Bharti Airtel Limited
India & South Asia
Airtel Center, Plot No. 16,
Udyog Vihar, Phase-IV,
Gurugram - 122015

www.airtel.in
Call + 91 124 4222222
Fax + 91 124 4243252

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15th December 2025

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

Subject: Bharti Airtel's Comments on Consultation Paper on *Review of existing TRAI Regulations on Interconnection matters*

Reference: TRAI's Consultation Paper dated 10th November 2025

Dear Sir,

This is in reference to TRAI's Consultation Paper on *Review of existing TRAI Regulations on Interconnection matters dated 10th November 2025.*

In this regard, please find enclosed our comments to the consultation paper for your kind consideration.

Thanking You,

Yours Sincerely,
For **Bharti Airtel Limited**

Rahul Vatts
Chief Regulatory Officer

Encl: a.a

Preamble:

1. Airtel would like to thank the Telecom Regulatory Authority of India (**"Authority"**) for the opportunity to submit its views on the Consultation Paper on "Review of existing TRAI Regulations on Interconnection matters".

2. Interconnection constitutes a foundational pillar of the Indian telecommunications architecture and is universally recognized as a critical enabler of seamless connectivity. A robust, predictable, and forward-looking interconnection regime ensures that subscribers across networks – irrespective of their choice of service provider – can communicate without barriers or degradation of quality.

3. In an era where connectivity underpins economic activity, social inclusion, and public service delivery, the integrity of the interconnection framework is fundamental to ensuring that India's digital transformation remains inclusive, interoperable, and resilient. In the absence of a predictable and robust interconnection regime, the networks risk devolving into isolated islands – an outcome fundamentally at odds with the nation's policy vision of universal and integrated connectivity.

4. While meant for enabling connectivity, telecom networks are being increasingly misused. Spam messages and telemarketing/robo-calls from both domestic and global sources are flooding the networks, adversely impacting both customers and operators. Thus, the interconnection framework needs to be re-aligned to control spam, safeguard the interests of the customers and maintain the integrity of networks.

5. In this regard, Airtel would like to highlight the following issues, which require the urgent intervention of the Authority:

a. Upward Revision of International Termination Charges:

i. The present ceiling of ₹0.65/minute on International Termination Charges **("ITC")** applicable to international incoming calls to India – **fixed more than half a decade ago** – remains substantially below global norms and places Indian operators at a structural disadvantage vis-à-vis foreign networks. Indian TSPs are required to maintain extensive last-mile infrastructure, ensure high-quality termination, and comply with rigorous regulatory obligations, yet receive **less than a tenth of the termination charges prevalent in several major jurisdictions**.

ii. A comparative analysis underscores this inequity – while countries across North America, Europe, the Middle East, and Asia impose termination charges ranging from approximately ₹2 to ₹19 per minute, India's ceiling of ₹0.65/minute is among the lowest worldwide. Furthermore, Indian operators pay nearly ₹3–3.50/minute for terminating outbound traffic on foreign networks, creating a regime devoid of reciprocity and heavily skewed against Indian service providers. **Compounding this**

imbalance, many countries have increased their ITC rates in recent years, whereas India's rate has remained effectively unchanged since 2020.

iii. It is pertinent to note that such artificially suppressed ITC has also created serious vulnerabilities. **Low international termination charges have made India an attractive target for foreign spammers, scam syndicates, and malicious actors who exploit the low cost of landing international calls to conduct fraudulent, unsolicited, and harmful communication at scale.** While Indian operators have invested heavily in sophisticated anti-spam frameworks – including DLT systems, header and template verification, and real-time compliance under the Telecom Commercial Communication Customer Preference Regulations, 2018 (**"TCCCPR"**) – the effectiveness of these measures is materially weakened by low ITC levels that incentivize abuse originating beyond India's borders.

iv. It is important to emphasize that **revising ITC upwards will not affect Indian customers, as international incoming calls are not charged to the recipient.** The cost burden lies entirely on foreign originating carriers, many of whom currently benefit from India's undervalued termination market while offering no reciprocal advantage to Indian networks. An upward revision would simply restore fairness, support infrastructure investment, enhance foreign exchange inflows, bolster network security, and reduce systemic exploitation – all without imposing any cost on domestic customers.

v. The prevailing regime has also resulted in significant commercial and national losses. Foreign intermediaries and hub providers capture substantial margins by exploiting India's low ITC, while Indian operators receive disproportionately low compensation despite bearing the actual cost of termination. **This arbitrage drains value from the domestic industry, weakens the sector's financial resilience, and adversely impacts India's balance of payments in international telecom settlements.**

vi. In light of these considerations, **an upward revision of ITC is both justified and necessary. It is vital to restore commercial parity, deter misuse of Indian networks, strengthen national security, and align India with global benchmarks. Accordingly, it is recommended that:**

- **The ITC ceiling be immediately revised from ₹0.65/minute to at least ₹4-5/ minute, to partially bridge the gap with international norms.**
- **A glide path be established to progressively align India's ITC rates with global benchmarks over the next 2-3 years.**

vii. Such a calibrated revision will safeguard national interests, address systemic vulnerabilities, and support a sustainable and equitable international interconnection framework for India.

b. Need for Commercial Segregation and Deterrent Charges for A2P SMS:

i. **The misuse of P2P interconnection pathways for commercial A2P traffic has become a key enabler of spam and fraudulent communication**. By routing A2P SMS and calls through PoIs meant for P2P communication, telemarketers avoid entering into direct commercial agreements with terminating operators – agreements that would otherwise include essential controls such as usage-based tariffs, disconnection safeguards, and penalties for non-compliance. This practice not only undermines network-level spam filtering but also results in revenue leakage, QoS deterioration, and erosion of customer trust, particularly as fraudulent robo-calls increasingly target UPI, OTP, and financial credentials.

ii. In addition, **certain licensees with negligible subscriber bases have secured PoIs solely to terminate bulk A2P traffic**, benefiting disproportionately from zero voice termination charges and minimal SMS IUC, while major TSPs bear the full infrastructural cost and customer backlash associated with spam and fraud.

iii. **Therefore, to restore regulatory integrity, protect customers, and ensure that enterprise traffic enters telecom networks in a secure and accountable manner, it is essential to mandate full commercial segregation between P2P and A2P communication, restrict the mandatory interconnection regime strictly to P2P traffic, and require all telemarketers to establish direct interconnection arrangements with terminating operators.** This will ensure that all mandatory verification and security checks (CLI validation, consent status, preference settings, and spam scoring) are applied at the network layer itself, eliminating the vulnerabilities created by unregulated telemarketers.

iv. In addition, to ensure **accurate billing and full transparency for PEs**, delivery reports of A2P SMS should be handed over directly to each PE by every operator through their respective DLT nodes.

c. Introduction of Deterrent Charges on A2P SMS and Calls for Enhanced Customer Protection:

i. The above approach of mandating the telemarketers to establish direct interconnection arrangements with terminating operators requires PoI segregation and commercial realignment, which might be considered as a complex process in terms of implementation. An alternative approach can be opted for, wherein, A2P traffic continues to be routed through the existing interconnection framework, but with the effective deterrent charges aimed at discouraging misuse and excessive commercial traffic.

ii. Currently, an additional charge of ₹0.05 applies on Service/Promotional SMS, in addition to the termination of ₹0.02. This framework neither reflects the significant investments made by operators nor offers any meaningful deterrence against unsolicited and excessive messaging. **The low pricing of commercial SMS has enabled enterprises to continue mass-messaging at extremely low cost, leading to traffic flooding, deterioration of customer experience, and erosion of trust in legitimate commercial communication.**

iii. In any case, **the existing additional charge of ₹0.05 per Service/Promotional SMS was never conceptualized as a deterrent mechanism**, it was simply introduced as an add-on commercial component. This inadequacy persists despite operators making substantial capital and operational investments in implementing the Distributed Ledger Technology (**"DLT"**) ecosystem mandated under the TCCCPR, including sender registration, consent management, header/template verification, and real-time traceability.

iv. Moreover, India's total effective commercial SMS termination charge of ₹0.07 remains among the lowest globally – **significantly below rates prevailing in countries such as Argentina, Brazil, the UK, Turkey, the US, and Canada** – demonstrating that an upward revision would neither create market distortion nor impose unreasonable financial burden on genuine enterprise communication.

v. In this context, it is imperative for the Authority to **consider revising the overall termination charge for commercial SMS from the existing level of ₹0.07 (₹0.02 + additional charge of ₹0.05 under the TCCCPR) to at least ₹0.11-0.12 (₹0.02 + additional charge of ₹0.09-0.10)** – to curb spam, incentivize responsible enterprise behavior, and ensure recovery of the substantial costs incurred in maintaining DLT-based compliance infrastructure.

vi. Conversely, while an additional charge of ₹0.05 has still been implemented in respect of commercial SMS, A2P calls have continued completely unchecked. From a customer's point of view, telemarketing and robo-calls present a much greater nuisance/risk factor than commercial SMS. Thus, **there is an urgent need to introduce a deterrent charge of say, ₹0.50/minute on A2P calls, to check this growing menace.**

d. Two-Way Communication on 1600xx Number Series under the IN Framework:

i. There is an urgent need to modernize the framework governing the 1600xx number series, which has been earmarked by DoT for outbound service-related calls. As customer protection requirements intensify and fraud risks rise, particularly in sectors such as banking, healthcare, insurance, and fintech, enterprises increasingly require a trusted, single-number identity that supports *both* outgoing and incoming communication. Enabling two-way calling on the 1600xx series will significantly

enhance brand authenticity, improve customer confidence, and serve as a critical safeguard against impersonation and fraud.

ii. For regulatory uniformity and technical feasibility, Airtel recommends that the 1600xx series be brought under the IN framework, similar to the 1800xx series. Formal classification under the IN Regulations, 2006 will ensure that all service provisioning, routing, and charging, including the applicable IN interconnect charge of ₹0.52/ minute, remain uniform and compliant across all service providers. This measure will not only strengthen the integrity of customer communication channels but also support a harmonized, secure, and fair interconnection environment.

iii. Therefore, Airtel recommends that incoming call capability should be enabled for the 1600xx series, under the same regulatory and charging framework applicable to the 1800xx series – i.e., under the IN Regulations (with IN interconnect charge of ₹0.52/minute).

e. Fair, Modern and Reciprocal Interconnection Practices Across All Operators

i. Over the last two decades, the interconnection landscape among private telecom operators has evolved into a mature, technically robust, and commercially balanced ecosystem. Driven by both market efficiency and the Authority's regulatory direction, private TSPs have seamlessly transitioned from legacy TDM systems to modern IP-based interconnection, consolidated PoIs at higher network layers, rationalized technical interfaces, and adopted reciprocal and equitable cost-sharing frameworks. This evolution has resulted in a predictable, cooperative, and low-friction operational environment that consistently upholds high standards of interoperability and service continuity for customers.

ii. The **private operators have continually demonstrated proactive alignment with the Authority's policy objectives** – whether through consolidation of interconnection at advanced network layers, adoption of IP-centric architecture, strict adherence to provisioning and augmentation timelines, maintaining granular traffic bifurcation, or ensuring transparent and equitable settlement arrangements. Collectively, these measures have substantially reduced disputes, strengthened operational reliability, and furthered a stable interconnection regime that functions smoothly without regulatory burden.

iii. However, we deem it critical to highlight that **persistent non-compliance, asymmetry in operational practices, and recurring friction in interconnection processes predominantly arise at the PSU operator's end**. Despite the explicit mandates under the Interconnection Regulations – particularly those relating to reciprocal cost sharing, timely PoI provisioning and surrender, mandated phase-out of SDCA-level PoIs, and LSA-level consolidation – the PSU operator continues to follow legacy, unilateral, and non-reciprocal practices. These include treating private TSPs as perpetual "seekers",

delaying PoI commissioning and consolidation efforts, and imposing non-reciprocal charging methodologies across IN, transit, and transit-carriage scenarios.

iv. Such entrenched disparities not only contravene the Authority's objectives of neutrality, fairness, and regulatory symmetry but also enable the PSU operator to exercise de facto gatekeeping control over key interconnection and service deployment processes – particularly for fixed-line expansion and next-generation IP-based connectivity. This **structural imbalance imposes unwarranted operational and competitive constraints on private operators** and underscores the urgent need for targeted regulatory intervention to restore parity, safeguard market stability, and uphold the integrity of India's interconnection regime.

v. Given that interconnection constitutes the essential foundation for delivering seamless telecommunications services, **Airtel strongly submits that it is imperative that the regulatory framework uphold parity across operator classes – private and PSU, domestic and foreign – consistent with the principles of non-discrimination, fairness, and competitive neutrality.** An equitable and technologically aligned interconnection environment is indispensable for supporting the next phase of India's digital communications evolution, including the transition to all-IP networks, LSA-centric architectures, and more secure, spam-resilient ecosystems.

Airtel reiterates its commitment to constructively engaging with the Authority and all stakeholders to ensure that India's interconnection regime evolves in step with the sector's transition to IP-based, LSA-centric, secure, and spam-resilient networks, while upholding parity across operator classes and safeguarding customer experience.

In summary:

- ✓ *Ceiling for ITC should be revised from ₹0.65/minute to at least ₹4-5/minute immediately to bridge the gap between Indian and global rates to some extent. Further, the Authority should also create a glide path to align ITC with global benchmarks in next 2-3 years.*
- ✓ *Commercial segregation of P2P and A2P traffic should be mandated. Scope of mandatory interconnection regime should be strictly limited to P2P voice and SMS communication only; and telemarketers should be required to establish direct interconnection arrangements with terminating operators under mutually agreed commercial terms.*

  As an alternative, the overall termination charge on domestic commercial SMS should be revised from the existing level of ₹0.07 to at least ₹0.11-0.12 (₹0.02 + additional charge of ₹0.09-0.10). Also, a deterrent charge of say, ₹0.50/minute, should be introduced for A2P calls.
- ✓ *Delivery reports of A2P SMS should be handed over directly by operators to PEs.*

- ✓ *Incoming call capability should be enabled on 1600xx series, under the same regulatory & charging framework applicable to 1800xx series – i.e. under IN Regulations (with IN interconnect charge of ₹0.52/call).*
- ✓ *Mandate symmetric commercial terms across all operators, including the PSU operator – to ensure a level playing field, recognizing reciprocity as a foundational principle for interconnection agreements.*
- ✓ *Interconnection should be mandated to be at LSA-level. Existing PoIs at LDCA/SDCA-level should also be migrated to LSA-level within prescribed timelines.*
- ✓ *IP-based interconnection should be mandated for new interconnections. Operators should be mandated to migrate existing TDM-based E1 interconnection to IP-based interconnection within prescribed timelines.*
- ✓ *Origination charges should continue to be under forbearance.*
- ✓ *No need to review existing ceiling of ₹0.35/minute on carriage charges for domestic calls.*
- ✓ *Transit/transit carriage charges should be done away with.*
- ✓ *No need to review the existing termination charges for P2P calls/SMS.*
- ✓ *Only IUC should apply to emergency calls, and there should be no lump sum fees or any other additional charges.*
- ✓ *Port charges should be revised based on actual cost-per-bit of IP-based electronic and optical equipment – with a bi-annual review to ensure they remain fair, competitive, and transparent.*

In the remainder of this document, please find Airtel's question wise response to the Consultation Paper.

Question-wise Comments

Q1. For PSTN to PSTN, PLMN to PSTN and PSTN to PLMN, should the interconnection level be specified at LSA level? If yes, should the existing POIs at the LDCA/SDCA level also be migrated to the LSA level? Kindly justify your response.

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Q2. For PSTN to PSTN, PLMN to PSTN, PSTN to PLMN and PLMN to PLMN, should interconnection be allowed at a level other than the LSA level, based on mutual agreement? Kindly justify your response.

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Q3. Based on your response to Question 1 and 2 above, what changes, if any, are required in the level of interconnection/point of traffic handover as provided in the following:

a) Telecommunication Interconnection Regulations (TIR), 2018, and

b) Guidelines annexed to the Telecommunication Interconnection (Reference Interconnection Offer) Regulations, 2002?

Kindly justify your response.

Airtel Response to Q1, Q2 and Q3:

1. **For PSTN to PSTN, PLMN to PSTN and PSTN to PLMN, the interconnection level should be specified at LSA-level; and the existing PoIs at the LDCA/SDCA-level should also be migrated to the LSA-level within prescribed timelines.**

2. Interconnection constitutes a critical pillar of India's telecom infrastructure, enabling seamless and ubiquitous communication across networks and ensuring continuity of essential services nationwide. As the sector undergoes an irreversible transformation from legacy circuit-switched systems to modern, IP-based, converged network architectures, it is imperative that the regulatory framework governing interconnection evolve in tandem to safeguard network efficiency, enhance resilience, and uphold fair, non-discriminatory competition.

3. The existing architecture involving interconnection at SDCA/LDCA-level was originally designed for earlier-generation TDM/E1 hierarchical networks. These structures have since become obsolete and no longer reflect the architectural and operational requirements of contemporary telecom networks. Modern IP cores are fully capable of aggregating and routing traffic efficiently at LSA-level. This renders lower level interconnection points technologically redundant, operationally inefficient and economically unjustifiable.

4. Further, the **Telecom Interconnection Regulations, 2018 ("TIR 2018")**, as amended by the Telecommunication Interconnection (Second Amendment) Regulations, 2020 (**"TIR 2nd Amendment 2020"**), states that the PoI be at such location as may be mutually agreed between the operators involved and that in situations where the operators fail to reach an

agreement, the PoI be at LDCA-level. Further, it expressly provides for the phase-out of existing PoIs at SDCA-level, which may remain in operation only for 5 years from the date of TIR 2nd Amendment 2020 (i.e. till 9th July 2025), unless mutually closed earlier.

5. Hence, due flexibility is provided to operators for centralization of PoIs at LSA-level, as per mutual agreement. **In fact, the interconnection among all private operators is now limited to a couple of locations in an LSA, depending on traffic and redundancy requirements.**

6. However, in the absence of a mandate, the PSU operator does not agree to this arrangement. This forces the private operators, intending to launch fixed line services in an SDCA, to seek interconnection with the PSU operator at SDCA/LDCA-level. This is despite the fact that, in a majority of cases, the PSU operator faces technical challenges in providing interconnection at the SDCA/LDCA-level. Moreover, in a majority of these interconnects, the traffic within an SDCA is so abysmally low, that it does not justify having a separate PoI at SDCA-level.

7. What this effectively results in is a situation where the **roll-out plans of private operators are contingent upon the willingness of a competing operator** to cooperate – a clearly untenable arrangement. **Such a scenario, where a competitor effectively determines the pace of service deployment, is antithetical to a fair market functioning.** Therefore, it is imperative that the Authority urgently intervene to rectify this anomaly and ensure a predictable and enabling interconnection environment. In any case, as mentioned above, **the transition window for the phase-out of SDCA-level PoIs has already expired; and therefore, moving to higher level interconnection is not only desirable but already mandated.**

8. A highly decentralized interconnection model based on mandatory SDCA/LDCA-level interconnection is in the best interests of no one – neither the operators nor the customers. This is because it leads to an increase in the cost of operations for operators which, in turn, results in an increase in the prices paid by end customers. Further, such a requirement acts as a deterrent to the launching of fixed line services in smaller towns where establishing SDCA/ LDCA-level interconnection with the PSU operator is mandatory.

9. Additionally, **establishing interconnection at LSA-level will not only be technically efficient, it will also be economically prudent for all operators (including the PSU operators).** It will help the PSU operators by freeing up their capital and resources in SDCAs/LDCAs where their equipment is reaching end of life. This, in turn, will eliminate the need to establish interconnection at SDCA/LDCA-level, an extremely slow and time-consuming process that leads to a delay in the roll out of services.

10. Moreover, in its Recommendations dated 6th February 2025 on "Revision of National Numbering Plan", the Authority has recommended migration from the existing SDCA-based numbering scheme to an LSA-based 10-digit closed numbering scheme for fixed-line services. To facilitate such a transition, it has expressly recognized the need to shift to LSA-level IP interconnection. Thus, it is amply evident that **the legacy SDCA/LDCA-level interconnection**

model is fundamentally incompatible with India's future network and numbering architecture.

11. Lastly, in view of the foregoing, certain **changes are required in the level of interconnection/ point of traffic handover as provided in the TIR 2018, and the Guidelines annexed to the Telecommunication Interconnection (Reference Interconnection Offer) Regulations, 2002 ("RIO Regulations").** Accordingly, we propose the following changes:

    a) TIR 2018: Regulation 9A requires modification to shift the default level of interconnection from the LDCC to the LSA. Additionally, the provisos that allowed existing SDCA-level PoIs to continue for 5 years should be removed, as the stipulated period has already lapsed and is no longer relevant.

    b) Guidelines annexed to the RIO Regulations: The traffic routing tables (Tables 1.1, 1.2, 2.1, and 2.2) included in the RIO require a comprehensive overhaul. These tables are based on legacy switching hierarchies – SDCA, LDCA, and TAX – which are no longer aligned with modern IP-based network architectures. The routing framework should be revised to reflect LSA-level interconnection as the standard handover point. Scenarios for local, intra-circle, and inter-circle calls must be redefined around the LSA as the primary reference, simplifying and modernizing the routing logic.

    c) Definition of Local Call: To ensure consistency across technologies, the definition of a local call should be harmonized for both mobile and fixed-line services. All intra-LSA calls should be categorized as local calls, while inter-LSA calls should be classified as long-distance calls.

12. **Therefore, Airtel recommends the following:**

    a. The interconnection level for PSTN to PSTN, PLMN to PSTN and PSTN to PLMN should be specified at LSA-level.

    b. The existing PoIs at the LDCA/SDCA-level should also be migrated to the LSA-level within prescribed timelines.

    c. TIR 2018 as well as the Guidelines to RIO Regulations should be amended to reflect the above.

Q4. Is there a need to mandate multi-path resiliency and redundancy in the Point of Interconnection (POI) framework to mitigate link failure at the primary POI in the case of:

i. **PSTN-PSTN interconnection,**
ii. **PLMN-PLMN interconnection, and**
iii. **PLMN-PSTN interconnection?**

If yes, kindly provide an appropriate architectural framework with diagram. Kindly justify your response.

Airtel Response to Q4:

1. **No, there is no need to mandate multi-path resiliency and redundancy in the PoI framework to mitigate link failure at the primary PoI in the case of PSTN-PSTN interconnection, PLMN-PLMN interconnection, and PLMN-PSTN interconnection.**

2. An operator's service hinges on continuity and reliability for customers. Hence, operators are already committed to ensuring network resiliency. **Networks are already designed and built with the appropriate redundancy to account for link failures**. Thus, any mandates on multi-path resiliency and redundancy in the PoI framework or additional directions from the Authority may only increase the compliance burden on operators without adding any value.

3. **Therefore, Airtel recommends that there is no need to mandate multi-path resiliency and redundancy in the PoI framework.**

Q5. Is there a need to incorporate security provisions in the interconnection framework to ensure network security? If yes, kindly provide details along with an appropriate architectural diagram. Kindly justify your response.

Airtel Response to Q5:

1. **No, there is no need to incorporate security provisions in the interconnection framework to ensure network security.**

2. An operator's service hinges on continuity and reliability for customers. Thus, operators are already committed to ensuring network security. **Networks are already designed and built with appropriate safeguards against security threats**. In any case, operators are required to comply with the detailed network security requirements laid down as part of **license conditions** as well as the recently notified **Telecommunications (Telecom Cyber Security) Rules, 2025** and **Telecommunications (Critical Telecommunication Infrastructure) Rules, 2025**. Thus, any mandatory security provisions in the interconnection framework or additional directions from the Authority would only increase the compliance burden on operators, without adding any value.

3. **Therefore, Airtel recommends that there is no need to incorporate security provisions in the interconnection framework.**

Q6.
(a) Should IP-based interconnection be mandated for new interconnections in the regulatory framework? Kindly justify your response.
(b) Should TSPs be mandated to migrate existing TDM based E1 interconnection to IP-based interconnection within a specified period? If yes, suggest timelines. Kindly justify your response.

Airtel Response to Q6:

1. **Yes, IP-based interconnection should be mandated for new interconnections in the regulatory framework. Further, operators should be mandated to migrate existing TDM-based E1 interconnection to IP-based interconnection within a specified period.**

2. The telecom industry is undergoing a structural shift toward all-IP networks to enable high-quality services such as VoLTE, video calls and other real-time applications. With the advent of IP-based networks, the TDM-based circuit-switched networks are being replaced with IP-based, packet-switched core networks.

3. In the case of IP-based, packet-switched core networks, a single soft switch along with the required number of Access/Line Media Gateways (**"LMG"**) and Trunk Media Gateways (**"TMG"**) can replace a large number of standalone TDM-based switches. In fact, one soft switch may be sufficient to cater to the requirement of one or more than one LSAs. As a large number of LMGs and TMGs can be parented to a single Soft Switch, the requirement of a large number of standalone TDM switches can be done away with.

4. All major private operators have already migrated a substantial portion of their PoIs to IP. Even the PSU operator has deployed IP-TAX Trunk Media Gateways and NGN infrastructure, but continues to maintain legacy TDM-based interconnection arrangements with private operators.

5. This dual structure leads to interoperability issues, degraded call quality (especially for VoLTE-to-VoLTE or video calls across networks), inefficient capacity utilization, and increased operational costs. Additionally, the PSU operator's fragmented PoI provisioning for fixed-line services, despite its own centralized switching architecture, continues to result in delays and network-planning challenges.

6. Further, although private operators do not charge each other for IP-based interconnection, the PSU operator has cited the absence of regulatory clarity on IP-based interconnection charges as a key bottleneck.

7. The Authority may consider establishing a committee comprising of representatives from all operators (including the PSU operators), to oversee the transition from TDM to IP-based interconnection in a time-bound and structured manner. The committee may be entrusted with the following responsibilities:

   - Identifying and resolving operational, technical, and interoperability challenges associated with the migration
   - Formulating mutually agreed, realistic, and implementation-ready timelines for transitioning existing interconnection agreements
   - Monitoring the migration process, ensuring compliance with the defined roadmap, and facilitating timely completion of all transition milestones

8. **<u>Therefore, Airtel recommends the following:</u>**

   a. **IP-based interconnection should be mandated for new interconnections.**

   b. **Operators should be mandated to migrate their existing TDM-based E1 interconnection to IP-based interconnection within prescribed timelines.**

Q7. Should the existing processes of 'provisioning and augmentation of ports at POIs' under Chapter IV of the TIR 2018 in respect of following need revision:

i. Seeking of ports at POIs,
ii. Request for initial provisioning of ports, and
iii. Request for augmentation of POIs?

Kindly provide your response with justification.

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Q8. Should the existing framework for Interconnection process and timelines, as provided in the existing TRAI regulations including, The Telecommunication Interconnection Regulations (TIR) 2018, The Telecommunication Interconnection (RIO) Regulations, 2002, and The Telecommunication Interconnection (Charges and Revenue Sharing) Regulation 2001 be revised or continued.

Kindly indicate challenges, if any, currently being faced in the implementation of the framework by the TSPs and their possible remedies.

Kindly provide your response with detailed justifications.

Airtel Response to Q7 and Q8:

1. The Authority – being the telecom regulator – has been tasked with ensuring "*technical compatibility and effective interconnection between different service providers*", under Section 11(1)(b)(iii) of the Telecom Regulatory Authority of India Act, 1997 (**"TRAI Act"**). Airtel appreciates the efforts made by the Authority towards regulating various interconnection matters through the multiple regulations issued from time to time, as also listed in the instant Consultation Paper.

2. However, Airtel submits that a majority of the provisions under the said regulations are being selectively applied only to private operators, leading to significant operational difficulties and financial disparities for private players. **The unilateral terms imposed by the PSU operator are archaic**, having been designed at a time when the PSU operator held a monopoly over telecom services and private players were compelled to accept several unfair and unreasonable demands in order to establish mandatory interconnection and launch their services.

3. It is important to acknowledge that the legacy behaviour of the PSU operator – exercising unilateral authority for over three decades – continues to manifest in today's interconnection arrangements. **Despite a drastically transformed telecom landscape, where private operators now carry the bulk of network traffic, make substantial infrastructure investments and bear primary responsibility for customer service, interconnection continues to be governed by outdated and, often, one-sided practices. This reflects a disconcerting imbalance in process wherein private players are expected to function within a framework of mutual cooperation, while the PSU operator retains the liberty to impose conditions with little regard for fairness or reciprocity.**

4. Such an arrangement is inherently discriminatory. It places private operators at a structural disadvantage, forcing them to operate under a regime that has failed to evolve with the liberalization and competitive progression of India's telecom sector. These challenges are compounded by the lack of adequate avenues for recourse or enforcement towards ensuring parity in the application of interconnection norms.

5. In view of the foregoing, the challenges currently being faced in the implementation of the framework by the operators, and their possible remedies, are listed in detail in the subsequent paras:

I. End 'Perpetual Seeker' Status:

a. **For nearly three decades, since the liberalization of India's telecom sector, private operators have consistently been treated as "seekers" in interconnection arrangements with the PSU operator – regardless of market share, traffic volume, or infrastructure contribution.** This entrenched classification was originally a product of a bygone era when private players were new entrants and the PSU held a dominant

position. **However, even today, despite the reversal in market dynamics and clear regulatory guidance under the TIR 2018, this outdated treatment persists.**

b. The TIR 2018 framework mandates that the cost burden of interconnection – covering infrastructure and transmission – should be shared equitably between operators, with each bearing the cost of its outgoing traffic after an initial two-year period of the interconnection being established. Yet, the PSU operator continues to classify private operators as perpetual "seekers" beyond this two-year period under legacy bilateral agreements (except in Delhi and Mumbai), thereby not adopting the reciprocal terms of the agreement.

c. This not only disregards the principles set down by the regulatory framework but also constitutes a blatant violation of the principle of non-discrimination. By exempting itself from shared cost obligations while imposing them unilaterally on others, the PSU operator creates an uneven playing field, distorting fair market conduct and undermining trust in the regulatory ecosystem.

d. The resulting cost asymmetry has led to repeated financial disputes and operational inefficiencies – impediments that are neither justified nor sustainable in a modern, competitive telecom market. **Equal and non-discriminatory implementation of cost-sharing obligations is essential to uphold the integrity of the interconnection framework.**

e. **Therefore, Airtel recommends that clear and enforceable directions should be issued, mandating that no operator is treated as a perpetual "seeker" beyond the stipulated initial two-year period.**

II. Mandate Compulsory Implementation of PoI Traffic Bifurcation:

a. The TIR 2018 requires the bifurcation of PoI capacity based on traffic direction (incoming vs. outgoing), enabling each operator to manage its own traffic and billing responsibilities independently. However, the PSU operator has repeatedly delayed this process, often citing administrative hurdles or proposing draft addenda that do not conform to the Authority's regulations.

b. In many circles, the PSU operator has refused to implement retrospective bifurcation from 2018 and insists on applying it only from the date of addendum execution – something that in most cases has been pending for years. This regulatory non-compliance has caused ongoing billing discrepancies, revenue losses, and unresolved disputes for private operators.

c. Therefore, Airtel recommends that the bifurcation of PoI capacity, as envisaged under the TIR 2018, should be enforced retrospectively from 2018, with defined accountability and redressal timelines.

III. Ensure Timely PoI Commissioning:

a. Despite a regulatory mandate under TIR, 2018 requiring a PoI set up within 42 days, the PSU operator routinely exceeds this timeframe, adversely impacting the service rollout and expansion plans of private operators.

b. **Therefore, Airtel recommends that PoIs should be deemed commissioned at the end of 42 days from the date of application, and the applicant should be allowed to roll-out its services.**

Q9. Whether there is a need to revise the existing process of disconnection of POIs as provided in the regulation 11 of the Telecommunication Interconnection Regulations (TIR) 2018? If yes, what specific changes should be done in the disconnection procedure. Kindly justify your response.

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Q10. Is there a need to introduce a process for the surrender or closure of POIs in the regulatory framework? If yes, what should be the criteria, procedure, charges, and timelines, including the minimum retention period for POIs before a surrender or closure request can be made? Kindly justify your response.

Airtel Response to Q9 and Q10:

1. **Yes, there is a need to introduce a process for the surrender or closure of PoIs in the regulatory framework.**

2. Currently, the surrender of PoIs or ports is often met with no response from the PSU operator, resulting in prolonged periods during which private operators continue to be billed for unused or underutilized capacity. This violates the cost-sharing spirit of the regulation and financially disadvantages private operators.

3. **Therefore, Airtel recommends that there be a time-bound, regulated process put in place for PoI surrender, with standardized formats and explicit provisions stipulating that on failure of the PSU operator to act within the stipulated period, no further charges will apply and that private operators will be free to remove their equipment.**

Q11. In order to safeguard the interest of TSPs arising due to financial obligations of interconnection, is there a requirement for furnishing bank guarantee by one TSP to the other TSP? If yes, please provide the process and methodology for determining the initial bank guarantee amount and any subsequent bank guarantee amount, if required. Kindly justify your response.

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Q12. Should a procedure be established for addressing delays in the payment of interconnection-related charges? If yes, what should be the procedure to address such delays? Kindly provide your response with justification.

Airtel Response to Q11 and Q12:

1. Please refer to Airtel's response to Q7-8.

2. Despite the dramatic evolution in India's telecom landscape – from analog to digital, circuit-switched to IP-based and manual provisioning to real-time network management – the systems and interconnection mechanisms followed by the PSU operator remain rooted in a regulatory and operational mindset from thirty years ago. While the cost of spectrum, infrastructure, security, and service delivery has significantly increased for all operators, the regulatory obligations and frameworks governing the PSU operator's conduct have not been updated in tandem.

3. **Interconnection agreements with the PSU operator are often one-sided. For instance, the PSU operator imposes higher interest rates on delayed payments by private operators, while paying no interest on their own outstanding dues. Additionally, bank guarantees are also not reciprocal in structure or amount.**

4. This has created entrenched inefficiencies and exploitable gaps, allowing the PSU operator to selectively comply with outdated norms, delay modernization, and retain procedural discretion – all of which distorts fair competition and delays the rollout of services to customers. It is imperative that these regulatory arbitrage opportunities are closed through clear timelines, mandatory compliance, and enforcement by the Authority.

5. **Therefore, Airtel recommends that the Authority mandate symmetric commercial terms across all operators – including the PSU operator – to ensure a level playing field, thereby recognizing reciprocity as a foundational principle for interconnection agreements.**

Q13. Is there a need to revise the financial disincentive framework as provided in these regulations. If yes, what specific changes should be done? Kindly justify your response.

Airtel Response to Q13:

1. **<u>Yes</u>, there is a need to revise the FD framework as provided in the TIR 2018.**

2. At the outset, Airtel would like to state that it remains opposed to the concept of FD in principle. However, it is important to state here that the implementation of the interconnection framework among private operators is fairly stable. It is only the PSU operators, at whose end contraventions emerge regularly and, yet, there seem to be no consequences for them.

3. Accordingly, it is critical that the FD framework is revised to ensure parity across all operators, including and especially the PSU operators. The revised framework should include:

    - **Penalties for refusal or delay in entering reciprocal interconnection arrangements**, especially where such delays impact service rollout, quality of service or customer experience.

    - **Stricter and time-bound disincentives for non-compliance with port provisioning, PoI augmentation or traffic bifurcation obligations**, particularly where delays by one operator cause congestion or service deterioration for another.

    - **Uniform financial consequences for all operators, including the PSU operators**, so that they may not impose unilateral terms or avoid compliance without repercussions.

4. This will promote fairness, discipline, and timely compliance, ensuring smooth interconnection, reducing disputes, and improving overall sector efficiency.

5. **<u>Therefore, Airtel recommends that the FD framework under TIR 2018 should be revised to ensure uniform application across all operators, including the PSU operators.</u>**

Q14. Is there a need to revise the existing SMS termination charge? If yes, what are the considerations necessitating such a revision? If not, kindly provide justification.

Airtel Response to Q14:

1. P2P SMS continues to be governed by the cost-based SMS termination charge as stipulated under the SMS Termination Charges Regulations, 2012. This P2P SMS ecosystem has remained stable, efficient, and free of any market distortions under this regulatory framework. Accordingly, there is no justification for any intervention or modification in the existing P2P SMS termination charges.

2. In respect of A2P SMS, please refer to Airtel's response to Q22 below. We submit that it should be mandated to have commercial segregation of P2P and A2P traffic. The scope of the mandatory interconnection regime should be strictly limited to P2P voice and SMS communication only. Further, telemarketers should be required to establish direct interconnection arrangements with terminating operators.

3. However, the above approach of mandating telemarketers to establish direct interconnection arrangements with terminating operators would require PoI segregation and commercial realignment, making implementation operationally complex. Accordingly, as an alternative, we propose the revision of existing termination charges, specifically aiming to curb unsolicited and excessive A2P messaging.

4. While the current regulatory framework prescribes certain charges for such messages, it neither provides an adequate deterrent against misuse nor accounts for the substantial investments made by terminating operators. **This creates an urgent need to revisit the existing structure and introduce a distinct deterrent charge specifically aimed at curbing unsolicited and excessive A2P messaging.**

5. At present, an additional charge of ₹0.05 is levied on Service and Promotional SMS, under the provisions of the TCCCPR. This charge, however, was never conceptualized as a deterrent mechanism, it was simply introduced as an add-on commercial component. While it has marginally contributed to reducing extremely low-cost bulk messaging, it remains insufficient to meaningfully discourage the misuse of A2P channels. Enterprises continue to send mass messages at very low cost, resulting in flooding of SMS traffic, deterioration of customer experience, and an erosion of trust in legitimate commercial communications.

6. Further, it is important to highlight that this ₹0.05 add-on charge was prescribed at a time when the DLT framework had not yet been deployed. Since then, operators across the industry have undertaken significant capital and operational expenditure to establish, integrate, and maintain advanced DLT systems. These platforms enable sender registration, consent management, header and content template verification, scrubbing, and real-time traceability, forming the backbone of India's anti-spam architecture. Despite this robust regulatory and technological ecosystem, spam and unsolicited messaging remain persistent, primarily because current pricing does not impose any real deterrence on bulk spammers or non-compliant entities.

7. There is, therefore, a compelling need to **revise the overall termination charge on domestic commercial SMS from the existing level of ₹0.07 (₹0.02 + additional charge of ₹0.05 under the TCCCPR) to at least ₹0.11-0.12 (₹0.02 + additional charge of ₹0.09-0.10)**. Such a charge would:

    - Encourage enterprises to adopt more selective, targeted, and responsible messaging practices.

- Strengthen the effectiveness of the regulatory safeguards already implemented to protect customers from spam.
- Support operators in meeting their ongoing DLT-related operating and compliance costs.

8. Even with the current total charge of ₹0.07 for Service and Promotional SMS, India's commercial SMS termination charges continue to remain significantly lower compared to prevailing rates in several developing and developed economies – as evident from the below table:

S. No.	Country	Domestic SMS Termination Charge (in ₹/SMS)
1.	Argentina	8.4
2.	Brazil	5.4
3.	UK	4.2
4.	Turkey	2.7
5.	US	0.7
6.	Canada	0.7
7.	South Africa	0.27
8.	**India**	**0.07**

9. Introducing a dedicated deterrent charge would therefore bring greater balance and sustainability to the A2P ecosystem without imposing unreasonable costs on genuine enterprise communication.

10. It may also be observed from the responses to the pre-consultation preceding the instant CP, that introduction of deterrent charges on commercial SMS is a collective ask of the whole industry. The Authority seems to have brushed it aside by stating that "***the subject matters of A2P promotional, service and transactional SMSs along with those related with unsolicited commercial communication such as spam SMSs are dealt under 'The Telecom Commercial Communications Customer Preference Regulations, 2018'*** *(as amended from time to time), present consultation does not envisage the review of these regulations*".

11. However, the TCCCPR was amended very recently, earlier this year and yet this critical issue was not dealt with even then. In any case, both the Interconnection Regulations and the TCCCPR come within the jurisdiction of the Authority. Further, as per the process usually followed by the Authority, Airtel understands that the instant Consultation Paper will be followed by another round of consultation on draft amendments/regulations. The Authority should, therefore, take the stakeholder comments into consideration and initiate appropriate amendments to the relevant regulations – whether it be Interconnection Regulations or TCCCPR.

12. **Therefore, Airtel recommends the following:**

    a. **There is no need to revise the existing termination charge for domestic P2P SMS.**

b. The overall termination charge on domestic commercial SMS should be revised from the existing level of ₹0.07 (₹0.02 + additional charge of ₹0.05 under the TCCCPR) to at least ₹0.11-0.12 (₹0.02 + additional charge of ₹0.09-0.10), to deter bulk spamming, encourage responsible enterprise communication practices and ensure a fair, secure and economically viable digital messaging ecosystem.

Q15. Is there a need to prescribe SMS carriage charges when an NLDO carries SMS between the LSAs? If yes, what principles and methodology should apply? If not, kindly provide justification.

Airtel Response to Q15:

1. At the outset, Airtel would like to state that it concurs with the Authority's observation in the instant Consultation Paper that the extant regulatory framework does not explicitly prescribe charges for SMS carriage by NLDOs. However, at the same time, it may also be noted that there is no regulatory prohibition on the levy of such charges. In fact, several NLDOs have already instituted such charges in accordance with existing commercial and regulatory flexibility.

2. **Therefore, Airtel believes that the extant framework already provides sufficient flexibility to NLDOs to charge for carriage of SMS.**

Q16. Is there a need to revise the existing access charge to be paid by the service provider to the originating provider for IN services? If yes, kindly provide detailed explanation; if not, kindly provide justification.

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Q17. Are there any difficulties that service providers encounter in complying with existing IN Regulations, 2006 in Multi-Operator and Multi-Network Scenario? Kindly describe these challenges in detail and suggest possible regulatory remedial measures to overcome these challenges.

Airtel Response to Q16 and Q17:

1. The existing IN Regulations, 2006 have broadly facilitated interoperable IN services and ensured reciprocal charging among private operators. However, there are certain difficulties that service providers encounter in complying with the said regulations in Multi-Operator and Multi-Network Scenario – due to non-uniform implementation by PSU operators.

2. **Although the said regulations prescribe an IN interconnect charge of ₹0.52/minute, PSU operators continue to levy ₹0.78/call/MOU for traffic originating from private operators.** This creates an unfair, non-reciprocal charging regime and results in an unjustified financial burden on private operators. To ensure parity and compliance with the regulatory intent, all IN interconnect charges should be strictly reciprocal across all operators, including PSU operators.

3. Another pertinent issue to be highlighted here is that DoT has earmarked the **1600xx number series** primarily for telemarketing and service-related **outgoing calls**. However, the current framework restricts this series to **outbound-only functionality**, with **incoming call capability not yet enabled**.

4. Given the rising volume of **unsolicited communications** and the increasing **demand from financial institutions, healthcare providers, and customer service entities** for a **trusted and unified identity**, there is now a compelling case to enable **two-way communication** on the 1600xx number series. A unified number that serves both **outgoing and incoming calls** will significantly strengthen **brand authenticity, improve customer experience**, and serve as a critical tool for **fraud mitigation**.

5. Several organizations – particularly in sectors like banking, insurance, and fintech – have expressed a need for a **single, recognizable number** to engage customers. This is not merely a matter of operational convenience, but a **security-enhancing measure** that helps establish customer trust and reduces impersonation risk.

6. However, two-way use of the 1600xx series must be enabled while simultaneously ensuring that the same regulatory and charging structure as the 1800xx series. From a regulatory and technical standpoint, this can be effectively achieved by **classifying the 1600xx series under the IN framework**. Calls managed on the IN platform allow for advanced routing and control features. Formal classification under the IN Regulations, 2006 would bring the 1600xx series under the **same service provisioning and charging structure**, ensuring **regulatory clarity** and **uniform treatment** across service providers.

7. By doing so, the Authority would not only facilitate a **customer-centric communication framework**, but also strengthen systemic efforts to **combat fraud**, **streamline interconnection practices**, and **enhance brand accountability**.

8. **Therefore, Airtel recommends the following:**

   a. **IN interconnect charges should be strictly reciprocal across all operators, including PSU operators.**

   b. **Incoming call capability should be enabled on 1600xx series, under the same regulatory & charging framework applicable to 1800xx series – i.e. under IN Regulations (with IN interconnect charge of ₹0.52/minute).**

Q18. Is there a need to revise the Telecom Regulatory Authority of India (Transit Charges for Bharat Sanchar Nigam Limited's CellOne Terminating Traffic) Regulation, 2005? Kindly provide your response with justification.

Airtel Response to Q18:

1. **No, there is no need to revise the Telecom Regulatory Authority of India (Transit Charges for Bharat Sanchar Nigam Limited's CellOne Terminating Traffic) Regulation, 2005 ("CellOne Charges Regulations") at this stage.**

2. As noted by the Authority itself in the instant Consultation Paper, CellOne Charges Regulations were issued as part of compliance to the order dated 3rd May 2005 passed by the Ld. TDSAT in TP No. 20/2004.

3. Airtel understands that the said order still holds good and that there is **no change in circumstances necessitating a revision**. What is required is **strict enforcement and uniform compliance by the PSU operator across all LSAs** to ensure regulatory consistency and prevent unilateral charging practices.

4. It is also pertinent to note that the CellOne Charges Regulations will inherently lose relevance upon the industry's transition to LSA-level PoIs. All P2P traffic will be exchanged at the LSA-level PoIs on a zero-cost basis for both parties, thereby rendering the existing transit-related provisions functionally obsolete. Accordingly, post complete migration to LSA-level interconnection, the Authority may consider repealing the CellOne Charges Regulations.

5. **Therefore, Airtel recommends that there is no need to revise the CellOne Charges Regulations, at this stage.**

Q19. The existing interconnection regulatory framework provides for application of origination, carriage, transit, transit carriage and termination charges for various levels of interconnections for PSTN-PSTN, PLMN-PLMN, PLMN-PSTN. Based on the interconnection regulatory framework suggested in your response in Questions 1, 2 and 3 above, should there be a review of these charges? Kindly justify your response.

Airtel Response to Q19:

I. Origination Charges:

a. As noted by the Authority itself in the instant Consultation Paper, origination charges are under forbearance. The same is working well and effectively; and there is no justification for any intervention.

b. Therefore, Airtel recommends that origination charges should continue to be under forbearance.

II. Carriage Charges:

a. As noted by the Authority itself in the instant Consultation Paper, a ceiling of ₹0.35/minute has been prescribed for carriage of domestic calls. The same is working well and effectively; and there is no justification for any intervention.

b. In respect of SMS, please refer to our response to Q15 above. We believe that the extant framework already provides sufficient flexibility to NLDOs to charge for carriage of SMS.

c. **Therefore, Airtel recommends that there is no need to review the existing ceiling of ₹0.35/minute on carriage charges for domestic calls.**

III. Transit/Transit Carriage Charges:

a. The PSU operator continues to impose **irrational transit/transit carriage charges** – even though the current traffic patterns would clearly suggest that they are no longer relevant. Moreover, in the case of LSA-level interconnection, each operator may take care of incoming traffic for its customers, and transit/transit carriage charges may be entirely done away with in line with the principle of reciprocity.

b. **Therefore, Airtel recommends that transit/transit carriage charges should be done away with.**

IV. Termination Charges:

a. Please refer to Airtel's response to Q22. **Commercial segregation of P2P and A2P traffic should be mandatory**. The scope of the mandatory interconnection regime should be strictly limited to P2P voice and SMS communication only. Further, telemarketers should be required to establish direct interconnection arrangements with terminating operators.

b. **There is no need of review of termination charges in respect of P2P traffic**, as inter-operator domestic IUC charges on calls have already moved to a Bill-And-Keep (**"BAK"**)

regime, and the termination charge of ₹0.02/SMS is also working well and effectively. There is no justification for any intervention.

c. However, in respect of A2P traffic, please refer to Airtel's response to Q14 and Q22. **The overall termination charge on domestic commercial SMS should be revised from the existing level of ₹0.07 (₹0.02 + additional charge of ₹0.05 under the TCCCPR) to at least ₹0.11-0.12 (₹0.02 + additional charge of ₹0.09-0.10). Further, a deterrent charge of say, ₹0.50/minute, should be introduced for A2P calls.**

d. **Therefore, Airtel recommends that there is no need to review the existing termination charges for P2P calls/SMS.**

Q20. For termination of emergency calls/SMSs from one TSP's network to another TSP's network, should there be a provision of any additional charges other than applicable IUC? If so, what should be the charges and the basis thereof?

Airtel Response to Q20:

1. **No, there should be no provision of any additional charges other than applicable IUC, for termination of emergency calls/SMSs from one operator's network to another operator's network.**

2. Provision of emergency services is a mandatory obligation under the UL, and historically, private operators were dependent on the PSU operator for routing such calls. Over time, significant policy reforms have aimed to streamline this process. The Justice Verma Committee, constituted after the Nirbhaya incident, recommended the establishment of a "Public Emergency Response System" in its report dated 13th January 2013.

3. In line with this, the Authority issued recommendations on a "Single Number based Integrated Emergency Communication and Response System (IECRS)" on 7th April 2015. The Ministry of Home Affairs followed with the Nationwide Emergency Response System Guidelines in August 2015; and the DoT subsequently issued instructions for the implementation of the 112-based Emergency Response Support System (**"ERSS"**) to all operators on 4th May 2016 and again on 24th August 2020.

4. Public Safety Answering Points (**"PSAPs"**) have now been established across all States and Union Territories, and private operators have provisioned Primary Rate Interfaces (**"PRIs"**) at nearly all such locations to route emergency calls directly to the respective PSAPs. However, a few L-1 emergency short codes (such as 100, 101, 102, etc.) are yet to be fully migrated to the new framework, compelling private operators to route some emergency traffic through the PSU operator.

5. Despite the fact that emergency services are provided to customers free of charge, and despite the regulatory mandate for universal access, the PSU operator continues to levy excessive charges on private operators, both lump sum and per-call. These charges have escalated significantly over time, rising from **₹10 lakh/LSA in 2010** to **₹41.77 lakh/LSA in 2025**, with no clear cost basis or regulatory approval. This creates a disproportionate financial burden on private operators and is inconsistent with the policy objective of accessible and equitable emergency services for all.

6. **Therefore, Airtel recommends that only IUC should apply to emergency calls, and there should be no lump sum fees or any other additional charges.**

Q21. Should the International Termination Charges (ITC) for international incoming calls to India be revised? If yes, what are the considerations necessitating such a revision. Kindly provide your response with justification.

Airtel Response to Q21:

1. **Yes, the International Termination Charges (ITC) for international incoming calls to India should be revised.**

2. ITC is the rate paid by foreign carriers to Indian operators for terminating inbound international calls on Indian networks. It serves as a key commercial lever in the global telecom ecosystem, helping to ensure reciprocity, fair value exchange, and sustainable network economics. For operators like Bharti Airtel, which carry substantial volumes of international traffic, ITC directly impacts revenue recovery, spectrum utilization, and investment viability.

3. While the Authority's last upward revision of ITC to ₹0.65/minute helped correct a previously unsustainable rate, this ceiling remains materially below global norms. Indian operators continue to operate at a structural disadvantage, required to maintain extensive last-mile networks and bear regulatory compliance costs, while receiving less than a tenth of what they pay for terminating calls in many foreign jurisdictions. It may also be noted that it has already been almost half a decade since the last revision.

4. In this context, Airtel submits that there is a compelling case for further revising ITC upwards. Such a move is not only necessary from a commercial fairness perspective but also critical for curbing the misuse of India's telecom infrastructure by international intermediaries and for strengthening national economic interests.

5. **India's ITC Rates are significantly lower than Global Benchmarks:**

a. The following table depicts a comparison of India's ITC rates with international benchmarks:

S. No.	Country/Region	International Termination Charge (in ₹/minute)
1.	North America	19
2.	Russia	~15
3.	SAARC region	~14 (average)
4.	Europe	12-17 (average)
5.	Qatar	11.13
6.	Saudi Arabia	8.90
7.	Oman	8.90
8.	Bahrain	8.90
9.	China	~5
10.	Brazil	~2
11.	Japan	3.12
12.	Kuwait	2.67
13.	Singapore	1.78
14.	**India**	**0.65**

b. Thus, Indian telecom operators currently receive a maximum of ₹0.65/minute for terminating international calls. Meanwhile, they pay approximately ₹3-3.50/minute to foreign carriers for outgoing calls. There is no reciprocity in this arrangement. The foreign operators retain the benefits of high inbound pricing while continuing to use India as a low-cost termination market.

c. In fact, while there has been no review of the ITC rates in India since 2020, the rates in many other countries have been continuously increasing over the last few years:

S. No.	Country	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25
1.	**China**	0.0100	0.0100	0.0300	0.0300	0.0600
2.	**UK**	0.0075	0.0250	0.0250	0.0250	0.0350
3.	**Nigeria**	0.0800	0.0800	0.0800	0.1000	0.1000
4.	**South Korea**	0.0100	0.0100	0.0100	0.0100	0.0200
5.	**Sudan**	0.1200	0.1200	0.1500	0.2500	0.2500
6.	**Turkey**	0.1500	0.1500	0.1800	0.2000	0.2000
7.	**Vietnam**	0.0580	0.0580	0.0580	0.0580	0.0640

(Rates in USD)

d. This mismatch leaves Indian operators with little negotiating leverage, despite the cost and quality of domestic infrastructure involved in delivering these calls. Moreover, the current ITC regime allows global aggregators to retain disproportionate margins by

leveraging India's low termination charges without passing on any savings to customers in their home markets or creating value for Indian networks.

6. **<u>Customer Safety is Threatened by Foreign Spammers Exploiting India's Low ITC Rates:</u>**

a. Malicious actors and spam networks are exploiting the low termination rates in India to route high volumes of unsolicited and, often, harmful international traffic to Indian customers. This has led to a surge in scam calls, phishing attempts and robo-calls, posing not only a nuisance but also a growing threat to customer safety and national security. The economic incentive for such activities stems from the low cost of landing international calls into Indian networks, making it financially viable for bad actors to target India over other jurisdictions where ITC rates are higher and, therefore, less profitable for spammers.

b. This problem is becoming increasingly concerning at a time when Indian operators are investing heavily in implementing advanced frameworks to curb spam and protect customers. Under the TCCCPR, operators are mandated to maintain scrubbing registries, deploy blockchain-based DLT systems and ensure real-time compliance with customer consent frameworks. These are not just paper commitments, operators have committed considerable resources to upgrading infrastructure, onboarding registered senders, verifying headers and templates and developing sophisticated detection mechanisms. The regulatory architecture built under TCCCPR is among the most advanced in the world and is showing measurable impact in curbing domestic spam.

c. **However, the low ITC significantly undermines these efforts by creating a parallel route for abuse. The low cost of sending these calls ensures that foreign spammers can operate at scale with negligible financial deterrent.** Operators are therefore left to deal with the consequences (handling customer complaints, filtering harmful calls, investing in call traceability tools and engaging in reactive compliance), despite the problems having originated outside Indian borders and thriving because India's pricing model facilitates such abuse.

d. The harm is not limited to mere inconvenience. International spam often carries great risk as it is frequently linked to financial scams, impersonation frauds and data harvesting attempts.

e. Customers, especially those less digitally literate, find it difficult to differentiate between a legitimate international call and a fraudulent one; and this leads to the loss of money, sensitive personal information or both. This weakens customer trust in digital communication and undermines the progress made under national digital initiatives.

f. **In this context, an upward revision of India's ITC is a necessary regulatory safeguard for a trusted and secure digital ecosystem. Increasing the termination charge would make it more expensive for bad actors to flood Indian networks with spam.** It would ensure that the efforts and investments made by operators and the Government in curbing

domestic spam are not rendered ineffective by loopholes in international routing. If left unaddressed, the current ITC regime will continue to be exploited as a backdoor to harm Indian customers, and may severely undercut the efficacy of India's otherwise robust anti-spam regulatory architecture.

7. **Upward Revision will not Affect Indian Customers:**

   a. It is important to emphasize that **increasing ITC will not have any adverse impact on Indian customers. Inbound international calls are not billed to the recipient.** The responsibility for payment lies entirely with the originating carrier or its intermediary. A revised ITC regime would therefore place the cost burden only on foreign carriers – many of whom currently benefit from India's underpriced termination regime without offering reciprocal benefits.

   b. A **higher ITC would simply restore fairness and sustainability to the system by ensuring that foreign carriers pay a reasonable rate for using Indian networks.** It would enhance revenue realization for Indian operators, support infrastructure upkeep, and reduce systemic misuse – without passing any cost on domestic customers.

8. **Commercial and National Losses under the Current Regime:**

   a. India's status as a low-cost termination market results in a significant loss of commercial value for domestic operators. **International calls into India are often terminated through aggregators and hub providers who take advantage of the arbitrage between India's low ITC and the higher rates in other jurisdictions.** These intermediaries accrue substantial margins while Indian operators receive minimal compensation despite bearing the cost of network termination.

   b. This imbalance is further exacerbated by the absence of any parallel benefit for Indian customers or the national economy. Since **incoming international calls are not charged to the recipient, a lower ITC offers no end-customer benefit.** Instead, it reduces revenue accrual to Indian operators and undermines foreign exchange inflows from international telecom settlements.

   c. This trend has strategic implications. The **net outflow in global interconnection settlements, caused by India paying more for outbound calls than it earns for inbound traffic, negatively affects the country's balance of payments in the telecom domain.**

   d. Additionally, the suppressed ITC rate reduces the sector's financial resilience at a time when infrastructure investments are rising and the shift to next-generation services is accelerating.

9. **Therefore, Airtel recommends the following:**

a. **The ceiling for ITC should be revised from ₹0.65/minute to at least ₹4-5/minute immediately to bridge the gap between Indian and global rates to some extent.**

b. **Since the gap will remain significant even with the suggested rates, the Authority should also create a glide path to align the ITC with global benchmarks in the next 2-3 years.**

Q22. Is there a need to address the issue of telemarketing and robo-calls within the interconnection framework? If yes, kindly provide your inputs on the possible approaches. Kindly justify your responses.

Airtel Response to Q22:

1. **Yes, there is a strong need to address the issue of telemarketing and robo-calls within the interconnection framework.**

2. A possible approach in this regard is the **mandatory segregation of P2P and A2P traffic – with the scope of mandatory interconnection limited to P2P traffic only, and direct interconnection of telemarketers with terminating operators for A2P traffic under mutually agreed commercial terms**. The same is discussed in detail in the subsequent paras.

3. The **mandatory interconnection regime** was originally conceived to ensure **uninterrupted P2P voice and SMS communication** across networks. However, **A2P traffic**, which is commercial in nature and fundamentally different from P2P communication, has over time been **inadvertently routed through the same PoIs** meant for P2P traffic. Initially adopted as a practical workaround when A2P volumes were low and IUC was non-zero, this **blended routing practice** has since become widespread. While regulatory mechanisms like the TCCCPR framework have evolved to manage UCC, the use of P2P interconnection pathways for A2P traffic has continued unchecked.

4. This misuse has become one of the key enablers of the **spam epidemic** in telecom networks. By routing A2P traffic through P2P pathways, telemarketers avoid entering into direct agreements with terminating operators, agreements that usually include **spam control mechanisms**, such as usage-based tariffs, disconnection clauses, and commercial penalties. As a result, operators **lose the ability to identify and filter spam at the network level**, and customers continue to receive a **high volume of unsolicited messages and robo-calls** with no effective avenue for recourse.

5. In addition to the above, it is important to highlight that several Access Service licensees, despite having **negligible or no active subscriber base**, have secured interconnection arrangements and PoIs **solely to terminate A2P traffic sourced from aggregators and call centers**. Because bulk communication providers operate from limited geographic hubs, these

licensees can easily deploy PRIs at those locations, collect large volumes of A2P traffic, and terminate it onto the networks of major operators.

6. The current zero voice termination charge and very low SMS IUC allow such operators to retain a disproportionate proportion of A2P revenues with minimal investment, while major operators, after investing heavily in spectrum resources and nationwide infrastructure – receive only a marginal share. Moreover, a significant share of spam and fraudulent calls/SMS received by millions of our subscribers originates from these bulk routes.

7. Thus, the **lack of distinct PoIs** for A2P traffic has led to **billing ambiguities, degraded quality of service** and erosion of customer trust. Additionally, it **disincentivizes investment** in more sophisticated spam detection and mitigation tools, as the very architecture of traffic routing prevents proper classification and control.

8. To restore regulatory integrity and protect customers, it is imperative that A2P traffic be excluded from the mandatory interconnection regime and handled exclusively through commercial agreements between operators and telemarketers. **Such segregation of P2P and A2P traffic – through distinct interconnection agreements supported by dedicated PoIs is essential to curtail spam and fraudulent communication, uphold regulatory compliance, strengthen customer trust, and ensure that operators receive fair commercial compensation for network usage.**

9. As an alternative to the above, appropriate deterrent charges may be introduced for A2P SMS and calls. Please refer to the response to Q14, where detailed justification has been provided for revision of the overall termination charge on domestic commercial SMS from the existing level of ₹0.07 to at least ₹0.11-0.12 (₹0.02 + additional charge of ₹0.09-0.10).

10. Similarly, Airtel urges the Authority to intervene decisively in addressing **the escalating misuse of A2P voice calls, which has emerged as an even greater nuisance for customers than A2P SMS**. While commercial SMS have still been regulated through an additional charge of ₹0.05 under the TCCCPR, A2P calls have gone completely unchecked thus far – leading to a significant issue of telemarketing and robo-calls.

11. In this regard, Airtel submits that the Authority should mandate a deterrent charge of say, ₹0.50/minute, on all A2P voice calls. Should the implementation of such a charge pose operational constraints, Airtel respectfully requests the Authority to place A2P call termination charges under forbearance, thereby enabling market-driven mechanisms to address this growing concern.

12. In addition, to ensure **accurate billing and full transparency for PEs**, delivery reports of A2P SMS should be handed over directly to each PE by every operator through their respective DLT nodes. This would enable PEs to validate the actual network-level submission and delivery status before initiating payments. Operators may publish PE-wise SMS submission and

delivery reports generated at the network layer either on the DLT platform or on the PE's designated SFTP endpoints, ensuring end-to-end traceability and auditability of enterprise traffic. This shall enable PEs to gain visibility into actual delivery, routing, and billing, promoting trust and increased adoption of regulated telecom channels.

13. **Therefore, Airtel recommends the following:**

    a. **Commercial segregation of P2P and A2P traffic should be mandatory.**

    b. **The scope of the mandatory interconnection regime should be strictly limited to P2P voice and SMS communication only, thereby preserving the original intent of seamless subscriber connectivity.**

    c. **Telemarketers should be required to establish direct interconnection arrangements with terminating operators under mutually agreed commercial terms, including tailored IUCs and anti-spam safeguards.**

    d. **As an alternative, appropriate deterrent charges should be imposed on A2P SMS/calls.**

        i. **The overall termination charge on domestic commercial SMS should be revised from the existing level of ₹0.07 (₹0.02 + additional charge of ₹0.05 under the TCCCPR) to at least ₹0.11-0.12 (₹0.02 + additional charge of ₹0.09-0.10).**
        ii. **A deterrent charge of say, ₹0.50/minute, should be introduced for A2P calls.**

    e. **Further, delivery reports of A2P SMS should be handed over directly by operators to PEs.**

Q23. Is there a need to revise 'The Telecommunication Interconnection (Reference Interconnect Offer) Regulation, 2002'? If yes, kindly provide the specific revisions. Kindly provide your response with justification.

Airtel Response to Q23:

1. The RIO Regulations were introduced at a time when private operators were newly entering the market and faced significant challenges in negotiating interconnection with incumbent PSU operators. The RIO Regulations played a crucial role in ensuring **non-discriminatory access**, fostering competition in both mobile and basic telephony and enabling all operators to interconnect on transparent and fair terms.

2. However, with the issuance of the TIR 2018, a comprehensive and updated framework for interconnection – covering obligations, timelines, provisioning processes and dispute resolution – has already been established. The regulatory architecture under TIR 2018

addresses the substantive interconnection requirements that were previously governed by the RIO Regulations.

3. Moreover, the industry has since evolved to **IP-based, centralized and virtualized network architectures**, rendering several provisions of the RIO Regulations – particularly those related to hierarchical routing, SDCA/LDCA-based architecture, and rigid handover points – obsolete. Retaining outdated RIO Regulations alongside a modern interconnection framework creates redundancy and regulatory overlap.

4. A revised, consolidated interconnection framework – merging the essential elements of the RIO Regulations with the TIR 2018 – will lead to **greater regulatory clarity, a reduced compliance burden and enhanced consistency** across operators. It will also enable a seamless transition towards **full IP-based interconnection**, improve efficiency and eliminate disputes stemming from outdated routing and capacity provisions.

5. Alternatively, in case the Authority still believes that the standalone RIO Regulations should not be dispensed with, a comprehensive revision should be carried out – with the following specific changes:

    a. **Harmonisation with the TIR 2018:** Procedural elements relating to PoI provisioning, timelines, demand estimation and capacity augmentation, should be merged with the TIR 2018, to avoid duplication.

    b. **Alignment with LSA-level interconnection:** All traffic-routing tables and handover hierarchies (Tables 1.1, 1.2, 2.1, 2.2) should be updated to reflect LSA-level interconnection as the standard, replacing the legacy SDCA/LDCA/TAX hierarchy.

    c. **Removal of outdated circuit-switched provisions:** Provisions relating to mandatory TDM routing, circuit-based port provisioning and legacy switching centres should be phased out and replaced with IP-based interconnection and bandwidth-based provisioning principles.

    d. **Elimination of redundant RIO templates:** Given the service-agnostic nature of modern IP-based networks, a simplified and unified interconnection template may replace multiple legacy RIO templates.

6. **<u>Therefore, Airtel recommends the following:</u>**

    a. The RIO Regulations should be subsumed into the TIR 2018.

    b. Alternatively, in case the Authority still believes that the standalone RIO Regulations should not be dispensed with, it should be revised to align with the TIR 2018 as well as the proposed LSA-level IP-based interconnection.

Q24. For the purpose of interconnection, is there a need to revise the current categories of 'Services' and 'Activities' to determine Significant Market Power (SMP)?
Kindly provide your response with justification.

Airtel Response to Q24:

1. **No, there is no need to revise the current categories of 'Services' and 'Activities' to determine SMP for the purpose of interconnection, at this stage.**

2. The Authority had already proposed a revised framework for determining SMP vide the Telecommunication Tariff (Sixty Third Amendment) Order, 2018. However, this was challenged by certain stakeholders and the matter is currently **sub-judice before the Hon'ble Supreme Court of India**.

3. In view of the ongoing judicial proceedings, any discussion on revising the current categories of 'Services' and 'Activities' for the purpose of defining SMP would be **premature**. Introducing changes at this stage may also risk creating regulatory inconsistencies or conflicting interpretations while the matter is under examination by the Apex Court.

4. Once the Court releases its verdict, the Authority may be in a better position to reassess the framework holistically, ensure alignment with judicial findings and avoid regulatory uncertainty.

5. **Therefore, Airtel recommends that any review of the SMP framework – including the categories of 'Services' and 'Activities' relevant for SMP assessment – should be undertaken only after the Hon'ble Supreme Court pronounces its final judgment.**

Q25. Should the publication of Reference Interconnect Offers (RIOs) on the websites of Telecom Service Providers (TSPs) be mandated?
Kindly justify your response.

Airtel Response to Q25:

1. **No, the publication of RIOs on the websites of operators should not be mandated.**

2. Interconnection arrangements today operate within a **competitive, reciprocal and well-regulated framework**, primarily governed by the TIR 2018. Given this regime, mandating the publication of RIOs on websites of operators is neither necessary nor beneficial. The commercial terms of interconnection are negotiated bilaterally, are reciprocal in nature, and already fall within the oversight of the Authority.

3. Instead of public disclosure, which may risk the unintended disclosure of commercially sensitive terms, Airtel submits that **the Authority may maintain copies of interconnection agreements and RIOs on its internal portal**. This would allow the Authority to review them as needed for ensuring compliance, reciprocity, non-discrimination, and fairness – without requiring publication on websites of operators.

4. This approach strikes the right balance between **regulatory transparency and commercial confidentiality**, while ensuring that the Authority retains full visibility to address any issues or concerns related to interconnection arrangements.

5. **Therefore, Airtel recommends that there should be no requirement for operators to publish RIOs on their websites.**

Q26. Should there be any interconnection charges? If yes, kindly provide details about the following:
a. the types of infrastructure charges to be levied,
b. the guiding principles for determining such charges along with ceiling, if required, and
c. determination of time-based escalation methodology, if required.
Kindly provide your response with justification.

Airtel Response to Q26:

1. Private operators have built and continue to maintain expansive, state-of-the-art networks that serve the vast majority of India's telecom customers, driving forward connectivity, innovation, and digital transformation. In doing so, they shoulder massive operational, compliance and capital expenditure responsibilities across geographies. However, the current interconnection regime disproportionately burdens private operators with unilaterally imposed charges – ranging from infrastructure and provisioning to emergency services – while the PSU operator is neither held to the same standards nor required to operate on reciprocal terms.

2. This asymmetry in commercial obligations not only violates the principle of non-discrimination but also hampers competitive neutrality. The regulatory framework must now evolve to protect fairness and efficiency, ensuring that no operator is allowed to dictate terms or offload unjustified charges onto others.

I. Rationalize PoI Infrastructure Charges:

a. The PSU operator imposes unilaterally determined **PoI infrastructure charges** covering space and power and other operational facilities, with **annual automatic escalations of**

10%. These charges have increased by nearly 500% between 2010 and 2025 across city categories (X, Y, Z), with no basis in actual infrastructure costs or mutual agreement.

b. This lack of **transparency, cost justification and standardization** in the pricing practices of the PSU operator leads to significant cost distortions, undermines fair competition and imposes an undue financial burden on private operators. For FY 2025-26, the annual PoI infrastructure charges for the PSU operator range from **₹10.4 lakh to ₹16.4 lakh**, depending on the city classification.

c. **Therefore, Airtel recommends the following:**

i. **PoI infrastructure charges should be brought under regulatory oversight to prevent unchecked cost escalation.**

ii. **Transparency and standardization should be ensured in how infrastructure costs (including space, power, etc.) are determined and applied.**

iii. **Annual escalation provisions should be either capped or rationalized to reflect actual cost trends.**

iv. **Mutual agreement and non-discriminatory application of infrastructure charges should be mandated across all operators, including the PSU operator.**

II. Rationalize Overlapping and Unjustified Charges for Duct Usage, Passive Cables, and PoI Set up:

a. The PSU operator continues to levy separate charges for duct usage, passive cabling, and PoI set up – even in locations where these costs are already accounted for within the broader PoI infrastructure charges. This practice results in overlapping billing and creates unnecessary financial strain on private operators, while lacking transparency and justification.

b. For instance, duct charges at some locations run into several crores. Additionally, passive cable charges are levied at ₹3,000 per E1, and a one-time PoI set up charge of ₹1 lakh per instance is also imposed. These charges are unilateral and often lack clear correlation with actual provisioning costs. Such practices run counter to the principles of cost-based interconnection and regulatory fairness.

c. **Therefore, Airtel recommends the following:**

i. **Overlapping infrastructure charges should be expressly prohibited in cases where duct usage, passive cabling, or set up costs are already included within the PoI infrastructure charges.**

ii. **PoI-related charges should be non-duplicative, transparent and cost-based across all locations.**

iii. **There should be a uniform and rationalized charge structure for PoI provisioning to prevent arbitrary and location-specific cost burdens.**

III. Mandate Reciprocal Treatment of Miscellaneous Charges:

a. The PSU operator unilaterally charges private operators for the PoI set up and signaling point code changes, but does not bear similar charges when roles are reversed. This lack of reciprocity violates the principle of parity in interconnection.

b. **Therefore, Airtel recommends that there should be a reciprocal treatment of one-time charges across all operators, including the PSU operator.**

Q27. Whether following sections of The Telecommunication Interconnection (Charges and Revenue Sharing) Regulations, 2001:
a. Section IV which contains 'Revenue Sharing Arrangements' i.e. interconnection usage charges.
b. Schedule I and II which contains rates of interconnection usage charges.
Still hold relevance, in view of the subsequent issuance of the Regulation 4 under Section IV which specifies rates of 'Interconnection Usage Charges (IUC) under 'The Telecommunication Interconnection Usage Charges Regulations, 2003'.
Additionally, is there an alternative way to organize these two regulations to enhance clarity and ease of understanding?
Kindly provide your response with justification.

Airtel Response to Q27:

1. **No, Schedule I and II of The Telecommunication Interconnection (Charges and Revenue Sharing) Regulations, 2001 ("Revenue Sharing Regulations"), which contains rates of IUC, and Section IV which contains 'Revenue Sharing Arrangements' i.e. IUC, do not hold any relevance now – in view of the subsequent issuance of Regulation 4 under Section IV which specifies rates of IUC under 'The Telecommunication Interconnection Usage Charges Regulations, 2003'.**

2. In fact, the Revenue Sharing Regulations have been largely repealed or rendered inoperative by later regulations. The continued co-existence of outdated provisions creates avoidable complexity for both the operators and the Authority.

3. **To enhance clarity and ease of understanding, all existing interconnection-related regulations should be consolidated into a single Interconnection Code**. A comprehensive and

updated framework – integrating commercial, technical, procedural and charging principles – would:

- Eliminate the need for cross-referencing legacy regulations
- Improve predictability and regulatory certainty
- Reduce compliance burden for operators
- Facilitate smoother industry-wide implementation
- Enhance transparency in the interconnection ecosystem
- Provide a clear, efficient and future-ready regulatory structure that aligns with current market realities and technological developments

4. **<u>Therefore, Airtel recommends the following:</u>**

   a. **The Revenue Sharing Regulations, being largely redundant, should be repealed.**

   b. **All existing interconnection-related regulations should be consolidated into a single Interconnection Code.**

Q28. Is there a need for change, if any, required in respect of following:
- **i. Port Technology**
- **ii. Port Size (Capacity)**
- **iii. Port Charges**
- **iv. Any other related aspect**

Kindly provide a detailed response with justification.

&

Q29. Should port charges be uniform across all services and technologies? Kindly provide detailed response for the following categories specifically:
- **a. Fixed Line Service/Mobile Service/NLD service/ILD service, and**
- **b. E1 (TDM) based interconnection and IP based interconnection.**

In case non-uniform charges are suggested, what methodology should be followed for calculation of port charges for above mentioned categories of services and technologies. Kindly provide a detailed response with justification.

Airtel Response to Q28 and Q29:

1. **<u>Yes</u>, there is a need for change in respect of the Port Technology, Port Size (Capacity), Port Charges, as well as other related aspects:**

2. Modern networks are predominantly IP-based, high-capacity and packet-switched, making legacy TDM/E1 port regulations obsolete and inefficient. Revising port technology, capacity

and charges will ensure cost-reflective, technology-neutral and scalable interconnection, thereby fostering efficient network investments, reduced disputes and fair competition.

a. Port Technology:

i. The regulations should be revised to accommodate current network architectures, including **centralized IP cores, packet-based switching, and virtualized interconnection points**, ensuring regulatory alignment with technological realities.

ii. **Therefore, Airtel recommends that the definition of a 'port' should extend beyond traditional E1/TDM interfaces to include modern IP-based technologies, such as Ethernet links, SDH/ SONET and other IP/MPLS-compatible interfaces, as per TEC/IP interconnection standards.**

b. Port Size (Capacity):

i. Standardized capacity definitions allow operators to plan and provision interconnection resources efficiently and enable flexible scaling according to actual usage patterns. However, **legacy measures of port capacity in multiples of 2.048 Mbps (E1 links) are no longer relevant**.

ii. **Therefore, Airtel recommends that the updated framework should recognize scalable capacities ranging from 1 to 100 Gbps or more, based on traffic demand and network requirements.**

c. Port Charges:

i. The port charges levied by the PSU operator have not been revised since 2012, despite significant changes in network traffic volumes, technology and cost dynamics over the past decade. These legacy rates do not reflect the current actual cost of port inventory and continue to be applied based on **cost estimates from 2012**. Moreover, private operators are required to pay these charges to PSUs for both incoming and outgoing traffic. Accordingly, the Authority should revise the port charges to reflect current costs, mandate mutual reciprocity and review these on a bi-annual basis for transparency and fairness.

ii. Further, uniform treatment of IP-based ports across services would ensure predictability, transparency and equitable access. Accordingly, to **accelerate network modernization and adoption of advanced interconnection technologies**, TDM-based charges should be phased out.

iii. Furthermore, port charges may be calculated on a **non-uniform basis**, differentiated on the following factors:

- **Service type:** Fixed Line, Mobile, NLD, ILD

- **Port technology:** E1/TDM vs. IP/Ethernet
- **Cost-per-bit** of equipment and operational expenditure
- **Traffic volumes and capacity utilization** to ensure proportionate and cost-reflective pricing.

iv. <u>Therefore, Airtel recommends the following:</u>

- **Port charges should be revised based on actual cost-per-bit of IP-based electronic and optical equipment – with a bi-annual review to ensure they remain fair, competitive and transparent.**

- **TDM-based port charges should be phased out to encourage adoption of IP-based interconnection.**

- **Differential port charges may be applied based on service type, port technology, cost-per-bit and traffic volumes & capacity utilization.**

d. Any other related aspect: The framework should include flexible port provisioning timelines, standard SLAs for availability and quality, and mechanisms for dynamic capacity upgrades. Redundant/backup ports and virtualized port sharing should be defined to reflect modern network practices. **Transitional arrangements from TDM to IP-based interconnection should be clearly provided to ensure minimal disruption and smooth migration.**

Q30. Whether use of 'Erlang' as a unit of traffic in various interconnection regulations is sufficient and are the current procedures for demand estimation as provided in the Telecommunication Interconnection (Port Charges) Regulation 2001 and the TIR 2018 still effective and practical, in view of adoption of IP based interconnection?
a. If yes, kindly provide justification in support of your response.
b. If no, kindly provide alternate metrics and demand estimation methods for IP-based interconnection along with detailed explanation.
In either case, kindly provide suitable diagrammatic representation.

Airtel Response to Q30:

1. **<u>No</u>, use of 'Erlang' as a unit of traffic in various interconnection regulations is not sufficient. Also, the current procedures for demand estimation as provided in the Telecommunication Interconnection (Port Charges) Regulation 2001 and the TIR 2018 are no longer effective and practical in view of adoption of IP-based interconnection.**

2. The extant demand estimation procedure, using Erlang-based models, was suitable for traditional circuit-switched (TDM/E1) networks. Erlang metrics effectively captured call-

based, dedicated-channel traffic in such networks and provided a reliable basis for port sizing and interconnection planning.

3. However, modern IP-based interconnection networks are packet-switched and dynamic with shared bandwidth and multiplexed traffic flows rather than dedicated per-call channels. Traffic characteristics now include bursty data, multimedia flows and variable packet sizes, which Erlang-based models cannot accurately represent. **Using Erlang as a unit for demand estimation in IP-based networks would underestimate or misrepresent capacity requirements, leading to inefficiencies in provisioning and potential congestion in IP cores.**

4. The following are some **alternative metrics and demand estimation methods for IP-based interconnection,** which would ensure accurate capacity-planning, cost-reflective port provisioning and efficient interconnection in modern IP-based networks:

   a. Throughput-based estimation:
   - Measure peak, average and sustained throughput in Gbps per interconnection link.
   - Scale capacity based on the 95th percentile or peak-hour traffic to ensure sufficient provisioning for high-demand periods.

   b. Flow-based models:
   - Consider the number of concurrent sessions, packet arrival rates and data volumes.
   - Use these metrics for dynamic capacity allocation and Quality of Service planning.

   c. Traffic engineering and simulation:
   - Employ IP/MPLS traffic engineering tools and network simulators to estimate bandwidth requirements for different classes of service (voice, data, video).
   - Incorporate redundancy, failover and growth projections in demand planning.

   d. Hybrid approach:
   - For networks supporting both legacy TDM and IP traffic, a hybrid model combining Erlang for legacy voice and throughput for IP traffic can be used during the transition phase.

5. **<u>Therefore, Airtel recommends the following:</u>**

   a. Erlang-based demand estimation is no longer adequate in IP-based interconnection.

   b. Instead, throughput and flow-based metrics should be adopted – with hybrid approach during the migration phase.

Q31. Should the current provisions for submission, inspection and getting copies of interconnection agreements under 'The Register of Interconnect Agreements Regulations, 1999' using floppy disks and print copies be dispensed with and be made online?

a. If yes, what changes do you suggest for the online process, timelines, related charges and any other aspect?
b. If not, kindly provide justification.

Airtel Response to Q31:

1. **Yes, the current provisions for submission, inspection and getting copies of interconnection agreements under 'The Register of Interconnect Agreements Regulations, 1999', using floppy disks and print copies, should be dispensed with and be made online.**

2. The legacy process is cumbersome, time-consuming, and inconsistent with modern regulatory practices. Transitioning to an online mechanism, on the other hand, is in **alignment with the Authority's broader digital and paperless initiatives**, which already allow for online submission of reports, compliances and other correspondence. Adopting the same approach for interconnection agreements would enhance operational efficiency, reduce regulatory burden and promote environmental sustainability.

3. Accordingly, Airtel suggests the following changes for the online process, timelines, related charges and other aspects:

   a. **Online Submission Portal:** The Authority should provide a secure, centralized portal for operators to upload interconnection agreements in standardized digital formats (PDF, XML, etc.).

   b. **Acknowledgement and Tracking:** The portal should automatically generate acknowledgements upon successful submission and allow operators to track the status of their submissions.

   c. **Inspection and Copies:** Authorized personnel should be able to access and download digital copies of agreements from the portal, eliminating the need for physical inspections or floppy disks.

   d. **Timelines:** The timelines for online submission may be the same as under the extant process, with automatic reminders and compliance dashboards to ensure timely submissions.

   e. **Related Charges:** Any fees associated with submission or retrieval of agreements should be nominal and clearly specified on the portal.

4. **Therefore, Airtel recommends that the extant provisions submission of interconnection agreements using floppy disks and print copies should be done away with, and the process should be made online.**

Q32. Is there a need to incorporate provisions for financial disincentives in interconnection regulations to deter non-compliance? If yes, kindly provide specific scenarios and mention the concerned regulations, where financial disincentives would be applicable, along with their quantification.
Kindly justify your response.

Airtel Response to Q32:

1. **Yes, there is a need to incorporate provisions for FD in interconnection regulations to deter non-compliance.**

2. Please refer to the response to Q13. While Airtel remains opposed to the concept of FD in principle, it is important to ensure uniform application across all operators, including the PSU operators.

3. **Accordingly, provisions for FD should be incorporated** into the interconnection regulations to address non-compliance, particularly in situations where **reciprocity in interconnection agreements is not adopted or implemented**. Non-reciprocal arrangements create **imbalances, unfair financial obligations and operational inefficiencies** between operators, undermining the principles of a level playing field and fair competition.

4. The following are certain instances which may attract FDs:

   a. **Non-reciprocal interconnection terms:** When an operator fails to provide reciprocal interconnection services (e.g., charging higher port or usage fees for incoming traffic than outgoing traffic).

   b. **Delay in establishing PoIs:** Delay beyond the stipulated timelines of 42 days.

   c. **Non-compliance with port allocation or traffic bifurcation requirements:** For instance, failure to implement one-way port charging or proper bifurcation of traffic, as mandated under the TIR 2018.

5. As for quantification, FDs may be structured as a **percentage of monthly interconnection charges or a fixed amount per day of delay** until compliance is achieved. The exact amount may be **proportionate to the operational and financial impact** on the aggrieved operator, ensuring both **deterrence and fairness**.

6. This will **encourage timely compliance, adherence to reciprocal terms and transparent interconnection practices**. It will also reduce **billing disputes, unilateral practices by dominant operators (including PSUs) and operational bottlenecks**, fostering a more **efficient, equitable and competitive interconnection ecosystem**. Further, such measures are consistent with the Authority's objective of **ensuring fairness, non-discrimination and predictability in the interconnection framework**.

7. **Therefore, Airtel recommends that appropriate provisions for FD should be incorporated in interconnection regulations to deter non-compliance by private and PSU operators alike.**

Q33. What should be the mechanism and timelines for transition of existing interconnection agreements between the service providers to the new regulatory framework that will emerge from this consultation process?
Kindly provide detailed response with justification.

Airtel Response to Q33:

1. **The mechanism and timelines for transition of existing interconnection agreements between the service providers to the new regulatory framework that will emerge from this consultation process should be finalized in consultation with the operators.**

2. The Authority may consider setting up a **dedicated committee comprising representatives from all major operators**, with the following responsibilities:

   - Addressing operational and technical implementation challenges
   - Developing mutually agreeable timelines for the migration of existing agreements
   - Monitoring progress and ensuring adherence to the transition schedule

3. The **transition timelines should be realistic and implementable**, balancing the need for regulatory modernization with the practical capacity of the industry to implement these changes.

4. **Clear cut-off dates** should be specified, by which all agreements must conform to the new regulatory framework – with interim reporting requirements to track progress. However, a **phase-wise approach** may be adopted for the migration of existing interconnection agreements based on technology, service type (fixed, mobile, NLD, ILD) and traffic volumes – to minimize service disruption and operational risks. Also, provisions should be included to **temporarily accommodate legacy TDM arrangements** until full IP-based interconnection is operational, ensuring seamless service continuity.

5. This will ensure that the **transition is orderly, efficient and aligned with technological modernization**, while avoiding operational bottlenecks or service interruptions.

6. **Therefore, Airtel recommends that the process and timelines for migrating the existing interconnection agreements to the new regulatory framework should be finalized in consultation with the industry.**

Q34. What should be the interconnection framework for satellite-based telecommunications networks with other telecom networks? Further, whether the interconnection frameworks for MSS and FSS satellite-based telecommunications networks should be distinct? Please provide your response along with end-to-end diagrammatic representation and justification in respect of the following:

a. Satellite - Satellite network interconnection
b. Satellite - PLMN interconnection
c. Satellite - PSTN interconnection.

Airtel Response to Q34:

1. Currently, satellite-based telecommunications networks operate independently and separately from other telecom networks. There is no interconnection between SatCom and terrestrial networks. In fact, there is no interconnection even among the various SatCom operators inter-se. **Each SatCom network – whether GSO or NGSO and MSS or FSS – operates as a standalone network.**

2. While technological advancements in the future may require different SatCom networks to interconnect with each other as well as with terrestrial networks, a discussion on interconnection framework at this stage may be too premature.

3. **Therefore, Airtel recommends that there is no need for an interconnection framework for satellite-based telecommunications networks with other telecom networks at this stage.**

Q35. Are there any specific regulatory models from other countries that have successfully addressed interconnection related issues and challenges which can be adapted in the Indian telecom sector? If yes, kindly provide details of such best international practices.

Airtel Response to Q35:

Regulatory models from other countries suggest that **migration to IP-based interconnection** is the global standard in today's times. Airtel suggests that this should be adapted in the Indian telecom sector at the earliest.

Q36. Kindly mention any other challenges or concerns related to the regulations being reviewed in this consultation paper.

Airtel Response:

No comments.

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