



## TERMS OF REFERENCE FOR

### PABX SUBSCRIPTION WITH IP TELEPHONY UPGRADE

#### I. GENERAL BACKGROUND

The current PABX equipment and line subscription are used for voice communications by PAGASA to connect all of their offices. The subscription requires updating as it is already in its maturity. Coincidentally, the bundled PABX equipment shows signs of deterioration and, based on the latest assessment, might experience major breakdowns. Furthermore, to cope with current TELCO upgrading into SIP trunking, upgrading our current system is really a must since it is already outdated.

This procurement is for the subscription with the corresponding IP telephony upgrade needed to provide the best inter-office direct communication for PAGASA's increasing number of users especially the field stations.

#### II. APPROVED BUDGET FOR CONTRACT (ABC)

The Approved Budget for Contract is Thirty Four Million Six Hundred Twenty-Six Thousand One Hundred Forty-Four Pesos (P 34,626,144.00) inclusive of VAT and all government taxes. (See attached cost breakdown).

#### III. PERIOD AND PLACE OF DELIVERY

The winning bidder shall conduct the PABX subscription with IP telephony upgrade within 120 days from receipt of the Notice to Proceed (NTP) at PAGASA Science Garden Compound located at Senator Miriam P. Defensor-Santiago Avenue, Barangay Central, Quezon City, Metro Manila, Philippines 1100.

#### IV. TECHNICAL SPECIFICATIONS

The winning bidder shall conduct the PABX subscription with IP telephony upgrade with the following minimum specifications:

##### **a. Subscription Lines**

- a.1 Pilot Number 02-8284-0800 (existing number should be retained)
- a.2 No. of Lines 60
- a.3 DN Blocks 140 DID, 14 DN Blocks (existing block nos. should be retained)

- a.4 SIP Router As Provided by the winning TELCO

**Note:** Existing Pilot number should be used to prevent prolonged communication service disruption.  
Existing DN Block numbers should be used to avoid re-configuration of widely-used operational apps

## **b. SIP Trunk**

- b.1 Must provide voice solution that delivers IP-based trunk facilities to address growing and complex voice requirements, specifically maximizing capabilities of new generations IP-PBXs.
- b.2 Must have a Full VOIP capabilities which can be deployed over private network.
- b.3 Must have its own SIP infrastructure.
- b.4 Must be a solution that combines voice and data communications on a single IP network.
- b.5 Must retain the existing Pilot and number range assigned to PAGASA IPPBX system.
- b.6 Calls outside must be free of NDD charges within Metro Manila destinations.
- b.7 Calls to non-Metro Manila and outside the SIP Private network has applicable call charges (NDD/IDD).
- b.8 Bandwidth package depends on the global standard codec/voice compression used. (i.e. 32kbps for G.729, 91kbps for G.711).
- b.9 Must include modem, or multiplexer that will convert the last mile facility to Ethernet or Fast Ethernet.
- b.10 Must include all necessary cables to interconnect and operate all equipment.
- b.11 Must certify that the cable facility being used in the connectivity between the bidder's circuits is exclusively owned and operated by the proponent.
- b.12 Must provide a certification that they are Tier 1 ISP.
- b.13 Must provide a certification that it uses its own domestic fiber optic network nationwide.
- b.14 Must support IPV4 or IPV6 ready and compliant on the SIP deployment.
- b.15 Must have a Network Operation Center (NOC) capable of providing 24 hours x 7 days a week network management and support.
- b.16 Must provide a certification that its network platform is compliant to the latest MEF Carrier Ethernet (3.0).
- b.17 Must have atleast 3 Cisco Certified Internetworking Expert (CCIE) , 5 MEF Carrier Ethernet Certified Professional 3.0 (MEF CECP), and 2 Project Management Professional (PMP) technical support personnell with proof of certification.

## **c. PABX System – One (1) Unit (Straight Lease)**

- c.1 Support up to 1,500 IP extension
- c.2 RAM: At least 4GB of RAM
- c.3 Main Software Storage: At least 60GB SSD Storage
- c.4 Number of Module Slots: At least 8 slots
- c.5 Ethernet Ports: At least 5x1 Gigabit port
- c.6 Supports ANALOG/DIGITAL/SIP TRUNKLINES
- c.7 Must have a Secured OS not based on Asterisk (Open-Source Software)
- c.8 Licenses must be Shareable on other Same Brand PABX System
- c.9 Supports Audit Trail and Historical Changes
  
- c.10 Supports IP/MAC ADDRESS/LINK LOST Diagnostics

c.11 Must be deployed on premise

## **d. PABX Peripherals**

### **d.1 IP Phones 334 Units (total)**

#### **d.1.1 Entry Level 306 Units**

- d.1.1.1 Must have at least a 2.75" backlit display
- d.1.1.2 Must have at least 3 programmable keys
- d.1.1.3 Must have dual 10/100 Mbps Ethernet ports
- d.1.1.4 Must support Power over Ethernet (PoE) Class 1
- d.1.1.5 Must have contrast adjust and auto-dimming features
- d.1.1.6 Must have a 4-way navigation key
- d.1.1.7 Must have a full-duplex speakerphone
- d.1.1.8 Must support the following codecs: G.711, G.722, G.722.1, G.729A
- d.1.1.9 Must support high-quality (Hi-Q) wideband audio
- d.1.1.10 Must support 128-bit AES encryption
- d.1.1.11 Must support a minimum of 10 adjustable ringtones
- d.1.1.12 Must include the following function keys: Hold, Redial, Cancel, Volume Up/Down, Ringer Up/Down, Transfer, Conference, Call Me Back, Phonebook, and Mute
- d.1.1.13 Must support the following environmental and regulatory standards: EMC: FCC Part 15 Subpart C Safety: UL 60950-1
- d.1.1.14 Must be of the same brand as the proposed IP-PBX system

#### **d.1.2 Executive Level 28 Units**

- d.1.2.1 Must have at least a 7" colored touch-screen display
- d.1.2.2 Must have at least 96 programmable soft keys
- d.1.2.3 Must have dual Gigabit Ethernet ports
- d.1.2.4 Must support dual-band Wi-Fi (2.4GHz / 5GHz) 802.11 a/b/g/n
- d.1.2.5 Must have contrast adjust and autodimming features
- d.1.2.6 Must support touch-based navigation
- d.1.2.7 Must have a full-duplex speakerphone
- d.1.2.8 Must support the following codecs: G.711, G.722, G.722.1, G.729A
- d.1.2.9 Must support high-quality (Hi-Q) wideband audio
- d.1.2.10 Must support 128-bit AES encryption
- d.1.2.11 Must support a minimum of 10 adjustable ringtones
- d.1.2.12 Must include the following function keys: Hold, Redial, Cancel, Volume Up/Down, Ringer Up/Down, Transfer, Conference, Call Me Back, Phonebook, Mute, Multi-line and Message
- d.1.2.13 Must support the following environmental and regulatory standards: EMC: FCC Part 15 Subpart C Safety: UL 60950-1
- d.1.2.14 Must support the following headset connections: USB, Bluetooth, and DECT cordless headsets

- d.1.2.15 Must have a USB port for mobile charging
- d.1.2.16 Must support Bluetooth version 5.2
- d.1.2.17 Must support PC audio integration via Bluetooth
- d.1.2.18 Must have a cordless handset
- d.1.2.19 Must be of the same brand as the proposed IP-PBX system

**d.2 Voice Mail / Auto-attendant - 30 Units**

- d.2.1 Automated attendant
- d.2.2 Must support multiple call handling at once

**e. Networking Peripherals (Straight Lease)**

**e.1 24 Port PoE Switch – 5 Units**

- e.1.1 Must have 24 RJ-45 10/100/1000 PoE ports
- e.1.2 Must have 2 SFP+ 10GbE ports
- e.1.3 Must have 2 10GBASE-T ports
- e.1.4 Must have a Switching Capacity of 128 Gbps
- e.1.5 Must have a PoE Capability of Total 370 W PoE Power

**e.2 48 Port POE Switch - 1 Unit**

- e.2.1 Must have 48 RJ-45 10/100/1000 PoE ports
- e.2.2 Must have 2 SFP+ 10GbE ports
- e.2.3 Must have 2 10GBASE-T ports
- e.2.4 Must have a Switching Capacity of 176 Gbps
- e.2.5 Must have a PoE Capability of Total 600 W PoE Power

**e.3 10G Fiber Cable SFP+ LC MM Transceiver – 12 Units**

- e.3.1 Must have a transfer speed of 10Gb
- e.3.2 Must be a SFP+ Fiber Cable
- e.3.3 Must have a maximum distance of 300 meters
- e.3.4 Must be a Multimode

**Note:**

Equipment Peripherals not cited in the technical specifications and breakdowns but necessary to complete the operation of the PABX System and its sub-components shall be included as deliverables without any additional cost to PAGASA.

**V. SCOPE OF WORKS**

The following scope of work outlines the essential - tasks required to complete the PABX subscription with IP telephony upgrade. Any additional work necessary to meet professional and engineering standards and ensure optimal PA system performance must be included without incurring extra costs for PAGASA.

- a. The winning bidder shall connect the necessary fiber optic cables from their node to PAGASA
- b. The PABX System will be installed On-Premises of PAGASA

- c. Each IP Phone must be delivered, installed, configured, and tested on their respective offices and can perform interoffices calls locally, call outside numbers, and receive external calls without additional cost.
- d. The PABX System must be compatible with the SIP Trunk Protocol.
- e. All PAGASA offices connected should be able to perform inter-office calls locally, call outside numbers, and receive external calls.
- f. IP Phones must be installed and configured with their respective offices.
- g. IP Phones should be able to share an internet connection from their Gigabit ethernet port.
- h. IP Phones must have their own power adapter.
- i. Licenses must be perpetual.
- j. The vendor must provide training on scheduled updating, configuring and troubleshooting the PABX System and IP Phones.
- k. Provide after-sales support based on the number of year indicated in the contract, with SLA and next day on-site support if needed.
- l. Must include comprehensive maintenance in the Service-Level Agreement (SLA). Parts and services must be provided the next business day.
- m. Provide Technical Assistance Center (TAC)/Computer Technology Integration (CTI) for 24/7 technical support via phone, chat, and email.
- n. With three (3) years warranty on parts and services for IP phone handsets.
- o. With three (3) years warranty on parts and services for PABX Systems.
- p. Must have at least two (2) certified technical engineers for the telephone connectivity solutions being offered with certification of training provided
- p. Must have certification that the provider has a Local Authorized Service Center Nationwide.
- q. PABX System and IP Phones must have a green energy feature or energy star compliance.
- r. PABX Systems and IP Phones must have enterprise-grade/industry-grade hardware.

## **VI. ADDITIONAL BIDDERS REQUIREMENT**

Additional documents that will form part of the bid documents:

- a. Comprehensive Maintenance Service Level Agreement (SLA) indicating technical support response levels with corresponding timelines
- b. Warranty Statement Clause on Hardwares
- c. Training Certificates of the assigned technical engineers for the solutions offered
- d. Certification of Authorized Local Service Centers for the equipment
- e. Perpetual Licenses on the offered PABX system and its peripherals.