



ऑयल एण्ड नेचुरल गैस कॉरपोरेशन लिमिटेड
Oil and Natural Gas Corporation Limited

Kind Attn.: Shri Syed Tausif Abbas, Advisor (Networks, Spectrum and Licensing), TRAI

Dear Sir,

This is in reference to comments sought on TRAI Consultation paper on 'Auction of Spectrum in 700 MHz, 800MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300-3400 MHz and 3400-3600 MHz bands.' TRAI has extended the last date for submission of comments to 6th November 2017 and Counter comments to 13th November 2017.

Sir, you are aware that Oil and Natural Gas Corporation Limited (ONGCL), a Maharatna Government of India Public Sector undertaking is the largest producer of crude oil and natural gas in India, contributing around 70 per cent of Indian domestic production. ONGC makes significant contributions to the industrial and economic growth of the country.

Sir, ONGC operations are spread across India in geographically remote and difficult areas. In order to meet the communication needs, ONGC has deployed Infocom infrastructure, which is mixed i.e. terrestrial PMP, terrestrial PTP, Satcom, LAN, Leased Lines, MPLS, VHF, Aero-VHF, Marine, etc. The communication infrastructure is used for various voice & data applications such as voice communication (VoIP) to remote installations, Enterprise Resource planning applications (ERP-SAP), Email, Broad band Internet/Intranet access, SCADA for monitoring & Control, Real-time applications such as video conferencing, access control, video surveillance etc.

Sir, over the years, ONGC has incurred huge expenditure on implementation of captive network in 3.3-3.4 GHz band for extending communication to remote and geographically distant areas where either no service provider has presence (Offshore) or operational requirement of ONGC cannot be met by service provider's infrastructure. It is also observed that in April 2017, DoT has, for the first time proposed to include 3.3-3.4 GHz band among the bands to be auctioned in the future auction. ONGC has large deployment in 3.3-3.4 GHz bands and also one project covering about 200 remote locations in North Eastern & Southern India, is under implementation and hence it is felt that inclusion of this band for auction will severely impact its operations. The impact will adversely affect ONGC operations.

ONGC has prepared response to TRAI Consultation Paper on Auction of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300-3400 MHz and 3400-3600 MHz bands. The response is attached herewith for kind consideration for protecting the interests of ONGC, while issuing recommendations.

In order to ensure continuity and security of operations, captive deployment cannot be ruled out for organizations like ONGC. Dependency for communication on service providers, having commercial interests may not suffice the operational need of the organization. We are sure, TRAI will look into these aspects and protect interests of organisation viz. defence, central PSUs like ONGC etc. as their activities are directed towards security, nation building, and ensuring energy security of the country.

Regards,

CHAITANYA KUMAR MINA,
CE(E&T),
CORPORATE INFOCOM,
ONGC,12th FLOOR, SCOPE MINAR,
LAXMINAGAR,
DELHI-110092

P.No.:+91-11-22406264

Response with Regard to Consultation Paper on Auction of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300-3400 MHz and 3400-3600 MHz bands

1. BACKGROUND

Oil and Natural Gas Corporation Limited (ONGCL) – A, Maharatna Government of India Public Sector undertaking is the largest producer of crude oil and natural gas in India, contributing around 70 per cent of Indian domestic production. ONGC is India's largest producer of crude oil, natural gas and LPG.

ONGC is engaged in the exploration, development and production of crude oil, natural gas and other value-added products. ONGC makes significant contributions to the industrial and economic growth of the country.

1.1. Current business model of ONGC is based on Assets (Producing Hydrocarbons), Basins (Taking up Exploratory jobs), Plants (Processing crude Oil and Gas), Institutes and Services as per details given below:

Assets

- Onshore - Ahmedabad, Ankleshwar, , Cambay, Mehsana, Assam (based at Nazira & Jorhat), Cauvery (based at Neravy/Karaikal), Rajahmundry, Bokaro & Tripura (based at Agartala)

and

- Offshore- MH (Mumbai High), B & S (Bassein & Satellite) and N & H (Neelam & Heera) with Asset Headquarters based at Mumbai) and Eastern Offshore (EOA) with Asset Headquarters based at Kakinada

Basins

- Western Offshore (based at Mumbai), Western onshore (based at Vadodara with forward bases at Cambay & Jodhpur), Assam & Assam Arakan (based at Jorhat with forward base at Silchar), Cauvery (covering areas around Karaikal), KG-PG (covering areas around Rajahmundry) Frontier basins (based at Dehradun), and CBM-PBM basin based at Kolkata. Cauvery & KG-PG basins based at Chennai

Others

- Plants and Institutes spread across the country, besides major Services like- Geophysical, Drilling, Well Logging, Infocom, Onshore &, Offshore Engineering, etc.

1.2. As a part of the IT Strategy, ONGC has set up its own captive communication network comprising of both Terrestrial as well as Satellite based communication networks

connecting its various work centers spread across the country. It's Satellite based Communication Network, was initially established in 1983 with two satellite earth stations and progressively augmented over the years. The Terrestrial Network at most of the Work Centres provides Tail link facility, and point to multipoint communication facilities. Further, ONGC has pioneered in introducing Multi Access Technologies for its Operational requirements such as Multi Contact, MART, TDMA, Trunking System etc.

Over the last few years, business processes have become more and more automated with IT intensive applications. Business process automation has resulted in tremendous increase in productivity and profitability.

It can be seen that ONGC operations are spread across India in geographically remote and difficult areas. In order to meet the communication needs, ONGC has deployed Infocom infrastructure, which is mixed i.e. terrestrial PMP, terrestrial PTP, Satcom, LAN, Leased Lines, MPLS, VHF, Aero-VHF, Marine, etc.

The communication infrastructure is used for various voice & data applications such as voice communication (VoIP) to remote installations, Enterprise Resource planning applications (ERP-SAP), Email, Broad band Internet/Intranet access, SCADA for monitoring & Control, Real-time applications such as video conferencing, access control, video surveillance etc.

2. TERRESTRIAL RADIO COMMUNICATION TECHNOLOGIES/INFRASTRUCTURE:

ONGC operations are spread across India in geographically remote and difficult areas. In order to meet the communication needs, ONGC has deployed Infocom infrastructure, which is mixed i.e. terrestrial PMP, terrestrial PTP, Satcom, LAN, Leased Lines, MPLS, VHF, Aero-VHF, Marine, etc.

The communication infrastructure is used for various voice & data applications such as voice communication (VoIP) to remote installations, Enterprise Resource planning applications (ERP-SAP), Email, Broad band Internet/Intranet access, SCADA for monitoring & Control, Real-time applications such as video conferencing, access control, video surveillance etc.

a. Point-to-Point Links:

In order to extend Point-to-Point connectivity, ONGC has deployed PTP links in Mumbai, Mumbai Offshore and Assam Asset. Primarily the links are in Licensed (7GHz) band.

b. Point-to-Multi Point:

ONGC has deployed Captive PMP Networks based on WiMAX (802.16d, TDD & FDD). These PMP networks have been deployed in the 3300-3400 MHz licensed band. The networks are in operation in Western Onshore (i.e. 06

Multi-sector Base locations & approx. 200 remotes, in Ankleshwar Asset, Cambay Asset, Western Basin Vadodara, Ahmedabad Asset, Mehsana Asset), Western Offshore (i.e. 09 Base locations & approx 300 remotes, in Neelam & Heera Asset, B&S Asset, MH Asset).

ONGC has obtained Network permission from DoT, DS Cell and Frequency allocation from WPC, Govt. of India. ONGC is continuously fulfilling all statutory obligations including payments thereof.

These networks are currently in operation and expected to be in operation for next 4-to-5 years.

PMP under Implementation:

ONGC has also been accorded Network permission in 2012 for establishing PMP Network in North East and Southern Assets. Frequency spots have been allocated by WPC in 3300-3400 MHz band. ONGC is implementing Captive network based on the currently available PMP technologies which can sustain for the next 7 to 10 years for ONGC needs i.e. PMP network consisting of approx. 200 remotes, based on OFDM/OFDMA technology in already allocated frequency spots is **under implementation**.

ONGC is continuously fulfilling all statutory obligations including payments thereof for both the approvals, as stipulated in permission letter by DOT/WPC.

3. COMMENTS: CONSULTATION PAPER:

PMP and PTP Captive communication infrastructure is critical for ONGC operations. It is observed that DoT has proposed spectrum including new frequency bands (3300-3400 MHz and 3400-3600 MHz) for auction and vide letter dated 19.04.2017 has sought recommendations of TRAI on applicable reserve price, quantum of spectrum to be auctioned and associated conditions for auction.

It is observed that TRAI has already sent its recommendations with regard to spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz & 2500 MHz bands on 27th January, 2016. Subsequently, Spectrum auction was held in October 2016 wherein about 60% of total spectrum remained unsold. In the present reference dated 19th April 2017, DoT has proposed to auction spectrum in these bands again and in addition, DoT has included two more bands i.e. 3300-3400 MHz and 3400-3600 MHz.

In light of the present initiative by DoT, Govt. of India, ONGC's Broadband PMP Captive Networks deployed/under implementation in 3300-3400 MHz band will get adversely affected. ONGC had been allocated freq. spots in frequency bands 3300-3400 MHz. As per the provisions in NFAP 2011

“Requirement of Broadband Wireless Access (BWA) applications may be considered in the frequency band 3.3-3.4 GHz on a case-by-case basis. (Foot Note IND65)”

Accordingly, ONGC had sought frequency spots in the 3.3-3.4 GHz band for implementation of broadband PMP network and the same were allocated by WPC after network permission from DOT. It is also observed that in April 2017, DoT has, for the first time proposed to include 3.3-3.4 GHz band among the bands to be auctioned in the future auction.

ONGC feels that inclusion of this band for auction will severely impact its operations. The impact will adversely affect ONGC operations. ONGC has incurred huge expenditure for implementation of captive network and is using frequency spots in this band for extending communication to remote and geographically distant areas where either no service provider has presence (Offshore) or operational requirement of ONGC cannot be met by service provider's infrastructure.

3.1 Frequency Spots for PMP Systems Allocated to ONGC:

3.1.1 Western Onshore, Gujarat:

ONGC has deployed PMP Network in Western Onshore in Gujarat covering field locations in Ankleshwar, Gandhar, Cambay, Vadodara, Ahmedabad and Mehsana. As brought out in Para 2.b above approx. 200 remote stations are currently operational in Western Onshore, covering remotes in Dabka, Jambusar, Dahej, Zatore, Kosamba, Panoli, Motwan, Olpad, Kathana, Saij, Kalol, Limbodara, Nawagam, Gamij, Wadu, Nandej, Ramol, Sobhasan, Langhnej, Nandasan etc.

3.1.2 Western Offshore, Mumbai:

ONGC has deployed PMP Captive Network in Western Offshore. The allocated freq. spots are 3329.75/3379.75, 3333.25/3383.25 MHz. As brought out in Para 2.b above approx. 300 remote stations are currently operational in Western Offshore Area i.e. Neelam, Heera, Bassein & Satellite field, Mumbai High area. This Captive network is being used to provide communication facilities between 12 Process Platforms and approx. 250 unmanned wellhead platforms. These locations are scattered over an area which is more than 70KMs from Mumbai shore.

3.1.3 NE & Southern Assets:

ONGC has been allocated freq. spots 3324.5MHz, 3338.5 MHz, 3377 MHz, 3380.5 MHz, 3384 MHz and 3387.5 MHz for implementation of Broadband PMP network consisting of approx. 200 stations spread across Assam area (Sivasagar, Nazira, Lakwa, Geleky, Moran, Cinnamara, Borholla, Sarupathar, Koraghat), Tripura Area (Agartala, Palatana), Jharkhand (Bokaro, Jharia), Rajahmundry (Rajahmundry, Mandapeta, Tatipaka, Kakinada, S Yanam, Narsapur, Kaikaluru, Lingala), Cauvery Area (Kamalapuram, Narimanam).

3.1.4 Statutory Payments:

It can be seen that ONGC has been allocated Network Permission and freq. spots for operating PMP Captive Network consisting of approx. 700 stations across its area of operation in Western Onshore, Western Offshore, North East, Central and Southern Assets. ONGC is making statutory payments towards Network Permissions to DoT as well as freq. allocation to WPC, Govt of India.

Total approx. statutory payments made to DoT & WPC, Govt of India is of the order of Rs. 6.3 Crs. per annum. The Capital expenditure by ONGC in the 3300-3400MHz band is approx. Rs. 60Crs.

3.1.5 Comments on DoT Letter No. L-1406/01/2017-NTG Dt. 18.04.2017:

(Para 10.2 3300-3400 MHz Band)

a. (Para 10.2.1): As per the details in above Para, the spectrum is allocated to various ISPs up to 2012 and assignments are renewed on annual basis. It is to note that spectrum has also been allocated to ONGC in this freq. band and ONGC is not an ISP.

b. (Para 10.2.2): As per the details in above Para, some of the ISPs have been allocated spectrum in other bands (e.g. 2.7-2.9GHz, 5.7GHz and 10.0GHz). In this regard it is submitted that ONGC is not an ISP and no additional spectrum in the indicated bands have been allocated for PMP deployment. Details of assignments made to ISPs are not found with the Consultation paper. Shifting of the ONGC's existing PMP captive Network from the 3300-3400 MHz band is not feasible as huge expenditure has been incurred in deploying captive network in 3300-3400 MHz band and such move will be detrimental to ONGC operations and may lead to huge loss to country's exchequer.

It is submitted that allocation made to ONGC should be kept unaltered as use of allocated spectrum is purely for meeting the operational needs towards nation building and energy security of the country and not for any commercial use.

c. (Para 10.2.3): It is submitted that allocation made to ONGC in 3300-3400 MHz band should be excluded from the forthcoming auction.

d. (Para 10.2.4): It is submitted that spectrum allocated to ONGC in 3300-3400 MHz band should be excluded from auction and accordingly TRAI may recommend Policy and rates of Spectrum Usage Charges (SUC), etc. It is submitted that TRAI should take cognizance of ONGC interests and accordingly recommend allocation of spectrum to ONGC as per the current policy of spectrum allocation at Administrative Rates for future requirements.

e. (Para 10.5.1): As per World Radio communications Conference (WRC) 2015, frequency band 3300-3400 is identified for the implementation of

International Mobile Telecommunication (IMT) and no ITU recommended band plan is yet available for 3300-3400 MHz band.

In light of above and as per the provisions in NFAP 2011, ONGC may be permitted to continue the use of allocated spectrum for PMP Captive Network. ONGC may also be permitted to deploy PMP network based on IMT recommendations including use of 3GPP standard based systems for future needs.

It is submitted that TRAI should safe guard ONGC interests and give recommendations on the quantum of Spectrum to be put to auction in 3300-3400 MHz band, pricing etc.

4. Submissions by ONGC:

- 4.1 ONGC is not an ISP. ONGC is India's Energy anchor working towards country's energy security and spectrum has also been allocated to ONGC in 3300-3400 MHz band for meeting the operational needs and accordingly spectrum has been allocated at Administrative Rates.
- 4.2 ONGC is not an ISP and no additional spectrum in the indicated bands (e.g. 2.7-2.9GHz, 5.7GHz and 10.0GHz) have been allocated for PMP deployment.
- 4.3 Shifting of the ONGC's existing PMP captive Network from the 3300-3400 MHz band is not feasible as huge expenditure has been incurred in deploying captive network and such move will be detrimental to ONGC operations and may lead to huge loss to country's exchequer.
- 4.4 Allocation made to ONGC should be kept unaltered as use of allocated spectrum is purely for meeting the operational needs towards nation building and energy security of the country and not for any commercial use.
- 4.5 Spectrum allocated to ONGC should be excluded from the forthcoming auction and accordingly TRAI may recommend Policy and rates of Spectrum Usage Charges (SUC), etc.
- 4.6 TRAI should take cognizance of ONGC interests and accordingly recommend allocation of spectrum to ONGC as per the current policy of allocation at Administrative Rates for future needs.
- 4.7 As per World Radio communications Conference (WRC) 2015, frequency band 3300-3400 is identified for the implementation of International Mobile Telecommunication (IMT) and no ITU recommended band plan is yet available for 3300-3400 MHz band.

In light of above and as per the provisions in NFAP 2011, ONGC may be permitted to continue the use of allocated spectrum for PMP Captive Network. ONGC may also be permitted to deploy PMP network based on IMT recommendations including use of 3GPP standard based systems for future needs on Administrative Rates.

- 4.8 TRAI should safe guard ONGC interests and accordingly recommend on the quantum of Spectrum to be put to auction in 3300-3400 MHz band, its pricing etc.
- 4.9 It is true that Spectrum is a scarce natural resource; it is finite and limited by geographical range. Unlike other natural resources which are exhaustible, electromagnetic spectrum cannot be depleted.

Owing to its limited availability, the need for its efficient allocation is appreciated. However, at the same time interests of the Govt. Organisations, Central PSUs viz. ONGC etc. should be protected. The operations of ONGC are spread across geographically distant and remote difficult terrain where either no service provider has presence (Offshore) or operational requirement of ONGC cannot be met by service provider's infrastructure. ONGC operations are towards energy security of the country and therefore allocation of spectrum for meeting operational needs cannot be given away with. Since the operations are not-for-profit but for nation building and its energy security, the pricing of the allocated spectrum to ONGC should continue to be at the Administrative Rates rather than putting to auction. It is to note that the area where spectrum has been allocated to ONGC in 3300-3400 MHz is geographically distant, remote difficult terrain where either no service provider has presence (Offshore) or operational requirement of ONGC cannot be met by service provider's infrastructure.

- 4.10 ONGC is not using the allocated spectrum to earn profit from this finite common resource but for enabling its operations in difficult terrains. Therefore, allocation of spectrum through auction may lead to efficiency as spectrum is sold to those who value it the most for purely commercial use but it may be detrimental to ONGC operations which are directed towards nation building and energy security of the country and not for any commercial use.
- 4.11 Since no Service provider has presence in the ONGC area of operation, interference from ONGC allocated spectrum is ruled out. To give an example, ONGC operations in Mumbai Offshore area, North East and Southern Assets etc., which are free from other service providers due to prevailing low tele-density and will remain so in near future.
- 4.12 It is true that not all spectrum bands that can be utilized is auctioned. Much spectrum is also used by the Government for non-market purposes like Defence, Exploration & Exploitation of Hydrocarbon, Energy Security etc. Captive user such as ONGC may be allowed to upgrade to latest technologies such as 3GPP based systems for efficient use of allocated spectrum in 3300-3400 MHz band.

- 4.13 ONGC area of operations indicated in Para 2 above may be excluded and accordingly spectrum in 3300-3400 MHz may be put to auction in Metro Cities, urban areas etc.
- 4.14 As brought out in Consultation Paper, there is no standard band plan available as on date in the 3300-3400 MHz band. It is observed that 3GPP Standard based products are available in 3300-3400 MHz band. Concern of efficient utilization of allocated spectrum gets addressed if use of 3GPP standard based (FDD & TDD) systems is allowed.

5. ONGC Reply to TRAI Questionnaire:

Q.1 (a) In your opinion when should the next access spectrum auction be held?

Ans.: No Comments to offer

Q.1 (b) If the spectrum auction is held now, should the entire spectrum be put to auction or should it be done in phased manner i.e. auction for some of the bands be held now and for other bands later based on development of eco system etc.? Please give your response band wise and justify it.

Ans.: Entire Spectrum (of 100 MHz in 3300-3400 MHz band) should not be put to auction. Interests of organisation who has already deployed PMP Captive network should be protected. The allocated spectrum should not be auctioned as huge capital expenditure has been incurred by ONGC in deploying these communication network. As brought out in submissions above, putting allocated spectrum to auction will adversely affect ONGC operations.

C. Identification of 3300-3400 MHz and 3400-3600 MHz bands for IMT/5G

Ans.: In case the 3300-3400 MHz band is identified for IMT/5G then organization like ONGC should be allowed to implement IMT/ 5G captive network using the already allocated freq. spots in 3300-3400 MHz Band. Such move will not only ensure continuity of ONGC operations in distant remote locations but also ensure efficient use of spectrum.

Q.2 Do you agree that in the upcoming auction, block sizes and minimum quantity for bidding in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz bands, be kept same as in the last auction? If not, what should be the band-wise block sizes? Please justify your response.

Ans.: No Comments to offer

Q.3 What should be optimal block sizes and minimum quantity for bidding in (a) 3300-3400 MHz and (b) 3400-3600 MHz bands, keeping in mind both the possibilities i.e. frequency arrangement could be FDD or TDD? Please justify your response.

Ans.: (a) Entire Spectrum (of 100 MHz in 3300-3400 MHz band) should not be put to auction. Interests of organisation like ONGC who has already deployed and PMP Captive network under implementation should be protected. Use of both FDD & TDD be allowed in the spectrum already allocated in 3300-3400 MHz band.

(b) No Comments to offer

Q.4 Do you think that the roll-out conditions for 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz stipulated in the last auctions held in October 2016 are appropriate? If no, what changes should be made in the roll out obligations for these bands?

Ans.: No Comments to offer

Q.5 Should there be any rollout obligations in 3300-3400 MHz and 3400-3600 MHz bands? If yes, what should these be? Please justify your response.

Ans.: As brought out above, ONGC has already deployed PMP Captive Networks in allocated freq. spots in 3300-3400 MHz band in Western Onshore, Gujarat and Western Offshore, Mumbai. ONGC has already committed deployment of PMP Captive network in North East and Southern Regions using freq. spots already allocated in 3300-3400 MHz Band.

Q.6 Is there a need to prescribe spectrum cap in bands 3300-3400 MHz and 3400-3600 MHz? If yes, what spectrum cap provisions should be kept for 3300-3400 MHz and 3400-3600 MHz spectrum bands? Should these bands be treated as same or separate bands for the purpose of calculation of spectrum cap?

Ans.: As brought out above, ONGC has already deployed PMP Captive Networks in allocated freq. spots in 3300-3400 MHz band in Western Onshore, Gujarat and Western Offshore, Mumbai. ONGC has already committed deployment of PMP Captive network in North East and Southern Regions using freq. spots already allocated in 3300-3400 MHz Band. There may be spectrum cap on allocation in 3300-3400 MHz band to safeguard interests of ONGC (allocated freq. spots and area for which allocated should be excluded).

Q.7 Whether the prices revealed of various spectrum bands in the October 2016 auction can be taken as the value of spectrum in the respective band for the forthcoming auction in the individual LSA? If yes, would it be appropriate to index it for the time gap since the auction held in October 2016. If indexation is to be done then at what rate?

Ans.: Allocation of Spectrum at Administrative Rate should be continued for allocation to Govt. organisations, Central PSUs like ONGC etc. for continuing service to the nation.

Q.8 If the answer to above question is negative then, whether as per the practice adopted by TRAI in the previous valuation exercise, the valuation for respective spectrum bands be estimated on the basis of various valuation approaches/methodologies (Referred in Annexure 3.3) including those bands (in a LSA) for which no bids were received or spectrum was not offered for auction?

Ans.: No Comments to offer

Q.9 Whether the value of 700 MHz spectrum should be derived by relating it to value of other bands by using technical efficiency factor? If yes, with which spectrum band this band be related and what efficiency factor or formula should be used? Please justify your views with supporting documents.

Ans.: No Comments to offer

Q.10 Else, what valuation approach should be adopted for the valuation of 700 MHz spectrum band? Please support your valuation approach with detailed methodology and related assumptions.

Ans.: No Comments to offer

Q.11 Whether the value of October 2016 auction determined prices be used as one possible valuation for 2300 MHz spectrum for the current valuation exercise? If yes, would it be appropriate to index it for the time gap since the auction held in October 2016? Please justify your response with supporting documents/ report(s), if any.

Ans.: No Comments to offer

Q.12 Whether the value of the 2300 MHz spectrum should be derived by relating it to the value of any other spectrum band by using technical efficiency factor? If yes, which band and what rate of efficiency factor should be used? If no, then which alternative method should be used for its valuation? Please justify your response with rationale and supporting documents.

Ans.: No Comments to offer

Q.13 Whether the valuation of 2500 MHz spectrum should be equal to value of similarly placed spectrum band? If no, then which alternative method should be used for its valuation? Please justify your response with rationale and supporting documents.

Ans.: No Comments to offer

Q.14 Whether the valuation of the 3300-3400 MHz spectrum bands and 3400-3600 MHz spectrum bands should be derived from value of any other spectrum band by using technical efficiency factor? If yes, what rate of efficiency factor should be used? If no, then which alternative method should be used for its valuation? Please justify your response with rationale and supporting documents.

Ans.: Entire Spectrum (of 100 MHz in 3300-3400 MHz band) should not be put to auction. Interests of organisation like ONGC who has already deployed PMP Captive network & under implementation should be protected. Use of both FDD & TDD be allowed in the spectrum already allocated in 3300-3400 MHz band.
Further, allocation of Spectrum at Administrative Rate should be continued for allocation to Govt. organisations, Central PSUs like ONGC etc. for continuing service to the nation.

Q.15 Is there any other valuation approach than discussed above or any international auction experience/ approach that could be used for arriving at the valuation of spectrum for

700/800/900/1800/2100/2300/2500/3300-3400/3400-3600 MHz bands? Please support your suggestions with detailed methodology and related assumptions.

Ans.: Allocation of Spectrum at Administrative Rate should be continued for allocation to Govt. organisations, Central PSUs etc. like ONGC for continuing service to the nation.

Q.16 Whether value arrived at by using any single valuation approach for particular spectrum band should be taken as the appropriate value of that band? If yes, please suggest which single approach/ method should be used. Please justify your response.

Ans.: Allocation of Spectrum at Administrative Rate should be continued for allocation to Govt. organisations, Central PSUs like ONGC etc. for continuing service to the nation.

Q.17 In case your response to Q16 is negative, will it be appropriate to take the average valuation (simple mean) of the valuations obtained through the different approaches attempted for valuation of a particular spectrum band, as adopted by the Authority since September 2013 recommendations? Please justify your response.

Ans.: No Comments to offer

Q.18 Is it appropriate to recommend Reserve price as 80% of the value? If not, then what should be the ratio adopted between the reserve price for the auction and the valuation of the spectrum in different spectrum bands and why?

Ans.: Allocation of Spectrum at Administrative Rate should be continued for allocation to Govt. organisations, Central PSUs like ONGC etc. for continuing service to the nation.

Q.19 Whether the realized / auction determined prices achieved in the October 2016 auction for various spectrum bands can be taken as the reserve price in respective spectrum bands for the forthcoming auction? If yes, would it be appropriate to index it for the time gap since the auction held in October 2016? If yes, then at which rate the indexation should be done?

Ans.: No Comments to offer