Annex A

LIST OF ITEMS

Public Bidding for the Supply, Delivery, Installation, Testing and Commissiong of Solar Power System at Administration Building and Pavilion 2 CY 2024

IB No. E-018-2024-PB

ITEM CODE	ITEM DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL PRICE
SPS01-2024	**DETAILED MATERIAL SPECIFICATIONS** **I. SOLAR POWER SYSTEM: (Both Administration Building & Pavilion 2)** • Grid-Tied Solar Power System **II. SOLAR PANEL: (Both Administration Building & Pavilion 2)** • 50-60 units of 500W – 580W • Maximum Power (Pmax): 500W – 580W • Mono-crystalline Silicone Cell • Open Circuit Voltage (Voc): 40V – 60V • Short Circuit Current (Isc): 10A – 17A • Maximum Voltage (Vmp): 33V – 48V • Maximum Current (Imp): 10A – 17A **III. POWER INVERTER** (Administration Building) • 2-3 units of 10,000W – 15,000W Grid-tie • Single Phase, 220V – 250V, 50/60Hz • Maximum DC Power (W): 15KW – 22KW • Maximum Power over: 97% - 99% • Output Waveform: Pure Sine Wave • Running Temperature: -25°C - 60°C (Pavilion 2) • 1 unit of 30,000W Grid-tie • Three Phase, 220V – 250V, 50/60Hz • Maximum DC Power (W): 60KW • Maximum Power over: 97% - 99% • Output Waveform: Pure Sine Wave • Running Temperature: -25°C - 60°C IV. **ELECTRICAL PHASE:** • Single Phase – Administration Building • Three Phase – Pavilion 2 **V. SUPPORTS/BRACKETS:** • Aluminum / Weatherproof **VI. OTHERS:** • Other equipment, materials, and accessories required to complete the project can adopt the specifications as per manufacturer's specifications. **TERMS OF REFERENCE:** **I. PROJECT TITLE:**	1	lot	₱ 4,500,000.00	₱ 4,500,000.00

Supply, Delivery, Installation, Commissioning, and Testing of Solar Power System at Administration Building and Pavilion 2

II. CONTRACT DURATION:
Forty-five (45) Calendar Days

III. APPROVED BUDGET:
Total Project Ceiling Cost: Four Million Five Hundred Thousand Pesos (₱4,500,000.00)
(Two Million Two Hundred Fifty Thousand Pesos (₱2,250,000.00) for each project site – Administration Building and Pavilion 2)

IV. MINIMUM MATERIAL SPECIFICATIONS:
The supplier must provide the Procuring Entity the minimum material specifications for the project:

1. **Solar Power System Type:** Grid-Tied Solar Power System Type
2. **Solar Panels:** Monocrystalline Solar Cells Solar Panels
3. **Power Inverter:** 30KW DC Input/AC Output (Upgradable)
4. **Phase:** Single Phase (for the Administration Building)
   Three Phase (for Pavilion 2)
5. **Supports/Brackets:** Aluminum, Weather-proof

V. SCOPE OF WORKS:
The supplier shall render various technical and civil works such as, but not limited to:

1. PRE-PROJECT:

A. Site Inspection:
- Conduct comprehensive site inspection to ensure that the project requirements are met.
- Evaluate sunlight orientation and identification of shades and other potential obstructions.

B. Solar Panel Lay-out:
- Propose to the Procuring Entity and/or its authorized representative the plans indicating the lay-out/orientation of solar panels.

C. Permits/Clearances (if applicable):
- Secure necessary permits/clearances to ensure compliance with related building codes and standards.

D. Pre-Project Briefing:
- Coordination with the Procuring Entity and/or its authorized representative prior to the conduct of the project.

2. RESOURCES MOBILIZATION:

A. Materials/Supplies/Tools/Equipment/Manpower/etc.:

	- Mobilization of various materials / supplies / tools / equipment / manpower / etc. necessary for the completion of the project. **3. SOLAR PANELS INSTALLATION:** ***A. Roof Integrity:*** - Thorough inspection of the roofing system to check its integrity and stability. Make necessary civil and structural works to ensure that the truss/roofing frames can support the load of the solar panels. ***B. Supports/Brackets:*** - Installation of L-Foot, Rails, Splicer, etc. necessary to hold the solar panels in place. ***C. Solar Panels:*** - Installation of required number of solar panels. Appropriately fastened and fixed on the supports/brackets. ***D. Waterproofing/Sealing:*** - Application of waterproofing and/or sealant to eliminate water penetration on the roofing. **4. POWER INVERTER INSTALLATION:** ***A. Supports/Brackets:*** - Installation of required supports/brackets to the masonry or concrete wall to support the load of the wall-mounted power inverter. ***B. Power Inverter:*** - Installation of the power inverter. Appropriately mounted on the supports/brackets. **5. WIRING INSTALLATION:** ***A. Electrical Rough-ins:*** - Installation of necessary electrical rough-ins such as conduit pipes, boxes, clamps, labels, etc. ***B. Direct Current (DC) Wiring:*** - Installation of wiring connecting the DC-Output terminals of the solar panels to the DC-Input terminals of the power inverter. ***C. Alternating Current (AC) Wiring:*** - Installation of wiring connecting the AC-Output terminals of the power inverter to the building's main electrical panel. ***D. Grounding:*** - Installation of proper grounding wire. ***E. Dedicated Circuit Breaker:*** - Installation of dedicated circuit breaker for the solar power system in the building's main electrical panel. ***F. Export Limitation Device/Anti-Islanding Protection:*** - Installation of export limitation device or anti-islanding protection in the power inverter to control the energy flow and				

	prevent excess electricity from being exported to the grid. ***G. Emergency Disconnect Switches:*** - Installation of emergency disconnect switches on both DC and AC wires for quick electrical shutdown during emergencies. ***H. Data and Communication:*** - Installation of monitoring system to the power inverter to track the performance and provision of communication protocols such as WI-FI, Ethernet, RS485, etc. for remote monitoring and troubleshooting. **6. COMMISSIONING AND TESTING:** ***A. Visual Inspection:*** - Conduct final visual inspection of the installed materials / supplies / equipment / accessories to check that such are free from any loose connections, damages, and other untoward cases. ***B. Commissioning:*** - Conduct functional testing (atleast 8 office hours) on each of the project component to ensure that they are functioning independently. ***C. Testing:*** - Conduct performance testing (atleast 24 office hours) on each of the project component to verify that the technical requirements are met. **7. POST-PROJECT:** ***A. End-User Training:*** - Provide training for system operations on product safety, monitoring, maintenance, and troubleshooting. ***B. Documentation:*** - Endorse to the Procuring Entity and/or its authorized representative the necessary documents such as Warranty Certificate, Product Manuals, As-built Solar Power System Plan, Test Results, etc. **8. RESOURCES DEMOBILIZATION:** ***A. Clearing/Grubbing/Hauling:*** - Exportation and disposal of wastes outside the hospital grounds. ***B. Materials/Supplies/Tools/Equipment/Manpower/etc.:*** - Demobilization of various materials / supplies / tools / equipment / manpower / etc. from the project site. **VI. REQUIRED MANPOWER:** The supplier must provide the Procuring Entity with the necessary manpower for the project such as, but not limited to:				

1. **Project Supervisor (Preferably Electrical Engineer):** Overall in charge on site. Responsible for coordination and communication. Ensures strict compliance with safety requirements and procedures. Conducts quality control inspections and documentation. Ensures that the project is within schedule and budget.

2. **Assistant Project Supervisor:** Supports the Project Supervisor on daily activities. Ensures manpower is allocated properly. Ensures all materials are ready and complete. Responsible for tracking and safe keeping of tools and equipment.

3. **Safety Officer:** Creates risk and hazard assessment before project commencement. Ensures overall safety procedures are being followed.

4. **Electricians:** Perform general electrical works.

5. **Solar Installers:** Install PV modules along with the mountings.

6. **Laborers:** Perform general labor works.

VII. REQUIRED TOOLS & EQUIPMENT:

The supplier must posses the required tools and equipment for the project such as, but not limited to:

- Multimeter
- Drill (Portable & Corded)
- Grinder (Portable & Corded)
- Ladder (Telescopic, Foldable, and Step)
- Blow Torch/Heat Gun
- Other Hand Tools (e.g. Screwdrivers, Pliers, Wrenches, etc.)

VIII. REGULATORY/LEGAL REQUIREMENTS:

The supplier must undertake the project, ensuring the compliance to applicable national laws, statutes, mandates, rules, and regulations such as, but not limited to:

- **P.D. 1096, s. 1977:** National Building Code of the Philippines
- **R.A. 184, s. 1947:** Philippine Electrical Code
- **R.A. 9514, s. 2008**: Fire Code of the Philippines

Certification of Manufacturer's ISO compliance to:

- **ISO 9001**: Quality Management System; and /or

	- **ISO 14001**: Environmental Management System; and /or - **ISO 5001:** Energy Management System; and / or - **ISO 45001:** Occupational Health and Safety Management System **IX. WARRANTY:** The project warranty shall be: 1. **Solar Panels:** ≥20 Years 2. **Power Inverter:** ≥5 Years 3. **Civil Works:** ≥1 Year **X. OTHER TERMS AND CONDITIONS:** The following other terms and conditions of the project shall be applied: 1. No payment shall be made until project completion / No downpayment. 2. The project cost bided by the supplier shall be final. No additional costs shall be made. All provisional sum and contingency costs should be incorporated to the supplier's bid. 3. The supplier shall have the capacity to work on weekends (Saturday & Sunday). 4. The supplier shall provide necessary coordination with the MERALCO, if applicable. 5. The supplier shall provide aftersales service for one (1) month. On-call personnel from the supplier should be available within four (4) hours in case of troubleshoot and emergency referrals. 6. The supplier shall be held liable for any violations and penalties that may arise during the Contract period.				
				GRAND TOTAL	**₱ 4,500,000.00**

Submitted by:

CASIMIRO F. DONATO III, CE
End-user, Facilities and Equipment Maintenance Section

Recommending Approval:

ALDEN C. CUYOS, MD, FPPA, IFAPA, MMHoA
Chairperson, BAC for Equipment

Approved by:

SGD.
NOEL V. REYES, MD, FPPA, MMHoA
Medical Center Chief II