BIF Response to TRAI Consultation Paper on

'Provision of Cellular backhaul connectivity via Satellite through VSAT under Commercial VSAT CUG Service Authorization'

About BIF

Broadband India Forum (BIF) functions as an independent policy forum and think-tank that works for the development & enhancement of the entire broadband ecosystem in a holistic, technology-neutral and service-neutral manner. BIF's endeavour is to promote, support and enhance all policy, regulatory & standards initiatives for the proliferation of high-quality broadband in the country to empower consumers with efficient and economical broadband to realize the true Digital India.

PREAMBLE

Many of the top economies of the world viz. US, China, Canada, Japan, Germany, UK, France, Italy, Brazil, etc. use Broadband from Communication Satellites. The US, which is one amongst the most wired broadband countries in the world, with almost close to 80% fiberisation of towers , has nonetheless one of the the highest rates of deployment of Satellite based broadband. India, with its huge geographic spread, inaccessible terrain, remote villages and huge challenges of Right of Way (RoW) , needs Satellite broadband many times more than several of these named countries.

Digital India entails broadband connectivity across the length and breadth of the country. While terrestrial connectivity (Mobile Broadband) is feasible & economically viable to deploy in urban areas, when it comes to rural and remote areas the cost of providing terrestrial connectivity shoots up manifold making it economically unviable for terrestrial

technologies to reach the last 10-20% of the population. Moreover, the huge challenges posed due to RoW makes the task all the more difficult. It is in such areas that Broadband through Satellites serves as a 'messiah' as it does not have to overcome the challenges associated with Right of Way and the huge costs associated with roll out of terrestrial technologies.

Huge growth is expected in the satcom market globally in the next 5-10 years & the number of communication satellites are expected to double. To keep up its position in the global market, India needs participation in the satcom space both from the public as well as from the private sector. In fact, it is believed that vigorous private competition is needed here similar to that in the telecom sector, where it enabled huge customer benefits, market growth and drastic reduction in prices (much below the global benchmarks).

Given the growing broadband demand over the inaccessible areas like the north-east, the islands, other niche areas, remote and rural regions, which cannot be economically served by competitive terrestrial technologies, satellite broadband would be the most cost effective solution. However, the present Broadband capacity available through satellite is inadequate to meet the current demand. It would be required to augment the current capacity manifolds to be able to meet the current and the potential future demand.

Another important issue is the lack of freedom for free market forces to operate, which will ensure direct negotiation between the buyer and seller. This will enable healthy competition and better choice for the buyer, help bring down the prices and also improve quality of service.

The sector also suffers from the high price of satellite capacity which primarily stems from lack of adequate competition and lack of sufficient use of latest technologies viz. Ka band, High Throughput Satellites (HTS) as well as use of latest technologies viz. NGSO (Non-Geo Satellites viz. LEO/MEO/HEO, etc.) Technologies, flexible payloads, flat panel antennas, etc.

It is now well known that the business model of the telecom tower/infra companies is linked to the objective of sharing the infrastructure, including Towers, with the service providers on a non–discriminatory basis. This model of Telecom infrastructure sharing has brought in significant cost benefits with significant savings in roll-out CAPEX and O&M, significant cost reduction and overall cash-flow improvement. Other benefits include faster time to roll out services, cost & energy efficiencies, reduced entry barriers and increased competition.

Such benefits can also accrue to the Satcom sector if similar principles are applied when it comes to infra sharing between the VSAT CUG services & the NLD services, particularly in rural, remote and geographically challenging terrains.

Q1. Keeping in view the connectivity requirements in remote and difficult areas, should the Commercial VSAT CUG service provider be permitted to provide backhaul connectivity for mobile services and Wi-Fi hotspots via Satellite? Please justify your answer.

BIF Response

BIF supports the initiative that Commercial VSAT CUG Service Providers should be permitted to provide cellular backhaul via satellites in remote and inaccessible areas, where deployment of terrestrial technologies is techno-economically unfeasible.

While mobile backhauling is one obvious use case of satellite connectivity, with proven effectiveness in extending the reach of 2G/3G/4G mobile connectivity to remote areas, the advances in mobile technologies with the advent of 5G bring new promising and innovative use cases for satellite connectivity[1]. This is further fueled by the continued advances in satellite technologies (High Throughput Satellite – HTS and Very High Throughput Satellites – VHTS) which permit to enable a user experience comparable to the one expected from neXT generation terrestrial networks, particularly in terms of bandwidth.

In this context, Digital India requires broadband connectivity across the length and breadth of the country. While terrestrial connectivity (Mobile Broadband) is feasible & economically viable to deploy in urban areas, it is in the rural and remote areas that Broadband through Satellite serves as a 'messiah', as providing satellite coverage does not have to overcome the challenges associated with Right of Way and the huge costs associated with roll out of terrestrial technologies. Given the growing broadband demand over the inaccessible areas in the country like the north-east, the islands, other niche areas, rural & remote regions, which cannot be economically served by competitive terrestrial technologies, satellite broadband would be the most cost effective solution.

Q2. Whether the scope of Commercial VSAT CUG Service Authorization be enhanced under both Unified License and UL(VNO) license to enable the provision of the said backhaul connectivity? Please justify your answer.

BIF Response

BIF is of the view that the scope of Commercial VSAT CUG Authorisation should be enhanced under the standalone Commercial VSAT License (old regime) and under both UL & UL (VNO) license for providing the cellular & Wifi backhaul, thereby validating the maxim of permitting sharing of active infrastructure.

[1] For more details, refer to ECC Report 280 (https://www.ecodocdb.dk/download/e1f5f839-ba17/ECCRep280.pdf)

Q3. Should the licensee having authorization for both Commercial VSAT CUG and NLD services be allowed to share VSAT Hub & VSAT terminals for the purpose of providing authorized services? Please justify your answer.

BIF Response

BIF supports the initiative of infrastructure sharing as it helps provide optimal utilisation of resources, better productivity, reduction in costs and overall increase in efficiency. Passive infrastructure sharing is already permitted for IP1s and active infrastructure sharing is already permitted.

The model of telecom infrastructure sharing in India has brought in significant cost benefits with significant savings in roll-out CAPEX and O&M besides significant cost reduction and cash-flow improvement. Other benefits include faster time to roll out services, cost & energy efficiencies, reduced entry barriers and increased competition.

Such benefits can accrue to the Satcom sector if similar principles are applied when it comes to infra sharing between the VSAT CUG services & the NLD services, particularly in rural, remote and geographically challenging terrains.

For the purpose of providing authorised services, existing resources (VSAT Hub & VSAT terminals) of a licensee holding both the VSAT CUG & NLD authorisation must be permitted to be shared and not kept in independent silos, as at present.

Necessary rationalisation of the SUC(Spectrum Usage Charges) must be done to ensure that the services are enabled/facilitated and not restricted, as at present due to high imposition of levies. Other measures could possibly include nominal levy of license fees, doing away with the USOF component of the license fee once these services are being deployed in areas (viz. Rural & remote) for which USOF Component of levy are meant. Further, with the advent of High Throughput Satellite (HTS), it is not economically viable to have gateways separately for VSAT, NLD or for that matter, other services. The same also applies for the upcoming LEO/MEO constellations as well. So, it would be prudent that resources be effectively shared among licenses. Also, we need to cater to a scenario where the gateways are operated by one service provider and the terminals/networks are operated by another service provider. Even today for the GSAT-11 program, the Department of Space intends to operate the gateways and provide capacity to many service providers. This needs to be adequately addressed as far as the ambit of licensing is concerned.

Q4. Whether the licensee should be permitted to share its own active and passive infrastructure for providing various services authorized to it under the other service authorization of UL and/ or other licenses? [In other words, whether clause 4.3 of Chapter -VIII (Access Service authorization) be made applicable for all other authorizations also] Is there a need to impose any restrictions? Please enumerate and justify your answer.

BIF Response

BIF supports the approach wherein a licensee should be permitted to use its own infrastructure (both active & passive) in a shareable mode for providing various services authorised to it. Other incumbents offering similar services should also be permitted to do the same, so that the regulation is applicable to all.

Q5. Whether formula-based spectrum charging mechanism for VSAT services in NLD/Access license is adequate and appropriate? If not, whether spectrum charging for VSAT services in NLD/Access service license should be made on AGR basis instead of existing formula basis mechanism? Whether it will require accounting/ revenue separation for satellite based VSAT services under NLD/Access license? Please elaborate and provide proper justification.

BIF Response

BIF is of the opinion that SUC must be rationalised. This should be in line with the existing TRAI Recommendations of March 2017on SUC & P-AGR for ISPs & Commercial VSAT SPs, and in accordance with the NDCP guidelines for rationalisation of levies & spectrum charges.

Also, we support the move to migrate SUC for VSAT services with NLD authorisation from formula based to AGR based with a nominal percentage, say 1%. DOT & the Service Providers can together work out a methodology for accounting/revenue separation for satellite based VSAT services. The current formula wherein the spectrum charges are directly proportional to the number of VSATs with same number of carriers and bandwidth is quite restrictive for the growth of Satellite based services in India, as it tends to penalise spectrum sharing, instead of promoting it. If at all the WPC needs to be adequately covered for their administrative efforts, then it should be based on a fixed fee per location which is in the order of INR 500 or INR 1000 per annum, rather than multiplying the spectrum by the number of VSATs. This formula-based approach is more than 90 times that of the AGR based charging and such a high cost of administration makes satellite based backhauls unviable. Secondly, the formula-based charging is an administrative nightmare. Every time even if a carrier is expanded or shrunk, it triggers a revision in the Decision Letter & WOL (Wireless Operating License) issued by WPC. As spectrum payment under the formula-based scheme is paid annually, reconciling any changes becomes extremely difficult.

Q6. Please give your comments on any related matter not covered in this Consultation paper.

BIF Response

1) Time Delay in Getting Administrative Approvals

The first-time approval of a network should be done through the APEX committee. However, the APEX committee should act as a single-window for the entire set of approvals obtained by the licensees. Various formats can be prescribed for individual processing and the licensees can be made to make a consolidated application covering all the aspects of licensing and WPC/SACFA. As with the NLD license and the UASL license for satellite operations, any additional augmentation of bandwidth should be dealt with by NOCC and WPC only. SACFA/WPC charges can be combined with the license fee and a demand can be put up together on a yearly basis eliminating the need for multiple demands by the licensing cell and WPC. The process of adding of sites or bandwidth has to be executed in similar time frames as that of the commercial services. While the captive licenses use these services for more important and mission critical applications that involve citizen services to national security, the extraordinary delay in time taken and the number of multiple administrative agencies to which one has to approach, defeats the entire purpose.

2. Liberalisation of the CUG License

Connectivity of a CUG VSAT Network to PSTN was not allowed back in the 90s, due to potential arbitrage opportunities. In today's era of Whatapp/Skype and VOIP calls, that argument is no longer valid.

Enterprise applications today that operate in the cloud, are not a part of a closed corporate network or user group. These applications, even when operating in a classical Client-Server environment, with enabling technologies viz. Web Interfaces, VPN, Citrix, etc that permit Internet connecivity in a seamless manner.

Hence, we request the Hon'ble Authority to kindly consider review of the liberalisation of the CUG license in view of the emerging technology based scenario.

3) **Provision of gateway services by HTS operators, LEO/MEO operators** needs to be addressed adequately. The same has also been covered in our response to Q3 above.

4) **Permit Reselling of VSAT Services**

More and more networks in India are required to be have multiple technologies to cater to the complex needs of the customers, as is the trend globally. Considering the difficult terrain in country, VSAT communication plays an important role in providing reliable connectivity solutions to the remotest parts of the country. Permitting reselling of the VSAT services will help in growth of the industry as a whole".

5) **Removal of Regulatory Barriers on Carrier Speeds**

Globally the trends for Satellite based Cellular Backhaul is that it is not just used for 2G and 3G but also for 4G backhauls and in future for 5G backhauls as well. While the speeds needed for Cellular Backhaul in case of 2G & 3G is in the range of 2-4Mbps , for 4G they clearly need to be as high as 10-20Mbps and requirement for 5G likely to go up even higher. Moreover, the architecture for supporting Cellular Backhaul is migrating from Mesh Networks (as defined in TEC specs) to a Star Network

However, In the current edition of the TEC specification referred here (Refer Pg. 11 of CP, Clause 2.11 (iv) that refers to TEC IR.) the maximum carrier speeds permitted in a Star configuration is 2Mbps and for Mesh configuration, it is 4Mbps. This obviously is a limitation to support all types of Cellular Backhaul requirements in future.

It is hereby requested that such Regulatory barriers due to the TEC Specifications which impose artificial restrictions on the carrier speeds supported by VSAT terminals , should be completely done away with.

6) **Nominal levies (licence fee and spectrum usage charges)** , should be imposed to encourage use of satellite connectivity for rural, remote & inaccessible areas, island communities, and other special requirements, etc. . This can be the easiest method to encourage satellite based services, as compared to providing any subsidy or reimbursement for capex & opex of such services.

7) Also, large satellite capacity from all possible sources should be allowed for such applications (indigenous satellite capacity as first preference is already stipulated for satellite services), so that tariffs can come down due to competition.

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