**WC1043344 – Provision of Solar PV Array, Dhekelia**

The works include a proposed new Photovoltaic PV Park with capacity 875KW to be located in Dhekelia within the SBAA in Cyprus. The PV Park will be connected to the 11kV Network, through the incorporation of a new substation dedicated for the PV park, and the extension of the HV ring cable to facilitate the connection to the new substation, all without the need for any power cuts to the garrison. The distance of the proposed location for the new substation to the existing site HV ring is around 620m.

Provisions for the future extension of the PV park have also been taken into consideration by adding two future MV feeders to the new substation. Space has also been allocated at the substation building for the installation of 2 No. transformers and LV panels to allow for the future expansion of the park.

*Proposed PV System*

The PV system proposed shall have:

* A fixed type of installation with aluminium supporting structures with two PV panels on each frame and a stable inclination angle of 30 degrees from ground.
* The PV panels will be of 600Wp capacity each.
* The Inverters proposed are of capacity 100kW, 400V, 50Hz.

They are proposed to be installed in small weatherproof electrical rooms along the area of the PV panels.

The PV System in figures:

* 9No INVERTERS X 9No STRINGS X 18No PANELS = 1,458No. PV PANELS
* 1,458No PANELS X 0.6KW = 875KW
* EACH INVERTER: 18No PV PANELS X 9No STRINGS X 0.6KW = 97.2kW< 100KW
* 18No PANELS X 42.25 V = 815 < 1100 V

*New substation*

A new 11kV substation will be constructed to support the new PV Park that will incorporate an 11kV switchgear (RMU), step-up transformer (400/11000V) and LV panel.

The substation walls should be made from pre-fabricated steel sections with insulation and a pitched roof at a height 3m. The doors should be suitably sized to accommodate all installed equipment. The new substation should have a concrete base with concrete ducts below the base to enable the installation of cables and should be split into 3 compartments, as follows:

* **MV Switchgear Room**. This room shall contain the Ring Main unit (extensible type) with a battery compartment for its protection relays. The room shall have a main door and an emergency door, shall contain lights and emergency lights, as well as an extractor fan to be operated through a temperature sensor.
* **Transformer Room** – This room is to be sized to incorporate a new 1200kVA transformer, as well as space for additional two transformers for the future expansion of the PV park. The side walls of this room shall incorporate a door and an emergency door and shall consist of louvered sections to allow for the natural ventilation of the transformers. Lights, emergency lights and sockets shall be fitted to this room as well.
* **LV room.** - The LV room shall be sufficiently spaced to incorporate the LV panel (10 way) to be used for the PV park, as well as space for two additional panels to allow the future expansion of the park. The room shall contain lights and emergency lights, as well as an extractor fan to be operated through a temperature sensor. A monitoring system to record the performance of the PV park shall also be installed in this LV room. The system provisions for connectivity to a SCADA system. The earthing system for the substation should be designed in accordance with BS EN 50522: 2010 and UK industry standard ENA TS 41-24:2018 and ENA EREC S36-1:2007. Specific earthing studies shall be undertaken to include soil resistivity tests. In general, the earthing system of the substation should be comprised of approximately 5No vertical boreholes 200 feet deep, horizontal perimeter earthing conductor and bonding of all equipment (HV switchgear, transformers, LV panel, steel structure, etc.).
* The 11kV Ring Main Unit (RMU) proposed for this substation shall be of the Vacuum Circuit Breaker (VCB) type.
* Compliance with ISO 37301:2021 and BS 25700 must be ensured in the sourcing of PV panels and inverters.

The whole of the Electrical installations required shall be in accordance with the 18th edition of the IET and all relevant EN/BS regulations and DIO Publications.

**The Provisional Key Tender dates for the project are as follows:**

**•** **Expression of interest: Monday 23/12/2024**

**•** **Expression of interest return: Tuesday 14/01/2025**

**•** **Invitation to Tender: Wednesday 15/01/2025**

**•** **Tender Return Date: Wednesday 12/02/2025**

**• Contract award: Monday 17/03/2025**

**• Commencement of work: Tuesday 18/03/2025**

**• Completion of work: Friday 14/11/2025**

**The currency of this project is Euro (€).**

**The location of this project is Dhekelia, Cyprus (British Forces).**