RJIL/TRAI/2025-26/397
23rd April 2025

To,

Shri Sameer Gupta,
Advisor (Networks, Spectrum and Licensing-I)
Telecom Regulatory Authority of India,
Tower-F, World Trade Centre,
Nauroji Nagar, New Delhi - 110029

Subject: **RJIL's comments on TRAI's Pre-Consultation Paper on Review of existing TRAI Regulations on Interconnection matters.**

Dear Sir,

Please find enclosed the comments of Reliance Jio Infocomm Limited (RJIL) on the Pre-Consultation Paper dated 03.04.2025 on **Review of existing TRAI Regulations on Interconnection matters**.

Thanking you,

Yours Sincerely,
For **Reliance Jio Infocomm Limited**

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Kapoor Singh Guliani
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Enclosure: As above

Reliance Jio Infocomm Limited's comments on TRAI's Pre-Consultation Paper on "Review of existing TRAI Regulations on Interconnection matters" dated 3rd April 2025

1. Reliance Jio Infocomm Limited (RJIL) thanks the Authority for giving us an opportunity to offer inputs on the important pre-consultation paper on "**Review of existing TRAI Regulations on Interconnection matters**", in order to frame the issues for consultation.

2. The Authority has described Interconnection as the lifeline of telecommunication services. The commercial and technical arrangement under Interconnection, create a homogenous network for all telecom subscribers, increasing the intrinsic value of all networks. **Thus, it is critical to have a forward looking, technology embracing and simple cost-based interconnection framework to enhance the experience of all users.**

3. The Authority has been the pioneer in developing a fair, reasonable and non-discriminatory interconnection framework through its efforts, for over 2 decades now. While the guardrails of the framework have stood the test of time, there have been occasional needs to intervene to protect the interests of customers and to improve and modernize the timelines for provision of interconnection.

4. Regulatory framework for mandatory interconnection is well established but **there is a need to make the interconnection effective and conducive to new technologies** as the sector has witnessed several technological changes since last review in 2018. A few of the developments in the sector are given below:

    a. **Emergence of pan-India all IP networks.**
    b. **Major customer shift to data based 4G and 5G technologies.**
    c. **Shrinking of fixed line telephony with mobile becoming primary mode of communication.**
    d. **Substantial increase in Application to Person (A2P) voice and SMS as compared to P2P voice/SMS.**
    e. **Major spike in voice based Unsolicited Commercial calls (UCC) using both A2P and P2P voice communication through fixed and mobile numbers.**
    f. **Major increase in phenomenon of telemarketing through voice and SMS by person not registered as telemarketers.**

5. It would not be incorrect to say that these are paradigm defining changes and have had a massive impact on the nature and economics of telecom services and defined the future course of the industry as a whole. Undoubtedly, there will be an impact on the interconnection regime and major enhancements and modernization will be required.

A. Efficacy of existing interconnection frameworks in the current telecom ecosystem; and Challenges faced by service providers in implementing interconnection.

6. The mandatory interconnection regime between telecom service providers was introduced to ensure seamless call completion between subscribers, regardless of their network provider. Accordingly, interconnect regulations, including the Reference Interconnect Offer (RIO), were formulated to guarantee uninterrupted Person-to-Person (P2P) voice and SMS communication between subscribers of different service providers. Interconnection Usage Charges (IUC), such as termination charges, have been regulated to prevent them from becoming a barrier to successful P2P interconnection.

7. In the early stages, Application-to-Person (A2P) voice and SMS traffic was limited to on-net communication and was not permitted over interconnecting links. However, over time, telecom service providers (TSPs) began transmitting A2P traffic—originating from telemarketers and application providers—via the same Points of Interconnection (PoIs) used for P2P traffic. This practice went unchallenged within the industry due to the relatively low volume of A2P traffic and the existence of non-zero termination charges, thereby, reducing the loss to an extent. Consequently, it became standard practice to route A2P traffic over interconnecting links and even ***TRAI has assumed such practice as norm while framing regulations such as UCC/TCCCPR, in which concept of TAP and OAP was introduced.***

8. A2P voice and SMS traffic do not qualify as part of the mandatory interconnection regime, as telemarketers and application providers—being bulk users—have the option to directly interconnect with all or most service providers. However, in practice, most telemarketers choose to connect with a single operator to avail the benefit from very low or zero termination charges applicable to P2P traffic. Additionally, by routing traffic through PoIs governed by the mandatory interconnect agreement, these entities often bypass penalties or disconnection measures that would typically be enforced by terminating operators under a separate contractual regime designed to mitigate spam.

9. If A2P traffic had been routed through separate PoIs—distinct from those designated for P2P communication—service providers would have had the ability to set termination charges independently, instead of adhering to IUC rates established for mandatory P2P interconnection. This segregation would have also enabled terminating operators to more effectively identify A2P traffic and implement appropriate anti-spam measures, including setting tariffs aimed at protecting consumers from unwanted calls and messages.

10. In light of the above, we recommend that the mandatory interconnection regime be limited strictly to P2P voice and SMS traffic. A2P voice and SMS interconnection should be governed entirely by mutual commercial agreements. Telemarketers and A2P service

providers have multiple options to reach terminating networks, such as establishing direct PoIs or entering into commercially agreed IUC arrangements with multiple operators for A2P traffic. **These measures will not only protect the terminating operator from loss of its legitimate revenue but will also provide them flexibility in taking measures to protect their customers from SPAM.**

11. Further, the current interconnection framework is steeped in various non-productive legacy concepts like seeker-provider; PSU operators being law onto itself, traffic-based POI structure, SDCA level interconnection leading to many negative fallouts that are captured in following paras.

12. Despite of the same TSPs interconnecting for various services across the country, there is no framework or effort to unify the POIs, despite of availability of technical capabilities. Industry is still building multiple POIs based on type of traffic (Access, NLD, Mobility, Fixed line etc). This becomes more complex with BSNL where connectivity is required till SDCA level. **In view of the emerging technologies, the unification of POIs can be a key point for deliberation.**

13. The Telecommunication Interconnection Regulations 2018 (TIR-2018) has taken massive steps in curtailing the timelines for establishing the POIs, however, establishing a POI is still a very time and effort intensive activity as multiple Acceptance Test Procedures (ATPs) are required for different type of traffic and capacity addition. In case of BSNL time required is in months due to decades old process being followed. **There is a need to analyze the modes for curtailing this wastage of time.**

14. **The current POI architecture lacks resilience and redundancy** due to the continuation of point-to-point implementation for TDM and same is followed for IP POIs as well. The Authority may discuss the measures to remove this vulnerability.

15. The pace of migration for IP based POIs at all levels is not optimum. The situation worsens when there is no progress from a key operator like BSNL for moving towards IP interconnect for improved customer experience. The Authority may need to explore the means to migrate to IP based interconnection.
16. Continuation of legacy hangover, where the private operators are required to establish media for both outgoing (OG) and incoming (IC) traffic for BSNL POIs is another key concern and needs deliberations for optimization.

B. Impact of emerging technologies on interconnection requirements; and best practices from global interconnection frameworks for possible adoption in India.

17. As discussed in the previous section, **one key technology initiative that needs regulatory mandate is IP-based interconnection.** The Authority has noted in its Recommendations on Revision of National Numbering Plan dated 6th February 2025 that IP-based interconnection is best suited for managing voice traffic and would be critical for managing numbering resources. It has recommended a consultative process delivering universal IP based interconnection at LSA level.

> *2.31 Further, in the IP-native architecture of modern telecom networks, IP-based interconnections provide an optimal solution for managing voice traffic; however, many interconnections among major Telecom Service Providers (TSPs) remain tethered to outdated TDM protocols. This reliance on TDM for intra as well as inter-TSP connectivity requires IP to-TDM conversions, introduces latency and hinders higher QoS for voice traffic. Although there has been progress in implementing intra TSP IP-based PoIs within the networks, the absence of widespread IP interconnections across networks is apparent.* ***This situation indicates a pressing need for harmonised, fully IP-based interconnectivity, preferably at the LSA level, across telecom networks,*** *to ensure consistent voice quality, free from the drawbacks of protocol conversions.* ***In view of the aforementioned, the Authority opines that to establish universal IP-based Points of Interconnection (PoI) at the LSA level among TSPs to phase out TDM-based PoIs (both at intra and inter TSP level), the extant Telecommunication Interconnection Regulations (TIRs) governing PoIs and Port Charges (including subsequent amendments), needs to be reviewed through a separate consultation.***

18. Further, globally also, IP-based interconnection is on the rise. GSMA[1] has developed a tool to facilitate the creation of IP-interconnection between parties and this has been leveraged in successful establishment of IP-interconnection between network operator in Denmark, Kuwait, Mexico & Russia.

19. It is also indisputable that the networks and consumers are migrating to data-based technologies like 4G and 5G. PwC[2] telecom outlook notes that by year 2028 two thirds of mobile users globally will be on 5G with most of the remaining customers being on 4G. Voice calls under these data technologies are also in the form of data packets and this migration can pave the way for centralized data-based interconnection. **Thus, the glide path to centralized data interconnection can be a critical consultation issue.**

20. Further, satellite based voice communication services could be one of the key emerging technologies, which can have impact on the interconnection regime. For ensuring seamless voice communication between users of terrestrial networks and satellite networks, there could be the requirement of interconnectivity between these two

[1] https://www.gsma.com/solutions-and-impact/technologies/networks/ip_services/interconnection/
[2] https://www.pwc.com/gx/en/industries/tmt/telecom-outlook-perspectives.html

networks. With rising number of satellite based communication service providers, **the Authority may have to put in place interconnection framework for satellite based voice communication services, which is efficient and scalable and can be one of the consultation issue**.

C. Role of interconnection in improving consumer experience and network efficiency.

21. The importance of effective and efficient interconnection in improving consumer experience is well known and cannot be understated. In simple words, without interconnection, a mobile user will require sim cards of all TSPs to get in touch with all his contacts over different networks.

22. What may be more important to discuss here is to how to make interconnection frameworks enablers of migration to data technologies and leverage these to enhance consumer experiences. GSMA has succinctly captured the benefits of interconnecting IP-communications in the following points:

- *Provide consumers with interoperable VoLTE (with HD voice quality), ViLTE, and Rich Communication Services (RCS).*
- *Provide operators with scalability and increased reachability of IP-based communications services.*
- *Enable operators to reach contacts seamlessly across networks.*
- *Enable operators to reduce/replace their legacy CS-based interconnection.*
- *Let operators enjoy a resurgence in the relevance of their core service offering.*
- *Let operators have a level of control, influence and reach that goes far beyond networks, surpassing anything the industry has seen to date.*

D. Other Challenges- irrational and non-compliant Interconnection charges

23. Another key aspect affecting the efficacy of current interconnection Regulations in the country is various irrational charges imposed by BSNL unilaterally on TSPs. These charges go over and beyond the regulatory mandate and are continued from the times when BSNL was the incumbent dominant operator.
24. Currently, BSNL is levying many charges under the guise of Port charges, duct charges, Infrastructure charges and transit charges that have become obsolete due to technological evolution. None of these charges are applied by private operators amongst themselves for many years. On the other hand, BSNL keeps escalating these charges by 10% each year. BSNL is also levying yearly lumpsum charges for handling emergency calls with 10% yearly increment even though traffic is reduced by almost 50% post migration to PSAP connectivity. We have explained these issues in detail, in Regulation wise

comments, however, would request the Authority to discuss all these issues under proposed consultation.

E. Model Proposed Architecture for interconnection

25. The Authority has already mandated the phasing out of SDCA based interconnection for PSTN calls vide an amendment to Telecommunication Interconnection Regulations, 2018

"9A. Level of interconnection for PSTN to PSTN connectivity:-----
(1) Within a service area, the location of POI, for calls between PSTN and PSTN or between PSTN and NLD network, shall be at such place as may be mutually agreed between the interconnection provider and the interconnection seeker.
(2) In case the interconnection provider and the interconnection seeker fail to agree under sub-regulation (1), the location of POI, for calls between PSTN and PSTN or between PSTN and NLD network, shall be at LDCC:
Provided that carriage charge for carriage of calls from LDCC to SDCC and vice versa, as applicable, shall be paid by the interconnection seeker to the interconnection provider:
Provided further that ***the existing POIs at the SDCC level, for calls between PSTN and PSTN or between PSTN and NLD network, shall remain in operation for a period of at least five years or till such time the interconnected service providers mutually decide to close such POIs, whichever is earlier…***

26. As the timeline of 5 years is already upon us thus, the mandate for end of SDCA based structure is already applicable. Further, **the Authority has also appreciated the need to expeditiously move towards LSA based interconnection** instead of the intermediate step of LDCA based interconnection under its Recommendations on Revision of National Numbering Plan dated 6th February 2025, as it would be critical for moving to 10-digit closed numbering scheme and then to Fixed location Routing number (FLRN) based unified numbering scheme

2.30 10-digit closed numbering scheme may require establishing the Point of Interconnection (PoI) between TSPs for fixed-line services at the Licensed Service Area (LSA) level. The shifting of the inter-TSP PoIs at LSA level, fixed-line would require substantial changes to the network routing design across all network nodes in India. Consequently, the Authority opines that the extant ***Telecommunication Interconnection Regulations (Second Amendment) 2020 (TIRs) governing PoIs need to be reviewed for shifting inter-TSP PoIs at the LSA level instead of the LDCA level to facilitate a smooth transition.***

27. Thus, clearly the policy is supportive of immediate migration to LSA based interconnection. However, we should not stop at this level, as the parallel

recommendation of the Authority to introduce a national level Unified Service authorisation has been accepted by the DoT, as per TRAI response to back reference to Recommendations on the Framework for Service Authorisations to be Granted Under the Telecommunications Act, 2023 dated 28th February 2025. With this impending implementation along with the fact that domestic IUC charge has already moved to Bill and Keep (BAK), **it would be prudent to upgrade the interconnection levels beyond LSA level and consider centralized and unified POIs.**

28. Our proposal for a model centralized IP based interconnection framework is provided in following paras.

a) **Centralized POI** – The interconnection will be migrated to flat architecture with one centralized connectivity supporting all type of traffic with following features.
   (i) POI will be established only once and there is no need for re-ATP with capacity addition at either side.
   (ii) No LSA based restriction for Offnet traffic handover between operators.
   (iii) Optimal capacity utilization and capacity addition can be managed in near real time.

b) **100 % IP based Interconnection** –This will remove all challenges linked with legacy TDM interconnect and facilitate to introduce enhanced new services between operators.

c) **Multi Path resiliency** -4 regional Interconnect POP locations for IP Based Interconnection. Each POP location will have primary and secondary media path. This will enable multi path resiliency like data traffic interconnects.

   (i) All offnet outgoing traffic will be handed over to B Party operator at nearest IP POP location and further routing will be handled by terminating network. In case nearest path is down than remaining 3 paths can be used for traffic routing.
   (ii) SBC will be in pool and traffic distribution along with resiliency will be managed by respective operator.

d) **Emergency traffic handling** – All Emergency traffic in all states needs to migrate to PSAPs with redundant connectivity provided to all TSPs without any dependence on BSNL.

e) **Charges** – The TSP will be responsible to bear the infrastructure cost of its outgoing traffic till the POP and its incoming traffic from the POP and there will no other charges levied by one operator on another.

F. Regulation wise suggestions: Our Regulation wise suggestions on all regulations under discussion are provided in the following sections.

I. The Telecommunication Interconnection Regulations, 2018

29. This regulation was a major step in modernizing the interconnection framework and is working fine with all private operators; however, it has completely failed with BSNL. Despite of amendments increasing the time frame of various interconnection related activities, BSNL is not able to implement most aspects of this seminal regulation as detailed below.

    a. While BSNL has started bifurcating traffic, the issues in implementing this regulation persist in most circles. We understand that this is due to persisting internal billing clarity related issue with BSNL.
    b. BSNL does not build media for its own OG traffic and the private operator is required to do the same.
    c. Furthermore, the private operator is loaded with infrastructure charges for this media as well.
    d. BSNL is unable to commission POI in 42 days, in compliance with the Regulation in most of circles.

30. We understand that all these issues are caused by internal complications and archaic systems at BSNL end. However, while seeking the solution to all these issues in the proposed consultation process, the Authority should also take into consideration the technological developments since 2018.

31. IP based interconnection is now a reality and only entity not supporting it despite upgrading its core infrastructure to IP and planning to launch pan-India 4G services, is BSNL. It is submitted that migration to IP network is necessary for any operator seeking to offer 4G and/or 5G services and beyond including inter-operator video calls. We expect that as all operators are upgrading their networks to IP networks, phase-wise migration to IP interconnection is also inevitable.

32. Thus, the key issues for consultation, besides the TRAI identified area of **upgrading level of interconnection to LSA, as articulated in numbering recommendations, should be time bound migration towards IP interconnection amongst private TSPs as well as with BSNL and providing a glide path towards centralized interconnection.**

II. The Short Message Services (SMS) Termination Charges Regulations, 2013

33. The SMS termination charge Regulations proposed a cost-based SMS termination charge, and the SMS market has been running smoothly under this Regulation and accordingly, there is no need for an intervention or change in P2P SMS termination charges.

34. However, there is a related aspect of deterrent SMS termination charge for A2P SMS i.e. for promotional, service and transactional SMS. The second amendment to Telecom Commercial Communications Customer Preference Regulation 2018 (TCCCPR 2018) has kept this charge at 5p/SMS despite the industry request to increase it to 10p/SMS.

35. **Similarly, there is a need to either allow forbearance on termination charges for A2P voice or fix it at Rs 0.50 per minute which will act as a deterrence against the SPAM and will help in protecting the consumers from SPAM and frauds. The deterrence termination charge of 5 paise on SMS has already shown its usefulness in substantial reduction in SMS based SPAMs.**

36. We submit that there is a need to review this aspect of SMS termination, and the Authority may decide to include this in upcoming interconnection related consultation paper or to start a separate amendment under the TCCCPR-2018, as this key issue cannot be left unattended any longer.

III. Intelligent Network Services in Multi-Operator and Multi-Network Scenario Regulations, 2006

37. This Regulation was important at the time it was enacted and facilitated the IN-interconnection basis reciprocal charges. However, the IN interconnection is no longer an issue and this Regulation can be subsumed in the Telecommunication Interconnection Regulations 2018, if required.

IV. TRAI (Transit Charges for BSNL's Cell One Terminating Traffic) Regulation, 2005

38. This Regulation was enacted in compliance with an order by Hon’ble TDSAT and there is no need to re-evaluate the issues under this Regulation.

V. The Telecommunication Interconnection Usage Charges Regulation, 2003

39. The inter-operator domestic IUC charges have already moved to BAK, and this arrangement is working well. The only persistent issue is the irrational transit charges being charged by BSNL. We submit that with current fixed line traffic patterns, the private operators do heavy lifting for BSNL traffic, and this charge has lost all relevance.

40. Further, with proposed LSA level and centralized interconnection, each operator will be required to take care of incoming traffic for its customers and the transit charge can be abolished under the principle of reciprocity. Accordingly, this issue can be made a part of the proposed consultation.

41. Another IUC related aspect is the determination of ILD termination charge. We submit that there is a need to re-evaluate the issue as the ILD termination charges from the current prescribed range of Rs.0.35 per minute to Rs. 0.65 per minute vide 16th Amendment to IUC Regulations dated 7th April 2020.

42. We submit that this range is not optimum and there is a need to further increase the ILD termination charges (ITC) to at least Rs. 2.50 per minute on immediate basis. Further, there is a need to put in place a mechanism to ensure periodic reviews and increase in ITC, as per market conditions and exchange rate fluctuations. The Authority is aware that the ITC in India remains the lowest in the world and we continue to pay much more for small countries especially the Middle East one and so the cost reciprocity does not exist.

43. Another critical aspect to consider is that the termination voice charges to India and from India are settled in US dollars with global operators. With the continuous rupee depreciation against dollar in the last few years the cost of India out termination (settled in USD) has increased significantly. At the same time, it is not possible to increase the ISD charges for our Indian subscribers (paid in INR) due to lack of price elasticity as the OTT substitution is already cannibalizing the revenues. **Thus, the only way to change this skewed market structure is to increase the ITC for the global operators to terminate voice calls into India.**

44. **Change ILD incoming pulse to 60/60 from 1/1:** Another critical phenomenon is the flooding of spam and flash calls on ILD networks. In case of Flash call, a near-instant dropped call is automatically placed to a mobile number, usually as part of an authentication process known as flash call verification. By default, there is NO termination fee charge for the call as it is not answered and is simply recorded as a missed call in the phone's log.

45. Such Flash calls are impacting Voice and SMS revenue because these are Zero duration calls so does not generate any revenue for Voice traffic. However, these Flash calls create a surge in signalling traffic without generating corresponding revenue from call charges. This leads to a business loss for the operators, and we estimate over 8 figure loss on monthly basis due to flash calls. This also creates arbitrage over ILD SMS apart from the spam calls which are getting difficult to manage.

46. We submit that this can be addressed by changing the pulse to 60 second instead of 1 second for settlement. However, as operators have different implementation, a uniform approach should be mandated to ensure compliance by all stakeholders.
47. Another key issue for discussion is the imposition of deterrent charge on voice calls to manage UCC. The Authority had the foresight to create a deterrent for SMS based UCC in the form of deterrent charge and the same needs to be replicated for voice calls as well. The lack of this deterrence has led to be creation of an arbitrage opportunity and has thus become one of the main reasons for the shift of the UCC traffic from SMSs to voice calls.

48. UCC voice calls are inherently more intrusive and annoying than SMSs. When a phone rings, it demands immediate attention, whether the recipient is in a meeting, driving, relaxing, or even sleeping. Unlike SMS, which can be read at the user's convenience, voice calls disrupt the recipient's current activity and force them to engage in real-time. This uninvited intrusion creates frustration and inconvenience and needs to be addressed in an effective manner. We propose a deterrent for commercial communication voice call at Rs.0.50 /minute to address the voice UCC on all A2P voice calls with 140, 160 series and other 10-digit numbers used for A2P voice traffic.

49. This deterrent to be paid by Originating Access Provider (OAP) to Terminating Access Provider (TAP) will not only incentivise the TAP who has created the network and serving the subscribers and their complaints pertaining to UCC, but this charge also ensure that such costs are passed on to senders as deterrent charge. We request the Authority to include this proposal in current consultation or in a separate amendment to TCCCPR Regulations 2018, (as deemed appropriate).

VI. The Telecommunication Interconnection (Reference Interconnect Offer) Regulation, 2002

50. The significance of this Regulation was in the period when private service providers were just entering the market and there were issues with interconnection with incumbent Government players. The Regulation has played a significant role in increasing the competition in mobile and basic telephony and provide access to all TSPs to interconnected networks.

51. However, with the notification of Telecommunication Interconnection Regulations, 2018, that provides for interconnection requirements and provides timelines for all associated activities, this Regulation has lost its relevance and accordingly this Regulation should be repealed.

VII. The Telecommunication Interconnection (Charges and Revenue Sharing) Regulation, 2001

52. We submit that most parts of the Telecommunication Interconnection (Charges and Revenue Sharing) Regulation, 2001 have been repealed or amended by the Telecommunication Interconnection Usage Charges Regulation, 2003 and TIR 2018. Thus, this Regulation should be repealed.

VIII. The Telecommunication Interconnection (Port Charges) Regulation, 2001

53. We submit that the port charges should be revised basis actual costs. Further, the Authority should mandate that port charges and associated Bank Guarantees should be implemented on reciprocal basis. We understand that the centralized IP POIs will also have positive impact on this.

54. In addition to the above Regulations, the interconnection with BSNL is also governed by various unilateral charges imposed by BSNL and the same should be regulated. Two of such charges are POI infrastructure charges and Charges for Emergency services.

    a. The POI infrastructure charges are levied by BSNL on a city category basis and are increased by 10% per annum and have consequently doubled over the last decade.

    b. Additionally, BSNL forces the private operators to build the media for even its own traffic and charges infrastructure charges for the same. The practice should be stopped and if required it should be based on the principle of reciprocity.

55. Similarly Emergency Services Charges are lumpsum charges that are increased by 10% every year. In addition to this BSNL levies carriage charges for this traffic. Going forward with PSAP based connectivity, this requirement will reduce. Nevertheless, these charges for carrying overflow traffic should be regulated.

IX. The Register of Interconnect Agreements Regulation, 1999

56. Clause 5, Section-III of the Register of Interconnect Agreements Regulations 1999, requires the service providers to furnish two copies of the all-new Interconnect Agreements in print form (2 copies) along-with the soft copy of the same.

57. This is a superfluous requirement and while we agree with the need for submitting the agreements, it is submitted that this can be easily digitalized. Instead of the physical submissions, the Interconnect agreements can be uploaded to a portal provided by TRAI.

58. We submit that TRAI has already taken major steps in creating a paperless environment by accepting digital/online submissions of reports, compliances, and various other

correspondence and accepting of Interconnect Agreements would further support the environment friendly practices.

59. Therefore, we request the Authority to amend the above-mentioned regulatory provisions suitably and do away with paper-based submissions and facilitate the TSPs in meeting these compliance requirements through online submissions.

60. **Conclusions**

1. **The Interconnection regime should be modernized to support new technologies.**
2. **IP interconnection should be mandated, and unification of POIs should be facilitated.**
3. **A2P voice and SMS shall not be part of mandatory interconnection and IUC set for P2P voice and SMS.**
4. **Application Providers/Telemarketers may be given a choice to either connect the termination operator directly or through any other operator using the POIs established for A2P traffic.**
5. **The levels of interconnection should be upgraded to LSA level on immediate basis and a glide path should be provided for centralized and Unified POIs.**
6. **Irrational and obsolete concepts like transit charge should be abolished.**
7. **The POI infrastructure charges including port charges should be on cost basis and on reciprocal basis and each TSP should bear costs for its traffic.**
8. **The emergency charges should be cost based following principle of equality and should be governed by TRAI regulations.**
9. **There is a need to review ITC charges and address the menace of flash calls.**
10. **There is a no need to review the present cost-based P2P SMS charges. However, there is an urgent need to review/ introduce deterrent charge for both A2P SMS and Voice calls.**