



**Telecom Regulatory Authority of India**



**Consultation Paper  
on  
Review of Scope of Infrastructure Providers Category-I  
(IP-I) Registration**

New Delhi

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**Stakeholders are requested to furnish their comments to the Advisor (Broadband and Policy Analysis), TRAI by 16.09.2019. Counter comments, if any, may be sent by 30.09.2019. Comments and counter-comments would be posted on TRAI's website [www.trai.gov.in](http://www.trai.gov.in). The comments and counter-comments in electronic form may be sent by e-mail to [sksinghal@traigov.in](mailto:sksinghal@traigov.in) and [rksingh@traigov.in](mailto:rksingh@traigov.in). For any clarification/ information, Shri S.K. Singhal, Advisor (BB&PA) may be contacted at Tel. No. +91-11-23221509.**

# Contents

<b>CHAPTER 1</b> .....	2
<b>Introduction</b> .....	2
<b>CHAPTER 2</b> .....	5
<b>Regulatory Framework for Infrastructure Providers</b> .....	5
<b>A. Registration for Infrastructure Providers Category-I</b> .....	5
<b>B. Earlier recommendations of TRAI on this issue</b> .....	7
<b>CHAPTER 3</b> .....	10
<b>Global scenario</b> .....	10
<b>A. Active and Passive Infrastructure sharing</b> .....	10
<b>B. Emerging Business Models in Europe for Infrastructure Sharing</b> .....	12
<b>CHAPTER 4</b> .....	15
<b>Present scenario in India and issues for consultation</b> .....	15
<b>CHAPTER 5</b> .....	24
<b>Summary of the issues for consultation</b> .....	24
<b>List of Acronyms</b> .....	26
<b>Annexure-I</b> .....	28
<b>Annexure-II</b> .....	29
<b>Annexure-III</b> .....	30

# **CHAPTER 1**

## **Introduction**

- 1.1 Telecommunication has emerged as a key driver of economic and social development in an increasingly knowledge intensive global scenario. The Indian telecommunication sector has undergone a pioneering transition in the last two decades to become, in terms of number of subscribers, the World's second largest telecommunication market. Presently, India is one of the fastest growing telecommunication markets also. In the coming years, the telecom sector will continue to play a leading role in successful implementation of various Government programmes like Digital India, Make in India, and development of Smart Cities. These programs and initiatives present plethora of opportunities for the telecom sector especially for the telecom infrastructure providers as the telecommunication infrastructure is the bedrock for achieving the vision of Digital India.
- 1.2 Infrastructure Providers (IP) came into existence when the Department of Telecommunications (DoT) invited applications for IP-I (Infrastructure Providers Category-I) registrations and IP-II (Infrastructure Providers Category-II) licenses in the year 2000. Prior to this, the telecom infrastructure was to be owned, established, and maintained by the licensed telecom service providers only.
- 1.3 The IP-I are those infrastructure providers who provide assets such as Dark Fibre, Right of Way, Duct space, and Tower on lease/ rent out/ sale basis to licensees of telecom services on mutually agreed terms and conditions. In no case these companies can work and operate or provide telegraph service including end to end bandwidth.
- 1.4 An IP-II licensees could lease / rent out /sale end to end bandwidth i.e. digital transmission capacity capable of carrying a message to the other Licensees of Telecom Services. The IP-II licensee was required to establish necessary digital network for the purpose.

However, they were not allowed to directly access or connect the subscribers through last mile linkages; except for Other Service Providers registered with DoT. From 13.08.2000 onwards, Infrastructure Provider Category-II licences were issued by DoT but the same were discontinued w.e.f. 14.12.2005.

- 1.5 Accordingly, as per the arrangement put in place in the year 2000, while IP-II could establish digital network, provide transmission capacity, and required to pay licence fee; IP-I could provide passive infrastructure only and did not require to pay license fee since its inception. When IP-II category was discontinued w.e.f. 14.12.2005, the existing IP-II licensees were asked to migrate to NLD (National Long Distance) licence which allows the NLD licensees to provide leased circuit connectivity to end customers also.
- 1.6 IP-I have played a significant role in making available affordable telecom services in India. The deployment of shared tower infrastructure by IP-I led to rapid growth of mobile network. Over the years, the telecom tower industry in India has emerged as trendsetter in the infrastructure segment. The telecom tower companies are registered under IP category-I with DoT. Some of the TSPs have also hived off their tower assets into separate entities; and these hived off entities have obtained IP category-I registration.
- 1.7 With a view to cater to the needs of the digital communications sector of India, the Union Cabinet approved the National Digital Communications Policy-2018 (NDCP-2018) on 26<sup>th</sup> September 2018. The policy aims to facilitate India's effective participation in the digital world economy. Under this policy, the government also aims to provide universal broadband connectivity at 50 Mbps to every citizen. It has kept a target of providing 1 Gbps connectivity to all Gram Panchayats by 2020 and 10 Gbps by 2022. For accelerating migration of wireless telecom networks towards 4G/5G technologies and improve broadband speeds, the policy aims to facilitate Fibre-to-the-tower programme to enable fiberisation of at least 60% of telecom towers. One of its objectives is to ensure connectivity to all

uncovered areas and attract investments of \$100 billion in the Digital Communications Sector. The NDCP-2018 in its strategy for “Establishing a ‘National Broadband Mission – Rashtriya Broadband Abhiyan’ to secure universal broadband access” envisages enhancement in the scope of Infrastructure Providers in clause 1.1(f) reproduced below:

*“Encourage and facilitate sharing of active infrastructure by enhancing the scope of Infrastructure Providers (IP) and promoting and incentivizing deployment of common sharable, passive as well as active, infrastructure.”*

- 1.8 For achieving the policy aims enunciated above, participation of large number of stakeholders and huge investments would be required in the Core as well as Access networks. Since IP-I already have expertise and experience in rolling out telecom infrastructure in the country, if the scope of their registration is expanded than they can play a more significant role in achieving these aims of the policy. Accordingly, this consultation process has been initiated suo-motu by the Authority to make recommendations to the Government for the encouragement and facilitation of sharing of passive as well as active infrastructure as envisaged in the NDCP-2018. The purpose of this Consultation paper is to seek the views of stakeholders on enhancement of the scope of Infrastructure Providers category-I registration for promoting and incentivising the deployment of common sharable, passive as well as active, infrastructure. The first chapter introduces the subject. The second chapter deals with the existing regulatory framework for Infrastructure Providers. The third chapter gives an overview of the global scenario in this respect. The fourth chapter discusses the present scenario in India and lists out the issues for consultation. The fifth chapter gives the summary of issues for the consultation.

## CHAPTER 2

### Regulatory Framework for Infrastructure Providers

#### A. Registration for Infrastructure Providers Category-I

- 2.1 The existing framework for regulating the telecom infrastructure providers in India is prescribed in the guidelines for 'Registration of Infrastructure Provider Category-I' issued by DoT. As per the Guidelines, IP-I can provide assets such as Dark fibers, Right of Way, Duct space, and Towers on lease/rent out/sale basis to the licensees of telecom services on mutually agreed terms and conditions. The DoT, vide its letter dated 9th March 2009 (**Annexure-I**) has clarified that the scope of IP category-I registration, which was till then limited to passive infrastructure, has been enhanced to cover the active infrastructure, if this active infrastructure is provided on behalf of the licensees, i.e. they can create active infrastructure limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system for and on behalf of UASL/CMSP licensees. Further, vide its letter dated 28.11.2016 (**Annexure-II**), DoT clarified that *"IP-1 providers are not permitted to own and share active infrastructure. The IP-1 providers can only install the active elements (limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission media only) on behalf of Telecom licensees i.e. these elements should be owned by the companies who have been issued license under Section 4 of Telegraph Act, 1885."*
- 2.2 In this clarification dated 28.11.2016, DoT has further mentioned that, *"Keeping in view, that some IP-1 companies have invested into creation of active network infrastructure, which requires a license under Indian Telegraph Act, 1885, all IP-1 providers are hereby provided an opportunity to take either a Unified License or a Virtual Network Operator(VNO) license of requisite authorization or a UL(VNO) Cat-B license for specific geographical area within six months of issue of this letter and move all such operations involving active network*

*elements under the license. Alternatively, within a period of six months, the IP-1 providers can transfer all such active network elements to a holder of valid license."*

- 2.3 Presently, IP-I are not allowed to possess any wireless equipment, which requires a license under the Indian Wireless Telegraphy Act, 1933. This Act says that:

*"The telegraph authority constituted under the Indian Telegraph Act, 1885 (13 of 1885), shall be the authority competent to issue licenses to possess wireless telegraphy apparatus under this Act, and may issue licenses in such manner, on such conditions and subject to such payments, as may be prescribed"*

The Act further defines wireless telegraphy apparatus as:

*'wireless telegraphy apparatus' means any apparatus, appliance, instrument or material used or capable of use in wireless communication, and includes any article determined by rule made under section 10 to be wireless telegraphy apparatus, but does not include any such apparatus, appliance, instrument or material commonly used for other electrical purposes, unless it has been specially designed or adapted for wireless communication or forms part of some apparatus, appliance, instrument or material specially so designed or adapted, nor any article determined by rule made under section 10 not to be wireless telegraphy apparatus;*

- 2.4 The salient features of the latest guidelines for Infrastructure Providers Category-I dated 04.07.2017 are as follows:

1. The applicant must be an Indian company, registered under the Companies Act, 1956/2013.
2. FDI up to 100%, with 49% under automatic route and beyond 49% through FIPB route subject to observance of conditions of IP-I Registration by the company as well as investors as notified by the Department of Telecommunications (DoT) from time to time.
3. Both direct and indirect foreign investment in the applicant company shall be counted.



4. The applicant company/Indian Promoters/Investing Companies including their holding companies shall comply with relevant provisions of extant FDI policy of the Government.
5. The applicant company shall make its own arrangement for Right of Way (ROW).
6. The registration for IP-I shall be on non-exclusive basis without any restriction on the number of entrants.
7. The IP-I registered company shall provide dark fibers, Right of Way, duct space, towers on lease/rent out / sale basis to the licensees of telecom services on mutually agreed terms and conditions.
8. The IP-I registered company shall submit a copy of an agreement entered into with the telecom service providers to the DOT within 15 days of signing of such agreement.
9. IP-I registered company shall provide for the use of infrastructure in a non-discriminatory manner.
10. The applicant company will be issued a Registration Certificate. The terms & conditions of these guidelines as well as that of the Registration Certificate will be binding on the IP-I registered companies.
11. The applicant company shall pay a processing fee of Rs. 5,000/- (non-refundable) through digital payments like e-transfers/NETT/RTGS/Debit Card/Credit Card.

#### **B. Earlier recommendations of TRAI on this issue**

2.5 TRAI recommendations to the Government on Infrastructure Sharing were issued on 11th April 2007. Through these recommendations, the Authority inter alia recommended that the active infrastructure sharing limited to antenna, feeder cable, Node B, Radio Access network (RAN) and transmission system only should be allowed among licensed telecom service providers. Sharing of the allocated spectrum may not be permitted. Based

on these recommendations, the DoT issued guidelines for active infrastructure sharing in 2008 (**Annexure-III**) and permitted sharing of active infrastructure amongst service providers based on the mutual agreements entered amongst them. The licence amendments to allow active sharing were made on 11<sup>th</sup> February 2016.

- 2.6 The Authority in its Recommendations on “Definition of Revenue Base (AGR) for the Reckoning of Licence Fee and Spectrum Usage Charges” dated 6<sup>th</sup> January 2015 recommended that the IP-I players should not be brought under the licensing regime. The Authority also noted that, *“Globally, the new conventional wisdom is that infrastructure, both active and passive, need to be shared in the interests of better spectral efficiency, reduced capital expenditures and better quality of service delivery.”* The Authority has made the following observations in these recommendations:

*“2.62 The Authority, upon careful consideration of the DoT’s position on the issue, is now inclined not to press its previous Recommendation for bringing IP-I under the licensing regime. In taking this view, the Authority is conscious of the particular trajectory of evolution of infrastructure service provision in the recent past wherein IP-I services have been hived off from TSPs. Globally, the new conventional wisdom is that infrastructure, both active and passive, need to be shared in the interests of better spectral efficiency, reduced capital expenditures and better quality of service delivery. As demand for data has grown exponentially, the strains on a fixed quantum of spectrum as well as other passive infrastructure have become apparent. It is in this background that the old received wisdom has undergone change: it is better to save capital costs on passive infrastructure (as well as active infrastructure) through sharing. The policy orientation promoting sharing of infrastructure requires to be followed up with concrete incentives in this direction.*

2.63 *The revealed preference for encouraging infrastructure sharing is also obvious from DoT's own pilot scheme to promote sharing of towers. It is also pertinent to note in this context that non-licencees have invested into IP-I provision, and the present business model encourages sharing of infrastructure, leading to a reduction in the capital expenditure requirements of the sector. The Authority is also conscious of the need to boost incentives for encouraging sharing of all active and passive infrastructure to prevent avoidable duplication. The NTP 2012 mandate to move towards sharing passive and active infrastructure and to a regime of virtual network operators is also relevant in this context. In the changed circumstances, **the Authority is now of the view that IP-I services may not be brought under the licensing regime.***

## CHAPTER 3

### Global scenario

#### A. Active and Passive Infrastructure sharing

3.1 The telecom industry worldwide is following the trend of infrastructure sharing as a business process to keep their investments low and to compete for the economy of scale. Although there are minor differences in the definition of active or passive infrastructure across the world, there are mainly two kinds of infrastructure sharing possible and deployed worldwide<sup>1</sup>.

1. Passive infrastructure sharing allows operators to share the non-electrical, civil engineering elements of telecommunication networks. This might include rights of way or easements, ducts, pylons, masts, trenches, towers, poles, equipment rooms and related power supplies, air conditioning, and security systems.
2. Active infrastructure sharing involves sharing the active electronic network elements – the intelligence in the network – embodied in base stations and other equipment for mobile networks and access node switches and management systems for fibre networks. Sharing active infrastructure is a much more contested issue, as it goes to the heart of the value-producing elements of a business.

3.2 GSMA<sup>2</sup> in its paper on “Mobile Infrastructure Sharing” classifies mobile infrastructure sharing broadly into five categories<sup>3</sup>:

- Site sharing.
- Mast (tower) sharing.
- RAN sharing.
- Network roaming.

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<sup>1</sup>TRENDS IN TELECOMMUNICATION REFORM 2008 -Summary: published by International Telecommunication Union

<sup>2</sup> The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with over 350 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors.

<sup>3</sup> <https://www.gsma.com/publicpolicy/wp-content/uploads/2012/09/Mobile-Infrastructure-sharing.pdf>

- Core network sharing.

Passive sharing is usually defined as the sharing of space or physical supporting infrastructure which does not require active operational co-ordination between network operators. Site and mast sharing are considered to be forms of passive sharing. The remaining categories, listed above, are considered forms of active sharing as they require operators to share elements of the active network layer including, for example, radio access nodes and transmission. For RAN sharing, Mobile Network Operators (MNOs) continue to keep separate logical networks and the degree of operational co-ordination is less than for other types of active sharing.

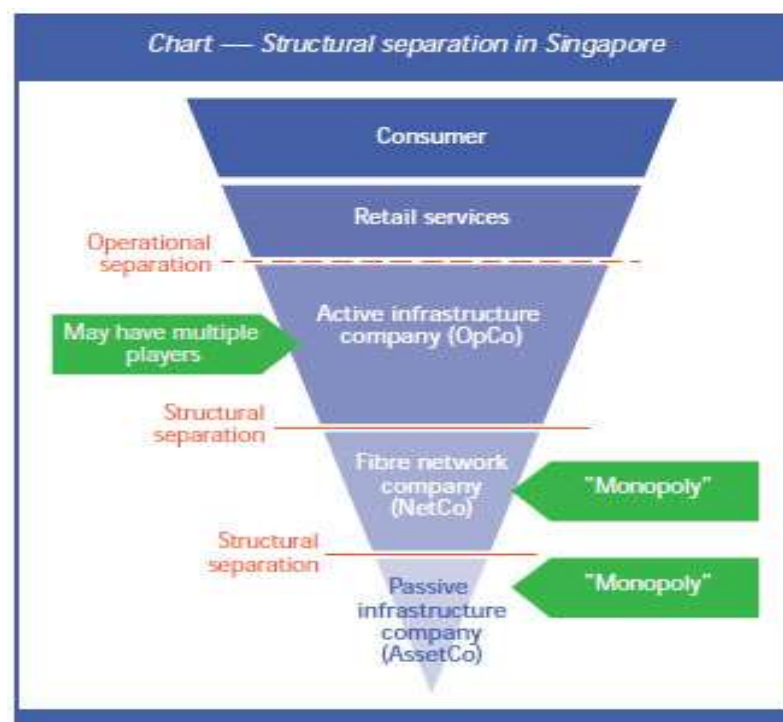
- 3.3 According to the Best Practice Guidelines for Enabling Open Access adopted by the 2010 Global Symposium for Regulators, open access is defined as “the possibility for third parties to use an existing network infrastructure.” Various other definitions do exist, but there seems to be agreement that open access applies to infrastructure and means that all suppliers are able to obtain access to network facilities on equal terms.<sup>4</sup>
- 3.4 The Open Access business model is now winning ground globally as governments and municipalities find the concept of offering competition between providers and the freedom of choice for the subscribers. It has also proved to be a feasible way to connect rural areas where service providers might have a hard time generating enough revenue to justify investing in their own network infrastructure.
- 3.5 Open Access networks have proven successful in parts of the United States initially as "middle mile" networks and more recently as "last mile" networks. However, "last mile" OANs in the United States have begun to attract more interest as rural and suburban communities seek

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<sup>4</sup> <https://www.itu.int/net/itunews/issues/2011/07/43.aspx> | Open access regulation in the digital economy | ITU News September 2011

to catalyze economic development. New Zealand and Australia also have open-access networks based on fiber to the home

- 3.6 Singapore has opted for structural and ownership separation between retail service providers (e.g. Singtel), wholesale network service provider (OpCo) and passive infrastructure provider (AssetCo) and fibre network company (NetCo) to ensure non-discriminatory access to essential passive infrastructure facilities.



Source : Open access regulation in the digital economy | ITU News September 2011

## **B. Emerging Business Models in Europe for Infrastructure Sharing**

- 3.7 The European Commission in its Digital Single Market strategy - aims to open-up digital opportunities for people and business and enhance Europe's position as a world leader in the digital economy<sup>5</sup> - has divided a broadband network into 3 layers: passive infrastructure, active equipment technology and delivery of services. The three layers are characterised by different technical and economical features. These layers are:

<sup>5</sup> <https://ec.europa.eu/digital-single-market/en/broadband-business-models>

- Layer 1: Building and operating of the passive infrastructure (network set-up).
- Layer 2: Building and operating of the active infrastructure (network operation).
- Layer 3: Offer and distribution of services (services).

3.8 The three layers depend on each other, meaning that layer 2 can only be realized upon completion of layer 1, and layer 3 requires the network from layer 2. For these three layers, three main business roles can be identified as follows:

- The physical infrastructure provider (PIP), which owns and maintains the passive infrastructure.
- The network provider (NP), which operates (and typically owns) the active equipment such as incumbent operators, new independent operators, broadband companies.
- The service provider (SP), which delivers the digital services. For example: e-health, elderly care, TV, Internet, phone, video-conferencing, entertainment, teleworking, smart monitoring and so on.

3.9 The establishment of different business models depends on the roles of the market actors in the broadband value chain. Depending on which roles (PIP, NP, SP) the market actors take, different business models arise. The following details describe the basic types of business models being promoted for infrastructure sharing:

### **Layered Network Model**

3.10 If the roles are separated, we talk of an open network model. In an open network, the infrastructure is available to all market participants at equal conditions. This can take different forms, depending on whether the business owner operates at PIP level alone, or also at the NP level. If the business owner is only involved at the PIP level, the business owner decides either to leave the higher layers to market players (competition in the market) or to contract the NP role to one market actor for a given time period (competition

for the market), with the task of providing end-user connectivity to competing service providers.

### **Wholesale only operators**

- 3.11 Wholesale-only operators are companies operating only in the wholesale market and offering access to all interested market operators and do not have a retail arm. This is a proven business model that is now witnessing significant growth in Europe, especially for the deployment of Fibre to the Home (FTTH) and Fibre to the Building (FTTB). Given the high costs of constructing new FTTH/FTTB networks, the wholesale only model is the approach to achieve large scale full fibre infrastructure rollout as it aggregates demand from many service providers who benefit from the very high capacity future proof connectivity.



## **CHAPTER 4**

### **Present scenario in India and issues for consultation**

- 4.1 The last two years have been a period of consolidation in the Indian Telecom market. Presently there are effectively only three private entities and two PSUs providing Access Services. These are vertically integrated service providers; providing the bouquet of telecommunication services which include Wireline and Wireless Access, Internet, National Long Distance (NLD), International Long Distance (ILD), and Enterprise Business services.
- 4.2 Even though, in India, presently, the total data consumption is one of the highest in the world, per user data consumption is much less in comparison to the many countries in East Asia, Europe, and America. As per the Digital Economy and Society Index (DESI) Connectivity Report 2019, published by European Commission, internet traffic per capita in western Europe is currently 44 GB per month and mobile data currently represents only 6% of European internet traffic. In contrast, in India, the share of wireline broadband access in total data consumption is negligible. Further, through mobile networks also, the data consumption per user is approximately 10 GB per month only.
- 4.3 In India, growth in data consumption through mobile networks has its own limitations due to Spectrum availability constraints and the fact that, due to non-availability of optical fiber in the access backhaul network, most of the Base Stations are working on Microwave Backhaul transmission links only. At the end of financial year 2018-19, the number of Base Transceivers Sites having optical fibre connectivity is approximately 30% only. The widespread deployment of optical fibre for faster fixed line broadband network as well as backhaul for connecting 4G and 5G Base Transceivers Stations will require substantial amount of fresh investments across the country. Accordingly, the NDCP-2018

emphasises on investment in telecom infrastructure, increasing access to fixed line broadband, and fiberisation of networks.

4.4 The upgradation of the existing mobile networks to 5G will require fresh capital infusion at an accelerated pace. The rollout of 5G networks is expected to make use of higher frequency bands, which will entail, amongst other things, deployment of large number of small cells. This will result in massive increase in the number of Base Transceivers Stations as compared with existing networks. The upgradation of the existing mobile networks to 5G and network densification requirement may create a greater incentive for fiberisation of the networks. Fiberisation of the telecom networks by each Licensee in non-sharing mode may be quite costly proposition and would increase the cost of service delivery. Consequently, there might be a greater impetus for new models of infrastructure sharing and creation.

4.5 Presently, in India, while the passive infrastructure can be created and shared by IP-I as well as TSPs; the active infrastructure creation and sharing is permitted to telecom Licensees only. It is pertinent to mention here that sharing of infrastructure in fair, transparent, and non-discriminatory manner is plausible only when such infra is rolled out by standalone companies, who are not in direct competition with the service providers. This is evident from the fact that, in the Indian Market, the proportion and success stories of passive infrastructure sharing are much more than active infrastructure sharing. In such a scenario, infrastructure creation by standalone companies needs to be promoted to boost the telecom infrastructure and to reduce the cost of capital for service providers. It will also help in attracting the investments from entities providing infrastructure funds, who are interested in long term returns. Shared economy is buzzword taking the entire global economy by storm. Sharing in different sectors of economy like transportation, hospitality, tourism, software, IT services is creating new and innovative business models.

- 4.6 In the past, many countries had restricted active infrastructure sharing out of concerns that it could have enabled anti-competitive conduct, such as collusion on prices or service offerings<sup>6</sup>. These concerns may no longer be valid now as the technology has evolved and competition in services is independent of competition in infrastructure. With technological advancement, it has become possible to share antenna, feeder cable, and transmission equipment by various mobile service providers while still using their own allocated spectrum. The quality of service and other parameters can also be maintained separately. Advances in technology and applications has enabled service providers to differentiate their offerings in the market. This will be more visible after rollout of 5G cellular networks. In addition, for some remote and less accessible areas, the risks of active infrastructure sharing must be balanced against the alternative of having no services at all. Keeping in view these benefits, globally, now the infrastructure (Active as well as Passive) sharing is being encouraged.
- 4.7 In India also, the active infrastructure sharing has been permitted by the Licensor amongst licensed Telecom Service Providers based on the mutual agreements entered amongst them. Presently, it is limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only. The sharing of passive infrastructure such as Dark fibres, Right of Way, Duct space, and towers is allowed for IP-I also. The IP-I can install the active elements (limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission media only) also for and on behalf of Telecom Licensees.
- 4.8 There is a requirement of telecom resources like end to end transmission bandwidth and dark fibers by different types of telecommunication service providers like VNOs, Cloud Service

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<sup>6</sup>TRENDS IN TELECOMMUNICATION REFORM 2008 -Summary: published by International Telecommunication Union

Providers, Multi-System Operator (MSOs)<sup>7</sup>, Content Delivery Networks (CDNs)<sup>8</sup>, M2M connectivity providers etc. for building their networks. Other Service Providers (OSPs) registered by DoT for providing application services like tele-banking, telemedicine, tele-trading, e-commerce, call centers etc. also require these type of telecom resources for interconnecting their OSP centers and providing their services. Presently all these requirements are catered to by licensed Telecom Service Providers. The IP-I are not allowed to provide even passive infrastructure resources to anyone else other than licensed TSPs.

4.9 The purpose of this consultation process is to recommend necessary policy changes to the Government so that the infrastructure creation is facilitated and sharing of infrastructure is encouraged. The enhancement of scope in IP-I Registration as envisaged in the NDCP, 2018 may attract the requisite investments in this sector and accelerate the roll-out of digital services. The economy of scale and other advantages of shared economy will lead to savings in capital and operating expenditure for service providers which may also lower the cost of services to the end users.

4.10 Accordingly, as per provisions of the NDCP-2018, through this consultation paper, the Authority seek the views of the stakeholders on the enhancement of scope of Infrastructure Providers Category-I (IP-I) Registration. The scope enhancement can be on supply side or demand side or both. Generally, it is assumed that for encouraging the suppliers to increase the supply through enhanced investments and neighbouring area diversifications, demand expansion is also required to be

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<sup>7</sup> “multi-system operator” or “MSO” means a cable operator who has been granted registration under rule 11 of the Cable Television Networks Rules, 1994 and who receives a programming service from a broadcaster and re-transmits the same or transmits his own programming service for simultaneous reception either by multiple subscribers directly or through one or more local cable operators;

<sup>8</sup> A content delivery network (CDN) is a system of distributed servers (network) that deliver pages and other web content to a user, based on the geographic locations of the user, the origin of the webpage and the content delivery server.

facilitated. For the enhancement of the scope on supply side, the IP-I registration scope may be enhanced to provide active infrastructure elements in addition to passive infrastructure items on lease/rent or sale basis.

- 4.11 Sharing of active elements among licensed TSPs is permitted but it may not be very effective because the TSPs operating in the same geographical area and providing similar telecom services are competitors as well. Some TSPs may not be willing to share their resources if it leads to a competitive disadvantage. So, mutual agreements may not fructify, and regulatory interventions may be required. However, regulatory interventions mandating infrastructure sharing may not be desirable in a market driven economy.
- 4.12 TSPs may be more comfortable in sharing of the telecom infrastructure, owned and maintained by a non-competing entity (e.g. Infrastructure Provider). This would also enable the TSPs to concentrate on their core competency of providing telecommunication services to the end-users or the subscribers of telecom services and the IP-I to invest and create active as well as passive telecom infrastructure.
- 4.13 It is important to prescribe the extent and scope for the type of network elements to be permitted to IP-I for owning, establishment, and providing on rent/lease or sale basis to the telecommunication service providers. The question arises is what could be the active infrastructure elements which may be allowed for IP-I. One possible option could be to include antenna, feeder cable, Node B, Radio Access Network (RAN), and transmission systems, which are permitted for sharing to licensed TSPs, in the scope of IP-I registration also. Keeping in view the global developments, it may also be of worth consideration that should IP-I be allowed to own, establish, and provide wired access networks and In Building Solutions (IBS) also? To encourage investment in the active infrastructure by IP-I, should they be allowed to provide end to end

bandwidth i.e. digital transmission capacity capable of carrying messages through leased lines to telecommunication service providers only using transmission systems to be owned by IP-I. It may help in broadening the addressable market for IP-I and at the same time, this special dispensation may help in propelling the growth of VNOs, Cloud Service Providers, Multi-System Operator (MSOs), Content Delivery Networks (CDNs), M2M Connectivity Providers etc. It is significant to clarify here that the proposal to provide end-to-end bandwidth to telecommunication service providers by IP-I does not include permission to provide end-to-end bandwidth to telecommunication service end users/ subscribers. This would continue to be the prerogative of licensed TSPs.

4.14 The permission to IP-I for owning and establishing active infrastructure elements such as antenna, feeder cable, BTS (eNodeB/gNodeB), Radio Access Network, transmission system for backend end-to-end bandwidth (on Microwave or OFC), wired access (FTTX) network, and IBS systems; and provide the same to telecommunication service providers on lease/rent out/sale basis, it may lead to substantial cost reductions for telecommunication service providers also.

4.15 It is also a matter of deliberation that what could be the entities to whom IP-I may provide their passive and active infrastructure services. As per the present guidelines, IP-I are permitted to provide passive infrastructure assets such as dark fibre, Right of Way, Duct Space, and Tower on lease/rent out/ sale basis only to the licensed Telecom Service Providers and the licensed Telecom Service Providers are permitted to create their own infrastructure. On similar lines, all those telecommunication service providers who are permitted to create their own infrastructure under their license/ permission/ registration could be allowed to take the same from the IP-I on lease/rent/sale basis. In other words, IP-I may be permitted to provide the infrastructure and end-to-end bandwidth through leased lines to different category of telecommunication

service providers such as VNOs, MSOs etc. as they are licensed/ permitted/ registered with DoT/ MIB for providing telecommunication services and creating their own infrastructure. Other telecommunication service providers such as Cloud Service Providers, M2M connectivity providers etc., who are presently not licensed/ registered with DoT, may also become eligible to get infrastructure services from IP-I as and when they get licensed/ registered with DoT. We need to identify such telecommunication service providers besides licensed telecom service providers, to whom IP-I may provide infrastructure services.

4.16 In case IP-I providers are allowed to own, establish and rent/lease active network infrastructure which include “wireless telegraph” apparatus, they would also be required to acquire the licence for possessing such apparatus, which comes under the purview of Indian Wireless Telegraphy Act,1933. They will also require an import licence from the Wireless Planning and Coordination (WPC) Wing of the DoT for importing such equipment. For activating wireless backbone transmission systems, IP-I would require Microwave Backbone (MWB) spectrum also for establishing point to point communication links. It is pertinent to mention here that the proposed enhancement in the scope of IP-I registration do not consider Microwave Access (MWA) spectrum as the Government allocates MWA spectrum to licensed TSPs on LSA basis and specific links using this spectrum are planned by licensed TSPs as per their requirement. The question arises is that should IP-I be made eligible for such Wireless Telegraphy Licenses and MWB spectrum also?

4.17 While increasing the scope of IP-I registration, it is also important to consider here that should the registration mechanism as existing be continued for IP-I or it require some changes. Is there a need to impose additional regulatory obligations on Infrastructure Providers, when they would be allowed to provide active infrastructure and end-to-end bandwidth in addition to passive

infrastructure on rent/lease or sale basis to telecommunication service providers? The question of license fee, if any, would also require consideration.

4.18 In the present licensing regime in India, in most of the cases, the licence fee is linked to Adjusted Gross Revenue (AGR) which is obtained after deducting the pass-through charges from the Gross Revenue (GR). The TSPs in India normally make payments to different equipment vendors for installing and maintaining different active elements under different types of contracts. The payments made to these vendors and contractors are not considered for pass-through charges as these charges are costs to TSPs. In the present regime, the IP-I providers can install active equipment on for and on behalf of the licensed TSP. In case, these IP-I providers are permitted to own, establish, and maintain the active elements for rent/lease/sale to the licensed TSPs, this may not make any difference to the AGR or licence fee of TSPs as the rent or lease charges for active infrastructure would be on cost side and not on revenue side. It would only reduce the cost/expenditure incurred by telecommunication service providers for effective rollout of services because of the economic benefits of sharing. Alternatively, imposition of LF on IP-I and extending as pass through to TSPs may not make much difference to the revenue of the Government but it may increase the regulatory costs to IP-I. This may be counter productive and discourage the growth of IP-I.

4.19 In view of the above, the Authority seeks the view of the stakeholders on the following issues:

**1) Should the scope of Infrastructure Providers Category – I (IP-I) registration be enhanced to include provisioning of common sharable active infrastructure also?**

**2) In case the answer to the preceding question is in the affirmative, then**

**i) What should be common sharable active infrastructure elements which can be permitted to be owned,**



**established, and maintained by IP-I for provisioning on rent/lease/sale basis to service providers licensed/ permitted/ registered with DoT/ MIB? Please provide details of common sharable active infrastructure elements as well as the category of telecommunication service providers with whom such active infrastructure elements can be shared by IP-I, with justification.**

- ii) Should IP-I be allowed to provide end-to-end bandwidth through leased lines to service providers licensed/ permitted/ registered with DoT/ MIB also? If yes, please provide details of category of service providers to it may be permitted with justification.**
  - iii) Whether the existing registration conditions applicable for IP-I are appropriate for enhanced scope or some change is required? If change is suggested, then please provide details with reasoning and justification.**
  - iv) Should IP-I be made eligible to obtain Wireless Telegraphy Licenses from Wireless Planning and Coordination (WPC) wing of the DoT for possessing and importing wireless equipment? What methodology should be adopted for this purpose?**
  - v) Should Microwave Backbone (MWB) spectrum allocation be permitted to IP-I for establishing point to point backbone connectivity using wireless transmission systems?**
- 3) In case the answer to the preceding question in part (1) is in the negative, then suggest alternative means to facilitate faster rollout of active infrastructure elements at competitive prices.**
- 4) Any other issue relevant to this subject.**

## **CHAPTER 5**

### **Summary of the issues for consultation**

- 1) Should the scope of Infrastructure Providers Category – I (IP-I) registration be enhanced to include provisioning of common sharable active infrastructure also?**
- 2) In case the answer to the preceding question is in the affirmative, then**
  - i) What should be common sharable active infrastructure elements which can be permitted to be owned, established, and maintained by IP-I for provisioning on rent/lease/sale basis to service providers licensed/ permitted/ registered with DoT/ MIB? Please provide details of common sharable active infrastructure elements as well as the category of telecommunication service providers with whom such active infrastructure elements can be shared by IP-I, with justification.**
  - ii) Should IP-I be allowed to provide end-to-end bandwidth through leased lines to service providers licensed/ permitted/ registered with DoT/ MIB also? If yes, please provide details of category of service providers to it may be permitted with justification.**
  - iii) Whether the existing registration conditions applicable for IP-I are appropriate for enhanced scope or some change is required? If change is suggested, then please provide details with reasoning and justification.**
  - iv) Should IP-I be made eligible to obtain Wireless Telegraphy Licenses from Wireless Planning and Coordination (WPC) wing of the DoT for possessing and importing wireless equipment? What methodology should be adopted for this purpose?**
  - v) Should Microwave Backbone (MWB) spectrum allocation be permitted to IP-I for establishing point to**

**point backbone connectivity using wireless transmission systems?**

- 3) In case the answer to the preceding question in part (1) is in the negative, then suggest alternative means to facilitate faster rollout of active infrastructure elements at competitive prices.**
- 4) Any other issue relevant to this subject.**

## List of Acronyms

<b>S.No.</b>	<b>Acronym</b>	<b>Description</b>
1	AGR	Adjusted Gross Revenue
2	CDN	Content Delivery Network
3	CMSP	Cellular Mobile Service Provider
4	DESI	Digital Economy and Society Index
5	DoT	Department of Telecommunications
6	FDI	Foreign Direct Investment
7	FIPB	Foreign Investment Promotion Board
8	FTTB	Fibre to the Building
9	FTTH	Fibre to the Home
10	GSMA	GSM association
11	IBS	In-building Solutions
12	ILD	International Long Distance
13	IP-I	Infrastructure Provider Category-I
14	LF	License Fee
15	M2M	Machine to Machine
16	MIB	Ministry of Information & Broadcasting
17	MNO	Mobile Network Operator
18	MSO	Multi-System Operator
19	MWA	Microwave Access
20	MWB	Microwave Backbone
21	NDCP	National Digital Communication Policy
22	NLD	National Long Distance
23	NP	Network Provider
24	OAN	Open Access Network
25	OFC	Optical Fibre Cable
26	OSP	Other Service Provider
27	PIP	Physical Infrastructure Provider
28	RAN	Radio Access Network
29	ROW	Right of Way
30	SP	Service Provider

31	UASL	Unified Access Service License
32	UL(VNO)	Unified License (Virtual Network Operator)
33	WPC	Wireless Planning and Coordination

Government of India  
Ministry of Communications & IT  
Department of Telecommunications  
Sanchar Bhawan, 20-Ashoka Road, New Delhi-110001.  
(Carrier Services Cell)

No. 10-51/2008-Cs-III

Dated: 09-03-2009


To.

All IP-I Providers

**Subject:** Clarification regarding scope of IP-I providers.

It is to clarify that the scope of IP-I category providers, which is presently limited to passive infrastructure, has been enhanced to cover the active infrastructure if this active infrastructure is provided on behalf of the licensees, i.e., they can create active infrastructure limited to antenna, feeder cable, Node B, Radio Access Network(RAN) and transmission system only for/on behalf of UASL/CMSP licensees.

This issues with the approval of competent authority.

  
9.3.2009  
(S.T.Abbas)  
Director(CS-III)

## Annexure-II

No. 10-40/2007-CS-III  
Government of India  
Ministry of Communications  
Department of Telecommunications  
Sanchar Bhawan, 20, Ashoka Road, New Delhi-110001.  
(Carrier Services Cell)

Dated: 28.11.2016.

To

All Infrastructure Provider Cat-I (IP-I) Service Providers

Subject: Clarification regarding scope of IP-I providers.

With reference to DOT Letter No. 10-51/2008-CS-III dated 09.03.2009, the undersigned is directed to convey the following clarification regarding scope of IP-I Providers:-

*"The IP-I providers are not permitted to own and share active infrastructure. The IP-I provider can only install the active elements (limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only) on behalf of Telecom licensees i.e. these elements should be owned by the companies who have been issued license under section 4 of Telegraph Act, 1885.*

*Keeping in view, that some IP-I companies have invested into creation of active network infrastructure, which requires a license under Indian Telegraph Act, 1885, all IP-I providers are hereby provided an opportunity to take either a Unified License or a Virtual Network Operator (VNO) license of requisite authorization or a UL(VNO) Cat-B license for specific geographical area within six months of issue of this letter and move all such operations involving active network elements under the license. Alternatively, within a period of six months, the IP-I providers can transfer all such active network elements to a holder of valid license."*

2. This issues with the approval of Competent Authority.

  
(Sanjeev Kumar Sharma)  
Director (CS-III)

Copy to:

- (i) Sr. DDG(TERM), DoT HQ for circulation amongst the TERM Cell Units.
- (ii) Sr. DDG(AS) / WA / DDG(DS), DoT HQ – for information please
- (iii) All Licensed Telecom Service Providers
- (iv) ADG(IT), DoT HQ- for uploading the document on DoT's website.

No. 6/21/2007-Policy-1  
Government of India  
Ministry of Communications and IT  
Department of Telecommunications  
20, Asthoka Road, Sanchar Bhawan, New Delhi

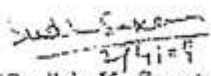
Dated: April 2008

**Subject: Guidelines on Infrastructure Sharing among the Service Providers and Infrastructure Providers.**

Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the National Telecom Policy 1999. The proactive policies of the Department of Telecommunications (DoT) have resulted in exponential growth of telecom services. DoT has been able to provide state of the art world class infrastructure, at globally competitive tariffs and reduce the digital divide by extending connectivity to the unconnected areas.

2. For maintaining the unprecedented growth in the telecom sector, there is a need for creation of huge infrastructure which require significant investment. DoT is of the view that there should be an optimum utilization of the available resources by way of sharing of infrastructure among the Service Providers and Infrastructure Providers. This would not only bring down the cost of providing the service but also would help in preventing the deterioration of the skyline.

3. In order to facilitate sharing of infrastructure among the Service Providers and Infrastructure Providers, the Department has formulated "Guidelines on Infrastructure Sharing among the Service Providers and Infrastructure Providers", a copy of which is enclosed. These guidelines are also available on the DoT website, [www.dot.gov.in](http://www.dot.gov.in).

  
(Sudhir K. Saxena)  
Director (T)  
Ph: 23372575

To

All Service Providers. (As per list enclosed)



## Guidelines on Infrastructure Sharing

In order to reduce input cost of Telecom access Service Providers, thereby facilitating reduction in tariff further, and to enhance the teledensity including rural areas, the Department of Telecom has formulated the following guidelines on infrastructure sharing among the Service Providers and Infrastructure Providers:-

- i. Sharing of active infrastructure amongst Service Providers based on the mutual agreements entered amongst them is permitted. Active infrastructure sharing will be limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only. Sharing of the allocated spectrum will not be permitted. The licensing conditions of UASL/CMSP will be suitably amended wherever necessary to permit such sharing.
- ii. Infrastructure Providers (IP) Category-I are allowed to seek SACFA siting clearance for erecting towers with or without agreement with licensed Service Providers.
- iii. SACFA procedure is being further simplified to reduce the time for SACFA clearance to about 45 days. Sites located beyond 7 Kms from Airport Reference Point (ARP) and the antenna height not exceeding 40 meters from airport level need only to be "registered" on WPC Website and clearance to be issued accordingly.
- iv. Service Providers may share passive infrastructure in accordance with the existing provisions in the licences of BSOs, CMSPs and UASLs.
- v. For giving financial incentives on the infrastructure sharing in the urban areas, State Governments shall be requested to charge same amounts for setting up of the shared tower irrespective of the number of Service Providers sharing the same tower at par with unshared tower.
- vi. For giving financial incentives for infrastructure sharing in rural areas, all the eligible Service Providers/ Infrastructure Providers (IP)Category-I shall be permitted to participate in the forthcoming scheme of USOF on infrastructure sharing irrespective of the fact they were beneficiary in the first phase of the scheme of infrastructure sharing within that particular area.
- vii. The IP shall set up Ground Base Tower (GBT) of minimum 40 m height with design duly approved by TEC/ SERC/ IITs. Such tower shall be capable of catering to the requirement of minimum three Service Providers sharing the

~~infrastructure for provision of mobile services.~~ However, the number of Service Providers sharing this tower may vary depending upon the proposal submitted by Infrastructure Provider at the time of registration with USOFA.

viii. The IP will have to set up the infrastructure site within one year from the date of signing of the Agreement with Administrator USOF. No subsidy shall be payable to the IP if such infrastructure is set up after expiry of the LD period.

ix. The subsidy payable to the IPs for the Second Phase of the USOF scheme on infrastructure sharing shall be based on the Representative Rate emerged as an outcome of the bidding process for Part-A of the First Phase of the Scheme. However, the same shall be moderated taking into account the changes in some of the economic parameters, which have since undergone a change. If the number of Service Providers in the second phase of the scheme, irrespective of the fact that they were beneficiary or not in the first phase of the scheme, is less than the number of Service Providers proposed at the time of registration, then amount of subsidy payable from USO Fund to the IP shall be proportionally reduced from the amount when tower would be shared between the proposed number of Service Providers.

x. To encourage concept of infrastructure sharing in rural and remote areas, no subsidy shall be paid if newly erected tower is not shared.

xi. In the second phase of the scheme of USOF , an IP with two or more Service Providers (irrespective of the fact that they were beneficiary or not in the first phase of the scheme) or a group of two or more Service Providers, could come together and register themselves with USOFA for setting up the tower and providing mobiles services along with the consent of the three USPs to share the towers. All Licensed Access Service Providers (BSOs/ CMSPs/ UASLs) having spectrum allocated from WPC and all Infrastructure Providers Category-I (IP-I) registered with DoT shall be eligible to set up the infrastructure sites under the second phase of the Scheme, irrespective of the fact that they were beneficiary in the first phase or not.

xii. For using non-conventional energy sources, the Service Providers may avail several fiscal and financial incentives under the various schemes/programmes of the Ministry of New and Renewable Energy, details of which are available on the ministry's website: [www.mnes.nic.in](http://www.mnes.nic.in)