April 13, 2009

Dr. Bernadette McGuire-Rivera
Associate Administrator
Office of Telecommunications and Information Applications
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, N.W.
Washington, D.C. 20230

Dear Dr. McGuire-Rivera:

The CDMA Development Group (CDG) is submitting these comments in response to the Joint Request for Information released on March 10, 2009 by the U.S. Department of Commerce's National Telecommunications Information Administration (NTIA) and the U.S. Department of Agricultures' Rural Utility Service (RUS) concerning the Broadband Technology Opportunities Program (BTOP).

The CDG commends NTIA and RUS for their efforts to gather as much information as possible in order to design an effective and efficient BTOP in accordance with the goals of the American Recovery and Reinvestment Act of 2009 (ARRA).[1]

The CDG is a non-profit international consortium of over 130 companies, including the world's leading operators and manufacturers of digital cellular, personal communications services (PCS), advanced wireless services (AWS) and 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 CDMA-based systems, based on open standards and encompassing all core architectures, to meet the needs of the global marketplace.

The CDG advocates a progressive, technology-neutral approach to regulating the wireless communications market which will ensure that all technologies, including CDMA2000®,

[1] Public Law 111-5, Section 6001(b)(1) and (b)(5).
[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 1X, CDMA2000 EV-DO, WCDMA (UMTS), HSPA and TD-SCDMA.

575 ANTON BOULEVARD, SUITE 560
COSTA MESA, CALIFORNIA 92626
PHONE +1 888 800-CDMA
+1 714 545-5211
FAX +1 714 545-4601

WWW.CDG.ORG, CDG@CDG.ORG

are allowed to co-exist and compete on a fair and consistent basis – enabling the market to ultimately determine the best technological solution. A transparent and non-discriminatory regulatory approach for provisioning mobile services stimulates competition, provides certainty for investors and ensures that consumers receive the most advanced services at the lowest prices.

The CDG wishes to focus its comments on the Joint Request to the portion dealing with NTIA and the establishment of selection criteria for grant awards detailed under item 4 as follows:

> *g. Should the fact that different technologies can provide different service characteristics, such as speed and use of dedicated or shared links, be considered given that the statute's direction that, to the extent practicable, the purposes of the statue should be promoted in a technologically neutral fashion?*

The CDG believes it is critical that the NTIA and RUS consider the full range of technologies that can sustain reliable broadband connectivity across all market scenarios and topologies (urban, rural, inside buildings, etc.). Supporting "technology neutrality" is essential to the process and it will enable consideration of all transmission technologies which can provide the most advanced broadband services to these markets in an expeditious and most cost-effective manner. Moreover, this approach will allow the NTIA and RUS to focus on identifying proposals that meet other critical criteria, such as coverage, data throughputs, technology maturity, device availability, economies of scale, selection of broadband services and evolution paths to ensure that the citizens of the United States can obtain broadband access to the Internet.

In the case of wireless, CDMA2000 1xEV-DO Revision A (Rev. A) is very suitable for providing high-speed broadband connectivity to unserved and underserved areas. It is already widely deployed by service providers across the United States and worldwide to provide advanced broadband services in urban as well as rural areas.

Commercial EV-DO Rev. A networks deliver average download speeds of **600-1,200 kbps** with bursts up to **3.1 Mbps** and average upload speeds of **500-800 kbps** with bursts up to **1.8 Mbps**. With its low network latency, user and application Quality of Service (QoS) tiering and IP-based broadband architecture, it can support time-sensitive broadband applications, such as Voice over IP (VoIP), Push-to-Talk (PTT) and video telephony. Future enhancements to the EV-DO standard, which will include multicarrier, smart network and MIMO techniques, will further increase speeds to up to **32 Mbps** in downlink and **12.4 Mbps** in uplink and will improve overall performance of the service delivery and efficiencies of the network. The CDMA2000 evolution path also supports a smooth transition to next-generation OFDMA-based technologies, such as LTE and Mobile WiMAX, which will deliver advanced mobile applications that require greater network capacity and speeds. CDMA2000 operators will be the first to deploy these technologies and the CDMA industry is now developing solutions to ensure that CDMA2000 devices will provide a seamless user experience across CDMA2000 and

OFDMA-based platforms and global roaming. These solutions will leverage existing network assets to enable backward compatibility and preserve previous investments.

Building on mature and well established CDMA2000 technologies, EV-DO Rev. A is a proven and cost-effective means to provide broadband services. Commercially deployed since 2000, CDMA2000 is the leading 3G standard, with 280 operators and 460 million users worldwide, 112 million of which use EV-DO broadband systems, in many cases as a substitute to landline broadband access. In the United States, CDMA2000 is the most widely used wide area network technology, with 138 million subscribers and 52% market share. Up to 41 operators offer CDMA2000 services in the U.S., including Leap Wireless, Sprint, U.S. Cellular and Verizon, which have migrated their networks to Rev. A and currently provide coverage to more than 260 million Americans. CDMA2000's strong ecosystem includes the world's leading infrastructure providers and over 110 device manufacturers. There are more than 2,000 models of CDMA2000 devices, including 120 smartphones, PC cards, USB thumbdrives, wireless desktop modems, Wi-Fi routers and laptops which support Rev. A. All CDMA2000 devices in the United States support E-911 emergency position location services.

EV-DO Rev. A can be deployed in several spectrum bands licensed in the United States, including the 800 MHz and 1900 MHz bands already being used for mobile communications, as well as the 1.7 GHz/2.1 GHz and 700 MHz bands auctioned more recently. The range of spectrum bands and the 1.25 MHz bandwidth in which CDMA2000 EV-DO can operate enables licensees to deploy wireless broadband solutions in bands appropriate to the demographic and geographic needs of a given market. Specifically, lower bands enjoy propagation characteristics more favorable to deployment across larger and more sparsely populated regions.

The CDG welcomes this opportunity to provide comments to the NTIA regarding the BTOP. We feel strongly that the potential for success of the program will be strengthened by technology neutrality in consideration of grant applications; it will maximize the opportunities for long-term investment in infrastructure and services and will create an environment that will facilitate innovation. We would be happy to provide further information on CDMA2000 technologies, services and product availability.

Sincerely,
CDMA Development Group

Perry LaForge
Executive Director