Before the
DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, D.C. 20230

In the Matter of	)	
	)	
Request for Comments on Deployment of	)	Docket No. 011109273-1273-01
Broadband Networks and Advanced	)	RIN 0660-XX13
Telecommunications	)	

COMMENTS OF THE SATELLITE BROADCASTING AND COMMUNICATIONS ASSOCIATION/ SATELLITE INDUSTRY ASSOCIATION BROADBAND AND INTERNET DIVISION

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The Satellite Broadcasting and Communications Association ("SBCA")/Satellite Industry Association ("SIA") Broadband and Internet Division hereby presents these comments to the National Telecommunications and Information Administration ("NTIA") in response to its Request for Comments on the Deployment of Broadband Networks and Advanced Telecommunications[1] (the "*Request*"). The SBCA/SIA Broadband and Internet Division is grateful for the opportunity to make the Administration aware of the immediate beneficial impact that satellite providers can have on underserved and unserved communities by offering high-speed Internet service via two-way satellite.

The satellite industry is now a major source of service to rural areas. Satellite DBS services are provided to nearly 17 million homes. Over 7.5 million of these homes and 19.5 million of these viewers are in rural or underserved areas. Just as the satellite industry has brought multichannel

[1] Docket No. 011109273-1273-01

television services to the least densely populated areas of the United States, it is beginning to supply broadband to internet serves and has the potential to be a leading supplier of broadband services in both urban and rural areas. Satellite technology does not require access to the local telephone exchange or laying costly cable in low population density areas. By targeting a satellite beam toward a particular region of the United States, satellite-based services can reach every square mile of the country, even the most isolated areas.

Satellite services are uniquely capable of providing essential broadband services to rural and underserved areas. Although the satellite industry does not believe that there has been a market failure in the delivery of broadband services to urban America, some government intervention may be necessary to ensure that these same services are available to Americans in rural and underserved areas. Unlike terrestrial alternatives, which must make significant infrastructure investments to provide service to rural and underserved areas, satellites have the ability to provide those services today. Satellites systems are disadvantages in that the user equipment – compared to some terrestrial alternatives – is relatively expensive. Tax credits – either focused on consumers or service providers – might be effective if carefully drafted. However, the satellite industry believes that providing financial incentives to consumers through low-interest loans and loan guarantees would be the most effective way to ensure broadband access to rural and underserved areas.

Defining Broadband Service

When attempting to define "broadband," it is useful to think of broadband services in terms of "current" and "next generation" technologies. The public is served by encouraging a fast roll-out of current generation services that will significantly advantage residential and small business users in rural and underserved areas, rather than focusing on more complex and expensive solutions that have yet to find demand in the marketplace. To qualify as a "current" broadband service, a system should have an aggregate transmission rate of at least 500,000 bits per second to and from the subscriber with a minimum upload speed of 128,000 bits per second. This standard exceeds the FCC's current standard for "high speed" telecommunication services. "Next generation" services should include systems with aggregate transmission rates of at least 10,000,000 bits per second to and from the subscriber, with a minimum upload speed of 500,000 bits per second. These speeds are ten times faster than the fastest consumer broadband services available in urban areas today.

A number of satellite companies provide high-speed Internet services that reach residents in all fifty states today, and new, even more sophisticated, systems are under development. Current generation satellite broadband service uses the Ku-band of spectrum (10-15 GHz) to offer consumers up to 128 kilobits per second (kbps) uplink burst (from the consumer terminal to the satellite) and up to 400 kbps downlink bursts (from the satellite to the consumer terminal). These burst speeds are comparable to the speed that information travels over digital subscriber line (DSL) and cable modem services. As with cable modem and DSL services, user experience can vary as a result of a number of factors including the number of users on the system. Current

broadband satellite services use small terminals (0.8-1 meter diameter) located at the consumer premises. The dishes are small enough to fall under the protection of the FCC's rules for over-the-air reception devices (OTARD), which were extended in October 2000 to include terminals that both send and receive data transmissions.[2]

There is a next generation of satellite high-speed Internet service planned for this coming year, which will utilize the Ka-band of spectrum (20-30 GHz). This advanced service will offer consumers graphics, voice and video traveling at higher speeds, which will allow for more effective distance learning, telemedicine, and multicasting. The first deployment of next generation satellite broadband is scheduled for Fall 2002, by WildBlue Communications, with other systems planned soon thereafter. In August 2001, the FCC assigned additional orbital slots to eleven companies who plan to provide next-generation satellite broadband services.[3] Satellite-based systems are even being developed to enable broadband services to new markets, such as passengers on aircraft.[4] These innovative companies will make a substantial investment in providing high-speed Internet access via satellite.

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[2] *In the Matter of Promotion of Competitive Networks in Local Telecommunications Markets (WT Docket No. 99-217), Wireless Communications Association International, Inc. Petition for Rulemaking to Amend Section 1.4000 of the Commission's Rules to Preempt Restrictions on Subscriber Premises Reception or Transmission Antennas Designed to Provide Fixed Wireless Services, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 (CC Docket No. 96-98), and Review of Sections 68.104, and 68.213 of the Commission's Rules Concerning Connection of Simple Inside Wiring to the Telephone Network (CC Docket No. 88-57);* FCC Order 00-366 (rel. October 25, 2000).

[3] Companies that received authorization from the FCC in the Ka-band of spectrum are Astrolink International LLC, CAI Data Systems, Inc., Celsat America, Inc., CyberStar Licensee LLC, DirectCom Networks, Inc., EchoStar Satellite Corporation, GE American Communications, Inc., Hughes Communications, Inc., Hughes Communications Galaxy, Inc., KaStarCom World Satellite, LLC, Lockheed Martin Corporation, Loral Cyberstar, Inc., Loral Space and Communications Company, Motorolla, Inc., NetSat 28 Company LLC, Pacific Century Group, Inc., PanAmSat Corporation, Pegasus Development Corporation, TRW, Inc., VisionStar, Inc., Teledesic, and WB Holdings 1, LLC.

[4] http://www.boeing.com/news/releases/2001/q4/nr_011211a.html

Next generation Ka-band satellite Internet services will be more affordable will use smaller terminals (as small as 0.6 meters diameter), and will offer substantially higher speeds (400 kbps uplink; 2,000 kbps downlink). A downlink speed of 2,000 kbps exceeds that of a T-1 line. To increase spectrum efficiency, next generation satellite broadband service will use advanced spot-beam satellites that reuse frequencies to can increase capacity by as much as a factor of ten. The broad instantaneous coverage of satellites also make them superior to cable modems and DSL for multicasting, a technology which allows the simultaneous transmission of data, entertainment and events to a select network of sites or individuals with no increase in network capacity.

Role of Government in Broadband Deployment

For government intervention into the broadband marketplace to be effective, it should be guided by three primary objectives. First, the assistance provided should be ***financially neutral*** in that it does not favor one business model over another. Structuring tax credits and other government assistance to aid facilities-intensive terrestrial services can unfairly disadvantage satellite alternatives. Second, the assistance should be ***technologically neutral*** in that it does not attempt to choose between competing technologies. This is particularly important when defining the qualified equipment that is to benefit from any Government assistance program. Care needs to be taken to recognize that different technologies will rely on significantly different hardware. Finally, ***qualifying speeds must be set at levels that reflect realistic consumer needs***. Very high broadband speeds may offer the allure of progress but could actually dissuade the roll-out of valuable services to the most needy communities and individuals.

Satellite Broadband: Access for All

Satellite high-speed Internet distinguishes itself from every other broadband technology by its ability to provide true nationwide service. High-speed Internet users in every state in the country, including Hawaii and Alaska, have access to broadband service via satellite. According to a study conducted by the NTIA and Department of Agriculture, only five percent of towns with less than 10,000 residents have access to broadband over cable lines.[5] Cable modems are the most popular technology for broadband service,[6] and 95% of Americans who live in small towns are not able to use them. Alternately, those households that are too remote for the wired broadband providers to reach can experience high-speed Internet from any the satellite broadband companies in operation today (StarBand Communications, DIRECWAY and Pegasus Express powered by DIRECWAY).

If subscriber trends for satellite broadband follow those of Direct Broadcast Satellite ("DBS") video services, rural America will benefit the most by broadband service via satellite. In little over seven years, the market for multichannel satellite television service has grown from zero to nearly 17 million households.[7] And, according to a 2000 study by The Yankee Group, commissioned by SBCA, 35% of DBS households are somewhat or very interested in bundled services, that is, receiving both multichannel video programming and high-speed Internet service through the same dish.

[5] *Advanced Telecommunications In Rural America*, rel. April 2000.
[6] *High-Speed Services for Internet Access: Subscribership as of December 31, 2000* ("FCC Report"), rel. August 9, 2001, p. 2.
[7] *SkyResearch, November 2001*, p. 3.

In August 2001, the Federal Communications Commission (FCC) released a report on broadband deployment. It found that there are wired (DSL or coaxial cable) subscribers to broadband services in only 45% of the nation's lowest population density ZIP codes. In 25% of ZIP codes across America, there were no subscribers to wireline broadband. There is no access to wired high-speed Internet service in Alaska *at all*.[8] Eleven states have more than 40% of ZIP codes without any high-speed Internet lines.[9] Accordingly, four of those states (Arkansas, Missouri, Montana, and Nebraska) are in the top 10 for highest penetration of satellite television service.

Because of the broad footprint of satellites offering current generation broadband services, these services are available on a national basis today. However, the adoption rate of satellite services is constrained, in part, by the cost of customer equipment. Customer equipment costs are unfortunately one of the big elements in subscriber pricing, either as an upfront barrier to purchase or as a component of the monthly rate in the case of subsidized terminals. Low interest loans and loan guarantees targeted at the broadband consumer would be an effective way to spur broadband adoption and to reduce the long-term cost of user equipment. Accelerated investment tax credits for broadband systems that serve rural and underserved communities is another alternative for encouraging equity investing in satellite systems.

[8] *FCC Report* at Table 5.
[9] *Id* at p. 1.

Unique Satellite Issues

In order for satellite broadband services to best benefit consumers, there are regulatory hurdles to overcome. Specifically, satellite broadband providers need adequate spectrum in order to accommodate the anticipated high number of users while maintaining affordable access costs.

The next generation satellite broadband systems were designed to efficiently operate in the Ka band. These systems were built around the assumption that 1GHz of spectrum would be available for widely-deployed, ubiquitous earth terminals. Diminution in the available spectrum available for ubiquitous terminals will have a significant impact on the cost to users of these next-generation systems. Initially, the FCC validated the need for 1 GHz of uplink and downlink spectrum in its decision in the 28GHz proceeding.[10] However, when the FCC subsequently addressed the terms for using the companion 18 GHz downlink band, the FCC imposed rules that prevent the Ka band satellite systems from using ubiquitous terminals in 28% of the available spectrum.[11] To maintain the lowest cost and highest availability for these critical broadband services, it is essential that the full 1 GHz of Ka band spectrum available for ubiquitously-deployed satellite terminals.[12]

[10] *In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5 – 30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services,* 11FCC Rcd 19005 para,57-58, 78 (1996).
[11] *See Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use, IB Docket No. 98-172,* 15 FCC Rcd 13430, 13456 (2000).
[12] See Comments of Hughes Network Systems, Hughes Communications Galaxy, Inc., and Hughes Communications, Inc., *In the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant To Section 706 of the Telecommunications Act of 1996, CC Docket No. 98-146, FCC 01-223,* rel. August 10, 2001.

Although both wired and satellite companies ultimately will provide comparable high-speed Internet service, the way each achieves that goal is quite different. Any legislative or regulatory effort aimed to incentivize the deployment of broadband services should be a "technology neutral" plan that would not unfairly subsidize the deployment of terrestrial broadband systems more than satellites. Incentives developed for terrestrial wired companies may not be the best options for satellite providers.

To deploy terrestrial broadband systems, a company must dig a trench or build a transmission tower, install the cable and/or transmission equipment, and run a wire to or site an antenna on a home. Services are rolled out to areas where and when sufficient demand is identified and revenues can be expected quickly. Deployment is thus done incrementally, where decisions to expand are based on marginal return. As a result, tax credits focused on infrastructure investments can help to extend these networks.

In comparison, broadband satellite networks have vastly different systems architectures. In order to deploy a broadband satellite system a company must: construct a satellite(s), purchase launch services, obtain insurance against launch/on-orbit failure, install a gateway ground infrastructure, and significantly subsidize the cost of the end-user equipment. The high up-front expense, coupled with the regulatory and construction time required to put all of these in place, means that the cost recovery timeframe for satellites will likely also be longer, making the value of tax credits against distant profits of less value to satellite investors.

Clearly, regulatory and legislative policy designed to accelerate broadband deployment must acknowledge the differences between satellite technology and wired lines. Incentives for cable, DSL, and fiber optic services, which often emphasize ongoing tax breaks for incremental facilities investments, may not always be best suited to benefit the business plans of satellite broadband providers. In addition to immediate investment tax credits, financial incentives – including loans and loan guarantees – would help to fund and to encourage adoption of rural high-speed Internet services.

It is important that the entire cost associated with deploying the infrastructure of both terrestrial and satellite networks must also be taken into account when setting the qualification requirements for any tax incentive. In the case of satellite broadband networks, the associated costs must include, but not be limited to, qualifying transmit/receive antennas, the ground-based network antennas and gateway earth stations, the satellite and the launch costs (equivalent to the cost of installation).

Conclusion

Today, satellites have the capability to provide broadband internet service to anywhere in America. Next generation satellite broadband services will be more affordable and will provide significantly higher access speeds to both urban and rural Americans. The Government should support a goal of broadband service "access for all." In implementing this objective, service providers and customers must be given the freedom to adopt the most cost-effective and appropriate technology. Additionally, the government should not adopt inflexible "one size fits

all" constraints on what qualifies for broadband service, particularly in rural and underserved areas.