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Reference Number11199945

TitleSupply/Delivery/Installation and Commissioning of Solar Panels and Inverter for 2x200hp (600kw), Construction of Perimeter fence and Canalization works of San Ramon PIS (SARF

CategoryConstruction Projects

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1	11199945-01	<a href="#">Supply/Delivery/Installation and Commissioning of Solar Panels and Inverter for 2x200hp (600kw), Construction of Perimeter fence and Canalization works of San Ramon PIS (SARF), Bula, Camarines Sur</a>	Addendum	04/09/2024

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# TECHNICAL SPECIFICATIONS FOR SAN RAMON PIS (SARFC)

## 1. INTRODUCTION

### 1.1 Purpose

- This document provides the technical specifications for a solar power system comprising 600 kW Solar Powered Pump Irrigation System at SARFC located at Bula, Camarines Sur.

### 1.2 Scope

- The specification covers the PV modules, mounting structure, solar controllers, inverters and soft starter with remote monitoring for PV module system and pump performance, and protection circuit breakers required for the system.

### 1.3 Definitions and Abbreviations

- **PV:** Photovoltaic
- **HP:** Horsepower
- **DC:** Direct Current
- **AC:** Alternating Current
- **MPPT:** Maximum Power Point Tracking

## 2. PV MODULES

### 2.1 General Description

- **Type:** Tier 1 Monocrystalline (Bi-Facial) PV Modules
- **Quantity:** 900 pieces
- **Rated Power Output:** 670 Watts per module
- **Applications:** Designed for high-efficiency solar energy generation.

### 2.2 Technical Specifications

- **2.2.1 Electrical Characteristics**
  - **Rated Power Output (P<sub>max</sub>):** 670 W
  - **Maximum Power Voltage (V<sub>mp</sub>):** 34.6 V or higher
  - **Maximum Power Current (I<sub>mp</sub>):** 17.4 A or higher
  - **Open-Circuit Voltage (V<sub>oc</sub>):** 41.70 V or higher
  - **Short-Circuit Current (I<sub>sc</sub>):** 13.78 A
  - **Efficiency:** 21.2% or higher
- **2.2.2 Mechanical Characteristics**
  - **Dimensions:** 2384 x 1303 x 35 mm
  - **Frame Material:** Aluminum
  - **Glass Type:** Tempered glass, 3.2 mm thick
- **2.2.3 Environmental Conditions**



- **Operating Temperature Range:** -40°C to +85°C
- **Ingress Protection Rating:** IP68
- **Wind Load Rating:** 2400 Pa or higher
- **2.2.4 Certification and Standards**
  - **Certifications:** CE, TUV
  - **Warranty:** 10 years' product warranty

## **2.3 Performance Data**

- Include typical performance curves and degradation data.

## **2.4 Installation and Maintenance**

- Basic installation guidelines and maintenance recommendations.

# **3. MOUNTING STRUCTURE**

## **3.1 General Description**

- **Purpose:** To securely mount the PV modules.

## **3.2 Technical Specifications**

- **Material:** Aluminum
- **Design:** Adjustable tilt angle for optimal sun exposure
- **Load Capacity:** Designed to withstand high wind
- **Max Wind Speed:** 300km/h (3s)

## **3.3 Installation and Maintenance**

- To provide trainings and orientation for the installation guidelines and periodic maintenance recommendations.

# **4. SOLAR CONTROLLERS, INVERTERS WITH SOFT STARTER AND REMOTE MONITORING**

## **4.1 General Description**

- **Purpose:** To manage power conversion, system efficiency and safety purposes.

## **4.2 Built –in Inverter with Soft Starter and remote Monitoring**

- MPPT Range: 486-750V
- Input DC Voltage: (200Hp) 270-800V
- Input DC Current: (200Hp – 310A)
- Input AC Voltage: (200Hp) 380 – 480V
- Output AC Voltage: 380-480V
- Automatic Soft Start-up and dormancy can be realized without manual intervention with efficiency of over 99.9%
- (must provide) CE Certificate with minimum compliance to standard EN IEC61800-C:2018, EN IEC61000-3-2: 2014, EN IEC 61000-3-3: 2013

## **4.3 Safety Breakers**

- **Features:** 1200AT Main Distribution Panel, 2 branches 600AT (Line to Inverter), 2 sets 600AT (Inverter to Load), and 45AT Auxiliary Branch Assembly, Complete metering, data logger, and other accessories

#### **4.4 Installation and Maintenance**

- To provide trainings and orientation for the installation guidelines for controllers and inverters.
- To provide trainings and orientation for the maintenance recommendations for ensuring long-term reliability.

#### **4.5 Remote System Control and Monitoring (minimum requirements)**

- Provides information of daily, weekly, monthly, and annual Power Generation and Consumption in Kwh
- Provides information for pump daily flow rate, output frequency, input and output voltage and current

### **6. SYSTEM INTEGRATION**

#### **6.1 Compatibility**

- Ensure compatibility of PV modules, pump, controllers, and inverters.

#### **6.2 System Sizing**

- Guidelines for sizing the PV array and components based on the pump's power requirements and expected solar insolation.

#### **6.3 Safety Considerations**

- Overview of safety measures and best practices for installation and operation.
- Manpower Requirements during Installation and Testing of PV Modules and Pumps & Motors:  
1- Safety Officer and 1- First Aider

#### **6.4 Commissioning**

- Steps for system commissioning, including initial testing and adjustments.

### **7. DOCUMENTATION**

#### **7.1 Manuals and Documentation**

- List of manuals and technical documentation provided with the equipment.

#### **7.2 Contact Information**

- Manufacturer's contact details for support and service.

### **8. APPENDICES**

#### **8.1 Drawings and Diagrams**

- Include any relevant diagrams or drawings of the system layout.

#### **8.2 Additional Data**

- Any additional data or charts relevant to the specifications.