



## Supply, Delivery, and Installation of a Solar PV at Uitkyk Farm, Marble Hall, Limpopo

### TECHNICAL SPECIFICATIONS

#### Borehole Drilling

- Drill approximately 200 m borehole (The supplier to quote per meter)
- Install Borehole Casing to prevent the borehole from collapsing and surface contamination
- Supply, deliver, and install a submersible solar pump (Supply and delivery all pipes - 3 by 100m rolls of 40mm pipe)
- **Submersible Depth of the pump should be 80m (80m below the water level)**
- Supply, deliver and install 2 x 5000L JoJo tanks or equivalent, with 2 X 1.5m JoJo tank stands, (Supply all pipe network and accessories to the borehole outlet pipe), construct a robust concrete plinth to support the 2 steel stands
- The work should include trenching for pipes leading to the two tanks, and all the couplings must be fitted and buried together with the pipes.

#### Solar System

Supply, deliver, and install 1x Polycrystalline solar system to supply power to a 3.0 kW submersible pump.

#### The solar system should include the following:

- Solar Panels of 4.5 kW peak and all wiring to the submersible pump
- MPPT Controller
- Solar panels should be north facing, at an optimal tilt angle (Survey work to be conducted by a geomatic surveyor).
- 3 x 100m rolls of 40mm pipe, HDPE for borehole and ground pipe network
- Float Level Switches and related cables.
- Solar panels must be installed on a 3m steel stand erected on a concrete plinth.

#### Lightning Protection and Earthing for Solar PV

Apply measures to prevent catastrophic damage and failure of the installed PV system due to lightning. South Africa is in a highly lightning-dense region when compared to the rest of the world. Therefore, lightning strikes can still pose a risk to any electrical system, including solar panels, so **installing lightning protection specific to the installed solar PV system.** Proper grounding, surge protection, and adherence to safety guidelines are crucial to minimizing the potential damage caused by lightning strikes. Grounding involves connecting solar panels and other electrical components to the Earth's surface, creating a path for electrical currents to safely dissipate into the ground. **Use earthing, electrical configurations, and protection products based on standard compliance and protection.**

### **Accessories**

The supplier should be responsible for supplying and delivering all the accessories needed for the project.

### **Commissioning**

- All electrical work must be performed by a qualified electrician with a wireman license (Proof of qualification to be provided with proposal) or Master electrician with a valid registration with the Department of Labour.
- The electrician must issue a certificate of compliance (COC) for the installation.
- The installation must comply with SANS-10142 and all applicable regulations and standards

### **Warranty**

All equipment (solar panels, MPPT Tracker, Submersible pumps, etc) installed must have a manufacturer's warranty. The service provider shall provide a 12-month guarantee on the workmanship of the work undertaken at no cost to the ARC. If during this period the equipment is not in good working order, or not working satisfactorily owing to faulty material, design, or workmanship, the service provider will be notified and immediate steps must be taken by the service provider to rectify the defects and/or replace the affected parts on-site, at no cost to ARC.

The installation must comply with all warranty claim processes specific to each brand of equipment. The service provider must hand over all documents related to warranty certificates, including data sheets for all equipment.

### **Experience**

Qualified service providers are required, but more than that, experience is required. Service providers must provide a list of recently completed projects with similar size specifications (they should be a minimum of 5kW in size), traceable contact details, and at least 3 reference letters.

### **Surveyor work**

All Survey work must be performed by a qualified Surveyor who is professionally registered with the South African Geomatics Council as a Geomatics technologist or Geomatics Professional (Certificate to be provided).

### **Construction Industry Development Body**

CIDB Grading 1EP or above.

**Datasheet and images of all equipment must be provided.**

### **Contingency**

A contingency amount, equivalent to 10% of the quotation, will be reserved to address any unforeseen circumstances. This reserve is fully owned by ARC, granting us the right to utilize it as necessary.

### **Place of installation**

**Delivery** to Uitkyk Farm, Marble Hall, Limpopo, 25°13'24.4"S 29°45'17.1"E

**Compulsory site briefing address:** Uitkyk Farm, Marble Hall, Limpopo, 25°13'24.4"S  
29°45'17.1"E  
**Date:** 13 March 2025 @11:00