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Policy Recommendations

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Comments to the Telecom Regulatory Authority of India (TRAI) for Pre-Consultation Paper on the *Review of Tariff for Domestic Leased Circuits (DLCs)*.

Comments on behalf of the Policy Inputs Research Group on TRAI, GNLU Centre for Law & Economics

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I. Introduction

On 29th April 2025, the Telecom Regulatory Authority of India (TRAI) released a Pre-Consultation Paper on the *Review of Tariff for Domestic Leased Circuits (DLCs)*.The study sets out to assess the present tariff regulatory framework and seeks views from stakeholders on issues such as ceiling tariffs, types of market structures, technological progress, and the importance of using global best practices in DLC tariff laws.

With regards to the underlying purpose for which the Centre for Law and Economics was established at the Gujarat National Law University, the Centre constituted a special Research Group to look into the consultation document. We looked into the reasons for tariff regulation, the common regulatory methods seen in different countries, and whether these models could be applied in India's telecom environment.

DLCs play a key role in building digital infrastructure in India. They help corporate networks, banking institutions, ISPs, and government offices gain reliable high-speed Internet service. The rules that decide telecom prices significantly contribute to low-cost access, intense competition, and support for new developments in Tier II and Tier III cities as well as rural areas.

Focusing on global learnings in the consultation is important and happens at the right time. Comparing DLC pricing with international benchmarks can help shape a well-balanced and future-oriented approach to the rules in India.

II. General Comments

It is noted that the existing DLC Tariff framework, particularly the ceiling-based regime laid down by TRAI in 2014 no longer reflects the realities of the current telecommunications ecosystem because the framework aimed at preventing monopolistic pricing, which in turn resulted in failure to update tariffs in the face of fire-optic development, cloud adoption and inefficient and outdated pricing structures. Therefore, the recommendations provided below counter these challenges by proposing a shift to cost-based pricing using dynamic models such as LRIC (Long-Run Incremental Cost) ensuring that the tariff ceilings reflect the economic cost of providing DLC services across bandwidth tiers and geographies.

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There is also a continued reliance on forbearance across DLC categories, while this reliance may be justified in highly competitive routes, it is not appropriate for rural circuits or even the ones with market contestability is weak. Hence, a calibrated regulatory approach, retaining forbearance with introduction of a price-cap regulation or ex-post intervention in structurally non-competitive segments is the need. Additionally, it is also recommended to revise the slab structures and expressing tariffs in standardized formats such ₹ per Mbps-km or Mbps-month to reduce the arbitrariness and increase comparability across providers.

Although the consultation paper notes technological advancements, it nevertheless treats older circuit services and emerging CPaaS or OTT-enabled DLC alternatives unequally producing, regulatory arbitrage and discouraging innovation. To counter this a platform-agnostic strategy is recommended where tariffs are linked to the service outcome and the value provided and not the underlying delivery mode.

Further, the current system makes no mention to integrated service delivery models, SLA (Service-level agreement) implementation, or scalable and burstable capacity but modern enterprises demand flexible network solutions with real-time monitoring, modular upgrades, and bundled offerings like DLC + SD-WAN or 5G. In order to solve this difference, it is recommended to introduce policy mechanisms which will encourage service models.

The consultation paper also identifies challenges faced by small ISPs and rural providers but does not propose concrete mechanisms for infrastructure access or cost mitigation. The recommendation directly addresses this by suggesting open-access enforcement under existing DLC regulations, introducing bandwidth voucher schemes via USOF (Universal Service Obligation Fund), and allowing neutral backhaul providers to operate under a new licensing category. It also recommends exemption from AGR (Adjusted Gross Revenue) and USOF (Universal Service Obligation Fund) levies for low-revenue ISPs in underserved regions. In conclusion, by adopting such mechanisms and looking at world practices in countries like the UK and Singapore the issues of tariffs for DLCs can be dealt with.

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III. Specific Comments

Issue	Summary of Proposal	Comments/ Suggestion	Rationale
1. Development trends and current status of the DLC market in the country	● As a result of growing enterprise demand, technological developments, and regulatory changes, the DLC market in India is changing quickly. ● DLCs provide dedicated, secure connectivity that is necessary for sectors including government, IT, healthcare, and BFSI. ● The demand for dependable, fast data links is rising as a result of digital transformation and cloud	The market for domestic leased circuits (DLC) in India is changing significantly due to a number of factors, including changes in regulations, improvements in technology, and growing business demand for dedicated, fast, and secure communication links. For businesses that depend on reliable, continuous data transfer, DLCs private, point-to-point communication circuits offered by telecom operators are crucial. They are extensively utilized in industries like government services, manufacturing, information technology, banking, financial services, insurance (BFSI),	The quick speed of digital transformation across industries is one of the major factors influencing the DLC market's current state. Businesses must invest in reliable and scalable connectivity solutions due to the growing dependence on cloud computing, enterprise resource planning (ERP) systems, video conferencing, cybersecurity protocols, and other bandwidth-intensive applications. In contrast to traditional broadband connections, DLCs provide dedicated bandwidth that is not shared with third parties, meeting this requirement and guaranteeing greater security and dependability. Simultaneously, the data center industry in India is expanding thanks to significant investments made by big business players like Reliance Jio, Adani Group, and Bharti Airtel (through its subsidiary Nxtra Data). To keep up with the growing demand for cloud services and data storage, these businesses are constructing or enlarging data centers in major cities like

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	adoption. ● Major companies are making significant investments in data centers located in strategic cities, such as Reliance Jio and Adani. ● The need for continuous worldwide connectivity is being driven by the growth of Global Capability Centers (GCCs). ● The expansion of DLC will be indirectly supported by new submarine cables that are anticipated to increase international bandwidth in 2025. ● DLCs are	and healthcare.	Bengaluru, Hyderabad, Chennai, and Mumbai. The demand for DLCs, which provide the backbone infrastructure for seamlessly and low-latency connecting enterprise sites with data centers, has increased proportionately to this growth. The growth of Global Capability Centers (GCCs) in India is another noteworthy trend. Data from 2024 shows that GCCs leased almost 29.4 million square feet of office space nationwide, which is a 29% increase from the year before. In order to connect to offices around the world, these centers which serve as offshore support centers for multinational corporations need fast, constant communication networks. The success of the GCCs depends on the dedicated connectivity that DLCs provide, which permits secure data exchange, centralized operations, and real-time collaboration. Furthermore, advancements in technology have the potential to significantly expand the nation's

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	positioned as a key enabler of future connectivity due to India's expanding digital ecosystem and infrastructure investment.		overall network capacity. India is anticipated to put several new underwater cable systems into service in 2025, essentially quadrupling its capacity for data transmission. Through improved upstream and downstream connectivity for businesses, these high-capacity submarine cables will provide faster and more reliable international bandwidth, which will indirectly increase the domestic DLC market. Domestic businesses will depend more and more on DLCs to take advantage of this capacity for internal operations, offshore connectivity, and multi-cloud deployments as international bandwidth becomes more accessible and reasonably priced. In summary, the DLC market in India is expected to grow rapidly and steadily. The demand for leased lines that are safe, dependable, and scalable will only increase as digitalization continues to spread throughout the economy. Infrastructure investments, regulatory support, enterprise demand, and India's development into a global

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			digital hub will all support this growth trajectory.
2. Effectiveness of the existing tariff framework for Domestic Leased Circuits (DLCs)	To enhance the effectiveness of the current tariff framework for Domestic Leased Circuits (DLCs), TRAI should adopt cost-based pricing through updated LRIC studies, ensuring tariffs reflect actual network costs. Regulatory forbearance must be balanced with active market monitoring to prevent anti-competitive practices. Tiered pricing structures should be introduced to promote efficient resource use, while targeted subsidies and differentiated tariffs can support SMEs and rural access. Transparency through	1. Reassessment of Cost-Based Pricing Mechanism A fundamental economic principle in regulated utility sectors such as telecommunications is the one of cost-based pricing, where tariffs should reflect the underlying network costs .[1] TRAI-provided ceiling tariffs were basically intended to curb monopolistic pricing in those areas which lack competition. Still, these should be reviewed periodically to take into account the changing cost structures, the effects of newer technologies, such as fiber-optic transmission, and that of SDNs. A thorough LRIC-based study should be commissioned to	Cost-Reflective Pricing for Economic Efficiency Price ceilings imposed by the TRAI are warranted due to economic considerations aimed at preventing monopolistic exploitation in essential facilities markets. Nevertheless, static ceilings may, over time, become distorted cost proxies, particularly with technological advancements concerning fiber optics, or with SDN and NFV. According to welfare economics frameworks, in sectors of utilities, Pareto-efficient outcomes are obtained when prices equal marginal or long-run incremental cost (LRIC). Thus, updating the tariff structure on a cost-study basis may: Lead to over-recovery of costs by dominant operators. Signal correct investments to infrastructure providers. Lead to enhancement of consumer surplus via price formation. Managed Forbearance to Enhance Market Dynamism Forbearance may be called for

[1] Vogelsang, I. (2003). Price Regulation of Access to Telecommunications Networks. *Journal of Economic Literature*, 41(3), 830–862.

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	mandatory price disclosures and international tariff benchmarking can foster competition and regulatory accountability. Public-private partnerships and effective use of USOF can further promote equitable digital infrastructure development across underserved regions.	recalculate the tariff ceilings based on the prevailing cost conditions of the network.[2] 2. Forbearance and Market Monitoring for Encouraging Competition Tariff forbearance is justified only where there is sufficient competitive pressure to induce market-driven pricing. Where competition is meagre (for instance: circuits towards rural areas, or STM services to enterprises), forbearance may result in prices becoming sticky or at the worst fostering tacit collusion. TRAI should strengthen its ex-post market-monitoring mechanisms and consider the dynamic regulation of tariffs in those areas, using a price cap or a regulatory intervention	in economically contestable markets, where market discovery of prices leads to efficient outcomes without imposition of price regulations. However, the contestability of the Indian DLC market is asymmetrical according to geography and service capacity. High-entry-barrier markets, such as STM circuits, or rural DLC have potential issues arising from insufficiency of effective competition. Incentivizing Efficient Resource Allocation Leased lines utilize scarce network resources such as spectrum, right-of-way facilities, and capital-intensive backhaul. Economic theory predicts that uniform or flat-rate pricing would lead to inefficient consumption by large users and underconsumption by small firms. Tiered or declining-block pricing marginal cost-based tariff is able to better balance the consumption against the social opportunity cost and thereby enhance allocative efficiency.[7] Such a pricing scheme follows the rules of second-degree price discrimination to maximize welfare among diverse user segments while guaranteeing

[2] Telecom Regulatory Authority of India (TRAI). (2015). *Consultation Paper on Review of Tariff for DLCs*.
[7] Ramsey, F. P. (1927). "A Contribution to the Theory of Taxation." *Economic Journal*, 37(145), 47–61.

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		triggered approach.[3] <u>3. Addressing the Needs of Digital Inclusion and Small Enterprises</u> The inclusive nature of the present tariff regime needs to be assessed. High tariff levels for leased lines may be a deterrent to entry and penetration for small- or medium-scale enterprises and high-speed Internet services in Tier-II and Tier-III cities. A differentiated tariff structure with a lower ceiling rate or subsidized tariffs for these categories could be considered, thus bridging the digital divide and ensuring equal opportunity for access.[4] <u>4. Facilitating Periodic Tariff Benchmarking and Transparency</u> TRAI could institutionalize a mechanism for	operators revenue adequacy.

[3] Cave, M., & Valletti, T. (2000). *Network Competition and Regulation in Telecommunications*. Oxford Review of Economic Policy, 17(3), 389–415.
[4] Broadband India Forum. (2021). *Policy Recommendations for Enhancing Enterprise Connectivity*.

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		international benchmarking of DLC tariffs vis-à-vis global averages, especially among comparable economies, such as Brazil, South Africa, and Indonesia. Besides, the benchmarking imposes a responsibility on the regulator and ensures that India's telecom tariffs remain competitive with rates charged in the global digital economy.[5] Additionally, mandatory pricing disclosures to the public by DLC providers could increase market transparency and thereby promote consumer power. <u>5. Leveraging Public-Private Partnerships (PPPs) and Universal Service Funds (USF)</u> To reduce costs in unviable areas, TRAI and the Department of Telecommunications	

[5] International Telecommunication Union (ITU). (2020). *Measuring digital development: ICT price trends 2019*.

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		(DoT) could explore targeted subsidies through the Universal Service Obligation Fund (USOF) or structured Public-Private Partnerships (PPPs). These mechanisms can offset infrastructure costs and make DLC services economically viable in underdeveloped regions.[6]	
3. Prevailing tariff structures for DLCs offered by service providers across different technologies, bandwidths and distances	● As of May 2025, TRAI's 2014 ceiling-based system, which is based on capacity and distance, continues to control DLC prices in India. ● Tariffs increase with distance, and circuit capacities include E1 (2 Mbps), DS3 (45 Mbps), STM-1 (155 Mbps), and STM-4 (622 Mbps).	As of May 2025, technological advancements, regulatory reforms, and growing enterprise demand for dedicated connectivity solutions are all driving significant change in India's domestic leased circuits (DLC) market. The Telecom Regulatory Authority of India (TRAI) set ceiling tariffs that govern the current domestic leased circuit (DLC) tariff structures in India as	The pricing rules haven't changed in more than ten years, despite the DLC market's evolution. This implies a need for review or reform because it raises the possibility of a discrepancy between the market realities of today and the antiquated regulatory caps. The policy rationale for TRAI's tariff-setting, which is to improve digital access throughout India by guaranteeing that dedicated circuits are reasonably priced. Actual market pricing frequently falls below the regulatory cap, highlighting the part that competition and business negotiations play in

[6] World Bank. (2016). *Extending Mobile Broadband in Emerging Markets*.

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	● Tariffs serve as price caps to guarantee reasonably priced access and encourage digital connectivity across the country. ● In reality, because of market competition and special arrangements, suppliers frequently charge lower than the ceiling rates. ● TRAI provides regulatory flexibility by permitting market-based pricing (forbearance) for circuits below E1. The tariff regime has been in place for more than 10 years, which raises the possibility that it is out of step with	of May 2025. The distance and circuit capacity determines these tariffs. These tariff structures were set by the TRAI in 2014. The purpose of these tariffs was to control the highest fees for Domestic Leased Circuits (DLCs) over a range of capacities and distances. The various capacities E1 (2 Mbps), DS3 (45 Mbps), STM-1 (155 Mbps), and STM-4 (622 Mbps) are the foundation of India's DLC tariff structure, which is further divided into distance categories. **Circuit Type Capacity Distance Category Ceiling Tariff (INR per annum)** E1 2 Mbps < 5 km ₹12,086 E1 2 Mbps > 500 km ₹341,000 DS3 45 Mbps < 50 km ₹584,000 DS3 45 Mbps > 500 km ₹2,650,000	establishing actual costs. It suggests that rather than being a typical market rate, the ceiling serves as a safeguard. A more accommodating approach for circuits with lower capacities is observed by highlighting a regulatory exception. It emphasizes how TRAI strikes a balance between market-driven pricing and regulation, particularly in situations where competition and demand can successfully self-regulate prices.

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	the dynamics of the market today and calls for review or modification.	STM-1 155 Mbps < 50 km ₹1,610,000 STM-1 155 Mbps > 500 km ₹6,960,000 STM-4 622 Mbps < 50 km ₹4,180,000 STM-4 622 Mbps > 500 km ₹18,180,000These numbers were a component of TRAI's endeavors to lower the cost of dedicated broadband lines and advance digital connectivity throughout the nation. For example, a 2 Mbps (E1) DLC over a distance of less than 5 km now has a lower annual ceiling tariff of ₹12,086. In a similar vein, the annual ceiling tariff for the same capacity was set at ₹341,000 for longer distances than 500 km. Moreover, these ceiling tariffs are the highest prices that service providers are permitted to charge. Due to market competition and particular service agreements, many	

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		providers actually offer DLC services at prices much lower than these ceilings. It's crucial to remember that tariffs for DLC capacities below E1 are subject to forbearance, which permits service providers to determine these prices in accordance with market conditions free from regulatory restrictions.	
4. Impact of new technological advancements on the evolving DLC ecosystem and associated tariff considerations	The Telecom Regulatory Authority of India (TRAI) has sought stakeholders' views on how emerging technologies are affecting the Domestic Leased Circuits (DLC) ecosystem and whether existing tariff structures are sufficient to reflect these developments. The consultation attempts to comprehend how innovations like	It is suggested that TRAI conducts a forward-thinking and technology-neutral examination of the current tariff framework, with the aim of aligning tariff concepts across new and traditional DLC services. In its examination, TRAI should: 1. Think about implementing a platform-agnostic tariff structure that ties tariffs to the value and	CPaaS and other cloud-based platforms have caused a revolution in the DLC space through interactive, AI-based, and hyper-personalized customer communication, much beyond the capabilities of SMS or voice circuits. They not only reduce business costs for enterprises but also enhance user experience by embedding chatbots, payments, and rich media support. Yet, the prevailing tariff regime continues to be disproportionately biased in favor of legacy services, inducing regulatory arbitrage, price distortions, and hindering innovation. There is also the

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	Cloud Communications, CPaaS (Communication Platform as a Service), Rich Communication Services (RCS), AI-powered customer engagement solutions, and Over-the-Top (OTT) messaging platforms are shaping the legacy DLC ecosystem. In addition, TRAI attempts to assess whether these innovations necessitate an overhaul of the current tariff regimes for ensuring a competitive, innovation-fostering, and equitable marketplace.	type of services provided instead of the underlying technology employed, preventing any channel (traditional SMS, voice, CPaaS, RCS) from having arbitrary cost benefits or regulatory loopholes. 2. Request CPaaS providers to make mandatory disclosures of standardized pricing plans and revenue-sharing terms so enterprises and users are well-informed. 3. Implement periodic market review and tariff recalibration	risk of market opacity where CPaaS providers, in a relatively unregulated environment, can charge discriminatory and non-transparent pricing to businesses, particularly small players. Global best practices recommend a shift to value-based and technology-neutral tariff principles under which tariffs depend on the quality of service, customer advantages, and competitive neutrality instead of delivery modes. This would: Avoid legacy player dominance and encourage innovation. Provide cost-reflective and transparent price setting across technologies. Guard consumer and enterprise interests by facilitating fair competition. Foster uptake of verified and secure communication technology. Thus, TRAI's tariff framework must evolve in tandem with the DLC ecosystem, ensuring that it is agile, fair, and aligned with global practices.

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		mechanisms based on changing consumer aspirations, business needs, and technological advancements. 4. Investigate tariff models that encourage the adoption of secure, authenticated, and consumer-friendly media platforms such as RCS and verified messaging services, without disproportionately penalizing businesses for moving to newer forms.	
5. Disparities in tariff across different routes and	TRAI has invited stakeholder comments on the large variations in	We suggest that TRAI initiates a full-fledged tariff rationalization effort,	There is a stark imbalance in the tariffs of DLC for various routes, where some intra-circle routes are much cheaper than

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geographical regions	the tariffs charged by service providers for Domestic Leased Circuits (DLCs) between different routes (intra-circle, inter-circle, international) and different regions of the country. The consultation aims to determine whether such disparities are reasonable on the basis of cost structures, or represent a call for regulatory action to guarantee tariff rationality, transparency, and non-discriminatory pricing for businesses and consumers of India.	supported by fact-based data gathering and consultations with stakeholders, with the following thrust: 1. Enforcing route-wise and distance-wise transparent tariff disclosures by all DLC players, providing clarity to consumers and businesses about pricing mechanisms, including any surcharges or fees. 2. Aligning tariffs for similar services on routes and regions, particularly where cost differences are negligible or where market	inter-circle routes of similar length despite having equivalent cost bases. Additionally, A2P SMS tariffs abroad tend to be excessively high, with high arbitrage by aggregators and intermediaries, resulting in unwarranted charges to businesses, most notably MSMEs, startups, and small digital platforms. These pricing discrepancies lead to competitive handicaps, particularly for small and medium businesses with operations in various states or with international trade. This is at variance with the government's Digital India and Atmanirbhar Bharat goals for developing seamless and cheap digital connectivity all over the country. Global best practices in regulation, like those pursued by Singapore, the UK, and the EU, place importance on tariff transparency, disclosure standards, and controlling predatory or discriminatory pricing strategies. Following the same model in India will: Provide enterprises regardless of their size or location with access to low-cost and predictable DLC services.

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		practices lead to artificial distortions in prices. 3. Comparing domestic and international tariffs with global markets, so Indian businesses are not at a disadvantage due to inordinately high charges, especially for international A2P messaging or leased circuits. 4. Incentive measures to close the inter-state and rural-urban tariff gaps, including incentivizing investments in under-penetrated regions, encouraging	Not allow monopolistic behavior and foster healthy competition. Assist MSMEs' digitalization strategies by reducing the cost of communication. Ensure tariffs are cost-reflective and not based on arbitrary market power. Thus, in order to create a competitive, inclusive, and transparent DLC market, TRAI must implement data-driven reforms to scale down tariff differences, ensure regulation of route and geography-based pricing, and encourage tariff uniformity wherever possible.

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		shared infrastructure models, and imposing uniform pricing of strategic enterprise services.	
6. Approaches and methodologies adopted by service providers for determining tariffs of DLCs (presently under forbearance)	Since DLC tariffs are currently set without oversight, there is a need for greater transparency, which can be achieved by mandating standardized disclosure of pricing methods and adopting uniform cost models like FAC (Fully Allocated Cost) or LRAIC (Long-Run Average Incremental Cost) would ensure consistency and fairness.	TRAI's forbearance policy post the 2005 amendments have left tariffs for most DLC's entirely on market forces. Hence, there arises a need for uniform and transparent mechanisms, which can be resolved using the following methods: 1. Service providers should be mandated to disclose in a standardized format, their approach to determine DLC tariffs as	Mandating disclosure of tariff methodologies and standardizing cost accounting practices will enhance predictability and reduce information asymmetry, while ensuring that non-discriminatory pricing exists across service providers. Moreover, the proposal is in line with the principle of technological neutrality laid in the National Digital Communications Policy (2018)[8], which mandates the creation of service-agnostic regulatory frameworks i.e, the rules should apply uniformly across services delivering equivalent outcomes, regardless of the technology used. Hence, by introducing hybrid pricing norms, the TRAI would be

[8] *National Digital Communications policy – 2018* (2018b) *TEPC*. Available at: https://www.telecomepc.in/assets/tepc/pdf/policies/National_Digital_Communication_Policy_2018.pdf (Accessed: 18 May 2025).

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		to whether they are cost-plus, market-based or benchmarking. Along with the above mentioned, disclosure of their key cost assumptions and pricing parameters. 2. TRAI may consider issuing a framework for methodological transparency, requiring annual filings of tariff determination models by all licenses offering DLC services. 3. For methodological consistency, the operators may adopt uniform cost accounting standards like Fully	enabling innovation without favoring any specific infrastructure.

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		Allocated Cost [FAC] or Long Run Average Incremental Cost [LRAIC] for internal formulation, especially for wholesale segments. These transparency frameworks will help counter problems faced by the existing regulatory frameworks.	
7. Evolving customer requirements and expectations in relation to DLC services	The proposal supports scalable bandwidth, with incremental pricing, standardized SLAs to guarantee 99.9% uptime, and burstable capacity. It suggests solid self-service portals, transparent pricing, integrated	**1. Scalable Bandwidth Tiers:** Change tariffs to accommodate service upgrades with advance notice and incremental pricing, i.e., E1/DS3 to STM-1. **2. Standardized SLAs:** Require	1. Growth in Cloud adoption is driving demand for faster, symmetrical bandwidth,[9] with compound annual growth rate (CAGR) cloud infrastructure spending expected to grow at ~17.8% CAGR through 2029.[10] 2. Businesses demand always-on, reliable connectivity to meet the needs of mission-critical applications. However, inconsistent service level agreements

[9] *Analyzing Enterprise Connectivity Bandwidth Demand Shifts by Vertical Industry* (2024) *IDC Research*. Available at: https://my.idc.com/getdoc.jsp?containerId=US52564024&utm_ (Accessed: May 2025).
[10] NEEDHAM (2025) *Cloud Infrastructure Spending continued in accelerated mode in the Fourth Quarter of 2024 as AI investment path surpasses the most positive expectations.*, *IDC Research*. Available at: https://my.idc.com/getdoc.jsp?containerId=prUS53284225&utm_ (Accessed: May 2025).

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	DLC with 5G/SD-WAN, and subsidies for rural network expansion to ensure equitable access and that acceptable service is delivered consistently across locations.	SLAs with guaranteed 99.9% uptime, latency/jitter limits, MTTR, public reporting, and a breach recovery plan. 3. **Burstable Capacity Models:** Allow for short-term burst bandwidth (and pay-as-you-go pricing) with advance notice and established rates to eliminate surprises. Self- 4. **Service Portals:** Specify minimum capabilities for all self-service portals, e.g., online ordering, bandwidth usage monitoring (real-time), billing (automated),	(SLAs) stifle ability to compare service providers and accountability.[11] 3. Hybrid and multi-cloud deployments (including the edge) will create unpredictable traffic patterns. Customers now want tiered and burstable bandwidth to manage traffic peaks without over-provisioning to account for traffic spikes.[12] 4. Modern IT teams prefer API driven self-provisioning and monitoring, over 70 percent prefer having the option to self-service (easy to use).[13] 5. A simplified and standardized pricing model engenders greater value, allowing the small and new entrant market to participate in the competitive landscape, TRAI's objectives see parallel reductions in cross-subsidization, growing the market.[14] 6. The edge computing and 5G

[11] *AI power: Expanding data center capacity to meet growing demand (2024) McKinsey & Company.* Available at: https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/ai-power-expanding-data-center-capacity-to-meet-growing-demand?utm_ (Accessed: May 2025).

[12] Pinto, M. (2024) *Internet / WAN Circuit Buying Trends: What Bandwidth Tiers are Enterprises Buying in 2024? Lightyear.* Available at: https://lightyear.ai/blogs/internet-wan-circuit-buying-trends-what-bandwidth-tiers-are-enterprises?utm_ (Accessed: May 2025).

[13] Pinto, M. (2024) *Internet / WAN Circuit Buying Trends: What Bandwidth Tiers are Enterprises Buying in 2024?, Lightyear.* Available at: https://lightyear.ai/blogs/internet-wan-circuit-buying-trends-what-bandwidth-tiers-are-enterprises?utm_ (Accessed: May 2025).

[14] Morgan, T.P. (2024) *IDC Boosts Datacenter Compute And Storage Spending Forecast, The Next Platform.* Available at: https://www.nextplatform.com/2024/07/08/idc-boosts-datacenter-compute-and-storage-spending-forecast/?utm_ (Accessed: May 2025).

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		ticketing workflows. 5. **Transparent Pricing:** Standardize tariffs as "₹ per Mbps-km" and "₹ per Mbps-month", prohibit dynamic pricing, and stipulate clear measures for comparing services. 6. **Integrated DLC + 5G/SD-WAN:** Encourage bundled DLC augmented by 5G and/or SD-WAN for a single SLA, with potential for market improvement by pursuing infrastructure sharing opportunities that drive down costs. 7. **Geographic Reach & Parity:** Provide subsidies for rural DLC to expand reach,	backhaul market is helping drive growth for hybrid connectivity, data center capacity is expected to grow in the 19-22 % per annum, infrastructure sharing is helping reduce costs.[15] Reliable Dedicated Last Mile (DLC) connectivity is particularly important in rural markets (education, telehealth), U.S. rural subsidy programs that limit mileage fees to ensure equitable access infrastructure serve as a positive model.[16]

[15] *AI power: Expanding data center capacity to meet growing demand (2024) McKinsey & Company.* Available at: https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/ai-power-expanding-data-center-capacity-to-meet-growing-demand?utm_ (Accessed: May 2025).

[16] *2024 United States Data Center Energy Usage Report (no date) 2024 United States Data Center Energy Usage Report | Energy Technologies Area.* Available at: https://eta.lbl.gov/publications/2024-lbnl-data-center-energy-usage-report (Accessed: May 2025).

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		eliminate reasonable usage mileage-based fees, and require SLA comparisons between locations.	
8. Challenges faced by small service providers, customers or new entrants in the current DLC market	Reform India's Dedicated Leased Circuit (DLC) regulatory and pricing framework to improve affordability, access, and competitiveness for small service providers and end customers, especially in rural and underserved areas, by revising outdated tariffs, enforcing open access to infrastructure, supporting alternative technologies (e.g. wireless and satellite backhaul), and providing targeted financial relief	1. **Revise and expand DLC ceiling tariffs** to include modern bandwidth tiers (e.g., 10 Mbps, 100 Mbps, 1 Gbps) and remove distance-based pricing distortions, particularly in low-competition regions. The last major tariff revision in 2014[17] is outdated and does not reflect post-COVID bandwidth needs or current cost benchmarks. 2. **Strictly enforce infrastructure sharing mandates** under the TRAI's 2007	India's DLC market is a classic natural monopoly in which incumbent players hold a grip on critical infrastructure, setting high entry and pricing barriers that discourage small ISPs and rural consumers. Economic theory compels regulation in this case: the Coase Theorem is inapplicable given high transaction and bargaining costs in accessing infrastructure, requiring mandated open access. Pigouvian subsidy theory justifies employing the unused ₹86,000 crore USOF fund to internalize the positive externalities of rural DLC deployment. Obsolete TRAI tariffs and unregulated new bandwidth tiers (10 Mbps, 100 Mbps, 1 Gbps) result in allocative inefficiency, which can be rectified by price ceilings and cost-based pricing models such as Long-Run Incremental Cost (LRIC),

[17] TRAI, *57th and 58th Amendment to Telecommunication Tariff Order*, 2014.

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	through Universal Service Obligation Fund (USOF) mechanisms.	DLC Regulations[18], including provisioning of local leads and spare fiber with defined Service Level Agreements (SLAs), monitored via a centralized access portal.[19] 3. **Introduce a new "Bandwidth Provider" class or expand IP-I scope** to allow non-telco neutral fiber entities to provide lit capacity to ISPs, as proposed in the NDCP 2018[20] and TRAI's 2019 Consultation on Enhancing IP-I Scope.[21] 4. **Activate targeted subsidies from the USOF (now Digital Bharat Nidhi)** to reduce bandwidth costs for rural ISPs and	employed by regulators like Ofcom and BEREC. In addition, Ramsey pricing accommodates reduced license fees for small ISPs in low-ARPU areas because they are less capable of absorbing regulatory charges without distorting access. Coupled with each other, these principles necessitate reforming DLC tariffs, applying infrastructure sharing, and favoring smaller players to enhance efficiency, competition, and digital inclusion.

[18] TRAI, *Domestic Leased Circuits Regulations*, 2007
[19] TDSAT Judgment, *BSNL v. TRAI*, Appeal No. 10(C) of 2007, decided on 31 Jan 2008.
[20] Department of Telecommunications, *National Digital Communications Policy (NDCP)*, 2018, Section 1.2(b)(ii).
[21] TRAI, *Consultation Paper on Review of Terms and Conditions for Tariff for DLC Services*, 2025, Para 2.3–2.8

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		SMEs via a rural DLC voucher mechanism or capital grants for redundant fiber routes.[22] 5. **Exempt small ISPs from AGR-based license fees and USOF levies** if their operations are confined to underserved areas or below a turnover threshold, as recommended in TRAI's 2016 Consultation Paper on Encouraging Local Telecom Networks.[23] 6. **Fast-track spectrum delicensing for E-band/V-band** and simplify satcom rules to allow use of wireless backhaul and LEO satellites in fiber-deficient zones.[24] 7. **Mandate fair**	

[22] USOF India, *Annual Report 2022–23.*
[23] TRAI, *Consultation Paper on Encouraging Local Telecom Networks*, 2016.
[24] TRAI, *Recommendations on Enhancing Broadband Connectivity through Higher Frequency Bands*, 2021.

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		enterprise pricing parity for SMEs in rural/non-competitive markets, aligning it with metro broadband tariffs to eliminate unjustified price discrimination.	
9. Global best practices in DLC tariff frameworks and their potential relevance for the Indian context	TRAI seeks stakeholder views on global best practices in Domestic Leased Circuit (DLC) tariff frameworks and their potential relevance for India, with an aim to enhance affordability, accessibility, and competitiveness in leased line services.	Switching to cost-based tariff frameworks, such as LRIC or FAC, for setting tariffs in India could make sure prices match the expenses of service delivery and improve efficiency, as seen in countries like the UK, Singapore, and Australia. These techniques help tariffs match actual operating costs, while cutting back on cross-subsidy and pushing providers to be more efficient. If tariff structures and methodologies are compulsorily publicized, it will increase trust and enable better choices	Adopting global best practices into India's DLC tariff structure is important for different reasons: 1. Promoting Efficiency and Investment: If tariffs are based on real costs with transparency, service providers are given the right incentives to improve systems and lower costs for customers. 2. Ensuring Fair Competition: Equal tariffs in all regions stop one or a few firms from taking over the market, creating a balanced environment for innovation and new businesses to grow. 3. Adapting to Technological Change: By checking and updating the framework often, and treating all technologies equally, the rules can follow the fast pace of changes, including fiber infrastructure and digital

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		by all involved stakeholders. In Singapore, the IMDA sets a rule that providers show their pricing frameworks publicly, helping to build confidence in the market and assist businesses in making well-informed decisions.[25] . Tariff frameworks are reviewed at regular intervals to keep up with technological improvements and changes in the market. Regularly, the EU and ASEAN areas benchmark their policies with global standards to keep their countries at the forefront. By doing this, regulators are able to get rid of older pricing approaches linked to copper networks and focus on including modern DLCs powered by fiber-optics or satellites. Policies mandate	services. 4. Enhancing Consumer Welfare: When tariffs are straightforward, cheap, and easy to plan for, businesses become more confident and the move to digital in fields such as finance and healthcare is made easier. 5. Aligning with International Standards: Following and adopting global standards helps India compete well in the digital economy and brings investment and more opportunities for international partnerships.

[25] https://www.imda.gov.sg/regulations-and-licences/regulations/frameworks-and-policies

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		equal prices so that clients and regions are treated fairly, stopping any market imbalances. The UK's Ofcom makes sure service providers are treated equally, so no one company can dominate the market[26].	

[26] Alexander Brown & David Trapp, In brief: Telecoms Regulation in United Kingdom Lexology (2023), https://www.lexology.com/library/detail.aspx?g=ca6e3eb1-b465-4f00-83eb-84a2dcdc5bf0#:~:text=The%20role%20of%20Ofcom%20is,industry%20by%20enforcing%20competition%20laws. (last visited May 18, 2025).

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