

Comments

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SCP^{1,2,3}

Introduction:

1.The SCP is woven round two words “incentivizing” and “incentive” and they appear ‘two times’ and ‘seventeen times’ respectively in the SCP.

2.The other driving force is to give ‘incentive’ across the table based on:

(i)CP para(reference (‘4’) reproduced below:

“2.1 Fixed-line broadband is an always-on and high-speed data connection provided at the customer’s premises. It can be provided using Unshielded Twisted Pair (UTP) of copper cable or Optical Fiber Cable (OFC) or Coaxial copper cable or hybrid fiber cable networks. The cable connects to a modem, which can then be connected to the customer’s devices using either Wireless Local Area Network (WLAN) or an Ethernet cable. Other types of fixed broadband connections are delivered through Fixed Wireless Access (FWA) and satellite networks. These modes of connection make use of spectrum for last mile connectivity. However, FWA and satellite broadband are not under consideration presently in this CP”.

(ii) Effort to accommodate the objectives present with in the framework of existing licensing frame by tweaking them.

(iii)Information contained in Table 2.1 (reference ‘5’).

(iv)a priori conclusion that incentives either to service provider or subscriber/consumer/user will increase the fixed -line internet.

(v) The concept of ‘nudge’ (appearing ‘6’ times)(reference ‘6’) has been used to justify 2.1(iv) above.

(vi) The ‘nudge theory has been attributed to Nobel Laureate Richard Thaler (reference(‘7’)

3. Para 2.1(reference (‘8’) of SCP (reference ‘9’) talks of two types of broadband:

i)Fixed line broadband- UTP copper cable, coaxial cable, optical fibre.

ii) Broadband- FWA, Satellite.

a)The commonality between the 1(i) and 1(ii) is fixed location of the customer/user/subscriber.

b)Only 3(i) is considered in CP.

(c)UTP copper cable is of many categories as is clear from the table (reference ‘10’).

(i)However, the type of UTP Copper Cable under consideration in the CP is not clear.

4.There is no correspondence between the data given in Table 2.1 of CP(reference ‘11’) and definition of fixed line broadband given para 2.1 of CP(reference ‘12’) in the context of segments of Access Network:.

(i) In para 2.1(reference ‘13’) of CP the segregation has been done on TECHNOLOGY basis.

(ii) In Table 2.1(reference ‘14’) of CP the segmentation has been only as Broad band and Narrow Band.

(a)The technology segregation is limited only to mode of access.

(i)This mode of access based on technology is given only in the case of mobile subscribers.

(ii)The mode of access based on technology is not provided in the case of fixed line subscribers.

5.Regarding para 3(a)(i) above the fixed line access to a fixed location(reference (‘15’) can be optical fiber, coaxial cable, UTP to a fixed location of subscriber accordingly in case of;

- (i) Optical Fiber -the connection to the subscriber's Premises is Optical Fiber implying the exclusion of other physical media like coaxial, copper loops, power cables and/or wireless
- (ii) Coaxial Cable-the connection to the subscriber's Premises is Coaxial Cable
- (iii) UTP – the connection to the subscriber's premises is DEL pair a.k.a fixed telephone line.
- (iv) DEL works on CAT 1 cable.

6."fixed-line broadband requires laying of the network up-to individual premises."
(reference '16').

7. There is wide difference between upload/download speeds between DEL internet, cable internet, FTTH internet, so is the need of different users'/customers'/subscribers' requirement of internet w.r.t speed.

8. Regarding 'nudge theory' referred in para 2(vi) above, it may kindly be noted that '*Nudge theory was named and popularized by the 2008 book, 'Nudge: Improving Decisions About Health, Wealth, and Happiness', written by American academics Richard H Thaler and Cass R Sunstein'*
(reference '17').

9. "Broadband is a data connection that is able to support interactive services including Internet access and has the capability of the minimum download speed of 512 kbps to an individual subscriber from the point of presence (POP) of the service provider intending to provide Broadband service."(reference '18').

10."Another way of segmentation could be based on residential and households vs commercial and enterprise customers."(reference '19')

11.'5G' is appearing '14' times in CP(Reference('20')).

12. There is a mention of Supreme Court of India order dated 05.01.2021 (reference '21').

ISSUES FOR CONSULTATION

Issue1.

What should be the approach for incentivizing the proliferation of fixed-line broadband networks? Should it be indirect incentives in the form of exemption of license fee on revenues earned from fixed line broadband services, or direct incentives based on an indisputable metric?

Issue2.

If indirect incentives in the form of exemption of license fee on revenues earned from fixed-line broadband services are to be considered then should this license fee exemption be limited to broadband revenue alone or it should be on complete revenue earned from services delivered through fixed-line networks?

Issue3.

In case of converged wireless and fixed-line products or converged services delivered using the fixed-line networks, how to unambiguously arrive at the revenue on which license fee exemption could be claimed by the licensees?

Issue4.

What should be the time period for license fee exemption? Whether this exemption may be gradually reduced or tapered off with each passing year?

Issue5.

Is there a likelihood of misuse by the licensees through misappropriation of revenues due to the proposed exemption of the License Fee on the revenues earned from **fixed-line broadband** services? If yes, then how to prevent such misuse? From the revenue assurance perspective, what could be the other areas of concern?

Issue6.

How the system to ascertain revenue from **fixed-line broadband** services needs to be designed to ensure proper verification of operator's revenue from this stream and secure an effective check on the assessment, collection, and proper allocation and accounting of revenue. Further, what measures are required to be put in place to ensure that revenue earned from the other services is not mixed up with revenues earned from fixed-line broadband services in order to claim higher amount of incentive/exemption.

Issue7.

Is there any indisputable metric possible to provide direct incentive for proliferation of **fixed-line broadband** networks? What would be that indisputable metric? How to ensure that such direct incentives will not be misused by the licensees?

Issue8.

What are key issues and challenges in getting access to public places and street furniture for installation of small cells? Kindly provide the State/ City wise details.

Issue9.

How to permit use of public places and street furniture for the effective rollout of 5G networks? Kindly suggest a uniform, simple, and efficient process which can be used by States/ Local-Bodies for granting access to public places and street furniture for installing small cells. Kindly justify your comments.

Issue10.

Which all type of channels of communication should be standardized to establish uniform, transparent, and customer friendly mechanisms for publicizing provisioning of service and registration of demand by Licensees?

Issue11.

Whether proliferation of **fixed-line broadband** services can be better promoted by providing Direct Benefit Transfer (DBT) to subscribers of **fixed-line broadband** services? If no, elucidate the reasons.

Issue12.

If answer to Q11 is affirmative, then:

i.

Should DBT scheme be made applicable to all or a particular segment of **fixed-line broadband** subscribers? Kindly justify your comments.

ii.

If you recommend supporting a particular segment of **fixed-line broadband** subscribers, how to identify such segment of the subscribers?

iii.

How to administer this scheme?

iv.

What should be the amount of DBT for each connection?

v.

What should be the period of offer within which individuals need to register their demand with the service providers?

vi.

What should be the maximum duration of subsidy for each eligible **fixed-line broadband** connection?

Issue13.

Any other related issue.

Response

1.The phrase 'fixed-line broadband' is 'occurring in issues '1','2','5','6','7','11',12(i),(2ii),(vi).No response as there is a need to define fixed-line broadband. Please refer to response to issue '13' also.

2.The phrase 'fixed-line' is 'occurring in issues '2','3'.No response as there is a need to define fixed-line broadband. Please refer to response to issue '13' also.

3.Issue '4' relates to 'incentive'.No response. Please refer to response to issue '13' also.

4.Issues '8','9','10' relate to 5G.No response. Please refer to response to issue '13' also.

5.12(iii),12(iv),12(v).No response as there is a need to define fixed-line broadband. Please refer to response to issue '13' also.

6.Issue 13.Any other related issue.

The following paragraphs for kind consideration.

(a)A kind reference is invited to para '5' of introduction and para '3.5' of CP. There reading together leads to the conclusion that;

Fixed-line network is limited only to:

(i)FTTH Broadband

(ii)Broadband on cable TV-as Cable TV has a strong reach to the homes

(iii)Internet on DEL's using CAT 1 UTP.

(b)Prima facie only 6(a)(iii) internet is a candidate for 'incentive' if at all there a need for that.

(c)For deciding about it nature/quantum either DBT/no license fee it is imperative to achieve correspondence as per remarks in paras para3(c)(i),4,8of introduction.

(d)For choosing a mode of delivery of the proposed nudge of incentive/delivery between Govt. and private sector kindly refer (reference '22') below where conclusion is that "the business of nudging should be left to the private sector".

(i) this rules out the option of 'no license fee' ab initio.

(e) The definition given for broadband in para '9' of introduction is not adequate due to e-commerce and work from home scenario. There is a need for definition of broadband for domestic and commercial use. The common parameter is 'speed'. So domestic and commercial speed may be defined accordingly. The definition of broadband speed should include as download/upload also.

(f) Kindly refer para '11' of introduction regarding 5G issues. Their appearance in present CP appear to be out of place. SPECTRUM is the biggest concern of 5G. The needs sooner than later availability of National Frequency Allocation Plan of DoT.

(g) The SUPREME COURT of INDIA Case referred in in para 12 of introduction is still '**Pending: Final Hearing**'.

Suggestions

1. Fixed-line broadband may be defined including only the following to make it future proof:

(i) FTTH broadband preferably forming a part of PON.

(ii) CATV broadband

(iii) DEL Broadband

2. The present status of Broadband provision amongst 1(i)9ii)(iii) may be evaluated urgently to know the contribution of DEL broadband as there may be many DEL telephone connections without broadband.

3. If there is any need of any 'nudge' then the same may be provided by private sector.

General Observations

1. Revised 'National Frequency Allocation Plan' is still not available in public domain. The same may be expedited.

2. Final order of The SUPREME COURT of INDIA may be awaited before further deliberations on present CP.

3. In the meantime work on perhaps work on suggestions 1,2,3 above can be considered.

References

1. https://www.trai.gov.in/sites/default/files/PR_No.29of2021.pdf

2. https://www.trai.gov.in/sites/default/files/CP_19052021.pdf

3. https://www.trai.gov.in/sites/default/files/PR_No.30of2021.pdf

4. para 2.1 page 6 supra '2'.

5. Table 2.1 page '10' supra '2'.

6. paras 3.9 page '25' supra '2'.

7. ibid '6'.

8. supra (reference 4)

9. supra '2'.

10.

UTP Categories - Copper Cable				
UTP Category	Data Rate	Max. Length	Cable Type	Application
CAT1	Up to 1Mbps	-	Twisted Pair	Old Telephone Cable
CAT2	Up to 4Mbps	-	Twisted Pair	Token Ring Networks
CAT3	Up to 10Mbps	100m	Twisted Pair	Token Ring & 10BASE-T Ethernet
CAT4	Up to 16Mbps	100m	Twisted Pair	Token Ring Networks
CAT5	Up to 100Mbps	100m	Twisted Pair	Ethernet, FastEthernet, Token Ring
CAT5e	Up to 1 Gbps	100m	Twisted Pair	Ethernet, FastEthernet, Gigabit Ethernet
CAT6	Up to 10Gbps	100m	Twisted Pair	GigabitEthernet, 10G Ethernet (55 meters)
CAT6a	Up to 10Gbps	100m	Twisted Pair	GigabitEthernet, 10G Ethernet (55 meters)
CAT7	Up to 10Gbps	100m	Twisted Pair	GigabitEthernet, 10G Ethernet (100 meters)



11. supra '5'.

12. supra '4'.

13. ibid.

14. supra '11'.

15. <https://www.fcc.gov/general/types-broadband-connections>

Types of Broadband Connections

The term broadband commonly refers to high-speed Internet access that is always on and faster than the traditional dial-up access. Broadband includes several high-speed transmission technologies such as:

- Digital Subscriber Line (DSL)
- Cable Modem
- Fiber
- Wireless
- Satellite
- Broadband over Powerlines (BPL)

The broadband technology you choose will depend on a number of factors. These may include whether you are located in an urban or rural area, how broadband Internet access is packaged with other services (such as voice telephone and home entertainment), price, and availability.

Digital Subscriber Line (DSL)

DSL is a wireline transmission technology that transmits data faster over traditional copper telephone lines already installed to homes and businesses. DSL-based broadband provides transmission speeds ranging from several hundred Kbps to millions of bits per second (Mbps). The availability and speed of your DSL service may depend on the distance from your home or business to the closest telephone company facility.

The following are types of DSL transmission technologies:

- **Asymmetrical Digital Subscriber Line (ADSL)**– Used primarily by residential customers, such as Internet surfers, who receive a lot of data but do not send much. ADSL typically provides faster speed in the downstream direction than the upstream direction. ADSL allows faster downstream data transmission over the same line used to provide voice service, without disrupting regular telephone calls on that line.
- **Symmetrical Digital Subscriber Line (SDSL)**– Used typically by businesses for services such as video conferencing, which need significant bandwidth both upstream and downstream.

Faster forms of DSL typically available to businesses include:

- High data rate Digital Subscriber Line (HDSL); and
- Very High data rate Digital Subscriber Line (VDSL).

Cable Modem

Cable modem service enables cable operators to provide broadband using the same coaxial cables that deliver pictures and sound to your TV set.

Most cable modems are external devices that have two connections: one to the cable wall outlet, the other to a computer. They provide transmission speeds of 1.5 Mbps or more.

Subscribers can access their cable modem service by simply turning on their computers, without dialing-up an ISP. You can still watch cable TV while using it. Transmission speeds vary depending on the type of cable modem, cable network, and traffic load. Speeds are comparable to DSL.

Fiber

- Fiber optic technology converts electrical signals carrying data to light and sends the light through transparent glass fibres about the diameter of a human hair. Fiber transmits data at speeds far exceeding current DSL or cable modem speeds, typically by tens or even hundreds of Mbps.
- The actual speed you experience will vary depending on a variety of factors, such as how close to your computer the service provider brings the fiber and how the service provider configures the service, including the amount of bandwidth used. The same fiber providing your broadband can also simultaneously deliver voice (VoIP) and video services, including video-on-demand.
- Telecommunications providers sometimes offer fiber broadband in limited areas and have announced plans to expand their fiber networks and offer bundled voice, Internet access, and video services.
- Variations of the technology run the fiber all the way to the customer's home or business, to the curb outside, or to a location somewhere between the provider's facilities and the customer.

Wireless

- Wireless broadband connects a home or business to the Internet using a radio link between the customer's location and the service provider's facility. Wireless broadband can be mobile or fixed.
- Wireless technologies using longer-range directional equipment provide broadband service in remote or sparsely populated areas where DSL or cable modem service would be costly to provide. Speeds are generally comparable to DSL and cable modem. An external antenna is usually required.
- Wireless broadband Internet access services offered over fixed networks allow consumers to access the Internet from a fixed point while stationary and often require a direct line-of-sight between the wireless transmitter and receiver. These services have been offered using both licensed spectrum and unlicensed devices. For example, thousands of small Wireless Internet Services Providers (WISPs) provide such wireless broadband at speeds of around one Mbps using unlicensed devices, often in rural areas not served by cable or wireline broadband networks.
- Wireless Local Area Networks (WLANs) provide wireless broadband access over shorter distances and are often used to extend the reach of a "last-mile" wireline or fixed wireless broadband connection within a home, building, or campus environment. Wi-Fi networks use unlicensed devices and can be designed for private access within a home or business, or be used for public Internet access at "hot spots" such as restaurants, coffee shops, hotels, airports, convention centers, and city parks.
- Mobile wireless broadband services are also becoming available from mobile telephone service providers and others. These services are generally appropriate for highly-mobile customers and require a special PC card with a built in antenna that plugs into a user's laptop computer. Generally, they provide lower speeds, in the range of several hundred Kbps.

Satellite

Just as satellites orbiting the earth provide necessary links for telephone and television service, they can also provide links for broadband. Satellite broadband is another form of wireless broadband, and is also useful for serving remote or sparsely populated areas.

Downstream and upstream speeds for satellite broadband depend on several factors, including the provider and service package purchased, the consumer's line of sight to the orbiting satellite, and the weather. Typically a consumer can expect to receive (download) at a speed of about 500 Kbps and send (upload) at a speed of about 80 Kbps. These speeds may be slower than DSL and cable modem, but they are about 10 times faster than the download speed with dial-up Internet access. Service can be disrupted in extreme weather conditions.

Broadband over Powerline (BPL)

BPL is the delivery of broadband over the existing low- and medium-voltage electric power distribution network. BPL speeds are comparable to DSL and cable modem speeds. BPL can be provided to homes using existing electrical connections and outlets. BPL is an emerging technology that is available in very limited areas. It has significant potential because power lines are installed virtually everywhere, alleviating the need to build new broadband facilities for every customer. Just as satellites orbiting the earth provide necessary links for telephone and television service, they can also provide links for broadband. Satellite broadband is another form of wireless broadband, and is also useful for serving remote or sparsely populated areas.

Downstream and upstream speeds for satellite broadband depend on several factors, including the provider and service package purchased, the consumer's line of sight to the orbiting satellite, and the weather. Typically a consumer can expect to receive (download) at a speed of about 500 Kbps and send (upload) at a speed of about 80 Kbps. These speeds may be slower than DSL and cable modem, but they are about 10 times faster than the download speed with dial-up Internet access. Service can be disrupted in extreme weather conditions.

Broadband over Powerline (BPL)

BPL is the delivery of broadband over the existing low- and medium-voltage electric power distribution network. BPL speeds are comparable to DSL and cable modem speeds. BPL can be provided to homes using existing electrical connections and outlets. BPL is an emerging technology that is available in very limited areas. It has significant

