OPTUS

Submission in response to Environment and Communications Legislation Committee inquiry

Telecommunications Legislation Amendment (Universal Outdoor Mobile Obligation) Bill 2025

Public Version

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EXECUTIVE SUMMARY

Optus welcomes the opportunity to make a submission to the Senate Environment and Communications Committee inquiry on the *Telecommunications Legislation Amendment (Universal Outdoor Mobile Obligation) Bill 2025* (the Bill).

Optus supports the policy intent of the Universal Outdoor Mobile Obligation (UOMO) to improve mobile connectivity in regional and remote Australia and to enhance public safety outcomes, including access to emergency services. Extending coverage beyond the economic and technical limits of terrestrial mobile networks is an important public policy objective, and Direct-to-Device (D2D) satellite technology has the potential to contribute to that objective over time. We are committed to engaging constructively with Government to realise this vision. Optus urges the Committee to consider the following recommendations, each of which is addressed in detail in the body of this submission:

1. Defer commencement to a workable date and condition UOMO obligations on demonstrated readiness.
2. Resolve spectrum frameworks as a precondition to commencement.
3. Address the wholesale cost-price squeeze.
4. Articulate a national policy position on LEO satellite infrastructure.
5. Commit to government co-investment or a subsidy regime.

The UOMO framework as currently proposed, including the commencement date of 1 December 2027, is materially ahead of technical, commercial, and regulatory reality. The legislation presumes that D2D technologies are sufficiently mature, available, and scalable to support a universal obligation within the proposed timeframe. In practice, delivery of UOMO compliant services depends on a complex set of unresolved dependencies that sit largely outside the control of mobile network operators (MNOs), including satellite constellation deployment, spectrum availability and coordination, device compatibility, gateway infrastructure, emergency services integration, commercial agreement and the operational priorities of international satellite providers.

D2D technology remains at an early stage of development and has not yet been proven at scale for carrier grade voice services or consistent nationwide coverage. Industry expectations are that D2D voice service will only become available from 2028 at the earliest, with reliability and coverage increasing from then. Current implementation relies on adaptations of terrestrial mobile standards that impose structural limits on performance, capacity, and reliability. Imposing statutory obligations before these capabilities are demonstrated risks undermining, rather than enhancing, public safety outcomes.

The Bill also risks setting public expectations that are not aligned with the current and near-term realities of D2D capability. Without clearer alignment between what the legislation aspires to achieve and what services can reliably deliver by the proposed default day of 1 December 2027, there is a risk that consumers and stakeholders assume a level of coverage, reliability, or functionality that cannot be met in practice. Delivery of UOMO services is further constrained by handset compatibility. As is the case today, D2D services are expected to be limited to a subset of high-end devices. Handsets that natively support D2D voice, aligned with future mobile standards, are not anticipated until 2028 at the very earliest, meaning that access to the full envisaged UOMO capability is likely to be restricted to those who can initially access higher end devices. This creates a real risk that vulnerable and remote communities are excluded in practice, notwithstanding MNO compliance at a notional coverage level.

Spectrum availability represents a foundational and unresolved precondition for UOMO delivery. Frameworks governing access to spectrum, coordination with terrestrial services, and coexistence arrangements have not been finalised and are the subject of ongoing regulatory work. In the absence of a settled spectrum framework, MNOs cannot commit with certainty to service scope, timing, or cost. Without early resolution of spectrum policy settings, UOMO obligations cannot be delivered in practice.

The UOMO framework also introduces sovereign and delivery risk by relying on satellite infrastructure owned and operated outside Australian jurisdiction, limiting MNO control over service prioritisation, capacity management, and long-term cost. While domestically owned ground station gateway infrastructure may mitigate some of these risks, it requires substantial upfront investment and ongoing operating costs. Consequently, the UOMO is highly unlikely to be commercially viable in the early stages of D2D deployment without government support.

Cost recovery under the UOMO framework presents a further structural challenge. The global D2D satellite market is highly concentrated, and the Bill mandates MNO participation without placing equivalent constraints on upstream wholesale pricing. Retail price regulation applied solely at the MNO level, without regulatory certainty at the wholesale satellite layer, creates a substantial risk of a cost-price squeeze that makes sustainable service delivery impossible. Where costs cannot be recovered from D2D users without significant price increases, they will be redistributed to the broader mobile customer base, erode network investment and undermine competition, outcomes that are inefficient, inequitable and unsustainable.[1]

Finally, the Bill defers key obligations to future Ministerial instruments, including coverage definitions, service standards, pricing parameters, commencement timing, and exemptions. This regulatory uncertainty prevents MNOs from accurately assessing and choosing an appropriate partner whilst encouraging short-term, inefficient decision making rather than disciplined, long-term investment.

Optus does not seek to abandon the UOMO or weaken its objectives. Rather, the framework must be recalibrated to align policy ambition with technical reality. In particular, we recommend deferring commencement until critical dependencies are resolved, either by setting a default start date no earlier than 1 January 2030 or by empowering the Minister to determine commencement once industry and government have agreed a clear and practical implementation pathway, with a minimum of 24 months' notice. Conditioning obligations on demonstrated performance benchmarks, updated spectrum frameworks, realistic device availability, and aligned consumer representations will better ensure that UOMO delivers durable, safe, and credible outcomes for all Australians.

[1] It is not efficient for the primary universal outdoor mobile providers to be selling service below their cost, creating an inequitable cross-subsidy mechanism that redistributes the cost of coverage, without any related cost subsidy framework, requiring MNOs to absorb the full cost of serving commercially unviable areas indefinitely.

OPTUS SUPPORTS THE UOMO PRINCIPLE

The vision for the UOMO will only be achieved if the legislative framework reflects the practical realities of deploying an emerging and technically complex technology at continental scale. Optus supports the policy intent and public interest objectives of the proposed UOMO legislation by extending mobile coverage to remote and underserved areas to support equity and public safety outcomes, including access to the emergency call service. D2D satellite technology can assist in addressing coverage gaps where terrestrial solutions are not technically or economically feasible through terrestrial infrastructure alone.

Optus has demonstrated longstanding commitment to regional and remote connectivity through substantial investment in terrestrial mobile network expansion, including through partnerships with government programs such as the Mobile Black Spot Program and by pursing innovative technological and commercial solutions, including the multi-core network active-sharing agreement with TPG Telecom. The UOMO is an opportunity to deploy complementary next generation coverage solutions, improve service resilience during emergencies, and support the development of Non-Terrestrial Network (NTN) capability in Australia. We have participated in early and basic-level D2D testing and undertaken preparatory work to support future service delivery, and a clear and stable legislative framework is essential to underpin further investment.

This submission identifies implementation issues that should be addressed to support timely and effective delivery of UOMO and to protect consumer outcomes. We do not seek to undermine the policy intent but rather highlight practical risks and timeline considerations that, if not managed, could affect service delivery, commercial sustainability and end-user expectations.

TO DELIVER THE UOMO FOR ALL AUSTRALIANS, THE LEGISLATION MUST RECOGNISE AND ALLOW FOR DEPENDENCIES

UOMO obligations are, by design, directed at the coverage gaps that lie beyond the reach of existing terrestrial mobile networks. For Optus, and all Australian MNOs, those gaps are not a product of insufficient investment, they are the product of geographic and economic reality.

Optus's terrestrial network already reaches 98.5% of Australia's population, reflecting a rational and well-established investment principle: infrastructure is deployed where people live and work. Remaining coverage gaps are characterised by vast, low-density land areas where the economics of terrestrial infrastructure are fundamentally unviable. The UOMO would impose a significant and costly regulatory mandate to serve that residual population, together with travellers passing through remote areas who, by the nature of transit, will never generate the sustained usage required to support a viable return on fixed infrastructure investment. D2D satellite technology is not simply one option among many for UOMO delivery, it is the only mechanism currently expected to come close to being technically and economically feasible for reaching the communities and travellers that the Bill is designed to serve.

To deliver UOMO effectively, the legislative framework must recognise dependencies related to D2D technology maturity, device compatibility, spectrum availability, and the operational complexity of D2D delivery models.

In particular, the default implementation date set out in the Bill is likely unachievable with many dependencies remaining unresolved. The Bill acknowledges this through built in flexibility and discretion for key features of the UOMO regime, including in relation to service and geographic coverage, service standards, and commencement dates. While flexibility is important, the impact of an unachievable start date remaining in the legislation is that Optus and other MNOs must make significant planning and investment decisions on the assumption that the start date will not change. This will likely lead to inefficient and premature decisions aimed at short term compliance rather than considered decisions based on long term technical and commercial sustainability.

To address this, the default commencement date should be amended to either no earlier than 1 January 2030, or the Minister should be empowered to set a commencement date, only once there is demonstrated evidence that industry and government have collaboratively addressed the barriers identified in this submission and agreed on a defined path toward implementation, with a minimum of 24 months' notice.

D2D technology is not mature enough yet and does not align with public expectations of capability

Delivery of UOMO compliant services is highly dependent on satellite partners successfully deploying next-generation LEO satellite constellations. There is a likely material risk that delivery timelines may slip beyond current expectations, given reliance on constrained launch vehicle availability and the inherent susceptibility of launch schedules to delay. In January 2026, Amazon's Kuiper, formally requested an extension from the US Federal Communications Commission on its deployment of the planned satellite constellation, seeking to push the regulatory milestone from July 2026 to July 2028, citing an industrywide shortage of launch vehicles as the primary obstacle. As of mid-2025, Amazon had launched just 200+ satellites against a target requiring more than 1,618 in orbit to satisfy the original deadline. The practical consequence is that the competitive satellite density required to deliver reliable, continuous D2D coverage over Australia's continental landmass

will not be achievable within any timeframe consistent with the Bill's current default commencement date.

Some satellite vendor models supporting D2D services across Australia's geographically dispersed footprint depend on material vendor investment in onshore gateway infrastructure. Gateway facilities must include high-capacity antenna systems, satellite tracking infrastructure, network integration equipment, and secure data centre facilities. Furthermore, timing is another key element as MNOs will require a minimum of 24 months to deliver this nationwide infrastructure build, plus additional time for service onboarding[2]. These costs and timing requirements represent a foundational prerequisite to service delivery that must be incurred well in advance of the UOMO taking effect.

Ongoing operational costs of gateway infrastructure compound the capital burden[2]. Taken across the gateway footprint required for national coverage, the aggregate investment cannot be recouped on a commercially viable basis unless demand, pricing, and regulatory settings align in a manner that the current framework does not align with.

D2D services are an emerging technology that has demonstrated early promise, but its service performance and functionality have not yet been proven at scale for carrier-grade voice services or large-scale and consistent coverage. Current D2D implementations rely on proprietary adaptations of legacy 4G (LTE) standards that were designed for terrestrial operation and have been retrofitted for satellite use. While effective for extending basic connectivity, these adaptations reflect architectural trade-offs associated with applying terrestrial mobile standards in a non-terrestrial environment. Constraints on throughput and service continuity are therefore structural in nature and cannot be fully addressed through software optimisation alone, which has been the primary tool relied on to date for optimisation. Addressing these constraints requires a broader ecosystem built on agreed industry standards as a foundational enabler to deliver a universal service with consistent performance that is typically delivered by the terrestrial mobile network ecosystem.

Delivering UOMO services will also require technical trials, which will take considerable time, in Australian operating conditions before any commencement obligation can be met. Regulatory conformance testing, network integration validation, and real-world performance assessment under Australia's distinctive geographic and climatic conditions are prerequisites to establishing whether D2D services can reliably satisfy the performance thresholds that any UOMO obligation will require. Testing and validation of all integration and readiness requirements will be provider dependent, but is expected to take at least 9 months, and up to 15 months.

Expanding the emergency call service represents the primary policy justification for UOMO obligations, ensuring Australians can contact emergency services from locations beyond terrestrial mobile coverage. However, emergency calling over D2D services is not yet technically assured or operationally validated in real-world conditions. Imposing regulatory obligations before comprehensive testing and certification creates substantial safety risks and may undermine rather than enhance public safety outcomes. Several fundamental technical capabilities are required for reliable emergency calling that are not yet demonstrated in D2D satellite architectures, including:

- **Location accuracy and availability:** Emergency services require precise caller location. Satellite D2D location determination via Cell-ID or coarse network positioning may not align

[2] Further detail is provided in Confidential Appendix 1

with Advanced Mobile Location[3] technology, and provide accuracy measured in tens or hundreds of kilometres, rendering emergency response impractical. GPS-assisted location requires handset functionality integration not yet validated across the consumer device ecosystem.

- **Emergency Camp-On:** It is unclear whether existing camp-on obligations, where emergency calls are redirected via an alternate terrestrial network when the host network is unavailable, can be supported within a D2D satellite context. The ability of D2D services to interwork with terrestrial emergency roaming mechanisms, maintain session continuity, and meet Triple Zero routing requirements under host-network outage scenarios has not been demonstrated or validated in real-world conditions.
- **Priority handling and pre-emption:** Emergency calls must receive network priority over general traffic to ensure completion during congestion. Satellite constellation capacity management and prioritisation protocols for D2D emergency traffic are not yet standardised or operationally demonstrated.
- **Congestion management during mass emergency events:** Bushfires, floods, or other disasters generating simultaneous emergency calls from affected areas may overwhelm satellite beam capacity. Unlike terrestrial networks with established congestion management and emergency services network prioritisation, D2D satellite handling of mass calling events remains untested.
- **Interoperability with Emergency Services Organisations**: Integration with Triple Zero call-handling infrastructure, emergency service routing protocols (ESRP), location-based routing to appropriate Public Safety Answering Points (PSAPs), and callback capabilities all require validation across D2D satellite architectures.
- **Call establishment reliability and latency:** Satellite D2D services face inherent latency (due to orbital altitude) and initial services may suffer intermittent connectivity (due to constellation pass timing). Emergency call establishment time and completion reliability under real-world conditions (atmospheric interference, terrain obstruction, satellite availability windows) have not been comprehensively tested.
- **Callback and two-way communication continuity:** Emergency services frequently require callback to disconnected callers or sustained two-way communication for medical guidance or situational updates. D2D satellite service continuity during extended calls or callback scenarios has not been verified and may be constrained by satellite pass duration or handover reliability.

The Bill, as currently drafted, risks locking in community expectations of D2D capability before satellite constellations and in some cases, the requisite ground infrastructure required to meet those expectations are in place. If services delivered under the UOMO fail to perform in emergency scenarios, particularly in regional and remote areas where residents are most reliant on a single connectivity layer, the consequences fall hardest on the communities the legislation is designed to protect. A framework that conditions the activation of D2D obligations on verified performance benchmarks, including demonstrated capability for emergency call support, would better serve both the policy intent and public safety.

[3] An industry requirement under Industry Guideline G557.6:2021.

Under the *Telecommunications (Emergency Call Service) Determination 2019,* relevant compliance obligations rest with MNOs because MNOs own and operate the network infrastructure through which those obligations are discharged. The UOMO fundamentally disrupts this assumption. To deliver coverage required by UOMO, MNOs are required to outsource a material component of their network infrastructure to international commercial satellite operators over whom they have limited contractual leverage and no operational control. If liability remains with the MNO regardless, as the current regulatory default would suggest, MNOs bear full responsibility for service failures caused by decisions made by offshore entities outside their control. The Bill should expressly address how the *Telecommunications (Emergency Call Service) Determination 2019* and UOMO compliance obligations are apportioned where delivery depends on third-party satellite infrastructure, and should provide MNOs with a clear liability safe harbour where service failures are directly attributable to the acts or omissions of upstream satellite operators beyond the MNO's reasonable control.

Further, there is a clear policy disconnect between the Bill and the *Telecommunications (Mobile Network Coverage Maps) Industry Standard 2026* that goes beyond the technical detail of how coverage maps are constructed. The UOMO is directed to future, developing capabilities that may have public safety value even where service performance is limited, intermittent, or highly conditional. By contrast, the mapping framework is necessarily based on whether a service meets defined thresholds for being represented as usable coverage. As a result, it is unclear whether D2D services, even if compliant with UOMO, would qualify to be included on coverage maps, creating a misalignment between legislative intent, public expectations, and consumer-facing representations.

Device compatibility constraints including affordability and uptake of compatible handsets

The delivery of UOMO services is dependent on compatible consumer devices, yet the current and foreseeable device ecosystem presents significant limitations that constrain service availability regardless of satellite or network infrastructure readiness. Many mobile handsets currently in operation in Australia are not compatible with D2D services, with only late model Apple iPhones and Google Pixels and some Samsung devices confirmed as compatible with Telstra's satellite messaging service[4]. Future service availability (particularly including voice) is likely to be limited to newer, higher-end devices, potentially excluding the very vulnerable and remote communities that UOMO is designed to serve. This is particularly the case as new MSS-supporting spectrum bands are introduced into handsets, with initial availability likely to be limited to new higher-end devices. These types of devices are not expected to be available until sometime after satellite services are in operation (expected to be 2028 or later), allowing the ecosystem to be established before coming to market.

The "equitable basis" definition proposed by Dr Helen Haines MP adds a further layer of commercial uncertainty by requiring MNOs to consider both the affordability of UOMO services and the ability of end users to obtain the service, including device compatibility. This imposes an obligation whose satisfaction depends entirely on factors outside MNO control including device manufacturer decisions, retail pricing, and consumer upgrade behaviour. The UOMO must be scoped in the legislation to apply only where compatible devices are accessible and must not be construed to require infrastructure investment for device categories outside current and foreseeable D2D technical standards.

[4] https://www.telstra.com.au/coverage-networks/mobile-technology/satellite-to-mobile

Device incompatibility is not a transitional problem, but a persistent, long-tail structural constraint driven by device maker roadmaps and end-user replacement cycles that are beyond the control of MNOs - lower-end devices will persist in the market including devices purchased overseas or brought into Australia by non-residents. Consumer misunderstanding of compatibility will generate expectations that cannot be met, including in response to regulatory mandates or political messaging.

Software enablement adds a further layer of dependency entirely outside MNO control. Currently, D2D functionality must be activated by the device manufacturer. In many cases, feature rollouts are determined by agreement between up to four parties, the platform provider, the Original Equipment Manufacturer (OEM), the carrier, and in some cases third-party distributors, only one of whom is subject to any obligation under the Bill.

As 3GPP[5] NTN standards evolve through successive releases (17, 18, 19+), optimal D2D service performance will require new chipset generations and hardware designs, not just software updates. Full capability will require complete handset refresh cycles. In regional and remote communities, where replacement cycles routinely run five to ten years, this creates a recurring gap between regulatory obligation and technical reality.

The device compatibility requirements for UOMO create a direct and unresolved tension with the existing emergency call device blocking regime established under the *Telecommunications (Emergency Call Service) Determination 2019*. Under this framework, any device that cannot route a Triple Zero call over 4G must be prevented from connecting to the network, because a connected device that fails in an emergency creates a false sense of security. The consequences of this framework for UOMO have not been addressed in the Bill and creates uncertainty that all devices that do not connect to a UOMO service are also subject to device blocking requirements under the *Telecommunications (Emergency Call Service) Determination 2019*.

Commencement obligations should allow deferral where device penetration thresholds in target populations have not been met. Legislative instruments should explicitly state that obligations apply only to compatible devices and eligible plans, including emergency calling requirements.

Spectrum availability is uncertain and unresolved

There is significant uncertainty surrounding the availability, vendor support and licencing reform for the delivery of UOMO on D2D service using MNO-owned spectrum. To facilitate the use of MNO spectrum, it will be necessary to cannibalise currently deployed spectrum to meet the UOMO, meaning that the spectrum used will be unavailable for the carriage of other terrestrial services. Furthermore, the timetable for the necessary spectrum reforms to deliver UOMO using nationally licenced spectrum is unlikely to be achievable by the current commencement date due to the complexity and number of stakeholders currently operating in the candidate mid-band spectrum in remote areas of Australia.

Resolution of spectrum frameworks and coordination arrangements is the most critical precondition for UOMO delivery. Without a settled framework governing Mobile Satellite Service (MSS) spectrum access, including clear allocation, licensing, and coordination rules, no MNO can commit to UOMO service delivery with any certainty as to scope, timing, or cost.

[5] The 3rd Generation Partnership is a collaborative standards organisation who develops global specifications for telecommunications technologies. 3GPP establishes common standards to ensure that devices from different manufactures and networks are interoperable.

In the consultation on draft Five Year Spectrum Outlook (FYSO) 2026–31, the Australian Communications and Media Authority (the ACMA) acknowledged it is "*continuing to closely monitor developments that enable consumer mobile smartphones to communicate directly with satellite systems*". While the FYSO is currently under public consultation, the Bill proposes obligations whose delivery depends on a spectrum regulatory foundation that has not yet been confirmed. This is a gap that the Explanatory Memorandum to the Bill notes through acknowledgement that MNOs do not hold spectrum licenses that could be used to comply with the UOMO in external territories.

Access to MSS spectrum used to deliver D2D services must be restricted to licensed MNOs. This is particularly important considering satellite D2D services are likely to have a major contribution to delivering the UOMO. D2D services delivered by satellite operators without MNO intermediation are subject to platform decisions made in foreign jurisdictions, by entities that have limited experience operating under the Australian regulatory framework. Restricting MSS spectrum access to licensed MNOs ensures that proposed UOMO obligations, Triple Zero requirements, terrestrial network integration and consumer protections attach to the entity that is providing the service to Australian consumers.

The ACMA's ongoing spectrum planning work under the FYSO provides the appropriate vehicle for formalising this position, and the Bill should explicitly direct the ACMA to resolve MSS coordination arrangements as a precondition to commencement obligations taking effect.

Expectations of UOMO must align with the operational complexity of D2D delivery models

The UOMO framework imposes obligations on Australian MNOs whose practical fulfilment depends, in large part, on infrastructure and operational decisions made by international commercial entities outside Australian jurisdiction. Compliance expectations under the Bill must be aligned to this structural reality.

The majority of D2D satellite services available for UOMO delivery are provided via globally operated Low Earth Orbit (LEO) satellite constellations that are owned, controlled, and operated by international commercial entities. Australian MNOs, while serving as customer-facing service providers and terrestrial network partners, will have limited to no operational or strategic control over the core satellite infrastructure on which UOMO obligations ultimately depend. This structural reality gives rise to several distinct and material categories of sovereign risk that the Bill does not currently address.

Given service immaturity, Australian MNOs may not be able to independently ensure service availability or prioritisation during periods of network congestion or capacity constraint where those decisions rest with offshore satellite operators whose commercial interests may not align with Australian essential service obligations. Service degradation or interruption decisions may also be made by entities operating under foreign commercial imperatives, with limited recourse available to Australian MNOs, or to Australian consumers, through contractual service level agreements. This risk would compound in scenarios involving satellite operator financial distress, operational failures, or strategic decisions to deprioritise or exit the Australian market.

Technology upgrade cycles, feature deployment timelines, and roadmaps will be determined by satellite operators and device manufacturers based on global commercial priorities rather than Australian-specific requirements. Australian users may experience delayed access to capabilities, or be subject to service parameters, including latency, throughput, and coverage patterns, that are optimised for higher-density markets in the Northern Hemisphere. Australian MNOs have limited ability to influence vendor development priorities to address uniquely Australian use cases,

including remote and rural coverage, emergency services integration, and coordination with Australian defence and emergency management agencies.

The geopolitical risk profile of foreign-operated LEO satellite services is significant and should be expressly considered in the design of the UOMO compliance framework. During periods of geopolitical tension or international conflict, satellite operators may be subject to foreign government directives, export controls, or sanctions regimes that could disrupt Australian service delivery in ways entirely outside MNO control. Extraterritorial jurisdiction claims by foreign governments could compel satellite operators to restrict, monitor, or discontinue services in a manner inconsistent with Australian law or national interest. Data sovereignty concerns arise where satellite network traffic may transit or be processed through infrastructure located in foreign jurisdictions with materially different privacy and security frameworks to those that apply in Australia.

International commercial satellite operators optimise their operations for global revenue maximisation, which does not inherently align with Australian Government priorities such as emergency service coverage, regional equity, or national resilience. This creates a structural tension at the heart of the UOMO framework. MNOs are being asked to guarantee coverage in regions that are commercially unattractive, using infrastructure controlled by entities with no direct regulatory obligation to serve Australian public policy objectives. The practical ability of Australian MNOs to mandate coverage in economically unviable but important areas, including remote communities, critical infrastructure corridors, and maritime zones, will be constrained by the commercial discretion of offshore operators.

Certain D2D service architectures, such as "bent-pipe" or transparent satellite relay models, require terrestrial gateway infrastructure to route traffic between the satellite constellation and terrestrial mobile core networks. When these gateways are located within Australian territory and operated under Australian jurisdiction, they provide meaningful opportunities to enhance sovereign control and security outcomes.

Domestic gateways owned by Australian MNOs allow direct operational oversight of traffic routing, quality of service parameters, and network integration with existing terrestrial infrastructure. Gateways located in and owned by an Australian entity will also allow MNOs to implement Australia-specific service prioritisation, capacity management, and emergency services integration without dependence on offshore operational control centres. Gateways located in and owned by Australian entities would also enable meaningful coordination with Australian defence and emergency management agencies to prioritise critical communications during national emergencies. This architecture would further provide greater transparency and availability of network performance, usage patterns, and service delivery metrics, supporting regulatory oversight by Australian authorities.

Traffic transiting via domestic owned and controlled gateways would ensure long term enforcement of Australian privacy laws, lawful intercept requirements, and cybersecurity frameworks in a manner that offshore controlled gateways may not reliably support. It would also enable implementation of Australian-mandated security controls, encryption standards, and access restrictions consistent with critical infrastructure protection requirements under the *Security of Critical Infrastructure Act 2018 (Cth)*.

In the early stages of D2D deployment, anticipated levels of user adoption and revenue are unlikely to support domestic gateway investment on a standalone commercial basis, particularly given uncertainty around take-up and competitive dynamics.

THE COST AND PRICING FRAMEWORK REQUIRES CAREFUL DESIGN

The global D2D satellite market is highly concentrated, currently operating as a duopoly with two providers controlling access to the requisite technology. This duopoly structure enables satellite operators to price on the basis of global opportunity costs rather than Australian market conditions or willingness to pay.

By mandating service delivery without providing MNOs the commercial option to decline participation, the Bill effectively converts MNOs into a captive market for existing satellite D2D services, with predictable adverse consequences for pricing and long-term cost sustainability. Optus considers this one of the most significant structural deficiencies in the current framework, and one that the Government must address through complementary regulatory or funding mechanisms if UOMO is to be delivered sustainably.

The proposed UOMO framework creates significant regulatory uncertainty by deferring the determination of fundamental obligation elements to future Ministerial instruments, rather than defining them in primary legislation. Core parameters that remain entirely undefined in the Bill include coverage area definitions, service standards, consumer protection obligations, commencement timing, pricing controls, and exemption frameworks. These variables collectively dictate the scale, cost, and commercial viability of UOMO compliance, and their absence from the primary legislation prevents mobile network operators from accurately assessing the regulatory burden.

Structural cost challenges driven by Australia's unique position

The economics of D2D satellite services in the Australian market present structural challenges that distinguish Australia from international comparator markets. Australia's landmass of approximately 7.7 million km^2 requires satellite constellation capacity allocation comparable to much larger population markets, yet serves only 26 million people, a population-to-area ratio approximately one-fifteenth that of the United States and one-fiftieth that of Europe. LEO satellite constellations allocate capacity by geographic beams or cells, meaning Australian coverage requirements consume substantial satellite capacity, in beam-hours, spectrum allocation, and constellation visibility windows, to serve comparatively small user populations relative to high-density Northern Hemisphere markets.

Where retail price controls prevent cost recovery from D2D users directly, that cost burden will not disappear, it will be redistributed to the broader mobile customer base. At a time when Australian households are navigating sustained cost of living pressures, any policy design that requires urban and suburban consumers to cross-subsidise satellite connectivity services they will rarely, if ever, use represents a regressive and politically untenable outcome. The Government should recognise this as a 'who pays' policy choice and be explicit about whether this is the intended cost allocation model, or whether an alternative funding mechanism will be provided.

Under some vendor models, the inclusion of remote offshore territories in UOMO's geographic scope introduces further cost complexity that Optus has addressed in previous submissions to the Department. The satellite coverage geometry, coordination zone constraints, and absence of terrestrial network anchor infrastructure in these locations create service delivery challenges qualitatively different from those on the Australian mainland, and which require specific consideration in any cost modelling underpinning the framework.

Capital infrastructure requirements

Under some models, delivering D2D services at a continental scale requires substantial upfront capital investment, including network core upgrades, billing systems integration, and the deployment of gateway infrastructure.

For D2D service architectures that require terrestrial gateway infrastructure, such deployment of infrastructure is not commercially viable without government co-investment or financial support mechanisms. Without such government support mechanisms, Australian MNOs will be economically compelled to pursue service models that rely entirely on offshore gateway infrastructure and satellite operator control, with the corresponding acceptance of heightened sovereign risk profiles.

Spectrum costs compound this capital burden further. Existing Australian spectrum frameworks were not designed to accommodate nationwide D2D obligations or the technically distinct characteristics of satellite-terrestrial spectrum sharing. This is not unique to Australia. Globally, regulators have been slow to adapt frameworks originally designed for relatively small numbers of predominantly geostationary satellites to the dense, dynamic LEO constellations that underpin D2D services. The timing of UOMO and the structural issues surrounding the use of IMT spectrum present significant obstacles for Government and MNOs. An option beyond the use of terrestrial IMT spectrum lies in the use of MSS spectrum, where the technical feasibility of co-frequency sharing between multiple operators, and between satellite and terrestrial services, remains contested and largely unproven. Access to MSS spectrum required for D2D delivery will involve licensing fees, coordination costs, and interference mitigation expenditure. These are costs that cannot be avoided, deferred, or negotiated down by any individual MNO acting alone and will likely be incurred many years in advanced of any practical MSS-enabled D2D deployment.

The CSIRO has indicated that low-band spectrum which may be used for some D2D services may require exclusion and coordination zones for the Radio Quiet Zone of up to a 3,000 km radius. If confirmed, this would far exceed the coordination radii currently administered by the ACMA under RALI MS32, which extend to a maximum of 260 kilometres for the lowest frequency bands. The practical consequence is that low-band D2D operations could be precluded across a substantial portion of the Australian landmass absent a bespoke regulatory solution. Without early and decisive action by ACMA to address these spectrum access, licensing, and coexistence issues, the UOMO obligations cannot be delivered in practice, regardless of technology readiness or commercial arrangements.

Price and service regulation

The Bill confers broad Ministerial power to set the terms on which designated mobile telecommunications services are supplied to consumers, including retail pricing. Optus understands the rationale that D2D services supplied under UOMO will cost materially more per user to deliver than standard mobile services, and equitable access in regional, rural and remote communities is a legitimate objective.

The problem is structural. Retail price controls bind MNOs and do not, and under the current framework cannot, bind the international satellite operators who supply the wholesale D2D capacity MNOs need to meet their UOMO obligations. The Minister may set a retail ceiling calibrated to consumer affordability; satellite operators, facing no equivalent constraint, will price on the basis of global opportunity cost and the captive demand that mandatory UOMO obligations create. As noted

earlier in this submission, the D2D satellite market operates as a concentrated duopoly with high barriers to entry. The Bill's mandatory obligation design eliminates MNOs' ability to decline participation, compounding that leverage further. Where retail ceilings depress revenue while wholesale input costs remain unconstrained, cost recovery becomes structurally impossible regardless of operational efficiency.

Established telecommunications price regulation frameworks are specifically designed to prevent this outcome. For example, ACCC regulation of NBN Co wholesale access prices enables retail service providers to construct viable offers as a consequence of wholesale price being regulated alongside retail expectations. EU roaming regulation also pairs consumer price caps with wholesale roaming rate caps for the same reason. Mobile termination rate regulation applies symmetrically across the wholesale and retail layers. The UOMO framework regulates only the downstream MNO retail relationship, with no equivalent mechanism governing the upstream costs that determine whether retail compliance is economically achievable.

If such retail price controls prevent full cost recovery from D2D users, that burden will not disappear, it will be redistributed. Whether it falls on the broader mobile consumer base, on MNO commercial returns, or on consolidated revenue is a policy choice. This would see urban and suburban customers subsidising remote coverage through higher prices or reduced investment, whilst MNOs captured by the UOMO face a structural cost disadvantage compared to competitors without equivalent obligations. In competitive markets where customers can switch providers, such cross-subsidy models are unlikely to be commercially sustainable.

There are options available to address this, including amending the Bill to provide the Minister with commensurate powers to regulate the wholesale prices charged by satellite operators, or by directing the ACCC to commence a declaration inquiry into a wholesale satellite input service and to issue an interim pricing determination. Either way, providing foreign owner satellite operators with early notice of potential regulatory intervention on price terms will support a more balanced commercial environment.

Co-funding of the UOMO

The Bill contemplates that UOMO services may be funded in part through redistribution from the existing USO levy. We support explicit recognition that UOMO carries public funding dimensions and welcomes a funding model that reflects this. However, the USO redistribution mechanism presents two practical constraints the Government should address before treating it as the primary vehicle.

First, the existing USO is not near expiry. Standard telephone service obligations, including voice services delivered over legacy infrastructure in areas not yet reached by the NBN Co infrastructure, will remain live for several years. Redirecting levy funds toward UOMO before those obligations are extinguished creates a genuine funding conflict, risking underfunding of both programmes during an extended transition.

The UOMO is a forward-looking policy proposal with public safety mechanisms. The USO is a piece of legacy legislation tied to legacy voice infrastructure. The USO levy was designed for a defined obligation of diminishing scope. UOMO represents a new and potentially open-ended obligation of continental scale, encompassing capital-intensive gateway infrastructure, ongoing spectrum costs, and operational expenditure across Australia's landmass.

Best practice would suggest the USO framework be grandfathered and retired in an orderly way, with a fit-for-purpose funding mechanism for the UOMO established on its own terms, grounded in a

bottom-up analysis of the actual costs of the obligation and a rigorous, independent assessment of available funding mechanisms. This approach is not without precedent: the Regional Broadband Scheme levy was established only after an independent review of NBN Co's non-commercial service costs and a structured analysis of the relative merits of competing funding options. Given the significance of the UOMO, the scale of investment required, and the public safety outcomes at stake, a similarly rigorous process is warranted here. While the Minister could direct such a review at the appropriate time, Optus's position is that the Bill should require that such a review be completed and its findings addressed before the default commencement date takes effect, ensuring that obligations and funding are calibrated together, rather than leaving MNOs to absorb an open-ended cost burden in the interim.