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

COMMENTS OF THE CDMA DEVELOPMENT GROUP

CDMA Development Group

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COMMENTS OF THE CDMA DEVELOPMENT GROUP

The CDMA Development Group ("CDG") hereby respectfully submits these comments in response to the Commission's Notice of Inquiry ("Notice") regarding fostering innovation and investment in the wireless communications market.[1]

The CDG is a non-profit international consortium of over 100 companies, including the world's leading operators and manufacturers of digital cellularand third generation (3G) systems based on Code Division Multiple Access (CDMA) technology.[2] The CDG's mission is to lead the rapid evolution and deployment of 3G and fourth generation (4G) systems, based on open standards and encompassing all core architectures to meet the needs of markets around the world. The CDG advocates a progressive, technology-neutral approach to regulating the wireless communications

[1] Notice of Inquiry, In the Matter of Fostering Innovation and Investment in the Wireless Communications Market, GN Docket No. 09-157 and a National Broadband Plan, GN Docket 09-31, adopted August 27, 2009, released August 27, 2009 ("Notice").

[2] CDMA is a digital air interface that builds on the concept of employing a unique code to distinguish each call, enabling the most efficient use of a given spectrum range, and providing greater capacity over a wireless network. CDMA is a spread spectrum technology that allows many users to occupy the same time and frequency allocations in a given band. It is the basis of several International Telecommunication Union standards for third generation networks, i.e., CDMA2000, WCDMA/UMTS, and TD-SCDMA.

market that ensures that CDMA is allowed to co-exist and compete on an equivalent basis with other wireless standards. A transparent and non-discriminatory technology approach to allocating and authorizing spectrum for mobile operators provides certainty for investors and, most importantly, facilitates market competition which results in continued service innovation and greater consumer choices.

The substantial investment and innovation in the wireless industry over the past several years has significantly contributed to the greater availability and adoption of a broad range of telecommunication services in the United States. CDMA2000® service providers have played a leading role in this transformation; they have deployed nationwide 3G and advanced mobile broadband systems and introduced a wide variety of voice and multimedia services for the consumer, enterprise markets and public sector.

CDMA2000 is one of the International Telecommunication Union's (ITU) IMT-2000 (or 3G) mobile standards and includes the CDMA2000 1X and CDMA2000 EV-DO family of broadband technologies. As of September 2009, CDMA2000 systems have been commercially deployed in three modes of operation: CDMA2000 1X, EV-DO Release 0 (Rel. 0) and Revision A (Rev. A) and future enhancements will include 1X Advanced, EV-DO Revision B (Rev. B) and DO Advanced. EV-DO Rev. A, widely deployed in the U.S. and worldwide, is an IP-based low latency, packet data only solution, with downlink (DL) peak data rates of 3.1 Mbps, and average throughputs of 600-1400 kbps; and uplink (UL) peak data rates up to 1.8 Mbps, and average throughputs of 500-800 kbps, in 1.25 MHz carrier. EV-DO Rev. B will allow aggregating multiple 1.25 MHz Rev. A channels and will improve user data rates to up to 9.3 Mbps in downlink and 5.4 Mbps in uplink in a 5 MHz channel. The next generation EV-DO

technology, DO Advanced, will deliver higher performance, data rates of 32 Mbps in downlink and over 12.4 Mbps in uplink in 4x1.25 MHz of spectrum, and will double capacity and cell-edge data rates.

Many CDMA2000 operators are supplementing their existing networks with OFDMA technologies, such as LTE and WiMAX, to deliver advanced mobile applications that require greater network capacity and data speeds. The CDG and its members are developing solutions to ensure that CDMA2000 devices, networks and roaming will provide a seamless user experience across CDMA2000 and 4G wireless technology platforms.

CDMA2000 is one of the most widely used IMT technologies today: nearly 300 operators in over 100 countries have deployed CDMA2000 networks and served close to ½ billion users, including 130 million broadband subscribers in 2Q 2009.

CDMA2000 is the leading 3G technology in the United States. More than 40 operators offer CDMA2000 services and 19 have launched EV-DO broadband systems. As of June 2009, there were 143 million CDMA2000 subscribers, including 69 million EV-DO broadband users.[3]

CDMA2000's strong ecosystem includes many of the world's leading infrastructure providers and over 115 device manufacturers. Over 2,200 CDMA2000 devices have been introduced to the market, including over 750 supporting EV-DO broadband technologies.

[3] CDMA Development Group, September 2009

I. INTRODUCTION

Wireless technologies provide a flexible and cost-effective means to deliver voice and broadband telecommunication services, including in remote and underserved areas.[4] Wireless technologies also offer greater flexibility and opportunities for broadband access given that they do not restrict or limit users to a specific location.[5]

In the United States, there is vigorous competition among the carriers in the provision of mobile broadband services, which has gone hand-in-hand with the rapid deployment and expansion of mobile broadband networks across the country. American consumers in urban, suburban, and rural areas are enjoying mobile broadband service at ever-increasing penetration rates and data speeds. As the Commission has found in its annual reports on the U.S. wireless market, carriers have deployed competing mobile broadband technologies, which has only intensified the competition and has spurred innovation as carriers seek to differentiate their networks by providing what each claims to be the best and most advanced high-speed mobile broadband network and by offering the most robust and compelling mobile broadband services and pricing to consumers.[6]

The CDG commends the FCC for developing this Notice and seeking comment on how best to support and encourage innovation and investment in the wireless communications market. The CDG and its members look forward to continuing to work with the FCC on such issues and providing input on proposed plans and rule changes. The following comments are targeted to specific issues that the CDG feels are important in the context of wireless innovation and investment.

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[4] Comments of the CDMA Development Group, GN Docket No. 09-51, p.8.
[5] Ib.

II. SUBSTANTIAL INNOVATION AND INVESTMENT ALREADY EXIST IN THE WIRELESS INDUSTRY

In the Notice, the FCC seeks comment on "how wireless services are being used in innovative ways to solve problems and provide consumer benefit in both the private and public sectors."[7] In particular, the Commission seeks comment on innovative uses of wireless in the healthcare, energy, education, public safety and homeland security arenas.[8] The CDG notes that there has already been substantial investment and innovation in these fields, including several examples supported by CDMA technologies.

In 2008, U.S. wireless carriers reported that incremental capital expenditures in their operational systems amounted to $20.17 billion, resulting in a total cumulative capital expenditure in operational systems of more than $90 billion over the four years since 2004 (not including the billions of dollars paid to the Federal treasury for spectrum or investment in pre-operational systems).[9] This substantial investment has resulted in expanded coverage, introduction of mobile broadband services, improved quality of services and more choices for the consumer, which in turn has spurred the adoption of advanced mobile services. As the Commission's May 2009 Rural Broadband Report notes, nearly 96 percent of the U.S. population live in an area in which at least one carrier offers mobile broadband coverage.[10]

CDMA2000 operators provide prime examples of the innovation that exists in the wireless marketplace. Verizon Wireless, Sprint Nextel, U.S. Cellular, Leap Wireless,

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[6] See Thirteenth Report at Pg. 66
[7] Notice at ¶ 15.
[8] Notice ¶¶ 16-19.
[9] Comments of CTIA, GN Docket 09-51, August 31, 2009, pp 12-13.

Cellular South, and ten other carriers, have deployed CDMA2000 EV-DO Rev. A mobile broadband technology and already cover 92 percent of the U.S. population.[11] They have introduced a broad range of innovative services, such as video and high-speed Internet browsing, for consumers and broadband data services for the enterprise market, and they offer a large selection of devices, including multimedia phones, PDAs, smartphones and laptops with embedded Rev. A modules to support them.

Sprint Nextel and Verizon Wireless also offer capacity enhancement systems (AIRAVE and Wireless Network Extender respectively) using femtocells and picocells, to improve in-house coverage and user data rates for CDMA2000 broadband services. These systems act as mini cell towers by creating a licensed spectrum CDMA2000 network within a customer's home or small office, and can increase user data rates more than 10 times with proper interference management.

CDMA2000 operators have developed many unique services for a wide variety of vertical markets and the public sector. For example, in the healthcare field, Verizon offers services and products designed to improve access to patient data and reference sources, manage information and data entry, and control costs through wireless devices. Their mobile broadband solutions allow physicians and other medical professionals remote access to information and resources that enable them to respond to patient needs even when out of the office. Hospitals that have partnered with Verizon use point-of-care laptops and a secure wireless LAN infrastructure to input patient information, view

[10] See Bringing Broadband to Rural America, Report on a Rural Broadband Strategy, released May 22, 2009, at Pgs. 12-13.
[11] See Comments of Alcatel-Lucent, GN Docket 09-51, June 8, 2009.

records, capture examination information, and schedule x-rays, MRIs, and other tests.[12] In addition, Verizon has partnered with third-party application providers to provide a variety of healthcare-specific solutions designed for wireless devices including: applications that provide access to patient information; allow writing of prescriptions; enable searching of complete references for drugs, diseases and diagnostics; inventory, dispatch and delivery information for pharmacists; remote labor and delivery monitoring; and integration of various information sources.[13]

Similarly, Sprint has partnered with GE Healthcare to provide innovative wireless applications, infrastructure, software and services. The partnership meets the health care industry's desire to improve patient outcomes by enabling anywhere and anytime communication among caregivers as well as continuous, remote access to life-critical vital sign data. [14]

With respect to the energy sector, CDG members support "smart grid" initiatives, which apply advanced communications, information technology, distributed sensing, and comprehensive data management to the nation's electric grid in order to enhance reliability and optimize energy delivery, while also providing new levels of engagement to consumers, and reducing the environmental impact of the energy industry. Sprint has many years of experience as a key wireless and wireline provider for the utility industry, and works with key industry partners to provide solutions to manage the critical

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[12] Verizon Business, "Case Study: Verizon Connected Healthcare Solutions," http://www.verizonbusiness.com/resources/casestudies/cs_maimonides-medical-center_en_xg.pdf

[13] Verizon Business, "Next-Generation Solutions and Services for Healthcare Payers," http://www.verizonbusiness.com/resources/factsheets/fs_next-generation-solutions-and-services-for-healthcare-payers_en_xg.pdf

[14] See, Sprint News Release, "Methodist Healthcare Selects Sprint and GE Healthcare for Cost-Effective, Reliable Wireless Communications," April 6, 2009, available at http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1273698&highlight=

communication infrastructure needs of utilities, deliver real-time data services and assist in achieving optimal energy delivery and service quality.[15] Specifically, Sprint supports key applications such as Advanced Metering Infrastructure (AMI), SCADA, Demand-Response (DR) Distribution Management System (DMS), as well as mobile-to-mobile (M2M) applications.

In July 2009, Qualcomm and Verizon Wireless announced a joint venture to provide M2M wireless communications and smart services offerings across a wide variety of market segments, including healthcare, manufacturing, utilities, distribution and consumer products.[16] The services will include smart grid technology for utilities and options for remote healthcare monitoring.

And another innovative application with energy conservation benefits is TeleNav Vehicle Manager on the Sprint CDMA network. This application received first place at the 4th Annual CTIA Emerging Technology (E-Tech) Awards in the category of Enterprise and Vertical - General Business Solution. Launched in February 2009, the TeleNav Vehicle Manager, powered by Turnpike®, combines vehicle diagnostics and IFTA Fuel Tax filing with GPS-enabled navigation, tracking, wireless forms and wireless timecards. TeleNav Vehicle Manager helps companies of all sizes better manage their day-to-day fleet operations, reduce operating costs, reduce fuel needs, and simplify regulatory compliance.[17]

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[15] Sprint, "Sprint Supports Utility Smart Grid Initiatives across America," press release, August 11, 2009, http://investors.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle&ID=1319624&highlight=

[16] Verizon Wireless, "Verizon Wireless and Qualcomm Announce Joint Venture to Provide Advanced M2M Solutions," press release, July 28, 2009. http://investor.verizon.com/news/view.aspx?NewsID=1001

[17] *See*, Sprint News Release, "TeleNav Vehicle Manager from Sprint Receives Top Honors at CTIA," April 3, 2009, available at http://newsreleases.sprint.com/phoenix.zhtml?c=127149&p=irol-newsArticle_newsroom&ID=1273288&highlight=

CDMA2000 EV-DO broadband technologies are also being utilized by public safety agencies to enhance and support responsiveness in a cost-effective manner.[18] For example, the Alexandria (Virginia) Police Department has equipped its police cruisers with laptops running on Verizon Wireless' CDMA2000 EV-DO Rev. A network. The use of this technology means that police officers who used to have to drive and write down information provided by phone can now have mission-critical information sent directly to broadband-equipped laptops.[19]

Another example includes the Rockford, Illinois Police Department. The Department is using Sprint's DataLink network, which runs over Sprint's broadband network and can also leverage WiFi hot spots, to provide field officers seamless access to all databases and other resources usually only available at the police station.[20]

The use of CDMA2000 broadband technologies to support public safety applications results in enhanced efficiency for public safety officials in the field, as well as additional cost savings with respect to network operation and management.[21]

III. TECHNOLOGY NEUTRALITY AND NETWORK NEUTRALITY

In the Notice, the FCC seeks comment as to the level of openness of wireless networks and how that may affect the pace of innovation.[22] The CDG has long been an advocate of the concept of technology neutrality. The freedom the FCC has provided within its rules for carriers to implement whatever wireless technologies they prefer has

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[18] EV-DO Rev A, Ensuring Clear, Secure and Reliable Mission-Critical Communications, CDMA Development Group, November 2008.
[19] Ib.
[20] Ib.
[21] Ib.
[22] Notice ¶ 59.

spurred innovation and competition, leading to more efficient use of the spectrum and more capabilities and services for consumers to enjoy. With respect to broadband, the CDG believes that broadband capability should be defined in a manner that is independent of the technology used to provide it and that does not presuppose or require the use of any particular technology. As the FCC goes forward in the development of a National Broadband Plan, it should ensure that the plan promotes the use of a wide range of technologies to facilitate broadband access. The CDG believes that maintaining an environment conducive and receptive to technology neutrality will, over the long run, support and foster innovation.

While the CDG supports technology neutrality, it does not support unreasonable network neutrality requirements. Network neutrality implies that all traffic on a network is treated equally, with no provision for the network operator to manage traffic flows. The CDG believes that carriers should be able to employ reasonable network management techniques in order to maintain appropriate quality of service that consumers expect. In addition, managed networks increase consumer choice, and also protect subscribers and ensure that they have access to desired services during periods of congestion. Strict, prescriptive and unreasonable network neutrality provisions could have unintended consequences and lead to inefficiencies in network design and operation and could adversely impact network security functions. It could also reduce or distort incentives for further investment in broadband systems, as network operators may be less attracted to investments if they will not be able to deploy networks that meet their customers' high standards, including standards for reliability and quality of service.

In short, the CDG believes that the imposition of network neutrality or

nondiscrimination regulations could have a negative effect on network operation, management, reliability, and security, and thereby seriously compromise efforts to foster and promote innovation as well as investment. We note that Chairman Genachowski has announced an upcoming Notice of Proposed Rulemaking on issues related to network neutrality and that the importance of network management capabilities will be an issue addressed during that rulemaking proceeding. The CDG looks forward to a productive discussion with the FCC and among stakeholders.

IV. CONCLUSION

The CDG commends the FCC for its efforts to examine and identify policies and approaches that can support innovation and investment in the wireless marketplace. The CDG is pleased that the FCC clearly sees the critical role wireless technologies can play in the development of broadband and as a contributing factor in crafting a national broadband plan.

We would note, however, that while the FCC has commenced this Notice to solicit public comment as to how to craft suitable policies to stimulate innovation, the reality is that FCC policies have already enabled wireless networks to provide the infrastructure and technology to power innovative services and drive investment in wireless applications. The CDG encourages the FCC to continue to employ policies

that foster such innovation and allow network operators to manage their resources in a manner that provides high-quality service and reliability in order to continue to provide new services.

Respectfully submitted,

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