Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Fostering Innovation and Investment in the Wireless Communications Market	)	GN Docket No. 09-157
	)	
	)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51

REPLY COMMENTS OF VERIZON WIRELESS

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SUMMARY

The Commission's inquiry into wireless innovation has highlighted the wireless ecosystem's robust and accelerating track record of innovation, investment and competition. The wireless sector offers an ever-broader array of services, devices, applications, and content for consumers, enterprises, public safety, the health care industry, and utilities, including web browsing, location services, music services, streaming video and radio services, M2M communications, remote monitoring, and mobile business. In its recent notice on the open Internet, the Commission recognized that this "highly dynamic landscape" is delivering an increasing variety of choices to wireless broadband consumers. Much of this innovation has been driven by wireless licensees such as Verizon Wireless, who have invested tens of billions of dollars to construct and repeatedly upgrade their networks. These advanced networks have enabled the proliferation and convergence of new devices, applications, and content. Contrary to some that see a binary world of 'dumb pipes' on the one hand and 'smart applications' on the other, the success of wireless has been due to the integration of increasingly powerful networks and ever-more intelligent devices and applications. This recipe for success must be preserved to ensure continued wireless investment and innovation.

The high priority placed on innovation by participants in the wireless market is underscored by the numerous announcements of innovative products and services in the short time after initial comments in this proceeding were filed. *Part I* of these reply comments details the many recent efforts to upgrade networks, expand advanced services, reduce prices, unveil new handsets and pricing plans, and develop new applications. These reply comments also show how continued and substantial investment in wireless network capabilities – notwithstanding the downturn in the economy – is driving innovation at all levels of the wireless ecosystem. Plainly,

innovation and investment in the wireless sector is not just a historical fact, but also a growing trend.

The record in this proceeding demonstrates the success of Commission policies that are founded on exclusive, flexible use of licensed spectrum. Nonetheless, some parties in this proceeding would have the Commission deviate from this successful model by imposing unjustified regulations that would erode licensee interference rights and impose unnecessary regulatory burdens. *Part II* of these reply comments responds to these improper calls for regulation and demonstrates that such proposals would contravene the Commission's goals of continued and increased innovation and investment. In fact, the Commission's policies of granting exclusive, flexible use rights to wireless licensees has promoted highly innovative and efficient use of spectrum, a result that would be undermined by calls to implement forced sharing mechanisms in these bands. Claims that licensees use their spectrum inefficiently and warehouse it to the detriment of smaller carriers and consumers are belied by the facts, which show that licensees intensively use their spectrum holdings and face powerful incentives to make unused or underused spectrum available to others on the secondary market. Further, requests to limit the amount of spectrum held by carriers – aside from lacking any factual basis that would justify the Commission's reversal of its decision that spectrum caps are unjustified – would undermine the Commission's goals of facilitating innovation and accommodating the ever-increasing demand for spectrum resources. Finally, the record makes clear that imposing spectrum fees – an action which the Commission lacks authority to take in any event – would not promote the Commission's innovation and investment goals.

The vast majority of commenters in this proceeding credit the Commission's minimal regulatory approach to wireless services and the Internet with fostering the innovation and

investment seen in today's wireless industry. As a White House official recently declared, reliance on competition is far preferable to "relying on heavy-handed regulation." In *Part III* of these reply comments, Verizon Wireless highlights the widespread support for the Commission's light-touch regulatory approach and the threat that unnecessary regulation and regulatory uncertainty poses to continued innovation and investment. The Commission should not abandon this Congressionally-mandated approach by adopting certain commenters' self-serving calls for new regulations that have no connection with the Commission's goals in this proceeding. These calls to prohibit handset exclusivity arrangements, regulate roaming, mandate 700 MHz device technology, regulate short codes, and regulate special access prices have already been addressed in the Commission's separate proceeding addressing mobile competition, and Verizon Wireless briefly summarizes its responses to them here.

Finally, Verizon Wireless notes in *Part IV* of these reply comments that parties have generally agreed on particular roadblocks to innovation and investment, and on the means by which the Commission can remove or lower them. Specifically, commenters ask the Commission to: (1) identify and allocate additional spectrum for wireless services, (2) facilitate the deployment of new antenna sites, (3) adopt a national framework for wireless services, (4) expedite licensing reviews and approvals, and (5) promote the deployment of both public safety and commercial services in the 700 MHz band by, among other things, clearing the 700 MHz spectrum so it can fulfill its promise of providing broadband public safety and commercial services. Verizon Wireless urges the Commission to take all of these actions as soon as practicable, as doing so will help incent further innovation and investment.

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REPLY COMMENTS OF VERIZON WIRELESS

Verizon Wireless hereby submits its reply comments on the Notice of Inquiry ("NOI") in the above-captioned proceedings.[1] As the initial round of comments makes abundantly clear, the wireless ecosystem has a consistent and accelerating track record of innovation, investment and competition, whether the focus is on devices, applications, content, innovative uses or the underlying networks. Much of this innovation has been spurred by wireless licensees themselves, as a result of the significant investments and innovations they have made in their networks – progressively upgrading them through four generations of technology in less than two decades. Innovation is accelerating, with multiple developments being announced each week. Given these facts as documented in the record, the Commission's principal roles should be as follows: (1) maintain its market-based oversight policies, (2) identify and allocate needed new spectrum blocks for wireless services, (3) continue the flexible, exclusive use licensing model that is a lynchpin to the rapid growth of this sector of the economy, and (4) continue to remove regulatory obstacles that can impede innovation.

[1] *Fostering Innovation and Investment in the Wireless Communications Market*, Notice of Inquiry, FCC 09-66 (2009) ("*NOI*").

I. THE COMMENTS OVERWHELMINGLY DOCUMENT ENORMOUS AND ACCELERATING INNOVATION AND INVESTMENT IN THE WIRELESS ECOSYSTEM.

The record in this proceeding clearly demonstrates the wide variety of innovation and investment that is occurring at an accelerating pace throughout the wireless industry.[2] More than $325 billion in capital has been invested in the domestic wireless infrastructure.[3] "Wireless has been among the fastest-growing industries on the planet,"[4] with "innovation . . . unfurl[ing] at a rapid pace"[5] in every level of the wireless ecosystem – networks, services, devices, applications and content. This innovation has been driven by wireless carriers through improvements they have made to their networks as well as through collaborations with equipment manufacturers and application developers.[6] Despite very poor economic conditions – and undocumented claims by a few parties that consolidation among wireless providers has suppressed innovation – data in the record reveal that innovation has not slowed. In fact, the pace of innovation continues to provide even more choices to American consumers to meet their communications needs.

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[2] *See, e.g.,* Comments of CTIA - The Wireless Association®, GN Docket Nos. 09-157 and 09-51, at 5 (Sept. 30, 2009) ("CTIA Comments") ("The success of the mobile wireless industry is a testament to the innovation and investment that occurs in the sector on a daily basis."); Comments of Motorola, Inc., GN Docket Nos. 09-157 and 09-51, at 2 (Sept. 30, 2009) ("Motorola Comments") ("Motorola believes that the state of innovation in the wireless services is extremely strong"); Comments of T-Mobile USA, Inc., WT Docket No. 09-66, GN Docket No. 09-157, GN Docket No. 09-51, at 2 (Sept. 30, 2009) ("T-Mobile Comments") ("Innovation, both at the core and at the edge of the wireless platform, has accelerated in recent years.").

[3] Comments of Mobile Future, GN Docket Nos. 09-157 and 09-51 ("Mobile Future Comments"), at *Welcome to the Mobile Future: How Wireless Innovation is Transforming Our Economy & Our Lives*, 2 (Sept. 30, 2009) ("Mobile Future White Paper").

[4] Mark Lowenstein, *Innovation and the U.S. Wireless Industry*, GN Docket Nos. 09-51 and 09-157, at 1 (filed Sept. 30, 2009) ("Mobile Ecosystem Paper").

[5] Mobile Future White Paper at 2.

[6] *See, e.g.,* Comments of PCIA – The Wireless Infrastructure Association and The DAS Forum (A Membership Section of PCIA), GN Docket Nos. 09-157 and 09-51, at 2 (Sept. 30, 2009) ("PCIA Comments") ("[W]ithout the necessary infrastructure, many of the downstream innovations that have touched Americans lives would not be possible.").

The fast pace of innovation and investment, as well as the intense competition that exists in the wireless ecosystem, is underscored by numerous announcements *in just the two weeks after the initial comments were filed.* Many of these announcements demonstrate that network providers themselves are driving innovation:

- Clearwire introduced its 4G mobile Internet service to Milledgeville, Georgia and Salem, Oregon.[7]
- MetroPCS nearly *doubled* the number of cities and towns included in its MetroPCS Unlimited Nationwide(SM) offering.[8]
- U.S. Cellular expanded the reach of its network, with service enhancement announcements in 9 areas.[9]
- Cellular South announced the acquisition of Corr Wireless, expanding Cellular South's footprint into 18 new counties across Alabama and Georgia and gaining coverage of over 1.3 million people.[10]
- Cellular South began accepting pre-orders for the HTC Hero, an Android™ phone.[11]

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[7] Press Release, Clearwire Communications, LLC, Clearwire Introduces CLEAR(TM) 4G Mobile Internet Service to Milledgeville, Georgia (Oct. 1, 2009), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1337299&highlight= (last visited Nov. 4, 2009); Press Release, Clearwire Communications, LLC, Clearwire Introduces CLEAR(TM) 4G Mobile Internet Service to Salem, Oregon (Oct. 1, 2009), http://newsroom.clearwire.com/phoenix.zhtml?c=214419&p=irol-newsArticle&ID=1337297 (last visited Nov. 4, 2009).

[8] *See* Press Release, MetroPCS, MetroPCS Expands Unlimited NationwideSM Service (Sept. 30, 2009), http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1336771 (last visited Nov. 4, 2009).

[9] *See, e.g.*, Press Release, U.S. Cellular, U.S. Cellular Expands Network in Janesville Area (Oct. 6, 2009), http://www.uscc.com/uscellular/SilverStream/Pages/x_page.html?p=a_press091006_1 (last visited Nov. 4, 2009); Press Release, U.S. Cellular, U.S. Cellular Expands Network in Milwaukee (Oct. 6, 2009), http://www.uscc.com/uscellular/SilverStream/Pages/x_page.html?p=a_press091006 (last visited Nov. 4, 2009); Press Release, U.S. Cellular, U.S. Cellular Expands Network Near Burlington (Oct. 1, 2009), http://www.uscc.com/uscellular/SilverStream/Pages/x_page.html?p=a_press091001_6 (last visited Nov. 4, 2009); Press Release, U.S. Cellular, U.S. Cellular Expands Network Near Arpin (Oct. 1, 2009), http://www.uscc.com/uscellular/SilverStream/Pages/x_page.html?p=a_press091001_5 (last visited Nov. 4, 2009).

[10] Press Release, Cellular South, Inc., Cellular South Announces Plans to Acquire Alabama's Corr Wireless (Oct. 16, 2009), https://www.cellularsouth.com/news/2009/20091016.html (last visited Nov. 4, 2009) ("Cellular South / Corr Wireless Press Release").

[11] *See* Press Release, Cellular South, Cellular South Begins Pre-order of HTC Hero™ Today; Introduces Ground-breaking New Smartphone Unlimited Plan (Oct. 5, 2009), https://www.cellularsouth.com/news/2009/20091005.html (last visited Nov. 4, 2009).

- Cellular South unveiled a "Smartphone Unlimited Plan," offering unlimited talk, text, Web and email for $79.99 per month.[12]

- Cricket announced that it has entered into an agreement with Target which will make available Cricket's PAYGo products in nearly 650 store locations.[13]

- T-Mobile reduced the price of its 5GB data plan by $10 to $49.99.[14]

- T-Mobile introduced the Samsung Behold® II and unveiled four other 3G handsets.[15]

- T-Mobile began offering a service to office workers that combines a BlackBerry phone with Wi-Fi, allowing corporate BlackBerry users to get rid of their desktop phone.[16]

- Sprint added 4G WiMAX service in eight Texas cities.[17]

- Sprint announced the introduction of its second Android™-based handset, the Samsung Moment.[18] The Moment is Samsung's first Android™-based handset, and features a 3.2-inch touch-screen and an 800 MHz processor.[19]

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[12] *See id.*

[13] *See* Press Release, Cricket Communications, Inc., Cricket Enters Agreement with Target Corporation (Oct. 1, 2009), http://www.mycricket.com/aboutcricket/pressroom/details?id=439 (last visited Nov. 4, 2009).

[14] T-Mobile USA Inc., Internet & Email Plans, http://www.t-mobile.com/shop/plans/Cell-Phone-Plans.aspx?catgroup=Internet-Email-cell-phone-plan (last visited Oct. 15, 2009).

[15] Press Release, T-Mobile USA, Inc., T-Mobile Unveils Holiday Handsets Including Broadest Selection of Android-Powered Devices (Oct. 7, 2009), http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20091007&title=T-Mobile%20Unveils%20Holiday%20Handsets%20Including%20Broadest%20Selection%20of%20Android-Powered%20Devices (last visited Nov. 4, 2009); Press Release, T-Mobile USA, Inc., Samsung Mobile and T-Mobile USA Introduce Samsung Behold® II (Oct. 5, 2009), http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20091005&title=SAMSUNG%20MOBILE%20AND%20T-MOBILE%20USA%20INTRODUCE%20SAMSUNG%20BEHOLD®%20II (last visited Nov. 4, 2009).

[16] T-Mobile USA Kicks Off Corporate Wi-Fi Push, Reuters, Oct. 5, 2009, http://www.reuters.com/article/technologyNews/idUSTRE5940GK20091005 (last visited Nov. 4, 2009).

[17] Press Release, Sprint, Sprint 4G Blazes into Killeen-Temple, (Oct. 5, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1338261&highlight (last visited Nov. 4, 2009).

[18] Press Release, Sprint, Samsung's First Android-Powered Phone, Samsung Moment with Google, Coming Soon to America's Most Dependable 3G Network (Oct. 7, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1339737 (last visited Nov. 4, 2009).

[19] *Id.*

- Sprint announced a new turnkey back-office solution for companies interested in reselling post-paid wireless service under their own brand.[20]

- Sprint announced a Partner Interexchange Network (PIN) to provide business-to-business wholesale exchange of voice over IP traffic.[21]

- AT&T introduced or expanded its 3G wireless coverage in Colorado, Texas, Illinois, Florida, North Carolina, and western Massachusetts.[22] AT&T also announced that it invested over $50 million through the second quarter of 2009 alone to upgrade 3G wireless coverage in the Dallas/Ft. Worth area.[23]

- AT&T announced a new prepaid plan with unlimited talk, text (including international), instant messaging, picture, and video messages for $60/month.[24]

- AT&T announced that it would open its network to mobile voice applications used on Apple iPhone devices.[25]

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[20] Press Release, Sprint, Sprint Offers Affordable and Easy Way to Break into Wireless Business (Oct. 8, 2009), http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1340136&highlight= (last visited Nov. 4, 2009).

[21] Press Release, Sprint, Sprint Establishes New Voice over IP (VoIP) Community Solution to Provide Significant Cost Savings to Wholesale VoIP Customers (Oct. 12, 2009), http://newsreleases.sprint.com /phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1340810 (last visited Nov. 4, 2009).

[22] Press Release, AT&T Inc., AT&T Strengthens 3G Wireless Coverage in Boulder, Denver, Fort Collins, Greeley, Loveland, and Along the Front Range (Oct. 13, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn =news&newsarticleid=27226 (last visited Nov. 4, 2009); Press Release, AT&T Inc., AT&T Brings 3G Mobile Broadband Network to Lockhart (Oct. 12, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27224 (last visited Nov. 4, 2009); Press Release, AT&T Inc., Customers Get More Mobile Broadband Coverage in Three Illinois Counties (Oct. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27225 (last visited Nov. 4, 2009); Press Release, AT&T Inc., AT&T Kicks Up 3G Mobile Broadband Coverage In Western Massachusetts (Oct. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27220 (last visited Nov. 4, 2009); Press Release, AT&T Inc., AT&T Brings 3G Mobile Broadband Network to Champaign-Urbana Area (Oct. 8, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27217 (last visited Nov. 4, 2009); Press Release, AT&T Inc., AT&T Brings 3G Mobile Broadband Network to Wilmington (Oct. 1, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27193 (last visited Nov. 4, 2009); Press Release, AT&T Inc., AT&T Delivers More 3G Coverage for South Florida Customers (Sept. 30, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27188 (last visited Nov. 4, 2009).

[23] Press Release, AT&T Inc., AT&T Invests More Than $50 Million Through 2Q09 to Strengthen 3G Wireless Coverage in Dallas-Fort Worth (Oct. 7, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news& newsarticleid=27209 (last visited Nov. 4, 2009).

[24] Press Release, AT&T Inc., Let Freedom Ring with New GoPhone Unlimited Talk and Text Feature Package (Oct. 9, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27218 (last visited Nov. 4, 2009).

- AT&T announced that it will offer two new smartphones based on Microsoft's new Windows Mobile 6.5 operating system, HTC's Tilt 2 and Pure.[26]

- Verizon Wireless and Google entered into a groundbreaking agreement to leverage Verizon Wireless's world-class network with the Android™ platform that will deliver mobile applications, services and devices.[27]

- Verizon Wireless expanded the reach and capabilities of its network across the nation, with service enhancement announcements in over 30 communities.[28]

- Verizon Wireless expanded its selection of mobile handsets by three with innovative offerings from Nokia, Motorola and HTC.[29]

- Verizon Wireless released PlayMaker Mobile, a new mobile social networking application that allows fans to interact with their favorite athletes through live chats and message boards and forums.[30]

- Verizon Wireless announced a series of steps aimed at enhancing its Verizon Developer Community, the online portal for application developers. These steps include adding

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[25] Press Release, AT&T Inc., AT&T Extends VOIP to 3G for iPhone (Oct. 6, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=27207 (last visited Nov. 4, 2009).

[26] Matt Hamblen, *AT&T Announces First Windows Mobile 6.5 Smartphones*, ComputerWorld, Oct. 5, 2009, http://www.computerworld.com/s/article/9138831/AT_T_announces_first_Windows_Mobile_6.5_smartphones (last visited Nov. 4, 2009).

[27] *See* Press Release, Verizon Wireless, Groundbreaking Agreement Between Verizon Wireless And Google To Leverage High-Speed Network And Open Android Platform For Wireless Innovation (Oct. 6, 2009), http://news.vzw.com/news/2009/10/pr2009-10-05g.html (last visited Nov. 4, 2009).

[28] *See*, *e.g.*, Press Release, Verizon Wireless, Verizon Wireless Expands 3G Wireless Network In Yukon, Pennsylvania (Oct. 9, 2009), http://news.vzw.com/news/2009/10/pr2009-10-09i.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Verizon Wireless Expands 3G Wireless Network In Washington County, New York (Oct. 9, 2009), http://news.vzw.com/news/2009/10/pr2009-10-12.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Valders, Wisconsin, Residents to Benefit From Verizon Wireless Network Enhancement (Oct. 8, 2009), http://news.vzw.com/news/2009/10/pr2009-10-08.html (last visited Nov. 4, 2009).

[29] *See* Press Release, Verizon Wireless, Connect In Color With The Nokia 2705 Shade (Oct. 1, 2009), http://news.vzw.com/news/2009/09/pr2009-09-29f.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Verizon Wireless and Motorola Announce Motorola Barrage (Oct. 1, 2009), http://news.vzw.com/news/2009/10/pr2009-09-30c.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Imagine The Possibilities For Work And Play With The HTC Imagio Exclusively From Verizon Wireless (Oct. 1, 2009), http://news.vzw.com/news/2009/10/pr2009-09-30b.html (last visited Nov. 4, 2009).

[30] Press Release, Verizon Wireless, PlayMaker Mobile on Verizon Wireless Phones Connects Fans Directly to Sports Stars (Oct. 7, 2009), http://news.vzw.com/news/2009/10/pr2009-10-06c.html (last visited Nov. 4, 2009). Users also will have access to player blogs, customer user pages and profiles, player statistics, game highlights, and coaching tips.

remote application testing and troubleshooting capabilities, streamlining application creation and publication, adding resources for developers interested in creating devices and applications to run on Verizon Wireless's network, and incorporating developer input into the soon-to-be-deployed "V CAST Apps" mobile application storefront.[31]

- Dell Inc. revealed plans to introduce a smart phone using Google's Android operating system on the AT&T network.[32]

- Palm simplified the process for making applications available on Palm devices by allowing software developers to submit their programs to Palm for review and inclusion in its App Catalog or to distribute their applications through a Web-based third-party storefront.[33]

- Best Buy and Google teamed up to create several new applications, including a location-aware shopping service.[34]

- Microsoft announced its new mobile operating system, Windows Mobile 6.5, a new line of more than 30 Windows phones, and two new services that allow users to back up and share data from their phone to the web and buy a variety of useful applications from the Windows Marketplace for Mobile.[35]

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[31] *See* Press Release, Verizon Wireless, Amdocs Helps Build Verizon Developer Community (Oct. 6, 2009), http://news.vzw.com/news/2009/10/pr2009-10-05h.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, DeviceAnywhere Helps Build Verizon Developer Community (Oct. 6, 2009), http://news.vzw.com/news/2009/10/pr2009-10-05j.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Netpace Helps Build Verizon Developer Community (Oct. 6, 2009), http://news.vzw.com/news/2009/10/pr2009-10-05k.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Verizon Developer Community Continues To Grow And Add More Functionality For Mobile Apps Developers (Oct. 6, 2009), http://news.vzw.com/news/2009/10/pr2009-10-05m.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Developers: The Verizon Wireless LTE Innovation Center Lab Opens (Oct. 5, 2009), http://news.vzw.com/news/2009/10/pr2009-10-05.html (last visited Nov. 4, 2009); Press Release, Verizon Wireless, Verizon Wireless Announces 4G Venture Forum, Designed To Encourage Innovation For Advanced Mobile Networks (Oct. 5, 2009), http://news.vzw.com/news/2009/10/pr2009-10-05a.html (last visited Nov. 4, 2009).

[32] Jessica E. Vascellaro & Justin Scheck, *Dell to Build a Smart Cellphone for AT&T*, Wall St. J., Oct. 8, 2009.

[33] Jenna Wortham, *Palm Seeks to Unclog App Bottleneck*, N.Y. Times, Oct. 6, 2009.

[34] Elizabeth Woyke, *Best Buy Partners with Google on Mobile*, Forbes.com, Sept. 30, 2009, http://www.forbes.com/2009/09/30/cellphones-google-mobile-technology-wireless-best-buy.html (last visited Nov. 4, 2009).

[35] Press Release, Microsoft, Microsoft Open House a Showcase for 2009 Consumer Lineup (Oct. 7, 2009), at http://www.microsoft.com/presspass/features/2009/oct09/10-06FallConsumer.mspx (last visited Nov. 4, 2009); Press Release, Microsoft, Microsoft Unveils New Windows Phones Worldwide (Oct. 6, 2009), at http://www.microsoft.com/presspass/press/2009/oct09/10-06WindowsPhoneLaunch09PR.mspx (last visited Nov. 4, 2009).

- A number of more energy efficient servers that run on laptop, netbook, handsets, and other mobile computing devices are being deployed by a range of developers, including SeaMicro, Smooth-Stone, Dell, IBM, Hewlett-Packard, and SGI.[36]

- Mobile content company Zed announced that it has developed a new platform through which carriers may manage and sell content to subscribers.[37]

- Qualcomm announced plans to offer a pocket-sized device designed solely for watching television while on the go.[38]

- Axesstel's MV440 Wi-Fi Gateway, which combines a 3G WWAN modem, Wi-Fi WLAN router, and a four-part Ethernet switch that allows multiple users to access e-mail, the Internet, data intensive files, and multimedia streaming using one device, is available for use on Verizon Wireless' network.[39]

- Sony Pictures announced its new mobile game line-up that will be available on a variety of platforms, including Android, BlackBerry, Brew, Java, iPhone, Palm, and Windows Mobile.[40]

- Sierra Wireless' AirLink Helix RT intelligent 3G router, which provides quick internet access that meets the needs of a variety of fixed and portable enterprise applications and is suited for providing primary or backup connectivity for field locations, is available for use on the Verizon Wireless network.[41]

- TravellingWave announced an application for Windows Mobile devices that uses voice prediction software to easily send an SMS or update users' status on social networking sites.[42]

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[36] Ashlee Vance, *Servers with Cellphone Chips? Yep, Here They Come*, N.Y. Times, Oct. 6, 2009.

[37] Tricia Duryee, The CTIA Wrap: Zed Content Platform; Sony Games Line-Up; Travelling Wave App; Fusion One Partners, mocoNews.net, Oct. 7, 2009, at http://moconews.net/article/419-the-ctia-wrap-zed-content-platform-sony-games-line-up-travelling-wave-a/ (last visited Nov. 4, 2009) ("The CTIA Wrap").

[38] Don Clark, *Qualcomm Unveils Pocket Mobile TV Player*, Wall St. J., Oct. 8, 2009.

[39] Press Release, Verizon Wireless, Axesstel's MV440 Wi-Fi Gateway Receives Network Approval from Verizon Wireless' Open Development Program (Oct. 8, 2009), http://news.vzw.com/news/2009/10/pr2009-10-07d.html (last visited Nov. 4, 2009).

[40] The CTIA Wrap.

[41] Press Release, Verizon Wireless, Helix RT 3G Router Now Available from Sierra Wireless for Use on the Verizon Wireless Network (Oct. 8, 2009), http://news.vzw.com/news/2009/10/pr2009-10-07b.html (last visited Nov. 4, 2009).

[42] The CTIA Wrap.

- Smarter Agent announced that its Real Estate application, which allows customers to instantly get facts *(e.g.*, price, square footage, estimated mortgage, features, taxes, interactive maps, pictures) about homes for sale and apartments for rent based on their GPS location, an address, community name, city, or zip code, is available on the Verizon Wireless network.[43]

- Sierra Wireless' AirCard® 402 2-in-1 mobile broadband card, which can be left inserted and set to connect automatically or switched between multiple computers, may be used on the Verizon Wireless network.[44]

A. Wireless Network Investment is Driving Innovation at All Levels of the Wireless Ecosystem.

As detailed in Verizon Wireless' and others' comments, there has been and continues to be an incredible amount of innovation and investment in wireless network capabilities. Verizon Wireless in particular has invested more than $50 billion in network infrastructure since 2000, averaging $5.5 billion a year.[45] As a result, Verizon Wireless' 3G mobile wireless broadband capability, which uses EVDO Rev. A technology, is currently available to 284 million Americans.[46] And, Verizon Wireless is deploying even faster LTE 4G technology across its entire network.[47]

Other network providers document their own considerable investments and innovations. AT&T, for example, is upgrading its existing 3G High Speed Packet Access ("HSPA") network, is improving complementary networks, such as Wi-Fi, that may reduce loads on its core network,

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[43] Press Release, Verizon Wireless, Verizon Wireless Speeds Up the House-Hunting Process with Smarter Agent's Mobile Real Estate Application (Oct. 7, 2009), http://news.vzw.com/news/2009/10/pr2009-10-06n.html (last visited Nov. 4, 2009).

[44] Press Release, Verizon Wireless, Sierra Wireless AirCard® 402 2-In-1 Data Card Now Available For Use On The Verizon Wireless Network (Oct. 8, 2009), http://news.vzw.com/news/2009/10/pr2009-10-07c.html (last visited Nov. 4, 2009).

[45] Comments of Verizon Wireless, GN Docket Nos. 09-157 and 09-51, at 12 (Sept. 30, 2009) ("Verizon Wireless Innovation Comments").

[46] *Id.*

[47] *Id.* at 13.

and is planning to upgrade its network to LTE.[48] Sprint Nextel and Clearwire are providing 4G WiMAX service in 14 markets that cover approximately 10 million people today and expect to provide 4G WiMAX service to over 80 markets, covering up to 120 million people, by the end of 2010.[49] T-Mobile is spending $5 billion this year to upgrade its 3G network and will have HSPA+ up and running on a nationwide basis by 2010.[50] As Qualcomm notes, EVDO and HSPA technologies are still evolving. Ultimately, EVDO may support downloads of up to 35.4 Mbps and HSPA may support peak downloads of up to 84 Mbps.[51] AT&T, MIT, and Intel are even working to develop 5G wireless service standards using "terahertz" waves.[52]

This innovation and investment at the network level is driving innovation throughout the wireless ecosystem.[53] Wireless networks serve as the platforms that enable the proliferation and convergence of new devices, applications and content. Contrary to some that assert a binary world of 'dumb pipes' on the one hand and 'smart applications' on the other, the success of wireless has been due to the combination of increasingly powerful networks and ever-more intelligent devices and applications. As a result, and as the record clearly shows, the wireless sector currently offers a wide array of services, devices, applications, and content for consumers, enterprises, public safety, the health care industry, and utilities, including web browsing, location

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[48] Comments of AT&T Inc., GN Docket Nos. 09-157 and 09-51, at 29-32 (Sept. 30, 2009) ("AT&T Innovation Comments").

[49] Comments of Sprint Nextel Corporation, GN Docket Nos. 09-157 and 09-51, at 5-6 (Sept. 30, 2009) ("Sprint Nextel Comments"); Comments of Clearwire Corporation, GN Docket Nos. 09-157 and 09-51, at 4 (Sept. 30, 2009) ("Clearwire Comments").

[50] T-Mobile Comments at 9, 12.

[51] Comments of Qualcomm Incorporated, GN Docket Nos. 09-157 and 09-51, at 9-10 (Sept. 30, 2009) ("Qualcomm Comments").

[52] AT&T Innovation Comments at 22.

[53] *See, e.g.*, CTIA Comments at 16 ("With wireless networks continuing to evolve, increased functionality and reliability allow providers to expand the use of the network for a variety of developing services and applications").

services, music services, streaming video and radio services, M2M communications, remote monitoring, and mobile business.

Consumer Devices and Applications. There is tremendous variety and vibrant competition with respect to mobile devices and applications. Many commenters detail the large number of handsets with a wide variety of features that are available to consumers.[54] For example, CTIA and others note the availability of more than 630 handsets from at least 32 different manufacturers in the U.S.[55] Commenters reference the mind-boggling number of applications that are available today from a variety of different app stores. These applications cover everything from social networking, music, first aid, maps, restaurants, news, and weather, to education, the environment, healthy living, travel aids, business information, dating, reference materials, finance information, frivolous amusement, and practical tools.[56]

The Commission itself has recognized the dynamic growth of mobile broadband networks and the devices that operate on them. In its recent Notice proposing the adoption of "net neutrality" requirements, the Commission explained how "mobile wireless has emerged as an important method of Internet access," with increasingly faster 3G and 4G broadband networks and devices that "are essentially handheld computers with fully featured Web browsers and the ability to run thousands of applications, many of which utilize the Internet."[57]

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[54] *See, e.g.*, Sprint Nextel Comments at 23-26; T-Mobile Comments at 10-11; Qualcomm Comments at 5-6, 8.

[55] *See, e.g.*, CTIA Comments at 28.

[56] *See, e.g.*, Motorola Comments at 25-26; Sprint Nextel Comments at 27; AT&T Innovation Comments at 16-18; Mobile Future White Paper at 12 (new applications help consumers remember to take their medication, engage children and teach age-appropriate math, spelling and other lessons, and use a phone's GPS system to disable texting when the device is moving faster than 10 miles per hour).

[57] *Preserving the Open Internet*, Notice of Proposed Rulemaking, FCC 09-93, ¶ 158 (released Oct. 22, 2009) ("*Net Neutrality NPRM*").

Machine-to-Machine. Much innovation is occurring in machine-to-machine ("M2M") devices and services. In its comments, Verizon Wireless described its recent joint venture with Qualcomm, under which the companies will provide advanced M2M wireless communications and smart services offerings to a variety of market segments. Other wireless carriers and developers are also exploring M2M solutions. Sprint Nextel recently created a business unit, called Emerging Solutions, that is focused solely on offering M2M and mobile computing solutions.[58] This unit will focus on devices that provide asset tracking, fleet management, telematics, automation and control, automated meter reading, smart grid initiatives, increased durability, and hardware/software integration. AT&T, together with Jasper Wireless, also recently deployed a platform that will facilitate M2M and other devices' entry into the market and onto AT&T's network.[59] Motorola has launched its H24 HSPA Module, which includes embedded SIM technology and enables mobile broadband connectivity for M2M solutions, on T-Mobile's network.[60] Finally, Ericsson, several German automakers, Vodafone, and local universities are investigating the use of 3G technologies in vehicles to prevent accidents and improve traffic flow.[61]

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[58] Sprint Forms Dedicated M2M Unit, Virgo Publishing (Oct. 6, 2009), http://www.vpico.com/articlemanager/printerfriendly.aspx?article=280802 (last visited Oct. 7, 2009).

[59] Press Release, AT&T, AT&T and Jasper Wireless Launch Integrated Platform to Wirelessly Connect Emerging Devices (July 22, 2009), http://www.att.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=26958 (last visited Oct. 8, 2009).

[60] Press Release, T-Mobile, Motorola's H24 HSPA Module Added to T-Mobile's M2M 3G Solution Portfolio (Oct. 6, 2009), http://www.t-mobile.com/company/PressReleases_Article.aspx?assetName=Prs_Prs_20091006&title=%20Motorola's%20H24%20HSPA%20Module%20Added%20to%20T-Mobile's%20M2M%203G%20Solution%20Portfolio (last visited Nov. 4, 2009).

[61] Comments of Ericsson Inc., GN Docket Nos. 09-157 and 09-51, at ii (Sept. 30, 2009) ("Ericsson Comments").

Public Safety. Wireless networks undoubtedly facilitate public safety's ability to respond to day-to-day and emergency situations, thereby keeping the public informed and safe.[62] The record in this proceeding, however, shows how wireless services are being used in innovative ways to further serve public safety and the public. For example, Motorola is deploying local broadband mesh networks that allow officers to monitor and share video throughout the network.[63] Mobile Future also notes how a broadcast emergency alert service is being developed that can issue warning messages to every cell phone in a predetermined geographic area.[64] TIA, in turn, details how the increased use of IP-based technologies by public safety will allow for expanded interoperability across systems and products.[65]

Health Care. Wireless services also have revolutionized the health care industry. As multiple commenters note, wireless services and applications now link hospitals to specialty services, provide outsourced clinical services, enable remote monitoring services, and facilitate consumer-based healthcare.[66] For example, the American Telemedicine Association describes

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[62] *See, e.g.*, Comments of The CDMA Development Group, GN Docket Nos. 09-157 and 09-51, at 10 (Sept. 30, 2009) ("CDMA Development Group Comments") (detailing two police departments' use of commercial wireless 3G networks).

[63] Motorola Comments at 8-9 (noting that this ability allows officers to remotely pan and zoom cameras at high crime locations, scan license plates from cars, and provide access to video fees for fire units, among other things).

[64] Mobile Future Comments at 2-3.

[65] Comments of the Telecommunications Industry Association, GN Docket Nos. 09-157 and 09-51, at 14 (Sept. 29, 2009) ("TIA Comments").

[66] *See, e.g.*, Ericsson Comments at 8-9; Comments of the American Telemedicine Association, GN Docket Nos. 09-157 and 09-51 (Sept. 30, 2009) ("American Telemedicine Association Comments"); Comments of the Continua Health Alliance In Response to Notice of Inquiry on Innovation and Investment, GN Docket Nos. 09-157 and 09-51 (Sept. 28, 2009) ("Continua Health Alliance Comments"); Motorola Comments at 8; TIA Comments at 13. These developments save lives and money. According to a 2007 study, the use of a home monitoring device that captured and transmitted the weight of heart failure patients reduced the six-month mortality rate by 56.2 percent when compared with a group of patients that did not use the home monitoring device. Continua Health Alliance Comments at 6, citing ME Stachura, EV Khasanshima, 2007, Telehomecare and Remote Monitoring: An Outcomes Overview, Prepared for the Advanced Medical Technology Association. In addition, without remote monitoring, many patients would require hospitalization. The Veterans Administration found that patients that participate in a

how InTouch Health's remote presence robot allows physicians to easily and more frequently visit with patients and how LifeWatch is developing a wireless platform that will allow physicians remotely to monitor multiple vital signs, facilitating screening, monitoring, diagnosis, and management of specific disease conditions.[67] Network operators and developers also are providing the health care industry with specialized applications that can be used on widely available smartphones, such as the iPhone and BlackBerrys. Verizon Wireless recently announced a new application designed specifically for use by home caregivers that can be installed on GPS-enabled handsets to allow companies to securely and efficiently dispatch, track, and communicate with mobile caregivers, thereby enabling companies to stay in touch with their mobile workforces, reduce paperwork, expedite payroll, and increase compliance.[68] In addition, Stanford Hospital & Clinics, in coordination with Apple and Epic Systems Corp., a provider of health-care information systems, is testing software that will allow physicians and medical staff to access patient charts on Apple's iPhone.[69]

Energy Conservation. Finally, the wireless sector is pursuing various initiatives that will improve energy conservation. Many commenters detail the smart grid initiatives that are being

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telehealth program experience a 19 percent reduction in the number of hospital admissions and a 25 percent reduction in bed days of care, resulting in significant cost savings. Continua Health Alliance Comments at 7.

[67] American Telemedicine Association Comments at 3-4. Other wireless innovations that have revolutionized the health care industry include remote monitoring of the elderly and disabled and the installation of wireless data communications services in ambulances. Continua Health Alliance Comments at 5; American Telemedicine Association Comments at 4.

[68] Press Release, Verizon Wireless, Verizon Wireless Offers Home Health Care Industry Custom Mobile Application To Be More Productive (Oct. 7, 2009), http://news.vzw.com/news/2009/10/pr2009-10-06b.html (last visited Nov. 4, 2009). Other innovative applications for health care professionals include one from mVisum Inc., which lets ambulances send EKG images and patient data directly to physicians' BlackBerrys, and one from AirStrip OB, which allows obstetricians to access maternal and fetal data remotely on their iPhone. Niraj Sheth & Yukari Iwatani Kane, *Smart-Phone Makers Call the Doctor*, Wall St. J., Oct. 8, 2009.

[69] Niraj Sheth & Yukari Iwatani Kane, *Smart-Phone Makers Call the Doctor*, Wall St. J., Oct. 8, 2009.

deployed throughout the country.[70] For example, T-Mobile noted in its comments that it has teamed with Echelon Corp. to develop a wireless smart grid system that uses advanced metering infrastructure that allows smart meters to communicate back to a power utility over T-Mobile's wireless network.[71] In addition, several wireless industry players are taking steps to decrease their – and their users' – environmental footprint. Motorola, for example, has launched the world's first mobile phone made from recycled water cooler bottles, the MOTO™ W233 Renew.[72] Motorola also has reduced the average standby power for its mobile phone chargers by at least seventy percent, ships its phones with energy-saving settings enabled, and designed its cellular base stations to operate at higher ambient temperatures, thereby minimizing the need for air conditioning at some cell sites.

B. Substantial Research and Development Efforts Continue.

The wireless industry is continuing to search for and introduce new innovative solutions. In the face of adverse economic conditions over the past year, many carriers, manufacturers, developers, and entrepreneurs spend significant amounts of money on research and development in the hopes of finding that next great functionality, service, device, or application. Ericsson, for example, devoted a little over 16 percent of its 2008 net sales revenue to research in access technologies and signal processing, broadband technologies, multimedia technologies, service layer technologies, wireless access networks, and packet technologies, among other things.[73] Qualcomm also spent approximately 20 percent of its revenues in 2008 (or $2.28 billion) on

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[70] *See, e.g.*, Qualcomm Comments at 24-25; TIA Comments at 14; CDMA Development Group Comments at 8-9.

[71] T-Mobile Comments at 14.

[72] Motorola Comments at 20.

[73] Ericsson Comments at 3-4.

research and development.[74] AT&T also is heavily involved in research to design the architectures, protocols, and networking techniques that will allow the creation of multi-tiered 4G wireless area networks; improve voice recognition and recommender systems; and develop 5G wireless service standards.[75] Verizon Wireless promotes research and development through its landmark Open Development Initiative, the LTE Innovation Center, nPhase, the Joint Innovation Lab, and the LiMo Foundation.[76]

II. THE FCC SHOULD MAINTAIN ITS CURRENT SPECTRUM POLICIES BASED ON EXCLUSIVE, FLEXIBLE LICENSED USE, AND REJECT CALLS FOR SPECTRUM SHARING, SPECTRUM CAPS OR SPECTRUM FEES.

A. The Exclusive Use Licensing Model Has Promoted Innovation and Should Not be Replaced by Unjustified Spectrum Sharing Concepts.

To promote wireless investment and innovation, the Commission should maintain its framework of exclusively-licensed, flexible-use spectrum and not adopt proposals that would diminish licensees' interference protection rights. Licensees' certainty that they will continue to have unfettered access to their spectrum assets will promote both efficient and innovative use of spectrum. Should the Commission adopt proposals that would compromise licensee rights, it would significantly undermine innovation.

The record confirms the utility of and public interest benefits associated with the exclusively-licensed, flexible-use spectrum licensing model. Commenters noted the important connection between exclusive licensee rights and innovation. Economist Thomas Hazlett found that "liberal licenses have permitted competition and innovation to flourish, with licensees

[74] Qualcomm Comments at 2.

[75] AT&T Innovation Comments at 22-25.

[76] Verizon Wireless Innovation Comments at 48-49, 72-73, 84-90.

deploying bandwidth to the uses where it can create the largest social gains."[77] Qualcomm cited exclusive licensee rights as necessary for the deployment of mobile broadband technologies,[78] while Sprint Nextel similarly observed that "empirical evidence indicates that exclusive commercial spectrum assignments are integral to achieving the high speed, ubiquitous, highly robust wireless broadband services that the Commission is charged with facilitating in its national broadband plan initiative."[79] And, going forward, granting licensees exclusive, flexible-use rights in their licensed spectrum will cause the Commission to "get the greatest bang for its innovation buck."[80]

Commenters similarly have brought attention to the link between exclusive licensee rights and investment in innovative wireless technologies. As Qualcomm observed, "[l]icensees will not spend billions of dollars for non-exclusive spectrum licenses, and the value of existing investments in spectrum licenses would be destroyed if anyone – a device manufacturer, a competing network operator, or others – could gain access to the same spectrum for free."[81] Exclusive spectrum rights are "key to encouraging investment in communications networks that form the heart of the sector and which generate the economic activity on which all users and

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[77] Declaration of Thomas W. Hazlett ¶ 4, attached to AT&T Innovation Comments (Sept. 30, 2009) ("Hazlett Innovation NOI Declaration"). Hazlett notes that "[w]hat I have previously detailed as 'exclusively-assigned, flexible-use spectrum licenses' are here referenced simply as 'liberal licenses.'" *Id.* at n. 2.

[78] Qualcomm Comments at 29 ("More fundamentally, mobile broadband technologies require exclusive use of spectrum. They are not designed to share spectrum with other uses.").

[79] Sprint Nextel Comments at 20.

[80] Comments of Mercatus Center, George Mason University, Docket No. 09-157, at 7 (Sept. 30, 2009) ("Mercatus Center Comments") (stating that the Commission "would do well to prioritize making more exclusive flexible-use spectrum available").

[81] Qualcomm Comments at 41.

service providers depend."[82] Conversely, MetroPCS noted that jeopardizing this exclusivity will render licensees "reluctant to incur the substantial investments in network infrastructure, customer acquisition costs, and constructing the necessary customer service infrastructure" as it would be "impossible for a network operator to predict the capacity it will enjoy on its constructed network or the revenues it will earn."[83] In the absence of exclusive and certain licensee rights in licensed spectrum, "widespread deployment of costly complex systems" will not take place.[84]

The record in this proceeding therefore makes clear that the Commission's exclusively-licensed, flexible-use licensing model is the best possible driver of innovation and investment, and that regulations threatening these exclusive, flexible-use rights would only frustrate the Commission's policy goals. As Verizon Wireless noted in its initial comments and others have confirmed, commercial mobile licensees use their spectrum extremely efficiently, and "networks using liberal licenses broadly deploy intelligence in base stations and handsets, and use these smart devices to better coordinate spectrum sharing."[85] The Commission should thus reject proposals raised by commenters in this proceeding that would undermine this successful and pro-innovation model.

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[82] Hazlett Innovation NOI Declaration at ¶ 34. Professor Hazlett also found that "[e]xclusive spectrum rights continue to be extremely useful, to sell for significant sums in both primary and secondary markets, and to host bountiful economic activity that could not be so efficiently supplied were such rights not in existence." *Id.* at ¶ 33.

[83] *See* Comments of MetroPCS Communications, Inc., GN Docket Nos. 09-157 and 09-51, at 43 (Sept. 30, 2009) ("MetroPCS Comments").

[84] *Id.* at 44. *See also* Hazlett Innovation NOI Declaration at ¶ 28 (stating that by mandating non-exclusive use rights in the 3650-3700 MHz band, "the FCC is almost certainly excluding more valuable services.").

[85] Hazlett Innovation NOI Declaration at ¶ 46.

Google alone[86] advocates adoption of an interference temperature approach that would permit unlicensed, involuntary underlay or overlay operations in frequencies already licensed for exclusive, flexible use.[87] CMRS licensees' highly efficient and intense use of their spectrum makes underlay or overlay operations in their licensed frequencies highly detrimental to existing and future operations in those bands.[88] Existing interference standards are not "overprotective," nor do they "inflict a pervasive blow to the investment in and deployment of new technologies in the United States."[89] Indeed, Verizon Wireless has demonstrated that reducing interference protection standards will greatly reduce the capacity of existing networks, which are run extremely efficiently, serve millions of users, and are continually updated with new, innovative technologies. Verizon Wireless has also demonstrated that such an approach will severely impede future innovation in these bands by raising the noise floor and not permitting licensees to mine their exclusive use spectrum for its full value.[90]

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[86] Comments of Google Inc., GN Docket Nos. 09-157 and 09-51, at 22-24 (Sept. 30, 2009) ("Google Comments").

[87] While not advocating for a revival of the Commission's interference temperature proceeding, other commenters in this proceeding have advocated in favor of underlay or overlay technologies such as software defined and cognitive radios. *See, e.g.,* Comments of the SDR Forum, GN Docket Nos. 09-157 and 09-51, at 10 (Sept. 30, 2009) ("SDR Forum Comments"); Comments of Powerwave Technologies, Inc., GN Docket Nos. 09-157 and 09-51 (Sept. 24, 2009) ("Powerwave Comments"). As described below and in Verizon Wireless' initial comments in this proceeding, the use of such technologies in exclusively-licensed spectrum bands would have severe detrimental effects on operations in these bands and would impede innovation.

[88] Verizon Wireless Innovation Comments at 132-138. *See also* Clearwire Comments at 11-12 (stating that "the very premise of Clearwire's underlying network technology" is "to pack as much data as possible into a limited amount of spectrum" and that even "an underlay or overlay arrangement that may provide efficient spectrum use today, may weaken the means to manage congested network traffic down the road").

[89] Google Comments at 21.

[90] *See* Verizon Wireless Innovation Comments at 134-138. *See also Declaration of Dr. Charles L. Jackson Regarding Limits to the Interference Temperature Concept* at 30, attached to Comments of Verizon Wireless, ET Docket No. 03-237 (Apr. 5, 2004); Comments of Thomas Hazlett and Matthew Spitzer, ET Docket No. 03-237, at 37-40, 44-45 (Apr. 5, 2004) ("Hazlett and Spitzer Interference Temperature Comments").

As several parties state, reducing interference protection for Commission licensees through overlays or underlays "may limit a spectrum-constrained network provider's ability to manage its spectrum to the detriment of its customers,"[91] "will unquestionably cause interference and . . . degrade service,"[92] "would create new impediments to achieving more reliable, higher throughput services,"[93] and "would make deployment more technically challenging and more costly."[94] Moreover, CTIA has observed that "there has been little experience with successful deployment of underlays using spectrum in bands that are otherwise subject to exclusive licensing."[95] The numerous comments opposing such erosion of licensee rights mirrors the Commission's earlier interference temperature proceeding. In terminating that proceeding, the Commission noted the widespread opposition to its proposal as well as the detrimental impact an interference temperature regime would have on wireless networks.[96] There is no basis to reverse course now.

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[91] Clearwire Comments at 11.

[92] Qualcomm Comments at 41.

[93] Sprint Nextel Comments at 19.

[94] *Id.*

[95] CTIA Comments at 81-82 ("For example, Ultra-Wideband ("UWB") technology, which spreads across many different licensed bands, has found only very limited application. Likewise, little has been heard about Multichannel Video and Data Delivery Service ("MVDDS"), which is essentially a licensed underlay in the spectrum primarily licensed to the Direct Broadcast Satellite ("DBS") service, even though that spectrum was auctioned over four years ago.").

[96] *See Establishment of an Interference Temperature Metric to Quantify and Manage Interference and to Expand Available Unlicensed Operation in Certain Fixed, Mobile and Satellite Frequency Bands*, Order, 22 FCC Rcd 8938, ¶ 2 (2007) ("Commenting parties generally argued that the interference temperature approach is not a workable concept and would result in increased interference in the frequency bands where it would be used.").

B. Wireless Providers Are Efficiently Using Spectrum.

The Rural Telecommunications Group ("RTG"), MetroPCS and U.S. Cellular assert that large carriers "stockpile" and "warehouse" spectrum, allowing it to "lie fallow" to the detriment of smaller carriers and consumers.[97] None of these parties, however, provides any data to support their conclusory assertions. The record demonstrates that U.S. wireless carriers utilize their spectrum intensively and efficiently. U.S. wireless carriers serve more customers and carry more traffic than ever, all at speeds that meet or exceed those of most other countries.[98] Independent studies have confirmed that commercial wireless spectrum is being heavily utilized.[99] Verizon Wireless and other carriers have implemented technical innovations to their networks that enhance spectral efficiency. For example, wireless carriers have driven technological developments such as frequency reuse, antenna sectorization, cell splitting, and the migration from analog to digital technologies and next generation services, in order to gain significant efficiencies in spectrum use.[100] This innovation is ongoing, as the availability of new technologies and market forces "force wireless carriers to continuously re-evaluate ways to increase the value of the radio spectrum allocated to their licenses."[101] As a result, U.S. wireless

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[97] *See* Comments of United States Cellular Corporation, GN Docket No. 09-157, GN Docket No. 09-51, WT Docket No. 09-66, at 26 (Sept. 30, 2009) ("U.S. Cellular Comments"); Comments of the Rural Telecommunications Group, Inc., GN Docket Nos. 09-157 and 09-51, at 4 (Sept. 30, 2009) ("RTG Comments"); MetroPCS Comments at 15.

[98] *See* Reply Comments of Verizon Wireless, WT Docket No. 09-66, at 39-43 (Oct. 22, 2009) ("Verizon Wireless Competition Reply Comments"); Comments of AT&T Inc., WT Docket No. 09-66, at 76-78 (Sept. 30, 2009) (AT&T Competition Comments"); Verizon Wireless Innovation Comments at 96.

[99] *See* John T. MacDonald, A Survey of Spectrum Utilization in Chicago 6-7 (Mar. 7, 2007), http://www.ece.iit.edu/~wemi/publications/spectrum.pdf.

[100] *See* Verizon Wireless Innovation Comments at 94-96.

[101] Hazlett and Spitzer Interference Temperature Comments at 33, *cited in* Verizon Wireless Innovation Comments at 96.

carriers overall serve an average of over 600,000 subscribers per MHz of spectrum allocated, meaning that they maintain the most spectrally efficient networks in the world.[102]

Verizon Wireless is a leader in spectral efficiency. It has invested in and expanded the capabilities of its network at a relentless pace, making huge investments in successive wireless technologies – CDMA, EVDO Rev. A, and now LTE – each of which has brought major improvements in spectral efficiency.[103] As a result, in the cellular, PCS, and SMR bands that currently accommodate most commercial wireless customers, Verizon Wireless now serves 1.97 million customers per MHz of spectrum – a substantially greater intensity of use than that reported by U.S. licensees generally.[104]

This intensity of use is not driven by regulatory intervention but by consumer demand and competitive market pressures.[105] Moreover, as consumer demand for bandwidth-intensive data services grows, carriers will face greater market pressures to utilize spectrum intensively and efficiently.[106] The active secondary market ensures that there would be a financial penalty

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[102] *See* CTIA Comments at 21-22.

[103] Verizon Wireless Innovation Comments at 93, 97-100. Specific details of Verizon Wireless's technology timetable and efficiency gains are shown in *Figure 8* of Verizon Wireless's initial comments in this proceeding. *See id*. at 98.

[104] *Id.* at 99.

[105] *Id.* at 12, 92; Comments of Verizon Wireless, WT Docket No. 09-66, at 106 (Sept. 30, 2009) ("Verizon Wireless Competition Comments").

[106] *See* Rysavy Research, LLC, Mobile Broadband Spectrum Demand, 24 (Dec. 2008), http://www.rysavy.com/Articles/2008_12_Rysavy_Spectrum_Demand_.pdf ("Rysavy Report") ("There are a number of market factors that are acting together to increase spectrum demand at an accelerating pace including ever-more mobile life- and work-styles, greater device sophistication, new bandwidth-consuming applications, an increasing percentage of mobile users taking advantage of data applications, and ongoing industry innovation."). *See also* CTIA Comments at 68, citing Comments of CTIA, ET Docket No. 03-65, at 3 (filed July 21, 2004) ("The licensee of such a spectrum block has the economic incentive to use the spectrum productively, which in turn provides incentives for the licensee to innovate in the technical use of the spectrum (*i.e.*, use the spectrum more intensively and efficiently) and the services provided the spectrum (*e.g.*, voice, messaging, data, video). As CTIA stated in 2004, 'The track record of the CMRS experience underscores that manufacturers and carriers operating in a competitive, spectrum-constrained environment must take every measure that is technically and economically

for any spectrum not efficiently used. Warehousing spectrum is costly – it generally would be uneconomic for a service provider to obtain additional spectrum in order to warehouse it and deter entry or expansion by rivals.[107] As noted by Professor Katz, "[a]ttempts to warehouse spectrum to prevent the entry of competitors are especially costly when an entrant needs only a small fraction of the available spectrum in order to be a viable competitor. This is so because the incumbent would have to purchase licenses to all of the blocks of spectrum that the entrant might utilize, while the entrant need purchase a license to only one."[108] Professor Katz also noted that any attempt by an incumbent to deter entry by warehousing spectrum would become even more costly as the total amount of spectrum available rises.[109] In short, there is no evidence that nationwide carriers are warehousing spectrum as MetroPCS, RTG and US Cellular suggest, and the competitive realities of the wireless marketplace are such that no carrier, large or small, has an incentive to warehouse spectrum.

As AT&T[110] and TIA[111] explain, the secondary market for spectrum already provides opportunity and incentive for existing licensees to make their un- or under-utilized spectrum available to parties desiring to make more efficient use of it. And because the secondary market is a flexible, market-based mechanism that avoids blind, arbitrary, or inexact penalizing of spectrum licensees, it is more likely to achieve the asserted goals of the proposed spectrum user

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possible to use spectrum efficiently if they hope to be successful in the marketplace.' This observation holds even truer today.") (footnote omitted).

[107] Michael Katz, "An Economic Analysis of the Rural Telecommunications Group's Proposed Spectrum Cap" at 2, attached to Opposition of Verizon Wireless, RM No. 11498 (Dec. 2, 2008) ("Katz Spectrum Cap Declaration").

[108] Katz Spectrum Cap Declaration at 15.

[109] *Id*. at 16.

[110] AT&T Innovation Comments at 74.

[111] TIA Comments at 5.

fee, without imposing unwarranted costs or causing unforeseen or negative effects.[112] On the secondary market, licensees may offer their spectrum to others – on a permanent or temporary basis – when it is truly not being used as efficiently as possible and for prices that are more likely to reflect the actual, real time value of the subject spectrum.[113]

Google asks the Commission to create a database of spectrum usage and availability that would require licensees to "compile and submit, with respect to each service area or market designation . . . and census tract for which it is licensed, information such as the frequencies on which operations have been conducted; location and operating parameters of each transmitter; whether each transmitter operated continuously or intermittently; and spectrum occupancy measurements."[114] Such a proposal, if adopted, would unduly burden licensees and strain Commission resources with no concomitant public benefit to justify the burden associated with compliance. Existing metrics currently demonstrate "whether or not particular spectrum bands are being used efficiently."[115] In its recent filings, CTIA has demonstrated that U.S. wireless licensees make extremely efficient use of their spectrum, and that the U.S. is in fact the most spectrally efficient nation in the world.[116] Moreover, given the pervasive changes in network traffic and loading – which require commercial mobile licensees to alter their operating

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[112] AT&T Innovation Comments at 74 & n.222; Hazlett Innovation NOI Declaration at ¶ 39.

[113] TIA Comments at 5 ("[T]he existence of a secondary market is sufficient to force spectrum users to face the opportunity cost of holding a license, since the price for which they can sell a license on the secondary market should reflect its value in an alternative use or by an alternative user.").

[114] Google Comments at 6-7.

[115] *Id.* at 8.

[116] CTIA Comments at 21-22. CTIA further stated that "U.S. carriers pack more subscribers using more minutes of calling and more megabytes of data into each megahertz of spectrum than any other nation's providers. These carriers have achieved this efficiency by making significant investments in highly advanced technologies, along with designing and re-designing networks to get the most out of their spectrum holdings." *Id.* at 79.

parameters on nearly a real-time basis – such a data collection effort would necessarily be out of date immediately. While Verizon Wireless supports the concept of a spectrum inventory generally, the dynamic nature of the mobile networks deployed in the U.S. would mean that the collection of granular data as to actual use would be but a snapshot in time of network activity and not representative of network operations at any later point. Not only would creating such a snapshot be incredibly burdensome, but it would also be rendered meaningless nearly as soon as it is filed.

MetroPCS's call for the Commission to "investigate targeted instances of spectrum warehousing and incent carriers to find such warehousing" would be an improper and inefficient use of Commission resources.[117] Under MetroPCS' proposal, a "finder" would "receive a preference in terms of a bidding credit for identifying spectrum that has not been properly developed or put to beneficial uses by the original licensee."[118] Just as the burdensome data collection proposed by Google would be continually outdated due to the constantly-changing nature of wireless networks, so too would any evidence promulgated by a "finder," as licensees are continually building out and developing their networks.

C. Spectrum Limits Are Unwarranted, and Would Impede Innovation and Investment with No Offsetting Public Benefit.

As Verizon Wireless explained in detail in its initial comments, a spectrum cap would promote neither innovation nor investment and, in fact, such regulation would impede the deployment of innovative services.[119] Other commenters such as the Telecommunications

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[117] MetroPCS Comments at 47.

[118] *Id.*

[119] In fact, the Commission has recently granted wireless mergers that it has credited with facilitating intensive use of spectrum, enhancing competition, promoting the spread of advanced services to a greater number of consumers, and/or promoting the availability of broadband services, despite the fact that the applicants exceeded the

Industry Association agreed, stressing that "[reinstating a spectrum cap] would potentially limit carrier flexibility to respond to technical evolutions and to maximize the utility of existing allocations to increase innovative offerings."[120] The record shows that, in the absence of a spectrum cap and with an appropriately increasing spectrum screen, innovation and investment has flourished.

No commenter has offered a plausible factual or legal basis for reversing course on spectrum aggregation policies. Claims that smaller carriers do not have sufficient access to spectrum are belied by the record. Caps or other limits would hurt competition and conflict with the Commission's own findings repealing the spectrum cap and adopting flexible screens to review case-by-case particular spectrum acquisitions. Moreover, caps cannot be reconciled either with the Commission's acknowledgement that wireless providers needs considerably more – not less – spectrum, or with its proposals for net neutrality rules that would hinder carriers' ability to manage their scarce spectrum resources.

RTG requests adoption of a spectrum cap based on its unsupported claim that a new cap will facilitate access to spectrum in rural areas, allowing such spectrum to then be used by small and rural carriers to provide innovative services.[121] However, the facts make clear that there is no

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Commission's initial spectrum screen in particular markets. *See, e.g.*, *Sprint Nextel Corporation and Clearwire Corporation Applications For Consent to Transfer Control of Licenses, Leases, and Authorizations*, Memorandum Opinion and Order, 23 FCC Rcd 17570, ¶ 123 (2008) ("*Sprint/Clearwire Order*") ("The Applicants have shown that the merger can speed the arrival of a wireless broadband pipe that will increase competition and consumer choice, make possible new services, and promote the availability of broadband for all Americans."); *id*. ¶ 124 (finding that "the transaction will facilitate the intensive use of the 2.5 GHz band"). *See also Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC For Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and* De Facto *Transfer Leasing Arrangements*, Memorandum Opinion and Order and Declaratory Ruling, 23 FCC Rcd 17444, ¶ 123 (2008) ("*Verizon Wireless/ALLTEL Order*") (stating that "ALLTEL's customers will obtain a substantial benefit from being able to access Verizon Wireless's EvDO Rev. A network").

[120] TIA Comments at 7-8.

[121] RTG Comments at 4-5.

shortage of spectrum in rural areas. Indeed, the Commission recently found that "significant spectrum is available in rural areas for the provision of new mobile wireless services," and that there was more spectrum potentially available on the secondary market in rural areas than in urban areas.[122] As has been noted in other filings in this proceeding, RTG has previously presented no evidence that small and rural carriers are unable to obtain sufficient spectrum on commercial terms, nor has it done so in this proceeding.[123] As Verizon Wireless showed, non-nationwide carriers have been successful in obtaining spectrum in both secondary transactions and in recent auctions.[124]

The Commission has taken several steps to ensure the continued ability of smaller providers to acquire spectrum. In addition to making bidding credits available to entrepreneurs as well as small and very small businesses, the Commission has adopted band plans intended to promote diversity in the allocation of spectrum among a wide variety of entities. For example, in the AWS-1 Auction 66 and the 700 MHz Auction 73, at the urging of small and mid-sized carriers, the Commission adopted band plans that contained licenses of various geographic area and spectrum sizes, including licenses covering smaller geographic areas, to respond to the stated needs of non-nationwide carriers.[125] Indeed, with theses two auctions, the Commission returned

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[122] *See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Thirteenth Report, 24 FCC Rcd 6185, at ¶¶ 107-108 (WTB 2009) ("*Thirteenth Annual CMRS Competition Report*").

[123] Comments of AT&T Inc. at Michael L. Katz, Public Policy Principles for Promoting Efficient Wireless Innovation and Investment ¶ 106 (Sept. 30, 2009) ("Katz Innovation NOI Declaration").

[124] *See* Verizon Wireless Innovation Comments at 114-116 (demonstrating that non-nationwide carriers were the buyers in over 70 percent of market-area and cellular license assignments from 2008 to the present). *See also id.* at 108-109 (demonstrating that over 70 percent of Rural Cellular Association ("RCA") members won licenses in Auction 66 and over 60 percent of RCA members won licenses in Auction 73).

[125] In the AWS-1 auction, the Commission offered 734 20-MHz CMA-based licenses, 176 20-MHz EA-based licenses, and 176 10-MHz EA-based licenses. *Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction No. 66*, Public Notice, 21 FCC Rcd 4562, ¶ 11 (2006). In the most recent 700 MHz auction, the

to licensing the very smallest-sized license areas it had ever used – the 734 Cellular Market Areas ("CMA"). Of the licenses awarded in the AWS-1 and 700 MHz auctions, 66.1 percent were licensed on a CMA basis.

The results speak for themselves. As Verizon Wireless documented in its comments in response to the Commission's wireless competition Notice of Inquiry, approximately 83 percent of all licenses sold in the AWS-1 Auction were acquired by non-nationwide wireless service providers, and over 50 percent were won by businesses claiming designated entity status.[126] Likewise, 69 percent of all licenses sold in the 700 MHz Auction were acquired by non-nationwide providers, and 55 percent were won by small businesses claiming designated entity status.[127]

In addition, mid-sized and smaller carriers routinely acquire spectrum in the secondary market.[128] Since 2008 over 60 percent of the assignments of market-area and cellular licenses took place between non-nationwide carriers.[129] Of the remaining 40 percent of transactions, 12.5 percent involved the assignment of spectrum *from* nationwide carriers *to* non-nationwide carriers.[130] Thus, almost 75 percent of the license assignments over the last two years involved non-nationwide carriers securing spectrum from nationwide or other non-nationwide carriers.

Commission offered 734 12-MHz CMA-based licenses, 176 12-MHz EA-based licenses and 176 6-MHz EA-based licenses. *Auction of 700 MHz Band Licenses Scheduled for January 24, 2008; Notice and Filing Requirements, Minimum Opening Bids, Reserve Prices, Upfront Payments, and Other Procedures for Auctions 73 and 76*, Public Notice, 22 FCC Rcd 18141, ¶ 12 (2007) ("*Auction 73/76 Public Notice*").

[126] *See* Verizon Wireless Competition Comments at 48-49.

[127] *Id.* at 49.

[128] *Id.* at 52-53.

[129] *Id.* at 55.

[130] *Id.*

Additional facts suggest that smaller and regional carriers have access to the spectrum they need to build out new broadband wireless networks, particularly in less densely populated areas.[131] Two weeks ago, Cellular South announced the acquisition of Corr Wireless which, pending Commission approval, will bring wireless services to an area covering an additional 1.3 million people in 18 counties across Alabama and Georgia.[132] This proposed acquisition is proof that, like many other regional carriers, "Cellular South continues to discover new ways to position itself for healthy growth so it can compete in an ever-evolving wireless industry."[133] The start-up Stelera Wireless is currently offering services in southern Texas and has plans to expand service to 55 cities by year end and to continue building out in 2010.[134] Through a lease with Globalstar, Open Range Communications will provide high-speed broadband Internet and voice services in 546 underserved and rural communities, covering more than six million people, within five years.[135] U.S. Cellular, MetroPCS and Leap all expect to begin LTE trials over the next year.[136] Thus, the Commission's auction and secondary markets policies are working, enabling access to spectrum for nationwide, regional and smaller wireless carriers alike.

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[131] *See* Verizon Wireless Innovation Comments at 130-31.

[132] Cellular South / Corr Wireless Press Release.

[133] *Id.* As Cellular South's chief financial officer said when announcing the deal, "[e]ven in this tough economy, Cellular South is continuing to grow its customer base and expand its service offerings." *Id.*

[134] Press Release, Stelera Wireless, Stelera Wireless Launches Wireless Broadband Network; Cutting Edge Internet Services Launched in South Texas (Mar. 23, 2009), http://dev.stelerawireless.com/Portals/0/docs/National%20STX%20Press%20Release.docx.

[135] Press Release, Open Range, Open Range Communications Secures $374 Million to Deploy Wireless Broadband Services to 546 Rural Communities (Jan. 9, 2009), http://www.openrangecomm.com/pr/pr_022009.html (last visited Nov. 4, 2009). Open Range promises to offer high speed broadband Internet service for less than $40 per month and unlimited nationwide voice for less than $30 per month. *See* Open Range, Fact Sheet, http://www.openrangecomm.com/pdf/or_fact_sheet_feb09.pdf (last visited Nov. 4, 2009).

[136] AT&T Competition Comments at 17-18 (citing U.S. Cellular and TDS Presentation at the Kaufman Bros. 12th Annual Investor Conference at 18 (Sept. 10, 2009), http://phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTUyNjh8Q2hpbGRJRD0tMXxUeXBlPTM=&t=1; Press Release,

Amid figures such as these, there is no factual basis to support claims that regional and smaller carriers lack access to spectrum. If, notwithstanding the opportunities provided by the Commission, certain local or regional providers remain unable to acquire spectrum resources, that outcome speaks more to their particular strategies than to the need for any regulatory intervention in what is clearly a vibrant wireless secondary market.

MetroPCS argues for the application of a spectrum cap in the context of Commission auctions, proposing that the Commission preclude any applicant from acquiring a license that would cause the licensee to exceed the pre-auction spectrum screen in any portion of the license area.[137] As Verizon Wireless has previously stated, a spectrum aggregation limit "has no meaning in the context of the auction of new spectrum,"[138] whether in the form of a rigid cap or as a screen triggering case-by-case review. Acquisitions of newly-auctioned greenfield spectrum do not raise the same competitive concerns as secondary market transactions that may result in the exit of a competitor from a given market.

Moreover, such *de facto* eligibility restrictions[139] are inconsistent with recent Commission findings that open eligibility is unlikely to result in substantial competitive harm[140] and that there

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MetroPCS, Unlimited Wireless Carrier MetroPCS Announces Vendors for 2010 4G LTE Launch (Sept. 15, 2009), http://investor.metropcs.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1331809&highlight=; David Barden *et al.*, Bank of America/Merrill Lynch, 2Q09 Wrap: Taking Optimism Out of the Model; PO to $28, 6 (Aug. 7, 2009)).

[137] MetroPCS Comments at 55. MetroPCS argues that post-auction application proceedings are "completely ill-suited" to case-by-case competitive review. *Id.*

[138] Reply Comments of Verizon Wireless, AU Docket No. 07-157, at 19 (Sept. 7, 2007).

[139] Although MetroPCS argues in its comments that this proposal is "superior to adopting eligibility restrictions that would prohibit larger carriers from participating in auctions," any proposal that prevents an entity from bidding on a license offered in a Commission auction is an eligibility restriction. MetroPCS Comments at 56.

[140] *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Second Report and Order, FCC 07-132, ¶ 256 (2007) ("*700 MHz Second Report and Order*") ("Accordingly, we analyze whether open eligibility would pose a significant likelihood of substantial competitive harm in the broadband services market. The record does not

are potential competitive benefits to not imposing eligibility restrictions.[141] The Commission declined to adopt a similar proposal made by Frontline in the 700 MHz auction.[142] Further, the facts make clear that open auctions enable a diverse array of new entrants. With respect to the most recent major auction (Auction No. 73, the auction of 700 MHz band licenses), the Commission observed that it resulted in "a diverse mix of new entrants and small regional and rural providers," in addition to nationwide providers, "acquiring access to spectrum needed to deploy the next generation of wireless networks."[143] Clearly then, the facts do not support imposing a spectrum cap or in any way lowering the spectrum screen.[144]

Additionally, calls to reinstitute a spectrum cap or reduce the recently increased spectrum screen would require the Commission to reverse course on major policy decisions implementing the congressional direction to pursue deregulation, and may invite the Commission to abandon long-standing analytic approaches, both of which would face high hurdles under the Administrative Procedure Act. When the Commission eliminated the spectrum cap in 2001, it

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demonstrate that open eligibility is likely to result in substantial competitive harm in the provision of broadband services.").

[141] *See id.*, ¶ 258 ("There are potential competitive benefits to not imposing the proposed eligibility requirement. Allowing ILECs and cable companies to hold 700 MHz Band licenses would provide opportunities for these carriers to extend their services to rural and hard-to-serve areas where transmission by cable or wire may be prohibitively expensive. Also, as reflected by many comments, the proposed eligibility restriction would create impediments to small and rural carrier acquisition of spectrum and deployment of broadband services. These carriers may have limited access to capital, and the proposed eligibility restriction would prevent the formation of alliances, partnerships, and joint ventures that could provide these firms with needed capital.").

[142] *Auction 73/76 Public Notice* at ¶¶ 61-62.

[143] *Thirteenth Annual CMRS Competition Report*, ¶ 68. The Commission also noted that "69 percent of the licenses won were by bidders other than the nationwide wireless incumbents, and a bidder other than a nationwide incumbent provider won a license in every market." *Id.*

[144] Although U.S. Cellular's comments also sought imposition of a spectrum cap, it offered no argument that such action by the Commission would promote the innovation or investment goals at issue in this proceeding. U.S. Cellular Comments at 25. As the facts above and those detailed in other Verizon Wireless filings make clear, a cap is also not necessary to address any competitive failures in the wireless sector. *See, e.g.*, Verizon Wireless Competition Comments.

found that Section 11 of the Communications Act "places an obligation on the Commission to 'determine' if the regulation in question 'is no longer necessary in the public interest as the result of meaningful economic competition'" and that "[t]he statutory language . . . places the burden on the Commission to make the requisite determinations."[145] The Commission properly found that, "in light of the strong growth of competition in CMRS markets since the initiation of the spectrum cap, we decide today that we should move from the use of inflexible spectrum aggregation limits to case-by-case review of spectrum aggregation and enforcement of other safeguards applicable to such carriers based on evidence of misconduct."[146]

Similarly, in its recent decisions raising the spectrum screen, the Commission has affirmed the appropriateness of including the cellular, broadband PCS, ESMR, 700 MHz, BRS, and AWS-1 spectrum bands in its initial screen. When it raised the screen to 95 MHz in 2007, the Commission observed that 700 MHz spectrum "not only is technically capable of supporting mobile services, but also is in many respects ideally suited for the provision of these services."[147] In raising the screen again last year, the Commission found BRS spectrum to be "suitable for mobile telephony/broadband services" and held that where BRS spectrum is available in a market, it was "appropriate to include certain BRS spectrum in a market-specific spectrum screen."[148] The Commission also properly concluded that "sufficient progress has been made in

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[145] *2000 Biennial Regulatory Review, Spectrum Aggregation Limits for Commercial Mobile Radio Services*, Report and Order, 16 FCC Rcd 22668, ¶ 25 (2001) ("*Spectrum Cap Sunset Order*") (footnote omitted), citing 47 U.S.C. § 161(a)(2).

[146] *Spectrum Cap Sunset Order*, ¶ 6.

[147] *Applications of AT&T Inc. and Dobson Communications Corporation For Consent to Transfer Control of Licenses and Authorizations*, Memorandum Opinion and Order, 22 FCC Rcd 20295, ¶ 31 (2007).

[148] *Sprint/Clearwire Order*, ¶¶ 62-63. In adding BRS spectrum to its initial screen, the Commission explicitly noted that it "has not differentiated among different bands based on specific propagation characteristics or purported distinctions in trading value." *Id.*, ¶ 63. The record in this proceeding validates the Commission's conclusions regarding the promise of BRS spectrum. *See* Clearwire Comments at 4 ("Clearwire operates open, Internet-Protocol

clearing AWS-1 spectrum to consider that spectrum suitable for mobile telephony/broadband services in those markets where the spectrum has been cleared and is available for use."[149] The Commission's rationales for eliminating the spectrum cap and increasing the spectrum screen still stand today, and no proponent of reversing these policy decisions has offered facts sufficient for the Commission to justify doing so.

Further, imposing more restrictive limitations on carriers' spectrum holdings flies in the face of recent statements by Chairman Genachowski that "[s]pectrum is the oxygen of our mobile networks" and that "the biggest threat to the future of mobile in America is the looming spectrum crisis."[150] As Chairman Genachowski acknowledged, and as numerous commenters in this proceeding have affirmed, the allocation and licensing of significant additional spectrum is necessary for carriers to keep up with the pace of demand for mobile broadband services. Similarly, FCC broadband plan coordinator Blair Levin has noted that many wireless carriers will face challenges accommodating increased data demand if they cannot obtain more spectrum.[151] For the Commission to institute a spectrum cap, reduce the spectrum screen, or

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("IP") 4G wireless broadband networks in 51 markets in the United States and Europe covering approximately 18.2 million people. These networks provide communities with high-speed residential and mobile Internet access services and residential voice services. As of the end of June 2009, Clearwire had over half of a million wireless broadband subscribers and is now deploying 4G broadband wireless service that utilizes the WiMAX technology standard in new markets and converting our pre-WiMAX markets to the 4G standard."). Clearwire intends that its WiMAX network will be available in more than 80 markets covering up to 120 million people by the end of 2010. *Id. See also* Press Release, Clearwire, "Clearwire Introduces CLEAR™ 4G WiMAX Internet Service in 10 New Markets" (Sept. 1, 2009) ("Clearwire Communications, LLC . . . today officially launched its CLEAR 4G WiMAX service in 10 new markets, expanding CLEAR's super fast mobile Internet service area to a total of 14 markets and over 10 million people.").

[149] *Sprint/Clearwire Order* at ¶ 72.

[150] Julius Genachowski, Chairman, Federal Communications Commission, *America's Mobile Broadband Future* at 4 (Remarks at International CTIA WIRELESS I.T. & Entertainment, Oct. 7, 2009) *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-293891A1.pdf (last visited Oct. 8, 2009) ("Genachowski CTIA Remarks").

[151] *See Levin Says Broadband Plan Can't Be 'One-Shot' Deal*, Communications Daily, Oct. 23, 2009, at 5-7 ("There will be a 'crisis' if 'we don't get more spectrum into the field,' Levin said. The iPhone has increased AT&T data

otherwise restrict the amount of spectrum held by providers of mobile services would thwart its own goals of innovation and expansion of broadband services.

Consideration of new spectrum limits would also run headlong into the Commission's recent proposal to impose "net neutrality" requirements on mobile broadband Internet access providers.[152] The proposed net neutrality rules, *inter alia*, mandate that a broadband Internet access provider must allow subscribers to send and receive content of their choice (proposed 47 C.F.R. § 8.5) and "may not prevent any of its users from running the lawful Internet applications or using the lawful services of the user's choice" (proposed 47 C.F.R. § 8.7). Such rules could be interpreted to obligate wireless broadband providers to allow lawful "bandwidth hog" applications at will. However, as the Commission recognized in the net neutrality NPRM, the capacity of mobile broadband networks is dependent on the "finite amount" of spectrum available.[153] There are limits on wireless providers' ability to improve technology to increase the capacity of their networks, unlike on the wireline side, which has seen capacity advances from wireline dial-up to DSL to fiber. Ultimately, additional spectrum will be required.[154] As the Commission noted in adopting its 700 MHz service rules, wireless providers have two principal ways to manage large bandwidth applications in the "last mile" connection between the network and the end user: "through feasible facility improvements or technology-neutral capacity

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traffic 5,000 percent, he said, and without more spectrum, many other carriers likely will face similar issues: 'This is probably the single most important problem facing this sector.'").

[152] *Net Neutrality NPRM* at ¶¶ 163-74.

[153] *Id.*, ¶ 172.

[154] *See, e.g.*, Rajiv Laroia, Ph.D, Senior Vice President of Technology, Qualcomm, Remarks at the FCC National Broadband Plan Workshop (Spectrum) at 26 (Sept. 17, 2009), available at http://www.broadband.gov/docs/ws_25_spectrum.pdf ("So, [getting gains from system design] is one approach to creating more spectrum, but this should go hand-in-hand with just allocating more spectrum because the needs are obvious from what's being described here.").

pricing."[155] Spectrum limits, by foreclosing "feasible facility improvements," – the addition of spectrum to increase network capacity – would drive mobile networks to allow customers to experience significant variations in quality of service, or to use pricing to control usage. Neither result serves consumers.

The Commission cannot have it both ways: while neither is a good idea, spectrum acquisition restrictions and wireless net neutrality are fundamentally at odds with each other. Whatever the outcome with the net neutrality proposals, the Commission should continue its successful deregulatory spectrum management policies.

D. There Is No Basis for Imposing Spectrum Fees or Legal Authority to Do So.

Several commenters urge the Commission to take action on its suggestion of imposing spectrum user fees, asserting that fees would encourage efficient spectrum usage.[156] To the contrary, imposing spectrum user fees would impede, rather than promote, the Commission's stated goals of ensuring effective and innovative use of allocated spectrum by introducing administrative and economic inefficiencies. Moreover, the Commission clearly lacks statutory authority to impose such fees.

As an initial matter, a spectrum user fee would be complicated and controversial and would impose substantial administrative burdens on the agency and regulated entities. As Spectrum Bridge recognizes in its opposition to the proposal, "user fees would be almost

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[155] *700 MHz Second Report and Order*, ¶ 222.

[156] *See* Comments of the Boeing Company, GN Docket Nos. 09-157 and 09-51, at 16 (Sept. 30, 2009) ("Boeing Comments"); Comments of the Enterprise Wireless Alliance, GN Docket Nos. 09-157 and 09-51, at 7 (Sept. 30, 2009) ("EWA Comments"); T-Mobile Comments at 23; Comments of Wayne Longman, GN Docket Nos. 09-157 and 09-51, at 7-8 (Sept. 30, 2009) ("Wayne Longman Comments").

impossible to quantify, monitor, and evaluate."[157] The Commission would not only be required to define what constitutes effective and efficient use of the spectrum, but would also be tasked with accurately assessing the market value of spectrum subject to the fee. The agency would have to develop a formula that reconciles assessing a monetary penalty for "unused" spectrum with the reality that Commission policies encourage carriers to maintain some spectrum beyond their immediate needs to address changing and increasing consumer demands, particularly as the agency allocates spectrum infrequently. The rapid and sometimes unpredictable ways in which the wireless market changes and advances would make these regulatory tasks problematic.

Beyond administrative inefficiencies, imposing a static, inflexible, and inefficiently calculated spectrum user fee on licensees would stifle the very innovation and efficiency that the Commission seeks to engender.[158] Even the Enterprise Wireless Association ("EWA"), which supports a spectrum user fee, acknowledges that it would be difficult to create a "properly crafted . . . fee structure . . . that does not deny access to those that require it or enable others to stockpile it."[159] In contrast, the assessment of a spectrum user fee would arbitrarily raise licensees' cost of business, stifling innovation[160] and resulting in higher prices to consumers.[161]

But even if the imposition of a spectrum user fee was sound policy, which it is not, it would clearly exceed the Commission's delegated authority. Verizon Wireless[162] and other

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[157] Comments of Spectrum Bridge, Inc., GN Docket Nos. 09-157 and 09-51, at 7-8 (Sept. 30, 2009) ("Spectrum Bridge Comments").

[158] Qualcomm Comments at 47 (explaining that "[n]othing will chill innovation more than adding yet another financial burden to the carriers").

[159] EWA Comments at 7.

[160] Qualcomm Comments at 47.

[161] TIA Comments at 5.

[162] Verizon Wireless Innovation Comments at 148-54.

commenters[163] pointed out this fatal flaw in their opening comments, and the Commission has itself recognized that it lacks the requisite statutory authority.[164] The Communications Act does not provide the FCC with authority to impose such a fee, and the statute that would govern any agency-imposed fees, the Independent Offices Appropriation Act of 1952 ("IOAA"),[165] cannot be read to authorize spectrum user fees. Indeed, in the Communications Act, Congress mandated that competitive auctions be used as the means of ensuring efficient use of the spectrum and capturing for the public some of the value of that spectrum.[166] One commenter's proposal that the Commission impose spectrum user fees "as an alternative to auctions"[167] must accordingly be rejected because it runs directly contrary to this well-established principle.

Nor could the Commission impose spectrum user fees under the IOAA, which provides general authorization for administrative agencies to charge for the services they provide.[168] As Verizon Wireless previously explained, this statute has been read – out of constitutional necessity – to permit only the assessment of fees, not taxes, because Congress could not lawfully have enacted a blanket delegation of taxation authority to federal agencies.[169] As Verizon Wireless[170] and AT&T[171] noted, a spectrum user fee would be an unlawful tax, because it would

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[163] AT&T Innovation Comments at 74; *see also* Qualcomm Comments at 48 (noting that "[i]mposition of a spectrum user fee on federal agencies . . . would require Congressional action").

[164] *Implementation of Sections 309(j) and 337 0f the Communications Act of 1934 as Amended*, Notice of Proposed Rulemaking, 14 FCC Rcd. 5206, ¶ 76 (1999).

[165] 31 U.S.C. § 9701. This provision was codified as 31 U.S.C. § 483a prior to 1982.

[166] Verizon Wireless Innovation Comments at 152-53; s*ee also* 47 U.S.C. § 309(j)(3) (providing that the Commission "shall seek to promote the purposes specified in section 151" via competitive bidding).

[167] Boeing Comments at 16.

[168] Verizon Wireless Innovation Comments at 149-52.

[169] *Nat'l Cable Television Assoc. v. United States*, 415 U.S. 336, 342 (1974) ("*NCTA*").

[170] Verizon Wireless Innovation Comments at 151-52.

lack a sufficient nexus to the Commission's provision of a "specific benefit" to licensees and would be aimed at achieving the purely regulatory goal of promoting efficient use of the spectrum.[172] The suggestion that a spectrum user fee "may be an appropriate way to introduce market incentives into the licensing process"[173] fails to account for the fact that the fee would not be tied to any identifiable service or specific benefit provided by the Commission to the unauctioned spectrum licensees.

For all these reasons, the Commission cannot and should not pursue the imposition of spectrum user fees. To do so would significantly burden the Commission and licensees, would undermine the Commission's stated goals and would exceed the agency's authority.

III. THE RECORD SHOWS THAT THE HIGH LEVEL OF WIRELESS INNOVATION AND INVESTMENT WOULD BE IMPEDED BY NEW REGULATION, AND THAT CALLS FOR NEW RULES ARE MERITLESS.

Innovation cannot be "forced, legislated, or regulated into existence."[174] Indeed, the vast majority of commenters agree that the innovation and investment seen in today's wireless industry is the direct result of the Commission's "light regulatory touch" with respect to wireless services.[175] As Motorola notes, "experience has shown that, for commercial systems, licensee flexibility enabled through minimal, but effective, regulation and incentives will generally

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[171] AT&T Innovation Comments at 74 & n.223.

[172] *NCTA*, 415 U.S. at 343-44; *Nat'l Cable Television Ass'n v. FCC*, 554 F.2d 1094, 1106 (1976); *see also Engine Mfrs. Ass'n v. EPA*, 20 F.3d 1177, 1180 (1994) ("A general benefit conferred upon an industry, such as the public confidence that may attend the mere fact of its regulation, is insufficient to justify a fee.").

[173] T-Mobile Comments at 23.

[174] *Id.* at 31.

[175] *See, e.g.*, *id.* at 6, citing Michael T. Hoeker, Note, From Carterfone to the iPhone: Consumer Choice in the Wireless Telecommunications Marketplace, 17 CommLaw Conspectus 187, 215 (2008-2009) ("The regulatory freedom that wireless carriers and handset makers enjoy has fueled exponential technological innovation in a market that is nowhere near mature.").

encourage investment and innovation and allows consumers and businesses to decide what mix of services they desire and how different providers creatively adjust in response."[176] T-Mobile similarly found that "the wireless market is as robust, open, and dynamic as it is today because the Commission took a deregulatory approach to the market early on, allowing competition to promote consumer welfare and drive innovation."[177] As such, the "extraordinary attempt by policymakers to break from their typical utility-style approach to regulating telecommunications was a study in legislative and regulatory bravery, and American wireless consumers have been the direct beneficiaries."[178]

Unnecessary regulation and regulatory uncertainty could stifle this investment and innovation. Indeed, T-Mobile correctly states that "[b]lunt regulatory tools that seek to hew a specific vision of the future are unlikely to achieve anything more impressive than what the industry has wrought on its own, yet they may do serious damage in the interim."[179] For example, "blanket rules can . . . reduce the incentives both for incumbents and new entrants to develop innovative new wireless service packages."[180] Further, "[e]ndless delays in rulemakings . . . discourage innovation by denying it the investment capital that is essential."[181] Regulation

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[176] Motorola Comments at 16.

[177] T-Mobile Comments at 33.

[178] Mobile Future Comments at 2.

[179] T-Mobile Comments at 33.

[180] Gregory L. Rosston & Michael D. Topper, *An Antitrust Analysis of the Case for Wireless Net Neutrality*, Stanford Inst. For Econ. Policy Research, July 30, 2009, at 4. *See also* Verizon Wireless Innovation Comments at 165-166 ("'[I]t is by now well appreciated that even well meaning regulation is a blunt instrument, which can impose its own considerable harm . . . [and] unacceptable collateral damage.' 'Regulations create costs and constraints for market participants.' And '[r]egulation diminishes entrepreneurial incentives to lower costs, improve quality, and develop new products and services.'").

[181] Comments of Marcus Spectrum Solutions LLC, GN Docket Nos. 09-157 and 09-51, at 4-5 (Sept. 22, 2009) ("Marcus Spectrum Solutions Comments"). *See also* Comments of Mitchell Lazarus, GN Docket Nos. 09-157 and 09-51, at 5-6 (Sept. 30, 2009) ("Mitchell Lazarus Comments") ("For a pre-revenue company burning through

and regulatory delays are especially problematic in today's economic climate as access to capital is increasingly difficult.[182] Investors will perceive unnecessary regulation and uncertainty in regulatory oversight as increasing risk, thereby threatening the availability of funding for network improvements and device and application deployments.[183]

As Verizon Wireless explained in its opening comments,[184] Congress has mandated a deregulatory paradigm for wireless services and the Internet. And the Commission has followed that Congressional deregulatory paradigm for nearly twenty years, through Democratic as well as Republican administrations, finding time and again that regulation should be used sparingly and only to the extent that a demonstrable market failure is adversely impacting customers. Indeed, a top White House technology official recently affirmed the long-standing principle that it is preferable to rely on market forces than impose regulation for regulation's sake.[185]

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investors' cash, having to wait two or three years [i.e., the minimum amount of time it takes the FCC to act on a rule change or waiver] for the first sales dollar can be a deal-breaker. Some companies give up at the starting line. Others try to go forward, but not all of them make it. One of my clients, dependent on a single product, went out of business waiting for Commission action. Others, though they survive, worry that their product will be leapfrogged by competing technologies and be obsolete on release. Even if all goes well and the product eventually sells, it still has lost considerable time on the market, which nowadays is short enough anyway. Reaching the market early is critical to an innovating entrepreneur. It trumps competitors, pays back investors, gives a leg up in the standards process, and might even brand a new product category. Regulatory delay threatens all of these benefits.").

[182] *See, e.g.*, Verizon Wireless Innovation Comments at 171.

[183] *See, e.g.*, "Obama Tech Official Vows Cautious Approach on Any New Regulations," TR Daily (Nov. 2, 2009) ("Michael Rollins, managing director at Citi Investment Research, said the threat of regulation could also play a significant role in broader investment in telecom networks. Given that such investments have a long-term horizon, the industry likes to have stability before it builds out more infrastructure.").

[184] *See* Verizon Wireless Innovation Comments at 155-78.

[185] *See* "Obama Tech Official Vows Cautious Approach on Any New Regulations," TR Daily (Nov. 2, 2009) ("[Tom Kalil, deputy director-policy in the Obama administration's Office of Science and Technology Policy] added that the White House is not interested in implementing regulation for regulation's sake. 'To the extent we can rely on competition . . . that is always better than relying on heavy-handed regulation." Mr. Kalil said. When the government does act, it has to make sure the gains from its actions outweigh the potential setbacks from those moves, he added.").

The Commission should resist invitations from parties in these and other proceedings to abandon this Congressionally mandated market-based approach in favor of regulation and increased government intervention. Not surprisingly, many proposals for new rules are designed to benefit some players over others in the wireless ecosystem. Such requests fail to recognize that it is not the agency's job to assist particular competitors or to promote particular business models. Further, this deregulatory paradigm is rooted in the Communications Act itself and decades of Commission precedent in both the wireless and broadband areas. More than the cries of potential beneficiaries of regulatory intervention should be required to justify its abandonment.

Changing course now would clearly be unjustified in light of the overwhelming evidence that competition and innovation are thriving in a minimally regulated environment. A return to regulation would harm the Commission's stated goals of promoting innovation and competition. Economics literature is replete with analyses demonstrating the costs and potential harms of regulation and also confirms that the mere *prospect* of regulation injects harmful uncertainty into markets, disincenting investment and frustrating long-term planning. As demonstrated in Verizon Wireless's opening submission, it would be a mistake for the Commission to abandon its market-based approach, an approach that has led to unprecedented growth and innovation in wireless communications.

Some parties have misused this proceeding to stock their comments with demands for new regulation, rather than provide the facts and data the Commission asked for. Many of these re-regulatory proposals are clearly intended to promote particular business plans. Advocates for new rules fail to connect their proposals to the goals of the NOI, or to demonstrate how adopting

rules would foster wireless innovation and investment. They should not be considered at all in this proceeding.

Moreover, these parties made the same regulatory proposals in the Commission's separate proceeding addressing competition in the mobile services market.[186] Rather than burden the record of the *Innovation NOI* with further discussion of these meritless proposals, Verizon Wireless references below its responses in that separate proceeding.

Prohibit handset exclusivity agreements. Proposals to intrude into contracts between handset manufacturers and service providers to prohibit or regulate exclusivity arrangements are meritless. The records compiled in the FCC's *Competition NOI* and in the FCC's docket opened specifically to receive comment on these proposals demonstrates that there is robust competition with respect to mobile handsets and that exclusive handset arrangements promote rather than harm competition.[187]

Regulate roaming. Proposals to have the Commission reverse course from its 2007 order finding that home roaming obligation would disserve the public interest, and impose home roaming obligations or other roaming rules, fail to offer specific facts demonstrating that there is any market failure that could provide the Commission with the necessary factual basis to reconsider its market-driven approach to roaming.[188]

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[186] *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless including Commercial Mobile Services*, Notice of Inquiry, FCC 09-67 (rel. Aug. 27, 2009) ("Competition *NOI*").

[187] Verizon Wireless Competition Comments at 122-125, AT&T Competition Comments at 41-48, 54-59; Verizon Wireless Competition Reply Comments at 64-71; Rural Cellular Ass'n Petition for Rulemaking Regarding Exclusivity Arrangements, RM-11497 (filed May 20, 2008), Comments of Verizon Wireless Requesting Dismissal of Petition, RM-11497, at 11-28 (filed Feb. 9, 2009).

[188] Verizon Wireless Competition Reply Comments at 53-64.

Mandate 700 MHz device technology. The Commission also should ignore Cellular South's assertion – repeated from the same claim made in the *Competition NOI* – that carriers that acquired Lower A Block spectrum in Auction 73 are having difficulty obtaining equipment capable of operation in the Lower A Block."[189] The premise of Cellular South's request is that Verizon Wireless and AT&T are preventing handsets from being manufactured to operate on the 700 MHz A Block spectrum. But no facts are provided to support this assertion, which is demonstrably false. As shown in the *Competition NOI* proceeding, the open standards process conducted by 3GPP, the international standards-setting organization for LTE – a process that Cellular South did not participate in – and the technical complexities of the A Block account for the pace of A Block equipment development. Moreover, given that Verizon Wireless holds considerable A Block spectrum, Cellular South's claim is nonsensical.[190]

Regulate short codes. Myxer Inc. ("Myxer") requests regulation of short codes as common carrier services to prevent carriers from denying access to the use of these codes.[191] The Commission should reject Myxer's proposal on legal grounds alone. The provisioning of short codes is not within the Commission's authority – an obstacle Myxer does not address.[192] Even if the Commission had the authority to grant the relief Myxer requests, there are sound public policy reasons not to do so. Innovation is thriving in the common short code space and Myxer fails to demonstrate any anti-consumer conduct that would warrant Commission action. Further,

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[189] Comments of Cellular South, Inc., GN Docket Nos. 09-157 and 09-51, at 12 (Sept. 30, 2009) ("Cellular South Comments").

[190] Verizon Wireless Competition Reply Comments at 85-91.

[191] Comments of Myxer Inc., GN Docket Nos. 09-157 and 09-51, at 12 (Sept. 30, 2009) ("Myxer Comments").

[192] Verizon Wireless Competition Reply Comments at 80-82.

industry self-regulation has been successful and appropriate to protect consumers from illegal or inappropriate content.[193]

Regulate special access prices. Proponents of new special access price regulation fail to demonstrate that it is warranted or necessary to promote innovation in wireless. To the contrary, as demonstrated in Verizon Wireless' comments in the *Competition NOI*,[194] growth in demand for mobile wireless broadband services has sparked new investment and demand for backhaul, in turn triggering new suppliers to offer added competitive alternatives, including fiber and fixed wireless options. Rather than promoting innovation in the wireless market, regulatory intervention on special access pricing would drive investment away from and slow innovation in alternative backhaul technologies.[195] In any event, proponents of special access regulation make no linkage between the topic of this proceeding – wireless innovation – and their requests for relief, which re-iterate their proposals in the special access docket. The Commission should address calls for special access regulation, if at all, in the special access docket as the issue bears no relation to increasing wireless innovation.

Notably, only one proponent of additional special access regulation ties its comments to the subject matter of the NOI: innovation in wireless. Sprint Nextel claims a lack of competition

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[193] *Id.* at 76-85.

[194] Verizon Wireless Competition Comments at 95-100.

[195] *See* Comments of Telecommunications Manufacturer Coalition, GN Docket Nos. 09-157 and 09-51, at 6 (Sept. 28, 2009) ("Telecom Manufacturer Coalition Comments") (arguing that investment in point-to-point transmission would be reduced, not stimulated, by a policy requiring ILECs to lower the price they charge for special access service); *accord* T. Randolph Beard et al., "Market Definition and the Economic Effects of Special Access Regulation," Phoenix Center Policy Paper Services, (2009) (Assuming the narrow geographic market definition advanced by proponents of special access regulation, price regulation of special access services "unambiguously reduces welfare and the number of transactions, which reasonably implies a reduction in the investment level.").

in special access impairs its ability to innovate.[196] But the remainder of Sprint Nextel's comments rebut this suggestion, providing great detail on the high level of innovation in wireless network technologies,[197] devices,[198] applications,[199] and business plans.[200]

Other comments on special access revisit requests for information gathering,[201] Commission oversight,[202] and new regulation of special access[203] already made and under consideration in the Commission's open proceeding on special access.[204] As Verizon Wireless's parent company, Verizon, recently noted in that proceeding, the record to date demonstrates that the special access market is highly competitive. The time has come to close the proceeding.[205] However, if the Commission elects to engage in further data collection – as commenters in this proceeding propose – data should be collected from all competitive providers of high capacity services. Regardless of how the Commission proceeds in the special access docket, the

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[196] Sprint Nextel Comments at 28-29 (arguing that the price of special access has hampered Sprint Nextel's ability to innovate).

[197] *Id.* at 23 ("Wireless networks are evolving or innovating towards faster data speeds and more sophisticated platforms that are capable of supporting video and IP-based applications.").

[198] *Id.* at 23-26.

[199] *Id.* at 26-28.

[200] *See id.* at 41-44 (describing a new venture between Sprint Nextel and Vanu Coverage Co.).

[201] *See* Clearwire Comments at 15-16; U.S. Cellular Comments at 11-14,.

[202] *See* MetroPCS Comments at 26; T-Mobile Comments at 26-28.

[203] *See* U.S. Cellular Comments at 11-14.

[204] *See Special Access Rates for Price Cap Local Exchange Carriers*, WC Docket No. 05-25.

[205] *See* Letter from Donna Epps, Vice President, Federal Regulatory, Verizon to Marlene Dortch, Secretary, FCC, WC Docket No. 05-25 (June 18, 2009) ("[I]t would be appropriate for the Commission to close this proceeding based on ample evidence in the record demonstrating that there is extensive competition to provide high capacity services.").

overwhelming record in this proceeding demonstrates that conditions in the special access market have not slowed – and will not slow – the rapid pace of innovation in wireless.

IV. COMMENTERS ENDORSE SPECIFIC ACTIONS THE FCC SHOULD TAKE TO FURTHER WIRELESS INNOVATION AND INVESTMENT.

Parties identify a number of roadblocks that can deter innovation and investment, and generally agree on a set of specific actions the Commission should take to remove or lower these roadblocks. Specifically, commenters ask the Commission to: (1) identify and allocate additional spectrum for wireless services, (2) facilitate the deployment of new antenna sites, (3) adopt a national framework for wireless services, (4) expedite licensing reviews and approvals, and (5) promote the deployment of both public safety and commercial services in the 700 MHz band by, among other things, clearing the 700 MHz spectrum of current users. Verizon Wireless urges the Commission take all of these actions as soon as practicable because the record establishes that doing so will help incent further innovation and investment.

A. Identify and Allocate Additional Spectrum for Wireless Services.

The record demonstrates widespread industry support for the notion that allocation of additional spectrum for wireless services is essential to continued innovation in the wireless sector.[206] As Chairman Genachowski succinctly put it in his recent remarks at the CTIA convention, "[s]pectrum is the oxygen of our mobile networks."[207] Demand for advanced

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[206] *See* Comments of the American Legislative Exchange Council (ALEC), GN Docket Nos. 09-157 and 09-51, at 6 (Sept. 30, 2009) ("ALEC Comments"); AT&T Innovation Comments at 68-71; Comments of Comcast Corporation, GN Docket Nos. 09-157 and 09-51, at 4-6 (Sept. 30, 2009) ("Comcast Comments"); CTIA Comments at 69-71; Ericsson Comments at 14; Google Comments at 16-17; Comments of the GSM Association, GN Docket Nos. 09-157 and 09-51, at 8 (Sept. 30, 2009) ("GSM Association Comments"); Mercatus Center Comments at 4; MetroPCS Comments at 40-41; Sprint Nextel Comments at 3-4; TIA Comments at 3; T-Mobile Comments at 17; Comments of Vodafone, GN Docket Nos. 09-157 and 09-51, at 6-7 (Sept. 30, 2009) ("Vodafone Comments").

[207] Genachowski CTIA Remarks at 4.

wireless services has never been greater, and this demand is certain to dramatically increase as customers continue to embrace mobile broadband services and innovators develop increasingly advanced technologies. Faced with this demand spike, and in order to remain competitive internationally, the FCC must take steps to identify and allocate large contiguous blocks of spectrum below 5 GHz to be licensed for commercial wireless services.

Chief among the recent innovations in commercial wireless technology are smartphones, which have become an essential connectivity tool for a growing portion of the population. Indeed, according to a recent study cited by Clearwire, a majority of Americans have now accessed the Internet via a wireless device, and daily use of mobile data services has increased by 38 percent in the last two years.[208] Similarly, Comcast observed that active mobile Internet users were reported to number 40 million in mid-2008, twice as many as two years earlier.[209]

These innovations are already putting a strain on existing wireless networks, underscoring the importance of further spectrum allocation. As Clearwire explained, "[a] single smart phone consumes 30 times the spectrum of a traditional handheld device with average customer usage patterns, and a single connected notebook or laptop computer consumes 450 times that amount."[210] As a result, "[p]roviding the marketplace with additional licensed spectrum is the single most important step that the Commission could take to both preserve and

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[208] Clearwire Comments at 7.

[209] Comcast Comments at 5, *citing* Rysavy Report at 6.

[210] Clearwire Comments at 10, *citing Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update*, White Paper, at 3 (Jan. 29, 2009) *available at* http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.html. T-Mobile indicates that customers using its popular G1 smartphone use 50 times the data of the average T-Mobile customer. T-Mobile Comments at 18.

stimulate mobile innovation and competition."[211] The Chairman himself recently stated that "the biggest threat to the future of mobile in America is the looming spectrum crisis."[212]

The record in this proceeding demonstrates that the Commission must identify and allocate large, contiguous blocks of lower-band spectrum for commercial wireless services.[213] Although it is impossible to pinpoint the exact amount of spectrum required going forward, commenters cite to expert analyses indicating a need for 800 MHz to 1 GHz of additional spectrum allocated to commercial wireless services.[214] Commenters also agree that the Commission should attempt to harmonize globally new spectrum allocations, which would allow device and application developers to take advantage of global economies of scale and would further stimulate innovation and lower prices for consumers.[215]

As commenters have observed, allocation of additional spectrum is necessary for the United States to maintain its position as a global leader in wireless innovation.[216] T-Mobile notes that many European countries have plans to auction or allocate spectrum in the 2.5 and 2.6 GHz and some have identified hundreds of MHz of spectrum suitable for commercial wireless

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[211] T-Mobile Comments at 17; *see also* Vodafone Comments at 6 ("The primary challenge for the Commission and US authorities remains the risk that spectrum shortages will inhibit the growth in the wireless industry upon which the broader American economy now depends to a significant degree.").

[212] Genachowski CTIA Remarks.

[213] *See, e.g.,* AT&T Innovation Comments at 68-70; Comcast Comments at 5; CTIA Comments at 69-71; Ericsson Comments at 14; Sprint Nextel Comments at 4; T-Mobile Comments at 21; TIA Comments at 10.

[214] *See, e.g.,* AT&T Innovation Comments at 68-69 (stating that "experts recommend that the Commission allocate as much as an additional one Gigahertz of spectrum to mobile use"); CTIA Comments at 72 (calling for a reallocation of 800 MHz of spectrum); T-Mobile Comments at 21 (stating that "as CTIA proposes, the Commission should move quickly to allocate and auction an additional 800 MHz of spectrum for commercial mobile broadband use throughout the United States").

[215] *See* AT&T Innovation Comments at 69-70; Ericsson Comments at 16; GSM Association Comments at 10.

[216] *See* Comcast Comments at 8; T-Mobile Comments at 18-19.

services.[217] In fact, as illustrated in the CTIA comments, although the United States is currently a leader in terms of amount of spectrum assigned for commercial wireless use, it has less spectrum "in the pipeline" than Japan, Germany, U.K., France, Italy, and Mexico, some of which have up to seven times more potentially usable spectrum than the U.S.[218] It is clear that to satisfy foreseeable increases in demand for advanced mobile services, to sustain the breakneck pace of innovation in the wireless ecosystem, and to maintain America's competitive position in the global market, the Commission must act quickly and boldly to identify and allocate large amounts of additional spectrum for wireless services.

B. Expedite Deployment of New and Modified Antenna Sites

Commenters agree that one of greatest hurdles to be overcome in deploying service in unserved and underserved areas is the slow, costly, and complex process of siting and collocating towers and antennas. These problems afflict a variety of entities in the wireless ecosystem, ranging from national and regional wireless providers to equipment manufacturers and distributed antenna systems (DAS) providers and other innovators.[219]

As explained by Google, "[a] substantial record now exists before the Commission of the myriad ways in which zoning boards, utilities, and others with control over infrastructure are thwarting the deployment of new wireless facilities by denying access."[220] Some of the strongest

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[217] T-Mobile Comments at 18-19.

[218] *See* CTIA Comments at 22.

[219] *See* ALEC Comments at 9-11; Clearwire Comments at 16; Comcast Comments at 17-18; CTIA Comments at 85-86; Comments of ExteNet Systems, Inc., GN Docket Nos. 09-157 and 09-51, at 5-7 (Sept. 30, 2009) ("ExteNet Systems Comments"); Google Comments at 12-13; Comments of NewPath Networks, Inc., GN Docket Nos. 09-157 and 09-51, at 5-9, 12-13 (Sept. 30, 2009) ("NewPath Networks Comments"); Comments of NextG Networks, Inc., GN Docket Nos. 09-157 and 09-51, at 9-11, 17-22 (Sept. 30, 2009) ("NextG Networks Comments"); T-Mobile Comments at 28-29; U.S. Cellular Comments at 18-19.

[220] Google Comments at 12-13.

appeals for Commission intervention come from DAS providers who describe delays of up to 24 months in processing applications, despite the fact that many DAS antennas are very small and can be collocated on existing structures to which antennas are already attached while causing minimal additional aesthetic impact.[221] These delays not only retard innovation and slow the deployment of wireless services in the areas where they are needed most, but they also occasionally result in litigation, ultimately increasing the cost of wireless services to the consumer.[222] NextG Networks commented that wireless providers are often faced with "local authorities that oppose the deployment of new telecommunications facilities, particularly if an antenna is involved, and will use their authority over the public right of way or over zoning to delay and deter such deployment for as long as possible (in hopes of deterring it permanently)."[223]

A straightforward solution to this problem is for the Commission to grant CTIA's "shot clock" petition,[224] which has received support from a broad cross-section of the wireless industry[225] and which would limit the time during which a local zoning authority would have authority to render a decision on a siting application. The time limits proposed by CTIA are reasonable and give local authorities sufficient time to review the siting application, while also

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[221] NextG Networks Comments at 10-11; NewPath Networks Comments at 7-9; ExteNet Systems Comments at 6-7.

[222] *See, e.g.,* NextG Networks Comments at 10-11 (describing prolonged approval procedures, including one that resulted in litigation).

[223] NextG Networks Comments at 11; *see also* NewPath Networks Comments at 7-9; CTIA Comments at 85; Google Comments at 12-13; T-Mobile Comments at 28.

[224] *Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to preempt under Section 253 State and Local ordinances that Classify All Wireless Siting Proposals as Requiring a Variance*, WT Docket No. 08-165 (July 11, 2008) ("CTIA Petition").

[225] *See, e.g.,* ALEC Comments at 11; AT&T Innovation Comments at 95-96; CTIA Comments at 85-86; Clearwire Comments at 16; Google Comments at 14; NextG Networks Comments at 11-13; T-Mobile USA Comments at 28-29; U.S. Cellular Comments at 18.

giving wireless service providers an increased level of certainty that will stimulate further investment and innovation. Verizon Wireless applauds the Commission on its decision to address CTIA's petition at its November open meeting.

Commenters have suggested a variety of additional actions the Commission should take regarding siting to aid wireless deployment.[226] Many promising proposals feature amendments or clarifications of Sections 253 and 332 of the Communications Act.[227] The Commission can take some steps on its own to address these challenges. For example, some commenters urge the Commission to clarify that Section 332 does not permit zoning denials solely on the basis that there is already one provider in the area.[228] Others urge the Commission to clarify its interpretation of the preemptive effect Section 253 has over local ordinances that interfere with the timely deployment of wireless infrastructure.[229] Verizon Wireless proposes that the Commission work with Congress to amend Section 332 to exempt antenna collocations and tower modifications from zoning approval if there would not be a "substantial increase" in the existing structure.[230]

The Commission should also take the steps previously proposed by Verizon Wireless to expedite reviews under the National Historic Preservation Act. These actions would reduce the cost and time of deploying additional wireless service in communities across the country and

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[226] *See* Clearwire Comments at 16; CTIA Comments at 85-86; ExteNet Systems Comments at 8-9; NewPath Networks Comments at 10-11; NextG Networks Comments at 14-16; T-Mobile Comments at 28-29.

[227] *See, e.g.*, CTIA Comments at 86 (proposing Commission action under section 253); NewPath Networks Comments at 9-11 (same); CTIA Comments at 85 (proposing Commission action under Section 332); T-Mobile Comments at 29 (same).

[228] *See, e.g.*, CTIA Comments at 85; T-Mobile Comments at 29.

[229] CTIA Comments at 86; NewPath Networks Comments at 9-11.

[230] Verizon Wireless Innovation Comments at 185.

would help further the goal of universal broadband coverage.[231] First, it should act on historic preservation matters brought before the Wireless Bureau within 30 days; and second, it should work with the other signatories of the National Programmatic Agreement to address situations that frequently require Bureau review, such as where an Indian Tribe claims it wants to be a consulting party but thereafter fails to actually consult.[232]

C. Adopt a National Framework for Wireless Services

As stated by the American Legislative Exchange Council ("ALEC"), "[w]ireless networks are a channel and instrument of interstate commerce that would be unduly burdened by a regime of 50 conflicting, overlapping state standards."[233] However, some states continue to attempt to assert monopoly utility-type regulation over the wireless industry. ALEC proposed that state legislatures remove PUC jurisdiction over wireless through state legislation.[234] Verizon Wireless recommended that the Commission and Congress coordinate on adopting a national framework for wireless oversight. Under this proposal, the Commission would set national wireless consumer protection standards; states would retain their power to protect against unfair and deceptive trade practices through their generally applicable consumer protection laws, as enforced by their attorneys general. National regulation serves the public interest by benefiting all consumers nationwide with clear and uniform protection and service quality standards, while allowing for the regulatory certainty that is essential to encouraging investment and innovation.

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[231] ExteNet Systems Comments at 9-10; U.S. Cellular Comments at 18.

[232] Verizon Wireless Innovation Comments at 188-90.

[233] ALEC Comments at 9.

[234] *See id.* at 10.

Verizon Wireless urges the Commission to consider this or other actions to ensure that the growth of the wireless ecosystem is not hampered by conflicting regulation.

D. Speed Reviews of Applications for Wireless Services

Several commenters have cited the significant benefits that have accrued as a result of the Commission's streamlined processes for reviewing certain applications for the assignment, transfer, leasing, and modification of spectrum licenses.[235] However, the consensus is that there remains an opportunity to further streamline application processes through simplified forms and expanded expedited processing.[236] Verizon Wireless applauds the Chairman's commitment to "removing obstacles to 4G deployment" by making the Commission "act promptly to process license and other requests to keep 4G roll-outs on track."[237] Swift processing of applications to access new spectrum or to modify operations directly enables the provision of new services and facilitates investment and innovation. In its comments, Sprint Nextel described its dealings with CoverageCo, a company with an innovative business model that would not exist were it not for easy access to spectrum through secondary market transfers.[238] In order further to stimulate innovation and investment, the Commission should take steps to expedite the review of additional spectrum applications.

Verizon Wireless suggested in its comments that the Commission commit to processing applications raising routine issues within 45 days of public notice, so that consumers can access

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[235] *See, e.g.*, Sprint Nextel Comments at 42-43; AT&T Innovation Comments at 72-73.

[236] *See* Comments of Key Bridge Global LLC, GN Docket Nos. 09-157 and 09-51, at 2-3 (Sept. 30, 2009) ("Key Bridge Global Comments"); Spectrum Bridge Comments at 6; Sprint Nextel Comments at 44; Verizon Wireless Innovation Comments at 197-99.

[237] *See* Genachowski CTIA Remarks.

[238] Sprint Nextel Comments at 42-43.

new services without delay.[239] Spectrum Bridge, in a suggestion nearly mirroring that of Verizon Wireless, proposed that the Commission streamline the transfer and lease process by considering *pro forma* approval in most if not all routine situations.[240] Taking such a step would allow spectrum to be used most efficiently.

E. Promote Broadband Services on 700 MHz Spectrum.

Although proposals differ, many commenters identify resolution of issues in the 700 MHz band as a high priority.[241] Verizon Wireless proposes two actions for the Commission to take regarding this band.

First, the Commission should work with Congress to have the unauctioned 700 MHz D Block designated for public safety use. Only designating the D Block for public safety use and allowing public safety users to select commercial partners with which to work will actually result in a nationwide interoperable wireless broadband network capable of meeting public safety users' needs. Attorney General Eric Holder recently expressed the same opinion when he indicated his strong support for removing the D Block spectrum from auction and allocating it directly to public safety.[242]

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[239] Verizon Wireless Innovation Comments at 197.

[240] Spectrum Bridge Comments at 6.

[241] *See* MetroPCS Comments at 12; U.S. Cellular Comments at 4, 8; Verizon Wireless Innovation Comments at 192-196.

[242] Eric Holder, Attorney General of the United States, Remarks at the International Association of Chiefs of Police Conference, Oct. 5, 2009, *available at* http://www.usdoj.gov/ag/speeches/2009/ag-speech-091005.html (last visited Oct. 8, 2009).

Second, as stated by CTIA and others, the Commission must take "prompt and decisive action" to quickly relocate wireless microphones out of the 700 MHz band, as their continued presence threatens to cause interference to new commercial wireless systems in this spectrum.[243] On August 21, 2008, the Commission proposed to modify the Commission's rules to make clear that the operation of wireless microphones and other low power auxiliary stations will not be permitted in the band after television stations were transitioned to digital technology on February 17, 2009.[244] This proposal was made in support of the Commission's previous conclusion that it is required to "take all steps necessary to make this spectrum effectively available both to public safety as well as commercial wireless services,"[245] and the Commission's tentative conclusion in the NPRM that harmful interference would be caused to both public safety and commercial systems if operation of wireless microphones were to continue.[246] There was broad support for the Commission's proposal.[247] In fact, no party to this proceeding has disputed the potential for harmful interference or opposed the Commission's conclusion that the band must be cleared of wireless microphones and similar devices to promote public safety and commercial broadband as well as other services.

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[243] CTIA Comments at 89; *see also* Qualcomm Comments at 29.

[244] *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band*, Notice of Proposed Rulemaking and Order, 23 FCC Rcd 13106 (2008) ("*Wireless Microphone NPRM*").

[245] *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 24238, ¶ 2 (2007).

[246] *Wireless Microphone NPRM* at ¶ 2.

[247] *See, e.g.*, Comments of APCO, WT Docket Nos. 08-166 and 08-167 (Oct. 3, 2008); Comments of the National Public Safety Telecommunications Council, WT Docket Nos. 08-166 and 08-167 (Oct. 3, 2008); Comments of the Society of Broadcast Engineers, Incorporated, WT Docket Nos. 08-166 and 08-167 (Sept. 26, 2008); Reply Comments of CTIA – The Wireless Association®, WT Docket Nos. 08-166 and 08-167 (Oct. 20, 2008).

The DTV transition has come and gone. Despite a four-month delay of the DTV transition date, wireless microphones were still in the band when the transition was completed. Today, an additional four months has passed – eight months since the Commission's original proposed date for clearing the band and fourteen months since wireless microphone users, manufacturers and others were put on notice of the impending deadline – but wireless microphones still remain in the band.

Access to the 700 MHz band is critical in promoting increased broadband availability for American consumers, and in enabling more advanced communications for public safety. It is untenable that 700 MHz licensees, including some that paid billions of dollars for access to spectrum, should suffer from continued delay and uncertainty. Consistent with the Chairman's commitment to remove obstacles to 4G deployment, Verizon Wireless urges the Commission to act promptly to issue an order that requires all wireless microphones to cease operation in the 700 MHz band by the end of February 2010.

V. CONCLUSION

The record in this proceeding provides the Commission with the facts and data it requested about innovation and investment in wireless services. Those facts and data irrefutably show that the tremendous innovation and investment that have long characterized the wireless ecosystem are robust and have been accelerating. As Verizon Wireless notes herein and in its initial comments, the Commission can take several actions to promote innovation, but it should not adopt new regulation that would put this important sector of the economy at risk. It should

stay the course and maintain its longstanding policies of limited regulation and flexible, exclusive use spectrum licensing. These policies are a proven success, and they remain the right ones for the future.

Respectfully submitted,

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