



**TERMS OF REFERENCE  
PRODUCTION SYSTEM UPGRADE PROJECT**

**1. Background**

The National Home Mortgage Finance Corporation (NHMFC) was created in 1977 by Presidential Decree No. 1267. It is mandated to increase the availability of affordable housing loans to finance the Filipino homebuyer's acquisition of housing units through the development and operation of a secondary market. As a primary secondary mortgage institution, NHMFC was mandated to operate a viable home mortgage market by purchasing mortgages originated by both private and public institutions that are within NHMFC's approved guidelines. These mortgages will be seasoned, pooled and securitized to recycle funds to provide liquidity for housing.

In compliance with Republic Act. No. 9184 known as "**Government Procurement Act**", NHMFC will be conducting a public bidding for the Production Upgrade Project.

**2. Objective**

This project aims to purchase the following hardware, software and database to be installed at the Head Office for the upgrade of its Production System:

- a) 1- Unit Application Server with Linux Red Hat Operating System
- b) 2- Units Domain/MicroSoft Dynamics Server with Windows Server 2012 Operating System
- c) 2-Units Database Server with Linux Red Hat Operating System
- d) 2- Units – Uninterruptible Power Supply for Server
- e) 1 – Unit 42U Rack Cabinet
- f) 5/5 Processor Oracle Database 12C/Real Application Cluster
- g) 1 Lot – MS SQL Database
- h) 6 – Pcs. Keyboard Video Mouse(KVM) Conversion Cable

This also aims that the servers will be connected to the servers and databases of the NHMFC – Disaster Recovery installed at the NHMFC – Imus Satellite Office.

**3. Approved Budget for the Contract**

The Approved Budget for the Contract (ABC) is **Thirty Three Million Pesos (PHP 33,000,000.00)**, inclusive of all applicable taxes and will be sourced from corporate funds.

#### 4. Technical Specifications

##### a) 1 Unit Application Server

Particulars	Minimum Specifications
Branded	
Quantity	1 Unit
Form Factor	Rackmount
Processor	2 x Intel Xeon E5-2600 v3
	8 core
	8.0 GT/s QPI
	20 MB cache memory
Memory	Installed memory 128 GB
	PC4-17000 (DDR4 2133 MT/s)
	Scalable to 768 GB
Storage	4 x 600 GB 10K 2.5" SAS-3 Hot Swappable Drive
	Scalable to 9.6TB or higher
Disk Controller	Support raid 0,1,5,10
Network Connectivity	4 x 10000BASE-T port
HBA	2x 4GB FC Single port HBA
Optical Drive	1x Ultralim Enhanced SATA burner
System Management	Predictive failure analysis, light path diagnostic, automatic server restart, system director, active energy manager
Warranty	3-years on parts/ 3-years on labor/3-years onsite
Environment	Hot Plug Fully Redundant Fan, Power and Disk Modules
Energy Efficiency	Compliant to energy efficiency standards

##### b) 2 Units Domain/Microsoft Dynamics Server

Particulars	Minimum Specifications
Branded	
Quantity	2 Units
Form Factor	Rackmount
Processor	Xeon 6C E5-2620v3
	6 core
	15 MB cache memory
Memory	Installed memory 16 GB
	16GB TruDDR4 Memory (2Rx4, 1.2V) PC4-17000 CL15 2133MHz LP RDIMM
	Scalable to 384 GB
Storage	2 x 300GB 15K 6Gbps SAS 2.5in G3HS HDD
	Scalable to 4 TB
Disk Controller	Support raid 0,1,5,10
Network Connectivity	Dual Gigabit Ethernet
Optical Drive	1 x Ultralim 9.5mm SATA Multi Burner

System Management	Integrated Management Module
Warranty	3-years on parts/ 3-years on labor/3-years onsite (24 x 7)
Operating System	Windows Server 2012

**c) 2-Units Database Server**

<b>Particulars</b>	<b>Minimum Specifications</b>
Branded	
	Each Server must have the following:
Processors	2 x Intel Xeon E5-2699 v3 18-core
RAM	256 GB
SAS HDD	2 x 600GB 10K SAS-2 Drives
Ethernet Ports	4 x 10GbE ports
Cluster Interconnect	1 x Dual-port InfiniBand QDR (40 Gb/s)
<b>Storage System:</b>	
Controller	Dual/Active-Active
Raid Level	Double or Triple Mirrored
Disk Storage	16 x 4TB SAS-2 HDDs for Data 4 x 200GB HE SSDs for Logs 4 x 400GB ME SSDs for Cache
Storage Shelf	With (including accessories for attachment)
Warranty	3-years on parts/ 3-years on labor/3-years onsite (24 x 7)

**d) 2 - Units – Uninterruptible Power Supply for Server**

<b>Particulars</b>	<b>Minimum Specifications</b>
Output Power	4200 Watts / 6000 VA
Input Power	220-230 60 Hz
Monitoring Module	Web / SNMP Management Card
Efficiency at Full Load	92%
Output Voltage Distortion	Less than or equal to 3%
Waveform Type	Sinewave
Output Connections	6 x IEC C13 + 2 x IEC C19 + hardwired
Accessories	Rackmounting kits
Warranty	3 Years on both parts and labor

**e) 1 – Unit 42U Rack Cabinet**

<b>Particulars</b>	<b>Minimum Specifications</b>
	42U Standard Rack Cabinet based on extruded aluminum frame
	Up to 950KG dynamic load

	Anti-tilt bars to ensure balance and prevent tipping during equipment service
	Zero U Power Distribution Units (PDU)  Current flow can be monitored by viewing the LCD screen on the PDU or remotely from a system on the network
Power Unit	15 kVA (1-phase) zero U with NEMA L6-30P
Warranty	3-years on parts/ 3-years on labor/3-years onsite (24 x 7)

**f) Database**

<b>Particulars</b>	<b>QTY</b>
Oracle Database 12C Enterprise Edition	5 Processor
Real Application Cluster	5 Processor
MS SQL Database	1 Lot
Warranty	1 Year Support

**g) KVM Conversion Cable**

<b>Particulars</b>	<b>QTY</b>
KVM Conversion Cable	6

**h) Operating System**

<b>Quantity</b>	<b>Minimum Specifications</b>
2	Windows Server 2012
3	Red Hat Enterprise Linux Server
Subscription	3 years

**5. BIDDER'S SUPPORT SERVICES**

5.1) Delivery

All items must be delivered within forty-five (45) days upon receipt of purchase order.

5.2) Hardware Installation and Maintenance

5.2.1) Hardware Installation

The bidder is responsible for the installation of the products delivered at NHMFC – Head Office in compliance with the technical requirements specified in the technical specifications of the Terms of Reference (TOR).

**The bidder shall ensure that the servers and database will be connected and accessible to the disaster recovery installed at the NHMFC-Imus Satellite Office and vice-versa. The application server is Oracle Server X5-2L running in linux operating system. The domain and Microsoft Dynamic Server is IBM x 3650 M4 running in Microsoft Server 2012. The database server is Oracle Database Appliance X4-2 running in oracle linux release 5.10. The database for Microsoft Dynamics is MS SQL while for Database Servers are Oracle 12/C and Oracle Application Cluster.**

The bidder shall test the products and make sure that the hardware delivered shall support the existing application system of NHMFC.

#### 5.2.2) Hardware Maintenance

The bidder must perform quarterly preventive maintenance on the equipment delivered to the NHMFC. The preventive maintenance must include cleaning, adjustments, corrections, repairs and replacements of defective parts. During the warranty period the bidder is required to provide the following:

5.2.2.1) Response time of not more than two (2) hours after receipt of call.

5.2.2.2) Mean Time to Repair (MTTR) of not more than four (4) hours. In the event that repair exceeds twenty-four (24) hours, the vendor must provide back-up and/or replacement unit during the warranty period.

#### 5.3) Software/ Database Installation

The bidder shall install and configure the operating systems, and/or other related software.

#### 5.4) Documentation

The bidder shall document the hardware and software installation procedures and submit copies to NHMFC. The documented procedure shall also be presented/ demonstrated to the staff of the NHMFC – Information System and Technology Support Division.

**6. Payment Terms**

The payment shall be done within fifteen (15) days after delivery and acceptance of deliverables.

*Approved by:*

**BID AND AWARDS COMMITTEE**