Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Fixed and Mobile Services in the	)	ET Docket No. 10-142
Mobile Satellite Service Bands at	)	
1525-1559 MHz and 1626.5-1660.5 MHz,	)	
1610-1626.5 MHz and 2483.5-2500 MHz,	)	
and 2000-2020 MHz and 2180-2200 MHz	)	

COMMENTS OF GLOBALSTAR, INC.

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Summary

Globalstar, Inc. ("Globalstar") since its founding has invested more than $5 billion toward the development of its global, non-geostationary ("NGSO") mobile satellite service ("MSS") network. From the beginning, Globalstar has been dedicated to providing mission-critical MSS offerings to the public, including emergency services and rural connectivity. Globalstar in recent years has focused on the development of affordable, consumer-oriented devices and services, most notably offering an innovative MSS device – the SPOT Satellite GPS Messenger – that plays a critical role in the provision of emergency and safety-of-life services to individual consumers beyond terrestrial wireless reach. Looking ahead, Globalstar next month will begin the launch of its second-generation, non-geostationary MSS constellation, which will enable Globalstar to provide reliable and effective voice and data services over the long term. After experiencing significant adversity earlier in its license term, Globalstar now has great reason to be excited about the future of its global MSS network.

At the same time, Globalstar strongly supports the Federal Communications Commission's ("Commission's" or "FCC's") goal of eliminating regulatory barriers to terrestrial use of existing MSS spectrum, while ensuring that the United States maintains its robust MSS capabilities. As the National Broadband Plan found, in order for Globalstar and other MSS licensees to realize the full public interest potential of their MSS spectrum, they need greater flexibility for the deployment of terrestrial wireless systems in that spectrum. While the Commission has previously attempted to foster terrestrial operations in the MSS bands, the overly restrictive nature of the Commission's existing MSS "ancillary terrestrial component" rules, adopted in 2003, has so far permitted only minimal terrestrial use of MSS spectrum. Accordingly, to increase terrestrial broadband investment and generate a range of critical public interest benefits, the Commission should adopt a new, more flexible regulatory framework for terrestrial operations in the MSS bands.

Under Globalstar's proposed regulatory framework, any MSS licensee demonstrating that it provides "substantial satellite service" should be granted expanded authority for terrestrial operations in its MSS band. This substantial satellite service requirement will ensure that MSS licensees satisfy their core mission of providing MSS connectivity to public safety users and consumers in rural and remote areas. In order to demonstrate "substantial satellite service," MSS licensees should be required to meet the following conditions:

- **MSS geographic coverage requirement.** All MSS licensees must comply with the Commission's applicable MSS geographic coverage requirement. For NGSO MSS licensees, the Commission should amend its current domestic geographic coverage rule to provide licensees with greater operational flexibility. Specifically, the FCC should require geographic coverage of all locations in the United States, Puerto Rico, and the U.S. Virgin Islands for at least 90% (rather than 100%) of the time, measured over a 24-hour period.

- **Continuity of coverage requirement.** MSS licensees must comply with a "continuity of coverage" requirement. NGSO MSS licensees should have to certify that, in the event of a future satellite failure, they will exercise due diligence to restore compliant MSS coverage within a reasonable period. NGSO MSS licensees should not be subject to an in-orbit spare satellite requirement, since the optimal approach for restoring NGSO MSS coverage will often be the repositioning of already-operating NGSO satellites within the existing MSS constellation.

- **Commercial availability of service.** All MSS licensees must demonstrate that their mobile satellite service is commercially available to potential customers within their satellite coverage area.

While Globalstar intends and expects to maintain ubiquitous, continuous MSS signal coverage in the United States with the launch of its second-generation MSS constellation, a more flexible NGSO MSS coverage requirement will nonetheless advance the public interest by encouraging terrestrial wireless development of Big LEO MSS spectrum. Prospective terrestrial lessees will have greater confidence that a Big LEO MSS licensee can demonstrate and maintain compliance with its domestic coverage requirement, and that their own terrestrial services will not be disrupted in the event of temporary, geographically limited MSS outages.

Another critical element of the Commission's new regulatory framework will be its policy toward satellite failures occurring *after* a grant of flexible terrestrial authority to an MSS licensee. It is essential that MSS licensees be provided reasonable time to restore compliant MSS coverage and that, during these restoration efforts, the MSS licensees and any terrestrial partners retain authority to provide terrestrial wireless service to customers. Continued terrestrial authority is necessary to protect the consumers who rely on that service and to assure prospective terrestrial operators that they will not have to terminate their operations abruptly due to satellite failures beyond those operators' control.

MSS licensees able to demonstrate substantial satellite service under this new framework should enjoy greater flexibility for terrestrial operations than permitted under the current, restrictive ATC rules. This operational flexibility – which should be similar to that enjoyed by licensees in the terrestrial wireless bands – should include the following elements:

- **No integrated services requirement.** There should be no "integrated services" requirement mandating that MSS licensees provide all customers with "dual-mode" capability. While Globalstar will make devices that provide dual-mode capability available to the public, customers in the MSS bands should be able to purchase single-mode terrestrial devices and sign up for terrestrial-only subscriptions as long as substantial satellite service is maintained.

- **Differences between satellite and terrestrial services.** MSS licensees and their terrestrial partners should be permitted to provide terrestrial wireless services that are materially different from their MSS offerings, including higher data speeds and greater functionality. Such flexibility reflects the different capabilities and limitations of terrestrial and satellite communications.

- **Technical rules and choice of technology.** The Commission's new regulatory framework should, to the extent possible, incorporate technical and operational rules for terrestrial systems in MSS spectrum that are equivalent to those rules applied to licensees in the terrestrial wireless bands. In particular, if proposed terrestrial operations in an MSS band will meet all applicable technical rules and avoid interference to other services, terrestrial operators should have authority to utilize *any* technology or protocol for terrestrial service in that MSS spectrum.

- **Spectrum leasing rules.** MSS licensees should be subject to the same, flexible secondary market rules that are applied today to terrestrial wireless licensees. These licensees and their terrestrial partners should be able to enter into either spectrum

manager leases or *de facto* transfer spectrum leases. Before entering into either type of leasing arrangement, MSS licensees and terrestrial operators will necessarily undertake careful technical coordination between their MSS operations and planned terrestrial networks. As a result, any lease agreement will incorporate the terms of such coordination.

If the Commission takes this regulatory action, Globalstar anticipates a rapid deployment of terrestrial systems in its Big LEO MSS spectrum. Globalstar's nearly 20 megahertz allotment of terrestrial use spectrum can very quickly be added to the nation's broadband "spectrum inventory." Globalstar holds 11.5 megahertz of authorized terrestrial use spectrum at 2483.5-2495 MHz, and its L-band spectrum at 1610-1617.775 enjoys unusually low interference and noise levels as well as highly favorable propagation characteristics. As a result, this segment of the L band has among the highest data-carrying potential per hertz of any existing or anticipated commercial wireless band. Moreover, the broadband utility of *all* of Globalstar's Big LEO MSS terrestrial-use spectrum is greatly enhanced by the ongoing development of software-defined radio ("SDR") systems and other frequency-agile technology. SDR systems will enable equipment manufacturers, technology vendors, and prospective terrestrial partners to utilize Globalstar's Big LEO L- and S-band spectrum as if it were one contiguous, nearly 20 megahertz band segment. At a minimum, SDR infrastructure and devices will make it easier for terrestrial wireless service providers to integrate Globalstar's Big LEO MSS spectrum into their existing terrestrial networks. In addition, Globalstar's S-band spectrum at 2483.5-2495 MHz is adjacent to Broadband Radio Service ("BRS") spectrum now being used for WiMAX and other broadband operations. As a result, Globalstar will benefit from economies of scale in the design and manufacture of consumer devices for the S band.

To make full use of these spectrum resources, Globalstar expects that it will enter into partnerships with terrestrial wireless service providers. The revenues generated from these terrestrial operations will further ensure the commercial viability of Globalstar's Big LEO MSS

network and continued coverage of rural and remote areas. With these additional revenues, Globalstar will invest in further MSS product development, rolling out new and innovative MSS offerings like its SPOT service. Once its second-generation MSS constellation and new ground segment infrastructure are in place, Globalstar will provide a new and expanded range of satellite-based services – both lower- and higher-bandwidth offerings – that will benefit consumers and the public safety community in rural and remote areas throughout the country.

Indeed, a new, more flexible regulatory framework for terrestrial operations in MSS spectrum will yield extraordinary public interest benefits. This flexibility will make more spectrum capacity available and will enable more efficient use of the MSS spectrum for mobile terrestrial services, helping to reach the National Broadband Plan's goal of securing an additional 500 MHz of spectrum for mobile broadband use. Granting greater terrestrial flexibility to Globalstar and other MSS operators can help meet the exploding consumer demand for bandwidth almost immediately, much faster than other spectrum bands that will require legislation or the relocation of incumbents before terrestrial services can be deployed.

A more flexible regulatory framework for MSS-terrestrial operations will also place MSS operators on stronger financial footing, helping to defray the substantial capital costs associated with deploying a space and ground infrastructure as well as the ongoing operational cost of providing mobile satellite services. Financially viable MSS operators will be able to maintain their critical services to the public safety community and consumers in rural and remote locations. Moreover, providing MSS licensees with greater terrestrial flexibility is consistent with the Commission's well-established policy of promoting flexible spectrum use. As the Commission has repeatedly found, allowing licensees, including incumbent licensees, to respond to consumer demand maximizes the efficient use of scarce spectrum resources, promotes innovation, and provides great benefits to consumers.

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COMMENTS OF GLOBALSTAR, INC.

Globalstar, Inc. ("Globalstar") hereby comments on the above-captioned Notice of Proposed Rulemaking and Notice of Inquiry regarding terrestrial wireless use of existing mobile satellite service ("MSS") spectrum.[1] Globalstar strongly supports the Federal Communications Commission's ("Commission's" or "FCC's") goal of eliminating regulatory barriers to terrestrial broadband operations in the MSS bands while ensuring that the United States maintains robust MSS capabilities. Since its founding, Globalstar has invested more than $5 billion toward the development of its global MSS network, and it remains committed to providing cutting-edge MSS offerings to an expanding range of customers in the U.S. and around the world. To realize the full public interest potential of the Big LEO MSS band, however, Globalstar needs greater flexibility to deploy terrestrial wireless facilities in this MSS spectrum.

In 2003, the Commission adopted rules for MSS "ancillary terrestrial component" ("ATC") operations. As the National Broadband Plan pointed out, the restrictive nature of the MSS ATC rules has "made it difficult for MSS providers to deploy ancillary terrestrial networks,

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[1] *Fixed and Mobile Services in the Mobile Satellite Service Bands at 1525-1559 MHz and 1626.5-1660.5 MHz, 1610-1626.5 MHz and 2483.5-2500 MHz, and 2000-2020 MHz and 2180-2200 MHz*, ET Docket No. 10-142, Notice of Proposed Rulemaking and Notice of Inquiry, FCC 10-126 (rel. July 15, 2010) ("*NPRM/NOI*").

as well as to establish partnerships with wireless providers or other well-capitalized potential entrants."[2] After seven years of little terrestrial activity in the MSS bands, it is time for the Commission to adopt a new, more flexible regulatory framework for terrestrial operations in MSS spectrum. Under this framework, MSS licensees that provide substantial satellite coverage and make their MSS offerings commercially available to the public should have flexibility for terrestrial operations similar to that enjoyed by licensees in terrestrial wireless bands. Specifically, they should have greater flexibility with respect to end-user equipment, customer subscriptions, the kinds of services provided, choice of technology, and lease arrangements with terrestrial operators. Once Globalstar has such flexibility and is operating its soon-to-be launched second-generation MSS constellation and its new ground segment infrastructure, innovative new services and products will be deployed in its spectrum – both satellite-based and terrestrial offerings – that will greatly benefit customers in the U.S. and elsewhere.

This forward-looking regulatory action will generate extraordinary public interest benefits. Greater terrestrial flexibility in MSS spectrum will make additional spectrum capacity almost immediately available for mobile broadband services, helping the Commission to reach the National Broadband Plan's goal of securing an additional 500 MHz of spectrum for mobile broadband use. Greater flexibility will also re-invigorate the financial viability of Globalstar and other MSS licensees, enabling them to maintain their critical services to the public safety community and consumers in rural and remote locations. Finally, by maximizing spectrum efficiency in the MSS bands, the Commission will stimulate innovation, economic growth, and improved services for consumers.

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[2] *See* FCC, "Connecting America: The National Broadband Plan," at 88 (rel. March 16, 2010), *available at*: <http://download.broadband.gov/plan/national-broadband-plan.pdf> ("National Broadband Plan").

I. GLOBALSTAR'S VISION FOR THE FUTURE OF THE BIG LEO MSS BAND, ITS COMMITMENT TO CONSUMERS, AND THE LAUNCH OF ITS SECOND-GENERATION MSS CONSTELLATION

Globalstar's First-Generation Big LEO MSS System and Service to Consumers. In 1995, the FCC authorized Globalstar to construct, launch, and operate a "Big LEO" MSS system.[3] Globalstar is licensed for uplink transmissions (mobile earth stations to satellites) in the L band at 1610-1618.725 MHz, and for downlink transmissions (satellites to mobile earth stations) in the S band at 2483.5-2500 MHz.[4] Today, Globalstar's MSS network consists of 44 in-orbit NGSO satellites and 27 ground stations located around the world. As discussed further below, the FCC has also authorized Globalstar to operate ATC facilities in 19.275 megahertz of spectrum, in the L band at 1610-1617.775 MHz and in the S band at 2483.5-2495 MHz.[5] To date, Globalstar is the only MSS operator to have deployed ATC services.

To construct, launch, and operate its first-generation Big LEO MSS constellation and ground network infrastructure, Globalstar invested more than $4 billion in the years before and after it obtained its MSS license. Globalstar initiated commercial service in 2000, and, based primarily on its duplex voice and data offerings, it enjoyed an approximately 30% annual growth in subscribership and revenues from 2003 to 2006. In early 2007, Globalstar's first-generation

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[3] *Application of Loral/Qualcomm Partnership, L.P. For Authority to Construct, Launch, and Operate Globalstar, a Low Earth Orbit Satellite System to Provide Mobile Satellite Services in the 1610-1626.5 MHz/2483.5-2500 MHz Bands*, Order and Authorization, 10 FCC Rcd 2333 (IB 1995); *see also Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, Second Order on Reconsideration, Second Report and Order, and Notice of Proposed Rulemaking, 22 FCC Rcd 19733, ¶¶ 8, 18-20 (2007).

[4] Iridium is authorized to share spectrum with Globalstar at 1617.775-1618.725 MHz.

[5] *Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Bands; Globalstar Licensee LLC, Authority to Implement an Ancillary Terrestrial Component*, Report and Order and Order Proposing Modification, 23 FCC Rcd 7210, ¶¶ 20, 30 (2008).

constellation suffered an unanticipated degradation of its S-band capability that temporarily precluded consistently reliable duplex voice and data services, but Globalstar has since reemerged with a new, energetic focus on affordable consumer-based simplex services. Globalstar has developed an innovative, hand-held personal tracking and emergency messaging product category by combining a GPS receiver with a multi-featured MSS L-band transmitter. From any location in Globalstar's global MSS footprint, Globalstar's SPOT Satellite GPS Messenger ("SPOT") can transmit a user's GPS coordinates as well as status updates to any e-mail, handheld device, or smartphone address in the world.[6] Since entering the consumer market in November 2007, the SPOT device has played a critical role in the provision of emergency and safety-of-life services to individual consumers beyond terrestrial wireless reach. To date, the SPOT device has been used to initiate more than 650 rescues in over 50 countries on land and at sea.

In addition to its substantial public safety benefits, Globalstar's SPOT product line has been a commercial success, and Globalstar continues to develop and roll out new products and services that use this innovative technology.[7] As a result of this ongoing effort, Globalstar remains the world's largest provider of mobile satellite voice and data services by subscriber count. Globalstar provides affordable, high-quality data service to over 400,000 customers in

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[6] *See* Globalcom Press Release, *SPOT Satellite Messenger and Globalstar*, *available at*: <http://www.globalcomsatphone.com/spot/spot_globalstar.html> (viewed Sept. 15, 2010). The SPOT device can be used to track a customer's location, or to send an "OK" message, a non-urgent "HELP" message, or an SOS message requesting emergency assistance. Overall, Globalstar has shipped more than 250,000 SPOTs into its distribution channels.

[7] Globalstar and DeLorme recently received a "best in show" award at the Outdoor Retailer trade show in Salt Lake City for their DeLorme Earthmate PN-60w/SPOT Satellite Communicator device which allows custom messaging via Globalstar. *See* Globalstar Press Release, *SPOT and DeLorme Receive "Best in Show" Award at Outdoor Retailer* (Aug. 18, 2010), *available at*: <http://www.globalstar.com/en/news/pressreleases/press_display.php?pressId=625>.

120 countries,[8] and Globalstar's products and services are offered through over 10,000 retail points of distribution and approximately 2,000 vertical market and business-to-business distribution outlets around the world, as well as through multiple on-line retail sites.

Globalstar's Second-Generation Big LEO MSS Constellation. By mid-2011, Globalstar expects to become the first global LEO MSS voice and data company to deploy a state-of-the-art, second-generation MSS constellation that will enable *anyone* to stay connected beyond the reach of traditional terrestrial wireless networks. In 2006-2007, Globalstar initially entered into contracts with Thales Alenia Space and Arianespace for the construction and launch of 48 satellites for its second-generation MSS constellation, expected to operate through 2025. Globalstar has fully funded and almost entirely spent the $900 million cost of designing, manufacturing, delivering, and launching the first 24 satellites of this constellation.[9] In August, Thales Alenia Space delivered the first six second-generation satellites to Globalstar in Rome, Italy, and these satellites have been shipped to the Baikonur Cosmodrome in Kazakhstan for a scheduled launch on October 19, 2010.[10] Based on Arianespace's current schedule, Globalstar's initial 24 second-generation satellites will be fully launched by summer 2011.

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[8] In addition to individual consumers, Globalstar's customers include entities in government, the military, emergency preparedness, transportation, heavy construction, oil and gas, mining, forestry, and commercial fishing. For these government and business customers, Globalstar's data solutions are ideal for asset and personal tracking, data monitoring, and supervisory control and data acquisition ("SCADA") applications. Globalstar's services are available in all areas of the world, except in central and southern Africa, Southeast Asia, and the Indian subcontinent, areas in which Globalstar is working diligently to expand coverage.

[9] This funding also enabled Globalstar to continue to develop its next-generation ground segment. Globalstar has contracted with Thales Alenia to upgrade its satellite operations and control center, and with Hughes Network Systems to deliver next-generation ground network equipment, software upgrades, and satellite handset chipsets.

[10] *See* Globalstar Press Release, *Go for Launch – Globalstar Announces Satellite Launch Date* (Sep. 7, 2010), *available at*: <http://www.globalstar.com/en/news/pressreleases/press_display.php?pressId=629>.

Once launched, these new satellites will be integrated with eight replacement satellites launched in 2007 to form Globalstar's 32-satellite, second-generation MSS constellation. With its new constellation and ground systems in place, Globalstar will restore consistently reliable service quality to existing voice and duplex data customers.[11] Globalstar will also be able to provide current and future customers with new service features including advanced (and affordable) voice, two-way data, and messaging services, with uplink data speeds of 256 kbps and downlink data speeds of up to 768 kbps for fixed service and up to 256 kbps for mobile service.[12] These second-generation offerings promise great benefits in rural and remote areas, including Native American Tribal Lands,[13] and will bolster competition in the global marketplace for satellite services.

Globalstar's Vision for the Big LEO MSS Band. Globalstar currently holds approximately 20 megahertz of spectrum in the L and S bands that can be used for terrestrial operations, and it has sought to maximize the use of this spectrum under the existing MSS ATC regulatory framework. In October 2008, Globalstar obtained modified ATC authority to partner with Open Range Communications, Inc. ("Open Range"), thereby becoming the first and so far

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[11] Globalstar's second-generation satellites will be fully compatible with its first-generation mobile satellite products and services. With each of the four second-generation launches, Globalstar's existing voice and duplex data customers can expect progressive improvement in availability, reliability, and overall service quality.

[12] In addition to supporting higher data speeds, Globalstar's second-generation satellites have been improved to guard against radiation damage to the antenna subsystems, which may have caused the S-band anomaly in its first-generation satellites.

[13] Globalstar's subsidiary, Globalstar Broadband Services, Inc., in June 2010 submitted an application with the Rural Utilities Service ("RUS") for funding for satellite service to Native American Tribal Lands. The RUS to date has not yet acted on this application.

only MSS operator to use its ATC authority for the provision of wireless broadband service to consumers.[14]

Looking forward, Globalstar's licensed Big LEO MSS spectrum is uniquely positioned to support the simultaneous, robust build-out of mobile satellite and terrestrial mobile broadband services. Globalstar's nearly 20 megahertz allotment of terrestrial use spectrum – not just 10 megahertz as initially indicated in the National Broadband Plan – can potentially be added to the nation's broadband "spectrum inventory." Contrary to the Plan's suggestion,[15] Globalstar's S-band segment at 2483.5-2495 MHz and its L-band segment at 1610-1617.775 can both support a variety of terrestrial mobile broadband applications and services. Globalstar's portion of the L band enjoys unusually low interference and noise levels as well as highly favorable propagation characteristics, and, as a result, this band segment has among the highest data-carrying potential per hertz of any existing or anticipated commercial wireless band. In any event, the terrestrial bandwidth requirements in Globalstar's L-band uplink spectrum will be substantially less than in its downlink frequencies at 2483.5-2495 MHz, since most bandwidth consumption occurs on the downlink side (by a ratio of approximately 5:1). Accordingly, in practice, the quantitative asymmetry between Globalstar's L- and S-band terrestrial use spectrum will not limit the usefulness of this spectrum for terrestrial operations.

Moreover, the broadband utility of *all* of Globalstar's Big LEO MSS terrestrial-use spectrum is greatly enhanced by the ongoing development of software-defined radio ("SDR")

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[14] *See Globalstar Licensee LLC; Application for Modification of License for Operation of Ancillary Terrestrial Component Facilities*, Order and Authorization, 23 FCC Rcd 15975 (2008) ("*Globalstar-Open Range Order*"). Globalstar first gained ATC authority in January 2006. *Globalstar LLC Request for Authority to Implement an Ancillary Terrestrial Component for the Globalstar Big LEO Mobile Satellite Service System*, Order and Authorization, 21 FCC Rcd 398 (2006).

[15] National Broadband Plan at 87; *NPRM/NOI* ¶ 1.

systems and other frequency-agile technology. While Globalstar's nearly 20 megahertz of authorized terrestrial spectrum is divided between the Big LEO L and S bands, SDR systems and other frequency-agile technology will enable equipment manufacturers, technology vendors, and prospective terrestrial partners to utilize the 1610-1617.775 MHz/2483.5-2495 MHz band as if it were one contiguous, nearly 20 megahertz band segment.[16] At a minimum, SDR infrastructure and devices will make it far easier for terrestrial wireless service providers to integrate Globalstar's Big LEO MSS spectrum into their own existing terrestrial networks.

It is also significant that Globalstar's spectrum at 2483.5-2495 MHz is adjacent to Broadband Radio Service ("BRS") spectrum in which BRS licensees are deploying WiMAX and other broadband devices. As a result, Globalstar will benefit from economies of scale in the design and manufacture of consumer devices. In fact, Globalstar and certain equipment vendors have proactively discussed working in the standards bodies to create standards for terrestrial mobile broadband devices and equipment for the Big LEO MSS band.

Given these factors, Globalstar believes that it could quickly make its nearly 20 megahertz of spectrum a key new part of the nation's broadband spectrum inventory, and that it is prevented from doing so only by the constraints of the current MSS ATC framework. In contrast, other available sources of spectrum identified in the National Broadband Plan cannot be utilized for mobile broadband operations in the near term.[17] Spectrum currently occupied by television broadcast licensees and federal government users is unlikely to become available for

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[16] Software-defined radios are radios that include transmitters in which the operating parameters (such as frequency range and output power), or the circumstances under which the transmitter operates, can be modified without making any changes to hardware components that affect RF emissions. Utilizing SDR technology, both cell sites and smart end-user devices can operate over an extremely broad range of frequencies and can be programmed to use additional frequency bands long after they have left the factory.

[17] National Broadband Plan at 84-93.

commercial mobile broadband anytime soon. In addition, while other MSS licensees' frequencies will likely be available for terrestrial use earlier than broadcast and federal government spectrum, certain of those licensees face significant financial issues that will likely delay any broadband deployments.[18]

If the Commission takes the regulatory actions proposed in Section II below, Globalstar anticipates a robust deployment of terrestrial systems in its Big LEO MSS spectrum. The revenues generated from these terrestrial operations will further ensure the commercial viability of its global Big LEO MSS network. With these additional revenues, Globalstar will invest in further MSS product development, rolling out new and innovative MSS offerings like its SPOT service. Once its second-generation MSS constellation and ground infrastructure are in place, Globalstar will provide a new and expanded range of satellite-based services – both lower- and higher-bandwidth offerings – that will benefit consumers and the public safety community in rural and remote areas throughout the country.

II. MSS LICENSEES THAT PROVIDE "SUBSTANTIAL SATELLITE SERVICE" SHOULD BE GRANTED SUBSTANTIAL FLEXIBILITY FOR TERRESTRIAL OPERATIONS IN THEIR MSS SPECTRUM

The Commission adopted its regulatory framework for MSS ATC operations seven years ago, with the goal of enabling MSS operators to deploy terrestrial wireless facilities to enhance MSS coverage in areas where their satellite signals could not be received.[19] Because of the MSS ATC regime's restrictive and costly "gating" requirements, however, including the requirement

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[18] In the 2 GHz MSS band, TerreStar and DBSD are both confronting significant financial problems. TerreStar Corp., Quarterly Report (Form 10-Q), at 32 (Aug. 6, 2010); ICO Global Communications (Holdings) Limited, Quarterly report (Form 10-Q), at 8 (Aug. 5, 2010).

[19] *See Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd 1962 (2003) ("*2003 ATC Order*").

that an operator's satellite and terrestrial offerings be sufficiently "integrated," so far Globalstar alone has been able to use ATC authority for the provision of terrestrial wireless services, and only pursuant to certain operational waivers. As long as these regulatory barriers remain in place, investment in mobile broadband in the MSS bands will continue to be limited. Accordingly, Globalstar urges that the Commission fundamentally depart from the current MSS ATC regime by issuing a Notice of Proposed Rulemaking that proposes a less prescriptive, more flexible regulatory framework for terrestrial operations in MSS spectrum. With this new approach, the Commission can make the Big LEO MSS band and other MSS spectrum "permanently suitable for terrestrial broadband deployments," as called for by the National Broadband Plan.

A. The Commission Should Adopt a More Flexible Definition of "Substantial Satellite Service"

Under the current MSS ATC regime, the Commission requires that an MSS licensee demonstrate "substantial satellite service" and meet certain other "gating" requirements in order to obtain ATC authority. Under a new, more flexible regulatory framework for MSS-terrestrial operations, a demonstration of "substantial satellite service" should be the sole prerequisite to a grant of expanded terrestrial authority in MSS spectrum. Moreover, the Commission's new regulatory framework should incorporate a revised definition of "substantial satellite service," one that ensures that MSS licensees satisfy their core mission of providing MSS connectivity to public safety users and consumers in rural and remote areas. As described below, this new definition should include a more flexible geographic coverage requirement for NGSO MSS operators, and should eliminate the wasteful spare satellite requirement for NGSO MSS licensees.

1. *Geographic coverage requirement*

Under the Commission's existing MSS ATC framework, an MSS licensee applying for ATC authority must satisfy a geographic coverage requirement that is equivalent to the

Commission's underlying geographic coverage requirement for MSS systems of that type (*e.g.*, GSO or NGSO).[20] In its new regulatory framework for MSS-terrestrial operations, the Commission should similarly require compliance with the applicable underlying MSS coverage requirement. For the reasons described below, however, Globalstar believes that the Commission should reexamine the specific technical requirements contained in its underlying geographic coverage rule for Big LEO MSS systems. The Commission should address this issue in its future *NPRM* on terrestrial operations in MSS spectrum.

Under the FCC's current geographic coverage rule for NGSO MSS systems, adopted in 1994,[21] a Big LEO MSS applicant had to propose a system that, for global coverage, would be "capable of providing mobile satellite services to all locations as far north as 70 deg. North latitude and as far south as 55 deg. South latitude for at least 75% of every 24-hour period," and that, for domestic coverage, would be "capable of providing mobile satellite services on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands."[22] Under this rule, an NGSO system is assumed to be capable of providing service if "at least one satellite [is] visible above the horizon at an elevation angle of at least 5 degrees."[23] Following a license grant, these application requirements were presumed to apply to a Big LEO MSS licensee for the life of its authorized, operational MSS system.

Globalstar now urges the Commission to adopt a more flexible domestic coverage requirement for operational Big LEO MSS systems that would require service to all locations in

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20 *See* 47 C.F.R. §§ 25.143(b)(2); 25.149(b)(1).

21 *Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands*, Report and Order, 9 FCC Rcd 5936 (1994) ("*Big LEO Service Rules Order*").

22 47 C.F.R. § 25.143(b)(2)(ii), (iii).

23 *Id.*

the United States, Puerto Rico, and the U.S. Virgin Islands for at least *90%* of the time, measured over a 24-hour period. This more flexible requirement would promote greater use of Big LEO MSS spectrum, a benefit that would outweigh any potential incremental or periodic reduction in coverage resulting from this change. In its 1994 *Big LEO Service Rules Order*, the Commission stated that the current NGSO MSS coverage requirement would "furthe[r] the creation of the global information infrastructure" and ensure "efficient and ubiquitous voice service to users throughout the United States."[24] Globalstar appreciates and continues to support these goals, but, sixteen years later, the reality is that the current coverage requirement is not necessary to realize the public interest benefits of MSS in the United States and elsewhere. A Big LEO MSS operator complying with the new coverage requirement proposed above would fully meet its customers' MSS needs, including in rural and remote areas.

Moreover, the proposed coverage requirement would constitute only a geographic coverage "floor" for NGSO MSS licensees, and would not prevent these licensees from providing more extensive MSS coverage. For its part, Globalstar intends and expects to maintain ubiquitous, continuous MSS signal coverage in the United States with the launch of its second-generation MSS constellation. Certainly, given the competition among MSS providers, Globalstar and other MSS licensees will have strong incentive to maximize their coverage on the surface of the earth in order to attract and retain customers in the United States and worldwide.[25]

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24 *Big LEO Service Rules Order* ¶¶ 21, 24.

25 As it described in its recent comments in the Commission's satellite competition docket, Globalstar competes vigorously with the two other global MSS providers, Inmarsat and Iridium, and also competes with regional mobile satellite communications services that are available in several areas of the world. Globalstar competes as well with Fixed Satellite Service ("FSS") operators that offer communications services to business customers through private networks using very small aperture terminals ("VSATs"). *See* Comments of Globalstar Licensee, LLC, IB Docket No. 10-99 (Aug. 23, 2010).

A more flexible NGSO coverage requirement would have substantial public interest benefits, likely increasing terrestrial operators' interest in the Big LEO MSS band and encouraging investment in mobile broadband. Prospective terrestrial lessees would have greater confidence that a Big LEO MSS licensee could demonstrate and maintain compliance with the Commission's coverage requirement, even in the event of temporary, geographically limited MSS outages. In turn, these terrestrial operators would have greater assurance that their own terrestrial wireless service would not be disrupted by any such limited gaps in satellite coverage.

2. *Continuity of coverage requirement*

To provide "substantial satellite service" under the Commission's existing MSS ATC framework, NGSO MSS licensees must have available at least one in-orbit spare satellite, while GSO MSS licensees must have at least one ground spare available within one year of obtaining ATC authority. In its 2003 *MSS ATC Order*, the FCC imposed these spare satellite requirements to ensure that MSS licensees seeking ATC authority would provide continuous MSS coverage. The Commission's view was that, in the event of satellite failure, the availability of spares would enable MSS operators to restore full coverage and service within a reasonable period.[26]

In moving to a more flexible framework for MSS-terrestrial operations, the Commission should eliminate its in-orbit spare requirement for NGSO MSS licensees. An NGSO MSS operator might maintain several in-orbit spare satellites to replace failed satellites immediately in some circumstances. This approach becomes economically and operationally infeasible, however, as an NGSO constellation ages or when, as in Globalstar's case, a systemic anomaly causes an unanticipated number of satellite failures. In such scenarios, the deployment of multiple NGSO satellites – at a per launch cost of approximately $150 million for the satellites,

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26 *2003 ATC Order* ¶¶ 78-84.

launch services, and insurance – will likely be necessary to maintain compliance with the in-orbit spare requirement. Furthermore, activating a spare satellite may not even be an NGSO MSS operator's most technically efficient or effective option for restoring full signal coverage in the event of a satellite failure. Instead, given the redundancies built into an NGSO constellation, the optimal approach for restoring Big LEO MSS coverage will often be the repositioning of already-operating satellites within that constellation.[27] Accordingly, rather than require NGSO MSS licensees to allocate scarce financial and operational resources to the construction and launch of in-orbit spares, the Commission should permit those licensees to determine the best technical means of re-establishing compliant MSS coverage over a reasonable period. In place of its rigid in-orbit spare requirement, the Commission should require Big LEO MSS licensees applying for expanded terrestrial authority to certify that, in the event of a future satellite failure, they will exercise due diligence to restore compliant MSS coverage within a reasonable period.

The Commission's new MSS-terrestrial framework should be similarly efficient and flexible with respect to satellite failures that occur following a grant of expanded terrestrial authority to an NGSO MSS licensee. Rather than establish a "one size fits all" timeframe for restoring compliant MSS coverage (*i.e.*, under Globalstar's proposal, restoring coverage to all U.S. locations for at least 90% of the time, measured over a 24-hour period), the FCC should determine the appropriate deadline on a case-by-case basis, with terrestrial operations authorized to continue until that deadline.[28] Indeed, to promote terrestrial broadband investment and

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[27] *See, e.g.*, Public Notice, *Policy Branch Information; Actions Taken*, 20 FCC Rcd 2284 (2005), DA 05-316 at 1-2 (authorizing Globalstar to reconfigure its constellation of in-orbit satellites as a 40-satellite Walker array).

[28] This approach could include a requirement that the NGSO MSS operator regularly report to the Commission on its efforts to restore compliant MSS coverage. Under the Commission's existing rules, an MSS licensee with ATC authority is already required to report any satellite failures to the FCC within ten days. 47 C.F.R. § 25.149(b)(2)(iii).

deployment in MSS spectrum, it is fundamentally important that, during the effort to restore compliant MSS coverage, the MSS operator and its terrestrial partners retain authority to use its MSS spectrum to provide terrestrial wireless service to customers.[29] This approach is essential to protecting the interests of consumers around the country, particularly in rural, remote, and underserved areas. Consumers who rely on an MSS-based terrestrial wireless service to meet their broadband needs should not lose access to that service because of a satellite failure. This policy is also critical to providing prospective terrestrial lessees with assurance that they will not have the "rug pulled out from under them" in the event of a satellite failure entirely outside those lessees' control. Potential broadband lessees that lack certainty and that fear extended service interruptions are unlikely to pursue spectrum leasing arrangements with Globalstar or other MSS licensees. As the Commission considers its policy options in this proceeding, it must recognize the investment-stifling impact of a rigid regulatory framework that mandates the abrupt suspension of terrestrial service to consumers.[30]

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[29] In conjunction with non-U.S. regulatory frameworks that are similar to the Commission's existing MSS ATC regime, other administrations have recognized that terrestrial operators in MSS spectrum should not be required to abruptly suspend their service to customers in the event of a satellite failure. *See Spectrum and Licensing Policy to Permit Ancillary Terrestrial Mobile Services as Part of Mobile-Satellite Service Offerings*, Industry Canada, RP-023, Section 5(c)(x) (May 2004), *available at*: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08174.html> (requiring ATC applicants to certify that they will cease terrestrial service "within a reasonable period" if satellite service is discontinued); *Decision of the European Parliament and of the Council on the Selection and Authorisation of Systems Providing Mobile Satellite Services*, Commission of the European Communities, at 16-17, Article 8, ¶ 3(c) (Aug. 22, 2007), *available at*: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0480:FIN:EN:PDF> (stating that independent operation of terrestrial systems in the event of satellite failure shall not exceed 18 months).

[30] A flexible policy that permits continued terrestrial wireless operations even after a catastrophic satellite failure will also promote spectrum efficiency, enabling an NGSO MSS licensee and its terrestrial lessees to make intensive use of the MSS spectrum while new satellite systems are being manufactured and launched. In contrast, if terrestrial operations are suspended, an MSS licensee's spectrum will simply lie fallow during that period.

3. *Commercial availability requirement*

To obtain expanded terrestrial authority under the new MSS-terrestrial framework, an MSS licensee must also demonstrate that its mobile satellite service is commercially available to potential customers within its area of geographic coverage.

B. Greater Flexibility for MSS-Terrestrial Operations Should Apply to End-User Equipment, Services, Technology, and Spectrum Leasing

Under the Commission's new MSS-terrestrial framework, MSS licensees demonstrating "substantial satellite service" should have significantly greater flexibility for terrestrial operations than MSS licensees that are currently constrained by the restrictive MSS ATC regime. This operational flexibility should be similar to that enjoyed by licensees in terrestrial wireless bands. Such flexibility should apply to an operator's end-user equipment, customer relationships, service characteristics, technology, and spectrum lease arrangements.

1. *No integrated services requirement*

The FCC's new framework for MSS-terrestrial operations should not include any "integrated services" requirement that, in effect, mandates that all terrestrial devices operating over MSS spectrum be dual-mode.[31] Since the 2003 *MSS ATC Order*, it has become clear to Globalstar that dual-mode MSS-terrestrial devices have limited commercial appeal to individual consumers and even to most government and business customers. As a general matter, customers interested in receiving satellite service prefer a single-mode satellite device, while customers interested in terrestrial service favor a single-mode terrestrial handset. Given these

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[31] Under Section 25.149 of the Commission's rules, an MSS licensee can satisfy the Commission's "integrated services" requirement by demonstrating that it will use a dual-mode handset that can communicate with both the MSS network and the MSS ATC component to provide the proposed ATC service. As an alternative to this dual-mode "safe harbor," an MSS licensee can provide "other evidence" establishing that it will provide an integrated service offering to the public. 47 C.F.R. § 25.149(b)(4)(i), (ii).

consumer preferences, the primary effect of the Commission's existing dual-mode requirement has been to discourage the development of terrestrial operations in MSS spectrum. To promote greater use of the MSS bands, the Commission should adopt a more flexible approach that permits customers (i) to purchase single-mode terrestrial devices that operate in MSS spectrum, and (ii) to sign up for terrestrial-only subscriptions from service providers operating in MSS spectrum.

The absence of a dual-mode requirement in the new MSS-terrestrial framework would *not* eliminate dual-mode capability from the marketplace. A percentage of customers greatly values dual-mode functionality, and for competitive reasons most MSS operators will likely offer equipment that provide such capability. Indeed, Globalstar is developing devices that provide dual-mode functionality, particularly for first responders and other public safety personnel. Globalstar also believes that the Commission should adopt a more flexible approach toward the issue of dual-mode capability, one that focuses on how efficiently and effectively the end user can communicate with both the satellite and terrestrial networks rather than on the physical configuration of the customer's equipment Under this approach, "dual-mode" capability would encompass the operation of two physically separate devices that, when used in tandem, enable communication with an MSS operator's satellites. This more flexible approach would account for the emergence of innovative new technologies; equipment designers and manufacturers are developing ever smaller, less expensive MSS devices that can link single-mode terrestrial handsets to the MSS network. The fact that these new MSS devices are not contained within the physical casing of a terrestrial handset does not diminish the dual-mode functionality of this combined operation.

In addition, while customers should be permitted to sign up for terrestrial-only subscriptions from service providers operating in the Big LEO MSS band, Globalstar anticipates that any terrestrial wireless partners utilizing its spectrum will offer subscriptions to Globalstar's MSS offerings as well. Thus, at the point of sale, potential customers will always have the option of signing up for Globalstar's satellite-only service, for terrestrial-only service, for separate satellite *and* terrestrial services, or for service that provides dual-mode MSS-terrestrial capability.

2. *Differences in satellite and terrestrial services*

The Commission's new MSS-terrestrial framework should also permit terrestrial operators in an MSS licensee's spectrum to provide terrestrial wireless services that have higher data speeds and greater functionality than the MSS operator's satellite-based offerings. Given the inherent differences between satellite and terrestrial wireless networks, it makes no sense to limit terrestrial operations to services that are "materially equivalent" to available mobile satellite services. Terrestrial wireless mobile technology currently supports higher-bandwidth services than MSS mobile technology, a reality that will not change with the launch of operators' next-generation MSS systems, including Globalstar's new MSS constellation. Accordingly, to encourage broadband deployment in MSS spectrum, the Commission should permit terrestrial lessees to provide services and products that are substantially different from MSS offerings.

Such flexibility is also a logical response to the different ways in which satellite and terrestrial wireless networks evolve over time. MSS systems are designed, constructed, and launched over extended timeframes, and, once in orbit, satellite hardware cannot be modified.[32]

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[32] Globalstar can upgrade its ground-based infrastructure in order to improve its services and features incrementally over time, as it has done in recent years with the development of the

In contrast, terrestrial operators have physical access to all of their facilities. As a result, terrestrial carriers can make continual upgrades to their wireless networks, and, by utilizing new technologies, they can sometimes achieve sudden, dramatic improvements in their services. Given this critical difference, the Commission should allow terrestrial operations in the MSS bands to evolve independently from the development of an MSS operator's satellite services. Such an approach would encourage innovation and benefit consumers.

3. *Technical rules and choice of technology*

The Commission's new, more flexible regulatory framework should, to the extent possible, incorporate technical and operational rules for terrestrial systems in MSS spectrum that are equivalent to those rules currently applied to licensees in allocated terrestrial wireless bands. In particular, as is standard in the terrestrial wireless industry today, an MSS licensee and its terrestrial partners should not be required to seek operational authority from the Commission on a technology-by-technology basis. Under this flexible approach, if an otherwise qualified MSS licensee can make a basic showing that its proposed terrestrial systems will not cause harmful interference to other services, it should be granted authority to utilize *any* technology or protocol (*e.g.*, WiMAX, Long Term Evolution) for those terrestrial operations in its MSS spectrum.

4. *Spectrum leasing rules*

In the *NPRM* portion of its *NPRM/NOI*, the Commission asks whether MSS licensees should be subject to the same flexible secondary market rules that are currently applied to terrestrial wireless licensees.[33] Globalstar supports this proposal and urges the Commission to move quickly to a Report and Order extending its existing spectrum leasing rules to licensees in

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SPOT device. The lack of physical access to its satellites, however, places fundamental limits on the scale of these service improvements.

[33] *NPRM/NOI* ¶¶ 17-25.

the MSS bands, including the Big LEO MSS band, as a first step toward a new MSS-terrestrial framework.[34] Like terrestrial wireless licensees, MSS licensees should be free to enter into either spectrum manager leases or *de facto* transfer spectrum leases. Before entering into either type of leasing arrangement, MSS licensees and terrestrial operators will necessarily undertake careful technical coordination between their MSS operations and the planned terrestrial networks. As a result, any lease agreement will incorporate the terms of such coordination, thereby ensuring that terrestrial wireless operators take the steps necessary to operate in MSS spectrum on an acceptable basis.

III. GRANTING MSS LICENSEES GREATER FLEXIBILITY FOR TERRESTRIAL OPERATIONS WILL BENEFIT CONSUMERS AND GENERATE SUBSTANTIAL PUBLIC INTEREST BENEFITS

In permitting MSS ATC operations in 2003, the Commission concluded that its new rules would advance the public interest by facilitating increased network capacity, more efficient use of spectrum, extension of coverage to places where MSS operators have previously been unable to offer reliable service, improved emergency communications, enhanced competition, and economies of scale in handset manufacture.[35] Seven years later, by adopting a more flexible regulatory framework for terrestrial operations in MSS spectrum, the Commission can realize all of these public interest benefits and also help achieve the additional goals described in the National Broadband Plan and the *NPRM/NOI*. As described below, this action will promote investment in mobile broadband, stimulate economic growth, revitalize MSS operations in the U.S. and globally, and improve services for consumers and the public safety community.

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[34] *See, e.g., Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, Report and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 20604 (2003); 47 C.F.R. §§ 1.9001–1.9080.

[35] *2003 ATC Order* ¶¶ 2, 19-45, 210-211.

A. Greater Terrestrial Flexibility Will Promote the Commission's Broadband Goals and Stimulate Economic Growth

The Commission's adoption of a more flexible regulatory framework for MSS-terrestrial operations will yield substantial public interest benefits, including increased investment in broadband, accelerated economic growth, and better services for consumers. The National Broadband Plan recognized that wireless communications, especially mobile broadband, are "a significant contributor to U.S. economic growth."[36] As discussed in the National Broadband Plan, the convergence of Internet computing and mobile communications is fueling explosive consumer demand for mobile broadband services. This growth in mobile broadband services creates jobs and benefits consumers. There has been an eleven-fold increase in U.S. consumers subscribing to mobile wireless services, from 24 million subscribers in 1994 to 277 million in 2008. Over the same period, there has been a five-fold increase in the number of jobs created by the wireless industry.[37]

To meet this growing consumer demand and generate new jobs and economic growth, more spectrum must be made available for mobile broadband services. As the National Broadband Plan stated, "[i]f the U.S. does not address this situation promptly, scarcity of mobile broadband could mean higher prices, poor service quality, an inability for the U.S. to compete

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36 National Broadband Plan at 75.

37 *See Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 09-66, Fourteenth Report, FCC 10-81, ¶ 155 (rel. May 20, 2010); *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, WT Docket No. 07-293, Report and Order and Second Report and Order, FCC 10-82, ¶ 24 (rel. May 20, 2010); *Technological Opportunities, Job Creation, and Economic Growth,* Remarks at the New America Foundation on the President's Spectrum Initiative, Lawrence H. Summers (June 28, 2010), *available at*: <http://www.whitehouse.gov/administration/eop/nec/speeches/technological-opportunities-job-creation-economic-growth> ("Summers New America Foundation Speech").

internationally, depressed demand and, ultimately, a drag on innovation."[38] The Obama Administration as well as the National Broadband Plan have consequently called for an additional 500 MHz of spectrum to be made available for broadband use.[39]

Providing MSS licensees with greater flexibility for terrestrial operations in MSS spectrum is an essential step toward meeting this goal. Indeed, a key recommendation of the National Broadband Plan is to "optimize license flexibility sufficient to increase terrestrial broadband use of MSS spectrum, while preserving market-wide capability to provide unique mission-critical MSS services."[40] Significantly, all 100 MHz of MSS spectrum is below 3 GHz, and therefore is ideally suited for mobile broadband communications given the superior propagation characteristics of these spectrum bands.[41] In addition, the Big LEO MSS band and other MSS bands are located near spectrum bands already used for mobile terrestrial services, and, as indicated above, manufacturers of consumer devices for these bands may enjoy key economies of scale. Accordingly, once the Commission adopts a more flexible regulatory framework for MSS-terrestrial operations, terrestrial broadband operations will quickly become possible on MSS licensees' spectrum.

As discussed above, in contrast to the immediate MSS opportunity, it will likely be many years before wireless operators are able to utilize some other spectrum bands identified in the National Broadband Plan as potentially supporting mobile broadband operations. For example, an incentive auction to repurpose broadcast spectrum requires legislation, while reallocating

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38 National Broadband Plan at 77.

39 *Id.* at 84; Summers New America Foundation Speech.

40 National Broadband Plan at 87.

41 As indicated *supra* at 7, the National Broadband Plan's calculation of broadband-capable MSS spectrum erroneously excluded Globalstar's terrestrially authorized spectrum at 1610-1617.775 MHz, and only included 10 megahertz out of Globalstar's 11.5 megahertz of terrestrial use spectrum in the S band.

federal government spectrum requires agreement from the U.S. government, extensive FCC regulatory action, and in many cases the relocation of incumbent federal systems. The need for either legislation or the relocation of incumbent users will delay for years the broadband repurposing of these broadcast and federal government bands. This protracted timetable contrasts dramatically with the near-term availability of additional mobile broadband capacity in the Big LEO MSS band.

B. Greater Terrestrial Flexibility Will Stimulate Investment and Promote the Economic Viability of MSS Services

Globalstar strongly agrees with the Commission regarding "the importance of maintaining MSS to provide services . . . to public safety and Federal government agencies, to rural areas, and during natural disasters."[42] In the *NPRM/NOI*, the Commission asks how we can "ensure that the United States continues to have market-wide MSS capabilities, even as we take targeted actions to create opportunities for terrestrial use in specific MSS bands."[43] Globalstar views these two objectives as complementary. By granting MSS licensees greater flexibility for terrestrial operations on their spectrum, the Commission will place the MSS business model on stronger financial footing and thereby help ensure robust mobile satellite service for underserved areas and public safety users.

The Commission has recognized that MSS offers "an excellent technology for delivering basic and advanced telecommunication services to unserved, rural, insular or economically isolated areas."[44] MSS systems such as Globalstar's Big LEO network have global reach and are the only communications services available in large portions of the United States and the rest of

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42 *NPRM/NOI* ¶ 33.

43 *Id.* ¶ 34.

44 *Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band,* Report and Order, 15 FCC Rcd 16127, ¶ 32 (2000).

the world.[45] Moreover, as described above, mobile satellite services provided by Globalstar and other operators play a critical role in the provision of emergency and safety-of-life services.[46] In the event of a natural or man-made disaster, MSS systems such as Globalstar's Big LEO MSS network can provide communications capabilities to first responders and other public safety personnel in areas where terrestrial facilities are either non-existent or temporarily unavailable. Accordingly, the Commission has "repeatedly noted the ability of MSS systems to protect public safety,"[47] and the Chief of the Commission's International Bureau has described how MSS systems are critical in responding to disasters and "were vital to the rescue efforts" following the earthquake in Haiti earlier this year.[48] Similarly, MSS systems were cited as a "resiliency success" following Hurricane Katrina because "satellite networks, although taxed by extensive

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45 *Big LEO Service Rules Order* ¶ 3 ("[N]ew mobile satellite service [in the Big LEO band] will offer Americans in rural areas that are not otherwise linked to the communications infrastructure immediate access to a feature-rich communications network."); *2003 ATC Order* ¶ 28 ("MSS systems have the ability to offer instant global communications for civilians, public-safety organizations, and the military in areas where terrestrial facilities do not exist or do not function.").

46 *See supra* at 4.

47 *2003 ATC Order* ¶ 28 n. 61, *citing Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service*, Notice of Proposed Rulemaking, 10 FCC Rcd 3230, ¶ 7 (1995) ("MSS can provide nationwide public safety coverage. . . . [and] MSS could satisfy important requirements that cannot be economically satisfied by other means."); *Establishing Rules and Policies for the Use of Spectrum for Mobile Satellite Service in the Upper and Lower L-band*, Notice of Proposed Rulemaking, 11 FCC Rcd 11675, ¶ 12 (1996) ("MSS can . . . meet rural public safety needs and provide emergency communications to any area in times of emergencies and natural disasters.").

48 Remarks of Mindel De La Torre, Chief, International Bureau, *Satellite Highlights: Highlights of FCC Policy and Industry Innovation*, at 5 (April 8, 2010), *available at*: <http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-297476A1.pdf> ("[S]hortly after the earthquake, utilization of satellite facilities in Haiti skyrocketed. As an example, one mobile satellite company indicated an 18,000 percent increase in utilization within the first month following the earthquake. . . . I know that several MSS providers provided equipment and services to numerous government agencies, including the Federal Emergency Management Agency, the Department of State, the U.S. Coast Guard and others. [MSS] equipment and services were vital to the rescue efforts in Haiti.").

numbers of additional users, remained available and usable throughout the affected region" as "a functional, alternative communications path."[49] Globalstar's own efforts and capabilities in the aftermath of Hurricane Katrina were recognized by numerous observers, including such public officials as President George Bush and Mississippi Governor Haley Barbour.[50]

MSS systems thus promote significant public interest benefits in serving rural areas and protecting public safety. At the same time, Globalstar and other MSS operators have faced significant challenges in attracting investment and establishing a firm economic foundation on which to provide these vital services. Building and launching a satellite constellation is an exceptionally capital-intensive endeavor.[51] Billions of dollars must be invested before the

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[49] *See* Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Report and Recommendations to the Federal Communications Commission*, EB Docket No. 06-119, at 6, 10-11 (June 12, 2006). *See generally* Comments of Globalstar LLC, *Independent Panel Reviewing the Impact of Hurricane Katrina*, Public Notice DA 06-57 (Jan. 27, 2006), attached as Exhibit 1 to Reply Comments of Globalstar, Inc., EB Docket No. 06-119 (Aug. 21, 2006); Reply Comments of Globalstar, Inc., EB Docket No. 06-119 (Aug. 21, 2006); Statement of James Monroe III, Chief Executive Officer, Globalstar LLC, Before the Federal Communications Commission Independent Panel Reviewing the Impact of Hurricane Katrina (Mar. 6, 2006), attached as Exhibit 2 to Reply Comments of Globalstar, Inc., EB Docket No. 06-119 (Aug. 21, 2006) (outlining the planning measures Globalstar took in advance of the hurricane as well the company's response following the disaster and noting that "Globalstar was one of a very small number – perhaps fewer than five – of telecommunications companies serving the Gulf Coast region whose services were not disrupted." *Id.* at 1-2.).

[50] *See* Letter from President George W. Bush to Globalstar (Nov. 21, 2005); Letter to Kevin J. Martin, FCC Chairman, from Haley Barbour, Governor of Mississippi (Dec. 21, 2005); Peter J. Brown, *Crisis on the Gulf Coast: When Satellite Was the Only Game in Town,* VIA SATELLITE, Jan. 2, 2006 ("Globalstar doubled its capacity to make calls to landline phones, increased its active spectrum allocation via special temporary authorities granted by the U.S. Federal Communications Commission (FCC), and allocated gateway coverage footprints to increase capacity in the affected area to manage the unprecedented surge in users."); Paul Davidson, *Satellite Phones Provide Critical Link to Outside World,* USA TODAY, Sept. 6, 2005 (noting that Globalstar "sold more than 11,000 phones and leased 1,000 more" immediately following Hurricane Katrina); *Satellite Phones Critical to Katrina Relief Efforts,* COMMUNICATIONS DAILY, Sept. 1, 2005 (noting that Globalstar saw "increased usage . . . from response agencies at all levels" in the aftermath of the Gulf Coast hurricane).

[51] *See* Report of Gregory L. Rosston, Ph.D., at A-5 ("*Rosston Report*"), attached as Appendix A to Reply Comments of New ICO Global Communications, IB Docket No. 01-185

service can even be marketed to consumers. Given the limited lifespan of satellites, these capital investments must be repeated periodically to construct and launch each new generation of satellites. In addition, the customer base for many MSS offerings is relatively small compared to the mass market for terrestrial wireless services.[52] The severity of these challenges is evidenced by the fact that three MSS licensees serving the U.S. market have experienced a bankruptcy reorganization during the past ten years,[53] and a fourth has recently stated that it may need to seek bankruptcy protection if it is unsuccessful in completing various financing and restructuring arrangements.[54]

MSS licensees' financial issues have been exacerbated by the limitations placed on their terrestrial deployments by the Commission's existing MSS ATC gating requirements. As described above, these restrictions have prevented MSS licensees from pursuing business opportunities that could enhance their satellite services. If the Commission adopts a more flexible regulatory framework for MSS-terrestrial operations, MSS licensees and their terrestrial lessees will be able to deploy terrestrial systems in those bands more efficiently and effectively, which in turn will allow those operators to provide more competitive services to a wider array of customers. These services will not only benefit consumers, but will also help generate the revenues and investment necessary to fund the substantial capital and operational costs of providing mobile satellite services. Thus, far from undermining satellite services, greater

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(Nov. 13, 2001) ("Satellite services require significant upfront expenditures for the development and deployment of the satellite system.").

52 *Rosston Report* at A-6 ("[A] satellite operator will have large fixed costs. To ensure the ability to cover those costs, the operator will need a substantial number of customers. It is quite possible that rural customers alone will be insufficient to cover the marginal costs as well as a sufficient contribution to cover the large fixed costs.").

53 *Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Thirteenth Report, 24 FCC Rcd 6185, ¶ 251 (2009).

54 TerreStar Corp., Quarterly Report (Form 10-Q), at 32 (Aug. 6, 2010).

terrestrial flexibility will promote the public interest by giving MSS licensees like Globalstar a stronger financial foundation on which to provide state-of-the-art satellite services to rural communities and governmental and public safety users.

Significantly, the proposed new framework for MSS-terrestrial operations would be consistent with Commission action in numerous other proceedings in which licensees were granted greater flexibility to allow them to generate additional revenues and thereby help fund public interest objectives. For example, the Commission has granted considerable flexibility to licensees in the Educational Broadband Service ("EBS"), which the Commission established "primarily" to allow schools to transmit educational programming to remote sites over their spectrum channels.[55] Over the years, the Commission has granted EBS licensees increasing flexibility, including allowing them to lease up to 95 percent of their spectrum capacity to commercial operators for non-educational uses; the Commission granted this flexibility to promote the "economic viability" of EBS operations and to allow EBS licensees to generate lease revenues to support their educational mission.[56] Similarly, the Commission has relaxed its broadcast ownership rules to let broadcasters take advantage of efficiencies that promote investment in new local news and public affairs programming.[57]

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55 47 C.F.R. § 27.4.

56 *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 14165, ¶¶ 5, 12, 150, 157 (2004) (*2.5 GHz Reconfiguration Order*).

57 *2002 Biennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd 13620, ¶ 169 (2003), *remanded on other grounds sub nom. Prometheus Radio Project v. FCC,* 373 F.3d 372 (3d Cir. 2004).

Thus, the Commission reformed these inflexible rules so that licensees could use their scarce spectrum resources in a way that would maximize benefits to consumers and the public. These reforms did not confer a "windfall" on licensees, nor will providing a more flexible MSS-terrestrial framework confer a windfall on MSS licensees. Reforming the existing MSS-ATC policies will maximize the public interest benefits of the MSS spectrum. With reinvigorated MSS operations and a robust mobile broadband build-out in the MSS bands, MSS licensees and their terrestrial partners will be able to provide a full range of services to consumers, public safety users, rural and remote communities, and a variety of other government and business customers.[58]

C. Greater Terrestrial Flexibility will Promote the Efficient Use of Spectrum

Granting MSS licensees greater flexibility to deploy terrestrial services on their spectrum is consistent with twenty years of Commission precedent. The Commission established flexible service rules for Personal Communications Services ("PCS") in the early 1990s,[59] and has consistently embraced a flexible spectrum use policy in allocating spectrum for other mobile wireless services. For example, the Commission established a licensing plan for Advanced Wireless Services ("AWS") that allows

> the marketplace rather than the Commission to ultimately determine what services are offered in this spectrum and what technologies are utilized to provide these services. The licensing framework that we adopt today for these bands will

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[58] With greater terrestrial flexibility for MSS licensees maximizing the public interest benefits of MSS spectrum, there is no need in the MSS bands for voluntary incentive auctions, spectrum fees, or other related regulatory mechanisms. See *NPRM/NOI* ¶ 31, n. 83. In any event, the Commission does not currently have legal authority to conduct incentive auctions or impose spectrum fees, and pursuing such authority would likely only delay the deployment of terrestrial wireless services in the MSS bands.

[59] *Amendment of the Commission's Rules to Establish New Personal Communications Services*, Second Report and Order, 8 FCC Rcd 7700, ¶ 23 (1993) (adopting flexible service rules to "allow PCS providers the maximum degree of flexibility to meet the communications requirements of differing mobile and portable applications for both business and individuals").

> ensure that this spectrum is efficiently utilized and will foster the development of new and innovative technologies and services, as well as encourage the growth and development of broadband services.[60]

Relying on the Commission's flexible spectrum use policy in the AWS band at 1710-1755 MHz/2110-2155 MHz, T-Mobile is now rolling out new high-bandwidth services in this previously fallow spectrum.

Consistent with its flexible spectrum use policy, the Commission has repeatedly amended its rules over the years to grant incumbent licensees greater flexibility in using their spectrum. In doing so, the Commission has granted incumbent licensees wide discretion in the types of services and technologies they can deploy on their spectrum, as the following examples demonstrate.

- *Cellular Licensee Technological Flexibility.* In 1988, the Commission allowed incumbent cellular licensees to deploy digital technologies,[61] and in 2002 eliminated (after a sunset period) the requirement that cellular licensees provide analog services, finding that the requirement "imposes costs and impedes spectral efficiency"; one carrier estimated that "freeing up analog channels to convert to digital technologies would yield a 25 percent capacity gain."[62]

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60 *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, Report and Order, 18 FCC Rcd 25162, ¶ 1 (2003). *See also Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules*, First Report and Order, 15 FCC Rcd 476, ¶ 2 (2000) ("[W]e find that a flexible, market-based approach is the most appropriate method for determining service rules in [the commercial 700 MHz] band."); Spectrum Policy Task Force, Report, ET Docket No. 02-135, at 3 (Nov. 15, 2002) ("To increase opportunities for technologically innovative and economically efficient spectrum use, spectrum policy must evolve toward more flexible and market-oriented regulatory models.").

61 *See Year 2000 Biennial Review – Amendment of Part 22 of the Commission's Rules to Modify or Eliminate Outdated Rules Affecting the Cellular Radiotelephone Service and Other Commercial Mobile Radio Services,* Notice of Proposed Rulemaking, 16 FCC Rcd 11169, ¶ 19 (2001), *citing Amendment of Parts 2 and 22 of the Commission's Rules to Permit Liberalization of Technology and Auxiliary Service Offerings in the Domestic Public Cellular Radio Telecommunications Service*, Report and Order, 3 FCC Rcd 7033 (1988).

62 *Year 2000 Biennial Regulatory Review – Amendment of Part 22 of the Commission's Rules to Modify or Eliminate Outdated Rules Affecting the Cellular Radiotelephone Service and Other Commercial Mobile Radio Services*, Report and Order, 17 FCC Rcd 18401, ¶¶ 8, 12 n.43 (2002).

- *CMRS Flexibility.* In 1996, the Commission granted Commercial Mobile Radio Service ("CMRS") licensees maximum flexibility to provide mobile or fixed services, eliminating the requirement that fixed services be ancillary to the licensee's mobile services; "[b]y giving CMRS providers greater flexibility to provide these fixed services, whether separately or in combination with mobile services, we establish a framework that will stimulate wireless competition . . ., encourage innovation and experimentation in development of wireless services, and lead to a greater variety of service offerings to consumers."[63]

- *Adding Mobile Allocation to the 2.5 GHz Band.* In 2001, the Commission added a mobile allocation to allow Broadband Radio Service licensees and EBS licensees to deploy mobile as well as fixed services on their spectrum; the Commission granted a "flexible allocation" to these incumbent licensees to "encourage investment in and the development of new and innovative technology and services" in the 2.5 GHz band, which had historically been used for one-way analog video transmissions.[64]

- *Reconfiguration of the 2.5 GHz Band.* In 2004, the Commission fundamentally restructured the 2.5 GHz band to facilitate the deployment of mobile broadband services by incumbent licensees in the band; the Commission made this decision to promote broadband and spectrum efficiency and to "promot[e] . . . the economic viability of services in this band by ensuring that the spectrum is fungible, tradable, and marketable as possible."[65]

- *WCS Flexibility.* Earlier this year, the Commission amended its technical rules to permit incumbent Wireless Communications Services ("WCS") licensees to deploy mobile broadband services, thus "increas[ing] the supply of flexible use spectrum that can be used to address the explosive nationwide growth in consumer demand for mobile broadband services."[66]

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63 *Amendment of the Commission's Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, First Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 8965, ¶¶ 3, 17 (1996).

64 *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, First Report and Order and Memorandum Opinion and Order, 16 FCC Rcd 17222, ¶¶ 2, 8, 24 (2001).

65 *2.5 GHz Reconfiguration Order* ¶¶ 1, 5.

66 *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, WT Docket No. 07-293, Report and Order and Second Report and Order, FCC 10-82, ¶ 24 (rel. May 20, 2010).

Consistent with this well-established precedent, the Commission should adopt the National Broadband Plan's recommendation and take "actions that will optimize license flexibility sufficient to increase terrestrial broadband use of MSS spectrum" while also preserving the MSS industry's unique services.[67] As the Broadband Plan explains, flexible spectrum use produces enormous consumer welfare gains, and "enables markets in spectrum, allowing innovation and capital formation to occur with greater efficiency. More flexible spectrum rights will help ensure that spectrum moves to more productive uses, including mobile broadband, through voluntary market mechanisms."[68] A more flexible regulatory framework for MSS-terrestrial operations will enable MSS licensees and their terrestrial partners to respond to consumer demand more quickly and efficiently, and, consequently, to provide better, more innovative mobile satellite and terrestrial services to customers.

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67 National Broadband Plan at 87.

68 *Id.* at 79.

IV. CONCLUSION

For the reasons described in these Comments, the Commission should expeditiously issue an NPRM that proposes, in detail, a new, more flexible regulatory framework for terrestrial operations in MSS spectrum.

Respectfully submitted,

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