstate calls. In addition, we provide pooling and tariff support to assist local telephone companies as they offer broadband and other special access services, including wireline backhaul for the wireless industry. Our areas of expertise include telecommunications, data collection, research and analysis, and training in technology and access-related topics. We administer the revenue distribution process called pooling, which is at the heart of the rural telephone economic system.

NECA files one interstate access tariff (Tariff F.C.C. No. 5) on behalf of all pool members, minimizing the regulatory expenses associated with developing and filing a tariff and freeing members to focus on serving their customers. Pooling acts as an insurance policy against unforeseen circumstances such as a natural disaster. Pooling offers financial stability, allowing pool members to be more confident when making plans for future network deployment. Participation in two revenue pools – Common Line and Traffic Sensitive – is voluntary.

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GLOSSARY

Asymmetric Digital Subscriber Line (ADSL) – An access technology that allows voice and high speed data to be sent simultaneously over local exchange facilities. The capability is asymmetric because the downstream data speed (to the end user customer) is higher than the upstream speed.

Asynchronous Transfer Mode (ATM) – A packet communications technology that allows high-speed transmission of voice, video, and data over one common network infrastructure. ATM processes information in fixed length data cells (packets), minimizing transmission delays. ATM customers are typically information service providers who need large, high-speed packet data delivery capabilities.

Basic Exchange Telephone Radio System (BETRS) – A fixed radio service where a multiplexed, digital radio link is used as the last segment of the local loop to provide wireless telephone service to subscribers in remote areas. BETRS technology was developed in the mid 1980s and allows up to four subscribers to use a single radio channel pair simultaneously, without interfering with one another.

Commercial Mobile Radio Service (CMRS) – A category of services that Congress created to encompass all mobile telecommunications services that are available to the public, provided for profit and interconnected with the public switched network. [11]

Common Line Pool – The pool that NECA administers for its local exchange carrier members' non-traffic sensitive costs of providing interstate access.

Communications Assistance for Law Enforcement Act (CALEA) – Outlines telecommunications carriers' duty to cooperate in monitoring communications for law enforcement purposes (e.g., wire-tapping). CALEA obligations apply to any person or entity that provides a service that replaces a substantial portion of local telephone exchange service, including providers of facilities-based broadband Internet access and interconnected Voice over Internet Protocol (VoIP) service.[12]

Competitive Local Exchange Carrier (CLEC) – A local exchange carrier that provides some or all of the interstate exchange access services used to send traffic to or from an end user and does not fall within the definition of Incumbent Local Exchange Carrier (ILEC).

Digital Loop Carrier (DLC) – A system that uses digital technology to develop multiple communication channels that are equivalent to those provided over copper pairs. Current generation systems typically use fiber transmission facilities between the serving wire center and the remote digital terminal located in the loop.

Digital Subscriber Line (DSL) – A technology that brings high-bandwidth information services to the home or small business over regular copper lines. DSL technology enables a loop to simultaneously carry voice, which takes little bandwidth, and high speed data.

Digital Subscriber Line Access Multiplexer (DSLAM) – A packet multiplexer used for a variety of DSL technologies. It serves to multiplex data packets from many DSL subscribers and transmit them over one or more high speed circuits.

Digital Video Recorder (DVR) – A device for recording and playback of TV programs. Using the Internet or a telephone line, the device downloads TV schedules and allows consumers to select which programs they want to record and when. TiVo® is the brand name for one DVR.

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[11] 47 C.F.R. § 20.3
[12] 47 C.F.R. § 64.2200-2203; and Pub. L. No.103-414,108 stat.4279 (1994); and FCC Report No. ET 98-8

Equal Access – Provides customers with a choice of long distance carrier.

Ethernet – A local area network technology that connects computers, printers, servers, etc., in a physical location. Carrier ethernet equipment provides reliable ethernet connectivity beyond the LAN through the telecommunications network. Ethernet uses twisted pair (copper), fiber optic, and coaxial cable and may also use wireless connectivity or transport.

Fiber to the Home (FTTH) – A technology which uses a high speed fiber connection to the home or business for transport of voice, data, and video services. Variations include Fiber to the Building (FTTB), Fiber to the Curb (FTTC), Fiber to the Node (FTTN), and Fiber to the Premises (FTTP). The primary difference between the systems depends on the location of the remote optical network unit.

GR-303 Integrated Digital Loop Carrier System Generic Requirements (Telcordia Technologies) – An industry standard for the interface between a local digital switch and a remote digital terminal (or DLC). Each GR-303 interface group consists of at least two DS1 lines and can contain up to a maximum of 28 DS1 lines. The primary line carries the embedded operations channel (EOC) and timeslot management channel (TMC), and the secondary line offers protection in case of loss of service on the primary line.

Incumbent Local Exchange Carrier (ILEC) – A local exchange carrier that on the date of enactment of the Telecommunications Act of 1996, provided telephone exchange service in a specific area and was deemed to be a member (or successor to a member) of NECA pursuant to section 69.601(b) of the Commission's regulations (47 C.F.R. 69.601(b)).

Integrated Services Digital Network (ISDN) – A digital telephone system which has been available since the 1980s. ISDN involves the digitization of the telephone network, which permits voice, data, text, graphics, music, video, and other source material to be transmitted simultaneously over existing telephone facilities.

Internet Protocol (IP) – The method by which packet data is sent from one computer to another. Every server, router, and switch in an IP network is uniquely identified by at least one IP address.

Internet Protocol Television (IPTV) – A system for delivering digital television service to subscribers via a broadband connection using the Internet Protocol suite. IPTV often includes Video on Demand (VoD) and Personal Video Recording (PVR) services. It also may be combined with Internet access and voice services, and is often called Triple Play. Triple Play is typically provided by a broadband operator using a single converged infrastructure.

Local Area Network (LAN) – A computer network covering a limited geographic area, typically a single building. Most LANs are based on switched Ethernet technology running at 10, 100, or 1,000 Mbps (1 Gbps). A local area network may serve as few as two or three users (in a small business or home network) or thousands of users.

Personal Communication Services (PCS) – Used to describe a newer class of wireless communications services recently authorized by the FCC. PCS systems use a different radio frequency, the 1.9 GHz band, than cellular phones and generally use all-digital technology for transmission and reception. (Definition from the Wireless Advisor glossary.)

Primary Rate Interface (PRI) – An international telecommunications standard for carrying multiple DS0 (64 Kbps) voice and data channels between two physical locations. A single Primary Rate Interface consists of 23 64 Kbps B-channels and one 64 Kbps D-channel using a T1 line (1.544 Mbps). Additional PRIs may be added to a PRI group, each with 24 B-channels.

Public Switched Telephone Network (PSTN) – The local, long distance and international phone system used daily.

Softswitch – A generic name for a next generation network infrastructure based on packet switching. Softswitch technology solutions enable all types of packet protocols (VoIP, data or video) to be served on a single software-controlled packet switching platform. Softswitch technology separates the call control functions of a telephone, data or video "call" from the transport function that carries the call. The call control functions will generally include call routing, admission control, connection control and signaling internetworking (*e.g.,* converting SS7 signaling to SIP packet protocol). The Softswitch functions can be in discrete network devices or integrated into a single network device. While the softswitch was initially developed to replace the legacy voice switch, the softswitch now also includes packet data routing functionality and can serve as the core of a broadband network.

Synchronous Optical Network (SONET) – An industry standard technology capable of transmitting multiple digital signals of varying capacities on fiber optic facilities. Ideally, SONET facilities are configured in a physical ring for redundancy and recovery purposes.

Time-Division Multiplexing (TDM) – A technique for transmitting multiple digitally encoded data, voice, and/or video signals simultaneously over a single communications medium by interleaving a portion of each signal one after another in specific time slots.

Traffic Sensitive (TS) Pool – The pool that NECA administers for the portion of the network where costs vary according to usage. Pool members apply the TS tariff rate elements: Traffic Sensitive – Switched and Traffic Sensitive – Special Access, including DSL and other broadband services.

User Generated Content (UGC) – Various kinds of publicly available media content produced by end users.

Voice over Internet Protocol (VoIP) – A technology that allows users to make telephone calls using a broadband Internet connection instead of a regular (or analog) phone line.

Wireless Fidelity (WiFi) – A Wireless Local Area Network specified by the Institute of Electronic and Electrical Engineers (IEEE) as 802.11b.

Worldwide Interoperability for Microwave Access (WiMAX) – WiMAX is a standards-based (IEEE 802.16) technology which may be used in the delivery of last mile wireless broadband, as an alternative to cable and DSL.

TS POOL MEMBERS – 2009 VIEW

	Demographics					Broadband Capabilities								
Jurisdiction	Companies	Switches	Access Lines	Provide Equal Access	Provide SS7	Provide DSL Service	DSL Access Lines	Provide ATM Service†	Deploy ATM in Network	Provide Ethernet Service†	Deploy Ethernet in Network	Provide SONET Service†	Deploy SONET in Network	Provide Other Broadband Technologies††
Alabama	21	80	102,381	100%	100%	100%	26,319	19%	29%	29%	62%	0%	62%	100%
Alaska	19	89	111,310	79%	84%	74%	36,836	21%	37%	37%	68%	21%	32%	68%
American Samoa	1	4	10,297	100%	100%	100%	*	*	*	*	*	*	*	*
Arizona	12	44	37,291	100%	100%	100%	8,621	25%	75%	33%	75%	17%	92%	75%
Arkansas	19	115	73,661	100%	100%	95%	25,568	11%	58%	21%	63%	16%	68%	63%
California	13	19	67,026	100%	100%	100%	27,011	31%	85%	85%	85%	8%	85%	62%
Colorado	24	37	34,453	98%	96%	88%	9,545	13%	58%	17%	63%	8%	42%	75%
Florida	6	12	65,667	100%	100%	100%	18,351	17%	83%	67%	83%	17%	100%	100%
Georgia	26	60	179,277	97%	100%	100%	55,199	8%	65%	27%	65%	0%	81%	100%
Guam	1	3	52,884	100%	100%	100%	*	*	*	*	*	*	*	*
Hawaii	1	9	1,889	100%	100%	100%	*	*	*	*	*	*	*	*
Idaho	13	50	32,103	100%	100%	100%	12,729	31%	92%	38%	100%	15%	92%	85%
Illinois	38	119	56,681	97%	92%	97%	18,941	13%	39%	6%	55%	0%	42%	63%
Indiana	33	74	101,206	100%	100%	100%	39,733	27%	70%	33%	76%	0%	70%	94%
Iowa	144	314	187,534	100%	100%	97%	69,170	1%	37%	9%	72%	1%	56%	64%
Kansas	34	114	113,342	100%	100%	97%	48,547	18%	53%	38%	76%	12%	79%	97%
Kentucky	12	279	119,366	100%	100%	100%	37,702	42%	75%	50%	83%	0%	92%	100%
Louisiana	9	62	35,589	100%	100%	89%	12,475	0%	56%	56%	44%	0%	67%	89%
Maine	19	116	114,329	100%	100%	100%	33,924	26%	84%	42%	63%	26%	89%	47%
Maryland	1	1	6,350	100%	100%	100%	*	*	*	*	*	*	*	*
Massachusetts	2	2	3,473	100%	100%	100%	774	0%	50%	50%	50%	0%	0%	50%
Michigan	31	99	77,893	100%	100%	97%	24,785	16%	58%	39%	81%	3%	58%	77%
Minnesota	80	298	287,831	100%	98%	94%	83,341	18%	60%	14%	74%	9%	61%	61%
Mississippi	16	48	47,962	100%	100%	100%	14,302	44%	63%	19%	81%	0%	56%	81%
Missouri	36	155	106,615	100%	100%	100%	38,956	8%	58%	31%	67%	0%	69%	75%
Montana	14	187	90,171	100%	100%	100%	31,883	21%	79%	7%	86%	29%	93%	86%
Nebraska	35	140	62,963	100%	100%	97%	24,997	0%	57%	9%	63%	9%	69%	86%
Nevada	8	29	30,358	100%	100%	100%	12,806	38%	88%	13%	100%	25%	88%	50%
New Hampshire	9	32	48,369	100%	100%	100%	13,759	44%	78%	67%	67%	0%	78%	89%
New Jersey	1	2	6,738	100%	100%	100%	*	*	*	*	*	*	*	*
New Mexico	12	74	36,469	100%	100%	100%	9,976	8%	58%	25%	67%	8%	75%	92%
New York	31	85	137,731	100%	97%	100%	41,439	19%	71%	29%	84%	0%	81%	94%
North Carolina	14	140	181,470	100%	100%	100%	38,790	57%	100%	64%	100%	21%	100%	93%
North Dakota	20	260	135,253	100%	100%	100%	52,685	40%	90%	50%	85%	25%	95%	100%
Ohio	33	25	62,668	100%	88%	94%	15,066	9%	64%	18%	73%	0%	64%	64%
Oklahoma	34	264	158,232	100%	100%	94%	63,432	24%	59%	24%	74%	6%	79%	82%
Oregon	27	58	69,290	100%	100%	93%	27,905	11%	70%	33%	81%	0%	63%	85%
Pennsylvania	23	729	471,377	100%	100%	96%	91,863	17%	70%	17%	83%	17%	83%	78%
South Carolina	12	186	93,847	100%	100%	100%	31,466	50%	92%	33%	75%	17%	75%	75%
South Dakota	28	180	115,836	100%	93%	93%	40,745	11%	64%	11%	71%	18%	93%	79%
Tennessee	16	531	212,478	100%	100%	100%	72,138	50%	81%	50%	94%	0%	75%	88%
Texas	43	352	218,809	100%	100%	100%	69,857	21%	65%	21%	65%	12%	77%	86%
Utah	11	70	66,550	100%	100%	100%	27,074	9%	64%	55%	91%	9%	55%	91%
Vermont	9	39	59,697	100%	100%	100%	25,152	44%	89%	44%	44%	33%	67%	100%
Virginia	15	181	75,125	100%	100%	93%	26,504	20%	67%	33%	80%	7%	60%	93%
Washington	20	54	72,621	100%	100%	90%	26,619	25%	55%	35%	70%	5%	40%	70%
West Virginia	6	6	16,048	100%	100%	100%	5,203	0%	0%	17%	67%	33%	67%	83%
Wisconsin	64	204	290,103	100%	100%	100%	64,021	23%	73%	39%	89%	3%	78%	88%
Wyoming	5	23	22,410	100%	100%	100%	8,904	40%	60%	20%	80%	40%	80%	80%
	1,101	**6,054**	**4,761,023**	**99%**	**99%**	**97%**	**1,477,876**	**18%**	**61%**	**27%**	**74%**	**7%**	**69%**	**78%**

* Individual data withheld to maintain company confidentiality. All data included in totals.

† TS pooling companies offering ATM, Ethernet and SONET services to their customers and are listed in NECA's Tariff F.C.C. Wire Center Tariff # 4.

†† Includes fiber such as FTTP, FTTH, FTTC or Hybrid-Fiber-Coax; wireless broadband technologies using fixed wireless, licensed wireless, unlicensed wireless, WiFi or WiMAX; cable modem and satellite.

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APPENDIX B

Illustrative Monthly Impact of Telephones Numbers plus Broadband Connections

(See Note-1 Below)

Customer Type	Monthly Charges	Federal Subscriber Line Charge (SLC)	LD Charges (Interstate, and International)	1Q2010 Contribution @ 14.1%	Connections and Numbers Contribution	Consumer Impact Connections and Numbers
	(A)	(B)	(C)	(D)	(E)	(F)
				(B+C)*.141		E-D
Wireline - Zero LD Use - No Broadband	$ 15.00	$ 6.50	$ -	$ 0.92	$ 0.84	$ (0.08)
Wireline - Zero LD Use with Broadband	$ 15.00	$ 6.50	$ -	$ 0.92	$ 1.68	$ 0.76
Wireline - Low LD Use - No Broadband	$ 15.00	$ 6.50	$ 5.00	$ 1.62	$ 0.84	$ (0.78)
Wireline - Low LD Use with Broadband	$ 15.00	$ 6.50	$ 5.00	$ 1.62	$ 1.68	$ 0.06
Wireline - Medium LD Use - No Broadband	$ 15.00	$ 6.50	$ 10.00	$ 2.33	$ 0.84	$ (1.49)
Wireline - Medium LD Use with Broadband	$ 15.00	$ 6.50	$ 10.00	$ 2.33	$ 1.68	$ (0.65)
Wireline - High LD Use - No Broadband	$ 15.00	$ 6.50	$ 50.00	$ 7.97	$ 0.84	$ (7.13)
Wireline - High LD Use with Broadband	$ 15.00	$ 6.50	$ 50.00	$ 7.97	$ 1.68	$ (6.29)
Lifeline Subscriber – Low - No Broadband	$ 15.00	$ -	$ 5.00	$ 0.71	$ 0.84	$ 0.14
Lifeline Subscriber – Low with Broadband	$ 15.00	$ -	$ 5.00	$ 0.71	$ 1.68	$ 0.98
Lifeline Subscriber – Medium - No Broadband	$ 15.00	$ -	$ 10.00	$ 1.41	$ 0.84	$ (0.57)
Lifeline Subscriber – Medium with Broadband	$ 15.00	$ -	$ 10.00	$ 1.41	$ 1.68	$ 0.27
Lifeline Subscriber – High - No Broadband	$ 15.00	$ -	$ 50.00	$ 7.05	$ 0.84	$ (6.21)
Lifeline Subscriber – High with Broadband	$ 15.00	$ -	$ 50.00	$ 7.05	$ 1.68	$ (5.37)
			See Note 2			
Wireless Subscriber-Low - No Broadband	$ 30.00	$ -	$ 11.25	$ 1.59	$ 0.84	$ (0.75)
Wireless Subscriber-Low with Broadband	$ 30.00	$ -	$ 11.25	$ 1.59	$ 1.68	$ 0.09
Wireless Subscriber-Medium - No Broadband	$ 50.00	$ -	$ 18.75	$ 2.64	$ 0.84	$ (1.80)
Wireless Subscriber-Medium with Broadband	$ 50.00	$ -	$ 18.75	$ 2.64	$ 1.68	$ (0.96)
Wireless Subscriber-High - No Broadband	$ 99.00	$ -	$ 37.13	$ 5.23	$ 0.84	$ (4.39)
Wireless Subscriber-High with Broadband	$ 99.00	$ -	$ 37.13	$ 5.23	$ 1.68	$ (3.55)
Digital Voice over Broadband	$ 25.00	$ -	$ 9.38	$ 1.32	$ 1.68	$ 0.36
Magic Jack over Broadband see Note 3	$ 41.65	$ -	$ -	$ -	$ 1.68	$ 1.68

Note 1- Priceout is a based on NECA Pool SLC and 1Q2010 contribution factor.

$0.84 monthly charge is based on an annual funding requirement of $7,996 M (1Q2010 without prior period true-ups, annualized) and numbers and broadband connections totalling 667M and 132.8M respectively. Source of this data is latest NRUF report (as of 12/31/08 for telephone numbers) and High Speed Services Report (as of 6/30/08) for connections. NOTE: Addition of other network connections would result in lowering the monthly charge per billing unit.

Note 2- Interstate and international long distance based on 37.5% Safe Harbor.

Note 3- Based on $39.95 per month for cable internet access plus 1/12 of annual magic jack fee of $19.95 (not currently a contributor)

APPENDIX C

Potential Benchmark-Based Broadband Support Mechanisms

A possible approach for calculating Broadband support for RLECs would be to compare a rural carrier's actual broadband network transmission costs for facilities used to provide Internet access service to a broadband transmission cost "benchmark" for urban carriers. Rural carriers would be eligible to receive support for a percentage of their broadband network costs that exceed the urban benchmark.

Under this support calculation, the broadband network transmission costs per end-user connection would be developed for each rural carrier. The calculation would include actual costs for all transport facilities from the loop through the middle mile facilities and up to the Tier 1 Internet node (or content server node). The resultant rural broadband network cost per connection would be compared to an urban broadband network cost per connection benchmark, to be established by the Commission. Rural costs that exceed certain threshold levels above the urban benchmark would be eligible for USF support.[1]

Rural Network Costs

- Costs to be included in the rural broadband network costs calculation:
  - Loop (when "naked DSL" service is provided)
  - Softswitch/routers
  - "Second mile" transport facilities
  - "Middle mile" transport facilities (up to and including interconnection to Internet Tier 1 node or to content delivery servers)
  - These costs could be in the form of owned or leased facilities, and network expenses related to use of network not owned by the RLEC would therefore be included.

- Costs to exclude:

  - Loop (when not provided as "naked DSL" service)[2]
  - "Legacy" voice (i.e., TDM) switches

[1] The FCC's current high cost loop program bases its calculation on a national average loop cost, which helps to meet the Act's goal to achieve rate and service comparability between rural and non-rural carriers. The use of an urban network transmission cost benchmark recognizes that actual cost data is not likely to be available for urban service providers.

[2] Under NECA's concept, when voice service is provided with broadband (ADSL), loop costs continue to be recovered from the combination of HCL, ICLS, SLCs, local exchange service rates and any state USF amounts.

- Non-broadband circuit switched local transport
- Traditional special access

Illustrative Benchmark Method:

- Compare each RLEC's cost per broadband connection to an urban broadband network cost per connection benchmark.
  - Benchmark rate based on offering Internet access @ X-to-Y Mbps (to be set by FCC)
  - Assumes retail prices for major urban carriers (e.g., Verizon, AT&T, Qwest, Comcast, Time Warner) are close to cost due to competition (e.g., assume broadband network cost is 90% of retail rate, as established by FCC estimate)
  - If the average urban retail rate were found to be approximately $36/customer/month,[3] and the Commission determined the urban network cost is 90% of the retail rate, the benchmark network cost would be $35.40 per connection per month.

- Funding available would be at predetermined levels set by FCC and subject to periodic review.

[3] *See, e.g.*, overall telco broadband (DSL and fiber) ARPU estimate reported on page 33 of the Columbia Institute for Tele-Information study "Broadband in America." (Source cited as UBS Investment Research, "Telecommunications and Pay TV, UBS AG, 2009, at 7.)

CERTIFICATE OF SERVICE

I hereby certify that a copy of NECA's Comments was served this 7th day of December, 2009 by electronic filing and e-mail to the persons listed below.

By: /s/ Elizabeth R. Newson
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