



**TERMS OF REFERENCE  
FOR THE  
MANAGED SERVICES FOR THE COMMUNICATION NETWORK FOR  
FOUR (4) X-BAND RADARS  
(KABANKALAN, DAVAO, KABACAN AND ESPERANZA)**

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**A. BACKGROUND**

VSAT (Very Small Aperture Terminal) is a satellite communication technology that enables reliable two-way data transmission via satellite. It consists of a small satellite dish and a modem, offering high-speed internet, voice, and data services even in remote or underserved areas where traditional terrestrial networks are unavailable. VSAT is particularly valuable in locations with limited infrastructure, such as rural regions, offshore platforms, and disaster-stricken areas, as it provides global connectivity regardless of geographic barriers. By using VSAT, organizations can ensure continuous communication, support remote operations, and bypass the limitations of terrestrial networks, making it a cost-effective and scalable solution for maintaining connectivity in challenging environments.

**B. APPROVED BUDGET FOR THE CONTRACT (ABC)**

The Approved Budget for the Contract is **(Php3,840,000.00) THREE MILLION EIGHT HUNDRED FORTY THOUSAND PESOS** inclusive of VAT, all applicable government taxes.

**C. QUALIFICATIONS OF THE BIDDER**

(Please refer to Section II. Instructions to Bidders, the Bid Data Sheet and Checklist of Eligibility and Technical Requirements of the Bidding Documents)

a. Similar Projects - The Service Provider should have undergone similar projects of a similar nature for satellite-based broadband delivery methods for GIDA sites because of the terrain and remoteness of these locations. "Similar nature" shall include the installation of ICT equipment and/or satellite-based broadband equipment and contracts pertaining to the supply or management of systems providing connectivity solutions such as internet service or the broadcast of data, audio, and/or video over/via satellite.

b. Franchise Requirements - Non-franchise holders may participate in this tender, subject to compliance with relevant rules and regulations under the Implementing Rules and Regulations (IRR) of Republic Act (RA) Number 10929 or an Act Establishing the Free Internet Access Program in Public Places in the Country and Appropriating Funds Therefore, particularly with respect to the provisioning of commercial services outside the Project. As such, the Service Provider/s must be a

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registered value-added services (VAS) provider with the National Telecommunications Commission (NTC).

c. Licenses - Service Provider/s shall be registered with the National Telecommunications Commission (NTC) as a value-added Service Provider.

d. The Service Provider must submit a Certification from a Satellite Provider or duly accredited distributor in the Philippines that it has the available bandwidth to service the project.

e. The Certificate of Registration must be valid during the duration of the contract.

f. The ISP should demonstrate in his capacity that he has the experience to deploy VSAT in the GIDA's area and proof or certification that he accomplished this in his previous project.

g. The ISP must be able to provide a document presenting a valid engagement with an existing Satellite Service Provider or Operator (SSPO).

h. The contractor must completely respond to all the specified items in the compliance matrix provided in this document. This will help evaluate the contractor's compliance with the requirements.

i. Part of the eligibility documents is a certification that the contractor has presented their proof of concept of the project and has met the criterion set by the technical specifications.

#### **D. DELIVERY PERIOD AND PLACE OF DELIVERY**

The winning bidder shall provide SATELLITE communication system with VPN at the 4 X-band Radar sites within **30 calendar days** from receipt of the Purchase Order (PO) at the PAGASA Central Office located at PAGASA Science Garden Complex, Senator Miriam Defensor-Santiago, Diliman Quezon City.

##### **Places of Delivery:**

- |    |                               |            |
|----|-------------------------------|------------|
| 1. | Kabankalan, Negros Occidental | (Visayas)  |
| 2. | Carmen, Davao City            | (Mindanao) |
| 3. | Kabacan, Cotabato             | (Mindanao) |
| 4. | Esperanza, Agusan Del Sur     | (Mindanao) |

#### **E. BID PROPOSAL CONTENTS**

- a. **Managed Internet Service** - this service shall provide managed internet connectivity using one (1) or more VSAT equipment per site location that must conform to the following minimum Required Technical and Functional Specifications:
- The provision shall be dedicated to each identified location;
  - Upload Data Rate of 15 Mbps (Return Link) throughput with a Committed Information Rate (CIR) of at least 15 Mbps per site;

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- Download Data Rate of 5 Mbps (Forward Link) throughput with a Committed Information Rate (CIR) of at least 5 Mbps per site.
- Roundtrip Latency – Shall have at most 550 to 650 milliseconds roundtrip latency between VSAT platform and remote terminal.
- The Satellite Service Provider must have its own Autonomous System Number (ASN).
- The network must be able to support the following data applications using the same Baseband equipment: data transactions and file transfer, Broadband IP supporting IP multicast and unicast, and data broadcast;
- The network shall support IP networked applications;
- The system should have an embedded TCP acceleration; it is preferred that the offer will include an embedded solution at the VSAT;
- Shall provide proof of satellite footprint covering sites under this tender with the following parameters:
  - Effective Isotropic Radiated Power (EIRP) minimum of 56 dBW;
  - Satellite elevation look angle should be 20 to 80 degrees.
- Remote VSAT Specifications
  - Offered remote VSAT must support KA Band;
  - Offered remote VSAT must support various transceivers for KA Band.
  - Offered remote VSAT shall support minimum DVB-S or DVB-S2 or DVB-S2X with Automatic Code Modulation;
  - Access Scheme – MF-TDMA or MRC or SCPC or Hybrid Terrestrial and Satellite access;
  - The inbound must support the following 5-dimensional inbound adoptive schemes: power, modulation, FEC, Symbol Rate, center frequency;
  - Satellite orbital location must be within 130 degrees up to 160 degrees east orbital slot;
  - Satellite's geographical coverage (footprint) is 100% of the Philippines (nationwide) for relocation purposes;
- Teleport Hub Station must be in the Philippines. It must have a primary and secondary teleport with an uninterruptible power supply supporting the entire hub and RF system, redundant power generator systems, and the capability to operate for seven days without commercial power. The Internet backbone must be connected via redundant fiber optic cable directly connected to Tier 1 Philippine Internet Exchanges or to Tier 1 International Internet Exchanges and, upon notice of its availability by DICT, to the DICT Pacific Light Cable Network submarine cable system. The service providers must show proof that their SLA at the HUB station is equal to or greater than the guaranteed level of 95%.
- Must be operating in KA band configuration.
- The Service Provider must secure a Certification from its Satellite Provider certifying that it has acquired enough total bandwidth capacity to provide the project.
  - The total bandwidth capacity must be more than or equal to the accumulated bandwidth requirement of the project.
- Proper engineering practice, including proper and secure mounting of Antennas, for the installation of the site shall also be observed.

b. **Satellite Modem** — this service shall provide customer premise equipment with the following minimum specifications:

- RF Input / Output Dual L band, F Connectors or single L band Connector for Input RF.

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- Data Interfaces:
  - One 10/100/1000 Mbps Ethernet port, auto MDI/MDIX
  - Operating Temperature 0° to +40°C (32° to +104°F)
  - All Ports should support 802.1q VLAN tagging
- Remote terminal ODU BUC power shall be at least 2W.
- Remote terminal power shall be AC (110/220V).
  - Management Web based local management.
  - Remote Software Upgrades over the air.
  - SNMP v1, v2 Support.
  - RX Supported Modulation QPSK, 8PSK, 16APSK, 32APSK,
  - TX Supported Modulation QPSK, 8PSK 16APSK, 32APSK, 64APSK.
  - Coding must support LDPC, BCH;
  - For IP based applications, the network shall provide Quality of Service (QoS) based on the DiffServ standard or other similar standards;
  - DVB-S2X shall be supported;
  - FEC Rate 1/4, 1/3, 2/5, 1/2, 2/3, 3/4, 5/6, 8/9;
  - RX support symbol rate must range from 3.6 Msps to 480 Msps

**c. Equipment Maintenance**

- Maintenance, and upkeep of the equipment are the Service Provider's responsibility, and PAGASA shall not be responsible for any damage to the Service Provider's equipment such as but not limited to voltage fluctuation, UPS burnt short circuit, any earthing issue, theft, and natural calamities, or other similar or analogous circumstances. Service Provider has to make necessary arrangements for insurance and other ancillary services;
- Fault Management shall be proactively initiated by the Service Provider;

**d. Electrical Power System**

- The provision of sufficient electrical power supply which will be used to support the Customer-Premise equipment (CPE) including but not limited to the Modem / Router, VSAT Terminal, Switch, Access Point present in the provision of this Project shall be provided by the hosting facility.
  - The Service Provider shall provide the electrical connection from the CPE to the tapping point of the hosting facility.

**F. SCOPE OF WORK**

- a. The supply, installation, integration, commissioning, and maintenance of data links and Wi-Fi hotspots through SATELLITE Technology shall be implemented at Kabankalan, Davao, Esperanza, and Kabacan Radar Rain Gauge Station.
- b. SATELLITE Equipment
  - The provider shall deliver and install the following equipment:
    - Offset satellite antenna 1.2 m or larger.
    - Outdoor Equipment, BUC, LNB and pedestal assembly
    - Indoor Equipment, Modem, VPN routers for Site and another VPN router for receiving facility.
    - UPS of at least 1kVA for surge protection and voltage regulation purposes.

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- Operational Manual and guides for installation and orientation of the Antenna
- c. Training

Scope of Training with reference and relevance to the following:

- VSAT Infrastructure Devices and equipment
- Wireless System Design and Implementation
- Network Topology and Troubleshooting
- Network Management and Monitoring

## **G. WARRANTIES**

- a. The bidder warrants that it shall strictly conform to all the Terms and Conditions of this Terms of Reference.
- b. Service must be available 24 x 7 days continuously.
- c. All services shall be an ongoing perpetual service at the fixed monthly rate, until such time as PAGASA decides to terminate the service. Termination of the service shall require PAGASA to give a minimum of 30 days advance notice. The minimum period for the service/contract shall be 6 months for the initial subscription.
- d. The warranty of satellite communication equipment shall be valid based on the duration of the contract.
- e. The winning bidder shall neither assign, transfer, pledge nor subcontract any part or interest therein.

## **H. SERVICE LEVEL AGREEMENT**

- a. In case uptime falls below the guaranteed level during deployment, PAGASA shall impose a penalty on the payment for each percent below the guaranteed level of 10%
  - A service availability / uptime average of less than 70% shall entitle the PAGASA with 100% service rebates computation for that certain period / month.
- b. The Service Provider shall ensure 90% uptime for all services.
  - Penalty/rebates on payment will be levied on the term where downtime/outage occurred;
  - Computation of allowable downtime shall be based on a 24-hour, 7 days a week (24X7) delivery of service;
  - In the event of downtime, providers will be penalized depending on the duration of downtime in minutes.
  - Downtimes/outages cause by fortuitous events such as those of force majeure and/or armed conflict shall be excluded from the SLA calculation. Restoration of services shall be done in no more than seven (7) days after access to the site/area is possible or allowed. Certification from the concerned agency shall be necessary to exclude the said downtimes/outages by reason of force majeure and/or armed conflict.
  - For the testing of the delivered bandwidth, a Speed test or iPerf result of no less than the required CIR throughput per hotspot shall suffice. Other bandwidth testing sites in

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lieu of speed test can be accommodated as well, so long as approved by PAGASA prior to actual testing.

- The Service Provider shall provide a cloud-based, subscription-based security which blocks proliferation of security threats including malware, phishing, crypto mining and Botnet command and control attacks/callbacks, as part of compliance to Republic Act 10175 or the “Cybercrime Prevention Act of 2012”;
- In case of downtime due to mechanical or equipment failure, the service provider shall act according to the level of severity and provide acknowledgement report made by the client either via text, phone call or email, and shall be addressed within 24 hours for the resolution or action towards the maintenance.
- For corrective maintenance, when there is a necessity of replacing parts, the replacement shall be borne by the service provider, provided that the contract of subscription remains active.

Actual availability percentage within a month period	Monthly rebate percentage (Reduction from MRR)
Greater than 90 %	NONE
70 % to 90 %	30 % to 10 %
Less than 70 %	100 %

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