Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington DC 20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51
	)	
Establishing Just and Reasonable Rates for Local Exchange Carriers	)	WC Docket No. 07-135
	)	
High-Cost Universal Service Support	)	WC Docket No. 05-337
	)	
Developing an Unified Intercarrier Compensation Regime	)	CC Docket No. 01-92
	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
	)	
Lifeline and Link-Up	)	WC Docket No. 03-109

COMMENTS OF TDS TELECOMMUNICATION CORPORATION

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SUMMARY

The Commission has described well the fundamental aim of this proceeding: orienting the Universal Service Fund ("USF") to bring "robust, affordable broadband to all Americans" and thereby address the "great infrastructure challenge of our time." Achieving this goal will require a pragmatic, thoughtful approach: One that reorients USF towards broadband, resolves current intercarrier compensation ("ICC") issues, and sets the path for ICC as we move increasingly to an all-broadband network. Perhaps of even greater importance, the approach taken must consider the real-world effects of proposed reforms on the rural and other high-cost communities that Congress established the USF to serve through service and rates that are reasonably comparable to those in urban areas. This is the Commission's statutory mandate, and more than any theory or opinion it must guide the Commission's decision-making in this proceeding.

A prerequisite to achieving universal broadband is the creation of a genuine glidepath between the current support structure and a workable broadband-oriented mechanism — in essence, to get from "here to there" without collapsing investment in rural broadband deployment at the very time it is needed most. TDS Telecom is actively involved in discussions among organizations well versed in the needs of rural consumers, a number of which will put forth plans intended to articulate that glidepath. While we need not replicate the details of those plans here, we take this opportunity to highlight certain substantive areas that warrant particular and careful attention as the Commission proceeds in orienting the USF to broadband:

> *Rate-of-return regulation is important to achieving universal broadband*. Rate-of-return carriers build networks responsibly according to the needs of the otherwise unserved public, and face constraints that drive efficiency, such as those imposed by the market, investors, and/or lenders. But most importantly, ROR regulation produces results. Hastily abandoning the one mechanism that today produces significant broadband deployment in rural and other high-cost areas would disserve the goal of universal broadband. In short, the Commission should not make the challenges inherent in

orienting the USF to broadband greater yet by experimenting in untested forms of regulation for the carriers with the most experience in serving rural communities.

The Commission should take account of the role of the carrier of last resort. The Commission should take account of the state-regulated role of ROR carriers and other ILECs in serving as carriers of last resort ("COLRs"). COLRs undertake substantial obligations, including by standing ready to serve any potential customer upon request, even if the customer currently receives service from a competitor or that customer is in a service area that competitors find too costly to serve. It therefore is troubling that the NPRM/FNPRM appears to envision a recovery mechanism that could leave a carrier in the unsustainable position of losing support while maintaining COLR obligations it previously accepted under the premise of continued support. Unfunded mandates of that nature pose serious risks to the sustainability of operations in rural areas and thus to the COLR principle itself.

USF support should be designed to achieve no less than the 4/1 Mbps target identified by the National Broadband Plan. The initial target for high-cost areas must be no less than the 4/1 Mbps standard articulated by the National Broadband Plan. Yet that target already may be out of date as the Internet continues to evolve and consumers' reliance upon and expectations about broadband service continue to expand. In addition, longer-range planning must consider the role of fiber networks. As the Omnibus Broadband Initiative has found, "as broadband needs continue to grow, fiber emerges as the only last-mile technology capable of meeting ultra high-speed needs."

Reject the proposal to limit support to one entity per area. A reform proposal can properly be considered "efficient" if it both enables a reduction in cost over other proposals *and* serves the goal of universal service. By this measure, the proposal to support only one entity per area is manifestly inefficient. While the proposal may involve lower upfront costs, it would fail to provide "universal broadband" because it would leave households and businesses without access to the complementary platforms of wireline *and* mobile wireless broadband access. Given the role in particular of wireline broadband in providing the in-home networks intensively used by most broadband households and in offloading traffic from bandwidth-starved mobile networks, the Commission instead should provide that the Connect America Fund will support one wireline carrier in any given high-cost area, which may be complemented by one supported mobile wireless carrier.

Develop an explicit ICC recovery framework that meets carriers' revenue requirements. Reform of the ICC mechanism is essential to bringing about universal broadband service, as continued declines in ICC revenues are undermining efforts by rural carriers to deploy and upgrade broadband service in high-cost areas. In addition to the immediate step of closing loopholes that interconnected VoIP providers and certain other carriers have exploited, the Commission should ensure that the longer-term support mechanism will replace ICC revenues at levels sufficient to meet carriers' revenue requirements. Current ICC revenues have a crucial role in facilitating infrastructure upgrades and deployments, meaning that failure to provide an adequate replacement mechanism inevitably will lead to a decline in investment in high-cost areas.

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COMMENTS OF TDS TELECOMMUNICATION CORPORATION

TDS Telecommunications Corporation ("TDS Telecom") supports the fundamental aim of this proceeding: orienting the Universal Service Fund ("USF") to bring "robust, affordable broadband to all Americans" and thereby address the "great infrastructure challenge of our time."[1] Achieving this goal will require a pragmatic, thoughtful approach that considers the real-world effects of proposed reforms on the rural and other high-cost communities that Congress established the USF to serve. All proposals therefore must be measured against their ability to (1) sustain ongoing investments in broadband deployment in the

[1] *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up*, WC Docket No. 10-90, GN Docket No. 09-51, WC Docket No. 07-135, WC Docket No. 05-337, CC Docket No. 01-92, CC Docket No. 96-45, WC Docket No. 03-109, Notice of Proposed Rulemaking and Further Notice of Proposed Rulemaking, FCC 11-13, at ¶ 1 (rel. Feb. 9, 2011) ("*Connect America Fund NPRM/FNPRM*").

near term, and (2) ensure a basis for achieving universal broadband in rural and other high-cost areas at levels and prices that are reasonably comparable to those in urban areas over the long term. This is the Commission's statutory mandate, and more than any theory or opinion it must guide the Commission's decision-making in this proceeding.

The Commission should adopt policies that provide the right incentives for efficient deployment and maintenance of broadband service in rural and high-cost areas that otherwise would be left behind in the Broadband Era. In that respect, the Commission should bear in mind that to the degree there is broadband service in rural and high-cost areas served by rate-of-return ("ROR") carriers today, it largely is a result of incentives created by the current USF and intercarrier compensation ("ICC") mechanisms. However, as discussed in TDS Telecom's comments of April 1, 2010 concerning Section XV of the Noticed of Proposed Rulemaking and Further Notice of Proposed Rulemaking ("NPRM/FNPRM"), the ICC mechanism is dwindling rapidly as a source of funding for broadband and other forms of universal service.[2] This means that service provided in rural and high-cost areas will be relying on the USF mechanism more than ever to support widespread deployment. Indeed, the uncertainty over whether a future recovery mechanism will be sufficient to support infrastructure upgrades and build-out in high-cost areas already may be taking its toll on investment. To the extent carriers are continuing to invest in new facilities, it is under the assumption that, at a minimum, a meaningful portion of these investments will be reimbursed under the rules of the existing support mechanism.

[2] *See* Comments of TDS Telecommunications Corporation, Connect America Fund NPRM/FNPRM, at 7-8 (filed Apr. 1, 2011).

Much work therefore remains to be done, and time is of the essence to ensure that rural America is not left behind. The nation can ill afford declines in the rate at which carriers deploy broadband facilities and related infrastructure upgrades in the coming years. Put simply, the broadband gap between rural and urban America will remain unacceptably large, and will increase, if existing funding declines — or threatens to decline — without any clearly delineated replacement mechanism in sight.

To prevent a collapse of investment in rural broadband deployment at the very time it is needed most, the transition period to a broadband-oriented USF should be designed in a way that maintains and encourages ongoing investments by ROR carriers. It would be sadly ironic if the path chosen by the Commission to "reform" USF were to undermine the rate at which broadband is deployed in rural and other high-cost areas during the pendency of longer-term funding modifications. Yet many of the proposals in the NPRM/FNPRM would do just that by dismantling the current mechanism without providing a discernable picture of the Connect American Fund ("CAF") that would replace it. For example, the NPRM/FNPRM considers the hasty abandonment of rate-of-return regulation — even though ROR regulation has enabled much of the service available today in high-cost areas — in favor of untested and uncertain mechanisms like reverse auctions, provision of support based on untested models, and disaggregation of study areas.[3] If carriers perceive that such proposals will be adopted without meaningful improvements and clarifications, there will be a disincentive to invest in new or upgraded facilities as uncertainty grows over whether there will be adequate reimbursement for investment in areas where the cost of provisioning service exceeds the amount that customers can reasonably be expected to pay for that service. Orienting the USF to an explicit focus on

[3] *See, e.g., Connect America Fund NPRM/FNPRM*, at ¶¶ 284-88, 190.

broadband presents a significant challenge in itself. The Commission should not make that challenge greater yet by experimenting in untested forms of regulation for the carriers that today serve as providers of last resort in rural and other high-cost areas.

In short, it is essential that any new rules uphold the principle articulated by the Commission that changes to current mechanisms not be "sudden or overly disruptive."[4] It also is essential that network investments made in good faith based upon an expectation of recovery under today's rules not be stranded or undermined by new rules with retroactive effect. Accordingly, in these comments, TDS Telecom focuses on steps the Commission can take to reform the USF and ICC support mechanisms in a way that both encourages ongoing buildouts and incentivizes future buildouts to rural and high-cost areas that, absent support, would lack reasonably comparable broadband and voice service.

I. THE NPRM/FNPRM MISCHARACTERIZES RATE-OF-RETURN REGULATION AND UNDERESTIMATES ITS ABILITY TO SERVE UNIVERSAL BROADBAND GOALS.

Rate-of-return carriers build networks responsibly according to the needs of the otherwise unserved public, and face constraints — such as those imposed by the dynamics of a competitive market, investors, and/or lenders — that ensure efficient buildout decisions. The discipline of the financial markets is especially great on ROR carriers, like TDS Telecom, that are publicly traded companies. Yet many of the proposals in the NPRM/FNPRM, and the National Broadband Plan before it, reflect the flawed view that ROR regulation inherently results in "inefficient operating structures" and "discourag[es] beneficial consolidation of small carriers."[5] While no method of regulation can ensure that *every* carrier will act efficiently, there

[4] *Id.* ¶ 17.

[5] *Id.* at ¶ 217.

is no basis for concluding that ROR regulation is more subject to inefficiencies than other methods of regulation. To the contrary, ROR regulation enables carriers to meet critical public policy objectives.

TDS Telecom's own experience and success in serving high-cost areas as a rate-of-return carrier is instructive. With USF and ICC support, TDS Telecom has built out facilities that provide *some* level of broadband service (*i.e.*, DSL service) to over 90 percent of its customers. We have made these build-out decisions in a thoughtful and responsible manner, deploying cost-efficient yet sustainable solutions such as fiber-to-the-node ("FTTN"), which in areas of lower population densities often is a more practical starting point than fiber-to-the-home ("FTTH") deployment.[6] The challenge now is to maintain this baseline and build upon it to deliver the higher levels of broadband service that will be necessary for consumers to participate in the broadband economy — *at least* speeds of 4 Mbps download and 1 Mbps upload ("4/1 Mbps") throughout the vast majority of our service area at this time.

More importantly, ROR regulation produces results. Existing broadband deployments in many rural areas are the result of the efforts of ROR carriers, as supported by USF support and ICC revenues. These funding mechanisms work in tandem to incentivize the provision of advanced services in many high-cost areas. For example, interstate common line support ("ICLS") supports broadband-capable loop distribution plant, which makes up a

[6] The basic economics of broadband deployment hinges on the number of homes per route mile of fiber that needs to be trenched. Within rural areas, there are fewer homes per square mile than in more urban areas. Since the majority of cost is for fiber, deploying FTTN can deliver competitive speeds at a substantially lower cost. While the FTTN network may at some point need to be upgraded due to demand for higher speeds, it offers a more viable starting point where the cost today for deploying FTTH is too high. In contrast, FTTH is a more viable starting option for Greenfield developments given that costs can be spread among more homes. There are exceptions to this basic rule, however, and each deployment needs to be evaluated individually. For example, there also are instances where, due to terrain and layout of existing plant, it is more efficient to deploy home-run fiber than to re-trench from newly designed digital service areas ("DSAs").

significant portion of the cost of providing broadband. While service in rural areas still lags that of urban areas in many respects, the broadband gap would be significantly greater today had it not been for the investments made possible under ROR regulation.

The broadband service already made possible by ROR regulation has important economic benefits for local and regional economies. For example, direct employment in communities by TDS Telecom and indirect employment of vendors and suppliers brings an estimated 19 jobs for every $1 million invested in broadband. Even more significantly, broadband deployment in high-cost areas enables tremendous economic activity, and, most importantly, ensures that rural communities can thrive. As the National Broadband Plan observed:

> Broadband is becoming a prerequisite to economic opportunity for individuals, small businesses and communities. Those without broadband and the skills to use broadband-enabled technologies are becoming more isolated from the modern American economy.[7]

And in fact, availability of broadband in these areas benefits *all* Americans by ensuring that consumers can remain "connected" wherever their travels or careers may take them.

Given the benefits that ROR regulation delivers to rural and other high-cost areas, the Commission should reject proposals that would take away or reverse the incentives that have allowed TDS Telecom and other ROR carriers to make substantial — yet by no means complete — inroads in bringing the benefits of broadband to the public. For example, during the period 2012-16, immediate elimination of safety net support would cause average losses of between $0.57 and $13.89 per line, per month across the ILECs operated by TDS Telecom that receive such support. Likewise, average losses from immediate elimination of local switching support

[7] *See Connecting America: The National Broadband Plan* at § 13.0 (Mar. 16, 2010) ("NBP").

("LSS") would create further losses of between $0.33 to $13.97 per line, per month across TDS Telecom ILECs receiving LSS support. These predicted losses and their negative impact on future network deployment illustrate the damaging effects of these and other proposals on the ability to invest in new and upgraded facilities in rural and other high-cost areas.

To be clear, reform *is* necessary to re-orient the fund to the broadband infrastructure challenge. The ICC system is on life support, and the structure of high cost loop support ("HCLS") needs revision to prevent the inefficient squeezing out of carriers with relatively lower costs. There must, however, be a genuine glidepath that provides certainty to industry, states, consumers and other stakeholders *before* the current mechanism is dismantled. Without sufficient regulatory certainty, investment will be stifled by doubt as to whether a business case exists to provide broadband for a particular area. As TDS Telecom urged last year when the Commission adopted the initial NPRM concerning creation of the CAF, transitioning away from the existing support mechanisms to a new support mechanism requires careful, meticulous planning so that existing voice and broadband service to rural consumers is not disrupted or degraded.[8] While the more recent NPRM/FNPRM provides more details than last year's NPRM, at bottom it remains plagued by the same uncertainty as to when or how much support the CAF will provide to serve high-cost areas. The fact of that uncertainty alone is enough to stifle investment, given the substantial risk that the cost of new broadband deployments or upgrades will not be recouped. This, in turn, undermines innovation — the very principle the Commission is striving to advance.

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[8] See Comments of TDS Telecommunications Corporation, Connect America Fund; A National Broadband Plan for Our Future*; High-Cost Universal Service Support,* Notice of Inquiry and Notice of Proposed Rulemaking, WC Docket No. 10-90, GN Docket No. 09-51, WC Docket No. 05-337, at 12-15 (filed July 12, 2010) ("*2010 TDS Comments*").

We are actively involved in discussions among organizations well versed in the needs of rural consumers, a number of which will put forth plans intended to provide the detailed glidepath that to date has not been identified. While plans offered may differ in details, each will be designed to encourage continued deployment in rural and high-cost areas prior to a full transition to a revised support mechanism. These plans recognize that the broadband deployments in rural and high-cost areas made possible under the existing support mechanisms are essential building blocks to a network capable of providing universal broadband. We therefore encourage the Commission to consider these plans carefully, with the aim of establishing a genuine plan that will lead to fiscally responsible, robust broadband service throughout the entire United States.

II. THE NEW RECOVERY MECHANISM SHOULD TAKE ACCOUNT OF THE ROLE OF A CARRIER OF LAST RESORT.

Successful reform of universal service for the Broadband Era requires consideration of many variables, not least among them the ongoing role of carriers of last resort ("COLRs") in rural areas. COLRs undertake substantial obligations — including, but not limited to, standing ready to serve any potential customer upon request, even if the customer currently receives service from a competitor or that customer is in a service area that competitors find too costly to serve; adhering to specific quality of service standards; and ensuring continuity of service until permission is granted to exit a market. Acceptance of these responsibilities represents a compact between consumers and the COLR that implicitly benefits the federal government's longstanding universal service objective. The COLR obligation is at the foundation of much state carrier regulation, and any reform effort must take it into account.

TDS Telecom appreciates the Commission's acknowledgement of the challenges that COLRs face, by writing in the NPRM/FNPRM that "[i]ncumbent telephone companies that

operate in rural areas increasingly face competition from other providers, including cable and wireless companies in portions of their service area, but remain the [COLR] outside of towns, where there are typically too few customers to support a sustainable business."[9] But in fact, the situation is more challenging than described in the NPRM/FNPRM. ILECs retain COLR obligations even when there is effective competition in a study area. The obligations outlined above, which are just a sample of COLR obligations, do not simply melt away once a competitor shows up, as the NPRM/FNPRM seems to assume.

Given the significant obligations undertaken by COLRs such as TDS Telecom, the uncertain — and potentially significant — financial impact of the NPRM/FNPRM's proposal on COLRs is troubling. For example, the NPRM/FNPRM considers "requiring rural carriers to disaggregate support within existing study areas beginning in 2012."[10] The Commission, however, does not have the authority to relieve ILECs of their state COLR obligations in parts of study areas in which they lose support. Notably, the NPRM/FNPRM also asks whether the Commission "could or should adopt any measures to provide incentives to states to eliminate state COLR obligations for any company" that loses its universal service support.[11] This question tacitly acknowledges an important point that must inform the Commission's decision-making in this proceeding: USF decisions at the federal level should not be made in isolation, but rather must consider other regulatory burdens imposed at the state level.

Put simply, it is troubling that the NPRM/FNPRM appears to envision a recovery mechanism that could leave a carrier *without* support but *with* the COLR obligations it

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[9] *Connect America Fund NPRM/FNPRM*, at ¶ 8.

[10] *Id.* at ¶ 375.

[11] *Id.* at ¶ 101.

previously accepted under the premise of continued support. Unfunded mandates of that nature pose serious risks to the sustainability of operations in rural areas. In the disaggregated areas without support, the COLR would not be able to compete with other providers on a free market basis because the COLR will have lost USF support but retained uniquely burdensome regulatory obligations. In the long term, in some cases, the COLR may have to abandon the former study area altogether — leaving many subscribers without any carrier willing to accept COLR obligations, or even without service altogether. Given that broadband service will become increasingly critical to run a business, receive life-saving media care, obtain a quality education, and otherwise participate meaningfully in society, a dismantling of the states' COLR principle triggered by decisions made in a vacuum at the federal level would disserve the public interest.

III. SUPPORT SHOULD BE BASED INITIALLY UPON THE 4/1 MBPS TARGET, WITH THAT TARGET REGULARLY RE-EVALUATED.

Not all broadband service is created equal. Connections at speeds once considered cutting edge today barely can connect to common applications like streaming video and video calling. Even just checking one's email at an airport or other Wi-Fi "hotspot" at peak times of usage can be a challenge. The same upward evolution in necessary broadband speeds certainly will be true in the years to come. Thus, as mandated by the Communications Act, the Commission must take steps to ensure that connection speeds in rural and other high-cost areas become — and remain — reasonably comparable to those in rural and other high-cost areas.[12] In that regard, at a minimum, the *initial* target for high-cost areas must be no less than the 4/1 Mbps

[12] 47 U.S.C. § 254(b)(3).

standard articulated by the National Broadband Plan, with that target revisited and adjusted upward periodically.[13]

The Omnibus Broadband Initiative's Technical Paper No. 4 on Broadband Performance ("OBI Paper No. 4") documents the need for connections of at least 4/1 Mbps in order to use the range of applications and services online today. OBI Paper No. 4 concluded that a connection of 4/1 Mbps would allow a user to "stream high quality video from commonly used websites and services."[14] It noted as well that a connection providing speeds of 4/1 Mbps corresponds to the average actual speed experienced by U.S. broadband consumers in the first half of 2009 — thereby setting 4/1 Mbps as the starting point for determining whether the Commission abides by the statutory mandate to design the USF so that rural and other high-cost areas have "access to telecommunications and information services . . . that are reasonably comparable to those services provided in urban areas . . . at rates that are reasonably comparable to rates charged for similar services in urban areas."[15] While the 4/1 Mbps target connection speed is substantially lower than the speeds targeted by many other developed countries — Europe, for example, already has targeted a universal downstream data rate of 30 Mbps or above[16] — it is helpful in setting the floor for connection speeds at which a reformed universal service program should be targeted.

Additionally, supported broadband connection speeds must evolve with consumer demand for, and the increasing availability of, high-bandwidth applications that will power smart

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[13] NBP at § 8.0.

[14] Federal Communications Commission, *Broadband Performance, Omnibus Broadband Initiative Technical Paper No. 4*, at 17 (Aug. 2010) ("*OBI Paper No. 4*").

[15] *See* 47 U.S.C. § 254(b)(3).

[16] See European Commission, *A Digital Agenda for Europe*, COM(2010) 245, at 19 (May 19, 2010), *at* http://ec.europa.eu/information_society/digital-agenda/documents/digital-agenda-communication-en.pdf.

grids, deliver medical services, provide news, facilitate education in rural areas, and otherwise serve the American public. In that respect, TDS Telecom agrees with the view of the OBI Paper that:

> If new applications drive demand for higher-speed connections, improvements in compression technology reduce the need for bandwidth or consumer habits shift significantly, the existing [4/1 Mbps] Target may cease to reflect the needs of the public. This scenario highlights the importance of revisiting the Target periodically with fresh analyses of both new and existing trends. Only through this process can the Commission ensure that the evolution of a National Broadband Availability Target keeps up with the evolving needs of all Americans.[17]

Indeed, as TDS Telecom noted in comments to the initial NPRM in this proceeding, the 4/1 Mbps target already is inadequate given ever-increasing bandwidth requirements. The Internet continues to evolve and consumers' reliance upon and expectations about broadband service continue to expand. New applications and programs that involve full-motion video, collaborative educational applications, telecommuting, telemedicine and other next-generation services require increasingly higher levels of bandwidth and network sophistication to function properly. As a study commission by the e-NC authority, a North Carolina state initiative to connect all residents of that state to broadband, explained: "The difference between the 5-10 Mbps [connection] and the 100 Mbps [connection] is not simply one of moving data faster. It is, rather, an economically crucial difference that causes a profound shift in how the medium is used."[18] Upward trends in U.S. broadband speeds suggest just how quickly the 4/1 Mbps target will need to be revised. For example, a study by market research firm In-Stat found that downstream speeds in U.S. broadband households increased an average

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[17] *OBI Paper No. 4*, at 17.

[18] *See* e-North Carolina & Baller Herbst Law Group, *Capturing the Promise of Broadband for North Carolina and America*, at 16 (June 2008).

of 34 percent last year over 2009 levels — bringing the average data rate for downloads to 9.54 Mbps, or more than twice the 4 Mbps download target articulated by the National Broadband Plan.[19]

It is telling that the National Broadband Plan itself sets a goal of providing 100 million households — nearly 90 percent of U.S. households — with actual download speeds of 100 Mbps and actual upload speeds of 50 Mbps by 2020.[20] Under this projection, if the remaining 14 million households in rural America were to be supported only at data rates of 4/1 Mbps in 2020, those rural households would be left out of the Broadband Era with connections that afford only 1/25th of the download speeds and 1/50th of the upload speeds as the rest of the country. As TDS Telecom explained in comments to the 2010 initial NPRM in this proceeding, a gap of this magnitude between rural and urban areas would mean that there could never be true and meaningful "universal" broadband in the United States.[21]

In assessing and providing periodic, upward adjustment to the broadband speeds to be supported in high-cost areas, the Commission also should bear in mind the importance of fiber in the long-run. Fiber infrastructure provides a "future proof" deployment capable of accommodating yet-to-be-envisioned future voice, data, video and other services that will demand exponentially greater speeds than are in use today. As a December 2010 *Newsweek* editorial encouraging fiber broadband investment noted, "while the up-front cost of trenching fiber to every home is high, the infrastructure is scalable and lasts for decades."[22] Another

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[19] In-Stat, *Downstream Bandwidth for US Broadband Subs Increases by 34% in 2010* (Feb. 15, 2011), *at* http://www.instat.com/press.asp?ID=3042&sku=IN1104954MBS.

[20] NBP at § 2 (Goal No. 2).

[21] *2010 TDS Comments*, at 10.

[22] Alan Mascarenhas, *Obama's Broadband Punt*, Newsweek (Dec. 11, 2010), *at* http://www.newsweek.com/2010/12/11/obama-is-missing-the-broadband-boat.html.

notable development is the very recent decision of the Australian parliament to endorse deployment of a $37 billion (U.S.) fiber optic national broadband network — and the parliament's corresponding rejection of an alternative plan that would have supported a much slower but less expensive network reliant on some fiber, but also wireless and DSL.[23] As the Vice-Chancellor and Principal of the University of Sydney concluded in a letter to the parliamentary committee overseeing the legislation, "investing in a future proof optical-fibre network represents a sound long term investment in Australia's future prosperity."[24]

Perhaps most importantly, the Commission itself has found that a strong digital future requires fiber. In December 2010, OBI Technical Paper No. 1 explained: "As broadband needs continue to grow, fiber emerges as the only last-mile technology capable of meeting ultra high-speed needs. So, any solution that brings fiber closer to the home by pushing it deeper into the network puts into place an infrastructure that has long-term strategic benefits."[25] TDS Telecom agrees with the Commission's conclusion, and urges that it form the basis for the long-term universal broadband strategy.

IV. SUPPORT SHOULD NOT BE LIMITED TO ONLY ONE ENTITY IN ANY GEOGRAPHIC AREA.

The Commission should reject the proposal of the NPRM/FNPRM that the first phase of the CAF support "only one entity in any given geographic area."[26] By definition, that proposal would leave high-cost areas without the complementary technologies of wireline and

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[23] Rod McGuirk, *Australian Parliament Backs $37B Broadband Plan*, Business Week (Mar. 28, 2011), *at* http://www.businessweek.com/ap/financialnews/D9M85F780.htm.

[24] Letter from Michael Spence, Vice-Chancellor and Principal, University of Sidney, to Sharon Bird, Chair, Standing Committee on Infrastructure and Communications (Feb. 24, 2011), *at* http://www.aph.gov.au/house/committee/ic/NBN/subs/Sub114.pdf.

[25] Federal Communications Commission, *The Broadband Availability Gap, Omnibus Broadband Initiative Technical Paper No. 1*, at 76 (2010).

[26] *Connect America Fund NPRM/FNPRM*, at ¶ 281.

mobile wireless broadband access. Given the role in particular of wireline broadband in providing the in-home networks intensively used by most broadband households and in offloading traffic from bandwidth-starved mobile networks, the Commission instead should provide that the CAF will support one wireline carrier in any given high-cost area, which may be complemented by one supported mobile wireless carrier.

A reform proposal can properly be considered "efficient" if it both enables a reduction in cost over other proposals *and* serves the goal of universal service. By this measure, the proposal to support only one entity per area is manifestly inefficient. While the proposal may involve lower upfront costs, it would fail to provide "universal broadband" because it would risk leaving households and businesses without access to the tools necessary for a robust, 21st century broadband experience. Such an approach would be akin to an "efficient" plan for educating rural high school students that provides every school with teachers of either science or mathematics, but not both. The result there would be an incomplete education for students that omits one of two complementary subjects, just as the result of the "one entity" support proposal would be to leave rural communities with an inadequate broadband service that is not "reasonably comparable" to the complementary wireline and mobile wireless services widely available in urban areas.

The proposal of the NPRM/FNPRM to support only one entity per area is flawed for at least three more specific reasons.

First, the potential for leaving a high-cost area without a wireline broadband provider overlooks the tremendous capacity afforded by wireline broadband networks. Wireline connections took a critical leap forward from dial-up connections in the early part of this decade, and speeds have continued to increase at a substantial pace since then. As noted, fiber

deployments allow for dramatic and "future proof" increases in capacity. High-bandwidth broadband services today are available over fiber to the home connections to over 20 million consumers in the U.S.[27] The capacity of these fiber-based wireline networks will enable consumers to access increasingly sophisticated, high-bandwidth content and services over time. As the Organization for Promotion and Advancement of Small Telecommunications Companies ("OPASTCO") explained in comments concerning the National Broadband Plan:

> [T]he bandwidth capabilities and functionalities of fixed and mobile wireless broadband technologies are not even remotely comparable. While many consumers enjoy the benefits of mobility, only fixed technologies are capable of delivering the speeds that consumers will require over the long term in order to gain access to the vast array of applications and services that are continually growing in number and bandwidth requirement. Therefore, mobile wireless broadband can serve as a complement to a fixed platform, but it is not a substitute.[28]

Second, mobile networks depend upon the scarce spectrum resource. Spectrum dependence and the relative scarcity of spectrum today and for the foreseeable future simply do not allow mobile wireless platforms to act as a widescale substitute to wireline connections. As Chairman Genachowski explained last month in a speech to the Mobile Future conference, the "explosion in demand for spectrum is putting strain on the limited supply available for mobile broadband, leading to a spectrum crunch."[29] Likewise, a report prepared last year by Vantage Point explained well the practical consequences of mobile networks' spectrum dependence:

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[27] Fiber To The Home Council, All-Fiber Networks Now Pass 20 Million North American Homes (Sept. 14, 2010), *at* http://www.ftthcouncil.org/en/newsroom/2010/09/14/all-fiber-networks-now-pass-20-million-north-american-homes.

[28] Organization for the Promotion and Advance of Small Telecommunications Companies ("OPASTCO") Comments, *Role of the Universal Service Fund and Intercarrier Compensation in the National Broadband Plan (NBP Public Notice #19)*, GN Docket Nos. 09-49 09-51, and 09-137, at 12 (filed Dec. 7, 2009).

[29] Chairman Julius Genachowski, Remarks on Broadband, (Mar. 16, 2011), *at* http://www.fcc.gov/Daily_Releases/Daily_Business/2011/db0316/DOC-305225A1.pdf.

"Because of fundamental limitations in the radio spectrum, wireless broadband has practical capacity limits and will not be able to provide enough throughput to serve the broadband needs of all consumers."[30] Of course, the amount and timing of bringing new spectrum allocations to market also is uncertain, as demonstrated by the ongoing debate over the circumstances pursuant to which the Commission should be allowed to conduct incentive auctions.[31] Chairman Genachowski has properly observed that "the days for easy reallocations are over."[32]

Third, mobile networks depend significantly on fixed wireline networks and could not perform adequately without them. Cisco's Traffic Forecast Update for 2010-15 — cited frequently in the National Broadband Plan — notes that "[m]uch mobile data activity takes place within the user's home" and thus "operators may be able to offload traffic onto a fixed network."[33] Cisco estimates that by 2015, wireless carriers will offload nearly 39 percent of the traffic from their subscribers' smartphones and tablets to wireline networks, either through use of femtocells or dual-mode handsets that connect to Wi-Fi hotspots supported by wireline connections.[34] More recent research released last month by Juniper Research estimates that Wi-Fi and femtocell networks will carry 63 percent of all data traffic by 2015.[35] Already in the

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[30] VantagePoint, Rural Telecom Educational Series, *Providing Worldclass Broadband: The Future of Wireless and Wireline Broadband Technologies*, at 12 (Mar. 4, 2010), *at* http://www.vantagepnt.com/World-Class%20Broadband%20FINAL.pdf

[31] *See, e.g., Using Spectrum to Advance Public Safety, Promote Broadband, Create Jobs, and Reduce the Deficit, Hearing Before the H. Energy & Commerce Comm.*, 112th Cong. (Apr. 12, 2011), *at* http://energycommerce.house.gov/hearings/hearingdetail.aspx?NewsID=8441.

[32] Chairman Julius Genachowski, Remarks on Spectrum, (Apr. 6, 2011), *at* http://www.fcc.gov/Daily_Releases/Daily_Business/2011/db0406/DOC-305593A1.pdf.

[33] Cisco, *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010–2015*, at 10 (Feb. 1, 2011), *at* http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf.

[34] *Id*. at 11, Tbl 7.

[35] Nitin Bhas, *Press Release: Mobile Devices to Generate Data Traffic Equivalent to 18 billion Movie Downloads by 2015, at Over 14,000 Petabytes* (Mar. 31, 2011), *at* http://juniperresearch.com/viewpressrelease.php?pr=237.

United States there are more femtocells than cell sites in use.[36] In short, leaving a high-cost area with only a mobile carrier risks not only loss of the direct benefits of wireline networks, but an inefficient and unstable mobile experience as well.

V. THE COMMISSION SHOULD REPLACE THE INTERCARRIER COMPENSATION MECHANISM WITH AN EXPLICIT RECOVERY FRAMEWORK THAT IS PREDICTABLE AND ADMINISTRABLE.

Continued declines in ICC revenues are undermining efforts by rural carriers to deploy and upgrade broadband service in high-cost areas, making reform of the ICC mechanism essential to bringing about universal broadband service. As explained by TDS Telecom in comments filed on April 1 in response to Section XV of the NPRM/FNPRM, the first step in this reform process is the immediate closing of perceived loopholes that interconnected VoIP providers and certain other carriers have exploited to avoid paying their fair share of the costs for terminating traffic that they originate onto the public switched telephone network ("PSTN"). That step, however, is an interim measure, and we appreciate the Commission's recognition of the need to address comprehensive ICC reform in tandem with USF reform.

The sheer volume of questions raised in the NPRM/FNPRM in connection with an ICC replacement mechanism highlights the complexity of this issue. These questions range from the proper role of the Commission and the states in the reform process; whether the Commission can and should bring all traffic (interstate and intrastate alike) into the reciprocal compensation framework; whether the Commission should decline to set further rate reductions (beyond the interstate level) until after it can assess financial conditions in the wake of the first

[36] A femtocell is a small device used in a home or office that supports in the range of 2 to 4 simultaneous mobile connections. The femtocell routes mobile traffic through a user's wireline broadband connection for delivery to the wireless carrier's network – thereby bypassing the local cell site altogether. The number of femtocells in the United States (350,000) is now greater than the number of cellular towers (256,000). *See* Mike Dano, *Sprint: We've Got 250,000 Femtocells on Our Network* (Mar. 23, 2011), *at* http://www.fiercewireless.com/ctialive/story/sprint-weve-got-100000-femtocells-our-network/2011-03-23.

stage of reforms; whether and how to migrate to a bill-and-keep methodology; and whether and how to convert per-minute interstate access charges into flat rate charges imposed on interexchange carriers. TDS Telecom is a member of rural-focused organizations that will be filing detailed comments with respect to these and other questions concerning long-term ICC reform.[37] We will not replicate those comments here, except to highlight their common concern as to whether a new support mechanism will replace ICC revenues at levels sufficient to meet carriers' revenue requirements. Given that current ICC revenues have a crucial role in facilitating infrastructure upgrades and deployments, failure to provide an adequate replacement mechanism inevitably will lead to a decline in investment in high-cost areas.

[37] Organizations in which TDS Telecom is involved include NECA, NTCA, OPASTCO, WTA and ITTA.

CONCLUSION

A prerequisite to achieving universal broadband is the creation of a genuine glidepath between the current support structure and a broadband-oriented mechanism — in essence, to get from "here to there" without collapsing investment in rural broadband deployment at the very time it is needed most. The Commission can navigate this transition successfully only through careful planning that puts the real needs of rural communities above any untested theory or opinion. By building upon the initial investments of rate-of-return carriers in broadband service to rural and other high-cost areas, and providing the necessary incentives to further those investments, the Commission can set in motion a reformed USF that will bring the world to rural America and rural America to the world.

Respectfully Submitted,

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