

EMSTRET HOLDINGS LIMITED

FORMAL SUBMISSION

2027 Universal Access and Service (UAS) Programme Consultation

In response to NICTA Consultation Paper UAS CP No.01/2027

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Submitting Organisation	Emstret Holdings Limited
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Submission to: Universal Access & Service Secretariat, National Information and Communications Technology Authority (NICTA)

The Chief Executive Officer
National Information and Communications Technology Authority (NICTA)
P.O. Box 8444
Boroko, National Capital District
Papua New Guinea

Attention: Universal Access & Service Secretariat

Subject: Emstret Holdings Limited Submission on the Proposed 2027 UAS Programme

Dear Sir/Madam,

Emstret Holdings Limited welcomes the opportunity to provide comments on NICTA Consultation Paper UAS CP No.01/2027. We support the objective of extending reliable and affordable broadband connectivity to underserved and unserved communities and recognise the importance of the proposed 2027 programme in advancing Papua New Guinea's digital transformation agenda.

Emstret supports the proposed focus on broadband infrastructure, technology neutrality, open-access infrastructure sharing and blended funding. Our central recommendation is that the 2027 UAS Programme should procure measurable connectivity outcomes rather than prescribe a single network architecture. In some locations a conventional mobile macro site may be appropriate; in others, fixed wireless access, small-cell solutions, satellite or microwave backhaul, community Wi-Fi, or hybrid models may provide faster and more sustainable outcomes at lower whole-of-life cost.

We also recommend procurement structures that enable participation by a broader range of qualified licensed operators, including regional clustering, framework agreements and co-investment models. This can increase competition, reduce delivery risk and enable UAS funding to reach more communities.

Emstret is willing to participate in future UAS procurement and would welcome discussion on a pilot involving a small group of technically challenging locations where a technology-neutral hybrid model can be demonstrated.

Please find our detailed responses to Sections 11.1 to 11.6 below.

Yours faithfully,

Haroun Rashid
Managing Director
Emstret Holdings Limited

1. Executive Summary

NICTA proposes 322 new mobile broadband infrastructure sites with an indicative programme investment of PGK 344 million, expected to extend broadband connectivity to approximately 800,000 to one million people. The Consultation Paper also proposes technology neutrality, open-access infrastructure sharing, competitive procurement and blended funding. Emstret supports these principles and recommends that they be strengthened in implementation.

Emstret's Key Recommendations

- Procure service outcomes rather than a fixed tower architecture: coverage, minimum broadband performance, reliability, affordability and institutional connectivity should be the primary deliverables.
- Retain technology neutrality and expressly allow FWA, small cells, satellite/microwave backhaul, community Wi-Fi and hybrid solutions where they meet service requirements.
- Tender the 322 projects in practical regional/provincial clusters to encourage participation by qualified operators of different sizes and reduce concentration risk.
- Make UAS-funded passive infrastructure genuinely open access, with transparent co-location, power and backhaul terms available to all licensed operators.
- Use blended funding and co-investment models, including UAS, operator, provincial/DDA, government and development-partner contributions.
- Measure meaningful connectivity, not infrastructure alone, including active usage, affordability, schools/health facilities connected, uptime and digital service adoption.
- Consider spectrum facilitation where necessary for UAS delivery, subject to the applicable licensing and regulatory framework.
- Establish a 5-10 site technology-neutral rural connectivity pilot to compare conventional macro deployment with hybrid FWA/satellite/shared-infrastructure models.

2. Overall Position on the Proposed Programme

322 proposed sites	Support in principle, subject to site validation and outcome-based procurement.
Mobile broadband as 2027 priority	Support, but broadband outcomes should not be limited to conventional mobile macro architecture.
Technology-neutral framework	Strongly support; should explicitly cover FWA, small cells, satellite/microwave backhaul and hybrid solutions.
Open-access infrastructure sharing	Strongly support, with transparent and non-discriminatory commercial rules.
Indicative PGK 344m budget	Accept as a consultation envelope; require competitive site/cluster pricing and whole-of-life cost evaluation.
Procurement	Prefer regional clusters, open competition, pre-qualified panels/frameworks and PPP/co-investment options.

3. Response to Section 11.1 - ICT Access Gaps

11.1(a) Accuracy of the access-gap assessment

Emstret broadly agrees that NICTA has correctly identified the persistence of significant ICT access gaps in rural, remote, island and mountainous communities. The Consultation Paper notes 4G/LTE population coverage of approximately 70% and mobile penetration of only about 28%, demonstrating that network availability and meaningful usage remain materially different challenges.

Emstret recommends that the access-gap framework distinguish between: (i) no coverage; (ii) nominal coverage but poor service quality or capacity; (iii) coverage without affordable access; and (iv) communities where public institutions remain unconnected despite nearby network availability.

11.1(b) Additional communities or locations

Emstret supports validation of Annex A through operator and provincial input before finalisation. In addition to population-based prioritisation, NICTA should give explicit weight to locations serving schools, health facilities, district administration, agricultural production areas, transport corridors, disaster-prone communities and strategic government facilities.

Emstret does not propose additional named communities in this submission without completing a location-by-location technical review of Annex A. We recommend a short validation window during programme finalisation in which licensed operators and provincial administrations can submit evidence on omitted communities, existing coverage overlap and proposed commercial deployments.

11.1(c) Inaccuracies or omissions to address

- Coverage maps should be validated against measured service quality and not solely predicted RF coverage.
- Backhaul availability and capacity should be treated as a separate access constraint; a radio site without adequate backhaul may not deliver meaningful broadband.
- Affordability, device availability and reliable power at community/institutional level should be included as constraints to meaningful connectivity.
- Existing and planned commercial deployments should be checked immediately before procurement to avoid subsidising locations that the market is already preparing to serve.

4. Response to Section 11.2 - Proposed UAS Programme

11.2(a) Mobile broadband as the priority investment

Emstret agrees that broadband connectivity should be a principal 2027 UAS priority. However, we recommend defining the objective as reliable, affordable broadband and voice access rather than requiring every project to be delivered through the same mobile macro architecture.

PNG's geography means that a technology-neutral outcome-based programme can achieve better value. A conventional mobile tower may be optimal for a sizeable population cluster, while an FWA sector with satellite or microwave backhaul, a small-cell deployment, or a hybrid community access model may be more economical for smaller or difficult locations.

11.2(b) Appropriateness of proposed project locations

Emstret supports the proposed locations in principle, subject to final verification of coverage gaps, population estimates, existing infrastructure, land access, backhaul options and any operator rollout commitments. The project list should remain capable of substitution where pre-procurement verification shows that a proposed site is no longer a genuine UAS gap.

11.2(c) Alternative priorities and implementation approaches

- Outcome-based tendering: specify service area, minimum capacity/speed, voice capability where required, uptime, time-to-deploy and affordability targets, then permit bidders to choose the compliant technology.
- Institution-first connectivity: every project should identify and connect priority schools, health facilities and government service points within the target area where practical.
- Shared passive infrastructure: where a tower is necessary, UAS funding can support land/civil works, tower, power and common backhaul while operators provide active radio equipment.
- Community access layer: in small settlements, community Wi-Fi or hotspot solutions can complement wide-area broadband and improve adoption.
- Phased programme: use early pilot clusters to benchmark CAPEX, OPEX, uptake and technology performance before committing the full portfolio.

5. Response to Section 11.3 - Technical Framework

11.3(a) Technology-neutral approach

Emstret strongly supports NICTA's technology-neutral approach. To make this principle effective in procurement, technical specifications should focus on minimum service outcomes and interoperability rather than vendor-specific or architecture-specific requirements.

- 4G/LTE and future-ready mobile broadband where population density and mobility requirements justify it;
- licensed or appropriately authorised Fixed Wireless Access for wide-area broadband;
- small cells for compact settlements and strategic facilities;
- satellite or microwave backhaul for locations without economical terrestrial transmission;
- community Wi-Fi as a local distribution layer where appropriate; and
- hybrid designs combining shared towers, FWA/mobile access and multiple backhaul options.

11.3(b) Infrastructure sharing

Emstret strongly supports open-access infrastructure sharing. UAS-funded towers, power systems, shelters and common transmission assets should be made available to all qualified licensed operators on fair, transparent and non-discriminatory terms.

- Publish standard co-location and power-sharing terms for UAS-funded sites.
- Design tower loading, shelter/rack space, power capacity and backhaul interfaces for more than one operator.

- Separate passive-infrastructure management from active service provision where this improves neutrality and sustainability.
- Include enforceable service levels for site access, fault restoration and power availability.
- Prevent access charges from becoming a barrier to secondary operators entering a UAS-funded location.

11.3(c) Additional technical considerations

- Whole-of-life power design, prioritising solar/hybrid systems and realistic battery autonomy for remote sites.
- Backhaul diversity and scalable capacity, including satellite where terrestrial backhaul is unavailable or uneconomic.
- Remote monitoring, telemetry and preventive-maintenance capability for all UAS-funded sites.
- Climate, corrosion, lightning, wind-loading and physical-security design appropriate to each province.
- Local spare-parts strategy and technician training to reduce mean time to repair.
- Technology refresh and upgrade pathways so UAS assets do not become stranded infrastructure.
- Where necessary, timely access to appropriate spectrum arrangements under NICTA's licensing framework so successful bidders can deliver the required service.

6. Response to Section 11.4 - Financial and Funding Framework

11.4(a) Programme cost estimates and assumptions

The indicative PGK 344 million programme budget is a reasonable consultation envelope given the inclusion of towers/civil works, backhaul, satellite or microwave transmission, renewable/hybrid power, remote mobilisation, commissioning and initial O&M. However, Emstret recommends that NICTA avoid treating a single average site cost as a procurement benchmark.

The portfolio average is approximately PGK 1.07 million per proposed site. Actual costs should be established through competitive site or cluster bids and evaluated against both initial CAPEX and expected whole-of-life OPEX.

11.4(b) Alternative funding and co-investment models

- Minimum-subsidy competitive bidding: award to the compliant bidder requiring the lowest UAS subsidy for the required outcome.
- UAS + operator co-investment: UAS funds the viability gap while the operator contributes active equipment, working capital or O&M.
- UAS + Provincial Government/DDA: local government contributes land, civil support, security, access roads or co-funding.
- Development-partner co-financing for education, health, emergency communications, digital inclusion or resilient power components.
- Shared-infrastructure PPP: a neutral infrastructure entity builds/manages passive assets, with multiple operators providing services.
- Performance-based disbursement: retain a portion of subsidy until coverage, service quality, uptime and operational milestones are independently verified.

11.4(c) Maximising value for money

- Evaluate total cost per person and per priority institution connected, not only cost per tower.
- Use competitive regional clusters large enough to obtain scale but small enough to preserve bidder diversity.
- Allow alternative technical solutions where they meet or exceed defined outcomes.
- Avoid duplicate infrastructure where existing towers, power or backhaul can be shared.
- Include realistic multi-year O&M requirements in bid evaluation to avoid low-CAPEX/high-failure solutions.
- Publish performance outcomes and conduct post-implementation audits of uptime, users served and public-institution connectivity.

7. Response to Section 11.5 - Procurement and Implementation

11.5(a) Recommended procurement approach

Emstret recommends a mixed procurement model centred on open competitive tendering, supported by pre-qualification and framework agreements. The 322 projects should be packaged into regional or provincial clusters rather than a single nationwide contract.

- Pre-qualify licensed operators and qualified infrastructure/service providers on financial, technical, compliance and deployment capability.

- Issue multiple geographic clusters with standard outcome specifications and transparent scoring.
- Allow bidders to bid for one or multiple clusters, subject to capacity and concentration safeguards.
- Use framework agreements for repeatable equipment/services and negotiated procurement only where clearly permitted and justified.
- Permit PPP and co-investment proposals where these demonstrably reduce the required UAS subsidy.

11.5(b) Implementation risks and mitigation

Risk	Recommended Mitigation
Land and customary ownership delays	Complete landowner engagement and site-access due diligence before award; use provincial/DDA facilitation.
Remote logistics and weather	Cluster mobilisation, realistic seasonal schedules, local logistics partners and contingency allowances.
Power-system failure	Proper load modelling, solar/hybrid design, remote telemetry, critical spares and maintenance SLAs.
Backhaul bottlenecks	Validate backhaul capacity before access deployment; permit satellite/microwave alternatives and future expansion.
Limited bidder participation	Use smaller clusters, pre-qualified panels and outcome-based specifications that allow more technology options.
Procurement delay	Standard bid documents, framework contracts, staged approvals and early technical/site validation.
Unsustainable O&M	Require multi-year O&M plan, local technician arrangements, spare parts and performance-linked payments.
Low service adoption	Pair infrastructure with affordable packages, public-institution connections, device/digital-skills partnerships and local awareness.

11.5(c) Strengthening partnerships

- Provincial governments and DDAs can support land access, security, local permits, civil works, local workforce and community engagement.
- Development partners can co-fund devices, education/health connectivity, digital skills, resilient power and community applications.
- Local communities should participate in site selection, security and basic maintenance arrangements to strengthen ownership.
- Licensed operators should be engaged early on sharing, backhaul interconnection, spectrum needs and realistic commercial sustainability.
- NICTA should establish a UAS implementation forum or working group for regular coordination during the 2027 rollout.

8. Response to Section 11.6 - General Comments

8.1 Measure meaningful connectivity, not only coverage

The Consultation Paper correctly recognises the large difference between network availability and actual mobile penetration. Emstret recommends a balanced UAS scorecard covering infrastructure, service and adoption.

Dimension	Suggested KPI
Coverage	Population/communities receiving verified broadband service
Quality	Minimum service performance, capacity and uptime
Institutions	Schools, health facilities and government service points connected
Affordability	Entry-level package affordability and availability
Adoption	Active users/subscribers after 6 and 12 months
Sustainability	Site availability, O&M compliance and fault-restoration performance

8.2 Spectrum facilitation for UAS delivery

Where a successful UAS solution requires spectrum that is not already available under the bidder's existing authorisations, Emstret recommends that NICTA establish a clear and timely regulatory pathway for appropriate spectrum access, sharing or licensing, subject at all times to the Act, applicable licence conditions, interference management and NICTA approval. This should be treated as an enabling mechanism for UAS delivery rather than an automatic entitlement.

8.3 Emstret proposed rural connectivity pilot

Emstret proposes that NICTA consider selecting 5-10 locations from the 2027 portfolio representing different deployment challenges - for example remote mainland, island, mountainous and low-density communities - for a technology-neutral pilot. The objective would be to compare cost, deployment time, service quality and sustainability across alternative architectures.

Layer	Illustrative Approach	Purpose
Shared infrastructure	Existing/UAS tower, compact mast or suitable public site	Reduce civil works and duplication
Access network	FWA, mobile broadband or small cell	Match solution to settlement size and coverage need
Backhaul	Satellite, microwave, fibre or hybrid	Use most economical resilient option
Community distribution	Direct CPE and/or community Wi-Fi	Improve reach and affordability
Priority users	School, health facility, government point, SMEs and households	Demonstrate meaningful connectivity outcomes

Emstret would be willing to engage with NICTA on the technical and commercial design of such a pilot and, subject to procurement and regulatory requirements, participate as a licensed service provider.

9. Proposed Actions for NICTA

1. Retain the proposed 322-site portfolio as a planning baseline but complete final operator/provincial validation before tender.
2. Convert technical requirements into outcome-based specifications wherever practicable.
3. Package projects into regional/provincial clusters and use pre-qualification to widen capable market participation.
4. Publish standard open-access principles and commercial rules for UAS-funded passive infrastructure.
5. Introduce minimum-subsidy/co-investment options and performance-based disbursement.
6. Adopt meaningful-connectivity KPIs alongside coverage KPIs.
7. Establish a clear spectrum facilitation process for UAS solutions where required and legally available.
8. Consider a 5-10 site technology-neutral pilot before or alongside full-scale rollout.

10. Conclusion

Emstret Holdings Limited supports NICTA's objective of using the 2027 UAS Programme to close persistent broadband gaps and strengthen Papua New Guinea's digital inclusion. The proposed scale of investment creates an opportunity not only to build infrastructure, but to establish a more open, competitive and sustainable model for rural connectivity.

We encourage NICTA to preserve technology neutrality, open access and blended funding as core programme principles, while strengthening procurement through outcome-based specifications, regional clusters, co-investment and measurable sustainability obligations. This approach can increase industry participation, improve value for money and allow the UAS Fund to reach more communities.

Emstret looks forward to continued engagement with NICTA and would welcome the opportunity to participate in future UAS projects and pilot deployments in accordance with applicable procurement, licensing and regulatory requirements.

Reference

National Information and Communications Technology Authority (NICTA), Universal Access & Services (UAS), Project Consultation Paper - 2027, Consultation Paper No. UAS CP No.01/2027, issued 6 August 2026.

For and on behalf of Emstret Holdings Limited

Name	Haroun Rashid
Title	Managing Director
Signature	
Date	