

Broadband Consultation Paper

Chapter 1- 2.31

Q1. What immediate measures are required to promote wireline technologies in access networks? What is the cost per line for various wireline technologies and how can this cost be minimised? Please reply separately for each technology.

A1. The following measures are required to promote wireline technologies using CATV in access network :-

- a. All last mile cable networks operating in the country need to upgrade their network to two way network. To the extent they are already upgraded, it will be an added advantage.
- b. To encourage operators to provide broadband in rural areas, government should plan a policy by which a guaranteed revenue is ensured. The Urban networks can survive on pure commercial model.
- c. Fibre interconnectivity be provided by Govt. on National Fibre network free/subsidised to all Cable networks.
- d. We would require huge number of cable modems for deployment through cable network, in order to meet such large demand, necessary policy be framed to procure refurbished modems from advanced countries who are going for DOCSIS 3.0 or DOCSIS 3.1 or higher technologies.
- e. The real meaning of triple play is not achieved by CATV network due to limitation of VOIP interconnectivity with PSTN. Once this regulatory hurdle is removed, triple play service easily be achieved using cable network which are connecting almost 67 million customers today. This should be allowed free of cost.

Chapter 2.32 - 2.54

Q2. What are the impediments to the deployment of wireless technologies in the access network? How can these deployments be made faster? Please reply separately for each technology.

- A2 Main impediments to the deployment of wireless in the access network are as under :-
- a. LTE spectrum to be provided at a small raster of 5MHz so that maximum use of the same can be ensured at all levels.
 - b. Unlicensed band is limited. This needs to be enhanced to other frequency band like 700 MHz or 800 MHz frequency band.
 - c. LTE and WiMax frequency band not available in unlicensed band for backend use.

Chapter 2.55 - 3.14

Q3. **The recommendations of the Authority on Microwave backhaul have been recently released. Are there any other issues which need to be addressed to ensure availability of sufficient Microwave backhaul capacity for the growth of broadband in the country?**

A3 No Comments

Q4. **The pricing of Domestic Leased Circuits (DLC) have been reviewed in July 2014. Apart from pricing, are there any other issues which can improve availability of DLC?**

A4 For rural connectivity MSOs would like to use heavily DLCs for interconnectivity to their NOC located in urban. They would require 1 Gbps link minimum to carry 200 channels of digital along with other IP services voice and data. This 1Gbps link be provided at subsidised rate so that MSOs are encouraged to provide Broadband services along with digital services in rural area.

Chapter 3.15 – 4.9

Q5. **What are the specific reasons that ISPs are proactively not connecting with NIXI? What measures are required so that all ISPs are connected to the NIXI?**

A5 NIXI is working as an Independent body and helps service providers to manage their resources. However, these managements are carried out manually and met through APNIC level. Due to lack of sufficient resources, NIXI is not able to work independently in allocating, managing and distributing IP resources. It is still dependent on APNIC for IP resources allocation and management. This is the limitation due to which service provider do not intend to stay connected with NIXI.

Q6. **Would the hosting of content within the country help in reduction of the cost of broadband to a subscriber? If yes, what measures are required to encourage content service providers to host content in the data centre situated within India?**

A6 Yes, hosting within the country reduces the cost of broadband to the subscriber as bandwidth management remains with in the country.

The following measures are required to encourage content service providers :-

- a. Independent NIXI with its independent resources to manage online.
- b. Sufficient number of Data Centres to be interconnected within India to manage hosting databases.
- c. Service providers to reduce the cost of bandwidth.

Chapter 5 & up to 6.15

Q7. **Are PSUs ideal choices for implementing the National Optical Fibre Network (NOFN) project?**

A7 No, private companies should also be given chances to take part in building the NOFN in their respective operation areas due to the following reasons :-

- a. Local operators they have good repo with local population and geographical area so that laying of NOFN cable would be faster.
- b. The same operator who would be laying would be also using this cable, it would be easier to maintain the network.

c. Rural presence and support would be far better for local operator who would be laying NOFN.

Q8. **Should awarding of EPC turnkey contracts to private sector parties through International Competitive Bidding (ICB) be considered for the NOFN project?**

A8 Yes, listed companies under EPC be considered and who in turn would take help of local operators for easy laying of NOFN.

Q9. **Are there any ways in which infrastructure development costs can be reduced? Is it possible to piggyback on the existing private sector access networks so as to minimize costs in reaching remote rural locations?**

A9 Yes, local cable operators who have their infrastructure, be used in rolling out NOFN network. However, this network needs to be accordingly modified to meet the requirement of NOFN.

Q10. **What can the private sector do to reduce delivery costs? Please provide specific examples.**

A10 Private would reduce the delivery cost by taking help of local operator who has a network in that area.

Chapter 6.16 to 6.18

Q11. **What are the major issues in obtaining right of way for laying optical fibre? What are the applicable charges/constraints imposed by various bodies who grant permission of right of way? In your opinion what is the feasible solution?**

A11 In our opinion for building network the electricity distribution poles, Sewage links, ducts, bridges, underground cabling etc. are often used and the authorities like National Highway Authority, Electricity distribution companies, Municipalities, NACs', Panchayats', Road and Buildings Department grant RoW. It is seen there is no uniform policy so far rates are concern or on number of user are concern. Therefore, a nominal rate for each pole, per meter of underground cabling and for use of duct can be defined.

Q12. **Should the Government consider framing guidelines to mandate compulsory deployment of duct space for fibre/telecommunications cables and space for telecommunication towers in all major physical infrastructure construction**

projects such as building or upgrading highways, inner-city metros, railways or sewer networks?

A 13 Yes

Chapter 6.19 to 6.21

Q14. What measures are required to reduce the cost and create a proper eco system for deployment of FTTH in the access network?

A14 CATV network which works on the principle of HFC architecture is most suitable for FTTH network. Presently HFC topology uses FTTC architecture with coaxial network having cascade of 2 to 3 amplifiers. The best option would be to piggyback RF on FTTH network. This would make the existing rural CATV network to work with FTTH system.

Chapter 6.22 to 6.23

Q15. Are there any regulatory issues in providing internet facility through Wi-Fi Hotspots? What are the reasons that installation of Wi-Fi hotspots has not picked up in the country? What type of business model needs to be adopted to create more Wi-Fi hotspots?

A15 HFC architecture is most suitable for providing Wi-Fi hotspots at selective or in entire town / city. In HFC architecture Internet services are provided by using its own fibre network laid for last mile. This last mile fibre can be used in extending internet bandwidth at selective places like MDU, Mall or market complex. These complexes can be enlightened to work in WiFi architecture.

Q16. What are other spectrum bands which can be unlicensed for usage of Wi-Fi technology or any other technology for provision of broadband?

A16 The 700 MHz or 800 MHz which has been earmarked for LTE can be unlicensed at a raster of 5MHz and can be used for broadband internet services.

Chapter 6.24 to 6.25

Q17. How much spectrum will be required in the immediate future and in the long term to meet the target of broadband penetration? What initiatives are required to make available the required spectrum?

A17 Around 50 MHz spectrum at a raster of 5 MHz is required from LTE band for use in unlicensed band. This unlicensed band can be used hugely by local operator to super impose with their HFC network to provide with full mobility to their broadband customers.

Q18. Are there any other spectrum bands apart from the ones mentioned in Chapter-2 to be identified for provision of wireless broadband services?

A18 No Comments

Q19. What are the measures required to encourage Government agencies to surrender spectrum occupied by them in IMT bands?

A19 No comments

Q20. What should be the time frame for auctioning the spectrum in 700 MHz band?

A20 This spectrum of 700 MHz band to be provided to local operators for use of LTE super imposing on their local network for providing mobility to their broadband customers. Hence, suggested instead auctioning band of 20 MHz at a raster of 5 MHz be provided as a unlicensed band to local operators who have networks in rural and urban areas.

Chapter 6.26

Q21. Do you agree with the demand side issues discussed in Chapter 5 and Chapter 6? How these issues can be addressed? Please also indicate any other demand side issues which are not covered in the CP.

A21 Yes we do agree with the demand side issues and policies as discussed in chapter 5 and 6. These can be mitigated by adopting the following:-

- a.** To have our own different language operating system for all our personal use computers.
- b.** Easy to operate at Rural levels.

Q22. Please give your comments on any related matter, not covered above.